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**CHARTING THE COVERAGE OF COLLECTIVE PAY
SETTING INSTITUTIONS: 1895-1990**

S.MILNER

ABSTRACT

Fewer than 50% of British employees now have their pay and conditions affected by collective pay setting institutions - collective bargaining or wages councils. This paper provides an historical context to the current picture of a decollectivised Britain, constructing a time series on coverage from 1895-1990. Extant estimates and sources of coverage data are presented and discussed alongside estimates drawn from a source used only sparingly before now - the number of workers affected by changes in wage rates of national agreements or wage orders. The various manipulations required to convert these data into coverage estimates are detailed at length. The recent decline in collective bargaining coverage is the longest period ever recorded and has been noticeably steeper than the fall in union density, such that the proportion of British workers covered is lower now than in the 1940s. Given the abolition of wages councils in 1993, collective pay setting machinery now affects the pay and conditions of less workers than it did in the 1930s.

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CHARTING THE COVERAGE OF COLLECTIVE PAY SETTING INSTITUTIONS IN BRITAIN: 1895-1990

S.MILNER

1. Introduction

Purcell (1993) has recently written of the "end of institutional industrial relations". Institutions of industrial relations are defined as "arrangements to regulate the employment relationship". Given that pay is the most important feature of the employment relationship, the institutions which regulate, set or influence pay are of particular significance. This paper charts the rise and fall of the collective institutions of pay setting in Britain over the last century. This includes both collective bargaining and quasi-collective bargaining in the form of wages councils and their antecedents, trade boards. Late in the 1980s the proportion of employees whose pay is directly affected by collective bargaining fell below half for the first time since before the Second World War. The abolition of the remaining wages councils in 1993, means that for the first time in five decades more than 50% of employees have neither a legal minimum floor to their wages nor a union to negotiate on their behalf over pay. So as far as the collective institutions of pay setting are concerned, Purcell's soundbite appears increasingly accurate.

One of the principal findings of the 1990 Workplace Industrial Relations Survey was that Britain is now, albeit marginally, a predominantly non-union economy in terms of both union density (estimated at 48%, but probably nearer 40% once the sampling frame of the survey is accounted for¹) and collective bargaining coverage (54%, nearer 47% when similarly adjusted). However, in contrast to reports on the decline of trade union density since 1979, where studies have been able to set the decrease in the context of a century long time series (Bain and Price, 1983) or at least the whole of the post war period (Bailey and Kelly, 1990; Disney, 1990; Waddington, 1992), the precipitous decline in coverage has been compared to data going back little further than 1970 (Brown, 1993). Although the available data on coverage before 1970 are less reliable and detailed than those for the 1970s and 1980s, the problems do not preclude using the data to study changes in the importance of collective pay setting institutions. This paper provides an historical context for the current picture of de-collectivised pay setting in Britain.

Key concepts and issues of measurement and data collection are discussed in Section 2. Section 3 presents and discusses extant estimates of coverage over the last century, both best guesses made by official and non-official observers and estimates derived from surveys in the 1970s and 1980s. The principal source of data used to estimate an 1895-1975 time series, which is the main new contribution of this paper, is introduced and discussed in Section 4. Section 5 presents this time series for the whole period and industry level data for the post Second World War period. Some conclusions are presented in Section 6. Perhaps, the most important parts of the paper are the tables and figures showing the data, and the appendices which detail how the data are manipulated to produce these series.

2. Data Definitions and Irregularities

a. Introduction

Various estimates of pay institutions coverage over the last century are presented in ensuing sections. It is particularly important to understand what is meant by "coverage", what data are used to measure it, how such data are collected and what anomalies there are in the figures, before discussing the estimates themselves. Although there are a relatively clear set of different possible definitions of coverage, for many of the figures cited in this paper it is unclear which definition is being adhered to. Only definitions of estimates from 1968 can be pinned down with accuracy because the survey questions used to collect the data are recorded. Furthermore, as with data on union membership where union reported figures are 3 to 4 percentage points higher than employee reported figures (at least for the period 1989-1991, Bird et al, 1993), there is likely to be respondent-based bias in some of the coverage estimates. Various other aspects of these estimates - whether or not collective bargaining and statutory wage fixing machinery coverage are lumped together, restriction to a particular category of employees or to a particular type of agreement - all contribute to inconsistencies which make comparison of estimates somewhat problematic.

b. Definitions

Although the measurement of union density has its difficulties in terms of which denominator and/or numerator to use, the definition of union membership is relatively straightforward. In contrast, the definition of bargaining or wages council coverage is much less clear cut.

Turning first to the coverage of collective bargaining, the tightest possible definition of coverage is the proportion of employees in employment whose pay is **directly determined** by collective bargaining (negotiations between employer(s) and union(s)) as defined in a collective agreement. Bargaining can be at plant, organisation or multi-employer level, but the key issue is whether or not pay is directly determined - the collective agreement sets out what each category of worker covered by the agreement will be paid, and the workers are paid accordingly.

A less stringent, and more commonly accepted, definition of coverage is the proportion of workers whose pay is **affected by** collective bargaining through a collective agreement. For example, a multi-employer agreement to which the employer is a party may set basic pay, which may or may not be topped up by local managerial discretion or perhaps a performance related element. The difficulty with this definition is in determining whether or not an employee's pay is actually "affected by" a collective agreement. This is particularly important for determining the relative importance of national and local agreements where workers are covered by both. In terms of whether or not an employee is covered by any agreement, the assessment of what is meant by "affected by" is left to the employer(s) or union(s) involved in the bargain in most of the sources used in this paper.

Finally, the loosest possible definition of coverage, also includes workers whose employer follows a collective agreement without actually being a party to it. The employer could choose to comply with a multi-employer agreement in the industry or an agreement of a single, large organisation in the industry. It is likely that in some of the estimates presented in this paper, such workers will be included

but it is virtually impossible to say which because of the general absence of definitions.

The only two sources which have any form of identifiable definition are the New Earnings Survey (NES) and the Workplace Industrial Relations Surveys (WIRS). In five of the NESs since the first in 1968, the employer has been asked a one-off question concerning how an individual's pay is determined. The relevant question for NES 1973, 1978 and 1985 reads: "Please indicate the type of negotiated collective agreement, if any, which affects the pay and conditions of employment of this employee, either directly or indirectly". The four options being: national agreement and supplementary company/district/local agreement; national agreement only; company/district/local agreement only; and no collective agreement.

In WIRS, the management respondent is asked what proportion of workers are represented by unions recognised for negotiating pay and conditions either at this workplace or higher in the organisation, if applicable. Therefore the WIRS definition of coverage calculated from these responses, is relatively tight since it effectively excludes workers whose pay is affected by multi-employer bargaining if the union is not also recognised within the organisation. A supplementary question within WIRS concerns how the most recent pay increase was decided for workers not covered by collective bargaining by the WIRS definition. One option for respondents is "By an employers' association or national joint negotiating body". Clearly some workers - those whose pay increase was decided by a national joint negotiating body - should be included within an estimate of bargaining coverage. However, because this arrangement has been coupled with situations in which an employers' association decides pay (presumably not through negotiation with a trade union), it is impossible to determine what proportion of workers are covered in this way. The exclusion of this sub-category of pay setting arrangement is unlikely to make a substantial difference to the coverage estimates, however, because the numbers covered by this category as a whole is very small. In 1990, the highest proportion of employees covered by such arrangements was 6% of non-manuals in the public sector (Millward et al, 1992: Tables 7.3, 7.6 and 7.9).²

Definitions of the coverage of statutory wage machinery are, in theory at least, less complex. The coverage of wages councils (for example) is defined as the proportion of employees who work in specific wage council industries. However, the caveat to this is that for a proportion of these workers the wage council's rates may have no effect on actual pay. Either the employer is paying below the wage council rate and is able to do so because of poor enforcement arrangements, or the employer is paying substantially above the wage council rates such that a change in the wage council rate has no impact on what workers receive. Evidence from one wage council industry (retail, non-food) suggests that the wages council rate, even as recently as 1990, had a substantial impact on actual wages paid in the industry (Dickens et al, 1993). With the rider that this may not always be true for each wages council sector or each period, the definition outlined is used throughout this paper.

c. Irregularities

Many of the estimates of bargaining coverage reported in ensuing sections are likely to be subject to respondent-based bias. Most of the pre-1970s estimates are based on reports from employers' associations and trade unions. These respondents have an incentive to overestimate coverage of bargaining, particularly the coverage

of national agreements since national bargaining was often the *raison d'être* of some of these organisations in this period. The degree of bargaining coverage is one way for the importance of both types of organisation to be judged, both by themselves and their peers.

Another area of inconsistency among the estimates is that many of the pre-1970s estimates are purely for the coverage of national (multi-employer) collective agreements, to the exclusion of workers covered by local bargaining only. This becomes a more obvious problem with post Second World War estimates as local or domestic bargaining began to take off from the 1950s. An increasingly important phenomenon from this period was dual coverage by both national and local (ie mainly single employer) agreements. The relative importance of national and local agreements has provided the focus for a debate mainly between Elliott and Brown which has rumbled on since the mid-1970s (Elliott and Steele, 1976; Brown and Terry, 1978; Brown, 1980; Elliott, 1981; Elliott and Murphy, 1990; Brown, 1993). Briefly, whilst Elliott argued that even at the end of the 1970s national agreements were still very important for determining the pay and conditions of a large proportion of British employees, Brown argued that by the early 1970s national agreements had become mere safety nets such that changes in nationally agreed rates had negligible effect on actual earnings.

