THE IMPACT OF INDUSTRIAL RELATIONS LEGISLATION
ON BRITISH UNION DENSITY

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ABSTRACT

    The unionized share of the work force changed markedly in the United
Kingdom between the 1970s and 1980s. In the 1970s density rose steadily,
making the United Kingdom the most heavily organized large OECD country. In
the 1980s, by contrast, density fell by 1.4 percentage points per annum -- a
faster drop than in the rapidly de-unionizing U.S. or in Japan. What explains
this turnaround - the severe recession of the 1980s? Shifts in the
composition of employment from unionized manufacturing to services? The
Thatcher government's industrial relations legislation?
    In this paper we investigate these questions with a quantitative analysis
of 1945-1986 changes in British union density. In contrast to studies that
concentrate on cyclical determinants of unionism (Bain and Elshiekh, Carruth
and Disney, Booth (1983)) we focus on industrial relations legislation. We
develop an index of the favorableness of labor laws to unionism and relate it
to changes in density in time series regressions that control for inflation,
unemployment, and the manufacturing share of employment, among other variables.
As a further test, we develop an analogous labor law index for Ireland, whose
industrial relations system is similar to the U.K.'s and which experienced a
similar severe 1980s recession but which did not pass new laws to weaken
unions, and contrast changes in density between the countries with differences
in industrial relations law. Our major finding is that the Thatcher
government's labor laws caused much of the 1980s fall in British union density.
    We present the evidence for this claim in three stages. Section 1 lays
out the facts of changing union density in the U.K. and Ireland and examines
structural explanations of the U.K. changes. Section 2 discusses the 1980s
U.K. labor laws and develops an index of their likely impact on unionism.
Section 3 presents our econometric analysis of the U.K. time series data.

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1. Changes in Union Density

While at first blush measuring the change in union density would appear to be a simple matter of obtaining relevant counts, it is more complex, for two reasons. First, because there is a range of plausible choices of numerator and denominator in any union density statistic. In the numerator one can use union membership or workers covered by collective bargaining — figures which differ because some unions do not win recognition and because some workers reject unions even in organized workplaces. In the denominator one can use employment, or a subset thereof, or the labour force. Each measure yields a somewhat different picture of levels and changes in union representation, as Kelly (1987) has stressed. For the U.K., collective bargaining coverage exceeds the proportion of workers who are unionised, which in turn exceeds the union proportion of the labor force because few unemployed unionists maintain membership.[1] By dividing cyclical union employment by less cyclical labour force, density based on the labour force shows greater changes over the cycle than density based on employment. Between 1979 and 1985, for example, the ratio of union membership to the labour force dropped by 11.1 points compared to a 7.8 point fall in the ratio of union membership to employment.[2] As we are concerned with secular changes in density, we concentrate on membership/ employment. Regardless of the measure, however, there is no gainsaying that density fell markedly in the 1980s.

The second problem in measuring union density relates to the membership statistics themselves. In the U.K. (and in Ireland) membership data are obtained from unions, which differ in their methods of counting: some unions include retirees, some are slow to drop from their books workers who are unemployed and do not pay dues, some have computerized data files while others

do not, etc. (Walsh; Eurostat). In the U.K. some unions exaggerate membership
to maintain a high profile on a national level, biasing upward the recorded
density and potentially minimising declines in density. In Ireland the
Registrar of Friendly Societies obtains membership from recognised unions, some
of whom report irregularly, and excludes other labor organizations, creating
potential errors in the data though with no obvious bias in trends.[3] These
problems notwithstanding, we calculated densities from official membership
figures from 1945 through the 1980s for both countries, and obtained the
pattern shown in exhibit 1: increases in density in the U.K. in the late
1960s-1970s followed by sharp drops in the 1980s and a gradual trend upward in
Irish density. These patterns are the phenomenon of concern to this paper.

potential causes of change

One widely-cited cause for the drop in British density is the loss of
manufacturing jobs that characterized the first Thatcher term in office.
While the decreased share of employment in manufacturing undoubtedly hurt
unions, we reject this compositional change as a major cause of the turnaround
on three grounds. First, because density fell within most sectors of the
economy, including heavy manufacturing (see exhibit 2). A shift-share analysis
shows that changes in industrial composition explains a bare 0.4 points of the
1980-1986 8.6 point drop in union density in exhibit 2.[4] Second, because
changes in the industry mix of employment were no greater in the U.K. than in
Ireland, where density did not fall.[5] Third, because the shift from
manufacturing was only modestly larger in the 1980s than in the 1970s when
union density rose.[6]

What about the increased share of employment among historically weakly
unionised female or white collar workers or among part-time workers? Our

analysis shows that these changes are of insufficient magnitude to explain more than a slight proportion of the 1980s drop in density. In 1979 approximately 40% of women were in unions compared to 60% of men (Price and Bain, p. 49). Between 1979 and 1986 the female share of employment rose by 2.8 percentage points. Multiplying the 1979 difference in male and female union densities by the 1979-86 change in the female share of employment yields an estimated drop in density of just 0.6 points. In addition, the female share of employment rose more from 1972 to 1979 (3.3 points) when density increased than from 1979 to 1986 when density fell (2.8 points).[7] The shift from manual to nonmanual labor appears to be associated with a larger drop in union density. According to the New Earnings Survey, the nonmanual share of employment grew by 47% to 55% of all employees from 1979 to 1987, (New Earnings Survey, Summary Analyses, 1979, table 21 and 1987, table 36). Price and Bain estimate a difference in union density between blue-collar and white-collar workers of 7 points in 1979; Millward and Stevens (1988) find a difference of 16 points in density between manual and nonmanual workers in the 1984 Workplace Industrial Relations Survey. Taking the larger of these estimates, the 8 point increase in the nonmanual share of employment can explain at most 1.3 points (=.08 x .16) of the decline in density in the period. Finally, data from the British Social Attitudes Survey shows a 1980-1985 drop in union density among full-time workers of 4 points (Millward and Stevens, 1988) compared to a drop for all workers of 4.5 points, indicating that increases in the share of part-timers had very little impact on overall density.

In sum, contrary to the assessment of Towers (1989), we find that shifts of employment from highly unionised to less unionised groups of workers were not the major cause of the 1980s drop in union density. If changes in

industry, gender, and collar of work were orthogonal, our calculations imply that 3.1 percentage points of the 1980-86 drop in density is due to changes in the structural factors enumerated above -- leaving 5.5 points or nearly 2/3rds of the observed change attributable to other factors. Since industry mix, collar of work, and gender are correlated, the proportion of change due to factors beyond changes in composition will in fact be higher, strengthening our conclusion.

