

Collective bargaining structure and its determinants

An empirical analysis with British and German establishment data

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Auch mit seiner neuen Reihe „IAB-Discussion Paper“ will das Forschungsinstitut der Bundesagentur für Arbeit den Dialog mit der externen Wissenschaft intensivieren. Durch die rasche Verbreitung von Forschungsergebnissen über das Internet soll noch vor Drucklegung Kritik angeregt und Qualität gesichert werden.

Also with its new series "IAB Discussion Paper" the research institute of the German Federal Employment Agency wants to intensify dialogue with external science. By the rapid spreading of research results via Internet still before printing criticism shall be stimulated and quality shall be ensured.

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Abstract

Using two nationally representative establishment data sets, this paper investigates collective bargaining coverage and firms' choice of governance structures for the employment relationship in Britain and in (western and eastern) Germany. Both countries have experienced a substantial decline in collective bargaining coverage in the last decades. While bargaining coverage is generally lower in Britain, single-employer bargaining is relatively more important in Britain, whereas multi-employer collective bargaining clearly dominates in Germany. Econometric analyses show that more or less the same set of variables play a statistically significant role in explaining the structure of collective bargaining in both countries. These include establishment size, establishment age, foreign ownership, public sector affiliation and being a branch plant.

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1 Introduction

The extents to which companies and employees are covered by collective bargaining and the evolution of collective bargaining coverage over time have increasingly become the focus of attention of practitioners, policy-makers and industrial relations research. Since collective bargaining coverage reflects the extent to which establishments and/or employees have their terms and conditions of employment determined by collective agreements, it is an indicator of the practical relevance of collective self-regulation of the labour market parties. Furthermore, to a certain degree this indicator also reflects the power of employers' associations and unions as well as their capacity to shape the regulation of the employment relationship and the labour market.

In his seminal analysis of the decentralisation of collective bargaining in a number of industrialised countries, Katz (1993: 19) stated that "there are few systematic quantitative data tracing the evolution of bargaining structure". Since the early 1990s, several studies have provided data on the structure and coverage of collective bargaining for a number of countries (for recent data see Traxler and Behrens, 2002; Visser, 2003), and there have been some empirical analyses investigating the macro determinants of bargaining centralisation by means of cross-national comparisons (see Traxler, 1996; Traxler *et al.*, 2001). Other research has analysed the determinants of collective bargaining centralisation in the United States by using industry-level data (Greenberg 1966a, 1966b; Hendricks and Kahn, 1982, 1984). In contrast, for a long time the micro determinants of employer demand for collective bargaining and of firms' (as well as unions') choice of governance structures for the employment relationship have received less attention in empirical work (notable exceptions being Deaton and Beaumont, 1980; and Booth, 1989), which may have been partly due to a lack of suitable data on the company or establishment level. In recent years, however, a number of quantitative studies of this sort have been published for countries such as Germany (see, e.g., Kohaut and Schnabel, 2003), France (Cahuc and Kramarz, 1997) and the UK (Zagelmeyer,

2004a), but there has been no attempt of a truly comparative analysis across countries.¹

This paper tries to fill this research gap by examining the determinants of governance structures (i.e. the factors influencing firms' choice of multi-employer, single-employer or no collective bargaining) in Britain and Germany using a common model. In both Britain and Germany, multi-employer collective bargaining has been playing a leading role in the determination of the terms and conditions of employment for most of the post-war period. While one distinguishing characteristic of German industrial relations has been its "relative centralisation of collective bargaining and the coordinated policies of the bargaining parties at sectoral level" (Jacobi *et al.* 1998: 191), multi-employer bargaining dominated pay determination for the British workforce in establishments with 25 or more employees until the mid 1980s (Brown *et al.* 2003: 199).

Britain and Germany stand out among European countries in that both have been experiencing trends of decollectivisation and decentralisation of collective bargaining (although these processes started at different points in time, and decentralisation took a more organised route in Germany). In contrast, the prevailing trend in collective bargaining coverage in the EU has been stability (Traxler and Behrens, 2002). While it may be interesting to directly analyse and compare the trends of decollectivisation and decentralisation in Britain and Germany (see the non-econometric approach by Zagelmeyer 2004b), the focus and approach of this paper is different: We investigate econometrically whether the same factors can explain the choice of governance structures by British and German firms and discuss what this implies for the future of collective bargaining coverage in both countries.

In the next chapter, we first outline the legal framework and recent developments concerning collective bargaining in Britain and Germany. Then the incidence of collective bargaining in both countries is investigated, and some of the advantages and disadvantages of different governance structures of the employment relationship are discussed. After a brief summary of previous quantitative research, chapter 3 theoretically and empirically

¹ For a qualitative comparative analysis using case studies from Belgium, Germany, Italy and Britain, see Arrowsmith *et al.* (2003) and Marginson *et al.* (2003).

analyses the determinants of employer demand for collective bargaining in Britain and Germany. Similar models are estimated for both countries using representative data from the German IAB Establishment Panel and the British Workplace Employee Relations Survey (WERS).² The final chapter discusses the results from a comparative perspective and identifies issues for further research.

2 Collective Bargaining in Britain and Germany: Legal Background, Recent Trends, and Incidence

2.1 Legal Background

British industrial relations have been characterised by the tradition of voluntarism, which includes the preferences of the industrial relations actors – the employers, the unions, and the state – for the voluntary procedural and substantive regulation of the employment relationship, as well as a non-legalistic approach to collective bargaining (Edwards *et al.*, 1992; Flanders, 1974; Gospel and Palmer, 1993: 155). In Britain, collective agreements may be written or unwritten. Without express reference in the individual labour contract, collective agreements are not legally binding and thus not enforceable at law. They are “binding in honour only” and depend for their ultimate enforcement on the sanctions available to the parties. Each union involved in the conclusion of collective agreements needs to be recognised by the employer for the purpose of collective bargaining in a particular unit.

Collective agreements may be reached at any level at which negotiations take place. Single-employer collective agreements are forged at establishment, company, divisional or corporate level. At shop floor level, a formal system of collective agreements may coexist with informal rules and agreements that are often referred to as custom and practice (Brown, 1972). At the industry level, multi-employer collective bargaining may be

² The provision of the WERS dataset by the UK Data Archive, which is jointly funded by the University of Essex, the Economic and Social Research Council, and the Joint Information Systems Committee, is gratefully acknowledged. The Workplace Industrial/Employee Relations Surveys were jointly sponsored by the Department of Trade and Industry; the Department of Employment; the Advisory, Conciliation and Arbitration Service (ACAS); the Economic and Social Research Council; and the Policy Studies Institute.

conducted between employers' associations and trade unions or trade union confederations. Multi-employer collective agreements may cover industries as well as geographical localities or districts.

The German system of industrial relations is characterized by the dual system of interest representation, its extensive juridification, encompassing organisations on both sides of the labour market, and a system of regional industry-level collective bargaining (Jacobi *et al.*, 1998). A further distinguishing characteristic is the constitutionally protected principle of bargaining autonomy (*Tarifautonomie*) which describes the right of coalitions of employers and employees to regulate the working conditions with neither state intervention nor interference, and thus to determine the labour market constitution autonomously.