Prima facie this debate has important implications for the new time series reported in Section 5 because of the numerical dominance of multi-employer agreements in it. If Brown is correct then it appears that national agreement coverage data may mean very little. However, it should be made clear that Brown's argument is that Elliott and Co underestimate the increasing importance of single-employer bargaining rather than the **unimportance** of bargaining in general. Therefore the national agreement coverage series reported in the tables and figures should be regarded as estimating coverage only rather than the importance of different levels of bargaining. It may well be that for an increasing proportion of those reported covered by national agreements after 1950, single-employer bargaining superseded multi-employer bargaining, but nevertheless they are still covered by collective bargaining.

Further anomalies include: the restriction of some estimates to manual workers only; and the aggregation of collective bargaining and statutory machinery coverage in some figures, while in others they are treated separately. The latter problem is further complicated by the fact that for many industries, there was at various times a significant overlap between bargaining and statutory procedure coverage. These and other irregularities are highlighted and discussed as necessary in proceeding sections.

3. Previous Estimates of the Coverage of Collective Bargaining and Statutory Wage Fixing Machinery

a. Collective Bargaining (Table 1)

Perhaps the most comprehensive official assessment of the coverage of collective bargaining was the very first, published by the Board of Trade in 1910. Not only does it provide coverage numbers by industry and in aggregate (2.4m), but its appendices include a list of over 1,100 working agreements with details on location, industry, occupation, date, scope and coverage for each one. This task has never been repeated, rather unsurprisingly given the growth of the subject matter. Taking

into account the number of employees in employment, this suggests that around 15% were covered by collective bargaining in 1910. Two caveats in the report suggest that actual coverage was probably slightly higher. First, some workers were affected by the provisions of particular agreements even if their employer did not actually subscribe to the industry's district or national agreement. Second, a small number of workers were covered by narrow, single firm agreements which were excluded from the report.

Phelps Brown (1959) and Charles (1973) presumably bore these two caveats in mind (although neither explicitly state this) when providing their respective estimates that in 1906 and 1910 a fifth of employees were covered by collective bargaining. Unfortunately in a follow-up to the 1910 report, published in 1934, the Ministry of Labour did not provide an updated estimate of coverage, citing the "complexity of collective agreements and the difficulty of ascertaining the numbers of people affected by their various provisions..." in mitigation (Ministry of Labour, 1934).

There appear to be only three published estimates of collective bargaining coverage for the inter war period³, two by Clegg (1986 and 1994) with the benefit of historical hindsight and one contemporaneously by Sells (1939), but all three are rather unscientifically arrived at. Estimates of coverage in this period using a consistent source (detailed in Section 5) suggest considerably lower numbers covered.

Using data on public sector employment, employment among members of the National Confederation of Employers Organisations and an estimate of coverage outside the confederation, Clegg (1986) estimated that in 1933 around 7m workers were covered by voluntary agreements - just over 40% of employees in employment. His estimate for 1939 relies on the assumption that bargaining coverage expanded at the same rate as union density during the 1930s (Clegg, 1994). He calculates that 12.5m workers were covered by either collective bargaining or statutory wage fixing bodies by the end of the decade. Assuming the proportion of collective bargaining coverage within this overall figure remained constant, this suggests that just over 50% of all employees were covered by voluntary bargaining arrangements.

Sells (1939) makes somewhat different assumptions in calculating coverage of agreements among manual workers for 1938. Her figure of 53%, combined with the evidence that bargaining coverage among non-manuals in most industries was much lower than that for manuals in this period, would suggest an overall bargaining coverage figure below 50% and therefore somewhat at odds with Clegg's estimate for 1939. Sells' figure of 8 out of 15m industrial and agricultural workers covered is derived from the number of workers receiving increases of rates of wages in 1920 "when practically all workers covered by collective agreements received increases" (p.49). Her assumption of constant absolute numbers covered between 1920 and the late 1930s seems rather odd given the enormous upheaval in the labour market and industrial relations over this period.

In the late 1940s and 1950s successive annual reports of the Ministry of Labour and National Service (MLNS) included an aggregated estimate of the coverage of collective bargaining and statutory wage fixing machinery. Because of the almost universal coverage of war-time wage orders the estimates for 1946 and 1947 are close to 90%. So for 1946 the particular paragraph reads:

"... at the end of 1946 some 15¹/₂m out of approximately 17¹/₂ m workers in industry and services were covered by either joint voluntary negotiating machinery or by statutory machinery." (MLNS, 1947, p.275)

For the rest of the period in which estimates were produced (1948-52) the estimate was 80% in every year. In none of these annual reports are the sources of these estimates of coverage cited.

The next published estimate of bargaining coverage appeared in 1961 with the publication of the Ministry of Labour's *Industrial Relations Handbook* which states that about "two-thirds of the working population in Great Britain have their wages and conditions of employment fixed by voluntary joint negotiating machinery" (Ministry of Labour, 1961, p.23). In the Ministry's written evidence to the Donovan Commission in 1965, separate figures for the coverage of national agreements and statutory wage orders are estimated for manual and non-manual workers (Ministry of Labour, 1965). The submission states that 14 out of 16m manual workers and 4 out of 7m non-manuals were covered by such arrangements - approaching 80% of the employed population. Note that this is considerably higher than the 1961 estimate because of the inclusion of around 3.5m workers covered by wages councils in the later estimate. Drawing on these and other unspecified sources, the Donovan Report (1968) suggests that around 62.5% of employees were covered by national agreements in the mid- to late 1960s.

The first nationally representative sample survey to ask employers about whether or not individual workers were covered by collective agreements was the first NES in 1968. The survey reported information on the aggregate coverage of national agreements and wage orders (wages councils and wage boards), and on the coverage of non-national agreements. However, the data are not reported in a way which enables either a disaggregation to estimate the coverage of national agreements excluding wage orders coverage or an aggregation to estimate the coverage of all agreements. A further problem with the 1968 NES is that its figure of 60% coverage for national agreements and wage orders seems inordinately low, compared to both Ministry of Labour estimates of the coverage of all agreements and statutory machinery, and the 1970 NES estimate of national agreements only coverage at 59%.

Since 1968 the NES has collected somewhat clearer data on the coverage of collective bargaining at four points - 1970, 1973, 1978 and 1985. Unfortunately the NES has not included a supplementary question on collective bargaining since 1985. In addition to the NES, WIRS2 and WIRS3 also provide data on the coverage of collective bargaining for 1984 and 1990 respectively (Millward and Stevens, 1986; Millward et al, 1992). Industry level data on coverage is also available from these surveys, and they are presented and discussed alongside the new time series in Section 5. Unfortunately WIRS1 was not designed to produce employee based data (as opposed to establishment based data) and therefore coverage cannot be estimated for 1980 (Daniel and Millward, 1983).

The last two decades have seen significant changes in the extent of collective bargaining coverage. These six data points portray a rise in overall bargaining coverage in the early 1970s, with a recorded peak of 73% in 1973. Coverage declined to 70% by 1978 and slipped further to 64% in 1985 according to the NES. The latest WIRS estimate of coverage was 54% in 1990 for plants with 25 or more employees. Once the sampling framework of WIRS is taken into account, it is estimated that around 47% of British employees were covered by collective bargaining in 1990. As for the coverage of national agreements, the NES data reveal a 10 percentage point gap between overall coverage and national agreement coverage 1970-1985. This suggests only a modest fall in the relative coverage of national agreements over the

period, with the caveat that these data tell us little about the relative importance of national agreements in terms of their impact on employees' pay and conditions.

b. Statutory Wage Fixing Machinery (Table 2)

For over nine decades this century, statutory wage fixing machinery in the form of first trade boards, then wage councils (with wage boards in certain industries) operated alongside or in place of voluntary collective bargaining. The first trade boards were established in 1911 after Churchill's Trade Board Act of 1909, to combat low pay in the so-called "sweated trades". These arrangements can be regarded as quasi-collective bargaining, in that they involved negotiations between worker representatives and employers, but these were conducted under the supervision of up to three independents. In the event of a disagreement over revisions to wage orders, a vote was taken with the independent siding with one side or the other. The body then distributed the order to employers affected by it. All the remaining wage councils were abolished by the 1993 Trade Union Reform and Employment Rights Act, such that the only statutory collective wage fixing bodies remaining in operation in 1994 are the two Agricultural Wages Boards of England and Wales, and Scotland.

Some of the previous estimates of bargaining coverage this century are often intertwined with the coverage of trade boards and wages councils, but there have also been separate estimates of the coverage of these statutory machinery at various points since their inception in the 1909. The first boards covered around 400,000 workers in four sweated trades - tailoring, paper-box making, chain making and machine-made lace (Bayliss, 1962). The spread of the boards quickened markedly after the First World War with 23 new boards established in 1920, principally in areas of manufacturing which were not covered by collective bargaining, such that by the end of that year 3m workers, over 15% of the employed population, were covered.

The 1920s saw a slump in both the establishment of new boards and employment in the trade board sectors (alongside other sectors) such that Richardson (1938) estimated coverage in 1936 at only around 1m or just over 5% of employees. However, this figure excludes agricultural workers who from 1924 (in England and Wales) were covered by the Agricultural Wages Board (MAFF, 1993). In her estimate of statutory machinery coverage for 1938 Sells includes such workers, which boosts her estimate to nearer 15% of the employed population.

After the Second World War, the trade boards were rejuvenated and re-christened "wages councils" by the 1945 Wages Council Act. New councils were established, most notably in various retail industries, and coverage again took off. By 1948 Bayliss estimated that 3.5m employees were covered, the highest number ever, comprising nearly 18% of employees in employment. This peak in the proportion covered has never been surpassed but coverage remained high probably well into the 1960s. Piecemeal abolitions began in the late 1950s, however, presumably because of the establishment of collective bargaining such that wages councils were seen as superfluous. No new councils in previously uncovered industries were established after 1956 (Department of Employment, 1988).