Another possible cause for the drop is worsened public opinion of unions, which Lipset has proposed as an explanation for the U.S. drop, and which might be applicable to the U.K. After all, didn't only 39 percent of unionists vote Labour in 1983? And didn't most citizens support the government in the Miners' strike? Opinion poll evidence contravenes this explanation, revealing a rise in public approval of unions during the 1980s, perhaps due to the weakness of unions (Bassett; Edwards and Bain, 1988). In addition, in the 1970s and 1980s approval of unions was higher in the U.K. than in Canada, where density stabilised.[8]

Business cycle developments, which are important determinants of union membership (Bain and Elshiekh; Carruth and Disney; Booth, 1983), and which grew less favourable to unions between the 1970s and 1980s, offer a more plausible cause of falling British union density, but cannot by themselves explain the 1970s-1980s turnaround in union fortunes. Union density continued to fall through 1986 when the economy was on the upswing, and fell relative to Irish density (exhibit 1) despite the more severe downturn and more sluggish economic recovery in Ireland. Consistent with these observations, Booth (1988) finds that a business cycle model fit through 1980 overpredicts British density in the 1980s by an increasing amount each year, until by 1986 predicted density

exceeds actual density by 7 percentage points. This implies that at most 30% of the 1981-1986 drop in density can be attributed to cyclical factors.[9]

Something more is evidently needed to explain the turnaround in density.

Our hypothesis is that this "something more" is the legal environment for industrial relations, as reflected in laws regulating union and management behavior in the area of union recognition and membership. That this is plausible is indicated by the broad concordance of the drop in density with the industrial relations bills of 1980, 1982, and 1984, and by the continued rise of union density in Ireland where no such legislation was enacted. To go beyond plausibility, however, it is necessary to determine how legislative changes affect density in a voluntaristic industrial relations system, and to control for other potential determinants of density in a multivariate analysis.

2. Union Formation, Density, and Industrial Relations Legislation

We analyse the effects of industrial relations legislation and other factors on unionism using a stock-flow model of density in which exogenous changes in the legal and economic environments affect _flows_ into unionism, which produce cumulative impacts on stocks (Freeman, 1988). In such a model changes in density depend on union organisation of new plants, 'depreciation' of density due to changes in employment in existing workplaces, and the 'birth' of new nonunion plants. Formally, let UDENS = union density; PCTNEW = the ratio of workers in newly recognised workplaces less derecognition of existing unions to total employment; r = the "normal" rate of change in union membership due to changes in employment in currently organized plants ($r > 0$ when membership falls and $r < 0$ when membership rises, so that it is the analogue of a depreciation rate); and g = growth of employment. Then density depends on the flow of workers into unionism by:[10]

(1) $UDENS = [(1-r)/(1+g)] \; UDENS(-1) + PCTNEW/(1+g)$

$^{1} \; (1-r-g) \; UDENS(-1) + (1-g)PCTNEW,$

where the "net depreciation" of density, $r+g$, is assumed to be small and positive (expansion of employment in union plants can make $r<0$, but $|r|$ is likely to be less than g because g depends not only on growth of employment in existing nonunion plants but also on employment in new plants "born" nonunion).

The steady state density in equation (1) is $PCTNEW/(r+g)$, which directs attention at two determinants of change: the rate of new organisation of workers less de-recognition; and net depreciation. In the U.K. de-recognition appears to be of minor importance in the period studied (Millward and Stevens, 1986, pp. 64-69), so that PCTNEW will be largely determined by whether or not unions organize new workplaces. Changes in net depreciation, on the other hand, may also have contributed to the drop in unionism, as employment grew less in union than in nonunion firms from 1980 to 1984, all else the same (Blanchflower and Oswald). As industrial relations laws are more likely to affect the rate of new organization than the rate of depreciation (which presumably depends largely on labour market forces), we consider next what determines the PCTNEW component of equation (1).

determinants of new union organisation

Although economists often model unionisation as if it depended solely on workers' decisions, in actuality organising involves the behavior of: workers, who evaluate the benefits/costs to them of unionising; unions, who devote resources to organizing; and employers, who recognize unions or try to prevent organization. To assess the impact of industrial relations legislation on organising success it is necessary to consider the interactions among these parties. Our model of organising, shown schematically in Exhibit 3, posits

three basic relations linking their behavior:

1) A "production function" relating the number of workers newly organized to the resources unions and workers devote to organizing; to the resources management spends opposing (favouring) union recognition; and to other factors. The production of new members depends on national labour laws and institutions because those laws and institutional arrangements make union organising resources and management opposition less (more) productive. Even though organization and recognition is voluntaristic in the U.K. (73% of recognition of manual trade unions is by "discussion" and 16% by "extension" of existing relations (Daniel and Millward)), labour laws affect the organising process in several ways: through the legal options they offer employers to withhold recognition or to oppose unions; through the options they give workers to join or not join unions, as in the closed shop; and through the ways they allow or disallow unions to pressure employers for recognition (i.e. secondary boycotts). As for the impact of management opposition on unionisation, the observed lower union density in plants that do not recognise unions than in plants that recognise unions (Daniel and Millward) certainly suggests that management can affect the ability of unions to enroll members.

2) The second relation links the resources management expends opposing unionisation of its work force to economic factors that influence the benefit/cost calculus of opposition: the effect of unions on labour costs through the union wage premium; the cost of resisting unions at workplaces, which depends on legal options for opposition and penalties for unfair labour practices; and product market factors such as deregulation or foreign competition that make anticipated unionisation more or less expensive to the firm; and union organising activity. In the U.K. there is evidence that unionisation raises

wages (Blanchflower and Oswald, 1988a) and reduces profitability (Blanchflower and Oswald, 1988b; Machin), but no evidence that these effects have changed over time. Hence, increased opposition to unions from management is more likely to come from changes in the law that strengthen management's hand in opposing organisation than from changes in the economic cost of unions to firms. This is in contrast to the United States, where union wage premia rose in the 1970s, making unions more expensive to firms and contributing to the rise in management opposition (Freeman, 1986).

3) The third relationship in the model links union and worker organizing activity to the wage premium and other benefits unions win workers; to existing union density; to the resources management devotes to opposing unionism; and to a vector of economic factors such as rates of unemployment and inflation that might affect the desire for unionisation and organising activity over the long run as well as over the business cycle. In the U.K. the extent of trade union immunities from common law that makes industrial action a breach of contract (see Wedderburn), will influence the strength of unions as organisations and the resources they have to devote to organisational campaigns. The legality of the closed shop and the rights of workers to refrain from membership will also influence worker and union organising efforts.

Two features of the model deserve attention. First, the union wage premium (other gains that unions win for workers), often viewed as an incentive to unionise, has an indeterminate effect on organizing success. This is because the gains not only increase workers desire to unionise but also increase management opposition.[11] An important implication is that industrial relations laws that affect union bargaining power, as opposed to those that directly impact organising, have ambiguous impacts on density: a law which

weakens union bargaining power could increase organisation by increasing the willingness of management to recognise a union since the union is likely to have a smaller adverse effect on profits.[12] Second, the interdependence of the resources each side allocates to the organising process and the posited impact of past union density on union activity can generate complex dynamic paths in organizing success and density. For instance, within a range, higher density will induce greater union organizing activity as the costs of organizing are spread over more union members, producing cumulative changes in density, of the type observed in many countries.