The social partners conclude legally valid and binding collective agreements which may be interpreted as the expression of collective self-determination. Collective agreements are concluded either as multi-employer collective agreements at industry level (*Verbandstarifverträge*) or as single-employer collective agreements at company level (*Firmentarifverträge*). Collective bargaining is mainly conducted at regional industry level, but is – in certain industries – also quite frequent at national or company level.³ Another form of collective agreement is the works agreement (*Betriebsvereinbarung*), concluded between a firm and its works council within the legal framework of co-determination, but works agreements may not contain provisions which are generally regulated by collective agreement (such as wages). However, a collective agreement can expressly permit the conclusion of works agreements to supplement it.

2.2 Recent Developments

For the period between World War I and the 1970s, Clegg (1972: 200) described the British system of collective bargaining "as a system of national bargaining, or, more precisely, of 'industry-wide' or 'industry' bargaining", which was assumed to dominate the determination of the terms and conditions of employment in Britain. While the first signs of decen-

³ In contrast to the UK, collective agreements can be extended by government regulation to all employers and employees in the industry, including those not represented in the original negotiations. For more information on the legal background in Germany, see Wiedemann (1999) and Schnabel (2003).

tralisation had already appeared in the immediate post-war period, when industry-level agreements became less important with the rise of local and shop-floor bargaining (Department of Employment, 1971), the Royal Commission (1968) reported that workplace bargaining was more important than anyone had realised. After government attempts to formalise and stabilize collective bargaining within the framework of national incomes policies had failed, the significance of multi-employer collective bargaining continued to decline through the 1970s, although formal coverage rates remained quite high (Brown and Terry, 1978).

The period between 1979 and 1997 then saw a significant reorganisation of governance structures in Britain. Based on the Workplace Industrial/Employee Relations Surveys, Zagelmeyer (2004a) estimates the coverage rates of different governance structures for British establishments. Between 1980 and 1998, the sector with individual regulation grew from 33 to 68 per cent of all British establishments with 25 or more employees. While single-employer collective bargaining covered about 20 per cent of those establishments between 1980 and 1990, it declined to less than 15 per cent in 1998. Multi-employer collective bargaining stood at about 47 per cent of those establishments in 1980 and 1984, and then declined to 32 per cent in 1990 and 18 per cent in 1998.

For western Germany, it has long been assumed that regional industry-wide bargaining is the most important form of collective bargaining. Although no official statistics exist, it was traditionally estimated that collective bargaining would cover around 90 per cent of all employees (OECD, 1994). First signs pointing towards decentralisation occurred with the emergence of qualitative bargaining policy in the early 1970s, which aimed at improving working life and at protecting employees against the adverse effects of rationalisation and technological change. Industry agreements now included provision for the establishment of performance requirements, work organisation, and rest periods, the implementation of which were to be bargained over at establishment level. When unions in the metal and printing industries achieved their goal of reducing weekly working hours, they were able to do so only by permitting the flexibilisation of working time, which was to be implemented locally, for example by works agreements (Bispinck, 1999).

In the 1990s, increasing international competition, high unemployment and German unification considerably changed the scene for collective bargaining. A trend which started earlier but took off in the 1990s was the conclusion of industry-wide collective agreements which included so-called "opening clauses". These clauses delegate bargaining authority to lower levels, usually to the employer and the works council, in order to allow for deviations from the multi-employer agreement that may save jobs. Following unification, the transfer of the western German industrial relations and collective bargaining institutions to eastern Germany resulted in a number of frictions. Employers' associations and trade unions had and still have difficulties in organising and keeping members. A major challenge was the unions' goal of bringing eastern wages up to western levels, regardless of productivity, which has induced many firms to drop out of the system. Consequently, the number of firms with company agreements more than doubled in the 1990s (see Bispinck, 1999; Hassel, 1999, 2002; Schnabel, 1998, 2003).

Recent research based on the representative data of the IAB Establishment Panel has shown that between 1995 and 2001 the coverage rate of multi-employer collective bargaining fell from 53 to 45 per cent of all western German establishments with one or more employees. Eastern German establishments reduced their coverage of multi-employer collective bargaining from 28 per cent in 1996 to 22 per cent in 2001. In a parallel way single-employer bargaining seems to have fallen in recent years while the sector with individual regulation has grown, but due to a change in the corresponding survey question these two developments cannot be traced over a longer period of time (Kohaut and Schnabel, 1999, 2003).

2.3 Incidence of Collective Bargaining in Britain and Germany

The availability of large-scale establishment level surveys in Britain and Germany makes it possible to estimate and compare bargaining coverage rates in both countries. For Britain, we use the Workplace Employee Relations Survey of 1998 (WERS98), a nationally representative survey of 2,191 establishments with 10 or more employees. For Germany, data for the year 2000 are taken from the IAB Establishment Panel of the Institute for Employment Research of the Federal Labour Office. Each year this na-

tionally representative panel surveys several thousand establishments with at least one employee covered by social insurance.⁴

Based on the weighted data of both representative datasets, Table 1 displays collective bargaining coverage rates for Britain in 1998 and Germany in 2000. Let us first turn to Britain. In 1998, 26.8 per cent of British establishments with 10 or more employees were covered by collective pay bargaining, with 11.7 per cent covered by single-employer collective bargaining and 15.1 per cent covered by multi-employer collective bargaining. As far as differences across establishment size categories are concerned, single-employer collective bargaining coverage varied between 7.5 per cent for establishments with 10 to 19 employees and 43.8 per cent for establishments with 1,000 and more employees. The respective figures for multi-employer collective bargaining coverage are 11.5 and 33.3 per cent. For both categories of collective bargaining, coverage rates appear to be positively associated with establishment size.

As far as Germany is concerned, Table 1 displays separate data for western and (post-communist) eastern Germany, since both regions differ quite considerable in terms of historical development and labour market conditions. In 2000, 48.1 per cent of western German establishments were covered by collective bargaining, with 2.7 per cent covered by single-employer and 45.4 per cent covered by multi-employer collective bargaining. In eastern Germany, 27.5 per cent of all establishments were covered by collective bargaining in 2000. 4.3 per cent of eastern German establishments were covered by single-employer collective bargaining and 23.2 per cent were covered by multi-employer collective bargaining. Again, as in Britain, coverage rates appear to be positively associated with establishment size in western as well as in eastern Germany.

⁴ Details regarding these data sets are given in Cully et al. (1999) for the WERS98 and in Kölling (2000) for the IAB Establishment Panel. The two years 1998 and 2000 were chosen because 1998 represents the most recent information available for Britain, and 2000 has the advantage that it is the year in which the IAB panel was substantially augmented, while it is still relatively close to the 1998 date for Britain.

Table 1: Bargaining coverage in Britain and Germany by establishment size (in per cent)

establishment size interval (number of employees)	Great Britain (1998)		Western Germany (2000)		Eastern Germany (2000)	
	single-employer collective bargaining	multi-employer collective bargaining	single-employer collective bargaining	multi-employer collective bargaining	single-employer collective bargaining	multi-employer collective bargaining
1–9	n.a.	n.a.	2.0	40.9	3.2	18.2
10–19	7.5	11.5	3.1	54.1	6.9	33.0
20–49	10.3	16.3	4.7	59.7	7.1	44.0
50–99	14.5	15.6	8.8	56.9	11.6	48.1
100–199	20.9	23.5	8.2	64.8	13.1	53.8
200–499	32.6	19.1	10.1	68.9	17.3	56.6
500–999	41.7	16.7	12.9	78.4	12.2	74.5
1,000 and above	43.8	33.3	12.7	81.2	16.9	77.0
Average	11.7	15.1	2.7	45.4	4.3	23.2
Average for establishments with 10 or more employees	11.7	15.1	4.6	57.1	8.0	39.9

Sources: WERS 98, IAB Establishment Panel 2000; own calculations based on weighted data.