Metcalf (1981) quotes a figure of 2.75m workers covered by wages councils in 1978. A very similar figure is disaggregated for each separate council for 1982 in a consultation document by the Department of Employment (DE) (1984). As a result of the 1986 Wages Act removing coverage for under 21s, coverage dropped to around

2.5m by 1988 (DE, 1988). At the time of their abolition in 1993, most commentators cited this figure of 2.5m as the number of workers for whom wages council coverage would be lost.

Although the NES and the WIRS do include questions for employers about whether or not workers are covered by wages councils, neither survey is very good for estimating wages council coverage. This is for separate reasons. First, Dickens et al (1994) report that NES estimates of wages council coverage are significantly lower than the number of employees estimated as covered using detailed industrial and occupational employment data and that there are elements of misclassification. As for WIRS, the sample restriction to plants with 25 employees or more, when most wages council covered establishments are smaller, means that estimates of coverage will significantly understate actual coverage.

c. Overall Coverage

The 'overall coverage' column of Table 1 summarises estimates of combined coverage of collective pay setting institutions from 1906-1990. These data, alongside those discussed above, suggest that we already know quite a lot about changes in the coverage of collective agreements and trade boards/wages councils over the last century. Overall coverage more than doubled between 1910 and the early 1930s, and then increased to cover more than four-fifths of employees by the end of the Second World War. Stability ensued in the 1960s, then bargaining coverage increased in the early 1970s, before dropping back markedly in the 1980s - particularly the second half. However, despite the relatively large number of observations, the irregularities between them, worries about the scientific bases of some early estimates and the marked gaps in the series suggest that there is a need for a more consistent time series on coverage. Section 5 reports an 1895-1975 estimated time series using just such a source, which can be considered as complementary to extant estimates. This source is not, however, without its problems, which, along with the various manipulations required to produce estimates of coverage, are discussed in Section 4.

4. Changes in Rates Data

From 1893 until 1978, official figures were published every year on the number of manual workers affected by changes (both increases and decreases⁴) in the wage rates of national collective agreements and (from 1911) statutory wage machinery in the form of trade boards and wages councils. The data were disaggregated by industry from 1897 onwards, with some gaps during war-time. These data have been used elsewhere by Elliott and Steele (1976) to estimate the coverage of national agreements or orders among manual workers from 1950-1970 but not to estimate coverage before the Second World War.⁵

Although the data are a unique time series on coverage, there are a number of problems with them such that various manipulations (detailed in Appendix A) are required to arrive at the estimates presented and discussed in Section 5.

a. Manual Workers Only

Perhaps the most significant problem with the data is the exclusion of certain categories of workers, principally non-manuals. The mix of categories changed somewhat over the decades (summarised in Appendix B). Different approaches to

compensate for excluded workers are employed for the pre- and post Second World War series.

Until the late 1940s, three main groups of workers were excluded: government employees; shop assistants; and clerks. Clegg (1986, 1994), the most authoritative source on the development of collective bargaining since the 1890s, describes changes in arrangements for each of these groups in terms mainly of the unions representing them. Clearly the exclusion of government employees is the most significant omission since a large proportion of both local and central government employees were covered by the Whitley Council system from the early 1920s. Less important is the exclusion of shop assistants and clerks. Although Clegg states that many shop assistants working for the cooperative societies were covered by local agreements, no national agreement existed during this period. As for clerks, again the indication from Clegg and other authorities on white-collar unionisation is that apart from journalists and some non-manual workers in engineering, few clerks were covered by bargaining between the wars (Bain, 1970; Lockwood, 1989). Therefore the most important revision to the changes in rates data is to include public employees covered by Whitley Councils.⁶

The establishment and progress (and demise in some cases) of Whitley Councils for public employees is relatively well documented (Ministry of Labour, 1923; Seymour, 1932; Clegg, 1994). Between 1918 and 1920, some 73 Joint Industrial Councils (JICs) were established in many different industries, after the recommendations of the Whitley Committee, including more than 15 in the public sector. In addition, the Burnham Committee was established for the negotiation of minimum scales for teacher salaries. Using this information and data on public employment in this period, the changes in rates data estimates of coverage are revised upwards as detailed in Appendix A. This involves an increase of just under a million employees covered by national agreements for each of the estimates in the inter-war years.

For the post Second World War period estimates of the relative coverage of non-manuals compared to manual workers are made using NES data for 1973, 1978 and 1985 and Ministry of Labour figures for 1965. The full specification of this estimation procedure is outlined in Appendix A. In short, it is assumed that the growth of relative coverage of non-manuals compared to manual workers developed in a linear fashion during this period because the aggregate estimates of relative coverage for 1965 and the NES dates describe a fairly smooth upwards progression.

b. Changes in Rates

Another important problem with the data is that because they are changes in rates figures there are enormous fluctuations in the number affected each year as most wage rate agreements or orders were not revised annually over the period. Consequently, time series based on data for individual years would oscillate wildly. The chosen means to overcome this problem is to use the maximum figure estimated to be affected over particular periods (mainly five years, although longer in some cases, see Appendix A). Therefore estimates of coverage are for groups of years which are assigned (in most cases) to the middle year of the period. This means that when the time series is inferred graphically from these year group estimates the turning points in the series may not be correctly identified.

Given that we are interested in the proportion of employees in each industry, and in aggregate covered by collective wage machinery, the choice of denominator

to accompany this numerator is rather important. Using the peak level of employment over the period may underestimate coverage particularly if demand led wage increases induce more workers into an industry. Similarly using average employment over a period may overestimate coverage, if employment is changing rapidly. Therefore for each data point a banded estimate of coverage is produced using peak employment (lower parameter) and average employment (upper parameter) as denominators. In industries or time periods with stable employment, these estimates will be identical and therefore a single figure estimate is generated.

c. National Agreements Only

The data only include workers affected by changes in wage rates of **national** agreements (and other orders), ie they exclude workers who are covered by domestic bargaining rather than national - although they do, in theory at least, include workers covered by both. Authorities in this field (Brown, 1993; Clegg, 1978; Gospel, 1992) generally agree that single-employer or domestic bargaining began to grow particularly in the 1950s. The general impression is that the growth was concentrated in industries where multi-employer bargaining was already in place. However, NES 1970 showed for the first time conclusively that a substantial proportion of employees (9%) were covered by domestic bargaining only. Rather than try to adjust the changes in rates data to take account of the rise of domestic only bargaining, it is probably best to assume the following: up to the early 1950s the number covered by national agreements was the same as that covered by all agreements; and after this time the series diverged to reach a 10 percentage point gap by the early 1970s.

d. National Agreements or Wage Orders

The changes in rates data do not distinguish between workers covered by national agreements and those covered by wage orders, nor do they delineate workers covered by both - ie overlapping coverage. Ideally we want to estimate: overall coverage as either covered by a national agreement, a wages order or both; the coverage of national agreements excluding those also covered by wages orders; and coverage of national agreements including those also covered by wage orders. Two different strategies are employed to disaggregate the data, again with the dividing line at the Second World War.

For the pre-war period, because no industry estimates are produced from the data⁷ the estimates of aggregate trade board coverage from Table 2 are used to estimate the coverage of national agreements excluding those also covered by wage orders (see Appendix A for details). No estimates of national agreement coverage including those also covered by wages orders are produced because the only evidence on overlap is too temporally remote (the 1970s) to be appropriate.

In the second period of the series, the process is somewhat more scientific and is conducted for each separate industry. Coverage of wages councils at industry level are calculated from a number of different sources (see Appendix A) in order to estimate the coverage of national agreements excluding those also covered by wages councils. The intermediate figures of workers covered by national agreements including the overlap are calculated using data on the overlap in the 1973 NES results. In the absence of any earlier figures on the extent of overlap this seems the most appropriate way of estimating these data.

5. A New Time Series of the Coverage of Collective Wage Fixing Machinery 1895-1975

a. Aggregate Coverage

Table 3 and Figure 1 present the new 'time series'⁸ on the coverage of collective pay setting institutions derived from the published changes in rates data from 1893-1978. Appendix A provides extensive information on how those figures are estimated as indicated in Section 4. In combination with figures from NES and WIRS sources, the data provide a dramatic picture of industrial relations change over almost a century.

Collective institutions covered the pay of less than 10% of British employees in the 1890s. By 1990 more than 50% of workers had their pay affected by collective agreements or wages orders. However, this over five-fold rise in coverage over the century masks large fluctuations between the two world wars and in the last twenty years of the series. Given the different estimating procedures employed, the pre- and post 1945 periods are discussed separately.

i) 1895-1940: Table 3 shows two sets of coverage estimates based on changes in rates data: the overall coverage of national voluntary bargaining machinery and statutory machinery combined; and the coverage of national agreements excluding workers also covered by statutory bodies. The former is reported for the whole period and the latter from 1910 since statutory bodies for pay setting originated in the 1911 Trade Boards Act. After 1910 the two series diverge quite markedly. The lower series probably underestimates the coverage of collective bargaining because some excluded workers even at this time were probably covered by both voluntary and statutory machinery.

The earliest published data on the coverage of collective bargaining show that around 7% of British employees were covered c1895. The proportion covered increased relatively slowly in these formative years such that by the beginning of the First World War, overall coverage had barely reached 15%. This estimate using data c1910 is virtually identical to that published contemporaneously by the Board of Trade (1910), which suggests that the changes in rates data are a relatively good source for estimating the coverage of collective pay institutions. Having said this, comparison with extant estimates of coverage in the 1930s and beyond show the changes in rates data to be less congruent. Possible explanations are advanced where relevant.

Coverage exploded during the First World War and in the immediate post-war period, such that the estimate of overall coverage for 1918 (using data for 1915-1921) surpassed 50% for the first time. Much of the increase can be accounted for by the enormous upsurge in the number and coverage of trade boards in the post-war political settlement with labour (Bayliss, 1962). Overall coverage increased at a faster rate than the still impressive increase in the coverage of collective bargaining only - 250% compared to 180% higher respectively 1910-1918. The data indicate that at least one third of British employees were covered by collective bargaining in the form of national agreements at this time.

