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**Collective bargaining  
and workplace performance:  
An investigation using the Workplace  
Employee Relations Survey 1998**

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## Foreword

Promoting good employment relations is an important task of government. Our role in the Department of Trade and Industry is to encourage the development of a skilled and flexible labour market founded on the principle of partnership at work.

The Department commissions an ongoing programme of evaluation and research in employment relations. In-house researchers, economists and policy advisors devise research projects to be conducted on our behalf by external researchers, who are chosen through a competitive tendering process. Projects typically look at areas where we are interested in identifying good practice, in assessing the impact of particular policies or regulations, or examining emergent trends. Details of the programme appear regularly in *Labour Market Trends* and can be found at <http://www.dti.gov.uk/er/emar>

The Research Series is where we disseminate the results of this work. The views expressed in these publications do not necessarily reflect those of the Department. We publish these reports as a contribution towards an open debate about how we might best achieve our overall aim of improving competitiveness.

**Mark Beatson**

**Director, Employment Market Analysis and Research Branch**



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# Glossary

## **Bargaining arrangement**

The way in which unions (and employers) are organised for bargaining purposes. Specifically, whether the employer negotiates with a single union or multiple unions and, if with more than one union, whether negotiations are with unions separately or jointly.

## **Bargaining coverage**

The percentage of workers in a workplace whose pay is set by collective bargaining.

## **Bargaining levels**

The levels at which pay bargaining occurs (workplace, organisation or industry).

## **Closed shop**

Where employees are required to be union members. Where some employees have to be members of a union to get or keep their jobs, this is called a post-entry *closed shop*. If new recruits have to be union members before they start work, this is called a pre-entry *closed shop*.

## **Recognised union**

Throughout the Workplace Industrial Relations Surveys Series (*WIRS*), managers who say there are union members at the workplace have been asked whether any of the unions are recognised by the employer for negotiating pay for any section of the workforce at the establishment. This information is collected for each union. If negotiations take place at a higher level in an organisation, but apply to employees in the sampled establishment, the union is recognised.

## **Single-table bargaining**

Multiple unions negotiating jointly with an employer.

## **Union density**

The percentage of employees in union membership.

## **Unionised workplaces**

Those workplaces recognising union(s) for pay bargaining.

## **WERS98**

The Workplace Employee Relations Survey 1998, the most recent in the *WIRS* series, departs from its predecessors in two important respects. It is representative of British workplaces with 10 or more employees, and it contains a survey of employees.

## **WIRS**

The Workplace Industrial Relations Surveys series, which is a nationally representative survey of workplaces in Britain with 25 or more employees conducted in 1980, 1984, 1990 and 1998. *WIRS80*, *WIRS84* and *WIRS90* refer to the respective surveys.

# Executive summary

## Aims of the study

The purpose of this study is to investigate what impact, if any, collective bargaining had on managerial and employee perceptions of the employee relations climate and managerial perceptions of workplace financial performance in Britain by the end of the 1990s. This assessment is made using descriptive and multivariate analyses of the 1998 Workplace Employee Relations Survey (*WERS98*), a nationally representative survey of workplaces and employees in all but the smallest workplaces.

The study has two principal aims:

- (a) mapping the extent of different aspects of collective bargaining in Britain; and
- (b) identifying associations between aspects of collective bargaining and performance using multivariate techniques, which control for other influences.

## Mapping collective bargaining

In mapping collective bargaining, distinctions were made between:

- *bargaining arrangements*, by which we mean ways in which unions and employers are organised for bargaining purposes and, specifically, whether the employer negotiates with a single union or multiple unions and, if with more than one union, whether negotiations are with unions separately or jointly;
- *bargaining coverage*, that is, the percentage of workers in a workplace whose pay is set by collective bargaining;
- *bargaining levels*, that is, the level at which pay bargaining occurs (workplace, organisation or industry).

Simple typologies were developed for these three aspects of bargaining, and these were used in the analyses. *WERS* shows that, among workplaces with at least 10 employees:

- 36 per cent of all workplaces recognise trade unions. Approximately two-fifths are in the private sector.
- Around a quarter of all workplaces recognise only one union. These single union workplaces were split evenly across the public and private sectors.
- Only 14 per cent of all workplaces recognise more than one union: 38 per cent in the public sector and 5 per cent in the private sector.
- 8 per cent of workplaces have *single-table bargaining* (22 per cent in the public sector and 3 per cent in the private sector).
- In around 6 per cent of workplaces employers negotiate with separate unions over pay (13 per cent in the public sector, 2 per cent in the private sector).

## Associations between collective bargaining and performance

### *Managerial perceptions of the employee relations climate*

- 90 per cent of managers rated the employee relations climate as either 'very good' or 'good'.
- Across the economy as a whole, *bargaining arrangements* and *bargaining levels* had little effect on managerial perceptions of climate. Climate was viewed most positively where some but by no means all workers had their pay set by collective bargaining. Management support for unions also fostered better climate.
- In the private sector, climate was poorer in the small percentage of workplaces where there were three or more *recognised unions*, and they were better where there was mid-range *bargaining coverage* and in the less than 1 per cent of workplaces with multi-level bargaining.
- In the public sector, climate was better where separate bargaining with groups of unions was avoided, but there was no advantage to *single-table bargaining* over separate negotiations with individual unions. *Bargaining levels* were not associated with climate. Climate was better where a low percentage of employees were covered by collective bargaining, but poorest where there was no effective bargaining over pay.

### *Employee perceptions of the employee relations climate*

- Employees had poorer perceptions of the employee relations climate than managers did. Fifty-five per cent of employees regarded the employee relations climate as 'very good' or 'good'. Employee perceptions of climate were poorer than managers' perceptions *within the same workplace* in nearly half of all cases.
- In the economy as a whole, climate was poorer where there was separate bargaining with each union, and where there were multiple unions. Climate was better in the less than 1 per cent of workplaces with multi-level bargaining, where management supported unions, and where employees perceived unions as effective.
- In the private sector, climate was poorest in the small proportion of workplaces where there was separate bargaining with each union. In the public sector, employee perceptions of climate were better where there was multi-level bargaining.
- Union members had poorer perceptions of climate than non-members did, whether *recognised unions* were present or not. This is a common finding in the literature on climate, so it is not an unexpected finding. Their perceptions of climate were poorer where there was separate bargaining, whereas collective bargaining did not affect non-members' perceptions of climate.

### *Managerial perceptions of workplace financial performance*

- Financial performance is defined in terms of managers' perceptions of the workplace's performance relative to similar workplaces in the same industry.
- Union recognition and bargaining arrangements were not associated with financial performance. This finding held for the whole economy, the trading sector and the private trading sector, and when restricting the analysis to those using profit or value added as their measure of performance.
- However, unions improved financial performance where the workplace faced a declining or turbulent market.
- Industry-level bargaining was associated with better financial performance. However, it is not possible to determine the direction of causation.

## Implications of the findings

Despite moves towards simplified *bargaining arrangements* in the 1990s, there was no clear evidence of benefits arising from management dealing with a unified worker voice, although the avoidance of separate *bargaining arrangements* appeared advantageous in some circumstances. Analysis of panel data may shed further light on the issue.

Employer orientations to unions and union membership played an important role in determining performance outcomes. Managerial support for unions and union membership, and a preparedness to engage seriously with unions, brought rewards in terms of improved climate. Employees' belief that managers took unions seriously improved their perceptions of climate, even where unions were not recognised. Equally, where unions were present, management opposition to them was detrimental to climate. This is consistent with the notion that the workplace can benefit from social partnership.

Unions were also beneficial where employees viewed them as effective in 'delivering' for them. The question that arises is what are the conditions under which employees perceive unions as effective, and thus able to contribute to better employee relations?

The absence of general union effects on financial performance, and their positive effects in the face of difficult product market conditions, implies that the negative influences of unions on performance, identified in earlier studies (McNabb and Whitfield, 1997; Machin *et al.*, 1991, 1993; Machin and Stewart, 1990, 1996) have diminished in the 1990s.

## Directions for future research

This research could be usefully extended in the following ways.

*Panel analysis:* Using the Workplace Industrial Relations Survey (WIRS) 1990-1998 Panel it would be easier to make causal inferences about the impact of unions on performance. These data also permit analysis of the impact of switches in regime, such as a move towards *single-table bargaining*, on changes in performance.

*Alternative performance measures:* The robustness of results could be tested on alternative measures of climate and performance. The latter could include financial information from the Annual Business Inquiry that could be matched to manufacturing workplaces in WERS. Research could be extended to other performance indicators such as labour productivity.

*Organisation-level analysis:* In many instances, non-independent workplaces are expected to follow policies or procedures emanating from higher up in the organisation. Organisation-level analysis would therefore be a useful complement to the workplace-level analysis presented here.

*Tackling the changing nature of unions:* Aspects of unionism which have not featured prominently in previous empirical research, such as their effectiveness in 'delivering' for members and employers, and managerial attitudes towards unions, negotiation and consultation, could be explored more thoroughly in future. As regards more traditional measures, there are mismatches in the WERS data between indicators of union recognition and *bargaining coverage*. These ought to be investigated further to establish whether they reflect 'real world' circumstances or data issues.

## Overview of the report

The main body of the report provides:

- An outline of the current policy context and overview of the changing influence of trade unions in Great Britain over the last two decades (Chapters 1 and 2).
- An outline of the theories linking unions with the employee relations climate and workplace performance, and a review of the empirical literature on these links (Chapter 2).
- A map of the terrain identifying the main features of collective bargaining using *WERS98*. This provides a simplified typology of *bargaining arrangements*, coverage and levels used in the subsequent analysis (Chapter 3).
- An analysis of the association between unions and managerial perceptions of the employee relations climate based on *WERS98* (Chapter 4).
- An analysis of the association between unions and employee perceptions of the employee relations climate based on *WERS98* (Chapter 5).
- An analysis of the association between unions and managerial perceptions of workplace financial performance based on *WERS98* (Chapter 6).
- Conclusions bringing together the main findings relating to *bargaining arrangements*, *bargaining levels*, *bargaining coverage*, managerial attitudes to unions, and union strength and effectiveness, sets them in the wider policy context, identifies the contribution made by the study, and discusses some conceptual and methodological issues that should be addressed to take the debate forward.

The appendices are provided for those with a technical interest in methodology and the specification of econometric models.

Appendix One provides a description of the Workplace Employee Relations Survey 1998.

Appendix Two explains modelling procedures.

Appendix Three presents the control variables used in analyses of managerial perceptions of the employee relations climate.

Appendix Four presents the control variables used in analyses of employee perceptions of climate.

Appendix Five presents the control variables used in analyses of managerial perceptions of the workplace's relative financial performance.

# CHAPTER 1

## The aims of the study and the policy context

The Department of Trade and Industry commissioned the Policy Studies Institute to study what impact, if any, trade unions had on workplace performance in Britain by the end of the 1990s. Research for the 1980s had indicated that, on the whole, unions had a negative impact on workplace economic performance and, in many instances, were associated with a poorer employee relations climate. However, there were grounds for believing that two decades of decline may have undermined union influence on workplace performance. The paper investigates the effects of collective bargaining on workplace performance using the 1998 Workplace Employee Relations Survey (*WERS98*), a nationally representative survey of workplaces and employees in all but the smallest workplaces.<sup>1</sup> In assessing workplace performance, we examine managers' perceptions of workplace financial performance, and management and employee perceptions of the employee relations climate. The objective is to 'map' the effect of unions prior to the introduction of statutory rights to union recognition under the Employment Relations Act 1999.

The unionised sector of the economy has shrunk due to a continual fall in union membership since the early 1980s and, since the mid-1980s, a rapid drop in the number of employers recognising unions for collective bargaining (Millward *et al.*, 2000). Where unions have retained a foothold, they appear to have lost influence over a range of workplace outcomes (Stewart, 1995; Gallie and Rose, 1996: 47). This has prompted one commentator to suggest that collective bargaining 'may at times constitute a hollow shell' (Hyman, 1997: 318), with unions increasingly 'dominated by the employer, with no independent representation of workers' interests' (Hyman, 1997: 314). According to Hyman, this situation reflects 'labour markets pervaded by insecurity, a restructured workforce and a profoundly hostile legal framework' (1997: 314). The implication is that employers are choosing to use the shift in bargaining power resulting from these changes to refashion their relationship with organised labour in the hope of regaining managerial prerogatives. There is evidence to support this contention. Gallie *et al.*, (1998: 107) identify a 'hardening of employer attitudes to unions since the mid-1980s' in their survey data, and case studies have uncovered instances in which *recognised unions* are bypassed in managerial decision-making (Marchington and Parker, 1990; Darlington, 1994). Previous analysis of *WERS98* showed that managers in workplaces with *recognised unions* often prefer to deal directly with employees (Cully *et al.*, 1999: 88).

However, the most recent evidence indicates that, while there has been a marked decline in *union density* and *bargaining coverage* in the 1990s, in some important respects – on-site union representation, joint regulation over procedures, and the scope of collective bargaining – there has been surprisingly little change (Millward *et al.*, 2000: 138-183). The pattern of union decline may be less uniform than is often portrayed, suggesting the value of identifying the effects of different aspects of trade unions in different contexts.

On the whole, these trends suggest unions' influence over workplace performance may have diminished in the last decade since that influence is increasingly contingent on their organisational strength and bargaining power (Machin and Stewart, 1996; Menezes-Filho, 1997). The extent and direction of unions' impact on the employee relations climate is also uncertain since this depends on unions' strength, their effectiveness and management support for unions (Bryson, 1999a).

The remainder of the paper is set out as follows. Chapter Two discusses the role unions play in influencing workplace performance in theory and in practice; introduces aspects of trade unionism used in the analysis; and describes changes in the nature of collective bargaining since the 1980s. Chapter Three presents a typology for collective bargaining procedures which provides the rationale for the bargaining variables that appear in our analysis. Chapter Four is the first of our three substantive chapters assessing the impact of collective bargaining on performance. It assesses influences on managerial perceptions of the employee relations climate. Having identified possible links between bargaining and perceptions of climate, it presents descriptive analyses, followed by multivariate analyses before concluding with a summary. This is the format for Chapter Five, which deals with employee perceptions of climate, and for Chapter Six, which analyses workplace financial performance. Chapter Seven concludes, pulling together the main findings and reflecting on broader issues raised by the study.

## **Endnote**

- <sup>1</sup> A description of *WERS98* is presented in Appendix One.



# CHAPTER 2

## The role of trade unions

In this chapter we do three things:

- identify the main trends in the nature of collective bargaining since the 1980s;
- discuss the possible influences of bargaining on workplace financial performance and climate;
- discuss the potential impact of other aspects of unions on performance.

### 2.1 Changes in collective bargaining

Although much has been written about the influence of unions over the last decade, little attention has been paid to the impact of collective bargaining on performance. Yet, as noted below, collective bargaining can have a profound effect on workplace outcomes. We concentrate on three aspects of collective bargaining covered in the Workplace Industrial Relations Surveys: *bargaining arrangements*, *bargaining coverage*, and *bargaining levels*. The main trends are noted in Box 2.1.

**Box 2.1: Trends in collective bargaining where unions are recognised for pay bargaining, 1984-1998**

- Decline in multi-unionism
- Increase in *single-table bargaining*
- Fall in percentage of employees covered by collective bargaining
- Decline in multi-employer bargaining and a rise in multi-site single-employer bargaining

#### 2.1.1 Bargaining arrangements

*Bargaining arrangements* refer to the ways in which unions (and employers) are organised for bargaining purposes. An individual union may negotiate separately for different groups of workers but, in the main, the number of *recognised unions* at a workplace sets a limit on the number of separate bargaining groups. Separate unions may negotiate together. Where all *recognised unions* negotiate together this is known as '*single-table bargaining*'.

During the 1990s, there was a major switch away from separate bargaining to joint bargaining in workplaces where collective bargaining was the dominant form of pay determination (Millward *et al.*, 2000: 203). In 1990, only 40 per cent of these workplaces had single bargaining units. This had risen to 77 per cent in 1998. The trend was apparent in private services, private manufacturing, and the public sector. The principal cause of the trend to *single-table bargaining* was not the reduction in multi-unionism which occurred over the period, but a simplification of *bargaining arrangements* where more than one union existed (Millward *et al.*, 2000: 204). The change was the result of behavioural change in workplaces which continued in operation over the period, coupled with the near universal adoption of *single-table bargaining* among *unionised workplaces* that had come into being since 1990 and those growing above the 25-employee threshold used for sampling in the *WIRS* series. If these trends continue, *single-table bargaining* will become still more prevalent.

**Table 2.1: Employee coverage by collective bargaining in workplaces with *recognised unions* in 1998**

	Private sector	Public sector	All
None	30	8	18
1-19 per cent	5	6	6
20-39 per cent	2	8	5
40-59 per cent	6	10	8
60-79 per cent	8	8	8
80-99 per cent	20	5	11
100 per cent	28	56	44
Mean	56	73	66
<i>Weighted base</i>	319	429	748
<i>Unweighted base</i>	560	573	1,133

**Bases:** all establishments with 10 or more employees where recognised trade unions. Note: in 7 per cent of private sector workplaces and 5 per cent of public sector workplaces (unweighted) respondents did not know the percentage of employees covered by collective bargaining. These are excluded from the table.

Bargaining structures are not simply determined by unions. Indeed, when Millward *et al.* (2000) investigated the reasons why continuing workplaces had shifted to *single-table bargaining*, they concluded that ‘many, if not most, of the moves towards simpler negotiating arrangements were at the instigation of management’ (Millward *et al.*, 2000: 205). If, as suggested in Chapter One, employers have successfully exploited shifts in bargaining power to refashion *bargaining arrangements* to their advantage, this implies an association between *single-table bargaining* and better performance.

### 2.1.2 Bargaining coverage

The percentage of workers whose pay is jointly determined by employers and unions through collective bargaining is a crucial measure of union influence in the workplace. By this measure, unions have lost a good deal of influence over joint regulation since the mid-1980s, despite being formally recognised for pay bargaining. There has been a marked decline in collective *bargaining coverage* in *unionised workplaces* since 1984 affecting all three broad sectors of the economy (Millward *et al.*, 2000: 159-167). Mean collective *bargaining coverage* among *unionised workplaces* with 25 or more employees fell from 86 per cent to 67 per cent between 1984 and 1998. Furthermore, for the first time, a sizeable proportion of workplaces with *recognised unions* reported having no workers covered by collective bargaining. This phenomenon was particularly pronounced in the private sector, as indicated in Table 2.1 (which also incorporates workplaces with 10-24 employees).<sup>2</sup> The rate of decline, and the emergence of many unionised establishments with no effective bargaining, has been so dramatic that commentators suggest it ‘may mark a qualitatively different phase in the development of unionism’ (Millward *et al.*, 2000: 167).

The decline in coverage in the 1990s was due to changes in the behaviour of continuing workplaces, combined with particularly low coverage among *unionised workplaces* that had come into being since 1990 and those growing above the 25-employee threshold used for sampling in the *WIRS* series. Declining coverage accompanied declining *union density*, a finding consistent with the proposition that managements have reduced coverage where support for unions has diminished. However, coverage fell most rapidly where there was no *closed shop* or employer endorsement of membership, suggesting that dwindling employee support for unions may also have played a part.

### 2.1.3 Bargaining levels

Where unions are recognised, pay bargaining may occur at workplace-level, higher up in the organisation where the workplace is part of a multi-site organisation, in a multi-employer setting, or a combination of these. How near or far the locus of decision-making is from the workplace can determine the significance of workplace-level inputs from management and workers on-site. It may therefore shed light on conditions under which workplace unionism has an impact on performance. Chapter Three presents descriptive information on the incidence of these arrangements in 1998 with a typology characterising workplaces according to *bargaining levels*.

Our analysis of the impact of unions on performance is at the level of the workplace. However, it is increasingly the case that recognition for pay bargaining affects only a minority of workers, even where unions are recognised for pay bargaining. In 1998, collective *bargaining coverage* was less than 50 per cent in 39 per cent of workplaces with 25 or more employees with *recognised unions* (Millward *et al.*, 2000: 160), and 33 per cent in workplaces with 10 or more employees. In characterising pay determination at workplace-level, one has to invent some rules as to when a workplace can be said to have collective bargaining and, if so, at what level it occurs.

Millward *et al.* (2000: 185-187) characterise workplaces with 25 or more employees according to the wage-setting arrangement that applies to the majority of employees at the establishment.<sup>3</sup> Thus, where coverage is 50 per cent or more, the workplace is treated as a collective bargaining establishment. Using this definition, the percentage of collective bargaining workplaces with workplace-level bargaining has remained roughly constant since 1984, at around 10 per cent. However, multi-employer bargaining has declined, while the percentage where the most distant level of negotiation was multi-site employer level has doubled. In Chapter Three we present similar information for workplaces with 10 or more employees in *WERS98*, distinguishing between those in which the majority of workers have their pay set by collective bargaining, and those which do not.

## 2.2 The influence of bargaining on workplace financial performance and climate

Relations between unions and employers are often portrayed as a 'zero-sum game', where union members benefit at the expense of employers, and vice versa. However, there is theory and evidence to indicate that both workers and employers can benefit from unions under certain conditions.

Unions may have offsetting influences on workplace performance and climate arising from their dual function in bargaining on behalf of members for improved pay and conditions, on the one hand, and in representing the 'voice' of workers to management on the other. Consequently, their actual impact on performance is a matter for empirical investigation.

Where unions use their bargaining power to take a greater share of profits at the expense of the firm, this will reduce profitability. If this entails discord or conflict, or managers find union strength limits their ability to manage effectively, managers' perceptions of management-employee relations climate may deteriorate. However, if managers are content to pay higher wages, there may be no impact on employers' perceptions of climate. Higher pay may make employees more inclined to view climate positively. But again, if the process of negotiation results in discord or the inability of managers to work efficiently promotes employee perceptions of managerial incompetence, this may colour employee perceptions of climate in spite of the better conditions they enjoy.

By giving 'voice' to workers' concerns and grievances, and by helping to represent those concerns and grievances to management, unions may significantly increase worker motivation and organisational commitment, thereby improving productivity and performance, as well as improving perceptions of good workplace governance and contributing to collaborative management-employee relations (Freeman and Medoff, 1984).<sup>4</sup>

So strong unions may be beneficial or harmful to management, influencing perceptions of performance and climate. However, weak unions may also be problematic for management. Although they will be unable to wield much bargaining power, they may also be unable to act as an effective voice for employees, in which case one might expect them to have a negligible effect on performance and climate.

It makes little sense for employers to maintain ineffectual unions, since unions require influence if they are to reduce the employer agency costs in maintaining and enforcing desired levels of worker effort. Also, distributive bargaining relies on 'interdependency' between employer and union, at least in the long run (Walton and McKersie, 1965).

Box 2.2 outlines ways in which collective bargaining might be expected to influence workplace performance and climate.

In the literature, *bargaining arrangements* are equated with bargaining power: complementary workers will choose separate bargaining, while substitutable workers will choose joint bargaining (Horn and Wolinsky, 1988).<sup>5</sup>

**Box 2.2: Impact of bargaining on performance: the theory**

- Aspects of bargaining as proxies for union power
  - complementary workers will choose separate bargaining
  - substitutable workers will choose joint bargaining
  - balance of power versus unions 'too strong' or 'too weak'
- Fragmented bargaining
  - inter-union rivalry
  - 'leapfrogging' claims
  - ability of employer to 'divide and rule'
  - costs to employer
  - capacity to meet heterogeneous workers' needs
- Problems with multi-unionism regardless of *bargaining arrangements*
  - demarcation disputes
  - jurisdictional disputes regarding rights to represent
  - membership poaching disputes
- Impact of *bargaining levels*
  - removing contentious issues from bargaining at workplace-level
  - depends on nature of workers and product market

If workers are close substitutes they will do better by joining forces in either a single union or joint *bargaining arrangement*, helping them to avoid divide-and-rule tactics by the employer. Joint bargaining is also attractive from an employer perspective when it limits inter-union rivalry in the bargaining process which may result in 'leapfrogging' claims, and where it reduces the costs to employers of engaging in bargaining with multiple unions.

If groups of workers are highly complementary, each group is powerful under separate bargaining as the employer needs all groups to maintain production. Furthermore, separate *bargaining arrangements* may permit consideration of different issues facing different groups of workers. If this delivers desirable outcomes for workers, the process may result in increased worker motivation, improved productivity and thus performance. Nevertheless, separate bargaining always carries with it the risk that employers will be able to ‘divide-and-rule’, leading to a deterioration in employees’ perceptions of the employee relations climate.

What happens in practice depends on the relative bargaining power of the parties involved and on whether workers are complements or substitutes for one another.

It is important to distinguish between the effects of the number of *recognised unions* per se, and separate and joint bargaining in a multiple union context. One reason for this is that the mechanisms by which multi-unionism may reduce efficiency, such as demarcation disputes, jurisdictional disputes regarding rights to represent, membership poaching disputes, and ‘competitive militancy’ may all occur under joint bargaining, although it is rare in practice (Dobson, 1997). It is also possible that multi-unionism may increase productivity among heterogeneous workers if it is a superior means of diagnosing and articulating workers’ grievances (Metcalf, *et al.*, 1993: 9).