In order to facilitate comparisons with the British data that cover only establishments with 10 or more employees, figures for a corresponding German sample are presented in the last line of Table 1. They reinforce the impression that single-employer collective bargaining is relatively more important in Britain, whereas multi-employer collective bargaining clearly dominates in Germany.

However, at this point it is important to note that the questions regarding the governance structures are different in the British and the German data. The question in WERS98 asked for the mode of pay-setting, including collective bargaining levels, for different occupational groups. An establishment was coded to be subject to a particular collective bargaining level if at least one occupational group was subject to this structure. In case of different groups being under different collective bargaining, the highest (or most centralised) one was chosen. Thus, the question refers to pay determination only. In contrast, the German data relate to the question of whether the establishment is subject to a multi-employer or single-employer collective bargaining agreement, with no explicit reference to any specific regulation issue or occupational group. Although it seems plausible that the highest level of collective bargaining in Britain is similar to the highest level of pay determination, one could also argue that the limitation to the pay issue might be associated with an underestimation of the general level of collective bargaining coverage in Britain.

2.4 Advantages and Disadvantages of Different Levels of Regulation

The fact that some firms prefer single-employer collective bargaining, while others prefer multi-employer agreements to determine the terms and conditions of employment implies that various types of governance structure have specific advantages and disadvantages for the industrial relations actors. These as well as the various micro- and macroeconomic effects of different governance structure have been the focus of intensive research in economics, political science, and sociology (for example, Aidt and Tzannatos, 2002; Berthold and Fehn, 1996; Calmfors, 1993; Flanagan, 2003; Moene *et al.*, 1993; OECD, 1997; Traxler *et al.*, 2001). While there has been a considerable amount of research on the association between the degree of centralisation of a national collective bargaining system and macro-economic performance variables (Calmfors and

Driffill, 1988; OECD, 1997), only recently the focus of attention shifted to the analysis of the level of pay determination as an explicit decision by the company (Freeman and Gibbons, 1995; Lindbeck and Snower, 2001; Ramaswamy and Rowthorn, 1993; Zagelmeyer, 2004a).

From the macro-economic perspective, one may assume that the (supposedly negative) effects of collective agreements and wage rises on other employees, employers and tax payers are more likely to be internalised, the higher the degree of centralisation or coordination of the collective bargaining system. The reason is that the bargaining parties at central level cannot afford to neglect these negative side effects, for example unemployment, since they fall back on themselves. On the other hand, centralised negotiations are not able to fully use the information, capabilities, and flexibility available at the decentralised local level. The more centralised the negotiations, the less likely will the associated bargaining outcomes reflect the economic situation and the specific needs of individual establishments and companies, unless the central agreement provides sufficient scope for additional local bargaining.

In contrast, decentralised solutions, either in form of single-employer collective agreements or individual regulation, permit to tailor the agreement to the situation of the company or establishment. Establishment-specific problems and demands may more easily be taken into account. Since the determination of terms and conditions of employment may reflect regional and labour market related factors, decentralised regulation should provide for a differentiated wage structure and thus for an optimal use of employment opportunities. However, if the demands of a company's workforce are not only oriented at the local situation, but rather at the terms and conditions in other establishments or companies, this may lead to leapfrogging pay claims. If unions are organised above the company-level or employees (as insiders) have a sort of monopoly power to dictate wages, this may be associated with higher wage increases, supposedly shifting the costs to unemployed outsiders. Compared to a centralised collective bargaining system, national policy makers thus may have difficulties in steering macro-economic wage and price developments.

From the perspective of the company, the transaction-cost saving function of collective agreements is an important element of any cost-benefit

analysis of different governance structures. By substituting collective negotiations for a large number of individual negotiations and by standardising the terms and conditions of employment, collective agreements may reduce the costs of negotiations as well as of regulation. This advantage is positively associated with the level of bargaining centralisation and the bargaining coverage. In addition, wages are largely taken out of competition by multi-employer bargaining, and the shift of industrial conflict to a regulation level above the company level reduces the danger that the working atmosphere at the establishment might be negatively affected by conflicts related to collective bargaining.

In addition to transaction costs, power factors and employer considerations of how to deal with organised labour may play an important role (Arrowsmith *et al.*, 2003). Unionised employers can pool their strength and prevent leapfrogging by bargaining at multi-employer level. In addition, employers may use multi-employer bargaining as a vehicle to prevent the unionization of their workforce or to minimize the power of the local union(s). The capacity to pool power collectively at multi-employer level increases with the homogeneity of activities across firms, which also means that greater heterogeneity of activities across companies makes even tacit collusion between employers more difficult. Arrowsmith *et al.* (2003: 368) argue that intensive competition, which increases uncertainty and instability and acts as pressure for localisation in transaction-cost terms, strengthens management's control over the employment relationship. It would further increase management's power to use "divide and rule" tactics vis-à-vis the unions when it comes to internal investment decisions between production sites.

With regard to employer preferences for a particular degree of centralisation of collective bargaining, Thörnqvist (1999) emphasises politico-ideological motives related to the balance of power between capital and labour. Centralised systems would increase union power and, thus, employers would favour decentralised bargaining in order to secure the prerogative of management and control over the employment relationship.⁵

⁵ Thörnqvist (1999: 80) focuses on Sweden where he sees political and ideological changes as "of the utmost importance for understanding the decentralization process". For a comprehensive and comparative discussion of the broader political context un-

Traxler (2003: 2) argues that such an agency-centred perspective qualifies the relevance of performance (or efficiency) considerations, so that the latter just work "as a justification of an actor's preferred bargaining level in public discourses rather than as an economic imperative for a certain bargaining level." Taking an intermediate position between the performance argument and the ideology argument, Traxler (2003: 19) maintains that "extended managerial control may be seen [by the employers] as an end in itself or as a means of improving performance."

As far as the optimal level of regulation is concerned, the various advantages and disadvantages discussed above point to a potential trade-off between the company-level and the macro-economic perspective, implying that generally applicable and efficient solutions may be difficult to find. Furthermore, it should be noted that the advantages and disadvantages of different regulation levels may change over time, which may then have an impact on the optimal level of regulation.

The optimal level of regulation as well as collective bargaining coverage may be affected by macro-economic developments in various ways. On the one hand the degree of centralisation may increase, because (for Germany) the European Monetary Union requires a higher degree of nominal wage flexibility, and because it is often assumed that the coordination of collective bargaining will help achieve this better. On the other hand, the prevailing trend over the last decade has been a reduction in inflation rates, and consequently a reduction in the importance of centralised negotiations for achieving wage moderation. Increasing levels of unemployment as well as the option of moving production abroad may make decentralised negotiations more attractive for companies, because they reduce insider power and improve the bargaining position of the employer.

A very important challenge to collective bargaining policy and the choice of the optimal level of regulation may be seen in the increasing globalisation of the economy as well as in technological and structural change. Growing international competition and the increased speed of technological change both increase the probability of shocks and changes in the ex-

derpinning the organisation of interests and the operation of bargaining systems, see Traxler *et al.* (2001).

ternal environment which may affect regions, industries, companies, and occupational groups differently, and which may require differentiated responses. To the extent to which differences between sectors and establishments increase, the transaction-cost advantage of centralised arrangements decreases in favour of the informational and flexibility advantages of decentralised regulation.