Numbers covered continued to expand, though at a much reduced rate in the early 1920s, towards an overall coverage rate of around 60%, with at least 35% covered by collective bargaining by the middle of the decade. However, the changes

in rates data indicate a very large drop in coverage in the late 1920s, early 1930s. Overall coverage dropped by half to less than 30% and voluntary bargaining coverage to less than 20% covered - a dramatic fall though not falling back to pre-war levels. For the next decade or so, coverage rates recovered such that during the Second World War overall coverage again reached 50% and national collective bargaining coverage reached nearly 40%. This means that the rate of bargaining coverage growth was actually higher than that of overall coverage in this period. Given the fact that the figure for bargaining coverage alone covers only national agreements, and excluded any workers also covered by trade boards, it may well be that collective bargaining coverage was approaching 50% at this time. This suggests that the 1990 figure of 47% coverage could entail a lower proportion of British employees covered by collective bargaining than at any time since before the Second World War.

The particular virtue of using changes in rates data to derive a coverage time series is that there is a certain amount of internal consistency in the series. However, the estimates should obviously be compared to those discussed in Section 3. Probably the most interesting comparison is with Clegg's estimates of overall coverage for 1933 and 1939 since those for before 1914 are roughly congruent with the derived data. Clegg's numbers are roughly 10 percentage points higher than those produced from the changes in rates data. For example his estimate that in 1933 around 42% of workers were covered by collective bargaining and 51% covered by bargaining and/or trade boards compares to around 30% and 40% respectively using the changes in rates data.

Given that Clegg does not detail his sources, it is difficult to determine why these relatively large gaps emerge. Possible explanations include: the exclusion of workers covered solely by local bargaining in the derived data; and overestimation of the stability in coverage by Clegg. The former explanation seems unlikely to account for all the difference since even in the 1970s and 1980s, when bargaining was substantially more decentralised than in the 1930s, only around 10% of employees were covered solely by local agreements. Comparison of the changes in rates estimates with those obtained from the NES in the 1970s, suggests that if anything the changes in rates data lead to overestimates of coverage (see below). Although this cannot be asserted equivocally, it seems likely that the estimates of coverage derived from the changes in rates data are a more credible approximation of actual coverage in the 1930s than Clegg's estimates.

ii) 1950-1975: Three different sets of coverage estimates are produced for this period as detailed in Appendix A: overall coverage; national agreements coverage excluding those also covered by statutory machinery; and national agreements including those also covered by wage councils and the like. The latter is therefore national collective bargaining coverage, but was not calculated for the earlier period because of difficulties in distinguishing the extent of overlapping coverage between trade boards and collective bargaining. Again banded estimates are calculated and shown in Table 3, with the mid-point being used for the graphical presentation in Figure 1.

The data reveal that after another war-time and immediate aftermath surge in coverage for both types of collective machinery, to a new peak of more than 70% covered overall by 1950, coverage was remarkably stable for more than fifteen subsequent years. The three series are separated by roughly 10 percentage points,

such that around half of all employees were covered solely by national agreements, with a further 10% covered by both forms of machinery.

Coverage started to increase again in the late 1960s to approach 80% overall by the beginning of the 1970s, and a peak of around 85% by the mid- to late 1970s. Virtually all of this increase is accounted for by the rise in collective bargaining coverage rather than numbers covered by statutory pay machinery. Coverage of wages councils was if anything falling at this time. By the end of this period nearly 80% of UK employees were covered by national collective agreements, and most of these were not also covered by statutory wage fixing bodies. Therefore, unlike some other periods of overall coverage growth, particularly the 1910s and the late 1940s, the growth of the late 1960s and 1970s was not led by the State in the form of new statutory arrangements, but instead the result of the spread of voluntary agreements between unions and employers.

Comparison of this new time series with other estimates of coverage over these three decades is particularly interesting. Until the late 1960s the 10 percentage point gap *viz* comparison with Clegg's estimates again emerges. Ministry of Labour reports of national agreement and overall coverage (Table 1) in various years from the late 1940s to the mid-1960s are higher than the derived numbers by about this magnitude. Interestingly, however, the Donovan Commission's estimate c1968 that just over 63% of workers were covered by national agreements is the same as the mean for 1965 and 1970 estimates using the changes in rates data.

This at first sight suggests that the rise of local bargaining may account for the gap between Ministry of Labour numbers and those from changes in rates data. However, this all gets rather turned on its head when comparisons are made with NES results for the 1970s. The changes in rates estimates of bargaining coverage are roughly 10 percentage points **above** those from NES in this decade. Whereas the 1970 NES shows that 59% of workers were covered by national agreements and 68% covered in total by any collective agreement, the changes in rates data produce an estimate of around 68% for national agreements alone. If anything, this gap expands by the mid-1970s as shown in Table 3. Whilst there are a number of potential explanations for these discrepancies (discussed below), a key point here is that the changes of rates data now appear to over rather than underestimate coverage rather than *vice versa* as in earlier periods. This perhaps indicates that the changes in rates data should be adopted as a more credible approximation of bargaining coverage up to the 1970s than the numbers in Table 1, especially given the internally consistent basis on which the estimates are derived.

A major explanation for the differences between NES and changes in rates data coverage estimates must be due to the fact that the derived series uses data from groups of years whereas NES is more time specific. In a period of either consistent coverage growth or decline, the estimate of coverage using grouped data and assigned to the mid-point year will produce a higher estimate of coverage than one based on data just from that mid-point year (for example 1968-1972 grouped data compared to a 1970 point estimate if coverage is expanding throughout the period). In a similar way the much higher estimate for 1975 from the changes in rates data than either 1973 or 1978 NES, may be because the peak in coverage occurred after 1973 (the NES recorded peak).

Problems of synchronicity between the derived series and NES data are unlikely to be sufficient explanations for the discrepancies, however. The main

alternative explanation is probably the exaggeration of coverage by employers' associations (an important source of changes in rates data) compared to individual employers (NES respondents).

Finally on the aggregate data, Figure 2 compares the derived series, NES and WIRS estimates of coverage with the official union density series from 1893-1990. In the formative years of the union movement, collective bargaining coverage was actually below union density by 3 to 4 percentage points. Employers were reluctant to concede recognition to the new unions despite the growth in union membership among their employees. The persistent demands for, and refusal of, recognition probably explain the enormously high levels of strike activity at the time, especially measured on a per union member basis (Milner and Metcalf, 1993). For the rest of the century, a higher proportion of employees have been covered by some form of collective pay setting arrangement than were union members. However, the changes in rates data series suggests that the coverage of national collective agreements did not become consistently higher than density until the 1950s.

The gap between coverage and density increased substantially after the Second World War. During the 1950s and 1960s the gap between overall coverage and density was consistently around 30 percentage points. This gap expanded in the late 1960s and into the 1970s reaching a maximum of around 35 percentage points (density roughly 50%, coverage 85%) in the mid-1970s. The gap between collective bargaining coverage and density was expanding even more rapidly during this time, to reach almost 30% by the mid-1970s. The latter gap appeared to remain quite high into the early 1980s, but collapsed in the second half of that decade. By 1990 the gap between collective bargaining coverage and density was at its lowest level since the Second World War (about 7 percentage points). Given the demise of the wages councils since 1990, it is safe to say that the proportion of employees covered by collective pay setting institutions who are not members of unions is lower now than it has been since the 1920s, and possibly even earlier. The collapse in the coverage-density gap in the late 1980s is predominantly because of the dissolution of various multi-employer agreements across a number of different industries (see Beatson, 1993; Industrial Relations Services, 1993; Jackson et al, 1993, for more details on the UK; and Katz, 1993, for comparative evidence on decentralisation).

Throughout the century, perhaps unsurprisingly, the periods of growth, decline and stability in coverage and density are closely matched. Virtually the only period of note when this rule did not hold was in the late 1940s when density fell back from a peak of over 47% in 1946 to around 41% from 1950 to the late 1960s whilst coverage expanded. However, we should also be interested in periods when coverage and density are growing or declining at very different rates. As already mentioned the late 1980s are particularly unusual because of the more precipitous drop in coverage than density. Whereas bargaining coverage fell by over a quarter (from 64 to 47%) from 1984-1990, density fell less steeply, by roughly 16% (47.5 to 40%).

b. Industry Data

Tables 4 to 7 provide industry level disaggregation of the figures summarised above using the changes in rates data from 1950-1975, NES and WIRS data. These tables are primarily provided as background to the aggregate figures and consequently are not discussed at any length. There are some anomalies in the data

such as: the fall in coverage in coal mining and quarrying between 1950 and 1965, when other evidence suggests virtually complete coverage; and diverse estimates of coverage for the same industries from different sources, for example the estimates of bargaining coverage in distributive trades for 1970 are 65% using changes in rates data (national agreements) and 24% using NES (both national agreements only and overall bargaining coverage). Although there is insufficient space here to pick over these differences and attempt to explain their origin, further analysis could investigate the role of particular employers' associations, the ignorance of collective agreements on the part of NES respondents and the like.

6. Conclusions

The main contribution of this paper is to provide another means of describing the development of British industrial relations over the last century. It therefore can be seen as the backdrop to other historical evidence of a changing system and to the current debate about the future nature of industrial relations practice and study in both the UK and elsewhere. In this context surely the most important finding is that a smaller proportion of Britain's employees are now covered by some form of collective pay setting arrangement than at any time since the Second World War.