Theoretical work demonstrates that, under certain conditions, industry-wide bargaining delivers higher wages, more strikes and lower profitability than ‘local’ bargaining.<sup>6</sup> So there may also be grounds for linking *bargaining levels* with workplace performance outcomes.

Box 2.3 presents the fairly limited evidence for Britain on the impact of bargaining on performance. There is support for the contention that fragmented *bargaining arrangements* are associated with poorer performance, but the evidence on multi-unionism is mixed. Industry-level bargaining is associated with lower profitability. In subsequent chapters we establish whether these findings hold in the late 1990s when union influence had declined somewhat and *bargaining arrangements* were very different.

There is no empirical evidence linking *bargaining arrangements* to climate.

<b>Box 2.3: Empirical studies identifying effects of bargaining on performance</b>		
<b>Study</b>	<b>Outcome</b>	<b>Effect</b>
Machin, Stewart and Van Reenen (1991, 1993) using <i>WIRS84</i>	Financial performance	-ve effect of separate bargaining among manual workers in manufacturing, but no effect of multi-unionism per se
McNabb and Whitfield (1997) using <i>WIRS90</i>	Financial performance	-ve effect of multi-unionism per se
Menezes-Filho (1997)	Firm profitability	-ve effect of industry-level bargaining in multi-union firms with joint bargaining
Moreton (1999) using <i>WIRS90</i>	Labour productivity	-ve effect of separate bargaining

## 2.3 Other measures of trade unionism

This section briefly introduces other union-related measures linked with workplace performance which we use in our analyses. They are summarised in Box 2.4. We use these measures to test the sensitivity of our results on *bargaining arrangements*, as well as assessing their effects independently of bargaining effects.

### Box 2.4: Other union-related measures linked to performance

- Organisational strength:
  - membership density
  - *closed shop* and endorsement of union membership
  - on-site union representative
- Management support:
  - in favour or not in favour
  - preference for direct consultation with employees
- Employee support/perceptions of unions:
  - union responsiveness to employee problems/complaints
  - unions taken seriously by management

### 2.3.1 The effects of union strength

We use organisational strength to mean unions' strength on the ground, which gives them the opportunity or capacity to influence workplace outcomes. As noted above, there are theoretical reasons for believing that union strength may have positive and negative impacts on workplace performance and the employee relations climate. Which predominate is an empirical matter.

Union recognition for pay bargaining purposes is the basis for union influence in the workplace. Although rights to represent members in grievance procedures and other matters, and rights to negotiate over non-pay issues are important in building a membership base and allow unions some influence over workplace matters, these rights rarely exist without the right to negotiate over pay (Millward, 1994: 30-33). Since payment is generally regarded as 'the most conspicuous focus of collective concern for labour' (Brown *et al.*, 1995: 123), unions that are not recognised for pay bargaining purposes can only address issues of peripheral interest to workers collectively.

When distinguishing unions according to their strength, analysts have traditionally compared union recognition with and without a *closed shop*, whereby at least some employees are required by the employer to be union members. However, the *closed shop* has been in decline since the beginning of the 1980s, and is now legally unenforceable. By 1998, only 2 per cent of workplaces recognising unions were maintaining a *closed shop* so it is not possible to rely on it as the single most important indicator of union strength.

Analysts have frequently combined the *closed shop* and management endorsement of membership as a single measure of union strength, since the recommendation of union membership by management may not differ substantially in practice from *closed shop* arrangements (Wright, 1996).<sup>7</sup> Between 1984 and 1990, there was a small rise in the percentage of *unionised workplaces* with 25 or more employees where management endorsed membership (from 30 to 34 per cent). However, management endorsement declined dramatically from 34 to 21 per cent between 1990 and 1998 (Millward *et al.*, 2000: 147).<sup>8</sup>

The influence the union wields in the workplace is also likely to depend on the proportion of employees it can count among its members. Mean *union density*<sup>9</sup> declined markedly in workplaces with *recognised unions* over the 1980s and 1990s, but there was a sharp increase in the rate of decline in the 1990s (Millward *et al.*, 2000: 140-145), implying a considerable loss



of influence in the workplace. By 1998, it stood at 56 per cent.<sup>10</sup> Higher *union density* may influence employer and employee perceptions of a union's legitimacy in representing workers' interests, predisposing them to take greater account of what the union is saying. Where unions represent most of the workforce, they can represent workers' interests with a strong 'voice'. Where they represent a minority of workers, they may lack influence over sections of the workforce. Consequently, their ability to work constructively with employers may be hampered by their inability to deliver worker support for change. Equally, their ability to disrupt production is diminished. These considerations may explain why employers are less likely to listen to the union if only a minority of employees back it than if the union represents a majority voice – even if the employer has chosen to recognise the union (Cully *et al.*, 1999: 105-106).

Despite being an indicator of union strength, workplace *union density* has not featured in many analyses of workplace performance or employee relations climate, primarily because of difficulties in interpreting its effects. The proportion of a workforce that is unionised may be directly influenced by the performance of the workplace. For instance, where performance is poor and workers fear for their jobs, they may be more inclined to join a union. In this case, higher *union density* may be correlated with poor performance, but it is the poor performance that has resulted in higher density, rather than vice versa. Similarly, employees' propensity to join a union may be affected by the existing employee relations climate. The second difficulty in using workplace-level *union density* in estimating performance and climate is the difficulty in interpreting what *union density* is capturing, since it is highly correlated with a number of other union measures, such as managerial support for unions, and managers' desire to consult with unions rather than directly with employees (Cully *et al.*, 1999: 90).

Another indicator of union organisational strength is the presence of a trade union representative. Union representatives may also be viewed as 'voice mechanisms', operating as a channel for communication between local membership and management, and assisting in the resolution of disputes and grievances (Cully *et al.*, 1999: 201-3). *WERS98* provides evidence that worker representatives are increasingly conforming to this role, attaching greater importance to 'dealing with problems raised by the treatment of employees by management, and to resolving disputes' (Cully *et al.*, 1999: 201), rather than the more 'traditional' activities of maintaining wages and benefits. If they are effective in this role, the presence of representatives on-site may contribute to more positive perceptions of management-employee relations.<sup>11</sup>

Some of the extensive literature on the impact of union strength on workplace performance is summarised in Table 2.2.<sup>12</sup> It indicates that workplace economic performance does differ with the strength of unions, but that the effect varies with the nature of the workers covered, the market the workplace operates in, and the interaction of unions with other employment practices. It also seems that the negative effect of unions on performance may have lessened over time.

Union effects on the employee relations climate are uncertain, *a priori*. However, empirical research indicates that the impact of *recognised unions* on managerial perceptions of a workplace's employee relations climate is contingent on the degree of union organisational strength (Table 2.3). Of particular note is the finding that climate 'is worse where the strong and weak versions of unionisation exist than it is in non-union workplaces or those with middling union strength' (Ferne and Metcalf, 1995: 401).

Ferne and Metcalf suggest that 'the benefits from having a union representing the bulk of the labour force in a workplace... flow from greater voice and representativeness and less fragmentation of workplace employee relations' (1995). The table suggests this applies to both management and employees in general. Managerial perceptions of a poor employee relations climate where weak unionism exists may reflect the union's ability to voice employees' grievances coupled with its inability to deliver worker commitment in resolving problems.

**Table 2.2: Effects of union strength on workplace economic performance**

<b>Study</b>	<b>Outcome</b>	<b>Union measure</b>	<b>Findings</b>
Machin and Stewart (1990, 1996)	Financial performance in <i>WIRS</i> '80, '84 and '90	Union recognition, <i>closed shop</i> /man. endorsement	-ve effect of manual unions declined in 1980s; confined to strong unions where high market share by '90
McNabb and Whitfield (1997)	Financial performance in <i>WIRS90</i>	Union recognition, <i>closed shop</i>	Depends on interaction with team and flexible working practices
McNabb and Whitfield (1998)	Financial performance in <i>WIRS90</i>	Union recognition	Depends on interaction with employee involvement
Booth and McCullough (1999)	Financial performance in <i>WIRS90</i>	Union recognition, <i>closed shop</i> /man. endorsement	-ve effect of <i>closed shop</i> /management endorsement for non-manual unions only; +ve effect of union recognition only
Bryson (1999b)	Financial performance in <i>WIRS90</i>	Union recognition, <i>closed shop</i> /man. endorsement, high <i>bargaining coverage</i>	-ve effect of strong unions vs weak unions; weak unions +ve for small firms relative to no union
Addison <i>et al.</i> (1998)	Financial performance in <i>WIRS90</i>	<i>Union density</i>	No significant effect
Addison and Belfield (2000)	Financial performance in <i>WERS98</i>	Union recognition	No significant effects
Menezes Filho (1997)	Firm profitability, 1984-90	Union recognition	-ve but declining
Gregg <i>et al.</i> (1993)	Labour productivity in '80s	Union recognition	+ve
Fernie and Metcalf (1995)	Labour productivity levels and change	Union recognition, <i>closed shop</i> /man. endorsement	Weak unions -ve effect on levels. Pre-entry <i>closed shop</i> -ve effect on change.
Moreton (1999)	Labour productivity in <i>WIRS90</i>	Union recognition, management endorsement	Management endorsement +ve



**Table 2.3: Effects of union strength on workplace climate**

Study	Outcome	Union measure	Findings
Fernie and Metcalf (1995)	Managerial perceptions of climate in <i>WIRS90</i>	Union recognition, <i>closed shop</i> /man. endorsement	-ve effect of strong and weak unionisation
Wood and de Menezes (1998)	Managerial perceptions of climate in <i>WIRS90</i>	Union recognition	-ve effect
Cully <i>et al.</i> (1999)	Managerial perceptions of climate in <i>WERS98</i>	Union recognition	Not significant
Moreton (1999)	Managerial perceptions of climate in <i>WIRS90</i>	<i>Union density</i>	-ve effect of higher density
Scholarios <i>et al.</i> (1999)	Employee perceptions of climate in <i>WERS98</i>	<i>Union density</i>	-ve effect of higher density
Bryson (1999a)	Employee perceptions of climate in <i>BSA98</i>	Union recognition, on-site representatives, employee perceptions of union power	-ve effect of <i>recognised union</i> , and -ve effect of on-site rep; -ve effect of 'strong' and 'weak' unions

### 2.3.2 *The effects of support for unions among employers and employees*

There is little reason to believe that unions can deliver a harmonious employee relations climate alone. What management says and does is likely to matter just as much. The acts or omissions of one party may be able to sour employee relations, but no matter how constructive a union wishes to be, or how strong it may be organisationally, a co-operative environment is likely to require that management engages constructively with the union, and vice versa. Only then can the 'space' for collaboration (or what is sometimes termed 'concertation' (Hyman, 1997: 323) be created. Similarly, the behaviour of one party may be responsible for poor financial performance but, as Denny and Muellbauer (1987: 6) argue: 'it is not the independent effect of trade unions but the interaction of unions and management that can cause improved economic performance'.

As discussed above, *WIRS* data indicate that management endorsement of union membership declined markedly in the 1990s, even where unions continued to be recognised. Further evidence of a diminution of managerial support for union membership in the 1990s comes from employee perceptions of management attitudes to unions, as captured in *BSA* (Bryson, 1999a: 86).<sup>13</sup>

Using *BSA98*, Bryson (1999a) shows that the effect of management support for unions on employee perceptions of the employee relations climate varies across unionised and non-unionised workplaces, and according to unions' organisational strength. Where employees worked in workplaces with 'strong' unions with on-site representation, a good climate was best achieved where employees thought that management encouraged union membership. Climate was poorest where strong unions were met by management opposition to union membership. However, among non-unionised workplaces encouragement of union membership was very rare and employees were most likely to view employee relations positively where union membership was not considered an issue. The author speculates that employers may make union membership a 'non-issue' where they adopt alternative policies for consultation and communication. Again, the climate was poorest where union membership was discouraged.

### 2.3.3 *Employee perceptions of union influence and effectiveness*

The formal right to negotiate collectively over aspects of work offers unions the opportunity to influence workplace outcomes. The degree to which unions can actually affect the terms and conditions of members depends upon the effectiveness with which they can capitalise on such opportunities. According to Deery *et al.* (1995), the perception that a union is effectively protecting and advancing its members' interests can result in positive perceptions of the employee relations climate. The effectiveness of unions is referred to as 'union instrumentality', defined as 'the degree to which the union achieves the valued goals of employees' (Deery *et al.*, 1995: 9). Deery and colleagues suggest that 'where a union is perceived to be more effective or instrumental in achieving valued goals for its members it could be hypothesised that those employees would hold more positive attitudes about the industrial relations climate' (Deery *et al.*, 1995: 4). The paper provides empirical evidence in support of this contention based on a large automotive manufacturer in Australia.<sup>14</sup> However, research by the same team in a large government utility in Australia found that the union and employer 'could most appropriately be seen as being in competition for the commitment of their organisational members' (Deery *et al.*, 1994: 594). Furthermore, *ceteris paribus*, union commitment was significantly reduced when employees perceived the employee relations climate as positive. This prompts the authors to suggest that 'adversarial relationships actually underpin a number of the aspects of union commitment' (Deery *et al.*, 1994: 593).

Deery *et al.* (1999: 535) seek to account for these divergent findings in terms of 'the strategies and actions of management and union officials', suggesting that the 'critical determinant of the relationship between employee relations climate and organisational and union outcomes may be the role that each party plays in delivering particular benefits to employees'. It seems that, although union instrumentality may influence perceptions of climate by engendering greater employee allegiance to both the union and the employing organisation, thus resulting in more co-operative and harmonious management-employee relations, this is not the only mechanism by which union instrumentality may improve perceptions of climate. It may also occur because perceptions of union effectiveness are associated with perceptions of a fairer, more challenging and satisfying work environment. This, in turn, can positively influence perceptions of the employee relations climate (Deery *et al.*, 1999: 546).

Bryson (1999a) presents evidence from BSA98 supporting the contention that there is a positive association between union instrumentality and positive perceptions of the employee relations climate. He finds that, where unions were perceived as doing their job well, where they were viewed as responsive to members' problems and complaints, and where they were thought to be helping in the smooth-running of the workplace, perceptions of the employee relations climate were better than in cases where unions were not perceived as effective.

Gallie *et al.* (1998: 72-86) find that employees perceive supervision to be tighter, and technical and bureaucratic methods of management control to be more evident where unions are perceived as having greater influence. The authors suggest that 'a reasonable inference, then, is that intensive control systems were preferred by organisations where managerial power was contested' (Gallie *et al.*, 1998: 85). It may be that, where unions contest 'the terrain' with management, employee perceptions of the working environment actually deteriorate, in which case perceptions of the employee relations climate may also deteriorate. This line of reasoning cautions against a simple assumption that effective unionism will translate into better climate.

## 2.4 Summary

This chapter identifies ways in which collective bargaining, and the role of unions more generally, can affect workplace performance. Unions may have both positive and negative effects on performance. Which predominate is an empirical question. In the 1980s, the negative effects of unionism predominated, but these effects had diminished by 1990 with a decline in union strength. There was also emerging evidence that the positive effects of unions were most likely to emerge where there was a balance of power between unions and management in the workplace, where management were supportive of unions, and where employees perceived their unions as effective.

### Endnotes

- 2 These data are not strictly comparable to those presented for 25 or more employees in Millward *et al.* (2000). Since the book was written, considerable effort has been devoted to further editing of the data to obtain accurate recognition and coverage data. We would like to thank John Forth and the WERS Dissemination Service for their valuable assistance in this enterprise.
- 3 This marks a departure from earlier *WIRS* analyses which accorded primacy to collective bargaining, however small the proportion covered by bargaining.
- 4 Unions may raise the share of rents going to workers relative to non-unionised establishments, without necessarily reducing the total value of the establishment. This is because the rent-earning ability of the establishment may rise in the presence of a union due to union-induced productivity effects. In other words, although a greater share of the pie may be diverted from owners to workers, the pie may be larger in the presence of unions. As Machin and Stewart (1990: 329) point out, most of the empirical literature does not tackle the impact of unions on the total value of the establishment. Instead, it is concerned with post-distribution financial performance.
- 5 Naylor (1995) demonstrates why separate bargaining is associated with unions capturing more of the available rents at a workplace.
- 6 Davidson (1988) demonstrates that in unionised oligopolistic industries national unions representing all workers in an industry achieve higher wages than separate, independent unions. Cheung and Davidson (1991) demonstrate that unions representing workers of more than one firm face greater incentives to reject wage offers than independent unions, leading to greater levels of strike activity. In a macro-economic framework, Palokangas (2000) demonstrates that unions have an incentive to set lower wages when bargaining is either highly centralised or highly decentralised, but for different reasons. Where each union controls a large fraction of the economy, wage increases lead to increases in consumer prices, acting as an incentive to curb wage claims. In cases where each union controls only a small fraction of the economy, unions face a high wage elasticity of employment, a factor also depressing wage claims. From this perspective, unions face fewer incentives to set low wages where bargaining occurs at an intermediary level such as industry-level.
- 7 However, management endorsement is an ambiguous measure of union strength because, although it may assist in the recruitment of members, thus strengthening a union, it may be a sign that a union is not wholly independent of management, and may even be reliant on management support for its position. Therefore union strength and management support for a union are conceptually different. A union may be strong without management support. Where it is strong in the face of management opposition, the employee relations climate may be conflictual. Where it is strong and has management support, climate may be better.
- 8 In 1998, the rate of management endorsement was 20 per cent among workplaces with 10 or more employees recognising unions.
- 9 Mean workplace-level *union density* is the sum of the percentage of employees in membership for each workplace, divided by the number of workplaces. This measure is the one we use in our analyses. It differs from aggregate *union density*, the mean of which is derived by summing the members across a set of workplaces and then dividing by the total number of employees in those workplaces.
- 10 Among workplaces with 10 or more employees mean *union density* was 58 per cent in 1998.
- 11 If unions were losing their organisational strength in the 1990s, one might have expected a continuation in the decline of on-site representation which had begun in the latter half of the 1980s. In fact, evidence from the *WERS98* cross-section and panel indicates that on-site representation stabilised in the 1990s, with around seven in ten workplaces with 25 or more employees and a *recognised union* also having an on-site representative (Millward *et al.*, 2000: 153-154). Among workplaces with 10 or more employees with *recognised unions*, 59 per cent had an on-site representative in 1998.
- 12 For completeness we include analyses of labour productivity, although the paper does not present analyses of labour productivity.
- 13 Note that there is a typographical error in Bryson (1999a). The data relate to the period 1989 to 1998.
- 14 Some have argued that unions can 'satisfy worker needs in a neo-liberal environment only through a successful engagement with employers. Putting the point negatively, a union that understands worker needs, but can't shift employer behaviour, is ineffective' (Boxall and Haynes, 1997: 571).

## CHAPTER 3

### Procedures for collective bargaining: a typology

This chapter describes procedures for collective bargaining. We present typologies which focus on two distinct aspects of bargaining. The first distinguishes between single union establishments and multiple union establishments with joint or separate *bargaining arrangements*. The second concerns the locus of collective bargaining, identifying whether collective bargaining takes place at the workplace level, industry level or, for multiple-establishment enterprises, at the organisation level. We devise a typology for both aspects of bargaining, referring to the former as '*bargaining arrangements*' and the latter '*bargaining levels*'.

#### 3.1 Bargaining arrangements at the workplace

In 36 per cent of workplaces there was at least one union recognised by management for negotiation over pay and conditions for some sections of the workforce. The recognition rate was four times higher in the public sector than in the private sector (83 per cent compared with 21 per cent). Table 3.1 shows the extent of multiple union recognition, together with details of joint and separate negotiation in both the public and private sectors.

Although there is considerable interest in the effects of multiple unionism on workplace performance, just 14 per cent of all workplaces recognised multiple unions, and only 5 per cent of private sector workplaces did so.

**Table 3.1: The extent of single and multiple union recognition, and joint or separate negotiation with multiple unions, by broad sector**

	All	Public sector	Private sector
			<i>Column percentages</i>
Union recognised	36	83	21
Of which:			
Single union	23	45	15
Multiple unions	14	38	5
Of which:			
Joint negotiation	8	22	3
Separate negotiation – each <i>recognised union</i>	5	12	2
Separate negotiation – groups of <i>recognised unions</i>	1	1	*
Type of negotiation unknown <sup>†</sup>	1	3	*
No union recognised	64	17	79
<i>Weighted base</i>	2,191	544	1,647
<i>Unweighted base</i>	2,191	677	1,514

**Base:** All establishments.

<sup>†</sup>There were a small number of multiple union workplaces that did not answer the question 'Does management negotiate jointly with the *recognised unions*, or are there separate negotiations?'

Where there was more than one union recognised, respondents were asked ‘Does management negotiate jointly with the *recognised unions*, or are there separate negotiations?’ Three answers were pre-coded: joint negotiation; separate negotiation with each *recognised union*; and separate negotiation with groups of *recognised unions*. Roughly three out of five multiple union workplaces negotiated jointly with the *recognised unions*. In most other multiple union workplaces, separate negotiation took place with each *recognised union*.<sup>15</sup>

Three out of five multiple union workplaces recognised just two unions, with a further 25 per cent recognising three. More than half the multiple union workplaces with separate bargaining with groups of unions, recognised four or more unions.

### 3.2 Levels of collective bargaining

The identification of levels of collective bargaining is more complex and is determined by the answers given to the following questions.

**Question 1. Were one or more unions recognised by management for negotiating pay and conditions for any sections of the workplace?**

**Question 2. Does collective bargaining over pay setting cover:**

- (a) no workers
- (b) fewer than 50 per cent of workers
- (c) 50 per cent or more of workers?<sup>16</sup>

**Question 3. Does collective bargaining occur at:**

- (a) one level
- (b) more than one level?

**Question 4. Does one level cover more than 50 per cent of employees?**

**Table 3.2: Collective bargaining coverage and levels, by broad sector**

	All	Public sector	Private sector
			<i>Column percentages</i>
<i>No recognition:</i>			
No coverage	58	6	75
Minority coverage	2	3	1
Majority coverage	5	8	3
<i>Recognition:</i>			
No collective bargaining	6	7	6
Minority coverage	5	16	2
Majority coverage, workplace-level	2	*	2
Majority coverage, organisation-level	10	22	6
Majority coverage, industry-level	12	36	4
Majority coverage, multiple-level	*	1	*
<i>Weighted base</i>	2,111	630	1,594
<i>Unweighted base</i>	2,081	517	1,451

**Base:** all establishments where there is information on collective bargaining.

There is an apparent anomaly in the responses to the first two questions. We might expect that anyone answering 'no' to Question One must answer (a) to Question Two. However, Table 3.2 (rows two and three) indicates that in 7 per cent of all workplaces the managerial respondent reported that at least some workers had their pay set by collective bargaining, but they did not report any union recognition.

Similarly, we may expect that a 'yes' response to Question One must be accompanied by a response of (b) or (c) to Question Two. Here, Table 3.2 (row four) indicates that 6 per cent of workplaces reported at least one *recognised union*, but no collective bargaining for any occupational group at the workplace.

These seeming anomalies may arise due to the structure of the survey questionnaire. In one section of the survey, a series of questions is asked that leads to identification of workplaces where unions were recognised by management for negotiating pay and conditions for any sections of the workforce in the establishment. In a different section respondents are asked to identify from a list of statements how pay is set for each occupational group. The list includes collective bargaining. There is no link between the two sets of questions. Furthermore, respondents are only asked whether unions are recognised for pay bargaining if they have said that there are union members on-site. In fact, it is possible for a union to be recognised for pay bargaining, even when none of the workers covered is a union member. This might occur, for example, where bargaining at organisation-level determines pay across all establishments in the organisation, including some without any union members. However, there are good reasons why managers may report some coverage despite the absence of a *recognised union*. For example, if an employer follows an external collective bargaining agreement, they may report the presence of collective bargaining irrespective of the presence of union members or *recognised unions* at the workplace.<sup>17</sup>

Equally, there may be reasons why managers report no *collective bargaining coverage* despite the presence of *recognised unions*. It could be that the *recognised unions* are not effective in pay bargaining.<sup>18</sup> In some cases, a small minority of an occupational group may have union recognition while the majority in that group have pay determined in some other way. In this case, the managerial respondent would say there was union recognition, but collective bargaining would not characterise the way pay is set for the majority in any occupational group. For these reasons we retain these distinctions in our bargaining typology.

Our purpose is to characterise workplaces according to their bargaining. The decision-tree describing how we do this is presented in Figure 3.1. Where there is *bargaining coverage* but no recognition, we identify whether coverage accounted for more or less than 50 per cent of employees (Question Two). Those workplaces where coverage was less than 50 per cent we categorise as 'Minority coverage' workplaces (Table 3.2 row three) and those with 50 per cent or more *collective bargaining coverage* we categorise as 'Majority coverage' workplaces (Table 3.2 row three). Through Questions Three and Four we could identify the level at which collective bargaining occurs, but given the small number of workplaces with majority coverage and no recognition we decided not to pursue this breakdown any further.