Globalisation is associated with the increasing importance of adaptation flexibility in face of changing conditions in the product and the factor markets. The structure of production moves away from standardised, Fordist mass production to differentiated high technology products. Consequently, work organisation needs to become more flexible. Against the background of these developments, there may be a shift from Taylorist work organisation to greater team orientation, fewer levels of hierarchy, increased individual responsibilities and job enlargement. Consequently, investment in firm-specific human capital, employee participation, and performance-related compensation are becoming more important in this post-Fordist environment. In such an environment that requires local and flexible decision-making, relatively rigid rules established by collective bargaining and a relatively small scope for decision-making with regard to compensation systems and other personnel policies may pose serious problems for many firms and might prompt them to drop out of the collective bargaining system.

Although a comprehensive theoretical model capable of explaining the determinants of collective bargaining coverage does not yet exist, economic theory provides some starting points for the explanation of employer choice of a certain level of regulation. Some potential determinants will be analysed in the following section, drawing on the data of the Workplace Employee Relations Survey and the IAB Establishment Panel.

3 Empirical Analysis

3.1 Prior Empirical Research for Britain and Germany

Despite a growing interest in the emergence and the change of governance structures, in particular concerning de-collectivisation, empirical research on the determinants of collective bargaining coverage and the preferred level of regulation is still relatively small and has not resulted in an established set of consistent empirical findings (for an overview of re-

search with nationally representative data, see Zagelmeyer, 2004b). Furthermore, to the best of our knowledge, no studies have been conducted yet that cover more than one country.

So far, there exist only three studies of collective bargaining centralisation in Britain. The first quantitative study by Deaton and Beaumont (1980) is based on survey data covering 970 manufacturing firms. It shows that, among others, regional concentration, labour costs, union density and multi-unionism are positively associated with centralisation, while there are negative associations for establishment size, foreign ownership and product market concentration. The other two studies are based on the Workplace Industrial/Employee Relations Surveys. Research by Booth (1989) shows that centralisation is negatively associated with establishment/organisation size and foreign ownership, and positively associated with the share of labour costs in turnover. According to Zagelmeyer (2004a), the influence of several independent variables varies across years, so that their overall impact is not clear-cut.⁶

There is more research on the determinants of governance structures in Germany, and this is most comprehensive with regard to the alternative choices examined and quite heterogeneous with regard to explanatory determinants included in the models. Despite differences in detail, analyses of the choice between decentralised regulation and multi-employer collective bargaining based on the representative IAB Establishment Panel (see, e.g., Bellmann *et al.*, 1999; Kohaut and Schnabel, 2003; Lehmann, 2002) show that establishment size, establishment age, and being a subsidiary establishment of a multi-plant company are positively associated with multi-employer collective bargaining. Further research based on other data sets is mostly consistent with this evidence and points to additional determinants such as union density and the composition of the workforce

⁶ In addition, there has been a considerable amount of research on the determinants of union recognition in Britain. Beaumont and Harris (1989, 1991) show that union recognition is positively associated with organisation and establishment size, establishment age, the percentage of female employees, and the percentage of part-time employees, whereas it is negatively associated with the proportion of manual workers. Disney *et al.* (1995) and Machin (2000) demonstrate that union recognition is positively associated with establishment size, establishment age as well as public-sector and private-sector manufacturing establishments. According to these studies, union recognition is negatively associated with the percentage of part-time employees, foreign ownership, and single-establishment companies.

(see, e.g., Franz and Pfeiffer, 2001; Lehmann, 2002; Hübler and Jirjahn, 2003).

3.2 Potential Determinants of Collective Bargaining Structure

Arguments regarding the determinants of collective bargaining coverage and bargaining centralisation range from macro-level determinants (for recent summaries, see Traxler *et al.*, 2001; Zagelmeyer, 2004a) to micro-level determinants (summarized by Lehmann, 2002; Zagelmeyer, 2004a). The present paper focuses on micro-level factors affecting the level of regulation of the employment relationship. This section summarises the theoretical arguments regarding these determinants, focusing on employer choice between three alternative options, namely individual regulation, single-employer collective bargaining, and multi-employer collective bargaining.⁷ Then we estimate an econometric model for the probability that an establishment is associated with a certain governance structure. Since our data are only cross-sectional and do not provide information on all issues that may be of interest from a theoretical perspective, the following analysis is not so much an exact testing of hard-to-quantify economic hypotheses, but should rather be seen as an attempt to empirically identify certain characteristics of establishments associated with different forms of governance structure.

In addition to the descriptive evidence presented in Table 1 there are several other reasons why company or establishment size may be expected to be positively associated with the centralisation of governance structures. As establishment or organisation size increases, organisational structures become more complex and personal relationships become more distant. Costs associated with co-ordination, monitoring and communication increase. Collective bargaining may reduce complexity, and improve communication. In addition, as transaction costs of concluding individual

⁷ While we assume that the employer has the right to unilaterally determine the choice of the governance structure, this does not rule out that he may bargain with the union(s) over the collective bargaining structure and that power relations and institutional factors (such as labour law, extension schemes, union organisation and strength, employers associations) may play a role here; these factors are stressed and investigated by Arrowsmith *et al.* (2003) and by Traxler *et al.* (2001).

contracts tend to increase with the number of employees, collective agreements may reduce transaction costs.

The next argument is based on the idea that centralised collective bargaining provides collective goods, for example, wage moderation. Large firms may benefit so much from membership in an employers' association and from provision of the collective good multi-employer collective bargaining that they disproportionately support the formation and maintenance of employers' associations and multi-employer collective bargaining arrangements (Kohaut and Schnabel, 2003). One of the reasons why large and relatively profitable companies may benefit from multi-employer collective bargaining is that the terms agreed would be oriented at the less profitable (and usually smaller) companies. Another factor that hints at a positive association between establishment or company size and collective bargaining is that there may be economies of scale for trade unions in terms of organisational activity. Larger establishments may thus be positively associated with unionisation, higher membership density and collective bargaining.

On the other hand, larger organisations are more likely to experience industrial relations problems that are specific to them, and may want to have the maximum possible freedom to deal with them (Beaumont *et al.*, 1980: 127) rather than delegating authority to the employers' association. It may be argued that smaller companies have a greater need to improve their bargaining position by increasing their collective bargaining power via multi-employer collective bargaining than large employers do. In order to control for non-linearities, we therefore include the establishment size variable in linear and in squared form into the estimations. In addition, a branch plant dummy variable catches the effect that establishments in multi-plant organisations might be more likely to be covered by collective bargaining than independent establishments of similar size.

Establishment age may also play a role for governance structures in that recently established businesses (start-ups) often require more flexible institutional arrangements at early stages of their existence in order to survive and be successful. In addition, there may be institutional inertia, which could lead to some sort of path-dependency. Companies that have benefited from multi-employer bargaining in the past when it was the pre-

prevalent governance structure may retain this arrangement because they have positive expectations about its problem-solving capacity. Limitations in the German data set force us to restrict establishment age to a dummy variable taking on the value of 1 if the establishment is not more than five years old, and we expect a negative influence of this variable for the reasons mentioned above.