Although relatively well known through anecdotal and more recent empirical evidence, the series also illustrates just how important multi-employer bargaining was in the development of UK industrial relations up to the early 1980s. The historical perspective also indicates the significance of the collapse in multi-employer bargaining in the late 1980s for the changing nature of industrial relations in this country. What may surprise some is that the 1970s and 1980s were not the only periods when changes in the coverage of national collective bargaining were so significant. The decline and subsequent rise in coverage in the inter-war years were of greater magnitude than both contemporaneous changes in union membership and changes in coverage in the 1970s and 1980s. Although it cannot be over stressed that the period of declining coverage since the early 1970s is the longest on record. The inter-war years are cited by some as evidence that because the British union movement has recovered from dramatic losses of membership in the past it can do so again, but the comparative coverage data present a more depressing picture of much longer decline over the last twenty years.

ENDNOTES

1. The three Workplace Industrial Relations Surveys exclude workplaces with fewer than 25 workers, therefore all their results have to be adjusted to be nationally representative. In the case of union density, the Labour Force Survey figure is 38% for Spring 1990 (Bird et al, 1993) and the official Department of Employment figure is 40% for 1990 (Milner and Metcalf, 1993).
2. This 6% compares to 1% in 1984. The increase is largely due to the ending of collective bargaining for school teachers in 1986. Between 1987 and 1991 teachers' pay was determined by the Interim Advisory Committee, before its replacement by the School Teachers Review Body in 1991. A large proportion of this 6% is therefore attributable to the "by an employers' association" rather than the "or national joint negotiating body" sub-category of this WIRS category.
3. Richardson (1933 and 1938 respectively) does estimate the coverage of Joint Industrial Councils (JICs) at 3m in 1925 and 1932, however these figures exclude employees covered by voluntary collective bargaining outside of the JIC framework. Moreover, his 1932 figure is surely an over-estimate because the number of JICs fell over the period. Whereas some 73 JICs and 33 Interim Industrial Reconstruction Committees had been set up by 1921, by the early 1950s only about 50 remained extant (Flanders, 1957).
4. Note that workers affected by more than one change (either more than one increase and/or decrease) in a national agreement during the year are counted only once in the annual totals.
5. With the exception of Sells's estimate c1938 as mentioned in Section 3.
6. Note that although the changes in rates data nominally exclude all government employees until the late 1940s, in fact, and rather curiously, the industry disaggregation of workers covered does include 'local authorities' from 1906-1921 and 'public administration services' from 1928-1945. Adjustment of the time series to include public sector workers covered by Whitley Councils takes account of these data (ask author for details if required).
7. This is for three reasons: because of changes in the industrial classification of the data; because for four years of the Second World War (1940-43 inclusive) industry data were not reported; and principally because estimates of employees in employment by industry are problematic before 1948.
8. Actually periodic data on coverage using groups of years are derived rather than a complete time series. Therefore the graphical presentation of the data in Figure 1 shows linear growth and decline between data points which is unlikely to be the case in reality.

APPENDIX A

Estimation of Collective Pay Setting Machinery Coverage 1895-1990

1. Proportion of UK workers covered by national agreements and/or orders, 1895-1940, UK (Table 3 and Figures 1 and 2).

- i. Proportion of workers covered by national agreements and/or trade board orders.
Calculated as x :

$$x = \frac{a}{c}$$

- ii. Proportion of workers covered only by national agreements (ie excluding those covered by trade boards).
Calculated as y :

$$y = \frac{a-b}{c}$$

Where:

a = number of workers covered by national agreements or trade or wages board orders

b = number of workers covered by trade or wages board orders

c = number of employees in employment

a. Number of Manual Workers Covered by National Agreements or Trade or Wages Board Orders

Sources:

Abramovitz, M. and Eliasberg, V., (1957), The Growth of Public Employment in Great Britain, Princeton: Princeton University Press, Tables 2, 4 and 8.

Board of Trade, (1910), Report on Collective Agreements between Employers and Workpeople, Cmnd 5366, HMSO, p.iii.

Department of Agriculture for Scotland, Agriculture Statistics, HMSO: Edinburgh, table on number of workers on agricultural holdings, various issues 1938-1952.

Ministry of Agriculture and Fisheries, Agricultural Statistics, HMSO: London, table on number of workers on agricultural holdings, various issues, 1926-1947.

Ministry of Labour, Gazette, table on number of workpeople whose rates of wages were changed in year to December, various January issues, 1898-1947.

Ministry of Labour, (1923), Report on the Progress and Establishment of Joint Industrial Councils 1917-1922, London: HMSO.

Seymour, J., (1932), The Whitley Councils Scheme, London: King and Son, Appendices I and II.

Notes:

- i. See Appendix B for notes on sources and coverage of published data on workers affected by changes in rates of wages.
- ii. Number of workers covered in 1895, 1900, 1905, 1910, 1918, 1925, 1930, 1935 and 1940 estimated as the sum of the maximum number affected by changes in national agreements by industry for the following groups of years respectively; 1893-97, 1888-1902, 1903-07, 1908-14, 1915-21, 1922-27, 1928-32, 1933-37, 1938-45.
- iii. The 1910 estimate is increased by 450,000 to include some seamen but more importantly railway workers who were not included in Ministry of Labour figures until 1920 but were included in Board of Trade estimate of workers covered in 1910. Although not fully fledged until after the First World War, a semblance of collective bargaining in the form of conciliation and arbitration boards first appeared in 1907 for railway workers (Bagwell, 1963).
- iv. The Ministry of Labour figures do not include agricultural workers until 1943. Minimum wage fixing machinery was established for agriculture in the form of a wages board in 1924 for England and Wales and 1938 for Scotland (MAFF, 1993; Scottish Office, 1993; Dickens et al, 1994). Therefore the number of agricultural workers in England and Wales is added to the Ministry of Labour figures on workers covered from 1924-1942 and the number in Scotland from 1938-1942.
- v. All government employees are nominally excluded from the Ministry of Labour figures, although the industry disaggregation does include some public sector workers at various times (see text). Using information from Seymour (1932), the Ministry of Labour report of 1923 on the establishment of Whitley Councils in the public sector and data on public employment from Abramovitz and Eliasberg (1957), the data are revised upwards. More details of the estimation are available from the author on request. The table below summarises the number added to each estimate from Ministry of Labour figures:

Years	Addition due to excluded public sector workers actually covered by Whitley Councils
1915-21	829,700
1922-27	997,200
1928-32	853,500
1933-37	980,600
1938-45	955,800

b. Number of Workers Covered by Trade or Wages Board Orders

Sources:

Table 2

Department of Agriculture for Scotland, Agriculture Statistics, HMSO: Edinburgh, table on number of workers on agricultural holdings, various issues 1938-1952.

Ministry of Agriculture and Fisheries, Agricultural Statistics, HMSO: London, table on number of workers on agricultural holdings, various issues, 1926-1947.

Notes:

- i. Table 2 lists occasional estimates of trade board coverage over the period 1911-1988. These estimates generally exclude agricultural workers covered by wages boards (with the exception of Sells's estimate for 1938). Therefore the number of agricultural workers is added to the estimated totals where appropriate (details available from author on request).
- ii. These estimates in themselves are fairly rough and ready, as are the estimates for the period 1920-1936 which are not covered by these data. The number of workers estimated as covered by trade boards for each of the periods in Table 3 is:

Period	Number and estimation procedure
1893-97	No workers covered as first trade board not established until 1911.
1898-1902	
1903-07	
1908-14	450,000 Mean of Bayliss (1962) estimates for 1911 and 1914
1915-21	3m Bayliss (1962) estimate for 1920
1922-27	2m Mean of Bayliss (1962) estimate for 1920 and Richardson (1938) estimate for 1936.
1928-32	1m Identical to Richardson (1938) estimate for 1936
1933-37	1m Identical to Richardson (1938) estimate for 1936
1938-45	1.5m Identical to Bayliss (1962) estimate for 1939

c. Number of Employees in Employment, UK, June

Source:

Milner, S. and Metcalf, D., (1993), 'The Appendix', in Metcalf, D. and Milner, S., (eds), New Perspectives on Industrial Disputes, London: Routledge, Table 11.2.

Notes:

- i. Two different employees in employment figures are used to estimate a banded figure for coverage for each period, viz mean and maximum. The former may lead to an overestimate of coverage if wage rates are changed annually and employment fluctuates over the period. On the other hand using maximum employment as the denominator may underestimate coverage if wage rates are not changed annually (see text).

2. Proportion of workers covered by national agreements and wages councils, 1950-1975, UK (Table 3 and Figures 1 and 2) and by industry (Tables 4 and 5).

- i. Proportion of workers covered by national agreements and/or wages council or wage board orders.
Calculated for each industry and in aggregate as x :

$$x = \frac{a+b-bd+c(1-d)ef}{c}$$

$$\text{where } e = \frac{a-bd}{cd}$$

- ii. Proportion of workers covered only by national agreements (ie excluding those also covered by wage council or wage board orders).
Calculated for each industry and in aggregate as y :

$$y = \frac{a-bd+c(1-d)ef}{c}$$

- iii. Proportion of workers covered by national agreements (including those also covered by wages council or wage board orders).
Calculated for each industry and in aggregate as z :

$$z = \frac{a-bdg+c(1-d)ef+(1-g)(b-bd)}{c}$$

Where:

a = number of manual workers covered by national collective agreements and wages council or wage board orders.

b = number of employees in employment covered by wages council or wage board orders.

c = total employees in employment.

d = proportion of manual workers.

e = proportion of manual workers covered just by national agreements (ie excluding those also covered by wage council orders).

f = ratio of proportion of non-manual compared to proportion of manual workers covered by national agreements.

g = proportion of workers covered by wage council or wage board orders who are not also affected by national agreements.

a. Number of Manual Workers Covered by National Collective Agreements and Wages Council or Wage Board Orders

Sources:

DE, Gazette, table on number of manual workers affected by changes in rates under national agreements or wages councils in year to December, various January issues, 1948-1978.