Turning to workplaces that report recognition and some collective bargaining, we first consider responses to Question Two to determine whether collective bargaining covers the minority or majority of employees. We find that in 5 per cent of workplaces *collective bargaining coverage* accounted for less than 50 per cent of employees at the workplace, hence we categorise these workplaces as recognised, minority coverage collective bargaining workplaces (row five). The remaining workplaces all have union recognition and majority coverage collective bargaining. We then identify whether collective bargaining occurs at just one level or more than one level (Question Three). If collective bargaining occurs at just one level then these workplaces are categorised according to that level, that is majority coverage workplace-, organisation- or industry-level collective bargaining workplaces.



Workplaces with single-level bargaining form the bulk of the workplaces described in rows six to eight of Table 3.2. However, if collective bargaining occurs at more than one level and one particular level of collective bargaining covers more than 50 per cent of employees in the workplace (Question Four), then we also categorise that workplace according to that level. Hence these workplaces will also be included in the numbers in rows six to eight of Table 3.2. This occurrence is quite rare. In most workplaces with collective bargaining it occurs at only one level.

The final category described in Table 3.2 covers the remaining workplaces. These all have majority coverage collective bargaining, more than one level of collective bargaining and no single level covers more than 50 per cent of employees. These workplaces are categorised as majority coverage multiple-level collective bargaining workplaces.

Table 3.2 also shows that in 58 per cent of workplaces no recognition and no collective *bargaining coverage* was reported (row one). In recognised workplaces with majority coverage collective bargaining, it typically takes place at either organisation- or industry-level. Few workplaces bargain at workplace-level, and less than 1 per cent of workplaces had multiple-level collective *bargaining coverage*.

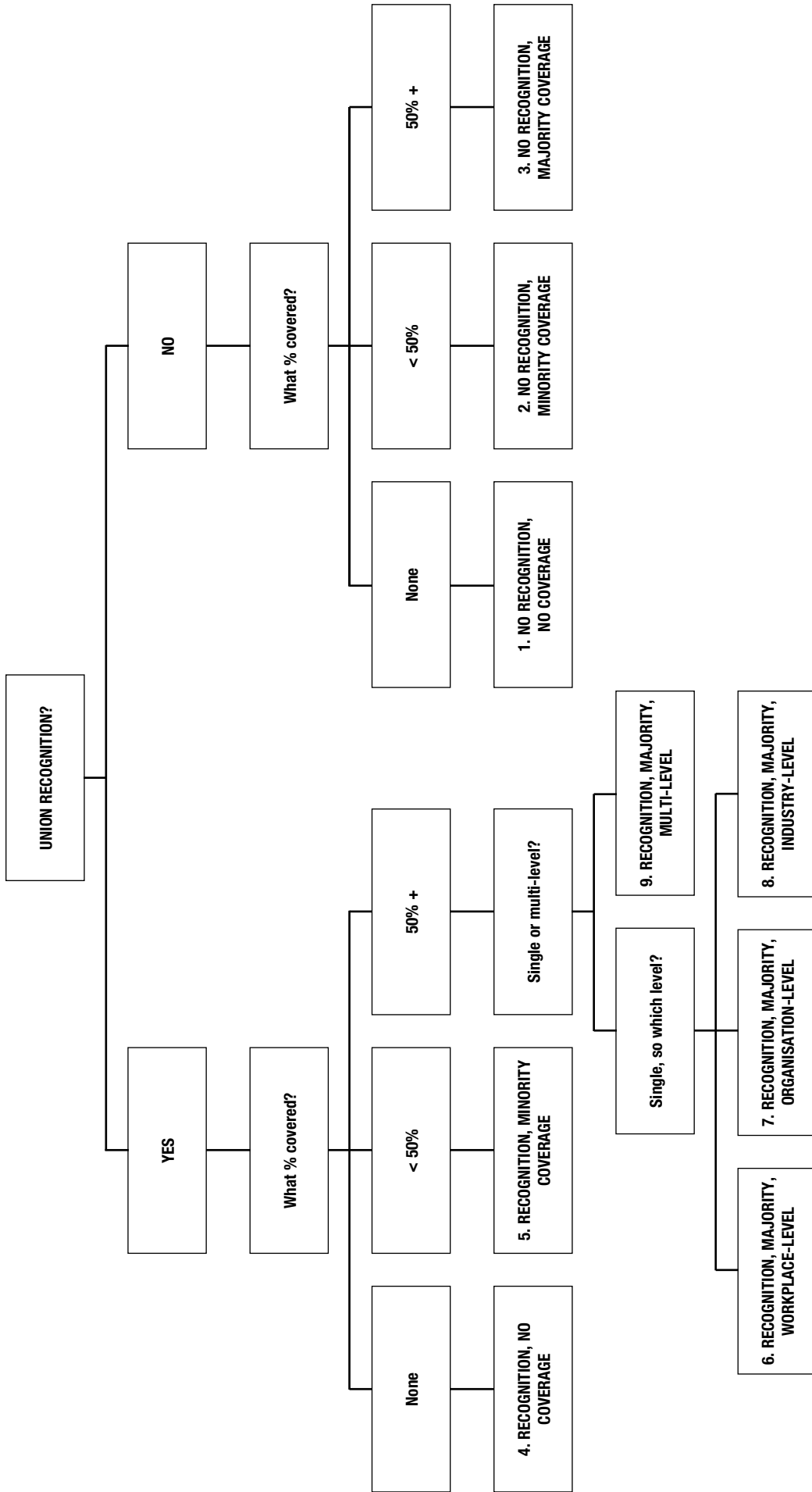
### 3.3 Summary

This chapter introduces two typologies characterising *bargaining arrangements* in Britain. The first typology distinguishes workplaces according to the degree of fragmentation there is in their *bargaining arrangements*. Figures on the incidence of each arrangement indicate that, although there is considerable interest in the value of *single-table bargaining*, multiple unionism is largely a public sector phenomenon, so that the effects of fragmented bargaining affect relatively few in the private sector. The second typology identifies the locus of bargaining. It splits workplaces into those with and without *recognised unions*, then establishes what percentage of workers are covered by bargaining. In *unionised workplaces* with at least 50 per cent of workers covered by bargaining we classify workplaces according to the level of bargaining (industry-level, organisation-level, workplace-level, or multi-level).

### Endnotes

- 15 WERS98 also contains information on the actual number of bargaining units at the workplace. However, investigations indicated that these data were not consistent with information on separate versus joint bargaining in a minority of cases. We have therefore ignored these data, but the relationship between these two data items is worthy of further investigation.
- 16 In 1984 and 1990 WIRS asked directly what proportion of employees were covered by negotiations between management and *recognised unions* or groups of unions. In 1998, there were up to nine questions asking how pay was determined for each major occupational group at the workplace. Responses that referred to collective bargaining have been summed in relation to the number of employees in the relevant occupational group to provide the number covered at each workplace.
- 17 It is arguable that, if a workplace includes workers covered by collective bargaining, then it has union recognition, irrespective of whether the managerial respondent says so. However, we think it is wise to retain the distinction since we do not know whether this combination of no recognition with *bargaining coverage* reflects the 'real world' or the vagaries of questionnaire design. The design reflects previous WIRS surveys but, since collective bargaining has altered so much in recent years, it would be wise to pilot this section of the questionnaire thoroughly in any future WERS.
- 18 See Millward *et al.* (2000: 163-167) for a discussion of this possibility.

Figure 3.1: Devising a bargaining level typology





## CHAPTER 4

### Management perceptions of the employee relations climate

In this chapter, we consider the links between collective bargaining and managerial perceptions of the employee relations climate, captured by responses to a single question asked at the end of the face-to-face interview conducted with the most senior workplace manager responsible for employee relations. The question is: ‘Finally, looking at this scale, how would you rate the relationship between management and employees generally at this workplace?’ The five-point ordinal scale runs from ‘very good’ to ‘very poor’.

The distribution of responses is presented in Table 4.1. It is immediately apparent that managers generally have very favourable perceptions of the employee relations climate at their workplace, a finding which has emerged in analyses of *WIRS90* using a similar measure (Ferne and Metcalf, 1995; Ferne, Metcalf and Woodland, 1994). So few managers view the climate as poor or very poor that we have merged these two categories for the remainder of the analyses in this chapter.

Our purpose in this chapter is to examine influences on managerial perceptions of climate. In particular, we explore the links between climate and facets of collective bargaining at the workplace. We wish to establish whether different forms of *bargaining arrangement* are associated with different perceptions of climate. We begin by outlining why we might expect to find a relationship between collective *bargaining arrangements* and managers’ perceptions of climate. Next we present descriptive analyses to identify whether there are any simple associations between *bargaining arrangements*, *bargaining levels*, *bargaining coverage*, and climate. Finally, we turn to multivariate analysis to establish whether collective bargaining has any independent effects on climate, controlling for a range of other variables which we anticipate may also affect climate.

**Table 4.1: Managerial ratings of management-employee relations in 1998**

	%
Very good	42
Good	48
Neither good nor poor	8
Poor	2
Very poor	1
<i>Weighted base</i>	2,185
<i>Unweighted base</i>	2,188

**Note:** all workplaces excluding the 3 unweighted cases with missing data.

#### 4.1 Possible links between collective bargaining and managerial perceptions of climate

From the small amount of empirical research conducted in Britain, it seems that management perceives the workplace employee relations climate to be better where they deal with a unified worker voice able to represent the majority of workers. This may occur where there is a single union, rather than multiple unions, provided that the union represents a sizeable proportion of workers. It may also occur in a multi-union context if the unions are able to negotiate jointly with management on a single-table. Both routes avoid the fragmentation of bargaining that can result in inter-union rivalry, 'leapfrogging' claims, and the costs to the employer in bargaining with unions, all of which may contribute to management having a poorer perception of climate.

There are a number of caveats to this broad argument.

The first is that *employees* will only be satisfied with a single union or joint bargaining if these arrangements meet their needs. To the extent that multi-unionism is better able to reflect the needs of heterogeneous workers, it may foster a better climate that is apparent to employees and employers alike. Single unionism may be particularly unsuited to meeting the majority of employees' needs because it covers a relatively small percentage of workers (in terms of union membership and *bargaining coverage*).<sup>19</sup>

Secondly, climate may deteriorate in the presence of multi-unionism, not because of the bargaining process, but because of other aspects of multi-unionism. These include demarcation disputes, jurisdictional disputes regarding rights to represent, and membership poaching disputes. If this is the case, multi-unionism may be associated with poorer managerial perceptions of climate, whether there is joint bargaining or not.

Thirdly, the theoretical and empirical literature indicates that what matters ultimately is the relative bargaining power of workers and management. What is most conducive to a positive managerial perception of climate is a balance of power between unions and management. As noted in Chapter Two, where unions are too 'strong' they may severely limit management's ability to operate effectively, or successfully divert greater shares of available rents to workers, potentially resulting in discord or conflict. 'Weak' unions, on the other hand, may be ineffectual as a voice for employees or as an agent for employers in bringing changes management views as necessary.

Bargaining structures are often equated with bargaining power. Yet, it is often assumed that workers are free to adopt the form of bargaining best suited to their needs. In reality, the move towards *single-table bargaining* during the 1990s appears to have been at the behest of employers, suggesting that employers felt they had something to gain through the avoidance of separate *bargaining arrangements*. In practice, whether joint or separate bargaining represents worker strength or weakness depends on the extent of substitutability across workers (Horn and Wolinsky, 1988). As discussed in Chapter Three, if workers are close substitutes they will do better by joining forces in either a single union or joint *bargaining arrangement*, helping them to avoid divide-and-rule tactics by the employer. However, if groups of workers are highly complementary, each group is powerful under separate bargaining as the employer needs all groups to maintain production. Thus, in theory, complementary workers will choose separate bargaining, while substitutable workers will choose joint bargaining. Unfortunately, we do not have information in our data to identify instances in which workers are complements or substitutes, making it difficult to establish whether particular types of arrangement represent union 'strength' or 'weakness'. However, we test the sensitivity of our results to the inclusion of a range of other union strength measures, as will become apparent later in this chapter. These include the percentage of workers in the workplace covered by collective bargaining.

Turning to the level at which collective bargaining is conducted, theoretical work demonstrates that, under certain conditions, industry-level bargaining delivers higher wages than 'local' bargaining, but at the expense of greater conflict. However, it is conceivable that organisation-level or industry-level bargaining may reduce conflict arising from negotiations that would otherwise occur at workplace-level. By removing the loci of bargaining away from the workplace, these forms of bargaining may improve workplace climate by allowing managers and workers to focus on less contentious issues, and minimise the blame attributable to either side when negotiations do not deliver what either side may have wished for.

#### **4.2 Associations between collective bargaining and managerial perceptions of climate**

Descriptive analyses reveal little difference in managerial perceptions of climate across workplaces with and without *recognised unions*, although managers were slightly more likely to view the climate as 'very good' where there was no *recognised union* (Table 4.2). However, there are indications that climate deteriorates in multi-union workplaces, with the percentage of managers saying relations were 'very good' declining markedly where three or more unions are recognised. There is a suggestion that climate differs across multi-union workplaces according to the *bargaining arrangements* in place. Climate is poorest where separate bargaining occurs with groups of unions. However, there is little to choose between climate in multi-union workplaces with joint bargaining and those with separate bargaining with each union. What is more, none of the multi-union *bargaining arrangements* are associated with climate that is as positive as the climate in a single union setting.

Turning to *bargaining coverage* at the bottom of the table, there is some support for the contention that managers view climate most positively where there is a balance of power between management and workers. Climate is poorest where there is full coverage, but it is also poor where there is zero coverage, that is, where workers' collective bargaining power is at its highest or is non-existent. If we consider coverage alongside recognition and *bargaining levels* (the fourth block of items in the table), this association between middle-level coverage and good climate is clearly apparent. Where there is union recognition and a minority of workers is covered by collective bargaining, 60 per cent of managers viewed climate as 'very good'. This compares to 38 per cent where there is recognition but no effective collective bargaining, and figures of between 25 and 39 per cent where a majority of workers in recognised workplaces are covered by collective bargaining. Where there is majority coverage in recognised workplaces, managers view climate most positively where they are less involved in bargaining, namely where bargaining occurs at industry-level.

Among workplaces without *recognised unions*, the percentage with 'very good' climate falls with an increase in *bargaining coverage*, from 45 per cent where there is no coverage to 32 per cent where there is majority coverage.

**Table 4.2: Collective bargaining arrangements and management perceptions of the employee relations climate**

	Very good	Good	Neither good nor poor	Poor/very poor	Wted base
<i>row percentages</i>					
<i>Union status:</i>					
No union recognised	43	47	7	3	1,389 (985)
Union recognised	38	50	9	3	795 (1,203)
<i>Number of recognised unions:</i>					
One	41	48	7	4	497 (485)
Two	39	51	9	1	183 (316)
Three	26	59	9	6	73 (169)
Four or more	23	54	22	1	42 (233)
<i>Collective bargaining arrangement:</i>					
Single union	41	48	7	4	497 (485)
Multiple unions, joint bargaining	31	55	12	2	169 (432)
Multiple unions, separate bargaining with each union	34	55	10	1	99 (208)
Multiple unions, separate bargaining with union groups	24	43	30	3	11 (55)
Multiple union, joint/separate bargaining unknown	56	36	2	6	19 (23)
<i>Collective bargaining levels:</i>					
No recognition, no coverage	45	45	8	2	1,224 (863)
No recognition, minority coverage	38	60	2	0	36 (36)
No recognition, majority coverage	32	65	3	0	95 (55)
Recognition, no coverage	38	42	11	9	130 (136)
Recognition, minority coverage	60	37	3	0	113 (177)
Recognition, majority coverage, workplace-level	28	59	12	1	37 (142)
Recognition, majority coverage, organisation-level	25	65	9	1	211 (366)
Recognition, majority coverage, industry-level	39	48	9	5	249 (286)
Recognition, multi-level	29	56	15	0	5 (19)
Bargaining level/coverage missing	45	31	7	17	84 (108)
<i>Collective bargaining coverage:</i>					
Zero	44	45	8	3	1,354 (999)
1-19%	57	41	2	0	61 (73)
20-39%	50	45	5	0	46 (103)
40-59%	57	42	1	0	100 (75)
60-79%	43	48	6	3	77 (93)
80-99%	32	60	7	*	96 (224)
100%	26	61	10	3	367 (519)

**Base:** all establishments. Note figures in parentheses are unweighted bases.

### 4.3 Multivariate analyses of the associations between collective bargaining and managerial perceptions of climate

The descriptive analyses presented above indicate that managerial perceptions of climate vary with aspects of collective bargaining. However, to establish whether there is a truly independent association between *bargaining arrangements* and managerial perceptions of climate we need to use the statistical technique of multivariate regression analysis which enables us to hold constant a range of other factors that may also influence climate. In this chapter we introduce the modelling technique used in this analysis, as well as the analyses of employees' perceptions of climate and managers' perceptions of financial performance presented in the following two chapters. Then we introduce our data, including the control variables used in the analysis, before presenting our results.

#### 4.3.1 Modelling procedures<sup>20</sup>

Our outcome variable of interest is managerial perceptions of the employee relations climate. It is a categorical indicator defined in terms of ordered responses, so we use an ordered probit estimator. Due to the small number of respondents saying climate was 'poor' or 'very poor' we have collapsed these two categories so that the outcome variable runs from 1 'poor/very poor' to 4 'very good', as in Table 4.2. Our method, described in Appendix Two, takes account of the complex survey design in *WERS98* allowing results to be generalised to the workplace and employee populations from which the samples were drawn.

Effects of categorical variables such as the type of *bargaining arrangement* are evaluated against a 'reference' category. These categories are identified in the tables, and significance tests in the tables are based on comparisons of coefficients with the reference category. However, there may be statistically significant effects across categories. We test for these and report on all significant effects.<sup>21</sup>

#### 4.3.2 Limitations to the analysis

Since our collective bargaining variables (and other variables entering our models) are measured at the same moment in time as our performance outcomes, we must be cautious when attributing a causal link running from *bargaining arrangements* to performance. It may even be the case that the arrow of causation runs in the opposite direction. For example, management in a multi-union workplace with poor climate may switch to *single-table bargaining* in the hope that it will help remedy the problem. In this case, the model will understate any positive association between *single-table bargaining* and good climate. In practice, *bargaining arrangements* are relatively durable, giving us some confidence that our bargaining measures pre-date management's perceptions of climate and financial performance at the time of the survey interview.

The second limitation to our methodology is that *bargaining arrangements* are not randomly distributed across workplaces. If there are differences between workplaces which we do not observe and which predispose them to particular sorts of *bargaining arrangement*, and these differences are correlated with performance, then our estimates of bargaining effects may be biased. This is because the unobserved differences across workplaces, which 'sort' them into different arrangements, explain part of the performance we are seeking to explain. In this paper we have simply incorporated a wide range of factors that we know influence perceptions of climate and financial performance to minimise the problem of omitted variables bias. We also test whether our findings hold across sub-samples where we might expect systematic differences in associations between *bargaining arrangements* and performance.

### 4.3.3 Control variables

The models presented control for a wide range of workplace-level characteristics to minimise estimation bias arising from omitted variables. The controls are identified in Box 4.1 and the rationale for their inclusion is given in Appendix Three. The mean values for control variables in the whole economy and the public and private sectors are presented in Appendix Table A4.1.

**Box 4.1: Controls used in analyses of managerial perceptions of the employee relations climate**

- Characteristics of managerial respondent:
  - gender, if ER specialist, job tenure
- Workforce composition
  - N employees, % female, part-time, ethnic
- Workplace characteristics:
  - ownership: multi v single independent, owner-managed, public, foreign
  - workplace activity: exposure to market
  - industry, age, greenfield, location
  - management practices: HRM, one-way and two-way communication, formal procedures, liP
- Other union measures:
  - strength
  - management attitudes to unions
  - voice

## 4.4 Results

### 4.4.1 The impact of bargaining arrangements

Table 4.3 summarises results from multivariate analyses testing the impact of collective *bargaining arrangements* on managerial perceptions of climate in the whole sample. (The full models are appended in Appendix Table A4.2). We test the sensitivity of the *bargaining arrangement* effects to an increasing number of control variables as we move from left to right. We begin by assessing the effect of *bargaining arrangements* with no controls at all. Then we add the following in stepwise fashion: *bargaining coverage*; the managerial respondent's characteristics; workforce composition; workplace characteristics; managerial practices.

In models one and two, managerial perceptions of climate are poorer where separate groups of unions negotiate when compared to workplaces with single unions or no recognition. However, the effect becomes statistically insignificant once *bargaining coverage* and the respondent's characteristics are taken into account (model 3). With the full set of controls in place (model six) there is nothing to distinguish perceptions of climate across single and multi union workplaces, across multi-union *bargaining arrangements*, or between workplaces with and without union recognition.<sup>22</sup> So, the nature of collective *bargaining arrangements* has little effect on management perceptions of climate in the full sample.

There is an indication that managerial perceptions of climate are more positive where some, but not all, workers are covered by collective bargaining. This is confirmed in models identical to those reported above which regrouped workplaces into those with high *bargaining coverage* (60 per cent or more), lower coverage (1-59 per cent) and no coverage. Managers perceived the climate to be significantly better if up to 59 per cent of workers had their pay set through collective bargaining.<sup>23</sup> If *bargaining coverage* is regarded as a proxy for union bargaining power, this finding is consistent with the hypothesis that the climate of employee relations is best served by a balance of power between unions and management.



What also matters in determining managerial perceptions of climate is the nature of the individual, notably whether they are an employee relations specialist or not, and the time they have been in post; workforce composition; workplace size; industry, age and region. Being a 'good' employer, as signaled by the IIP award, is associated with good climate.<sup>24</sup>

We ran identical models to those presented in Table 4.3, this time replacing the *bargaining arrangement* variable with one counting the number of *recognised unions* to see whether there were any discernible effects associated with multi-unionism per se. Without controls, the model reflects the descriptive findings in Table 4.2: climate deteriorates in the presence of three or more *recognised unions*. The detrimental effect of three or more *recognised unions* relative to non-unionism persists when all but the management practice controls are added.<sup>25</sup> However, the multi-union effect loses significance with the introduction of the management practice variables. Of these practice variables, only the Investors in People control is strongly associated with a better climate. It is possible that non-unionised workplaces engage in good practices that improve climate; once this is accounted for in the model, managerial perceptions of climate are no different in non-unionised workplaces than they are in unionised workplaces, and multi-unionism is not significant.<sup>26</sup>

We introduced additional union controls one at a time to our baseline *bargaining arrangement* models to establish whether our results were sensitive to their inclusion. We experimented with six union measures, each entering the baseline model containing *bargaining arrangements*, *bargaining coverage* and the full set of controls. No significant *bargaining arrangement* effects emerged. The three additional union variables capturing other aspects of union strength (on-site union representation, *union density*, and the *closed shop*/management endorsement of membership) were all insignificant, as was our measure capturing union and non-union voice. However, managerial perceptions of climate were better where management expressed themselves as being 'in favour of trade union membership'.<sup>27</sup> More broadly, managerial perceptions of climate were also better where managers strongly disagreed with the statement 'most decisions at this workplace are made without consulting employees'.

**Table 4.3: Impact of *bargaining arrangements* on managerial perceptions of management-employee relations in 1998**

	<b>M1 CBA only</b>	<b>M2 + barg. coverage</b>	<b>M3 + resp.</b>	<b>M4 + wkforce</b>	<b>M5 + wkplace</b>	<b>M6 + man. practice</b>
<i>Collective bargaining arrangements</i> (ref: joint bargaining)						
Single union	0.194 (1.18)	0.244 (1.48)	0.081 (0.50)	-0.030 (0.16)	0.088 (0.49)	0.028 (0.15)
Separate bargaining, each union	0.113 (0.63)	0.145 (0.87)	0.049 (0.26)	0.029 (0.15)	0.049 (0.26)	0.045 (0.24)
Separate bargaining, groups of unions	-0.357 (1.37)	-0.248 (0.96)	-0.103 (0.41)	-0.122 (0.38)	-0.158 (0.44)	0.332 (1.06)
Multi-union, arrangement missing	0.485 (1.03)	0.495 (0.96)	0.309 (0.60)	0.225 (0.45)	0.253 (0.51)	-0.197 (0.37)
No recognition	0.252 (1.85)	0.308 (1.54)	0.138 (0.67)	0.117 (0.54)	0.264 (1.21)	0.231 (1.04)
Observations	2,188	2,086	2,079	2,033	1,983	1,890

**Base:** all workplaces with non-missing data. T-statistics in parentheses. \* = sig at 5%; \*\* = sig at 1% Note: M1 means model one, et cetera.

In the remainder of this section we report analyses of climate among four subsets of our sample: unionised and non-*unionised workplaces*; and public and private sector workplaces.

Results for the unionised sector are not substantively different from the economy as a whole. No significant *bargaining arrangement* effects are discernible once controls enter the model. Again, managerial perceptions of climate were significantly poorer where there was high coverage (60 per cent or more) or zero coverage, when compared with coverage of between 1 and 59 per cent.<sup>28</sup>

Among workplaces without *recognised unions*, managers' perceptions of climate were best where there was low *bargaining coverage* (1-19 per cent) as opposed to no coverage or higher coverage.<sup>29</sup> Support for unions by management did not influence managers' perceptions of climate.