British industrial relations law

In the United Kingdom, the great difference in the relation and attitude of the two main political parties toward unions has produced major changes in industrial relations laws since the end of World War II. The Labour Party extended the immunities given unions to conduct industrial disputes, supported the closed shop, and enacted laws to strengthen unions in negotiations; the Heath government sought to moderate union strength with a more legalistic system; while the Thatcher government enacted legislation designed to roll-back and limit union strength. Broadly, the laws have changed in three basic phases:

1946-1973, Labour laws gradually strengthen unionism. The Labour Party legislation included: the 1946 repeal of the Trade Disputes and Trade Unions Act of 1927 that had protected union members who refused to participate in industrial action, required "contracting in" for political funding, and forbade public authorities from demanding union membership of their employees; the 1951 elimination of wartime limitations on strikes. The Conservative Party's 1971 Industrial Relations Act created "unfair industrial practices", made collective agreements legally binding, enacted individual rights designed to weaken the closed shop, and introduced employee protections against unfair dismissal. While unions opposed many of these provisions, they did nothing to weaken unionism and, arguably, strengthened collective bargaining.

1974-1979, Labour Party legislation substantially strengthens
unionism. The Trade Union and Labour Relations Act of 1974 repealed the 1971
Act, restoring union immunities while keeping the protections against unfair
dismissal. The Employment Protection Act of 1975 provided positive rights to
association; guaranteed rights to time off for union activity; strengthened the
position of unions against employers in information disclosure, terms of
employment, and redundancies; and created the Advisory, Conciliation and
Arbitration Service and an arbitration mechanism for failure to comply with its
recommendations. The Trade Union and Labour Relations (Amendment) Act of 1976
extended union immunities.

1980-1988, Mrs. Thatcher's legislation shifted the legal balance against
unions. The Employment Act of 1980 limited picketing to a union's own place of
work, placed restrictions on secondary industrial action, extended the
permissible grounds for refusing to join a union in a closed shop setting,
removed statutory compulsory recognition procedures, and eliminated procedures
allowing unions to call for arbitration when employers undercut agreed terms
and conditions in a trade or industry. The 1982 Employment Act eroded union
immunities in the areas of inter-union disputes, support strikes, and disputes
not concerned with narrowly-defined terms and conditions; prohibited "union
work only" contractual agreements; increased the compensation allowed to
individuals dismissed due to closed shop agreements; required secret ballots
for closed shops; and enhanced employer power to dismiss workers during
industrial disputes. The Trade Union Act of 1984 introduced liabilities for
industrial action not preceded by a favorable majority decision in a secret
ballot of union membership, and required secret ballots for the election of
executive committees and for the continuation of political funding. Finally,
though it extends beyond the period of our data, the Employment Act of 1988
introduced liabilities for trustees of union funds who endanger them by
endorsing industrial action, removed immunities for industrial action to
enforce union membership, and gave union members the right to go to work
despite a strike call, even where a majority of the membership supported the
strike in a secret ballot (see Towers for a detailed discussion of the Thatcher
government's legislation).

Irish industrial relations law

In Ireland, where political parties do not divide sharply on trade unionism, the legal climate became gradually more favorable to unions during most of the period under study. The biggest changes occurred shortly after World War II. The 1946 Industrial Relations Act removed various wartime restrictions on unions, legalized strikes and restored the role of unions in bargaining for wage increases. The 1947 National Union of Railwaymen v. Sullivan court decision abolished the Trade Union Tribunal that regulated union recruitment. Legislation in 1977 brought about a more modest improvement in the position of unions: the Protection of Employment Act established that no collective redundancies could take place absent prior consultation among the employer, unions, and the Minister for Labour, at least thirty days in advance of the event; and the Unfair Dismissals Act provided that all dismissals were to be regarded as unfair in disputes until justified by the employer. Finally, in 1982 the Trade Disputes (Amendment) Act extended the scope of union immunities to all public sector unions, including those which had not been listed as "excepted bodies" under the provisions of the 1941 Trade Union Act.

indices of laws

To quantify the favorableness of the industrial relations laws in the U.K. and Ireland to unionism, we divided the laws into four categories and coded them using a 1-5 point scale, with a '5' for years when the law was most favorable to unions and a '1' when they were least favorable. Two of our categories relate to union organisation per se: employer recognition/union bargaining rights and the individual rights of workers to associate or disassociate from unions. The other two categories relate to the power of unions and management in collective bargaining: immunities granted unions to

engage in industrial disputes and regulations governing dismissal, arbitration, employer provision of information, etc. We tried to scale the indices across time and between the countries in a consistent way so that one unit differences in the indices reflect roughly comparable differences in the laws.[13] The resultant indices are given with a capsule explanation of the legal changes that motivated our coding in Appendix A. A more detailed description of the laws and the rationale for our quantification is available to readers on request (Pelletier, 1989). The indices show considerable changes in U.K. laws over time along the lines indicated by our earlier discussion: an improvement in the legal climate for unions from the early 1940s to the 1970s, a marked change favourable to unionism in the seventies, followed by a sharp decline in the 1980s. According to our coding, the 1980s legal climate was similar in favourableness to the 1940s climate. In Ireland, by contrast, the legal index rises gradually over time, with no 1980s turnaround.

If our measures provide a reasonable ordinal rating of the legal climate for union organisation, density ought to grow more when the legal index is high than when it is low. In fact, this is the case (exhibit 4), with both British and Irish union density increasing more when the index is above than when it is below its average value, and with British density increasing relative to Irish density when British laws were relatively more favorable to unionism than were Irish laws. These patterns could, to be sure, reflect the influence of factors other than the laws, such as changes in the state of the economy, or in the party governing the country (Carruth and Disney, 1988). Even if valid, moreover, legislation-induced changes in density could be of lesser importance than those due to other factors. To assess the contribution of the laws to the 1980s drop in density, it is necessary to imbed our indices in a multivariate

analysis that includes other determinants of unionism, to which we turn next.

3. Econometric Model

Because we lack information on organizing activity and management resistance, we do not attempt to estimate the structural equations of exhibit 3. Instead, we estimate reduced form equations that link union density to the Appendix A indices of the favourableness of industrial relations laws to unionisation, and use the model to interpret these equations. We obtain the reduced form equations by a two step procedure. First, we link the flow of new union members relative to the workforce to the legal environment and other potential determinants of worker, union, and management organising behavior and outcomes. Let LAW = our index of laws; CYCLE = measures of business cycle; TIME = trend; Z = other factors that may influence unionism; and u = error term with the standard properties. Then our reduced form organizing equation is:

(2) $PCTNEW = a\ LAW + b\ CYCLE + c\ TIME + d\ UDENS(-1) + eZ + u$

Second, we substitute equation (2) into equation (1) to obtain an observable relation between the explanatory variables and density:

(3) $DENS = (1-r+d)'\ DENS(-1) + a'\ LAW + b'\ CYCLE + c'\ TIME + e'\ Z + u'$,

where primes refer to parameters divided by $(1+g)$, to link current and lagged density properly.