As far as the association between governance structure and employment structures is concerned, there exist alternative hypotheses. Homogeneity of the workforce may be positively associated with demand for collective regulation, as there should be benefits from standardisation. In contrast to establishments with highly skilled employees, whose terms and conditions of employment can best be regulated by individual employment contracts, establishments with a large share of low-skilled employees may be more likely to be covered by collective agreements. On the other hand there is the argument that employees and workers without any qualifications or with very low levels of skills have lower propensities to unionise and to handle their employment relationships collectively. The lower levels of firm-specific human capital of such employees also imply that there is less demand for collective regulation on the employer side, since the costs of opportunistic behaviour (and of substituting these workers) that could be reduced by collective regulation and the union monitoring function are lower for these workers. In this case one may expect the percentage of low-skilled workers to be negatively associated with collective bargaining.

It may also be interesting to see how ownership of the company influences the choice among governance structures, although there exist almost no clear-cut theoretical hypotheses. It could be argued that foreign ownership is negatively associated with collective bargaining since the management of establishments controlled by foreign multinationals may require different institutional settings compared to other establishments. In other words, multinationals may develop their own company-specific or concern-specific employment system which is incompatible with the predominant industrial relations institutions in the host country. Also, management at foreign-controlled establishments might copy the supposedly successful institutional and organisational configuration of the establishments existing in their country of origin. Unfortunately we cannot test the latter hypothesis due to lack of data on the country of the foreign owner,

but we will investigate with a dummy variable whether establishments that are predominantly foreign owned are more or less likely to rely on collective bargaining.

Furthermore, our estimations control for public sector affiliation of the establishment. While the general behavioural assumption for private-sector firms in capitalist economies is profit-maximization, public sector establishments may follow different objectives. Beaumont and Gregory (1980: 47) argue that public sector employers may encourage union organisation and collective bargaining in order to improve staff relations and service. Thus, one may expect public sector affiliation to be positively associated with collective bargaining. Moreover, since public sector establishments, in particular in public administration, have similar structures across the country, there may be benefits from standardizing employment conditions via multi-employer collective bargaining.

Finally, there may be industry specific factors, such as the level of collectively agreed wages and the quality of the employers' association, which may have an impact on collective bargaining coverage. This is (imperfectly) captured by including a set of industry dummy variables indicating the sectoral affiliation of the main economic activity of the establishment.

3.3 Empirical Results

In our empirical analysis we make use of an ordered probit model that estimates the probability of choosing one of the three alternative options, namely individual regulation (i.e. no collective bargaining), single-employer collective bargaining, and multi-employer collective bargaining. We thus assume that the dependent variable can be interpreted as an ordered categorical variable, and this for at least two reasons: Following the transaction cost arguments outlined above, the probability of choosing a specific governance structure increases from individual regulation over single-employer collective bargaining to multi-employer collective bargaining. This is because the employer may reduce transaction costs by moving from individual contracting to standardised single-employer agreements, and transaction costs fall further if employers associations can deliver collective agreements at even lower cost and with additional advantages due to specialisation effects, reduced risk of industrial action, sectoral standardisation of wages etc. In contrast, under the aspects of flexibility and

differentiation, firms' probability of choosing a specific governance structure should fall in this order (with individual contracts offering the greatest and multi-employer arrangements the smallest flexibility and differentiation). Since both perspectives imply the same order (albeit with different justifications and underpinnings), an ordered probit estimation is feasible (for details, see Greene, 2000: 875ff.).⁸

Our empirical results are presented in Tables 2 and 3 in the form of marginal effects (reflecting the effects of a one-unit change in a continuous explanatory variable at its mean or of a discrete change of a dummy variable from 0 to 1 with all other variables set at their sample means). The same models are applied to Great Britain and to western and eastern Germany.⁹ Definitions and descriptive statistics of the dependent and independent variables used in these estimations can be found in an Appendix Table. The estimates show that almost all independent variables play a statistically significant role in explaining the structure of collective bargaining, although their precise effects differ in Britain and Germany.

Since interpreting the coefficients and marginal effects of ordered probit estimations is not obvious (for detailed explanations see Greene, 2000: 876ff.), the public sector dummy variable will be interpreted first because it provides a good example for the similarities and differences among the three regions analysed. In accordance with expectations, establishments operating in the public sector are more likely to make use of collective bargaining and are less likely to have no collective bargaining than other establishments, *ceteris paribus*. This effect is very strong in Britain where belonging to the public sector lowers an establishment's probability of no

⁸ This is not to deny that alternative set-ups of employers' choice are possible, all of which require specific assumptions and have different strengths and weaknesses that cannot be discussed in detail here. One could concentrate on the distinction between centralised (i.e. multi-employer) and decentralised (i.e. firm-level) arrangements, as analysed by Kohaut and Schnabel (2003) for Germany (whose results are very much in line with those presented here). Another binary choice might be between individual regulation and collective bargaining, as studied by Zagelmeyer (2004a) for Britain. Choices between our three categories might also be modelled sequentially as a two-step process, or multinomial choice could be investigated (see Zagelmeyer 2004a).

⁹ While the descriptive information on collective bargaining incidence displayed in Table 1 is based on weighted data, the econometric investigation uses unweighted data, and all models include the stratification variables of the representative surveys (i.e. industry dummies and establishment size); see Winship and Radbill (1994) for a discussion of these methodological issues.

collective bargaining by 56 percentage points while increasing the probabilities of single- and multi-employer bargaining by 15 and 41 percentage points, respectively (see Table 2). In western and eastern Germany, the probability of multi-employer bargaining rises by only 13 and 21 percentage points, respectively, if an establishment operates in the public sector (see Table 3).

Table 2: Determinants of collective bargaining structure in Great Britain (1998)

(Ordered-probit estimates; dependent variable is an index of the type of collective bargaining; estimates shown are marginal effects)

explanatory variables	no collective bargaining	single-employer bargaining	multi-employer bargaining
establishment size (<i>number of employees</i>)	-0.0002** (-6.27)	0.0001** (5.86)	0.0001** (6.20)
establishment size squared	1.05 e-08** (4.85)	-0.52 e-09** (-4.64)	-0.53 e-09** (-4.82)
branch plant (<i>dummy: 1 if yes</i>)	-0.20** (-6.50)	0.11** (5.48)	0.09** (7.63)
establishment age (<i>dummy: 1 if ≤ 5 years</i>)	0.07* (2.18)	-0.04* (-2.05)	-0.03* (-2.31)
low-skilled employees (<i>percentage</i>)	0.0003 (0.69)	-0.0001 (-0.69)	-0.0002 (-0.69)
foreign ownership/control (<i>dummy: 1 if yes</i>)	0.10** (3.38)	-0.06** (-3.08)	-0.05** (-3.70)
public sector (<i>dummy: 1 if yes</i>)	-0.56** (-18.37)	0.15** (11.88)	0.41** (12.42)
industry dummies	yes**	yes**	yes**
n	2,125	2,125	2,125
Pseudo R ²	0.226	0.226	0.226

Note: Heteroscedastic-consistent z-values in parentheses; ** and * denote statistical significance at the 0.01 and 0.05 level, respectively.