**Table 4.4: Impact of *bargaining arrangements* on managerial perceptions of management-employee relations in the public and private sectors**

	M1 CBA only coverage	M2 + barg. coverage	M3 + resp.	M4 + wkforce	M5 + wkplace	M6 + man. practice
<b>Public sector:</b>						
<i>Collective bargaining arrangements (ref: joint bargaining)</i>						
Single union	0.270 (1.22)	0.244 (1.13)	0.077 (0.39)	-0.123 (0.53)	0.002 (0.01)	-0.104 (0.49)
Separate bargaining, each union	0.068 (0.28)	0.081 (0.38)	-0.076 (0.30)	-0.091 (0.40)	0.039 (0.15)	-0.002 (0.01)
Separate bargaining, groups of unions	-0.673 (2.04)*	-0.634 (2.03)*	-0.545 (1.81)	-0.756 (1.99)*	-1.049 (2.07)*	-0.179 (0.52)
Multi-union, arrangement missing	0.811 (1.75)	0.609 (1.25)	0.448 (0.93)	0.214 (0.47)	0.431 (0.89)	0.251 (0.42)
No recognition	0.417 (1.65)	0.282 (1.04)	0.106 (0.40)	-0.177 (0.53)	0.258 (0.81)	0.130 (0.42)
Observations	677	634	631	618	602	553
<b>Private sector:</b>						
<i>Collective bargaining arrangements (ref: joint bargaining)</i>						
Single union	0.218 (0.82)	0.253 (0.99)	0.076 (0.31)	0.084 (0.30)	0.343 (1.26)	0.263 (0.94)
Separate bargaining, each union	0.233 (0.88)	0.283 (1.04)	0.236 (0.84)	0.191 (0.55)	0.317 (0.99)	0.370 (1.09)
Separate bargaining, groups of unions	0.328 (0.87)	0.412 (1.07)	0.485 (1.16)	0.863 (1.89)	0.923 (1.60)	1.124 (1.79)
Multi-union, arrangement missing	-0.825 (1.19)	-0.839 (0.99)	-0.955 (1.10)	-0.717 (0.63)	-0.574 (0.50)	-0.661 (0.56)
No recognition	0.383 (1.75)	0.334 (1.24)	0.166 (0.61)	0.257 (0.88)	0.483 (1.64)	0.421 (1.33)
Observations	1,511	1,452	1,448	1,415	1,381	1,337

**Base:** all public sector workplaces with non-missing data in top panel and all private sector workplaces with non-missing data in bottom panel. T-statistics in parentheses. \* = sig at 5%; \*\* = sig at 1% Note: M1 means model one, et cetera.



Table 4.4 shows that the effects of *bargaining arrangements* differ across the public and private sectors.<sup>30</sup> In the public sector models without controls (model one in the top panel), managerial perceptions of climate are poorest in workplaces where management bargains separately with groups of unions. This effect persists with the introduction of industry controls, suggesting that the effect is not simply proxying an industry-specific effect.<sup>31</sup> However, when management practices enter the final model (model six), there are no significant differences in climate across *bargaining arrangements*.<sup>32</sup> It appears that the key to harmonious employee relations in the public sector lies in the avoidance of separate bargaining with groups of unions, although there are no advantages to joint bargaining over separate bargaining with each union.

By contrast, in the private sector *bargaining arrangements* are not generally associated with managerial perceptions of climate (bottom panel of Table 4.4). If anything, separate bargaining with each union is positively associated with better climate relative to joint bargaining, although it is only statistically significant at the 90 per cent confidence level in the fourth and sixth models. (It is worth recalling that only 5-6 per cent of private sector workplaces had multiple unions.) However, climate was viewed as poorer where there were three or more *recognised unions*, compared to similar workplaces with no unions. This effect was significant at a 95 per cent confidence level in the equivalent of model 5, but fell to 90 per cent with the introduction of managerial practices.

As the full models in the appendices indicate, no *bargaining coverage* was associated with poorer climate in the public sector, with managerial perceptions of climate being most positive where coverage was between 1 and 39 per cent. In the private sector, climate was best with mid-range *bargaining coverage* (40-59 per cent), and poorest where coverage was either high (60 per cent or more) or low (1-19 per cent).

#### 4.4.2 The impact of bargaining levels

The same modelling approach is adopted for estimating the impact of *bargaining levels* on managerial perceptions of climate. Identical control variables are used, except that the *bargaining level* variable incorporates coverage too, as discussed above, so that the separate *bargaining coverage* variable is omitted.

Table 4.5 presents results from 'baseline' models for the whole sample (see Appendix Table A4.5 for the full models). What seems to matter most in explaining managerial perceptions of climate is not the level at which bargaining occurs, but rather the percentage of workers covered and whether the workplace contains *recognised unions*. Managers in workplaces recognising unions viewed the employee relations climate most positively where there was minority coverage. *Ceteris paribus*, this effect was significant relative to majority coverage workplaces with either industry-level or organisation-level bargaining (although the difference with industry-level bargaining was not significant in the final model incorporating management practices).<sup>33</sup> Among workplaces with majority coverage and union recognition, managerial perceptions of climate were unaffected by whether bargaining occurred at workplace-, organisation-, or industry-level.

Similar results emerge when running the same models on *unionised workplaces* only, although this time the positive association between minority coverage and better climate is stronger and retains significance across all models relative to the reference category, majority coverage with industry-level bargaining.

Turning to the separate models for the public and private sectors, the only *bargaining level* effect is the positive perception of climate in private sector workplaces that have multi-level bargaining and majority coverage.<sup>34</sup> These make up 1 per cent of workplaces in the survey and under 1 per cent of private sector workplaces.

**Table 4.5: Impact of *bargaining levels* on managerial perceptions of management-employee relations in the whole sample**

	M1 CBL4 only	M2 + response	M3 + wkforce	M4 + wkplace	M5 man. practice
<i>Collective bargaining levels (ref: recognition, majority coverage, industry-level)</i>					
No recognition, no coverage	0.173 (1.04)	0.051 (0.31)	0.153 (0.91)	0.265 (1.20)	0.302 (1.37)
No recognition, minority coverage	0.197 (0.63)	0.050 (0.16)	0.248 (0.94)	0.250 (0.80)	0.227 (0.67)
No recognition, majority coverage	0.076 (0.33)	-0.072 (0.32)	-0.066 (0.30)	0.008 (0.03)	-0.135 (0.50)
Recognition, no coverage	-0.164 (0.49)	-0.266 (0.78)	-0.263 (0.88)	-0.246 (0.85)	-0.279 (0.98)
Recognition, minority coverage	0.610 (2.89)**	0.474 (2.20)*	0.484 (2.12)*	0.436 (1.92)	0.309 (1.34)
Recognition, majority coverage, workplace-level	-0.150 (0.83)	0.013 (0.07)	0.273 (1.37)	0.227 (0.92)	0.194 (0.78)
Recognition, majority coverage, organisation-level	-0.158 (0.92)	-0.173 (1.01)	-0.092 (0.48)	-0.056 (0.29)	-0.136 (0.66)
Recognition, majority coverage, multi-level	-0.141 (0.52)	0.114 (0.41)	0.328 (1.10)	0.277 (0.87)	0.309 (1.03)
Observations	2,080	2,073	2,027	1,977	1,885

T-statistics in parentheses. \* = sig at 5%; \*\* = sig at 1% Note: M1 means model one, et cetera.

## 4.5 Summary

Box 4.2 summarises findings from this chapter relating to the whole economy. Collective *bargaining arrangements* have little effect on management perceptions of climate. *Ceteris paribus*, managerial perceptions of the employee relations climate do not differ across single and multi union workplaces, across multi-union *bargaining arrangements*, or between workplaces with and without union recognition. However, there is some support for the contention that managers view climate most positively where at least some workers have their pay determined by collective bargaining. Where either no workers or the vast majority of workers have their pay set in this way, climate is perceived to be poorer. Although this may be evidence that climate is best where there is a balance of power between management and unions, other measures of union strength had little impact.

Where unions were recognised and the majority of workers were covered by collective bargaining, managerial perceptions of climate did not differ significantly according to whether bargaining occurred at workplace-, organisation-, or industry-level.

**Box 4.2: Effect of bargaining on managerial perceptions of the employee relations climate – findings for the whole sample**

- *Bargaining arrangements*:
  - without controls, climate is poorest where negotiation with separate groups of unions
  - but with controls, *bargaining arrangements* have no significant effect
  - climate poorer in presence of 3+ *recognised unions* relative to none but not significant when control for managerial practices
- *Bargaining levels* not significant
- *Bargaining coverage*:
  - across whole sample, climate best where mid-range (1-59%) coverage relative to zero coverage or high coverage (60%+)
  - where recognition, climate better with mid-range coverage (1-59%) relative to zero or higher coverage
  - where no recognition, climate better with low coverage (1-19%)
- Management support for unions fosters better climate
- Management preparedness to consult prior to decision-making fosters better climate

Managerial perceptions of climate were better where management supported union membership. Further investigation revealed that this effect was confined to workplaces with *recognised unions*. They were also better where management said most decisions were made after consultation with employees: this finding held across union and non-union workplaces.

Box 4.3 presents findings from the separate analyses of the private and public sectors.

The key to harmonious employee relations in the public sector lay in the avoidance of separate bargaining with each union, although there were no advantages to joint bargaining over separate bargaining with groups of unions. By contrast, in the private sector, *bargaining arrangements* were not associated with managerial perceptions of climate. However, multi-unionism was associated with poorer climate.

*Bargaining levels* had virtually no effect on managerial perceptions of climate in the public or private sectors where the majority of workers had their pay set through bargaining. The exception was the positive effect of multi-level bargaining in the private sector, a situation affecting fewer than 1 per cent of workplaces.

The effects of *bargaining coverage* differed across the two broad sectors. Although these differences are difficult to interpret, managers seem to view climate most positively where some but by no means all workers have their pay set through collective bargaining.

**Box 4.3: Effect of bargaining on managerial perceptions of the employee relations climate – findings for the public and private sectors**

- Private sector:
  - *Bargaining arrangements* generally not significant, but climate deteriorates in the presence of three or more unions, relative to none
  - *Bargaining levels* were not significant, except better climate in <1% cases with multi-level bargaining
  - Better climate with mid-range coverage (40-59%) than 60%+ or 1-19% coverage
- Public sector:
  - *Bargaining arrangements*: climate better where separate bargaining with groups of unions is avoided, but no advantage in *single-table bargaining* over separate negotiations with individual unions
  - *Bargaining levels* not significant
  - Better climate with low coverage of 1-39% relative to zero or 80%+ coverage; recognition with no coverage associated with particularly poor climate

## Endnotes

- 19 At 52 per cent and 61 per cent respectively, its mean *union density* and *bargaining coverage* are lower than for any other *bargaining arrangement*.
- 20 This subsection, subsection 4.3.2 and Appendix Two (which gives a full account of procedures adopted) also apply to the analyses presented in Chapters Five and Six.
- 21 We do so by rebasing our equations, that is, altering reference categories, and, in other cases, by computing whether effects are significant using STATA's SVYLC command (*STATA Manual Release 6*, Volume 4, pp. 36-50).
- 22 A variant of this model, replacing the *bargaining arrangement* variable with a simple indicator of union recognition confirmed that, across all specifications, union recognition was negatively associated with managerial perceptions of climate, but not significantly so.
- 23 Climate was significantly better at the 95 per cent or 90 per cent level of confidence where there was lower coverage (1-59 per cent) than where there was zero or high (60 per cent or more) coverage in all models except the final model incorporating management practices. In this model the negative effect of zero coverage became non-significant. This was due to the drop in sample sizes with the incorporation of management practices, rather than the effect of these practices on *bargaining coverage*.
- 24 The count of HRM practices was positive but not significant. In models not shown we found a number of individual practices had positive significant effects (highly autonomous work-teams, high percentages of workers in problem-solving groups, greater empowerment for workers, and awareness of job responsibilities through ongoing training). Others (performance-related pay, training to do other workers' jobs, and the existence of grievance and collective disputes procedures) had negative effects.
- 25 Relative to non-union workplaces, the negative effect of having four or more unions is significant at a 95 per cent level of confidence; the effect of three unions is significant at a 10 per cent level. The effects of having three or four or more *recognised unions* are not significant relative to single unionism.
- 26 Some of the reduction in the union recognition coefficients is accounted for by confining the analysis to workplaces with non-missing data on the management practice variables, but it does not account for all of the reduction.
- 27 Compared to 'not being in favour', the effect is significant at a 95 per cent confidence level (t-statistic = 2.08).
- 28 In the model with a full set of controls, the coefficient for no coverage is -0.95 with a t-statistic of 3.61, whereas the coefficient for high coverage is -0.76, with a t-statistic of 4.01. The only other dimension of unionism to have a significant effect on managerial perceptions of climate in the union sector was management's general attitude towards union membership. Where it was favourable, perceptions of climate were better.
- 29 The effect was significant at a 95 per cent confidence level relative to zero coverage (t-statistic = 2.07).
- 30 The full models are presented in Appendix Tables A4.3 and A4.4 respectively. Note that the public and private sector models are not identical since the public sector model omits foreign ownership, if the workplace is run by an owner-manager, and SIC category 7, financial services.
- 31 Since arrangements involving separate negotiations with groups of unions involve more unions than other arrangements, we tested to see whether the effect was simply the result of having a higher number of *recognised unions*. This was not the case.
- 32 Restriction of the penultimate model to the management practice control sub-sample indicates that this change is due to the restriction of the sample resulting from the introduction of these variables, rather than any effect of the management practices on the *bargaining arrangement* variable.
- 33 Climate did not differ significantly in *unionised workplaces* with minority coverage and those with majority coverage where the bargaining occurred at the workplace.
- 34 The effect is statistically significant relative to other scenarios with the exception of no recognition, no coverage and recognition with minority coverage.

## CHAPTER 5

### Employee perceptions of the employee relations climate

WERS98 is unusual in providing employer and employee views of the employee relations climate where they are working at the same workplace. We can expect employee perceptions of management-employee relations to differ from those of their employer. First, our main managerial respondents have formal responsibility for employee relations at the workplace and, with that authority, should have the opportunity to influence conditions at work in a way that the average worker cannot. Employees in general may be less constrained in their criticism of workplace relations than managers who are more directly responsible for them. Secondly, employees' perceptions may differ from their employer's because their perspectives are influenced by different factors. As well as making judgements with different information sets<sup>35</sup>, employees' perceptions are likely to be influenced by factors such as their general feelings about what their workplace is like to work in (Cully *et al.*, 1999: 280-281), their feelings about the effectiveness of their union, and how they view their own management. It should not be surprising, therefore, if we find that employee perceptions of climate do not match the perceptions of their employers.<sup>36</sup>

During the course of a short self-completion questionnaire, employees were asked: 'In general, how would you describe relations between managers and employees here?' The five-point ordinal scale runs from 'very good' to 'very poor'. The question and scaling are virtually identical to the question asked of managers, offering a sound basis for comparison.

The distribution of responses is presented in Table 5.1, together with the responses of the main managerial respondent in the right-hand column for ease of reference. It is apparent that employees have poorer perceptions of workplace employee relations than their managerial counterparts.<sup>37</sup> Nevertheless, over half viewed the employee relations climate at their workplace as 'very good' or 'good'.

Table 5.2 presents this information in a different way, restricting the comparison to those instances in which data are available for both employees and the employer. It shows that, while employee perceptions of climate were poorer than managers' perceptions in nearly half of all cases, both parties agreed in one-third of cases and managers' ratings were poorer in 14 per cent of cases.<sup>38</sup>

**Table 5.1: Employee ratings of management-employee relations in 1998**

	Employees	Management
Very good	15	42
Good	40	48
Neither good nor poor	27	8
Poor	12	2
Very poor	6	1
<i>Weighted base</i>	27,659	2,185
<i>Unweighted base</i>	27,691	2,188

**Note:** employee base is all employees excluding 524 unweighted cases with missing data. Management data relate to the responses of the senior manager with responsibility for personnel.

**Table 5.2: Agreement on the climate of employee relations**

	%
Manager's rating worse by one point	12
Manager's rating worse by more than one point	2
Both parties agree	33
Employee's rating worse by one point	31
Employee's rating worse by more than one point	23
<i>Weighted base</i>	27,625
<i>Unweighted base</i>	27,673

**Note:** includes all employees where there are non-missing data for the employee and employer perceptions of climate

Our purpose in this chapter is to establish whether different forms of *bargaining arrangement* are associated with different employee perceptions of climate. To our knowledge, this is something that has not been attempted before. We do so using the climate variable described above. Others have used composite indexes of managerial relations derived from a number of items contained in the employee questionnaire (Guest *et al.*, 1999; Scholarios *et al.*, 1999). Although there are advantages to moving away from reliance on a single-item response, we have chosen to focus exclusively on this variable to allow for comparability with our analysis of managerial perceptions.

We begin by discussing possible links between collective *bargaining arrangements* and employees' perceptions of climate. Then we present descriptive analyses to identify whether there are any simple associations between *bargaining arrangements*, *bargaining levels*, *bargaining coverage*, and climate. Finally, we turn to multivariate analysis to establish whether collective bargaining has any independent effects on climate, controlling for a range of other variables which we anticipate may also affect climate.

## 5.1 Possible links between collective bargaining and employee perceptions of climate

Although there is little empirical research linking *bargaining arrangements* to employee perceptions of climate, there are theoretical reasons to suppose that those links will be similar to the ones outlined in relation to employers in Chapter Four. *A priori*, there are no reasons to suppose that any particular *bargaining arrangement* will be more conducive to better employee perceptions of climate than any other arrangement. Much will depend upon the suitability of arrangements to the workers in question and the bargaining power they are likely to wield (see the discussions in Chapters Three and Four). Box 5.1 lists some of the ways in which unions can be expected to influence employees' perceptions of the employee relations climate. These are discussed below.

The impact that collective bargaining will have on employee perceptions of climate is likely to differ according to whether or not the individual worker is covered, and therefore whether they are likely to benefit from *bargaining arrangements*. We proxy individual coverage with individual union membership.<sup>39</sup> Of course, membership and coverage are not synonymous: non-members may benefit from collectively bargained terms and conditions at the workplace as 'free riders'. Other workers will belong to a union that has no bargaining rights at the workplace.<sup>40</sup> As discussed below, union membership can be linked to perceptions of climate in other ways, too. For these reasons, it is not possible to interpret the effect of individual union membership simply as a coverage effect.



**Box 5.1: Possible links between unions and employee perceptions of climate**

- Impact of bargaining power:
  - conflict if union ‘too’ strong
  - if perceive union as effective, can improve climate perceptions
  - satisfaction with terms/conditions (union ‘mark up’)
  - delivering for heterogeneous workers
- Voice effects:
  - representation in grievances, disputes
  - voice-induced complaining
  - by reducing quits, increases stock of dissatisfied workers
- Union interaction with management:
  - neither side can deliver good climate alone
  - conflict if management oppose a strong union
  - benefits of management co-operation with strong union

Union-induced wage increases may make workers more positive about their working environment than they otherwise would be, so confounding estimates of a union-induced effect arising through *bargaining arrangements*. We control for this in our analyses by incorporating gross wages in our models.

Unions may also affect employee perceptions of climate through the performance of roles other than their bargaining function. If employees believe their union is operating effectively in protecting and advancing members’ interests, in whatever way, this can result in more positive perceptions of climate, either directly, or through the mechanism of ‘dual allegiance’ to employer and union (Deery *et al.*, 1995). For instance, a union may contribute indirectly to improved climate where it represents employees in grievance and disciplinary matters to employees’ satisfaction, or where it effectively voices employees’ collective concerns and ensures that management is responsive to employees’ needs (Freeman and Medoff, 1984).

However, there are also reasons to suspect that the unionisation of workers can lead to poorer perceptions of management and the climate of employee relations. Indeed, it is a standard finding in the British and American literatures that unionised workers express greater dissatisfaction with management than non-unionised workers (Freeman and Medoff, 1984; Gallie, White, Cheng and Tomlinson, 1998; Bryson, 1999a; Bryson 2000a). Freeman and Medoff offer an explanation for this in the greater politicisation of unionised workers. They suggest that unionised workers are more prone to express their voice ‘loudly’ to ensure that it is heard, resulting in ‘voice-induced complaining’ (1984: 142) which they distinguish from ‘true’ dissatisfaction. They also suggest that ‘some of the critical attitude of union workers is due to their greater awareness of problems and willingness to speak out’ (1984: 142). As Gallie, White, Cheng and Tomlinson (1998: 113-114) point out: ‘unionism as an oppositional form of representation may highlight organisational inefficiencies and colour perceptions of management competence’. In addition, as Freeman and Medoff note (1984: 141), other things being equal, the stock of dissatisfied workers will be greater in *unionised workplaces* because dissatisfied workers are less likely to quit in *unionised workplaces* than they are in *non-unionised workplaces* (Bryson and McKay, 1997).

Finally, as noted in Chapter Three, there is little reason to believe that a harmonious employee relations climate can be delivered by unions alone. A co-operative environment is likely to require that management engage constructively with the union, unless it can devise alternative non-union employee involvement strategies which mean the union is not seen as an issue at all. Faced with a strong union, employers may respond by tightening methods of managerial control, as Gallie *et al.* (1998: 72-86) found, a process resulting in a deterioration of employee perceptions of the working environment. Managerial support for a union, strong or otherwise, may signal employer interest in the concerns of workers, a signal which may lead to more positive attitudes to management.

## 5.2 Associations between collective bargaining and employee perceptions of climate

Descriptive analyses provide stronger evidence of an association between union recognition and perceptions of poorer climate among employees than there was for the main managerial respondent (Table 5.3). As in the case of the main managerial respondent, employee perceptions of climate deteriorated in multi-union workplaces. The 'climate gap' between single union and multi-union workplaces remains, irrespective of the *bargaining arrangements* adopted by multi-union workplaces.

Those employed by workplaces with no *bargaining coverage* have more positive perceptions of the employee relations climate than other employees, but as the middle section of Table 5.3 indicates, associations between *bargaining coverage* and employee perceptions of climate differ across workplaces with and without union recognition. Where unions are not recognised, climate is poorest where a minority of workers are covered. In the unionised sector, on the other hand, there is little to choose between the perceptions of employees working with no coverage, minority coverage or majority coverage. However, among workplaces with majority coverage, employees have poorer perceptions of climate where they are more directly involved in bargaining over their own terms and conditions, namely where bargaining occurs at workplace-level.

Finally, as anticipated, union members have poorer perceptions of climate than non-members, whether they work in workplaces with a *recognised union* or not. However, as the bottom section of Table 5.3 indicates, the negative association between climate and recognition persists, controlling for individual membership. Other research using a nationally representative sample of employees in 1998 found these 'membership' and 'workplace recognition' effects persisted after controlling for other individual and workplace-level variables (Bryson, 1999a).<sup>41</sup>

## 5.3 Multivariate analyses of the associations between collective bargaining and employee perceptions of climate

The descriptive analyses presented above suggest that employee perceptions of climate varied more with aspects of collective bargaining than was the case among managerial respondents. To establish whether there is a truly independent association between *bargaining arrangements* and employee perceptions of climate we use multivariate regression analysis. The distribution of our outcome variable is such that there is no need to collapse the 'poor' and 'very poor' categories into a single category. So the outcome variable for our models is precisely the one presented above. Significant positive coefficients indicate variables associated with better climate.

Since our general modelling approach is identical to the approach adopted in Chapter Three, we refer the reader to Chapter Three and Appendix Two for a description of those techniques. The remainder of this section focuses on those aspects of the analysis that differ from the analysis of managerial perceptions.