Notes:

- i. See Appendix B for notes on sources and coverage of these data.
- ii. Number of manual workers covered by national agreements and wages councils for years reported estimated as the maximum number recorded as affected by changes in rates in five year periods: 1948-52, 1953-57, 1958-62, 1963-67, 1968-72, 1973-77.
- iii. Some estimates scaled down when greater than maximum number of employees in employment within particular industry during same five years.
- iv. Aggregate UK figure covered is the sum of individual industry maxima for five year period (rather than maximum of individual year aggregates).
- v. Insurance, banking and finance sector is excluded throughout.

b. Number of Employees in Employment Covered by Wages Council or Wage Board Orders

Sources:

Bayliss, F., (correspondence with author - available on request)

DE (1984), Consultative Paper on Wages Councils, HMSO: London, Appendices A and B.

Notes:

- i. Bayliss estimates number of workers covered by wages councils in 1950 and 1956. The DE consultative document provides data on numbers covered in 1982, and also provides information on the abolition of wages councils up to that year. This information was used to estimate the number of workers (both

manual and non-manual) covered by wages councils in each industry in the following way:

Period	Estimation procedure
1948-1952	Bayliss's 1950 estimates are matched to specific industries, unadjusted
1953-1957	Bayliss's 1956 estimates are matched to specific industries, unadjusted
1958-1962 1963-1967 1968-1972	For all industries except Other manufacturing, distributive trades, and miscellaneous services the rate of wages council coverage is assumed to be the same as that for Bayliss's 1956 estimate, and numbers covered is estimated using contemporaneous employees in employment figures. Because of the abolition of the Rubber Manufacturing (GB) council in 1958, the rate of coverage for other manufacturing is assumed to be the same as in 1982 (8.3%) rather than the 1956 rate (50.4%). For distributive trades and miscellaneous services a weighted average of the 1956 and 1982 rates is used based on temporal proximity.
1973-1977	Food, drink and tobacco: Because of the abolition of the Baking (England and Wales) council in 1971, the 1982 rate is used. Textiles: The 1956 and 1982 rates are not enormously different, therefore 1982 is used because of temporal proximity. Clothing and footwear: The joint Clothing Manufacturing (GB) council was not formed until 1981, therefore the 1956 rate is used. Paper, printing and publishing: Although the remaining councils were abolished in 1975, the 1956 estimate is used. Other manufacturing: 1982 rate used as for 1958-1972 estimates. Transport and communications: The Road Haulage (GB) council was not abolished until 1978, therefore the 1956 rate is used. Distributive trades and miscellaneous services: A weighted average of the 1956 and 1982 rates is used based on temporal proximity.

- ii. Estimates of rates of coverage are available from the author on request.
- iii. Neither Bayliss nor the DE include workers covered by the Agricultural Wages Boards in their estimates. However, manual workers in these industries are included in (a). Although **Agriculture, forestry and fishing** does include some workers not covered by the boards (ie those in forestry and fishing), they form a small proportion of employment in the industry. Therefore it was assumed in all estimates that all agricultural workers were covered during the whole of this period, and the wages council aggregates therefore include these workers.
- iv. The aggregate number of workers covered by wages council or wage board orders is the sum of the individual industry figures.

c. Total Employees in Employment

Sources:

DEP, British Labour Statistics Historical Abstract 1886-1968, London, HMSO 1971, Table 132.

DE, Gazette, 1972-1978, Table 1.4.

Notes:

- i. Two different employees in employment figures were used to produce estimates of *x*, *y* and *z*: the maximum recorded in the relevant five year period; and average employment over the period. Estimates using the former may underestimate coverage, whilst the latter may overestimate coverage. Therefore the upper and lower bands of coverage are reported for each industry and in aggregate.
- ii. Data for 1969-1978 from DE Gazette are multiplied by 1.02 to make them geographically consistent with the rest of the data - i.e. to include Northern Ireland.
- iii. Aggregate UK figure covered is the sum of individual industry maxima (rather than maximum of individual year aggregates).

d. Proportion of Manual Workers

Sources:

Census of England and Wales, 1951, Industry Tables, Table 9, pp 616-618.

Census of Scotland, 1951, Vol IV, Table M and Table 12, pp 408-432.

DEP, British Labour Statistics Historical Abstract 1886-1968, London, HMSO 1971, Table 145.

DE, NES 1973, Tables 110 and 111.

Notes:

- i. Proportion of manual workers in industry estimated with respect to data for 1951, 1961, 1966 (from census reports) and 1973 (NES). Specifically:

Period	Estimation procedure
1948-1952	1951 census rates used
1953-1957	Mean of 1951 and 1961 census rates used
1958-1962	1961 census rates used
1963-1967	1966 census rates used
1968-1972	Mean of 1966 census and 1973 NES rates used
1973-1977	1973 NES rates used

- ii. Aggregate UK figure is the weighted (by employment) average of individual industry figures.

f. Ratio of Proportion of Non-Manual Compared to Proportion of Manual Workers Covered by National Agreements

Sources:

DE, NES 1973, Tables 110 and 111.

DE, NES 1978, Tables 203 and 204.

DE, NES 1985, Tables 190 and 191.

Donovan Commission, (1965), Written Evidence of the Ministry of Labour, para 48, p19.

Notes:

- i. Calculated for each industry for 1973, 1978 and 1985 using NES reports. Overall $f = 0.79, 0.88$ and 0.99 respectively for these three years, mean = 0.885 .
- ii. Ministry of Labour estimate of overall f is 0.65 for 1965 (57.1% of non-manuals covered by national agreement or wages council compared to 87.5% of manuals).
- iii. These data suggest a reasonably stable, linear relationship between the overall proportion of non-manuals and the proportion of manuals covered by national agreements. Because of the lack of an individual industry breakdown for 1965 it is assumed that this general pattern holds true for all industries. Therefore individual industry f s are estimated for the years 1950-1975 as an increasing proportion of the mean for the period 1973-1985. Specifically for each industry:

$$f^{60} = 0.45 * f^{73-85}$$

$$f^{65} = 0.55 * f^{73-85}$$

$$f^{70} = 0.65 * f^{73-85}$$

$$f^{75} = 0.75 * f^{73-85}$$

$$f^{80} = 0.85 * f^{73-85}$$

$$f^{85} = 0.95 * f^{73-85}$$

- iv. Overall f is calculated as the weighted (by employment) mean of the individual industry estimates.

g. Proportion of workers covered by wage council or wage board orders who are not also affected by national agreements

Source:

DE, NES 1973, Table 109.

Notes:

- i. NES reports for 1973, 1978 and 1985 provide the only estimates of the number of workers covered by wages councils or wage boards who are also covered by national collective agreements for each of the major councils and boards. In the absence of other sources the extent of overlap of national agreements and wages councils and boards for each industry and in aggregate is assumed to be the same as NES 1973 figures.
- 3. Percentage of workers covered by a) national agreements or wages order, b) national agreements only and c) any agreement, 1968-1990, Great Britain (Tables 1 and 3 and Figure 2) and by industry (Tables 6 and 7).**

Sources:

DE, NES 1968, Tables 131 and 132.

DE, NES 1970, Tables 153 and 154.

DE, NES 1973, Tables 110 and 111.

DE, NES 1978, Tables 203 and 204.

DE, NES 1985, Tables 190 and 191.

Millward, N. et al, (1992), Workplace Industrial Relations in Transition, Aldershot: Dartmouth, Table 3.16.

ESRC, WIRS 1984, own analysis of data.

ESRC, WIRS 1990, own analysis of data.

Notes:

- i. The 1968 NES is somewhat anomalous because the coverage of national agreements and wages orders (wage councils and wage boards) are reported in aggregate. Although there are some data on the coverage of non-national agreements, because it is not possible to determine the proportion of these employees who are not also covered by national agreements, an overall coverage figure cannot be calculated.
- ii. Unlike estimates of coverage using data on workers affected by changes in the rates of national agreements or wage orders, both NES and WIRS data are for Great Britain rather than the UK. However because we are dealing with the proportion of workers covered by collective bargaining (rather than the actual number covered) this does not invalidate comparisons of the different estimates of coverage.
- iii. Estimates using the WIRS have to be scaled down to take account of workplaces with less than 25 employees (not covered by the WIRS) to compare with other estimates. In Figure 2 the coverage of all agreements recorded by WIRS2 and WIRS3 are therefore estimated as 65% and 47% respectively (rather than 71 and 54%).

4. Union density 1893-1990, UK (Figure 2).

Source:

Milner, S. and Metcalf, D., (1993), Table 11.2.

Notes:

- i. Calculated as union membership divided by employees in employment using the corrected union membership series along the lines of Bailey and Kelly (1990).

APPENDIX B

Workers Covered by Changes in National Wage Rates or Orders: Sources and Coverage

Sources:

1. These data were first collected for April 1893 and reported in the May 1893 Gazette. The data were reported monthly up to May 1980 and annually up to 1978 with some gaps during war-time. Sources were not cited continually throughout the period and changed somewhat over the years. Details are listed in the table below:

Period	Sources cited
June 1893	"Local correspondents, newspapers and other sources. Corrections and additions from principal Employers' Associations."
July 1893- December 1913	"Local correspondents, newspapers and other sources. Corrections and additions from principal Employers' Associations and Trades' Unions."
February 1914- November 1924	"Based on Returns from Employers and Unions".
December 1924 onwards	No sources cited with data, but some Ministry of Labour annual reports in 1950s cite sources as "employers and unions".

2. There are some rather obvious worries about the accuracy of these data based on employers' associations, unions and probably larger employers estimates of the number of workers covered by national collective agreements or orders, which are discussed in the main text.