Source: WERS 98; own estimations

Table 3: Determinants of collective bargaining structure in Germany (2000)

(Ordered-probit estimates; dependent variable is an index of the type of collective bargaining; estimates shown are marginal effects)

explanatory variables	Western Germany			Eastern Germany		
	no collective bargaining	single-employer bargaining	multi-employer bargaining	no collective bargaining	single-employer bargaining	multi-employer bargaining
establishment size (<i>number of employees</i>)	-0.0002** (-5.58)	-0.00001** (-4.94)	0.0002** (5.54)	-0.0007** (-11.28)	0.00003** (7.23)	0.0006** (11.15)
establishment size squared	4.47 e-09** (5.38)	3.40 e-10** (4.93)	-4.81 e-09** (-5.36)	-1.25 e-07** (8.92)	-5.85 e-09** (-6.41)	-1.19 e-07** (-8.86)
branch plant (<i>dummy: 1 if yes</i>)	-0.17** (-15.41)	-0.02** (-11.03)	0.19** (15.18)	-0.22** (-12.31)	-0.005 (-0.30)	0.22** (11.69)
establishment age (<i>dummy: 1 if ≤ 5 years</i>)	0.14** (7.19)	0.006** (11.08)	-0.15** (-7.43)	0.12** (6.38)	-0.009** (-4.37)	-0.11** (-6.56)
low-skilled employees (<i>percentage</i>)	0.0005* (2.51)	0.00004* (2.49)	-0.0005* (-2.51)	0.001** (2.94)	-0.00004** (-2.77)	-0.001** (-2.94)
foreign ownership/control (<i>dummy: 1 if yes</i>)	0.05* (2.01)	0.003* (2.45)	-0.05** (-2.04)	-0.16** (-3.67)	-0.001 (-0.44)	0.16** (3.47)
public sector (<i>dummy: 1 if yes</i>)	-0.12** (-5.59)	-0.01** (-4.37)	0.13** (5.46)	-0.21** (-7.15)	0.001 (0.32)	0.21** (6.85)
industry dummies	yes**	yes**	yes**	yes**	yes**	yes**
n	8,006	8,006	8,006	5,301	5,301	5,301
Pseudo R ²	0.110	0.110	0.110	0.156	0.156	0.156

Note: Heteroscedastic-consistent z-values in parentheses; ** and * denote statistical significance at the 0.01 and 0.05 level, respectively.

Sources: IAB Establishment Panel 2000; own estimations

The probability of multi-employer bargaining also increases with the size of an establishment, but at a decreasing rate (indicated by the negative coefficient of the quadratic in establishment size). This effect is strongest in eastern Germany, where simulations show that increasing the size of an establishment from 100 to 200 employees increases its probability of multi-employer bargaining by 6 percentage points (whereas the respective effects are just 2 percentage points in western Germany and 1 percentage point in Britain). In both countries, branch plants are less likely to have no collective bargaining and are more likely subject to multi-employer bargaining agreements than independent establishments, which may reflect a spill-over effect from their parent company. In contrast, newly-founded establishments are less likely to make use of multi-employer bargaining, probably because they require more flexible institutional arrangements at this early stage of their existence or because they have not been organised yet by trade unions and employers' associations. In addition, industry effects play a significant role in explaining governance structure in both countries.

The percentage of low-skilled employees in the workforce seems to be negatively related to multi-employer bargaining, but this effect is statistically significant in Germany only. Foreign ownership or control increases the probability of no collective bargaining by 10 percentage points in Britain and by 5 percentage points in western Germany, whereas it lowers this probability of individual regulation by 16 percentage points in eastern Germany.¹⁰

Despite these differences in detail, the broad picture is that more or less the same set of variables are associated with firms' choice of governance structure for the employment relationship in Britain and in (western and eastern) Germany. Although the establishment size effect is much stronger in eastern than in western Germany and the foreign ownership effect differs between both regions, we would not conclude from our regressions with micro data that the determinants of bargaining structure in eastern Germany are totally different from those in western Germany. Moreover,

¹⁰ Kohaut and Schnabel (2003) found similar differences between western and eastern Germany in their probit analysis of multi-employer collective bargaining, but they also were not able to provide a simple and convincing explanation for this result.

Moreover, they do not more closely resemble those factors which shape the “disorganised decentralised” British system (as compared to the “organised decentralised” western German one), as might have been expected given the different tradition of and experience with collective bargaining in eastern Germany.

4 Conclusions

While much of international and comparative research so far has made extensive use of qualitative data obtained through case studies, there are very few examples of comparative research based on company and establishment surveys. Whitfield *et al.* (1998: 193ff.) make the case for survey based comparisons by arguing that case studies could be complemented by such survey based research. They suggest that comparing establishment surveys, if they have common questions and comparable sample populations, may lead to useful results in an informed international comparative analysis at the micro level, but they also warn that certain problems of incompatibility may occur.

In this paper we have tried to identify major determinants of collective bargaining structure by comparing the results of two nationally representative establishment surveys for Britain and Germany. As the institutional framework in both countries differs and as the British data refer to establishments with 10 or more employees whereas the much larger German data set covers all establishments with at least one employee, our analyses need to be interpreted with a pinch of salt. We also experienced a potential problem of question incompatibility concerning the dependent variable because the British data focus on pay determination, whereas the German data do not refer to a particular governance issue. Since also in Germany pay determination is the major issue in collective bargaining and can be said to determine the choice of governance structure, and since the dependent variable chosen is very broad, we think that incompatibility is not a serious problem of the present study. All in all, we feel that the data sets used and developed possess the characteristic of reasonably close comparability.

This said, we must admit that the variables analysed represent a small subset of those available in both data sets, as well as a subset of those that would be ideal for a comprehensive comparative analysis. Feasibility

clearly dominated desirability.¹¹ We also acknowledge that surveys and cross-sectional analyses tell us little about causal relationships and processes. However, they allow for more comprehensive testing than other approaches, and they enable us to present a broad picture and to identify some factors that are associated with firms' choice of a certain level of collective bargaining. Obviously our approach has to be complemented with studies using alternative methods.

Despite these qualifications, some interesting results were obtained from the empirical analyses. For Britain and (western and eastern) Germany alike, the probability of multi-employer bargaining increases with the size of an establishment, which may reflect the advantage of falling transaction costs. Establishments operating in the public sector are more likely to make use of collective bargaining and are less likely to rely on individual regulation than other establishments – an effect that is particularly strong in Britain. In both countries, branch plants are more likely subject to multi-employer bargaining agreements than independent establishments, probably due to a spill-over effect from their parent company. In contrast, newly-founded establishments are more likely not to make use of collective bargaining, probably because they require more flexible institutional arrangements at this early stage of their existence or because they have not been organised yet by trade unions and employers' associations.

The non-participation of new establishments and the increasing privatization of companies in the public sector both imply that bargaining coverage will further decline over time, as has been the case in Britain and Germany in the last decades. Due to data limitations, the determinants of changes in firms' bargaining status have proved difficult to identify (see first attempts by Zagelmeyer, 2004a, for Britain and by Kohaut and Schnabel, 2003, for Germany). Further micro research employing future waves of both data sets should try to make better use of the panel char-

¹¹ Two additional variables of interest (and suggested by a referee) would be the structure of the product market and union presence or strength within establishments. Unfortunately, information on these variables is not available in the data set for Germany. Using the four cross-sectional WIRS/WERS datasets, research by Zagelmeyer (2004a) on the association between the demand of private sector employers for governance structures on the one hand and (i) union density and/or (ii) geographical scope of the product market and/or (iii) the extent of competition does not yield any stable results over time.

acter of the data. Combined with macro research on bargaining coverage of the type employed, for instance, by Traxler *et al.* (2001) this should enable us to obtain a better insight into the determinants of changes in bargaining institutions and governance structures.