**Table 5.3: Collective bargaining and employee perceptions of the employee relations climate**

	Very good	Good	Neither good nor poor	Poor	Very poor	Weighted base
<i>row percentages</i>						
<b>Workplace union status:</b>						
No union recognised	20	42	23	10	5	11,576 (11,073)
Union recognised	12	38	30	14	7	16,084 (16,618)
<b>Number of recognised unions:</b>						
One	16	39	27	12	6	6,119 (6,575)
Two	10	40	28	15	7	3,969 (4,404)
Three	7	37	34	15	7	2,131 (2,392)
Four or more	9	33	33	17	8	3,865 (3,247)
<b>Collective bargaining arrangement:</b>						
Single union	16	39	27	12	6	6,119 (6,575)
Multiple unions, joint bargaining	10	37	32	15	6	5,627 (6,000)
Multiple unions, separate bargaining with each union	8	36	28	18	10	2,988 (2,923)
Multiple unions, separate bargaining with union groups	7	35	35	15	7	919 (719)
Multiple union, joint/separate bargaining unknown	11	43	34	9	3	431 (401)
<b>Collective bargaining levels:</b>						
No recognition, no coverage	20	42	23	10	5	10,026 (9,701)
No recognition, minority coverage	11	43	29	13	3	438 (444)
No recognition, majority coverage	26	38	21	10	4	771 (603)
Recognition, no coverage	15	38	30	11	6	1,814 (1,773)
Recognition, minority coverage	14	38	30	12	6	2,281 (2,262)
Recognition, majority coverage, workplace-level	7	33	32	19	9	2,415 (1,879)
Recognition, majority coverage, organisation-level	11	38	29	15	7	4,872 (5,303)
Recognition, majority coverage, industry-level	13	39	29	12	7	3,794 (4,218)
Recognition, multi-level	12	44	27	15	2	238 (303)
<b>Collective bargaining coverage:</b>						
Zero	19	42	24	10	5	11,840 (11,474)
1-19%	13	40	30	11	6	878 (884)
20-39%	14	39	31	11	5	1,399 (1,398)
40-59%	14	43	23	17	3	1,053 (906)
60-79%	15	32	28	16	9	1,518 (1,412)
80-99%	8	34	32	18	9	3,368 (2,996)
100%	12	40	29	13	6	6,619 (7,461)
<b>Individual union membership:</b>						
Member, workplace with <i>recognised union</i>	9	35	31	16	9	9,789 (10,172)
Member, workplace without <i>recognised union</i>	14	37	29	14	6	1,035 (1,046)
Non-member, workplace with <i>recognised union</i>	16	42	28	10	4	6,253 (6,407)
Non-member, workplace without <i>recognised union</i>	21	43	23	10	4	10,488 (9,979)

**Base:** all employees with non-missing data. Note figures in parentheses are unweighted bases.

### 5.3.1 *The sample*

Others have confined their analyses of employees' perceptions of climate to non-managerial employees, perhaps because managers are overwhelmingly positive in their assessment of climate and lie on one side of the management-employee line, while non-managerial employees lie on the other (Cully *et al.*, 1999: 276-283). We adopt an alternative approach, analysing the perceptions of all employees with non-missing data. After all, most managers experience 'being managed' or supervised. Those managers actually responsible for employee relations at sampled workplaces were eligible for the main management questionnaire, and were not included in the eligible sample of employees at the workplace. Our models include occupational controls to account for more positive perceptions of climate further up the occupational hierarchy.

### 5.3.2 *Tackling limitations to the analysis*

The selection problem discussed in Chapter Four arising from the non-random distribution of *bargaining arrangements* is compounded in the case of matched employee-employer data since there is possible sorting among workplaces and among employees. In this report we have simply incorporated a wide range of factors that we know influence employee perceptions of management to minimise the problem of omitted variables bias. We also test whether our findings hold across sub-samples where we might expect systematic differences in the association between *bargaining arrangements* and perceptions of management (within the unionised and non-unionised sectors, the public and private sectors, and among union members and non-members).

A second problem we face is that two control variables in particular may not be independent of our outcome variable. These are union membership status and job tenure. Employees may become union members *because* employee relations are poor. Since union members are heavily concentrated in workplaces with *recognised unions*, this negative association between membership and climate may understate any negative association between union recognition and climate. Job tenure may not be independent of the employee relations climate because those viewing the climate as poor may leave. As discussed earlier, unions increase job tenure, other things being equal, and since perceptions of climate tend to deteriorate with increased tenure, models containing job tenure may understate any negative association between unions and climate. To overcome this problem, we test the sensitivity of our results to the exclusion of individual union membership and job tenure.

### 5.3.3 *Control variables*

The combination of employee data on demographics, qualifications, job characteristics, and attitudes to their job, management and unions, coupled with workplace data obtained from the manager responsible for personnel or human resource issues at the site, allows us to control for a very wide range of individual-level and workplace-level information to estimate precisely influences on managerial responsiveness to employees. The controls are identified in Box 5.2. Appendix Table A5.1 defines these variables and shows their incidence in the sample as a whole, and the public and private sectors separately. Appendix Four discusses the rationale for the inclusion of the chosen controls.

**Box 5.2: Controls used in analyses of employee perceptions of the employee relations climate****Individual-level:**

- Demographic: gender, age, education, ethnicity
- Job: occupation, workplace tenure, hours, contract-type, gross wage
- Union membership status
- Employee perceptions of union effectiveness
- Employee perceptions of management attitudes to union membership

**Workplace-level:**

- Workforce composition: N employees, N occupations, % female, % managers, % female managers, % ethnic, % part-time, *union density*
- Ownership: public, foreign, multi-site organisation
- Age
- Workplace activity
- Management practices: ER specialist, HRM practices, N direct voice channels, liP
- Industry
- Region

## 5.4 Results

### 5.4.1 The impact of bargaining arrangements

Table 5.4 summarises results from multivariate analyses testing the impact of collective *bargaining arrangements* on employee perceptions of climate in the whole sample. (The full models are appended in Appendix Table A5.2). We test the sensitivity of the *bargaining arrangement* effects to an increasing number of control variables as we move from left to right. We begin by assessing the effect of *bargaining arrangements* with no controls at all. Then we add the following in stepwise fashion: *bargaining coverage*; employees' demographic characteristics; job characteristics; workplace characteristics.

Among multi-union workplaces, employee perceptions of climate are more favourable where those unions bargain jointly rather than separately. This remains so on entering demographic controls and job characteristics (models 3 and 4). However, once workplace controls are added (model 5), employee perceptions do not differ significantly whether unions bargain jointly or as separate groups. Perceptions of climate remain significantly poorer where each union bargains separately. Indeed, climate is poorer where each union negotiates separately than under any other form of *bargaining arrangement*, suggesting that it is the avoidance of this arrangement, rather than the adoption of any other particular arrangement, which is advisable from an employee relations perspective.

*Bargaining coverage* of 80-99 per cent is associated with poorer climate when compared to zero coverage, but in the model with full controls the coefficient is similar to the coefficient for very low coverage (1-19 per cent), so the coverage effects are hard to interpret.

All demographic characteristics are strongly associated with employees' perceptions of climate, as are most job characteristics. Although workplace characteristics seem to be less salient, employees' perceptions do differ according to workplace size, workforce composition, ownership, industry and location. Being a 'good' employer, as signalled by the liP award, is associated with good climate, as was the case with managerial respondents.<sup>42</sup> Managerial perceptions of climate were poorer when the respondent was an employee relations specialist. The presence of an employee relations specialist is also associated with poorer employee perceptions of climate, indicating that the effect is not simply due to the outlook of specialists when compared with non-specialist managers, but may also be due to aspects of management practice associated with specialists.

**Table 5.4: Impact of bargaining arrangements on employee perceptions of management-employee relations in 1998**

	M1 CBA only	M2 + barg. cover.	M3 + demo.	M4 + job charac.	M5 + wkplace charac.
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.170 (3.67)**	0.177 (3.89)**	0.075 (1.71)	0.060 (1.37)	0.000 (0.01)
Separate bargaining, each union	-0.149 (2.72)**	-0.165 (3.23)**	-0.169 (3.40)**	-0.171 (3.56)**	-0.183 (3.65)**
Separate bargaining, groups of unions	-0.110 (1.49)	-0.123 (1.97)*	-0.135 (2.36)*	-0.122 (2.33)*	-0.037 (0.54)
Multi-union, arrangement missing	0.181 (2.21)*	0.136 (1.52)	0.082 (0.92)	0.027 (0.36)	0.024 (0.19)
No recognition	0.340 (8.51)**	0.279 (4.48)**	0.095 (1.50)	0.089 (1.56)	0.011 (0.19)
Observations	27,691	26,531	25,767	24,144	21,688

**Base:** all employees with non-missing data. T-statistics in parentheses. \* = sig. at 5%. \*\* = sig. at 1%

Employee perceptions of climate appear more favourable among employees in single union workplaces compared with multi union workplaces when other factors are not controlled for (Table 5.4 models 1 and 2). This effect disappears with the inclusion of job controls (model 4). Climate appears most favourable where there is no union recognition, but the coefficient diminishes once controls are added. However, as noted above, the inclusion of workplace tenure and union membership may understate any association between union recognition and poor climate. Since both these variables have large significant effects on climate, we ran the same models, but excluded these two variables. The results are summarised in Table 5.5. As anticipated, the positive effect of no recognition strengthens, so that employee perceptions of climate are significantly better in non-unionised workplaces than they are in multi-union workplaces.<sup>43</sup> However, relative to joint bargaining and separate negotiation with groups of unions, the positive effect of no recognition is only on the margins of statistical significance.<sup>44</sup> Single unionism is also more strongly associated with improved climate in these models, but again, the only difference that remains significant in the final model is that between single unionism and separate bargaining with each union. This confirms findings from the 'baseline' models indicating that it is where bargaining is most fragmented (where there is separate bargaining with each union) that employee perceptions of climate are poorest.

We ran identical analyses to those presented in Tables 5.4 and 5.5, this time replacing the *bargaining arrangement* variable with one counting the number of *recognised unions* to see whether there were any discernible effects associated with multi-unionism per se. In models with demographic and job characteristics climate did deteriorate with multi-unionism. However, the number of *recognised unions* was not significantly associated with employee perceptions of climate once workplace characteristics were taken into account. A different picture emerges if employees' union status and workplace tenure are removed from the model. In this case, a significant multi-union effect is present in the full model with workplace controls. Whereas there is no significant difference between employee perceptions of climate in non-union and single union workplaces, workplaces with two or more unions have significantly poorer climate than workplaces with no unions. However, there is no difference between workplaces with two unions and those with more than two unions.

**Table 5.5: Models estimating impact of *bargaining arrangements* on employee perceptions of climate, excluding workplace tenure and union membership**

	+ coverage and demographics	+ job characteristics	+ workplace characteristics
<i>Collective bargaining arrangements (ref: joint bargaining)</i>			
Single union	0.126 (2.83)**	0.098 (2.21)*	0.033 (0.73)
Separate bargaining, each union	-0.155 (3.08)**	-0.159 (3.30)**	-0.168 (3.41)**
Separate bargaining, groups of unions	-0.137 (2.29)*	-0.131 (2.41)*	-0.043 (0.63)
Multi-union, arrangement missing	0.102 (1.14)	0.042 (0.54)	0.030 (0.25)
No recognition	0.227 (3.67)**	0.191 (3.35)**	0.101 (1.77)
Observations	25,840	24,250	21,780

**Base:** all employees with non-missing data. T-statistics in parentheses. \* = sig. at 5%; \*\* = sig. at 1%

We introduced additional union controls one at a time to our baseline *bargaining arrangement* models to establish whether our results were sensitive to their inclusion. We experimented with eight union measures, each entering the baseline model containing *bargaining arrangements*, *bargaining coverage* and the full set of controls.

The association between separate bargaining with each union and poorer climate remained significant throughout relative to all other *bargaining arrangements*. Employees perceived the climate to be better where they said that unions at their workplace took notice of members' problems and complaints, and where they agreed 'unions are taken seriously by management at this workplace'. Both effects were highly significant. This lends support to the suggestion that unions that are perceived as effective by employees can contribute to improved employee relations. Management support for unions also contributed to a better climate. Where management said they recommended union membership to their employees, or where employees thought their management was 'in favour' of union membership, employees' perceptions of climate were more favourable. Equally, where employees thought their management was 'not in favour' of union membership, climate was poorer. Again, the effects were highly significant. Although this evidence is consistent with the idea that employee relations benefit where management and unions support one another, not all the evidence points in this direction. When we added the main managerial respondent's perception of management's attitudes to union membership to the baseline model, employees viewed climate as better only when the managerial respondent said that union membership was 'not an issue'. The other union indicator with a significant effect on employee perceptions of climate was on-site union representation.<sup>45</sup> The presence of an on-site union representative was associated with poorer perceptions of climate, confirming previous research (Bryson, 1999a). This may be an indicator of union strength on the ground, which may contribute to poorer climate (although *union density* and *bargaining coverage* are largely insignificant). Alternatively, on-site representation may result in 'voice-induced complaining' discussed earlier.

In the remainder of this section we report analyses of climate among subsets of our sample. We begin with employees in the public and private sectors. Then we focus on those in the unionised sector, reporting effects for all workers in the sector, and then for members and non-members separately.

Table 5.6 shows that the effects of *bargaining arrangements* differ across the public and private sectors.<sup>46</sup> In general, the private sector models reflect those for the whole sample. The negative effect of separate bargaining with each union is apparent, as are the initial positive effects of single unionism and non-unionism that disappear with the introduction of controls. In contrast to the whole sample model, however, employee perceptions of climate are most favourable where there is bargaining with separate groups of unions. The effect is not particularly robust, however: the sign on the coefficient only becomes positive in the final model with full controls, and is only significant at a 90 per cent confidence level relative to joint bargaining. This is likely to reflect the fact that this *bargaining arrangement* is uncommon in private sector workplaces, accounting for fewer than 1 per cent of these workplaces.

In the public sector, there are indications that employees perceive climate as poorer where there is separate bargaining with groups of unions. However, this effect loses significance with the introduction of workplace controls (model 5 in the top panel of Table 5.6). The negative effect of separate bargaining with each union is very weak in the public sector, only reaching significance at a 10 per cent level in the penultimate model (model 4 in the top panel). The only public sector bargaining effect to survive the introduction of workplace controls is the positive perception of climate where there are no unions recognised.

**Table 5.6: Impact of *bargaining arrangements* on employee perceptions of management-employee relations in the public and private sectors**

	<b>M1 CBA only</b>	<b>M2 + barg. cover.</b>	<b>M3 + demo.</b>	<b>M4 + job charac.</b>	<b>M5 + wkplace charac.</b>
<b>Public sector:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.210 (2.68)**	0.175 (2.17)*	0.134 (1.79)	0.109 (1.47)	0.005 (0.07)
Separate bargaining, each union	-0.135 (1.95)	-0.118 (1.62)	-0.102 (1.46)	-0.128 (1.89)	-0.089 (1.21)
Separate bargaining, groups of unions	-0.121 (1.57)	-0.135 (1.57)	-0.167 (2.00)*	-0.158 (2.18)*	-0.116 (1.20)
Multi-union, arrangement missing	0.121 (1.33)	0.110 (1.16)	0.094 (0.99)	0.044 (0.55)	0.143 (1.11)
No recognition	0.308 (2.91)**	0.248 (2.12)*	0.173 (1.47)	0.153 (1.41)	0.255 (2.71)**
Observations	9,593	9,040	8,725	8,209	6,973
<b>Private sector:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.237 (4.04)**	0.204 (3.69)**	0.033 (0.58)	0.018 (0.30)	-0.012 (0.19)
Separate bargaining, each union	-0.121 (1.47)	-0.163 (2.40)*	-0.219 (3.26)**	-0.208 (3.17)**	-0.168 (2.50)*
Separate bargaining, groups of unions	-0.169 (1.75)	-0.071 (0.66)	-0.047 (0.54)	-0.029 (0.31)	0.132 (1.90)
Multi-union, arrangement missing	0.134 (0.62)	0.068 (0.32)	-0.051 (0.21)	-0.147 (0.68)	-0.120 (0.55)
No recognition	0.466 (9.15)**	0.302 (3.82)**	0.035 (0.43)	0.041 (0.53)	-0.063 (0.78)
Observations	18,098	17,491	17,042	15,935	14,715

T-statistics in parentheses. \* = sig. at 5%; \*\* = sig. at 1%



**Table 5.7: Impact of *bargaining arrangements* on employee perceptions of management-employee relations in *unionised workplaces***

	<b>M1</b> <b>CBA</b> <b>only</b>	<b>M2</b> <b>+ barg.</b> <b>cover.</b>	<b>M3</b> <b>+</b> <b>demo.</b>	<b>M4</b> <b>+ job</b> <b>charac.</b>	<b>M5</b> <b>+ wkplace</b> <b>charac.</b>
<b>All employees:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.173 (3.67)**	0.183 (3.98)**	0.083 (1.89)	0.073 (1.63)	0.009 (0.18)
Separate bargaining, each union	-0.152 (2.72)**	-0.169 (3.24)**	-0.169 (3.37)**	-0.174 (3.60)**	-0.178 (3.55)**
Separate bargaining, groups of unions	-0.112 (1.48)	-0.124 (1.91)	-0.136 (2.27)*	-0.128 (2.37)*	-0.054 (0.75)
Multi-union, arrangement missing	0.185 (2.22)*	0.144 (1.57)	0.093 (1.03)	0.011 (0.15)	-0.015 (0.14)
Observations	16,618	15,783	15,341	14,460	12,781
<b>Union members:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.104 (1.88)	0.119 (2.19)*	0.090 (1.65)	0.087 (1.52)	-0.004 (0.06)
Separate bargaining, each union	-0.210 (3.41)**	-0.219 (3.64)**	-0.194 (3.24)**	-0.190 (3.22)**	-0.211 (3.41)**
Separate bargaining, groups of unions	-0.182 (2.55)*	-0.167 (2.52)*	-0.168 (2.33)*	-0.168 (2.54)*	-0.142 (1.66)
Multi-union, arrangement missing	0.222 (2.64)**	0.180 (2.01)*	0.156 (1.83)	0.063 (0.84)	0.027 (0.22)
Observations	10,172	9,706	9,448	8,895	7,820
<b>Union non-members:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.103 (1.72)	0.122 (2.06)*	0.075 (1.26)	0.057 (1.02)	0.038 (0.63)
Separate bargaining, each union	-0.087 (1.19)	-0.102 (1.42)	-0.095 (1.26)	-0.124 (1.99)*	-0.110 (1.67)
Separate bargaining, groups of unions	0.064 (0.63)	0.007 (0.06)	-0.041 (0.39)	-0.006 (0.06)	0.134 (1.24)
Multi-union, arrangement missing	0.066 (0.63)	0.028 (0.24)	-0.022 (0.18)	-0.074 (0.49)	-0.103 (0.81)
Observations	6,407	6,042	5,893	5,565	4,961

T-statistics in parentheses. \* = sig. at 5%; \*\* = sig. at 1%

Results for the unionised sector are not substantively different from the economy as a whole (Table 5.7).<sup>47</sup> However, effects differ markedly according to individuals' union membership status.<sup>48</sup> The association between poorer perceptions of climate and separate *bargaining arrangements* is strong among union members (middle panel of Table 5.7). Although the difference between separate bargaining with groups of unions and joint bargaining is only on the margins of statistical significance when workplace controls are entered (model 5), the negative effect of separate bargaining with each union remains strong throughout.

By contrast, *bargaining arrangements* have little influence on non-members' perceptions of climate, even though this model is confined to those non-members in *unionised workplaces*.<sup>49</sup> It may be that non-members' perceptions of the employee relations climate in their workplace are unaffected by *bargaining arrangements* because they are removed from bargaining processes and, if their terms and conditions are not set by bargaining, they will have less of a stake in the

process and outcome of bargaining than members, many of whom are likely to be covered by *bargaining arrangements*. However, non-members' perceptions of climate are poorer where there is low coverage (1-19 per cent) than where there is no coverage at all (see Appendix Table A5.7). Although the effect is difficult to interpret, it does suggest that non-members located in *unionised workplaces* are not wholly untouched by collective bargaining.<sup>50</sup>

#### 5.4.2 The impact of bargaining levels

A similar modelling approach is adopted for estimating the impact of *bargaining levels* on employee perceptions of climate. Identical control variables are used, except that the *bargaining level* variable incorporates coverage too so that the separate *bargaining coverage* variable is omitted.

Table 5.8 presents results of the 'baseline' models for the whole sample (see Appendix Table A5.8 for the full models). In the first model, which contains the *bargaining levels* variable without controls, two effects are apparent. First, perceptions of climate appear more positive among employees in workplaces without *recognised unions* than they do among employees in *unionised workplaces*. However, the effect is confined to non-*unionised workplaces* with no *bargaining coverage* and non-*unionised workplaces* with majority coverage. The second effect in the model without controls is the strong association between poorer employee perceptions of climate and workplace-level bargaining. Both these effects become statistically insignificant with the introduction of workplace controls in the final model (model 4 in Table 5.8). Instead what emerges is an association between multi-level bargaining and better climate. The effect is significant relative to other *bargaining arrangements*, with the exception of no coverage and majority coverage in workplaces without *recognised unions*. This effect is difficult to interpret and, in any case, relates to an arrangement existing in less than 1 per cent of all workplaces. This aside, among workplaces with majority coverage where unions are recognised, employee perceptions of climate did not differ significantly according to whether bargaining occurred at workplace-, organisation-, or industry-level. This was also the case with respect to managerial perceptions of climate.

**Table 5.8: Impact of *bargaining levels* on employee perceptions of management-employee relations in the whole sample**

	M1 CBL4 only	M2 + demo.	M3 + job + charac.	M4 + wkplace + charac.
<i>Collective bargaining levels (ref: recognition, majority coverage, industry-level)</i>				
No recognition, no coverage	0.259 (5.55)**	0.059 (1.23)	0.105 (2.23)*	0.087 (1.38)
No recognition, minority coverage	0.066 (0.57)	-0.058 (0.53)	-0.015 (0.16)	-0.008 (0.09)
No recognition, majority coverage	0.355 (2.90)**	0.223 (1.87)	0.235 (2.14)*	0.104 (1.00)
Recognition, no coverage	0.076 (1.03)	0.023 (0.33)	0.052 (0.79)	0.052 (0.77)
Recognition, minority coverage	0.045 (0.76)	-0.008 (0.14)	0.025 (0.43)	0.014 (0.21)
Recognition, majority coverage, workplace-level	-0.290 (4.88)**	-0.225 (3.90)**	-0.085 (1.42)	0.004 (0.06)
Recognition, majority coverage, organisation-level	-0.081 (1.48)	-0.041 (0.81)	0.008 (0.17)	-0.004 (0.07)
Recognition, majority coverage, multi-level	0.089 (1.12)	0.096 (1.53)	0.160 (2.15)*	0.205 (3.45)**
Observations	26,486	25,722	24,101	21,645

T-statistics in parentheses. \* = sig. at 5%; \*\* = sig. at 1%



When individual union membership and workplace tenure are removed from the models for reasons discussed earlier, the positive association between no recognition and good climate comes through more strongly, as was the case in the *bargaining arrangement* models. Indeed, the combination of no recognition and no coverage is associated with better employee perceptions of climate than any other scenario, other than majority coverage with no recognition and majority coverage with multi-level bargaining, where the difference is not significant. As in the baseline model that includes union membership and workplace tenure, the only significant effect within the unionised sector is the positive effect of multi-level bargaining.

A similar pattern of results emerges when running the same models on *unionised workplaces* only, although the positive effect of multi-level bargaining is stronger. Once again, there are clear differences across the public and private sectors (Table 5.9). In the private sector model without controls (model 1 in the bottom panel of Table 5.9), employee perceptions of climate are better where unions are absent or, where they are recognised, there is no *bargaining coverage*. However, these effects gradually disappear with the inclusion of controls until, in the final model with workplace controls (model 4), the only significant effect is the positive effect of multi-level bargaining relative to recognition with minority coverage.<sup>51</sup>

In the public sector, multi-level bargaining is also associated with good climate in the fully specified model (model 4 in the top panel of Table 5.9). In the first three models, it appears that workplace-level bargaining with majority coverage is associated with significantly poorer climate than bargaining at industry-level. However, the effect loses significance on the introduction of workplace characteristics. Both recognition and the extent of *bargaining coverage* are important. In the public sector, employees are most likely to view climate positively where there is no recognition but the majority of workers are covered by collective bargaining. This effect persists with the introduction of controls.

The effects reported in this section do not conform to our expectations from the theories discussed in previous sections and are difficult to interpret. But clearly, whether or not a union is recognised, and the extent of *bargaining coverage* in the workplace, can have important effects on employees' perceptions of climate.

**Table 5.9: Impact of bargaining levels on employee perceptions of management-employee relations in the public and private sectors**

	<b>M1 CBL4 only</b>	<b>M2 + demo.</b>	<b>M3 + job + charac.</b>	<b>M4 + wkplace + charac.</b>
<b>Public sector:</b>				
<i>Collective bargaining levels (ref: recognition, majority coverage, industry-level)</i>				
No recognition, no coverage	0.286 (2.19)*	0.129 (0.91)	0.158 (1.27)	0.029 (0.25)
No recognition, minority coverage	-0.035 (0.18)	-0.079 (0.41)	-0.027 (0.19)	0.017 (0.13)
No recognition, majority coverage	0.454 (3.36)**	0.382 (2.80)**	0.345 (2.49)*	0.383 (2.94)**
Recognition, no coverage	-0.034 (0.33)	-0.029 (0.28)	0.006 (0.06)	-0.142 (1.73)
Recognition, minority coverage	0.027 (0.41)	0.004 (0.06)	0.048 (0.72)	0.058 (0.75)
Recognition, majority coverage, workplace-level	-0.462 (3.20)**	-0.431 (3.60)**	-0.340 (2.77)**	-0.205 (1.29)
Recognition, majority coverage, organisation-level	-0.061 (0.79)	-0.045 (0.62)	0.010 (0.16)	-0.064 (0.94)
Recognition, majority coverage, multi-level	0.049 (0.53)	0.056 (0.76)	0.120 (1.32)	0.207 (2.48)*
Observations	9,018	8,703	8,188	6,952
<b>Private sector:</b>				
<i>Collective bargaining levels (ref: recognition, majority coverage, industry-level)</i>				
No recognition, no coverage	0.446 (4.44)**	0.218 (2.12)*	0.207 (1.93)	0.115 (1.10)
No recognition, minority coverage	0.299 (2.12)*	0.103 (0.76)	0.093 (0.67)	-0.008 (0.05)
No recognition, majority coverage	0.421 (2.15)*	0.252 (1.39)	0.238 (1.35)	0.070 (0.43)
Recognition, no coverage	0.286 (2.30)*	0.204 (1.68)	0.168 (1.40)	0.167 (1.46)
Recognition, minority coverage	0.129 (1.03)	0.055 (0.44)	0.041 (0.31)	-0.050 (0.38)
Recognition, majority coverage, workplace-level	-0.085 (0.79)	-0.017 (0.16)	0.044 (0.39)	0.069 (0.62)
Recognition, majority coverage, organisation-level	0.063 (0.59)	0.111 (1.04)	0.091 (0.83)	0.047 (0.45)
Recognition, majority coverage, multi-level	0.222 (1.91)	0.304 (2.86)**	0.406 (3.74)**	0.210 (1.63)
Observations	17,468	17,019	15,913	14,693

T-statistics in parentheses. \* = sig. at 5%; \*\* = sig. at 1%

## 5.5 Summary

Employees' perceptions of climate were poorer where there was bargaining with each union separately than under any other form of *bargaining arrangement*. The avoidance of this arrangement, rather than the adoption of any other particular arrangement, might be advisable from an employee relations perspective.

