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Historical Variations in the Impact of Union Density on Strike Frequency: Some U.K. Evidence

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Article abstract

Considerable debate exists on the influence of fluctuations in union membership on strike frequency. On a theoretical level it is possible to advance a number of arguments about the sign and meaning of the regression coefficient on union membership in a strike function (see Kaufman (1982)) so the issue remains primarily an empirical one. This paper attempts to shed some new light on the empirical issue using U.K. evidence.

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Some U.K. Evidence

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REVIEW OF THE EVIDENCE

Using British data, Cameron (1984), Hunter (1973), Cronin (1979) have found a strong positive relationship between strikes and union membership in post-war time-series data[1]. Cronin (1979) and Cameron (1983) find similar results for the inter-war period[2] as does Cronin for the period 1892-1913. For Canada, Smith (1972) fails to find a significant relationship. For the U.S.A. Kaufman (1982), Skeels (1982), Snyder (1977) find a positive relationship in the period 1900-48 whilst Edwards (1978) fails to find any relationship. For 1949-77, Kaufman finds a *negative relationship* which verges on 95% significance but does not quite achieve it.

On p. 478 of his article (fn. 18) Kaufman puts forward an argument, citing Griffin (1939) that a negative relationship might be expected on the grounds that union membership growth is associated with more orderly and more extended collective bargaining. The usual expectation of a positive sign is based on the idea that increase in union membership increases the strength of union organisation with there being the further possibility that there is a reverse positive association with unions striking to win members perhaps from rival unions.

The major problem with the existing empirical evidence is the almost total absence of what is regarded as good scientific methodology. Of the array of papers cited it is only possible to find two which use the same model[3].

• CAMERON, Samuel, Lecturer, Department of Economics, North Staffordshire Polytechnic, United Kingdom.

1 However, Cameron using the most up-to-date data failed to find a significant relationship for 1951-79 although he finds a positive significant relationship for 1951-67 and 68-79.

2 Although Cameron (1983) finds that the relationship pales dramatically after restricting the sample period to 1927-38.

3 These are our own papers the results of which are utilised here.

Due to the great differences in specification of the models it is not possible to compare the results for different countries or different periods as the coefficient on the union membership variable will depend on which other variables are in the model.

In an attempt to introduce some order into this empirical chaos we estimate the same model over a long period of time for one country.

NEW EVIDENCE ON THE STRIKES-UNION DENSITY RELATIONSHIP

U.K. data provides a good chance to test the relationship as there is a strong positive trend in union membership as shown by the means of the data in Table 1. We proceeded by using a multiple regression model to control for influences on strike frequency other than union density. Two models were used, the specification of which are explained in detail in Cameron (1983, 1984). The basic model is:

$$S_t = A0 + A1(E)_t + A2(GDP)_t + A3(TUD)_t + A4(RW)_t + A5(S)_{t-1} + U_t$$

where S is non-mining strikes, E, employment, GDP, gross domestic product in real terms, TUD, is trade union density, RW is real wages, t is the time subscript, u the disturbance term and A0 the intercept. Data used is annual taken from Cronin, Bain and Price (1980) and Employment Gazette (appropriate years). The second model is derived by imposing the restriction that $A5 = 0$. The model was estimated for the distinct sub-periods 1892-1913, 1920-39, 1951-67, 1968-79, in order to exclude the war years and the period when strikes were illegal (1940-51) and to make use of the post-war structural shift uncovered in Cameron (1984). These estimates were used to calculate elasticity estimates, from the conventional formula, of strikes with respect to union density. These estimates show the percentage change in the number of strikes brought about by a one percentage change in the percentage of the labour force unionised calculated at the means of the data.

Assuming, as is conventional but admittedly dubious, that union density measures union strength then the elasticities in Table 1 show the percentage change in strikes with respect to a one percent change in union strength in different periods.

The results in Table 1 decidedly reject the Griffin-Kaufman thesis that a negative relationship may arise when unions are established. A significant positive relationship is found for sub-periods spanning 87 years and a great deal of different institutional environments. The general impression from the table is that the elasticity of strikes with respect to union strength has been *rising* in the U.K. This accords with what might be seen as the traditional view of economists that increased union bargaining power leads to increased conflict provided that management resistance does not decline substantially.

TABLE 1

Elasticities of Strike Frequency with Respect to Union Density

Period	Trade Union Density (Mean)	Strikes (Mean)	Elasticity (Model A)	(Model B)
1892-1913	13.81	520.9	3.34 (6.1)	2.58 (3.7)
1920-38	29.82	455.5	2.28 (3.8)	6.14 (6.4)
1951-67	43.2	930.4	6.33 (1.93)	7.1 (2.2)
1968-79	48.43	1932.9	10.7 (2.8)	9.09 (2.1)

NOTE: Model A is the equation with the restriction $A5 = 0$, Model B is the equation without this restriction.

Figures in parentheses are the 't' ratios of the coefficient estimates for union density.

CONCLUSION

A number of studies of strike activity postulate a connection between union density and strikes. Results have been inconclusive, with this possibly being due to the diversity of data sets and model specifications.

We have used one specification and data for one country but have varied the period. This showed a positive and increasing relationship between union density and strikes.

These results are subject to the limitations of econometric methodology in the study of industrial conflict (see Evans (1976)). Nonetheless we would maintain that our results show a striking picture achieved from a consistent application of scientific methodology i.e. replication, which has been absent from the bulk of econometric work on strikes.

The two main methodological problems relevant to this note are the use of trade union density as a measure of union power and the highly aggregative nature of the analysis. Both of these beset the existing analyses of the union-strike relationship. It is difficult to think of better ways of measuring union power given data limitations so the main decision to be made is whether density is such a poor proxy that it would be better to omit it and risk specification bias in the estimation of the remaining parameters of the model. Judging from the relatively favourable results for density here there seems some justification for its use. As regards the aggregation problem it may be the case that the positive effects obtained here may be due to movements in density in the strike-prone sectors of the economy with there being no relationship in other sectors[4]. Some investigation of this can be

    4   It is technically possible that aggregate analysis will display significant correlation where there is *no* relationship between the individual units which have been aggregated.

made through replicating our regressions on industry-level data although this is still far from ideal as aggregation is still involved. Such further research may qualify our conclusions. However these conclusions seem strong enough to warrant further replicatory work of both historical and cross-national variety. Work of this type would prove much more valuable in advancing our knowledge than the studies cited herein which are not comparable with each other and hence of little scientific value.

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