Our finding that more or less the same set of variables are associated with firms' choice of governance structure for the employment relationship in Britain and Germany is quite interesting since the institutional framework and the bargaining tradition in both countries differ markedly. We would not claim to have identified a common model which fits both countries perfectly or which could even be generalised to other countries. It might be interesting to see, however, to which degree these variables also play a role in other countries whose experiences in the coverage and evolution of collective bargaining may be totally different. While this is beyond the scope of the present study, more comparative research on the determinants of collective bargaining structure, which should make use of micro- and macro-econometric analyses as well as case studies, is clearly needed.

References

- Aidt, T. and Tzannatos, Z. (2002): *Unions and Collective Bargaining: Economic Effects in a Global Environment*. Washington, D.C.: The World Bank.
- Arrowsmith, J., Marginson, P. and Sisson, K. (2003): 'Externalisation and Internalisation of Collective Bargaining in Europe: Variation in the role of large companies', *Industrielle Beziehungen* 19: 363–392.
- Beaumont, P.B. and Gregory, M.B. (1980): 'The Determinants of Collective Bargaining Coverage in Britain, With Special Emphasis on the Employers Role', *Industrial Relations Journal* 11: 46–52.
- Beaumont, P.B., Thomson, A.W.J. and Gregory, M.B. (1980): 'Bargaining Structure', *Management Decision* 18(3): 103–170.
- Beaumont, P.B. and Harris, R.I.D. (1989): 'The North-South Divide in Britain: The Case of Trade Union Recognition', *Oxford Bulletin of Economics and Statistics* 51: 413–28.
- Beaumont, P.B. and Harris, R.I.D. (1991): 'Trade Union Recognition and Employment Contraction, Britain, 1980–1984', *British Journal of Industrial Relations* 29: 49–58.

- Bellmann, L., Kohaut, S. and Schnabel, C. (1999): 'Flächentarifverträge im Zeichen von Abwanderung und Widerspruch: Geltungsbereich, Einflußfaktoren und Öffnungstendenzen', in L. Bellmann and V. Steiner (eds): *Panelanalysen zu Lohnstruktur, Qualifikation und Beschäftigungsdynamik*, pp. 11–40. Nürnberg: Institut für Arbeitsmarkt- und Berufsforschung.
- Berthold, N. and Fehn, R. (1996): 'Evolution von Lohnverhandlungssystemen – Macht oder ökonomisches Gesetz?' in W. Zohlnhöfer (ed): *Die Tarifautonomie auf dem Prüfstand*, pp. 57–94. Berlin: Duncker und Humblodt.
- Bispinck, R. (1999): *Stationen der Tarifpolitik von 1949–1999. WSI Informationen zur Tarifpolitik, Elemente qualitativer Tarifpolitik Nr. 38*, Düsseldorf: Hans-Böckler-Stiftung.
- Booth, A. (1989): 'The Bargaining Structure of British Establishments', *British Journal of Industrial Relations* 27: 225–234.
- Brown, W. (1972): 'A Consideration of Custom and Practise', *British Journal of Industrial Relations* 10: 42–61.
- Brown, W., Marginson, P. and Walsh, J. (2003): 'The Management of Pay as the Influence of Collective Bargaining diminishes' in Edwards, P. (ed): *Industrial Relations – Theory and Practice*, pp. 189–213. Oxford: Blackwell.
- Brown, W. and Terry, M. (1978): 'The Changing Nature of National Wage Agreements', *Scottish Journal of Political Economy* 25: 119–33.
- Cahuc, P. and Kramarz, F. (1997): 'Voice and Loyalty as a Delegation of Authority: A Model and a Test on a Matched Worker-Firm Panel', *Journal of Labor Economics* 15: 658–88.
- Calmfors, L. (1993): 'Centralisation of Wage Bargaining and Macroeconomic Performance: A Survey', *OECD Economic Studies* 21: 161–91.
- Calmfors, L. and Driffill, J. (1988): 'Bargaining Structure, Corporatism and Macroeconomic Performance', *Economic Policy* 6: 14–61.
- Clegg, H.A. (1972): *The System of Industrial Relations in Britain. Enlarged edition*. Oxford: Basil Blackwell.
- Cully, M., Woodland, S., O'Reilly, A. and Dix, G. (1999): *Britain at Work: As Depicted by the 1998 Workplace Employee Relations Survey*. London: Routledge.
- Deaton, D.R. and Beaumont, R.B. (1980): 'The Determinants of Bargaining Structure: Some Large Scale Survey Evidence for Britain', *British Journal of Industrial Relations* 18: 202–216.

- Disney, R., Gosling, A. and Machin, S. (1995): 'British Unions in Decline: Determinants of the 1980s Fall in Union Recognition', *Industrial and Labor Relations Review* 48: 403–19.
- Edwards, P.K., Hall, M., Hyman, R., Marginson, P., Sisson, K., Waddington, J. and Winchester, D. (1992): 'Great Britain: Still Muddling Through', in A. Ferner and R. Hyman (eds): *Industrial Relations in the New Europe*, pp. 1–68. Oxford: Blackwell.
- Department of Employment (1971): *The Reform of Collective Bargaining at Plant and Company Level*. Manpower Papers Number, Department of Employment, No.5, London.
- Flanagan, R.J. (2003): 'Collective Bargaining and Macroeconomic Performance', in J. T. Addison and C. Schnabel (eds): *International Handbook of Trade Unions*, pp. 172–96. Cheltenham: Edward Elgar.
- Flanders, A. (1974): 'The Tradition of Voluntarism', *British Journal of Industrial Relations* 12: 352–70.
- Franz, W. and Pfeiffer, F. (2001): *Tarifbindung und die ökonomische Rationalität von Lohnrigiditäten*. Discussion Paper, Zentrum für Europäische Wirtschaftsforschung, No.01-01, Mannheim.
- Freeman, R.B. and Gibbons, R. (1995): 'Getting Together and Breaking Apart: The Decline of Centralised Collective Bargaining', in R.B. Freeman and L.F. Katz (eds): *Differences and Changes in Wage Structures*, pp. 345–370. Chicago: University of Chicago Press.
- Gospel, H.F. and Palmer, G. (1993): *British Industrial Relations*. 2nd ed., London: Routledge.
- Greenberg, D.H. (1966a): 'Some Industry Characteristics as the Determinants of the Structure of Collective Bargaining'. Unpublished PhD Dissertation, MIT: Boston.
- Greenberg, D.H. (1966b): 'The Structure of Collective Bargaining and Some of Its Determinants', in *Industrial Relations Research Association* (ed): *Proceedings of the Nineteenth Annual Winter Meeting*, pp. 343–354. Madison: Industrial Relations Research Association.
- Greene, W.H. (2000): *Econometric Analysis*. 4th ed., Upper Saddle River: Prentice Hall.
- Hassel, A. (1999): 'The Erosion of the German System of Industrial Relations', *British Journal of Industrial Relations* 37: 484–505.
- Hassel, A. (2002): 'The Erosion Continues: A Reply', *British Journal of Industrial Relations* 40: 309–317.
- Hendricks, W.E. and Kahn, L.M. (1982): 'The Determinants of Bargaining Structure in U.S. Manufacturing Industries', *Industrial and Labor Relations Review* 35: 181–195.