We explained why there were grounds for excluding individual union membership and workplace tenure from our models. When we did so, positive associations between perceptions of climate and working in a non-union environment strengthened. Results from these models nevertheless confirmed findings from the 'baseline' models indicating that it is where bargaining is most fragmented (where there is separate bargaining with each union) that employee perceptions of climate are poorest.

**Box 5.2: Effect of bargaining on employee perceptions of the employee relations climate – findings for the whole sample**

- *Bargaining arrangements*:
  - Climate poorest where separate bargaining with each union
  - Without controls, climate poorer in multi-union workplaces with joint bargaining than single union or no recognition workplaces. However, these effects become non-significant on entering controls
  - Excluding workplace tenure and union membership reveals more positive climate in non-union workplaces and deterioration with multi-unionism
- *Bargaining levels* not significant, except better climate in <1% cases with multi-level bargaining
- *Bargaining coverage* results difficult to interpret
- Union effectiveness improves climate
- Management support for unions fosters better climate
- Climate poorer in presence of on-site representative

Turning to *bargaining levels*, employees' perceptions of climate in multi-union workplaces did not differ significantly according to whether bargaining occurred at workplace-, organisation-, or industry-level. There was one exception, namely the positive effect of multi-level bargaining, an arrangement existing in less than 1 per cent of workplaces.

When individual union membership and workplace tenure were removed from the model, the positive association between no recognition and good climate came through more strongly. The combination of no recognition and no coverage was strongly associated with good climate. Climate also deteriorated in the presence of two or more unions. Unions' impact on employee perceptions of climate was not wholly captured by *bargaining arrangements* or coverage. Where employees viewed unions as effective, and where there were indications that management was supportive of unions, they were associated with better employee perceptions of the climate. Equally, where employees thought their management was 'not in favour' of union membership, climate was poorer. This evidence is consistent with the idea that employee relations benefit where management and unions support one another.

Box 5.3 summarises results for different sectors of the economy. The effects of *bargaining arrangements* differed across the public and private sectors. In general, the private sector models reflected those for the whole sample, with climate poorest where there was separate bargaining with each union. In the public sector, on the other hand, the negative effect of separate bargaining with each union was very weak. The only public sector *bargaining arrangement* effect to survive the introduction of workplace controls was the positive perception of climate where there are no unions recognised.

**Box 5.3: Effect of bargaining on employee perceptions of the employee relations climate – findings across sectors**

- Private sector:
  - Climate poorest where separate bargaining with each union
  - Without controls, climate best where no recognition or no coverage, but these effects become non-significant with controls. With controls, *bargaining levels* not significant
- Public sector:
  - Climate best where no recognition but majority of workers covered by collective bargaining
  - No significant differences in climate across workplaces with union recognition other than positive effect of multi-level bargaining
- *Unionised workplaces*:
  - Union members have poorer perceptions of climate where separate bargaining
  - *Bargaining arrangements* do not affect non-members' perceptions of climate

There were also differences across the public and private sectors in terms of the effects of *bargaining levels* and coverage. In the private sector, *bargaining levels* were not generally associated with employee perceptions of climate, the exception being better climate in the small number of cases with multi-level bargaining. In the public sector, employees were most likely to view climate positively where there was no recognition but the majority of workers were covered by collective bargaining. These effects do not conform to our expectations from the theories discussed in previous sections and are difficult to interpret. But clearly, whether or not a union is recognised, and the extent of *bargaining coverage* in the workplace, can have important effects on employees' perceptions of climate.

Finally, the impact of *bargaining arrangements* in the unionised sector was not substantively different from the economy as a whole but effects differed according to individuals' union membership status. The association between poorer perceptions of climate and separate *bargaining arrangements* was strong among union members in *unionised workplaces*. By contrast, *bargaining arrangements* had little influence on non-members' perceptions of climate.

## Endnotes

- <sup>35</sup> For instance, workers may be more aware of the 'real' feeling on the shopfloor than management, whereas management may be privy to all formal grievances and disputes in a way that most employees will not.
- <sup>36</sup> There are also technical reasons why we might pick up different effects in our analysis of employee perceptions. Multi-unionism covers a higher proportion of employees than it does workplaces. This, coupled with the large sample sizes available with the employee data, increases the chances of detecting any statistically significant association between multi-union *bargaining arrangements* and climate.
- <sup>37</sup> If, as seems possible, employee relations were poorer in those workplaces where management refused permission to distribute the employee questionnaires, then the 'real' gap may be wider. However, as noted in Appendix One, our weighting scheme compensates for sample non-response. We believe that survey procedures conveying the confidentiality of information provided by employees were sufficiently rigorous to discount the possibility that employees' responses were affected by the possibility of management reprisals.
- <sup>38</sup> These data differ from those presented by Cully *et al.* (1999: 283) because they relate to all employees with non-missing data in the survey, whereas Cully *et al.* confine their analyses to non-managerial employees in workplaces with 25 or more employees.
- <sup>39</sup> Using data from the management and employee interviews, it is possible to identify whether the broad occupational group to which the employee belongs has pay determined by collective bargaining. If so, it is possible to infer that the employee is covered by collective bargaining.
- <sup>40</sup> Using data from the Autumn 1998 *Labour Force Survey*, Metcalf *et al.* (2000) estimate that around four-fifths of union members and one in seven non-members have their pay determined by collective bargaining.
- <sup>41</sup> The sample is drawn from a nationally representative sample of adults in Britain. The employee data are confined to those working at least 10 hours per week. For more information see Jowell, *et al.* (1999).
- <sup>42</sup> The count of HRM practices is positive but not significant. In models not shown we found few significant effects associated with individual HRM practices.

- 43 Similar patterns emerge if one replaces the *bargaining arrangement* variable with an indicator of union recognition. In the fully specified model equivalent to model 5 in Table 5.4, the union recognition effect is negative and significant at a 90 per cent confidence level ( t-statistic = 1.87). When tenure and union membership are removed, the effect is significant at a 99 per cent confidence level (t-statistic = 3.88).
- 44 The differences are significant at a 90 per cent level of confidence. The t-statistics are 1.77 and 1.71 respectively.
- 45 Another significant union effect emerged when *bargaining arrangements* and *bargaining coverage* were removed from the model. When this was done, employee perceptions of climate were poorer where *union density* was at least 75 per cent compared to workplaces with no union members.
- 46 The full models are presented in Appendix Tables A5.3 and A5.4 respectively.
- 47 The full models for the union sector are appended as Table A5.5. The full models for members and non-members in *unionised workplaces* are appended as Tables A5.6 and A5.7 respectively.
- 48 Whole economy models not presented indicate that individuals' union membership status is more important than workplace-level union recognition in explaining employee perceptions of climate. Union members have significantly poorer perceptions of climate than non-members, whether *recognised unions* are present or not.
- 49 In the penultimate model (model 4 in the bottom panel of Table 5.7) containing demographic and job controls, perceptions of climate are poorer under separate bargaining with each union than they are under joint bargaining, but the effect is only on the margins of significance once workplace controls are entered (model 5).
- 50 Whole economy models not shown indicate that union membership effects dominated the effect of union recognition since union members had significantly poorer perceptions of climate, whether they worked in workplaces with *recognised unions* or not.
- 51 T-statistic = 2.19.

## CHAPTER 6

### Workplace financial performance

As in previous *WIRS* surveys, managerial respondents to *WERS98* were asked to assess the financial performance of their workplace relative to other workplaces in the same industry. Chapter Two reviews the literature estimating union effects on this performance measure. Here we explain why this literature is a useful starting point for our analysis.

First, it is clear that unions' impact on workplace performance diminished with their strength in the second half of the 1980s (Machin and Stewart, 1990, 1996). If, as some have suggested (Millward *et al.*, 2000), union strength has declined in the 1990s, we might expect a further diminution in union effects.

Secondly, unions' impact became contingent on the market power of the workplace in which they operated (Machin and Stewart, 1990, 1996). In 1984, workplaces with manual unions performed more poorly than others irrespective of the workplace's market share, but by 1990 the negative union effect was confined to workplaces with a *closed shop* or management endorsement of the union *and* high market share.

Thirdly, there is evidence from the 1990 *WIRS* that union effects differ in combination with different types of financial participation and employment practices (McNabb and Whitfield, 1997, 1998). However, a recent attempt to replicate the results of McNabb and Whitfield (1998) using *WERS98* found union effects were not significant, either with or without alternative measures of financial participation (Addison and Belfield, 2000).<sup>52</sup> This raises the prospect that union effects detected in 1990 may no longer be apparent.

In this chapter, we draw on this literature to inform our analysis. Our analysis departs from previous research in two ways. First, our focus is the effect of collective bargaining. Secondly, in 1998 for the first time the financial performance question was asked of all respondents, so we can present some analysis for the whole economy. However, in line with the existing literature, the main focus of our analysis remains on the private trading sector.

We start by considering our measure of financial performance. Then we explore the distribution of the responses on workplace financial performance and our measures of collective bargaining. Next we consider the control variables used in the analysis. Finally we present results of our multivariate analyses. This includes an exploration of union recognition effects in conjunction with market share, union strength and employee involvement measures previously addressed in the literature.

#### 6.1 The measure of financial performance

*WERS98* puts the following question to managerial respondents:

'I now want to ask you how your workplace is currently performing compared with other establishments in the same industry. How would you assess your workplace's financial performance?'

Responses are coded along a five-point ordinal scale, from 'a lot better than average' to 'a lot below average'.

The question is similar to others that have featured in the *WIRS* series. The measure has undergone substantial reliability testing (Machin and Stewart 1990, 1996, Cully *et al.*, 1999: 120-121). Recent research (Bryson, 2000b) finds financial performance in 1990 is a strong predictor of closure in 1998. Further testing of the financial performance variable in *WERS98* (Cully, 1999: 122-124) confirms that the measure is a sound basis for estimating union effects on performance.

Table 6.1 shows the distribution of responses to the workplace financial performance question for the whole economy, together with those for the trading sector and the private trading sector. The distribution of responses is skewed, with respondents having a tendency to view their workplace performance as better than average. Very few respondents say performance is below average, and only 1 per cent of respondents report workplace performance 'a lot below average'. This is not a problem for analysis, provided this tendency is not systematically related to characteristics of the workplace which may bias our estimates of union effects. Cully *et al.* (1999: 122-124) do not find any systematic bias in this and other similar measures, concluding that the measures 'seem more than suitable for the study of economic performance'.

The *WIRS* financial performance measure was originally designed so that it would be applicable across establishments throughout the trading sector. Accounting measures of financial performance (accounting profits, price-cost margins, stock market valuations, and so on) do not have this property. For example, retailers frequently use sales per employee as a measure of financial performance, an indicator of no value in measuring the performance of a manufacturing plant that delivers all its output to another unit of the same enterprise. The qualitative measure in *WERS98* and previous *WIRS* overcomes this problem.

Since the question is asked of all workplaces, whole economy analyses are feasible. However, among non-trading workplaces, and workplaces that perform administrative or support functions, concepts of profit and loss and 'financial performance' may be less meaningful. This is illustrated in Table 6.1 which shows that the percentage of workplaces unable to make a judgement on financial performance falls when we narrow our focus to the trading sector, and falls still further in the private trading sector.

**Table 6.1: Workplace financial performance by sector**

	All workplaces	Trading sector <sup>†</sup>	Private trading sector
			<i>Column percentages</i>
A lot better than average	13	13	15
Better than average	35	38	39
About average	31	31	31
Below average	6	6	6
A lot below average	1	*	*
No comparison possible	9	7	6
Relevant data not available	5	4	2
Don't know or not answered	1	2	1
<i>Weighted base</i>	2,191	1,683	1,390
<i>Unweighted base</i>	2,191	1,620	1,265

<sup>†</sup> The trading sector covers workplaces that produce goods or services for consumers or supply goods or services to other companies

**Table 6.2: Workplace financial performance by performance measure**

	A lot better than average	Better than average	About average	Below average	A lot below average	Weighted average	Unweighted base
<i>All workplaces:</i>	15	41	36	7	1	1,871	1,856
<i>Financial Performance Measure:</i>							
Profit or value added	17	41	35	6	1	954	952
Sales/Fees/Budget	8	47	38	6	*	409	374
Costs or expenditure	15	39	38	8	*	367	389
Stock market indicators	20	58	14	8	0	28	54
Other	19	20	49	10	2	43	31
Don't know	7	59	26	9	0	31	25
Not answered	27	19	35	3	16	40	31

*row percentages*



Non-response remains a significant problem. For the whole economy, 15 per cent of managers were unable to provide an indication of financial performance, and even in the private trading sector 9 per cent of managers were unable to do so. Given the potential for bias through non-response, we assessed whether response rates to the workplace financial performance question differed by our collective bargaining measures. We found that workplaces with multiple unions and either joint bargaining or separate bargaining with groups of unions were a little less likely to respond on workplace financial performance (with non-response rates of 17 and 20 per cent respectively). Workplaces with mainly organisation-level or multiple-level collective bargaining also had slightly higher levels of non-response (17 and 21 per cent respectively).

Even within the trading sector some managers are better placed to estimate the relative financial performance of their workplace than others. Some establishments are cost centres, for which revenue cannot be disaggregated. Others are profit centres which hold information on costs and revenues, while others are full-blown enterprises which hold information on profits, revenues and capital employed. Only the last category corresponds to 'firms', for which indicators such as returns on investment may be appropriate. To help with a 'like with like' comparison *WERS98* asks managers: 'Which of these measures corresponds most closely to your interpretation of financial performance?' The options include: 'Profit or value added', 'Sales/Fees/Budget', 'Costs or expenditure' and 'Stock market indicators'.

More than half the managers referred to profit or value added (Table 6.2). A further 20 per cent referred to sales, fees or budgets, and another 20 per cent to costs or expenditure. Less than 5 per cent of respondents used other measures and 5 per cent did not know or did not answer, despite answering the financial performance question. Since much of the theoretical literature is concerned with union effects on profit, we test the sensitivity of our analyses to the type of financial performance measure used by narrowing the focus of some analyses to those workplaces where we have a measure of profits or value added.

Table 6.2 also shows that there was little to choose between perceptions of performance across the three most often cited measures. Those referring to sales, fees or budgets were less likely to report performance 'a lot better than average', but more likely to report 'better than average' performance. However, those who judged financial performance according to stock market criteria were more inclined than others to view their workplace performance as better or a lot better than average, whereas those using 'Other' specific measures were less likely to report performance above average.

## **6.2 Associations between workplace financial performance and collective bargaining**

There was little difference in perceptions of financial performance between workplaces with and without union recognition (Table 6.3, rows two and three). However, there were some differences in perceived performance across different types of *bargaining arrangement*. Among multiple union workplaces, financial performance was viewed most positively where there was separate bargaining with each union, and was poorest in the small number of establishments where there was separate negotiation with union groups and where the type of bargaining was unknown. There is no evidence of poorer performance arising from multiple unionism per se, although patterns clearly differed with the number of *recognised unions*.

Table 6.3: Collective bargaining arrangements and workplace financial performance

	A lot better than average	Better than average	About average	Below average	A lot below average	Weighted base	Unweighted base
<i>All workplaces:</i>	15	41	36	7	1	1,871	1,856
<i>row percentages</i>							
<i>Recognition status:</i>							
No union recognised	15	41	36	7	1	1,214	861
Union recognised	14	42	38	5	1	657	995
<i>Collective bargaining arrangements in recognised sector:</i>							
Single union	12	47	36	4	*	428	406
Multiple unions, joint bargaining	17	29	43	8	3	125	349
Multiple unions, separate bargaining with each union	19	38	36	5	1	87	176
Multiple unions, separate bargaining with union groups	4	38	49	9	0	8	49
Multiple unions, joint/separate bargaining unknown	10	8	68	13	0	9	15
<i>Number of multiple unions:</i>							
Two	13	33	43	10	1	149	262
Three	31	25	35	1	8	49	132
Four or more	13	38	45	4	*	32	195
<i>Collective bargaining levels in recognised sector:</i>							
No recognition:							
No coverage	17	39	37	8	*	1,082	762
Minority coverage	8	67	4	0	21	31	29
Majority coverage	4	50	43	3	0	74	45

**Table 6.3: continued**

	A lot better than average	Better than average	About average	Below average	A lot below average	Weighted base	Unweighted base
<i>row percentages</i>							
<i>Recognition:</i>							
No collective bargaining	10	51	37	2	0	127	120
Minority coverage	12	39	44	3	1	99	157
Mainly workplace	18	39	34	6	3	31	121
Mainly organisation	10	44	39	7	*	166	306
Mainly industry	17	38	36	7	2	201	222
Multiple level	13	27	60	0	0	3	14
<i>Unions help find ways to improve workplace performance:</i>							
Strongly agree	9	44	32	13	2	44	58
Agree	14	31	41	12	3	422	579
Neither agree or disagree	12	46	37	5	*	698	590
Disagree	15	46	34	5	*	493	463
Strongly disagree	29	31	37	3	*	194	154

**Base:** all establishments

Turning to *bargaining levels*, among workplaces with no union recognition, those with no workers covered by collective bargaining were most likely to have performance ‘a lot better than average’. Those with a minority of workers covered were most likely to report poorer than average performance *and* better than average performance.

Among workplaces with *recognised unions*, there was no clear pattern in the reporting of performance across our *bargaining level* categories. Where there was majority coverage, there was little difference between mainly workplace-, organisation- and industry-level bargaining.

Managers were also asked to state their level of agreement with whether ‘unions help find ways to improve workplace performance’. There was some evidence that where there was disagreement with this view the reporting of performance was better.

### 6.3 Control variables

Many of the workplace control variables used in the modelling of financial performance are similar to those used for climate (Box 6.1). Appendix Table A6.1 defines the variables used here, and shows their incidence in the whole economy for the sample of workplaces where we have information available for workplace financial performance. Appendix Five discusses the rationale for inclusion of controls in our models.

**Box 6.1: Control variables used in analyses of managerial perceptions of the workplace's financial performance**

- Respondent's job title
- Workforce composition
  - number of employees, employment growth, % female, % part-time
- Workplace characteristics
  - sector, industry, location
  - management practices: HRM, one-way and two-way communication, financial participation
- Market factors
  - market share
  - value of sales
  - growing market
  - low competition
  - product diversity
- Other union measures
  - strength
  - management attitudes to unions
  - voice

### 6.4 Multivariate models of workplace financial performance

We now turn to multivariate analysis of workplace financial performance. Our workplace financial performance measure is an ordinal variable, ranging from ‘a lot below average’ to ‘a lot better than average’. We therefore use the ordered probit estimation techniques discussed in Appendix Two. Significant positive coefficients indicate variables associated with better financial performance. The models are presented in a similar way to the climate analyses, with tables showing coefficients from the estimation models and t-statistics denoting significance levels. The analyses also take account of the complex survey design in *WERS98*, as explained in Appendix Two.

Starting with models containing only the collective bargaining variables, we assess the responsiveness of bargaining effects to the addition of sets of control variables in a stepwise fashion. We begin with models for the whole economy and then narrow our focus to the private trading sector where workplaces are more likely to be driven by profit maximisation considerations. The union influence on financial performance should be greater where there are more likely to be profits to be shared between the employer and employees. Finally, we narrow our focus still further, concentrating solely on those workplaces where the measure of financial performance used is profit or value added. The theory is most applicable here.

#### 6.4.1 Whole economy and trading sector models of collective bargaining arrangements and workplace financial performance

The model in the first column of Table 6.4 contains no controls. The reference category is no union recognition and the coefficients in the table indicate the difference between each specific category and the reference category. Compared with workplaces with no union recognition, financial performance was significantly lower where there was separate bargaining with groups of unions and where the type of bargaining was unknown<sup>53,54</sup>. Financial performance in workplaces with other *bargaining arrangements* was not significantly different to that in non-*unionised workplaces*.

The effects of *bargaining arrangements* lose their significance when control variables are added (column two). The final two columns of Table 6.4 report similar models for the trading sector, but the final column also includes the market-related control variables. None of the *bargaining arrangement* variables is significantly different from the 'no recognition' reference category. However, comparing across different *bargaining arrangements* we find separate bargaining with groups of unions is weakly associated with poorer performance than separate bargaining with each *recognised union* (t-statistic 1.7, significant at 10 per cent level).

**Table 6.4: Collective bargaining arrangements and workplace financial performance**

	Whole Economy with no controls	Whole Economy with controls	Trading Sector with no controls	Trading Sector with controls
<i>Ref: no recognition</i>				
Single union	0.047 (0.44)	0.129 (1.04)	0.015 (0.12)	0.034 (0.25)
Joint bargaining	-0.168 (0.85)	0.128 (0.61)	-0.327 (1.38)	0.146 (0.73)
Separate bargaining each union	0.072 (0.34)	0.250 (1.00)	0.022 (0.09)	0.353 (1.49)
Separate bargaining union groups	-0.329 (2.12)*	-0.027 (0.14)	-0.367 (2.06)*	-0.119 (0.56)
Separate/Joint bargaining unknown	-0.589 (2.15)*	-0.573 (1.57)	-0.741 (2.37)*	-0.699 (1.80)
<i>Unweighted base</i>	1,856	1,842	1,428	1,397

**Base:** all workplaces in the relevant sector with non-missing data. T-statistics in parentheses. \* significant at 5% level; \*\* significant at 1% level. See Table A6.2 for full model details.

### 6.4.2 Private trading sector models of collective bargaining arrangements and workplace financial performance

In Table 6.5, we restrict the sample to the private trading sector. Again, in the fully specified model including market-related variables (column one), none of the coefficients is significantly different from the ‘no recognition’ reference category and none of the coefficients is significantly different from each other.

When we focus on those workplaces where the respondent used the profit or value added measure of workplace performance (column two), we again find no significant differences between our collective *bargaining arrangements*. This is despite the fact that we are comparing like with like among workplaces most likely to be affected by unions’ behaviour. There is no union recognition effect on financial performance and no variation across collective *bargaining arrangements*.

**Table 6.5: Collective *bargaining arrangements* and workplace financial performance in the private trading sector**

	Private trading sector with standard controls	Profit/value added as performance measure
<i>Ref: no recognition</i>		
Single union	0.024 (0.16)	0.132 (0.75)
Joint bargaining	-0.069 (0.24)	0.136 (0.44)
Separate bargaining each union	0.308 (1.14)	0.205 (0.52)
Separate bargaining union groups	-0.103 (0.35)	0.143 (0.31)
Separate/Joint bargaining unknown	-1.104 (1.51)	-1.427 (2.24)*
<i>Unweighted base</i>	1,127	715

**Base:** all workplaces in the private trading sector with non-missing data. T-statistics in parentheses. \* significant at 5% level; \*\* significant at 1% level. See Table A6.3 in the Appendix for full model details.

### 6.4.3 Summary of findings on the impact of collective bargaining arrangements on workplace financial performance

There is no evidence of differences in financial performance by collective *bargaining arrangement*. This was true even in models of the private trading sector where profit or value added is the measure of performance.

### 6.4.4 Collective bargaining levels and workplace financial performance

Results of our analysis on the impact of collective *bargaining levels* are summarised in Table 6.6. The development of the analysis is similar to that discussed above for collective *bargaining arrangements*, although it dispenses with any trading sector analysis and moves straight from whole economy to private trading sector models.

The first column shows the effects of *bargaining levels* without any controls. The reference category here is workplaces with no union recognition and no collective bargaining. There are no significant differences relative to the reference category and no significant differences between any of the collective bargaining types.

With the inclusion of controls, significant differences between the various types of collective bargaining emerge (column two). Industry-level bargaining in workplaces with union recognition and majority coverage is associated with better performance than no recognition and majority collective *bargaining coverage* in workplaces without union recognition (t-statistic 2.4, significant at 5 per cent). Industry-level bargaining is also associated with better performance than organisation-level bargaining (t-statistic 2.0, significant at 5 per cent).