The key variable in the analysis is the legal index. While few will object to our ordinal rating of the laws (surely 1982 British legislation was less favorable to unionism than the 1978 legislation) some may object to our 1-5 scaling of the laws (why not 1-10 or 1-1000, etc?). One way of dealing with the scaling problem is to experiment with alternative measures or nonlinear functions of the laws. We have performed such experiments, with little impact on results. As our indices undoubtedly mismeasure the 'true' favourableness of

industrial relations laws to unionism our coding can be viewed as introducing measurement error that biases statistical results toward zero. To see which aspect of legal regulations affects density, we also record results in which we decompose our legal index into a subindex for laws that affect organising directly and those that affect union and management bargaining power.

Our major cyclical variables are changes in retail prices and the level of unemployment. Analyses of cyclical determinants of unionisation (Bain and Elshiekh; Booth; Carruth and Disney) have used these and related variables (changes in employment, changes in wage inflation, or in wage inflation less price inflation) to pick up the impact of the cycle on density. To measure the structural (and possbly cyclical) changes in the composition of employment that affect unionism, we use the manufacturing proportion of employment and an independent trend term. Finally, to examine the possibility that our legal indices simply reflect which party controls parliament we also experiment with a dummy variable measuring which party is in the majority.

econometric results

Exhibit 5 presents our basic regression results for the determinants of union density in the United Kingdom from 1945 to 1986. The dependent variable in these calculations is the ratio of membership to employment measured as in exhibit 1 in fractional units. Column 1 records the coefficients (and standard errors) for the estimated impact on density of our legal index, a 0-1 dummy for Conservative control of Parliament, trend, lagged density, and current values of cyclical variables. It shows that the legal index has a significant positive effect on density while the party controlling Parliament has no noticeable effect; that a greater manufacturing share of employment raises density; and that increases in inflation and unemployment raise density. The

positive effect of unemployment on density, other factors fixed, differs from the results of earlier studies that use different specifications, more complex lag structures, and time periods longer than ours, suggesting that its effect is particularly fragile and sensitive.[14] As we are not concerned with which cyclical variables reflect the effect of changing business conditions, we do not pursue this issue further.

Does the estimated .0023 coefficient[15] on the legal index in column 1 imply that legal regulations are a major or minor determinant of U.K. density? In the short term, the effect of a one point change in the legal index on density is modest, inducing a change in density of just 0.23 percentage points in a given year. However, the 0.82 coefficient on the lagged dependent variable, however, tells us that the longrun impact of a one point change in the legal index (other variables) is much larger, inducing a massive 1.3 percentage point change (=.0023/(1-0.82)). This suggests that changes in legal regulations are a major determinant of U.K. density over the longrun.

Column 2 pursues our analysis by decomposing the legal index into its organising and collective bargaining components. Assuming we have correctly categorized the laws, the organizing subindex ought to have a greater effect on density than the collective bargaining component, as it directly affects PCINEW in our model. In fact, column 2 shows that the organising subindex has a positive significant effect on density while the collective bargaining subindex has a virtually no impact. The 0.59 coefficient on the organising subindex implies that a unit change in this indicator of the legal environment alters union density by 3.1 percentage points in the long run (=.0059/0.19). Because the organising subindex changes by much less than the total legal index (it drops by 3 points from 1979 to 1980 and by 2 points thereafter compared to a 6

point drop in the total index from 1979 to 1980 and a 7 point additional drop
thereafter), however, the effect of changes in the organising subindex on
density is quantitatively similar to that of the change in the total index.
The larger coefficient on the organising subindex reflects the scaling of the
variable rather than any substantive difference in the response of density to a
"comparable" change in it as in the total index.

Columns 3 and 4 present regressions that exploit the potential linkage
between unmeasured determinants of unionisation in the U.K. and in Ireland.
Here, we estimate union density equations for the two countries using a
seemingly unrelated regression model that takes account of intercorrelations in
disturbances between the countries. This model should increase the efficiency
of our estimate of the impact of the U.K. legal index on density; and, more
importantly, test the generality of our approach by examining the effect of
Irish industrial relations law on Irish density. The analyses in columns 3 and
4 differ in two additional ways from those in columns 1 and 2. First, because
our Irish unionisation data only go through 1984 columns 3 and 4 are limited to
1945-1984 rather than extending through 1986. Second, because our analysis of
the Irish data, like those of others (Sapsford 1984, Roche and Larragy 1989)
show that different cyclical variables affect Ireland and the U.K., changes in
employment enter as a cyclical variable in the Irish density equation but not
in the U.K. density equation.[16]

Turning to the results, the estimates in column 3 confirm our major
finding that U.K. industrial relations laws have a large and significant effect
on U.K. density, and show only marginal differences in coefficients from those
in column 1. This is because the cross-equation correlation between the
residuals from the U.K. and Irish density equations is just -.11, implying that

we did not omit any substantial common determinant of density from our single
equation analyses. The estimates in column 4 reveal that Irish industrial
relations law has a sizeable but imprecisely estimated impact on Irish density.
As Irish labour laws did not vary as much as the British labour laws, there is
insufficient variation in the index to yield a statistically well-defined
estimate, and the weak positive effect in column 4 is about as strong a result
as could be expected.

In addition to the calculations in exhibit 5, we probed the statistical
relation between U.K. union density and the indices of laws in several ways to
see how robust our findings were to changes in model specification. In one set
of calculations we dropped the insignificant dummy variable for Conservative
control of parliament and lagged the cyclical variables. The result was a
modest drop in the magnitude of the coefficient on our legal index that still
left a substantial and statistically significant effect for that variable.[17]
In another set of calculations we estimated our model using an AR(1) structure.
This also yielded substantial significant impacts for our indices of labour
laws.[18] In another set we added additional lagged union density terms, with
little impact on our results. While it is always possible that in limited time
series data some model specification might yield substantively different
regression results, our finding that industrial relations laws affected union
density in the U.K. is robust to these standard model modifications.

conclusion

To return to our opening question, how much of the 1980s drop in British
trade union density can be attributed to the Thatcher government's industrial
relations laws?