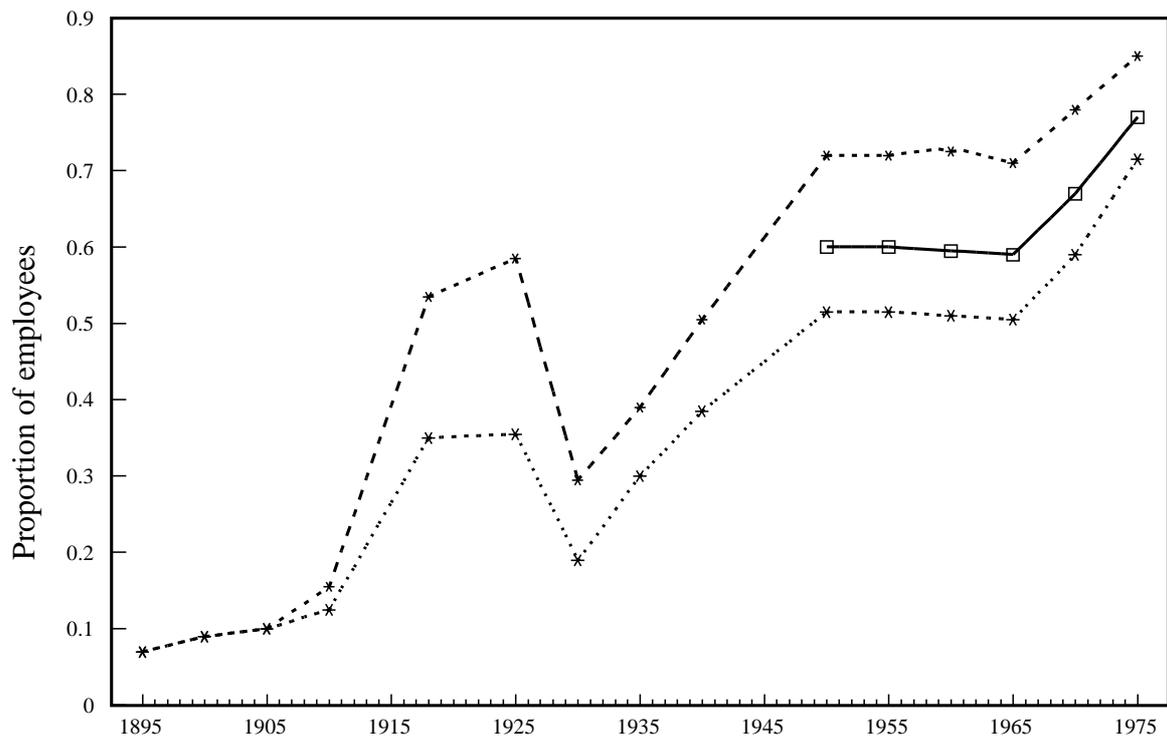
Coverage:

1. In general these data exclude non-manual workers but certain other workers have also been excluded at various times, as summarised in the table below:

Period	Workers Stated as Excluded
1893-1901	agricultural labourers, sailors, firemen and railway servants
1902-13	agricultural labourers, seamen and fisherman, police, government employees and railway servants
1914-19	agricultural labourers, seamen, police, government employees, railway servants, shop assistants, domestic servants and clerks
1920-26	agricultural labourers, police, government employees, shop assistants, domestic servants and clerks
1927-42	agricultural labourers, government employees, shop assistants, domestic servants and clerks
1943-47	government employees, shop assistants, domestic servants and clerks
1948-78	non-manual workers

2. Various adjustments are made to the published data to take account of these missing groups as detailed in the text.

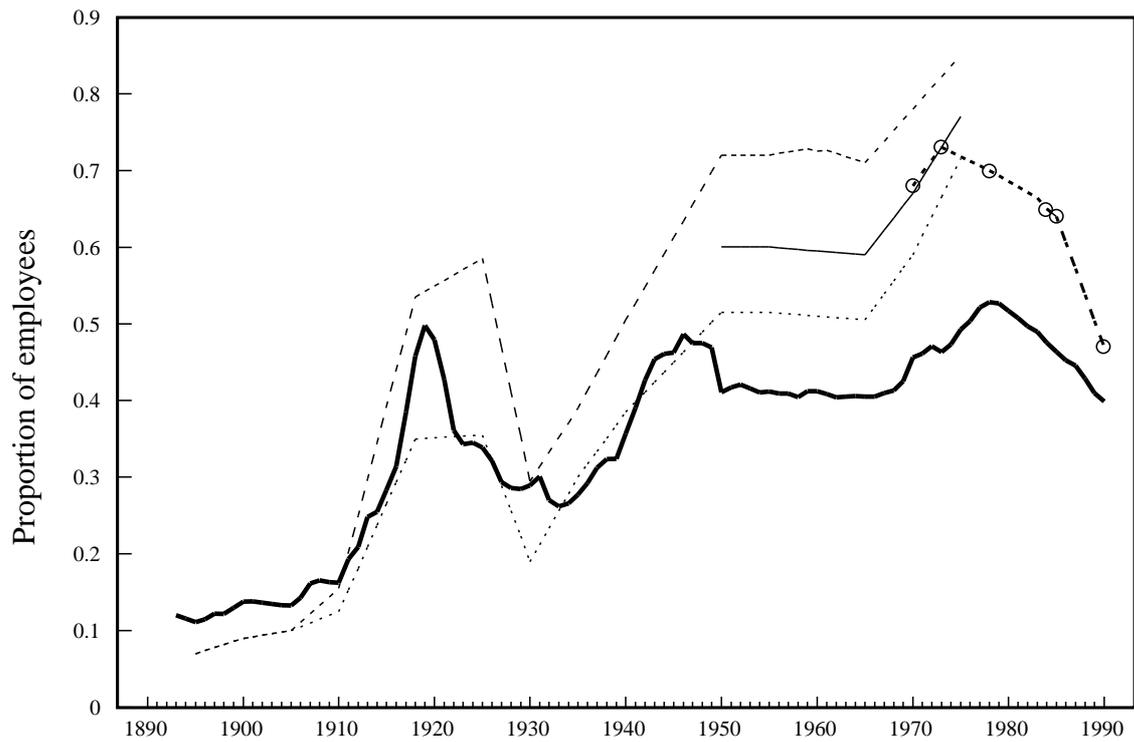
Figure 1
 Coverage of collective pay setting institutions
 in Britain 1895-1975



- - - National agreements and statutory machinery
- National agreements excluding statutory machinery
- National agreements including statutory machinery

Notes and Sources: see Appendix A

Figure 2
 Coverage of collective pay setting institutions
 and union density in Britain 1893-1990



- - - National agreements and statutory machinery
- National agreements excluding statutory machinery
- National agreements including statutory machinery
- . - . All collective agreements (NES and WIRS)
- Union density

Notes and sources: see Appendix A

TABLE 1

Estimates of the Coverage of Collective Bargaining and
Statutory Wage Setting Machinery: UK 1906-1990

Year	Collective bargaining %	Overall coverage %	Source
1906	20	20	Phelps Brown, (1959), p.272
1910 ¹	15	15	Board of Trade, (1910), p.iii and Milner and Metcalf, (1993), Table 11.2, p.250
1910	20	20	Charles, (1973), p.23
1933	42	51	Clegg, (1986), pp.548-9
1938 ²	53	75	Sells, (1939), p.49
1939	51	64	Clegg, (1994), p.415
1946	-	89	Ministry of Labour and National Service Annual Report (MLNS), (1947), p.275
1947	-	83-89	MLNS, (1948), p.122
1948-52	-	80	MLNS annual reports, 1949-1953
1961	67	-	Ministry of Labour, (1961), p.23
1965	-	78	Ministry of Labour, (1965), p.19
1968	>63	-	Donovan Commission, (1968), p.10
1968 ³	-	60	NES, (1968), Tables 131 & 132
1970	68	-	NES, (1970), Tables 153 & 154
1973	73	-	NES, (1973), Tables 110 & 111
1978	70	-	NES, (1978), Tables 203 & 204
1984 ⁴	71	-	Millward et al (1992), Table 3.16
1985	64	-	NES 1985, Tables 190 & 191
1990 ⁴	54	-	Millward et al (1992), Table 3.16

Notes:

1. Numerator from Board of Trade report covers only manual workers, but denominator from Milner and Metcalf table is all employees in employment.
2. Figures are just for manual workers, all other estimates are for all employees in employment.
3. Figure is for **national** agreements and wages councils (ie workers covered just by non-national agreements are excluded).
4. WIRS samples exclude plants with less than 25 employees, therefore both estimates have to be scaled down to be nationally representative.
5. "-" means not estimated or cannot be estimated from this source.

TABLE 2

Estimates of the Coverage of Trade Boards and Wages Councils
1911-1988

Year	Estimate (000s)	% of employees in employment ¹	Source
1911	400	2.5	Bayliss, (1962), p.10
1914	500	3.1	Bayliss, p.12 and Richardson, (1938), p.142
1920	3,000	17.2	Bayliss, p.16
1936	1,000	5.5	Richardson, p.143
1938	1,250	6.7	Mallon, (1939), p.135
1938 ²	2,700	14.4	Sells, (1939), p.48
1938	1,500	8.0	Guillebaud, (1962), p.2
1939	1,500	7.7	Bayliss, p.43
1948	3,500	17.8	Bayliss, p.73
1950	3,491	16.8	Bayliss (correspondence)
1954	>3,000	>14.1	Guillebaud, p.3
1956	3,795	17.3	Bayliss (correspondence)
1961	3,500	15.7	Bayliss, p.75
1982	2,735	12.8	DE, (1984)
1988	2,472	11.1	DE, (1988)

Notes:

1. Calculated using UK employees in employment data from Milner and Metcalf (1993), Table 11.2.
2. Sells's figure includes agricultural workers, road haulage workers and underground coal miners which together add about 1.5m to the total. All the estimates apart from Sells exclude agricultural workers (covered by the Agricultural Wages Board (England and Wales) from 1924 and Agricultural Wages Board (Scotland) from 1938).