**Table 6.6: Collective bargaining levels and workplace financial performance**

	Whole economy without controls	Whole economy with controls	Private trading sector	
			all workplaces	profit measure
<i>Ref: no recognition and no coverage</i>				
Minority coverage	-0.255 (0.42)	-0.137 (0.27)	0.484 (1.58)	0.347 (0.63)
Majority coverage	-0.120 (0.70)	-0.244 (1.39)	-0.437 (2.11)*	-0.542 (1.69)
<i>Recognition:</i>				
No collective bargaining	0.056 (0.34)	0.136 (0.75)	0.017 (0.06)	-0.216 (0.83)
Minority coverage	-0.072 (0.42)	0.026 (0.13)	-0.361 (1.46)	-0.253 (0.54)
Workplace-level	-0.023 (0.13)	0.002 (0.01)	0.047 (0.20)	0.259 (0.95)
Organisation-level	-0.104 (0.77)	-0.081 (0.55)	-0.076 (0.39)	0.110 (0.40)
Industry-level	-0.042 (0.25)	0.283 (1.47)	0.257 (0.96)	0.605 (2.25)*
Multiple-level	-0.140 (0.46)	-0.194 (0.52)	-0.468 (1.66)	-0.380 (1.04)
<i>Unweighted base</i>	1,775	1,772	1,090	693

**Base:** all workplaces in the private trading sector with non-missing data. T-statistics in parentheses. \* significant at 5% level; \*\* significant at 1% level. See Table A6.4 for full model details.

Restricting the analysis to the private trading sector and including the market-related control variables (column three), we find that where there is no union recognition, majority coverage is associated with poorer performance than no coverage. The industry-level and organisation-level bargaining coefficients are similar to the previous model, but the drop in the sample size from limiting the analysis to the private trading sector means the difference is no longer statistically significant.

The negative coefficient on multiple-level bargaining increases so that workplaces with industry-level bargaining had significantly better performance than workplaces with multiple-level bargaining (t-statistic 2.0, significant at 5 per cent).

The last column of Table 6.6 reports results for workplaces where profit or value added was the performance measure. Here we find industry-level bargaining in workplaces with union recognition, and majority coverage is associated with better performance than the reference category, no collective *bargaining coverage* in workplaces without union recognition. Comparing across the collective *bargaining levels*, we again find significantly better performance for workplaces with industry-level bargaining than workplaces with multiple-level bargaining (t-statistic 2.4, significant at 5 per cent).

Workplaces with industry-level bargaining also had better performance than workplaces where there was no union recognition but a majority of workers were covered by collective bargaining (t-statistic 3.0, significant at 1 per cent), and workplaces with recognition and no collective bargaining coverage (t-statistic 2.4, significant at 5 per cent).

#### 6.4.5 Summary of findings on the impact of collective bargaining levels on workplace financial performance

Industry-level bargaining is associated with better performance than other levels. To illustrate the results, we take the typical workplace characteristics of workplaces with industry-level bargaining and, using estimates from our models, show how that workplace's performance would change if it switched bargaining regimes.

Table 6.7 shows the probability that a workplace has financial performance 'a lot better than average' by our *bargaining levels* typology and the difference in probabilities between each bargaining type and industry-level bargaining. This highlights the significant difference discussed in the preceding subsection and shows that, once we control for other factors, a workplace with the typical characteristics of an 'industry-level' bargaining workplace has a 26 per cent probability of having financial performance 'a lot better than average'. However, if this workplace switched its bargaining regime to one in which bargaining occurred at multiple-levels, the probability would fall to 5 per cent. It would also drop significantly with switches to recognition and no coverage, no recognition and majority coverage, and no recognition and no coverage.

**Table 6.7: Predicted probability of being a high financial performance workplace: workplaces with industry-level bargaining relative to other types of workplace**

	Probability of being 'a lot better than average' financial performance <sup>†</sup>	Difference relative to industry-level bargaining
<i>Bargaining type</i>		
Industry-level	0.26	0
<i>No recognition:</i>		
No coverage	0.10	-0.15*
Minority coverage	0.18	-0.08
Majority coverage	0.04	-0.22**
<i>Recognition:</i>		
No coverage	0.07	-0.19*
Minority coverage	0.07	-0.19
Workplace-level	0.16	-0.10
Organisation-level	0.13	-0.13
Multiple-level	0.05	-0.21*

<sup>†</sup> The probability of having financial performance which is 'a lot better than average' is evaluated for the mean characteristics of workplaces with industry-level bargaining. This provides a simple interpretation of the differences presented in column two. They can be thought of as the effect of shifting away from industry-level bargaining for a typical workplace with industry-level bargaining whilst holding constant all other factors.

\* significant at 5% level; \*\* significant at 1% level.



The extent of industry-level bargaining has fallen substantially since 1984 and it has previously been associated with negative performance between 1984 and 1990 (Menezes-Filho, 1997). It is not possible to discern the direction of causality between industry-level bargaining and workplace financial performance from our analyses. It may be that industry-level bargaining has contributed to better performance. However, it is equally plausible that, with the fall in industry-level bargaining in the 1990s, it is only high-performance workplaces that have maintained industry-level bargaining because they were not perceived to have damaged performance. There is some support for this notion in *WERS98*, since managers in workplaces with industry-level bargaining had the most favourable attitude towards union membership and were more likely to recommend union membership.

#### 6.4.6 *Union recognition, the market and workplace financial performance*

Replacing our collective bargaining variables with a simple indicator of union recognition in models presented above indicates no association between union recognition per se and workplace financial performance. This suggests a continuation in the declining influence of unions' impact on financial performance which began in the mid-1980s. Significant union effects were only found in 1990 under specific circumstances associated with strong unions, workplaces with some market power, and certain types of financial participation and employment practices (Machin and Stewart, 1990, 1996; Booth and McCulloch, 1999; Bryson, 1999b). Using *WERS98*, Addison and Belfield (2000) found no recognition effects and no interaction effects associated with financial participation. Here, we look again at these issues to discern whether any recognition effect can be found under any of these circumstances. The analysis presented here is not the main focus of this report and should be thought of as exploratory in nature.

We focus on our favoured models for the private trading sector where profit or value added is the measure of performance. First we consider union impacts associated with market conditions. We look at three measures of market power: whether the UK market share of sales is greater than 50 per cent; whether managers' assessment of the degree of market competition was low or very low (compared to 'very high', 'high' and 'neither high nor low'); and whether the market for the main product or service was growing (as opposed to 'mature', 'declining' or 'turbulent').

The first column of Table 6.8 reports our base model showing the three market variables and a variable indicating whether there was recognition. Here we find no effect on financial performance from recognition, but some strong competition effects. The next three columns in turn split the recognition effect into: *unionised workplaces* with high and low market share; *unionised workplaces* with low and 'not low' competition; and *unionised workplaces* in growing and 'not growing' markets. Each union recognition effect is evaluated against its own non-union counterpart. In column two, workplaces are split according to whether they have union recognition and their market share. The reference category for the three variables shown is 'no union recognition, market share less than 50%'. Union effects are not significant, regardless of market share. In column three, workplaces are split according to union status and the degree of market competition faced. Again, union effects are not significant, though among non-union workplaces, those facing lower competition appear to perform more poorly.

There is, however, a positive impact of union recognition on workplace financial performance (significant at 10 per cent) where the market is 'not growing' relative to like non-union workplaces where the market is not growing (column four).<sup>55</sup> Further investigation of this effect finds no effect where the market is described as 'mature', and significant positive union benefits when the market is 'declining' (t-statistic 2.4, significant at 5 per cent) or 'turbulent' (t-statistic 2.9, significant at 1 per cent).

**Table 6.8: Union recognition, market power and workplace financial performance in the private trading sector**

	Recognition	Recognition by market share	Recognition by degree of competition	Recognition by growing market
Union recognition	0.123 (0.78)			
Market share >50 per cent	0.359 (1.64)	0.361 (1.33)	0.358 (1.64)	0.352 (1.59)
Union and market share <=50 per cent		0.052 (0.29)		
Union and market share >50 per cent		0.095 (0.26)		
Low competition	-1.047 (3.28)**	-1.036 (3.30)**	-0.900 (2.47)*	-1.130 (3.46)**
Union and not low competition			0.154 (0.95)	
Union and low competition			-0.695 (0.98)	
Growing market	0.475 (3.01)**	0.483 (3.09)**	0.462 (2.93)**	0.616 (3.30)**
Union and not growing market				0.389 (1.87)
Union and growing market				-0.138 (0.67)
Observations	715	715	715	715

**Base:** all workplaces in the private trading sector with non-missing data. T-statistics in parentheses. \* significant at 5% level; \*\* significant at 1% level. All models include the full set of controls. See Table A6.5 for full model details.

There is no evidence of a negative union impact on workplace financial performance where the workplace has some form of market power. Evidence from *WIRS90* (Machin and Stewart, 1996) only found a significant effect when there were strong unions and when there was high market share. The strong union measure they used was either a *closed shop* or management endorsement of unions. Given the decline of the *closed shop* in the 1990s we use a different measure of union strength. We split unions into strong, medium and weak categories based on *union density* and *collective bargaining coverage*<sup>56</sup>. We find the positive union effect in turbulent or declining markets is associated with medium-strength unions only, but where the market is growing there are no union effects irrespective of union strength.

This is a new and interesting finding, indicating that strong unions are no longer associated with poorer performance, even where the workplace has high market share or operates in a growing market. Instead we find a positive effect of mid-strength unions where the workplace is operating in difficult market conditions. These effects may arise through unions' ability to operate as an effective 'agent' for the employer to procure maximum effort on the part of workers, or easing the introduction of rapid alterations to work practices demanded by difficult market conditions. It may also come through unions' ability to improve information flows between management and workers, which may facilitate good management or maintain worker motivation.

Finally, we turn to financial participation and work practices. We find little evidence of any impact of financial participation or human resource management (HRM) practices on workplace financial performance in our preferred model for the private trading sector. The number of HRM practices had a positive significant impact in the models for the private trading sector. However, when we restrict the sample to include just those workplaces with profit or value added as the performance measure, all the financial participation, joint consultative committee and HRM variables were no

longer significant. For this sample we were also unable to find any significant union interaction effects with these variables. This finding supports the results of Addison and Belfield (2000) who also found no impact of financial participation on financial performance using *WERS98*.

## 6.5 Summary

Box 6.2 summarises our results. We find little evidence of collective *bargaining arrangement* effects on workplace financial performance. However, there is a strong positive association between industry-level bargaining and workplace financial performance. It may be that industry-level bargaining leads to better performance; however, it may also be true that only those employers who performed well under industry-level bargaining have kept this form of pay determination and these workplaces have continued to perform better than average. This type of cross-sectional analysis is unable to determine the causal relationship.

There are other positive union effects associated with unfavourable market conditions, particularly where union strength is neither weak nor strong. Unions have a role to play in improving workplace performance under difficult market circumstances, which may threaten the job security and welfare of their members and may even lead to workplace closure. This points to a wider union impact beyond the collective bargaining focus of this report which certainly warrants further investigation.

### Box 6.2: Effects of unions on financial performance

- *Bargaining arrangements*
  - No union recognition effect other than where the market is turbulent or declining
  - No difference between single and multiple unions
  - No difference between joint and separate bargaining
  - Findings hold for whole economy, trading sector and private trading sector
  - Findings hold if restrict to workplaces using profit/value added
- *Bargaining levels*
  - Industry-level bargaining associated with better financial performance

## Endnotes

- 52 Like McNabb and Whitfield (1998), Addison and Belfield (2000) found union recognition had no significant effect on financial performance in conjunction with financial participation schemes. However, in contrast to McNabb and Whitfield, union recognition interactions with downward communication and upward problem-solving schemes were also not significant.
- 53 This ‘unknown’ category includes those workplaces where there was multiple unionism, but there was no response as to whether there was joint or separate bargaining. It has a significant negative coefficient in many of our models, but given the definition of the variable we cannot interpret its effect. We do not discuss performance for this category any further but we retain the coefficient in all tables for completeness.
- 54 Further models not shown indicated no significant differences between the performance of single union and multiple union workplaces, and no effects arising from a higher number of *recognised unions*.
- 55 Not surprisingly, non-union workplaces in growing markets enjoyed better performance than non-union workplaces where the market was not growing.
- 56 We define strong unions as either having 100 per cent coverage or 100 per cent density; weak unions have less than 50 per cent collective *bargaining coverage* and less than 50 per cent density. The remaining workplaces with *recognised unions* are classified as medium-strength.

# CHAPTER 7

## Conclusions

In this final chapter, we pull together results from the three substantive chapters, organising the findings under five headings corresponding to different aspects of unionism:

- *Bargaining arrangements*
- *Bargaining levels*
- *Bargaining coverage*
- Managerial attitudes to unions
- Union strength and effectiveness.

In the second part to the chapter we reflect on wider issues raised by the study.

### 7.1 Findings

#### *Bargaining arrangements*

*Bargaining arrangements* have little impact on workplace financial performance. However, fragmented negotiating arrangements were associated with poorer perceptions of climate.

Among managerial respondents in the public sector, climate was viewed as poorest where the employer negotiated with separate groups of unions. Although *bargaining arrangements* were not associated with managerial perceptions of climate in the private sector, multi-unionism was associated with poorer managerial perceptions of climate.

*Employee* perceptions of climate were also poorer in the presence of fragmented bargaining, although this time the effect was associated with separate bargaining with each union (as opposed to negotiation with groups of unions). Further investigation revealed that this effect was confined to the private sector, and to union members. Across the economy as a whole, multi-unionism was associated with poorer employee perceptions of climate, mirroring the finding for managers.

Taken together, these findings suggest that fragmented bargaining and multi-unionism per se were associated with poorer perceptions of the employee relations climate among management and employees, although the effects were not evident everywhere or across all types of respondent. There is no evidence of a superior *bargaining arrangement* with clear advantages over others. However, *single-table bargaining* is one way to ameliorate the effects of multi-unionism and fragmented bargaining. This might go some way to explaining moves towards *single-table bargaining* in the 1990s.

#### *Bargaining levels*

Although there has been much debate about the level at which bargaining is conducted in Britain and its influence on wage setting and inflation, *bargaining levels* had little effect on workplace performance in general. Workplaces with multi-level bargaining enjoyed better climate than other workplaces. This was the only bargaining effect on managerial and employee perceptions of climate. However, this arrangement existed in less than 1 per cent of workplaces.

Industry-level bargaining was associated with better financial performance than other levels of bargaining. However, some caution should be exercised in interpreting the finding. Industry-level bargaining has continued to decline in the 1990s, and it may be that those who retain it are those who can 'afford' to do so. There is therefore a question mark about the direction of causation.

### *Bargaining coverage*

*Bargaining coverage* was not associated with workplace financial performance. Its effects on climate were quite difficult to interpret. In both the public and private sectors, managerial perceptions of climate were most positive where there was mid-range *bargaining coverage*. Although this is consistent with the notion that climate is best where there is a balance of power between unions and management, other measures of union strength were not significant. Furthermore, the effect was not apparent for employees.

### *Managerial attitudes to unions*

Although management attitudes to unions and union membership were not associated with workplace financial performance, they were associated with the employee relations climate. Employee perceptions of climate were better where management were supportive of unions. Where employees thought management were opposed to union membership, and where they thought management did not take unions seriously, employee relations were perceived to be poor. Managerial perceptions of climate were also better where they expressed support for unions, although further investigation revealed that this association was confined to *unionised workplaces*. These findings are consistent with the notion that employee relations are better where management and unions support one another.

### *Union effectiveness and union strength*

The weakening of unions in the 1990s is reflected in our finding that unionisation per se, as indicated by the presence of unions recognised for pay bargaining, had no influence on financial performance, or employer perceptions of climate by 1998. This was so, irrespective of union strength. However, unionisation clearly influenced employee perceptions of climate. Union recognition was associated with poorer perceptions of climate, though this association is largely accounted for by voice-induced complaining on the part of union members. Employee perceptions of climate were also poorer in the presence of strong unions, as indicated by high *union density* or the presence of an on-site union representative. However, unions also had beneficial effects on climate where employees perceived them as effective.

## **7.2 Reflections on wider issues raised by the study**

### *Union effects*

The focus of the study was the impact of various aspects of collective bargaining on workplace performance, as measured by workplace financial performance and the employee relations climate. The focus on various aspects of collective bargaining was merited for three reasons. First, their potential effects have been somewhat neglected in the empirical literature, despite the existence of a theoretical literature linking performance and collective bargaining. Secondly, it is merited by policy developments, notably the enactment of the Employment Relations Act 1999 which extends rights to negotiate over pay to employees where a majority wish for union recognition. The *WERS98* data pre-date this legislation, thus offering an insight into the effects

of collective bargaining in a voluntarist framework. Thirdly, it is merited by developments 'on the ground'. During the 1990s, there were clear trends towards the simplification of *bargaining arrangements* through reductions in the number of *recognised unions* and moves towards *single-table bargaining* where multi-unionism persisted. One might have expected 'returns' to these simplified *bargaining arrangements* in terms of financial performance or climate improvement. Yet we found no clear evidence of benefits arising from management dealing with a unified worker voice, although the avoidance of separate *bargaining arrangements* appeared advantageous in some circumstances. The picture emerging from our analysis of *bargaining arrangements*, coverage and levels is more complex. This complex picture is not necessarily new; it may simply reflect our ability to paint a complex picture due to the richness of the WERS98 data. In any event, it cautions against being prescriptive about the benefits of particular modes of bargaining.

Interpreting the effects of collective bargaining is difficult because they do not always readily correspond with the theoretical framework outlined in the paper. The analysis raises as many questions as it answers. For example:

- Why do *bargaining arrangements* play such a minor role in understanding performance?
- Why do managers perceive climate to be better where some, but by no means all, workers are covered by collective bargaining?

An issue arising from the classification of workplaces by *bargaining arrangement* is the mismatch between union recognition and *bargaining coverage* that is discussed in Chapter Three. The presence of *recognised unions* should correspond with the presence of workers whose pay is determined by collective bargaining in all but exceptional cases. In fact, there are a number of instances in which this is not the case. This may reflect deficiencies in the questionnaire, knowledge of managerial respondents, real changes in the nature of bargaining, or a combination of these. This is an issue requiring further investigation in preparation for any future WERS.

Some of these issues can be tackled through further research in ways outlined below. It will be necessary to identify theories that can generate testable hypotheses able to account for the divergent effects of different aspects of collective bargaining. A simple dichotomy between the 'monopoly' and 'voice' effects of unions is a good starting point, but it is only that.

Nevertheless, there are some clear messages emerging from the research.

First, more attention needs to be paid to union effectiveness since employee perceptions that unions are 'delivering' for them were strongly associated with better perceptions of climate. Although unions may need a degree of bargaining and organisational strength to 'deliver', union effectiveness and union strength are conceptually different. A key question is:

- What are the conditions under which employees perceive unions as effective, and thus able to contribute to better employee relations?

This was not the focal point for this study, and further quantitative research could usefully address this question. Case study research and other qualitative methods could also add to our understanding of the mechanisms and processes by which the behaviour of unions can affect performance across different sectors of the economy.

Secondly, employer orientations to unions and union membership play an important role in determining performance outcomes. Support for unions and union membership, and a preparedness to engage seriously with unions, brings rewards in terms of improved climate. Employees' belief that managers took unions seriously improved their perceptions of climate, even where unions were not recognised. Equally, where unions were present, management opposition to them was detrimental to climate. This raises an important question:



- Why is it that more employers are not supportive of unions when it is clear that managerial support for unions can be beneficial?

The question is particularly pertinent in the light of the Employment Relations Act 1999 whereby employers not currently recognising a union may be required to do so where there is majority support for recognition among employees.

Thirdly, the negative effects of unions on workplace financial performance, apparent in earlier analyses, are absent in 1998. These findings imply that, by the late 1990s, unions were no longer able to extract surplus rents from employers at the expense of profits. There are a number of possible explanations:

- (a) This may be symptomatic of the general decline in union strength since the early 1980s. However, even where unions were strong there was no effect.
- (b) Allied to the decline in union strength, there may no longer be a union mark-up on wages, and thus no knock-on effect to profits. In fact, we know from other research using *WERS98*, that unions can achieve a mark-up in particular circumstances, but there is no general mark-up.
- (c) Unions continue to operate only where employers can 'afford' them. In which case, unions may obtain a wage premium at the expense of profits only where employers are in a good market position. In fact, our evidence suggests that union effects on financial performance did not differ with the workplace's product market circumstances.
- (d) Unions' negative effects on performance arising from their monopoly position may be balanced by positive union effects arising from their 'voice' role, and other union-related effects enhancing productivity.

(d) may help to explain an important finding from Chapter Six, namely the positive effect of unions on performance in workplaces facing turbulent markets. Clearly, this is another important area for further investigation.

### *Directions for future research*

Below we outline some ways in which future quantitative research could improve our understanding of links between unions and performance.

*Panel analysis:* Causal inferences about the impact of unions on performance are best made with panel data wherein union measures at time  $t_1$  can be used to estimate the impact on performance at  $t_2$  or over the period  $t_1 - t_2$ . Such data can also identify switches in regime, such as a move towards *single-table bargaining*, to directly estimate their effect on changes in performance, something we are unable to do with our cross-sectional data. These data are available in the *WIRS* 1990-1998 Panel, and have already been used to analyse workplace closure and employment growth (Bryson, 2000b).

*Alternative performance measures:* What would the picture look like if other performance measures were analysed? Although there are clear advantages to using the near-identical measures of climate in the *WERS98* employee and employer surveys, other measures are available. The analysis of financial performance in this paper relies on a single measure. Although it has been demonstrated that this subjective measure of performance is a good basis for analysis, it is always helpful to have alternative measures of a similar concept. For private manufacturing, such measures are available in the financial data contained in the Annual Business Inquiry, which can be linked to *WERS98*. Of course, there are other organisational performance measures worthy of investigation in their own right. *WERS98* contains a labour productivity measure similar to those appearing in previous *WIRS*.

*Organisation-level analysis:* Workplace-level analysis of performance is important since, even where workplaces are owned by larger organisations, they usually have a substantial degree of autonomy in terms of the way they organise their labour and reach production targets. Nevertheless, in many instances, non-independent workplaces are expected to follow policies or procedures emanating from higher up in the organisation. Organisation-level analysis would therefore be a useful complement to the workplace-level analysis presented here. It would be possible to undertake this analysis with *WERS98* with a variable linking workplaces belonging to the same organisation. This could be done without unnecessarily compromising the anonymity of survey respondents.

*Matching in data from other sources:* We have made limited use of the ability to match in data from other sources. In future, it may be worthwhile enhancing the survey data with a wider array of information held elsewhere, often at industry-level, which may enhance the predictive power of models estimating performance outcomes. These data might include capital investment, import penetration and measures of technological change.



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# APPENDIX 1

## A description of the Workplace Employee Relations Survey 1998

The Workplace Employee Relations Survey 1998 (*WERS98*) is a nationally representative survey of workplaces with 10 or more employees covering all sectors of the economy except agriculture.<sup>57</sup> With weighting to account for complex survey design, survey results can be generalised with confidence to the population of workplaces in Britain employing 10 or more employees.

Our analyses use two elements of the survey. The first is the management interview, conducted face-to-face with the most senior workplace manager responsible for employee relations. This was supplemented by a pre-interview self-completion questionnaire providing workforce data that might have involved interrogating records. Interviews were conducted in 2,191 workplaces with a response rate of 80 per cent. The second element we use is the survey of employees within workplaces where a management interview was obtained. Self-completion questionnaires were distributed to a simple random sample of 25 employees (or all employees in workplaces with 10-24) in the 1,880 cases where management permitted it.<sup>58</sup> Of the 44,283 questionnaires distributed, 28,237 (64 per cent) usable ones were returned.<sup>59</sup> Details of what was covered in the employee survey are presented in Chapter Seven.

### Endnotes

- <sup>57</sup> For a comprehensive technical account of the survey see Airey *et al.* (1999) and for the initial analysis of the survey see Cully *et al.* (1999). The survey data sets are available from The Data Archive, University of Essex.
- <sup>58</sup> The probability of worker selection is the product of the probability of the workplace being selected and the probability of an employee being selected from within that workplace. Cully *et al.* (1999: 306) note the advantages of this approach.
- <sup>59</sup> The weighting scheme used in this paper compensates for sample non-response bias which was detected in the employee survey (Airie *et al.*, 1999: 91-92).

## APPENDIX 2

### Modelling procedures

The three outcome variables of interest in Chapters Four, Five and Six are all categorical indicators defined in terms of ordered responses. We use ordered probit estimators to model the relationship between these dependent variables and sets of independent variables. In ordered probit, an underlying unobservable score is estimated as a linear function of the independent variables and a set of unknown ‘threshold’ parameters, or cut points. The probability of observing outcome  $i$  corresponds to the probability that the estimated linear function plus random error is within the range of the cut points estimated for the outcome. It is assumed that the error term is normally distributed (Greene, 1997).