Perhaps the most insightful way to explore this question is to simulate

what would have happened to density if the laws changed as shown by our legal index while all other determinants of density were constant. Exhibit 6 shows the results of such a simulation exercise. Column 1 gives the change in the the index of labour relations laws in each year: it drops sharply in 1980, in 1982, and in 1985 with the industrial relations acts enacted in those years, and is zero otherwise. Column 2 estimates the effect of the legal changes on density in the same year: we obtain it by multiplying the change in the index by the .0023 estimated impact of the index on density. Column 3 estimates the delayed effects of legal changes on current density through the effect of one years' density on the next years' density: we obtain it by multiplying the previous years change in density that was caused by changes in the l legal index by the .82 coefficient on lagged density from our model. Finally, column 4 gives the end result of past and current changes in the legal index on density by summing columns 2 and 3. The figures here show that the changes in U.K. labor law reduced union density by 1 to 1.7 percentage points per year from 1980 to 1986. Cumulating the annual changes, we find that the legal changes caused density to fall by 9.4 percentage points from 1980 to 1986 — effectively the entire decline in U.K. density in that period.

An alternative way to use our estimated models to assess the impact of the legal changes on density is to forecast what would have happened to density had the laws remained unchanged in the 1980s — that is, if the Labour Party legislation of 1976 remained in place — while all other variables took on their actual values. Such a simulation projects a drop in density of 1 to 2 percentage points, depending on the specific model used.

While both of these "counter-factual exercises" are crude, and the precise numbers subject to the usual confidence band around regression model estimates,

the important point is that they tell the same story: <u>that the vast bulk of the observed 1980s decline in union density in the U.K. to the changed legal environment for industrial relations</u>. The "something more" omitted from the usual cyclical models of U.K. union density appears to be the nation's labour laws, particularly those relating to union organisation.

How long and how extensive is the decline in British union density due to the 1980s legal changes likely to be in the future? To answer this question we extended our simulation into the 1990s, and report the results in the bottom half of exhibit 6. Assuming that the 1988 change in labour laws remains in place and that there are no additional legal developments, our model predicts U.K. density to fall at a rapidly diminishing rate until density stabilizes in the mid/late 1990s at somewhat below 40% of the workforce. Underlying this is our assessment of the 1988 Industrial Relations Act, which we have coded as reducing the favourableness of U.K. labour laws to unionism by 2 points compared to the 11 point reduction in the index brought about by preceding legislation. Of course, other factors will affect the path of density over time. The decreasing share of employment in manufacturing, the rising share of women in the work force, and the ongoing shift from manual to nonmanual labour will continue to reduce density, though presumably at reduced rates as the relevant shares of employment stabilize. Conversely, new innovations introduced by British unions for their members — credit cards and low mortgage rates for union members, for example (see Booth (1989) and Towers) — will act to maintain and possibly increase density. However, unless these programs are a great success or Parliament passes legislation favourable to unions, it is difficult to see any upswing in British union density in the near future.

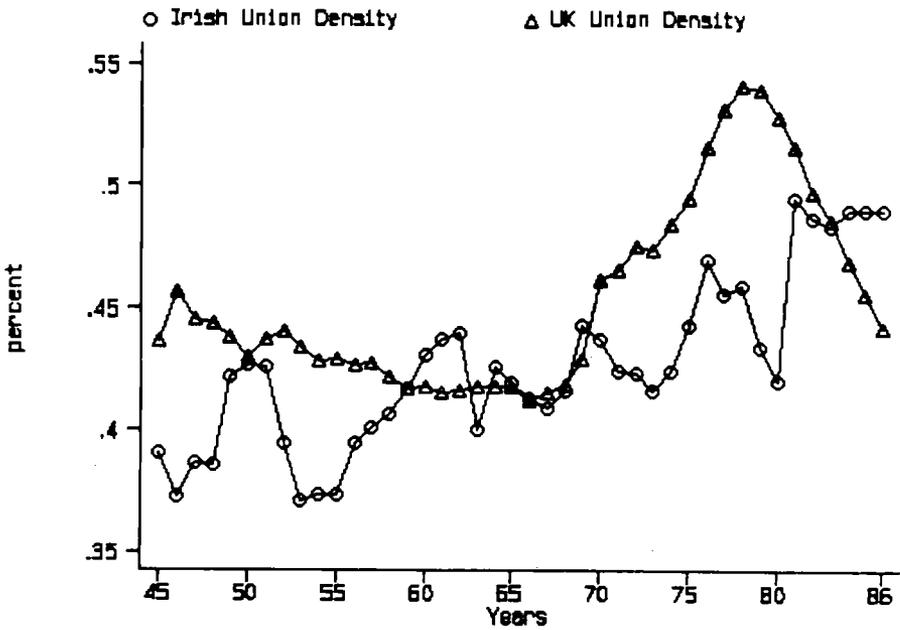# Exhibit 1: Irish and UK Union Density   1945–1986

Exhibit 2: Estimates of Union Density and Changes in Density
by Sector, 1980-1986:

| | Membership | | Employment | | Density | | |
	1980	1986	1980	1986	1980	1986	Change
Agricultural (SIC 0)							
A) Ag, for, & fish.	69	0[1]	361	310	19.1	0.0	-19.1
Industrial Production							
(SIC 1-4) (total)	4282	2607	7360	5664	58.2	46.0	-12.2
A) Energy, water, minerals & ores, metals, chemicals, engineering, & vehicles.	3269	1972[2]	4630	3601	70.6	54.8	-15.8
B) Other mfg., incl. textiles, clothing, paper, printing, publishing, etc.	1013	635	2730	2063	37.1	30.8	- 6.3
Construction (SIC 5)	317	254	1229	967	25.8	26.3	+ 0.5
Services (SIC 6-9)	5458	5090	13061	14151	41.8	36.0	- 5.8
A) Distribution, hotels, catering, repairs	470	420	2733	4322	17.2	9.7	- 7.5
B) Transport & communication	791	686	1478	1321	53.5	51.9	- 1.6
C) Banking, finance, ins., business services, leasing	339	352	1237	2174	27.4	16.2	-11.2
D) Public admin. and defence	2147	1987	1543	1928	139.1[3]	103.1[3]	-36.0
E) Oth. services (incl. education and medical)	1684	1645[2]	6070	4406	27.7	37.3	+ 9.6[4]
Total[5]	12905	10539	22008	21088	58.6	50.0	- 8.6

SOURCE: Department of Employment Gazette, May issues: 1980,86

Notes for Exhibit 2:

[1] The National Union of Agricultural and Allied Workers and the National Union of Dyers, Bleachers and Textile Workers amalgamated with the transport and General Workers' Union in 1982.

[2] These figures have been adjusted proportionally to account for a categorical change in the Employment Gazette's reported figures (see January 1986, p. 18 and May 1988 p. 277).

[3] Density figures exceed unity in this line because several classes of employees have been excluded from the denominator in the source consulted.

[4] Estimated with the total employment as the denominator.

[5] Total includes membership of unions not counted in above categories which is 2806 in 1980 and 2587 in 1986.