TABLE 3

The Coverage of Collective Pay Setting Machinery in Britain 1895-1990

% of Employees in Employment

Year	Changes in rates data ¹			NES data		WIRS data ²
	1	2	3	National agreements	All agreements	All agreements
1895	7	-	na			
1900	9	-	na			
1905	10	-	na			
1910	15-16	-	12-13			
1918	50-57	-	33-37			
1925	57-60	-	35-36			
1930	29-30	-	19			
1935	38-40	-	29-31			
1940	49-52	-	37-40			
1950	71-73	59-61	51-52			
1955	71-73	59-61	51-52			
1960	70-74	59-61	51-53			
1965	69-71	59-60	51-53			
1968 ³				60		
1970	76-80	66-70	60-63	59	68	
1973				63	73	
1975	84-86	76-78	71-72			
1978				60	70	
1984						71
1985				54	64	
1990						54

Notes and Sources: see also Appendices A and B.

1. Changes in rates data: 1 = National agreements and statutory machinery (trade boards, wages councils etc); 2 = National agreements including those also covered by statutory machinery; 3 = National agreements only (excluding those also covered by statutory machinery).
2. 1968 NES data are for national agreements and wage orders combined.
3. "-" means not estimated, "na" not applicable.

TABLE 4
Estimates of the Coverage of National Collective Agreements by Industry in the UK 1950-1960

Industries	% of employees in employment covered by national collective agreements											
	& statutory machinery including those also covered by statutory machinery					excluding those also covered by statutory machinery						
	1950	1955	1960	1950	1955	1960	1950	1955	1960	1950	1955	1960
Agriculture, forestry and fishing	100	100	100	45	45	45	0	0	0	0	0	0
Mining and quarrying	78-79	56	49-54	78-79	56	49-54	78-79	56	49-54	78-79	56	49-54
Food, drink and tobacco	34-36	35-36	66-72	14-15	14-15	45-49	0	0	30-33	0	0	30-33
Chemicals	45-48	47-49	49-50	45-48	47-49	49-50	45-48	47-49	49-50	45-48	47-49	49-50
Metal manufacturing	45-46	44-45	43-46	45-46	44-45	43-46	45-46	44-45	43-46	45-46	44-45	43-46
Engineering industries	84-85	70-72	77-81	84-85	70-72	77-81	84-85	70-72	77-81	84-85	70-72	77-81
Textiles	68-72	80-83	72-75	68-72	79-82	71-74	68-72	77-80	70-73	68-72	77-80	70-73
Leather and fur	85-88	71-73	78-79	85-88	71-73	78-79	85-88	71-73	78-79	85-88	71-73	78-79
Clothing and footwear	80-84	81-82	91-96	29-30	47-48	56-60	29-30	17	26-27	29-30	17	26-27
Bricks, pottery etc	89	87	85	89	87	85	89	87	85	89	87	85
Timber and furniture	62-64	72-74	72-73	62-64	72-74	72-73	62-64	72-74	72-73	62-64	72-74	72-73
Paper, printing and publishing	59-62	67-71	81-84	55-57	62-66	76-79	44-45	50-53	63-65	44-45	50-53	63-65
Other manufacturing	51-55	63-66	71-74	15-16	15	63-65	15-16	15	63-65	15-16	15	63-65
Construction	91	89-91	89	91	89-91	89	91	89-91	89	91	89-91	89
Gas, electricity and water	83-87	75-76	81-83	83-87	75-76	81-83	83-87	75-76	81-83	83-87	75-76	81-83
Transport and communications	83-84	83-84	86-87	80-81	79	82	78	76	78-79	78	76	78-79
Distributive trades	94	91-94	69-73	59-60	59-60	38-40	21-23	24	4-5	21-23	24	4-5
Public administration and defence	39-40	55-57	46-49	39-40	55-57	46-49	39-40	55-57	46-49	39-40	55-57	46-49
Miscellaneous services	48-52	58	56-61	28-30	34	33-36	0	3	3	0	3	3
All industries	71-73	71-73	70-74	59-61	59-61	59-61	51-52	51-52	51-53	51-52	51-52	51-53

Notes and Sources: see Appendices A and B.

TABLE 5

Estimates of the Coverage of National Collective Agreements by Industry in the UK 1965-75

Industries	% of employees in employment covered by national collective agreements									
	& statutory machinery					excluding those also covered by statutory machinery				
	1965	1970	1975	1965	1970	1975	1965	1970	1975	1975
Agriculture, forestry and fishing	100	100	100	45	45	45	0	0	0	0
Mining and quarrying	54-59	73-88	94-97	54-59	73-88	94-97	54-59	73-88	94-97	94-97
Food, drink and tobacco	71-72	73-78	67-70	49-50	52-56	65-68	35	37-40	64-67	64-67
Chemicals	49-50	46-50	54	49-50	46-50	54	49-50	46-50	54	54
Metal manufacturing	43-44	) 73-78	) 75-78	43-44	) 73-78	) 75-78	43-44	) 73-78	) 75-78	75-78
Engineering industries	79-81	) 73-78	) 75-78	79-81	) 73-78	) 75-78	79-81	) 73-78	) 75-78	75-78
Textiles	76-79	78-88	86-88	75-78	77-87	83-85	74-76	76-85	79-81	79-81
Leather and fur	86	89	91	86	89	91	86	89	91	91
Clothing and footwear	86-88	94-97	97	52-53	60	60-63	21	26-29	27-32	27-32
Bricks, pottery etc	56-58	58-63	52-56	56-58	58-63	52-56	56-58	58-63	52-56	52-56
Timber and furniture	63-65	55-59	59-64	63-65	55-59	59-64	63-65	55-59	59-64	59-64
Paper, printing and publishing	81-82	72-77	83-84	76-77	67-71	78-79	63-64	54-57	65	65
Other manufacturing	59-62	55-57	40-43	51-53	47-48	32-34	51-53	47-48	32-34	32-34
Construction	88	87	87	88	87	87	88	87	87	87
Gas, electricity and water	78-80	92	95	78-80	92	95	78-80	92	95	95
Transport and communications	78	93	90-92	73-74	88-89	86-87	70-71	85	83-84	83-84

Distributive trades	71-72	90-91	88	43-44	65	66	12	36-38	42-43
Public administration and defence	46-49	61-65	95	46-49	61-65	95	46-49	61-65	95
Miscellaneous services	51-52	64-70	97	29-30	43-47	76-77	0	15-16	49-50
All industries	69-71	76-80	84-86	59-60	66-70	76-78	51-53	60-63	71-72

Notes and Sources: see Appendices A and B.

TABLE 6

NES Data on Collective Agreement Coverage by Industry
in Britain 1968-1978

Industries 1958 SIC	% of employees covered by a) national agreements or wages orders, b) national agreements only, c) any collective agreement							
	1968		1970		1973		1978	
	a	b	c	b	c	b	c	
Agriculture, forestry and fishing	65	20	23	35	46	34	37	
Mining and quarrying	93	92	95	92	94	91	94	
Food, drink and tobacco	45	37	57	40	67	34	66	
Chemicals	30	28	58	41	55	28	58	
Metal manufacturing	51	67	84	78	87	73	83	
Mechanical engineering	}	66	78	63	72	54	66	
Instrument engineering		58	47	65	46	58	31	49
Electrical engineering		63	77	62	75	48	67	
Shipbuilding	87	83	92	91	94	78	88	
Vehicles	64	70	63	66	91	57	83	
Metal goods (n.e.s.)	52	56	67	53	64	46	63	
Textiles	54	52	73	53	72	52	72	
Leather and fur	49	54	64	61	74	46	74	
Clothing and footwear	69	41	48	47	54	52	58	
Bricks, pottery etc	57	57	77	55	73	53	72	
Timber and furniture	56	57	68	56	65	49	59	
Paper, printing and publishing	61	59	68	63	69	63	69	
Other manufacturing	50	43	61	41	61	25	56	
Construction	73	74	80	76	79	68	71	
Gas, electricity and water	97	98	99	99	99	99	99	
Transport and communications	34	75	83	77	87	74	84	
Distributive trades	54	24	24	29	42	26	37	
Insurance, banking and finance	5	14	39	30	45	32	45	
Professional services	78	80	83	82	84	82	83	
Miscellaneous services	41	27	38	40	49	40	50	
Public administration and defence	95	97	98	98	99	99	99	
All industries	60	59	68	63	73	60	70	

Notes and Sources: see Appendix A.

TABLE 7

Collective Agreement Coverage by Industry in 1985 (NES),
1984 and 1990 (WIRS)

Industries 1980 SIC	% of employees in Employment covered by b) national collective agreements, c) any collective agreement			
	1985		1984	1990
	b	c	c	c
Agriculture, forestry and fishing	36	39	na	na
Energy and water industries	85	90	93	83
Metal manufacturing	54	73	83	82
Other mineral products	37	61	73	70
Chemicals	16	46	75	49
Metal goods nes	35	50	62	52
Mechanical engineering	36	51	58	37
Electrical engineering	23	46	68	39
Vehicles	24	72	84	71
Other transport manuf	58	81	94	75
Instrument engineering	14	35	50	34
Food, drink and tobacco	23	55	71	62
Textiles	45	62	73	52
Footwear, clothing and leather	50	55	54	47
Timber and furniture	45	53	72	39
Paper, printing and publishing	55	63	67	54
Processing of rubber etc	10	46	53	45
Other manufacturing	9	30	71	56
Construction	61	63	47	45
Distribution, hotels, repairs	25	35	41	22
Transport and communications	68	81	93	80
Insurance & financial services	28	38	47	38
Public administration and defence	99	99	94	80
Miscellaneous services	65	69	67	64
Professional services	92	93	86	58
All industries	54	64	71	54

Notes and Sources: see Appendix A.

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