- Hendricks, W.E. and Kahn, L.M. (1984): 'The Demand for Labor Market Structure: An Economic Approach', *Journal of Labor Economics* 2: 412–438.
- Hübler, O. and Jirjahn, U. (2003): 'Works Councils and Collective Bargaining in Germany: The Impact on Productivity and Wages', *Scottish Journal of Political Economy* 50: 471–91.
- Jacobi, O., Keller, B. and Müller-Jentsch, W. (1998): 'Germany: Facing New Challenges', in A. Ferner and R. Hyman, R. (eds.): *Changing Industrial Relations in Europe*, pp. 190–238. Oxford: Blackwell.
- Katz, H.C. (1993): 'The Decentralization of Collective Bargaining: A Literature Review and Comparative Analysis', *Industrial and Labor Relations Review* 47: 3–22.
- Kohaut, S. and Schnabel, C. (1999): 'Tarifbindung im Wandel', *iw-trends* 26(2): 63–80.
- Kohaut, S. and Schnabel, C. (2003): 'Zur Erosion des Flächentarifvertrags: Ausmaß, Einflussfaktoren und Gegenmaßnahmen', *Industrielle Beziehungen* 10: 188–219.
- Kölling, A. (2000): 'The IAB-Establishment Panel', *Schmollers Jahrbuch - Zeitschrift für Wirtschafts- und Sozialwissenschaften* 120: 291–300.
- Lehmann, K. (2002): *Stabilität und Veränderung der Flächentarifbindung von Arbeitgebern in Deutschland. Eine theoretische und empirische Analyse*. Münster: LIT.
- Lindbeck, A. and Snower, D.J. (2001): 'Centralized Bargaining and Reorganized Work: Are They Compatible?' *European Economic Review* 45: 1851–75.
- Machin, S. (2000): 'Union Decline in Britain', *British Journal of Industrial Relations* 38: 631–45.
- Marginson, P., Sisson, K. and Arrowsmith, J. (2003): 'Between Decentralization and Europeanization: Sectoral Bargaining in Four Countries and Two Sectors', *European Journal of Industrial Relations* 9: 163–87.
- Moene, K.O., Wallerstein, M. and Hoel, M. (1993): 'Bargaining Structure and Economic Performance', in R. J. Flanagan, K.O. Moene and M. Wallerstein (eds): *Trade Union Behaviour, Pay-Bargaining, And Economic Performance*, pp. 63–131. Oxford: Clarendon Press.
- OECD (1994): *Employment Outlook*. Paris: OECD.
- OECD (1997): *Employment Outlook*. Paris: OECD.
- Ramaswamy, R. and Rowthorn, R. (1993): *Centralized Bargaining, Efficiency Wages, and Flexibility*. Working Paper, International Monetary Fund, No. 93/25. Washington.

- Royal Commission (1968): Royal Commission on Trade Unions and Employers Associations 1965–1968. Report, Cmnd 3623, H.M. Stationary Office. London.
- Schnabel, C. (1998): 'The Reform of Collective Bargaining in Germany: Corporatist Stability vs. Firm Flexibility', in R. Hoffmann, O. Jacobi, B. Keller and M. Weiss (eds): *The German Model of Industrial Relations between Adaptation and Erosion*, pp. 83-95. Düsseldorf: Hans-Böckler-Stiftung.
- Schnabel, C. (2003): *Tarifpolitik unter Reformdruck*. Gütersloh: Bertelsmann Stiftung.
- Thörnqvist, C. (1999): 'The Decentralization of Industrial Relations: The Swedish Case in Comparative Perspective', *European Journal of Industrial Relations* 5: 71–87.
- Traxler, F. (1996): 'Collective Bargaining and Industrial Change: A Case of Disorganization?', *European Sociological Review* 12: 271–87.
- Traxler, F. (2003): 'Bargaining (De)centralization, Macroeconomic Performance and Control over the Employment Relationship', *British Journal of Industrial Relations* 41: 1–27.
- Traxler, F. and Behrens, M. (2002): 'Collective Bargaining Coverage and Extension Procedures', *EIROnline*
<http://www.eiro.eurofound.ie/2002/12/study/tn0212102s.html>
(accessed: 16/12/2003).
- Traxler, F., Blaschke, S. and Kittel, B. (2001): *National Labour Relations in Internationalized Markets: A Comparative Study of Institutions, Change, and Performance*. Oxford: Oxford University Press.
- Visser, J. (2003): 'Unions and Unionism around the World', in J.T. Addison and C. Schnabel (eds): *International Handbook of Trade Unions*, pp. 366–413. Cheltenham: Edward Elgar.
- Whitfield, K., Delbridge, R. and Brown, W. (1998): 'Using Workplace Surveys for Comparative Research', in K. Whitfield, Strauss, G. (eds): *Researching the World of Work*, pp. 193–207. Ithaca: ILR Press.
- Wiedemann, H. (ed) (1999): *Tarifvertragsgesetz (Kommentar)*. 6th ed., München: Beck
- Winship, Ch. and Radbill, L. (1994): 'Sampling Weights and Regression Analysis', *Sociological Methods & Research* 23: 230–257.
- Zagelmeyer, S. (2004a): *Governance Structures and the Employment Relationship: Determinants of Employer Demand for Collective Bargaining in Britain*. Oxford: Peter Lang.

Zagelmeyer, S. (2004b): 'A First Comparative Inquiry into the Causes and Consequences of Procedural Individualisation of Governance Structures in Britain and Germany', *Industrielle Beziehungen* 11: 61–76.

Appendix

Table: Definition and descriptive statistics of the dependent and independent variables

Variable	Description and Coding	Sample	N	Mean	Std. Dev.	Min	Max
Governance structure	Categorical variable: Type of governance structure: 1 = no collective bargaining, 2 = single-employer collective bargaining, 3 = multi-employer collective bargaining	Britain	2,125	1.65	1.79	1	3
		W. Germany	8,006	2.24	0.94	1	3
		E. Germany	5,301	1.85	0.94	1	3
Establishment size	Continuous variable: Total number of employees working at the establishment	Britain	2,125	286.94	851.91	10	28,971
		W. Germany	8,006	242.15	938.71	1	41,638
		E. Germany	5,301	119.89	313.89	1	5,715
Establishment size squared	Continuous variable: Total number of employees working at the establishment squared	Britain	2,125	807746.9	1.88e+07	100	8.39e+08
		W. Germany	8,006	939697.4	2.24e+07	1	1.73e+09
		E. Germany	5,301	112563.0	1001250	1	3.27e+07
Branch plant	Dummy variable: Establishment is part of a multi-establishment organisation = 1	Britain	2,125	0.79	0.40	0	1
		W. Germany	8,006	0.22	0.42	0	1
		E. Germany	5,301	0.19	0.39	0	1
Establishment age	Dummy variable: Establishment has been operating at this address for up to 5 years = 1	Britain	2,125	0.16	0.36	0	1
		W. Germany	8,006	0.10	0.30	0	1
		E. Germany	5,301	0.17	0.38	0	1
Low-skilled employees	Continuous variable: Percentage of total routine unskilled manual workers or clerical and secretarial employees	Britain	2,125	30.09	26.43	0	100
		W. Germany	8,006	26.77	27.98	0	100
		E. Germany	5,301	14.29	23.09	0	100
Foreign ownership/control	Dummy variable: Workplace is predominantly foreign owned (51 per cent or more) = 1	Britain	2,125	0.10	0.31	0	1
		W. Germany	8,006	0.06	0.25	0	1
		E. Germany	5,301	0.02	0.15	0	1
Public sector	Dummy variable: Establishment is operating in the public sector = 1	Britain	2,125	0.30	0.46	0	1
		W. Germany	8,006	0.16	0.37	0	1
		E. Germany	5,301	0.20	0.40	0	1

Sources: WERS 98; IAB Establishment Panel 2000.

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