Exhibit 3: The Impact of Labour Laws Laws on
Union Organizing Activities, Management Opposition,
and Unionisation of New Workers
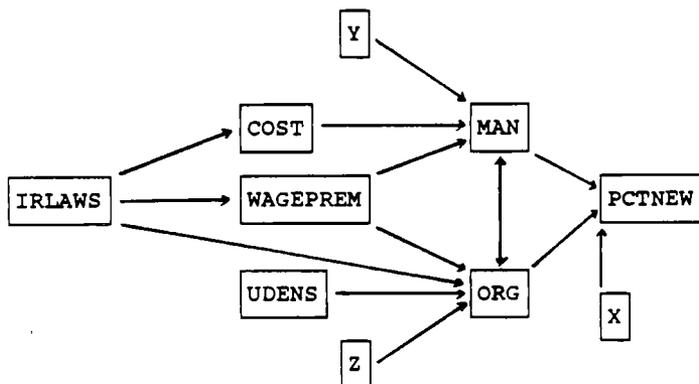
The first relation
Determination of organizing success: PCTNEW = f(MAN,ORG,X)
  where PCTNEW = number of workers organized/labor force;
  MAN = resources devoted by management to opposing unions;
  ORG = resources devoted by unions to organizing;
  X = other factors that influence outcomes

The second relation
Management opposition: MAN = g(WAGEPREM,COST,ORG,Y)
  where WAGEPREM - union wage premium;
  COST = cost of opposing union
  Y = other relevant factors, largely relating to product market
    factors such as deregulation of industries, etc., which
    determine effect of unionism on profitability.

The third relation
Union and worker organizing effort: ORG = h(WAGEPREM,MAN,UDENS,Z)
  where UDENS = union density at the beginning of the period;
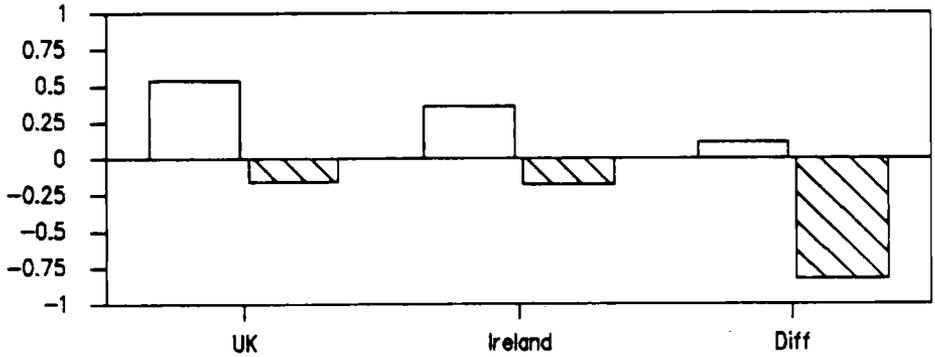 Z = other relevant factors, largely relating to labor market

IRLAWS = Industrial Relations Laws that affect organisation and
  bargaining power of unions.

Exhibit 4: Average Annual Changes in
Union Density (in percentage points)
1945-86

Legal Ind. Above Avg **Legal Ind. Below Avg**

Change in Density

Note: 1945-84 for Ireland and for the
    UK-Ireland Difference

Exhibit 5: Regression Coefficients (Standard Errors) for the Effect of
IR Laws and Other Factors on U.K. and Irish Density, 1945-86

Regression No.	(1)	(2)	(3)	(4)
Estimating Tech.[1]	OLS	OLS	SUR	SUR
Dependent Variable:	UK Density	UK Density	UK Density	Irish Density[3]
Independent Variables				
Legal Index[2]	.23 (.08)	—	.25 (.07)	.63 (.42)
Legal Subindices[2] Organising	—	.59 (.22)	—	—
Bargaining	—	-.02 (.16)	—	—
Conservative Dummy	-.17 (.29)	.21 (.35)	—	—
Lagged Dependent Variable	.82 (.07)	.81 (.07)	.81 (.07)	.58 (.13)
Trend[2]	.03 (.03)	.05 (.03)	.02 (.02)	.02 (.05)
Mfg Share of Employment	.34 (.15)	.28 (.15)	.32 (.13)	.34 (.17)
Log change retail prices	.07 (.04)	.06 (.04)	.07 (.04)	.10 (.06)
Unemployment Rate	.28 (.15)	.18 (.14)	.27 (.14)	.24 (.12)
Change in log Employment	—	—	—	-.22 (.06)
Constant	-.08 (.06)	-.07 (.06)	-.07 (.06)	-.02 (.09)
$\overline{R}^2$	.969	.986	.968	.807
SEE	.008	.007	.008	.016

Notes:
[1] OLS is ordinary least squares; SUR is seemingly unrelated regression
2 Coefficients on trend and legal index multiplied by 100 for ease of
presentation.
3 Regressions in column 4 uses independent variables for Ireland.

Exhibit 6: Simulated Changes in Union Density due
to Changes in U.K. Labour Laws, 1980-1995

Year	Change in Legal Index (1)	Current Change in Index (2)	Change in Density due to : Previous Change in Index (3)	Current and Prev Change in index (4)
1980	-6	-1.4	—	-1.4
1981	0	0	-1.1	-1.1
1982	-3.5	-0.8	-0.9	-1.7
1983	0	0	-1.4	-1.4
1984	-1.5	-0.3	-1.2	-1.5
1985	0	0	-1.2	-1.2
1986	0	0	-1.0	-1.0
1987	0	0	-0.8	- 0.8
1988	-2	-0.4	-0.7	-1.1
1989	0	0	-0.9	-0.9
1990	0	0	-0.7	-0.7
1991	0	0	-0.6	-0.6
1992	0	0	-0.5	-0.5
1993	0	0	-0.4	-0.4
1994	0	0	-0.3	-0.3
1995	0	0	-0.2	-0.2

Source:
   Column 1: Obtained as the change in the legal index in the year from
              Appendix A.
   Column 2: Obtained as .0023 times the column 1, where .0023 is the
              estimated effect of a unit change in the legal index from
              column 1 of exhibit 5.
   Column 3: Obtained as .82 times the change in density in column 4
              in the previous year, where .82 is the estimated effect of
              lagged density on current density from column 1, exhibit 5
   Column 4: Sum of Columns 2 and 3.

ENDNOTES

1. When we tabulate union membership from the British Social Attitudes 1987
survey we find that 11% of the unemployed are union members compared to 41% of
the employed.

2. These figures are from Kelly, table 2, page 10.

3. The published Irish series show different numbers of unions responding in
different years, with modest differences in membership, implying that it is the
smaller unions that may not report each year. Statistics compiled by the
Registrar of Friendly Societies exclude membership of unions that choose not to
register; those listed as excepted bodies under the provisions of the act; and,
most importantly, unions based in other countries (i. e. the U.K.), which may
account for as much as 15% of Irish union membership; See Walsh, pp. 29-31 and
Roche and Larragy for a detailed discussion of the Irish data.

4. We obtained this estimate by calculating a predicted union density from the
following equation: $PUDENS_{1986} = w_{1986i} \ UDENS_{1980,i}$ and comparing it to the
actual density.

5. In both the U.K. and Ireland, the manufacturing share of employment fell by
6 points in the 1980s, according to OECD figures.

6. From 1974 to 1980 the manufacturing share of employment in the U.K. fell by
4.2 points, compared to 5.7 points from 1980 to 1986.

7. Alternative data on union density by sex are available for 1981 from the
Department of Employment Gazette. We do not compare female and male densities
over time because the Gazette reports in May 1988 that "it is no longer
possible to produce useful comparisons of male and female membership with
previous years as there is a lack of consistency in their provision of this
information" (p. 276).

8. Gallup poll data shows the proportion of the British public viewing unions
as a "good thing" to range between 50 and 70 percent while table 6 in Chaisan
and Rose shows that the proportion of Canadians approving of unions varied from
40 to 60 percent in the 1970s and 1980s.

9. This is based on figures from Booth (1989), table 1.

10. The growth of employment term, g, enters because the base of current
density is current employment while the base of lagged density and new members
is last period's employment.

11. This suggests one explanation of the Disney and Mudambi finding that an
index of the union wage gap has a parabolic relation to union membership,
conditional on past membership: at modest union wage effects, worker and union
organizing activity may increase more than management resistance, but when
effects are large the converse may be true, so that "excessive" union wage
gains reduce density.

12. If laws weaken union bargaining power to the point where unions have essentially no impact on outcomes, they are almost certain to reduce organizing activity and new unionization because some return is needed to start the unionisation process going.

13. To minimize potential errors in our coding, we asked Professor Paul Weiler of the Harvard Law School to review our codes, and our final rating reflects his input as well.

14. Carruth and Disney find that changes in unemployment have a negative effect on union membership (as opposed to density) while the acceleration or deceleration of changes in unemployment has a positive effect. Summing up their coefficient estimates on the various unemployment rates suggests a -.03 effect for current unemployment, a -.02 effect for lagged unemployment, and a .05 effect for unemployment lagged two periods. Booth (1980) finds a negative effect for current unemployment and a postive effect for lagged unemployment, of comparable magnitude. Neither of these studies included the highly cyclical manufacturing share of employment as an independent variable, as we did.

15. This finding may reflect errors in the employment series, about which is not as high quality as the series for the U.K. Errors in employment will induce a negative relation between changes in employment and density, since an especially high (low) employment figure will reduce (increase) density in a given year and cause a large (small) increase in employment.

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Appendix A: INDICES OF INDUSTRIAL RELATIONS LAWS:

Here we present a summary of the four features of industrial relations law under consideration, and the numerical scores we gave to each. Columns A through D show the ratings given for each year and each category, as described at the right of the table. The total legal indices are presented under the column marked 'total.' The index for organizing is the sum of columns A and B; the index for collective bargaining power is the sum of columns C and D.

A = recognition/bargaining rights   B = individual rights to associate/dissociate
C = immunities   D = relative power of employers/unions

UNITED KINGDOM

Year	A	B	C	D	Total	Major legal changes
1941	4	2	1	2	9	A: Order 1305 (1940), compulsory arbitration procedures and official encouragement of recognition. B: Trade Disputes and Trade Unions Act (1927). (1) public authorities forbidden to demand union membership of employees.; (2) "contracting in" substituted for "contracting out." C: Order 1305 (1940), general ban on strikes and lockouts in effect. D: TD/TUA (1927), protection for individuals refusing to participate in industrial action
1942-45	4	2	1	2	9	
1946	4	3	1	3	11	B & D: TD/TUA (1927) is repealed.
1947-50	4	3	1	3	11	
1951	3	3	3	3	12	A & C: Order 1376 (1951), legalized strikes by eliminating Order 1305; set framework for bargaining and conflict, but abstained from regulation.
1952-63	3	3	3	3	12	
1964	3	3	2	3	11	C: Rookes v Barnard decision (1964), re-established trade union liability to the tort of "intimidation."
1965	3	3	3	3	12	C: Trade Disputes Act (1965), trade unions given statutory immunity against the tort of "intimidation."
1966-68	3	3	3	3	12	
1969	4	3	3	3	13	A: Commission on Industrial Relations (est 1969); voluntary machinery to make recommendations on recognition issues (in response to report of Donovan Commission (1968) and white paper "In Place of Strife").
1970-71	4	3	3	3	13	
1972	4	2	2	4	12	A: CIR enters compulsory phase; little change in climate for recognition

Year						Description
						B: Industrial Relations Act (1971) comes into effect. Introduced individual legal rights aimed at weakening trade union organization and the closed shop (rights not to belong). C: IRA (1971). Civil liabilities called "unfair industrial practices" introduced; collective agreements legally made binding. D: IRA (1971). established first substantial set of employee protections against unfair dismissal to be enacted in U.K. labor law.
1973	4	2	2	4	12	
1974	4	3	4	4	15	B & C: Trade Union and Labour Relations Act (1974). repealed IRA (1971); immunities are restored; D: protections against unfair dismissal are re-enacted.
1975	5	5	4	5	19	A: Employment Protection Act (1975). creation of ACAS and compulsory recognition procedures; unions given right to refer recognition issues to ACAS; arbitration mechanism provided for failure to comply. B: EPA (1975). provided positive rights to associate; guaranteed right to time off for union activity. D: EPA (1975). strengthened position of unions against employers with respect to terms of employment, information disclosure, and redundancies.
1976	5	5	5	5	20	C: Trade Union and Labour Relations (Amendment) Act (1976). Extension of immunities spelled out in TULRA (1974).
1977-79	5	5	5	5	20	
1980	3	4	3	4	14	Employment Act of 1980. A: statutory recognition procedures established by the EPA (1975) abolished; non-compulsory procedures restored. B: extension of permissible grounds to refuse to join a union in a closed shop setting; funding for pre-strike ballots. C: picketing limited to own place of work; restriction on "secondary industrial action." D: abolished procedures allowing unions to call for arbitration where employers were undercutting agreed terms and conditions in a trade or industry.
1981	3	4	3	4	14	
1982	2	3	2.5	3	10.5	Employment Act of 1982.

A: prohibited contractual arrangement or
industrial action ensuring that contracts
go only to employers with recognized
trade unions.
B: compensation increased for indivi-
duals dismissed due to closed shop
agreements; secret ballots required
for continuation of closed shops.
C: removed immunities from industrial
action regarding inter-union disputes,
support strikes disputes of international
origin, and those not concerned with
narrowly-defined terms and conditions.
D: enhanced employer power to dismiss
specific workers during disputes.

1983	2	3	2.5	3	10.5
1984	2	3	2	2	9

Trade Union Act of 1984.
B: secret ballots required for election
of executive committees, industrial
action, and continuation of political
funding (no change in index).
C: liabilities introduced for industrial
action not preceded by a favorable
majority decision by secret ballot
of union membership.
D: employer power strengthened by
ability to seek injunctions against
unions encouraging employees to
breach their contracts of employment.

1985-87	2	3	2	2	9
1988	2	3	1	1	7

Employment Act of 1988.
C: removed immunities for industrial
action related to the employment
of non-unionists; liabilities
introduced for trustees of union funds.
D: extension of individual rights to act
against union (incl. right to go to
work despite a strike call).

IRELAND

Year	A	B	C	D	Total	Major legal changes
1941	2.5	3	1	3	9.5	A: Trade Union Act (1941), established licensing requirements for the acquisition of bargaining rights. B: TUA (1941), established the Trade Union tribunal for the purpose of regulating recruitment efforts of trade unions. Citizens allowed to join only the unions prescribed by the Tribunal for their workplace. C: Wages Standstill Order (1941), declared all forms of industrial action to be illegal (issued under Emergency Powers Act of 1939). TUA (1941), limited immunities of 1906 Act to authorized trade unions and excepted bodies only.
1942-45	2.5	3	1	3	9.5	
1946	2.5	3	3	3	11.5	C: IRA (1946), removed ban on strikes imposed by the 1941 Order. D: Industrial Relations Act (1946), removed government wages controls imposed by Wages Standstill Order (licencing requirements remain).
1947	2.5	5	3	3	13.5	B: N.U.R. v Sullivan decision, abolished trade union tribunal as unconstitutional; right to form and join trade unions (Constitution 1937) restored to full force.
1948-65	2.5	5	3	3	13.5	
1966	2.5	5	2	3	13	C: Electricity (Special Provisions) Act (1966), Criminal sanctions for picketing imposed on certain public sector unions (limited in scope).
1967-68	2.5	5	2	3	13	
1969	2.5	5	3	3	13.5	C: E(SP)A (1966) is repealed.
1970	2.5	5	3	3	13.5	
1971	2	5	3	3	13	A: Trade Union Act (1971) increased requirements for obtaining negotiation licenses.
1972-76	2	5	3	3	13	
1977	2	5	3	4	14	D: Employment Protection Act (1977), limited employer power to create collective redundancies. Unfair Dismissals Act (1977), required employers to justify dismissals in unfair dismissal disputes (rather than employee justification of unfair dismissal).
1978-81	2	5	3	4	14	
1982	2	5	4	4	15	C: Trade Disputes (Amendment) Act (1982) extended scope of trade union immunities to include all public service unions.
1983-88	2	5	4	4	15	

ENDNOTES

1. When we tabulate union membership from the British Social Attitudes 1987 survey we find that 11% of the unemployed are union members compared to 41% of the employed.

2. These figures are from Kelly, table 2, page 10.

3. The published Irish series show different numbers of unions responding in different years, with modest differences in membership, implying that it is the smaller unions that may not report each year. Statistics compiled by the Registrar of Friendly Societies exclude membership of unions that choose not to register; those listed as excepted bodies under the provisions of the act; and, most importantly, unions based in other countries (i. e. the U.K.), which may account for as much as 15% of Irish union membership; See Walsh, pp. 29-31 and Roche and Larragy for a detailed discussion of the Irish data.

4. We obtained this estimate by calculating a predicted union density from the following equation: $PUDENS_{1986} = \{w_{1986}; UDENS_{1980}\}$, and comparing it to the actual density. Our result is consistent with Carruth and Disney's finding that uses a similar but more disaggregated shift-share analysis of the effects of changing industry mix on density.

5. In both the U.K. and Ireland, the manufacturing share of employment fell by 6 points in the 1980s, according to OECD figures.

6. From 1974 to 1980 the manufacturing share of employment in the U.K. fell by 4.2 points, compared to 5.7 points from 1980 to 1986.

7. Alternative data on union density by sex are available for 1981 from the Department of Employment Gazette. We do not compare female and male densities over time because the Gazette reports in May 1988 that "it is no longer possible to produce useful comparisons of male and female membership with previous years as there is a lack of consistency in their provision of this information" (p. 276).

8. Gallup poll data shows the proportion of the British public viewing unions as a "good thing" to range between 50 and 70 percent while table 6 in Chaisan and Rose shows that the proportion of Canadians approving of unions varied from 40 to 60 percent in the 1970s and 1980s.

9. This is based on figures from Booth (1989), table 1.

10. The growth of employment term, g, enters because the base of current density is current employment while the base of lagged density and new members is last period's employment.

11. This suggests one explanation of the Disney and Mudambi finding that an index of the union wage gap has a parabolic relation to union membership, conditional on past membership: at modest union wage effects, worker and union organizing activity may increase more than management resistance, but when effects are large the converse may be true, so that "excessive" union wage gains reduce density.

12. If laws weaken union bargaining power to the point where unions have essentially no impact on outcomes, they are almost certain to reduce organizing activity and new unionization because some return is needed to start the unionisation process going.

13. To minimize potential errors in our coding, we asked Professor Paul Weiler of the Harvard Law School to review our codes, and our final rating reflects his input as well.

14. Carruth and Disney find that changes in unemployment have a negative effect on union membership (as opposed to density) while the acceleration or deceleration of changes in unemployment has a positive effect. Summing up their coefficient estimates on the various unemployment rates suggests a -.03 effect for current unemployment, a -.02 effect for lagged unemployment, and a .05 effect for unemployment lagged two periods. Booth (1980) finds a negative effect for current unemployment and a postive effect for lagged unemployment, of comparable magnitude. Neither of these studies included the highly cyclical manufacturing share of employment as an independent variable, as we did.

15. Note that table gives the actual coefficient multiplied by 100 for ease of presentation.

16. This finding may reflect errors in the employment series, about which is not as high quality as the series for the U.K. Errors in employment will induce a negative relation between changes in employment and density, since an especially high (low) employment figure will reduce (increase) density in a given year and cause a large (small) increase in employment.

17. The coefficient on the legal index was .18 with a standard error of .07 when we lagged the log change in retail prices and the unemployment rate. In this case the lagged density term remained at 0.82 so that the estimated longterm impact of a percentage point change in density was 1.0 compared to the 1.28 in column 1 of exhibit 5.

18. In this case the estimated coefficient on the legal index had a coefficient of .18 with a standard error of .07 The estimated autocorrelation parameter was -.21 with a standard error of .18 while the coefficient on lagged density was 0.84 with a standard error of .06. The long term effect of a one point change in the legal index is thus 1.13, modestly smaller than the 1.28 in column 1 of exhibit 5.