Significant positive coefficients indicate variables associated with better performance. It is not possible to directly quantify the effect of coefficients in the way that one can interpret coefficients from a least squares regression, for example. However, one can use the coefficients from the models to generate probabilities of better performance given a set of characteristics that can be set by the analyst. One may then identify shifts in that probability by switching ‘regimes’, say from one in which the workplace is characterised by separate bargaining by each union to one in which there is *single-table bargaining*.<sup>60</sup>

Analyses take account of the complex survey design allowing results to be generalised to the workplace and employee populations from which the samples were drawn. First, all models are run on data weighted by the inverse of the employer’s sampling probability (the employee’s sampling probability in the case of Section Seven). As well as allowing the results to be generalised to the population from which the sample is drawn, the use of probability weights also guards against estimation bias which can arise through differential sample selection probabilities.<sup>61</sup> Secondly, we employ the Huber-White robust variance estimator that produces consistent standard errors in the presence of heteroscedasticity.<sup>62</sup>

Thirdly, we obtain accurate standard errors by taking account of sample stratification and the non-independence of employee observations due to clustering in the primary sampling units, namely workplaces.

This procedure uses pseudo-likelihood methods, the point estimates being those from a weighted ‘likelihood’ which is not the distribution function for the sample. Thus, standard likelihood-ratio tests are not valid (Skinner, 1989, STATA Manual, Release 6, Volume 4, 1999).

#### Endnotes

<sup>60</sup> For an illustration of this technique see Bryson (1999b).

<sup>61</sup> Differential sampling fractions can result in standard estimator biases (Skinner, 1997). The weights account for all variation in sampling probabilities, thus eliminating differential sampling probability as a possible source of estimation bias.

<sup>62</sup> The F statistic reported for each model is a Wald test based on the robustly estimated variance matrix.



## APPENDIX 3

### Controls used in analyses of managerial perceptions of the employee relations climate

Appendix Table A4.1 defines these variables and shows their incidence in the sample as a whole and the public and private sectors separately. We discuss these controls here, with the exception of the collective bargaining variables already introduced in Chapter Three.

*Respondent characteristics:* We experimented with a number of variables capturing the nature of the managerial respondent. Our final models incorporate three. First, since previous research indicated that women tend to have better perceptions of climate than men (Bryson and McKay, 1997), we identify whether the respondent was a woman. Secondly, we include whether the respondent was a personnel or employee relations specialist since research with *WIRS90* found specialists had poorer perceptions of climate than other managerial respondents (Fernie, Metcalf and Woodland, 1994). Previous research indicates that employees' perceptions of climate deteriorate with time in their job; we incorporate job tenure on the assumption that this effect will also apply to managers.

*Workforce composition:* Managerial perceptions of climate are better in smaller workplaces (Fernie, Metcalf and Woodland, 1994), so we include a categorical variable capturing the number of employees at the workplace. Three additional variables capture the composition of the workforce: the percentage of women, part-timers and non-white ethnic minorities.

*Workplace ownership, sector and location:* Single-site and multi-site organisations differ markedly in the way they manage employee relations, and across the public and private sectors of the economy (Millward *et al.*, 2000: 61-80), so our models control for this. The public/private distinction is fundamental since, as Appendix Table A4.1 shows, the *bargaining arrangements* in the two sectors are very different. Therefore, as well as including the variable in our whole sample model to capture anything distinctive about a public sector ethos or culture, we also split the analyses by broad sector to allow the variance attributable to *bargaining arrangements* and other controls to differ across the two sectors. In the same way that smaller workplaces are often associated with better managerial perceptions of climate, so too are smaller organisations, captured in our distinction between workplaces that are single independent establishments and those belonging to multiple-establishment organisations. We also make use of information not previously available in *WIRS* which identifies workplaces owned by individuals or families also involved in the day-to-day running of the workplace. We include industry dummies to capture unmeasured industry differences. For the most part we use the one-digit standard industrial classification, but we use the five-digit classification in some models – this is particularly important when examining the effect of *bargaining levels* since arrangements differ systematically across industries. A twelve-category regional variable captures workplace location. Although debate about the 'new' industrial relations has died down somewhat, it is still equated with younger workplaces, those set up on greenfield sites, and foreign-owned workplaces (Millward, 1994). We control for these factors.

*Workplace activity:* Workplace climate may be affected by the pressures associated with exposure to a competitive market environment. Our workplace activity variable distinguishes workplaces producing goods and services for consumers, those supplying to other companies, those supplying to other parts of the organisation they belong to, those that do not produce goods or provide services for the open market, and those that are purely administrative offices.

*Management practices:* Any positive effects of employee involvement on firm performance may be upwardly biased if they are simply an indicator that a workplace is well managed generally and no attempt is made to control for 'good management' (Huselid and Becker, 1996). This is equally true with respect to the impact of *bargaining arrangements* on employers' perceptions of climate. We include a very wide range of management practices to account for this possibility, as recorded in Appendix Table A4.1. It is worth mentioning some of them briefly. First, there are the human resource management practices. HRMScore is loosely based on the managerial concepts outlined by Pfeffer (1995), which, he argues, produce a sustainable competitive advantage through the effective management of people. The measure is a count of practices identified by Pfeffer, supplemented by other aspects of human resource management identifiable in the literature.<sup>63</sup> (In some models we include the count variable, in others we include the full set of practices). Secondly, we include a range of voice and communication variables supplementing the union-non-union voice variable referred to below. Some entail two-way communication, others one-way downward communication from management to employees. The third set of management practice variables relates to formal procedures: individual grievance procedures, procedures for dealing with collective disputes, and formal written policies on equal opportunities or managing diversity. Finally, we identify whether the workplace or organisation to which it belongs has been accredited as an Investor in People.<sup>64</sup>

*Other union measures:* Finally, we test the sensitivity of our bargaining variables to three other facets of trade unionism. First, union strength, as captured by the presence of an on-site representative, a *closed shop*, or *union density*. Secondly, management's attitudes to unions signaled by their support for union membership<sup>65</sup> and their preference for direct consultation with employees over consultation with unions.<sup>66</sup> Thirdly, the nature of worker voice, partly captured by the presence of an on-site union representative, but also by a variable that distinguishes workplaces with no voice, union-only voice, direct non-union voice only, or 'dual channel' voice involving a combination of union and non-union voice.<sup>67</sup>

## Endnotes

<sup>63</sup> These dimensions, and the relevant *WERS98* derived variables, are as follows: selectivity in recruiting (SELECTIV); employment security (JOBSECUR); incentive pay (PROFITPY, PERFPAY, CASHBO); employee ownership (ESOP); information sharing (NINFO); participation and empowerment (EMPOWER); self-managed teams (AUTOTEAM); training and skill development (PCOFFJOB, ONGOING); cross-utilisation and cross-training (TROTJ2); symbolic egalitarianism (SAMETERM); promotion from within (INTERPRO). In addition, the score includes an indicator that the workplace has a formal strategic plan (STRATEGY), strategic planning being a key component on HRM according to some commentators (Storey, 1992), and widespread appraisal systems (APPRAISE). The variable is approximately normally distributed.

<sup>64</sup> The Investors in People (IIP) award is given to workplaces or organisations by independent assessors from Training and Enterprise Councils in England and Wales (Local Enterprise Companies in Scotland) which have a planned approach to setting and communicating business objectives and developing people to meet those objectives.

<sup>65</sup> The managerial respondent is asked whether management's general attitude towards union membership among employees at the workplace is best described as in favour, not in favour or neutral. This question has the advantage of being asked of all respondents, whereas the endorsement question is confined to those with union members on site. Where there is no union recognition, 39 per cent of employees believed managers were not in favour of unions. Although the figure was much smaller in workplaces with *recognised unions* (15 per cent), it nevertheless indicates a substantial degree of opposition to unions on the part of management.

<sup>66</sup> Almost three-quarters of managerial respondents agreed with the statement. Perhaps more revealing still is the fact that 18 per cent of managerial respondents in *unionised workplaces* agreed strongly with the statement, and a further 36 per cent agreed.

<sup>67</sup> Our 'voice' measure (VOICE3) identifies a union voice as being present where there is a *recognised union* or the union appoints an employee representative to a joint consultative committee which meets regularly. Non-union voice comprises direct voice (incorporating team briefings, regular meetings between senior management and the workforce, and problem-solving groups) and non-union representative voice in the form of a joint consultative committee without union nominees which meets regularly.



## APPENDIX 4

### Controls used in analyses of employee perceptions of climate

Appendix Table A5.1 defines the control variables and shows their incidence in the sample as a whole and the public and private sectors separately. We discuss these controls here, with the exception of the collective bargaining variables already introduced in Chapter Three and the workplace characteristics discussed in Appendix Three.

*Demographic characteristics of respondents:* our analyses incorporate gender, age and ethnicity, all of which have been associated with employee perceptions of management in previous studies (Bryson and McKay, 1997; Gallie, White, Cheng and Tomlinson, 1999). More highly educated workers often have higher expectations of involvement, and may therefore be particularly critical of management where participation is denied. We therefore include individuals' highest educational qualification, and whether they possess a vocational qualification.

*Job-related characteristics:* we control for five aspects of individuals' jobs: occupation (based on the 1990 Standard Occupational Classification); years spent working at the workplace; hours usually worked each week; whether the contract is a permanent one; and gross weekly wage. Together, these variables help capture an individual's attachment to their workplace, the investment they have made in working there, and their status in the organisation.

The twelve-category ordered variable capturing gross wages controls for a well-known union effect which may confound other union effects, namely the union mark-up on wages noted above. Union-induced wage increases may make workers more positive about their working environment than they otherwise would be, so confounding estimates of a union-induced effect arising through *bargaining arrangements*.

*Union membership status:* we distinguish between current union members, ex-members and individuals that have never been union members. Controlling for individual union membership helps identify whether there is voice-induced complaining among union members and is a proxy for individual coverage for collective bargaining.

*Workforce composition:* Two workforce composition variables are introduced alongside those used in Chapter Four. We include the percentage of managers who are women to identify whether there is anything distinctive about the style of women managers which employees respond to.<sup>68</sup> Secondly, we include a count variable identifying the total number of occupations at the workplace to differentiate simpler and more complex work processes. The variable seeks to control for the possibility that effects associated with fragmented bargaining are simply picking up the effects of a more fragmented workforce.

*Other union measures:* In addition to the variables described in Chapter Four, we use three union measures taken from the employee self-completion questionnaire. Two relate to employees' perceptions of union effectiveness. The first is how strongly employees agreed that unions at their workplace are responsive to employee problems and complaints. The second is how strongly employees agree that unions or staff associations at the workplace 'are taken seriously by management'. The third measure asks employees to assess their management's attitude to union membership among its employees, a question that mirrors one asked of management in the main management survey interview.

#### Endnote

<sup>68</sup> Whether managerial style is gendered has been the subject of much speculation and analysis recently (Wajcman, 1996, 2000).

## APPENDIX 5

### Controls used in analyses of managerial perceptions of the workplace's relative financial performance

Appendix Table A6.1 defines the control variables and shows their incidence in the public and private sectors separately, as well as the private trading sector. We discuss these controls here, with the exception of the collective bargaining variables already introduced in Chapter Three.

*Respondent's characteristics:* We experimented with a number of variables capturing the nature of the managerial respondent. Our final models include just one measure which indicates whether the respondent was the Proprietor, Owner, Managing Director, Partner, Financial Manager, Company Secretary or General Manager. Those with specialist employee relations titles are in the reference category. The variable helps control for the possibility that managers involved in financial matters may be better informed about the financial performance of the workplace.

*Workforce composition:* We experimented with variables for the size of both the workplace and the organisation. Only very large workplaces had a significant impact on performance, hence we include a dummy variable indicating whether there were 500 or more employees in the workplace. Additional variables indicate whether employment in the workplace increased in the last year.<sup>69</sup> Two variables capture the composition of the workforce: the percentage of women and the percentage working part-time. The percentage of non-white ethnic minorities had no impact on performance.

*Workplace ownership, sector and location:* There was no difference in financial performance between single-site and multi-site organisations, nor between UK and foreign-owned workplaces, hence these variables are not included in our final models. Whole sample models control for public and private sector ownership. Twelve industry classifications control for industry-specific effects. The performance measure is based on workplace financial performance relative to establishments in the same industry, so the industry classification identifies the basis for this comparison, but only to the extent that respondents are thinking of broad industrial sectors when making their comparisons. In the absence of information on performance levels by industry, we experimented with a more disaggregated industry classification but the sample sizes available in the survey meant that results from these models were volatile. A twelve-category regional variable captures workplace location. Performance was not associated with location on a greenfield site, so this was omitted.

*Workplace activity:* Many of our models focus solely on the trading sector or the private trading sector. The trading sector covered workplaces that produced goods or services for consumers or supplied goods or services to other companies.

*Management practices:* We include a wide range of management practices. McNabb and Whitfield (1997, 1998) found union effects on financial performance where there were different types of financial participation or employee involvement. We follow their approach. Financial participation variables indicate whether there were any of the following schemes in operation at the workplace: profit-related payment or bonus schemes; deferred profit-sharing schemes; employee share ownership schemes; individual or group performance-related schemes or other cash bonuses. Employee involvement variables identify whether there was upward problem-solving in the form of either quality circles, suggestion schemes or staff surveys.<sup>70</sup> Downward communication was not found to be significant and was not included, but the presence of a joint consultative committee was included. In addition, the variable counting the number of human

resource management practices in the workplace was included. Variables identifying formal procedures and whether the workplace or organisation to which it belongs has been accredited as an Investor in People were not significant and were not included in the models.

*Market-related variables:* For the trading sector, there are a number of additional variables that may be expected to have an impact on financial performance. Machin and Stewart (1990, 1996) found a union impact only when there was high market share as measured by employment share in the industry. *WERS98* includes a direct measure of market share relating to the proportion of UK sales. Included in our trading sector models is a variable identifying when the market share was greater than 50 per cent. Other market-related variables in the models include: whether the market is growing (the other options include mature, declining or turbulent); whether the value of sales of the main product or service has been rising, stable or falling; the manager's assessment as to the degree of competition in the market; and whether the output of the establishment is a single product or service, or different products or services. This variable is included to measure whether there is scope at the workplace to switch production in response to performance.

## Endnotes

<sup>69</sup> An additional variable identifies workplaces where employment growth data is not available because the workplace is less than a year old.

<sup>70</sup> Note staff surveys only apply to workplaces that were five years or older, hence we also include a dummy identifying workplaces not responding to this question.

**Appendix Table A4.1: Control variables used in analysis of managerial perceptions of the employee relations climate**

	All	Public	Private
<b>Collective bargaining:</b>			
CBA, collective bargaining arrangements:			
No recognised union	64	17	79
Single union	23	45	15
Multi-union, joint bargaining	8	22	3
Multi-union, separate bargaining by each union	5	12	2
Multi-union, separate bargaining by groups of unions	*	2	*
Multi-union, bargaining arrangement data missing	1	3	*
CBL4, collective bargaining levels:			
No recognition, no coverage	58	6	75
No recognition, minority coverage	2	3	1
No recognition, majority coverage	5	8	4
Recognition, no coverage	6	7	6
Recognition, minority coverage	5	16	2
Recognition, majority coverage, workplace-level	2	*	2
Recognition, majority coverage, organisation-level	10	22	6
Recognition, majority coverage, industry-level	12	36	4
Recognition, multi-level	*	1	*
NCOV2PC7, % of workforce covered by collective bargaining:			
None	64	13	81
1-19%	3	6	2
20-39%	2	7	1
40-59%	5	12	2
60-79%	4	9	2
80-99%	5	4	5
100%	17	48	7
NCOV2PC, % workforce covered by collective bargaining, continuous	27	66	15
NRECOG3, number of recognised unions			
0	63	17	79
1	23	45	15
2	8	24	3
3	3	8	2
4 or more	2	6	1
<b>Other union-related variables:</b>			
UREP2, if on-site union representative	20	50	11
CLSHOP, union membership arrangements:			
No union members	53	2	70
Closed shop	1	1	1
Management strongly recommends union membership	9	29	3
Union members present but no closed shop or management endorsement	37	69	26
NDENS6, union density			
No union members	53	2	70
1-24%	12	5	14
25-49%	10	23	6
50-74%	11	28	6
75-99%	9	26	4
100%	4	13	*
Some members, don't know how many	1	3	1
NDENSITY, union density, continuous	24	64	11

	All	Public	Private
EVIEW5, how would you describe management's general attitude towards trade union membership among employees at this establishment?			
In favour	28	71	13
Not in favour	16	1	22
Neutral	54	28	62
Not an issue	2	0	3
Other answer	*	*	*
APHRAS07, we would rather consult directly with employees than with unions:			
Strongly agree	32	16	37
Agree	43	36	45
Neither agree nor disagree	15	23	12
Disagree	9	24	5
Strongly disagree	1	2	1
VOICE3, nature of worker voice:			
Union only	5	6	5
Dual channel	30	80	16
Non-union only	48	13	58
No voice	17	1	21
<b>Respondent's characteristics:</b>			
RESPFEM, if respondent a woman	37	43	35
SPECIAL, if respondent is employee relations specialist according to job title	19	25	17
JTEN6PS, if respondent in current job for six or more years	37	35	38
<b>Workforce composition:</b>			
PCFEM, % of workforce who are women	54	69	50
PCPTCAT, % of workforce who are part-timers:			
None	18	9	21
Under 10%	19	11	22
10%, under 25%	15	14	15
25%, under 50%	17	27	13
50%, under 75%	20	31	16
75% or more	12	8	13
PCETHNI5, % of workforce from non-white ethnic minorities:			
None	62	65	61
Under 5%	16	14	16
5-10%	11	8	12
11-19%	5	3	6
20% or more	6	9	5
NEMPSIZE, number of employees at workplace:			
10-24	50	43	52
25-49	26	31	25
50-99	13	13	12
100-199	6	7	6
200-499	4	4	4
500 or more	1	2	1

	All	Public	Private
<b>Workplace ownership:</b>			
PUBLIC, if public sector	25	100	0
DAYTODAY, if single individual/family with controlling interest is involved in day-to-day management of workplace on full-time basis	17	0	22
SINGLE, if single independent workplace (as opposed to part of a multi-site organisation)	30	3	40
UKFOR, UK or foreign-owned:			
UK-owned	93	100	90
Foreign-owned	6	0	8
50/50	1	0	2
<b>Workplace activity, age and location:</b>			
ASIC, standard industrial classification (single digit):			
Manufacturing	13	*	17
Electricity, gas and water	*	*	*
Construction	4	1	5
Wholesale and retail distribution	19	1	25
Hotels and restaurants	8	2	10
Transport and communication	5	4	5
Financial services	3	0	4
Other business services	11	5	13
Public administration	5	18	*
Education	13	42	3
Health	14	21	12
Other community services	5	6	5
KACTIVI, activity at the workplace:			
Produce goods or services for customers	53	50	54
Supplier of goods or services to other companies	24	4	31
Supplier of goods or services to other parts of organisation to which we belong	3	5	3
Do not produce goods or services for sale in open market	15	36	9
Administrative office only	5	6	5
AGECAT2, age of establishment at current address:			
Under 3 years	11	5	13
3-20 years	50	33	54
Over 20 years	40	62	33
GREENFLD, if workplace set up on greenfield site in last 10 years	5	3	6
SSR, standard statistical region:			
East Anglia	4	3	5
East Midlands	7	10	6
London	12	11	12
North	5	5	6
North West	13	18	11
Scotland	8	8	8
Rest of South East	21	17	22
South West	9	6	10
Wales	4	6	3
West Midlands	10	10	10
Yorkshire and Humberside	8	7	8

	All	Public	Private
<b>Management practices:</b>			
HRMSCORE, count of 13 human resource management practices	6.8	7.3	6.6
NINFO, number of items of information regularly given to employees regarding internal investment plans, the financial position of the workplace, and staffing plans:			
0	19	7	24
1	19	12	21
2	28	33	27
3	34	48	29
AUTOTEAM, degree of autonomy for team-working, scoring points for if any team-working, then extra points if team appoints own team-leaders, decides how work is done, has responsibility for specific products/services:			
0	24	14	28
1	5	3	6
2	28	29	28
3	37	49	33
4	5	4	6
TROTHJ2, if some of employees from largest non-managerial occupational group are formally trained to jobs other than their own	69	67	69
PCOFFJOB, percentage of experienced workers in largest non-managerial occupational group having formal off-the-job training in the previous 12 months:			
None	24	5	30
1-19%	20	17	22
20-39%	13	10	14
40-59%	9	9	9
60-79%	8	10	7
80-99%	8	11	7
100%	18	38	11
ONGOING, if ongoing training is one of the main methods by which employees in the largest non-managerial occupational group are made aware of their job responsibilities	71	86	66
SELECTIV, if skills, qualifications, experience and motivation all important in recruitment	54	71	49
JOBSECUR, if policy of guaranteed job security, no compulsory redundancies	11	21	8
EMPOWER, count based on whether largest non-managerial occupational group at the workplace has a lot of variety in their work, discretion over how they do their work, and control over the pace at which they do their work:			
0	38	34	39
1	34	42	32
2	17	15	18
3	11	9	11
APPRAISE, if 80% or more of non-managerial staff are formally appraised	53	49	55
INTERPRO, if preference given to internal applicants, other things being equal, when filling vacancies	25	16	28
SAMETERM, if management has same non-pay terms and conditions as employees in the largest non-managerial occupational group	43	71	35
PROFITPY, if workplace has a profit-related pay scheme	33	5	43
PERFPAY, if workplace has performance-related pay scheme	18	12	20
CASHBO, if workplace has cash bonuses	22	7	26
ESOP, if workplace has an employee share option scheme	15	0	20



	All	Public	Private
JCC, if workplace has a joint consultative committee dealing with a range of issues	20	31	17
NONUCHAN, counts up to three direct non-union communication channels, based on: regular meetings with entire workforce; team briefings involving identifiable work groups meeting at least once a month where at least some of the time is devoted to questions from employees or employees offering their views; problem-solving groups such as quality circles	1.2	1.5	1.0
REGMEET, if regular meetings with entire workforce present	42	53	38
TBRIEF3, if team briefings involving identifiable work groups meeting at least once a month where at least some of the time is devoted to questions from employees or employees offering their views	42	59	37
MANCHAIN, if systematic use of management chain or systematic cascading of information	54	74	47
SUGGEST1, if suggestion scheme	24	29	23
NEWSLET, if regular newsletter distributed to all employees	42	60	37
OTHCONS, if other ways in which management communicates or consults with employees	15	19	13
PCQCIRC, proportion of non-managerial employees involved in problem-solving groups/quality circles in last 12 months:			
None	70	61	73
1-19%	5	4	5
20-39%	7	6	7
40-79%	7	11	6
80% or more	12	17	10
TARCON, if targets set in consultation with employees:			
Yes	45	58	40
Targets set but no consultation	41	32	44
No targets set	15	10	16
STRATEGY, if workplace is covered by a formal strategic plan	74	93	68
AWARD, if workplace or organisation to which it belongs has been accredited as an Investor in People	34	53	28
GRIEVPRO, if formal procedure for dealing with individual grievances	88	100	85
FORMPROC, if formal procedure for dealing with collective disputes	50	85	38
WRITPOL, if workplace has a formal written policy on equal opportunities or managing diversity	67	97	57

**Base:** all workplaces with 10 or more employees with non-missing data. Column 2 confined to public sector and column 3 to private sector. Data weighted by probability of selection. Note: all column percentages, except HRMSCORE, NONUCHAN, which are mean scores.

**Appendix Table A4.2: 'Baseline' models estimating impact of bargaining arrangements on managerial perceptions of climate in the whole sample**

	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
<b>Bargaining:</b>						
<i>Collective bargaining arrangements (ref: joint bargaining)</i>						
Single union	0.194 (1.18)	0.244 (1.48)	0.081 (0.50)	-0.030 (0.16)	0.088 (0.49)	0.028 (0.15)
Separate bargaining, each union	0.113 (0.63)	0.145 (0.87)	0.049 (0.26)	0.029 (0.15)	0.049 (0.26)	0.045 (0.24)
Separate bargaining, groups of unions	-0.357 (1.37)	-0.248 (0.96)	-0.103 (0.41)	-0.122 (0.38)	-0.158 (0.44)	0.332 (1.06)
Multi-union, arrangement missing	0.485 (1.03)	0.495 (0.96)	0.309 (0.60)	0.225 (0.45)	0.253 (0.51)	-0.197 (0.37)
No recognition	0.252 (1.85)	0.308 (1.54)	0.138 (0.67)	0.117 (0.54)	0.264 (1.21)	0.231 (1.04)
<i>Bargaining coverage (ref: none)</i>						
100%		-0.216 (1.09)	-0.122 (0.61)	-0.102 (0.56)	-0.100 (0.56)	-0.125 (0.69)
80-99%		-0.042 (0.20)	-0.015 (0.07)	-0.045 (0.20)	-0.100 (0.46)	-0.301 (1.36)
60-79%		0.069 (0.26)	0.029 (0.11)	-0.042 (0.18)	-0.129 (0.55)	-0.120 (0.52)
40-59%		0.486 (1.79)	0.412 (1.57)	0.375 (1.53)	0.380 (1.34)	0.311 (1.03)
20-39%		0.326 (1.52)	0.308 (1.38)	0.405 (1.93)	0.335 (1.51)	0.293 (1.25)
1-19%		0.510 (1.72)	0.463 (1.48)	0.429 (1.51)	0.408 (1.58)	0.306 (1.02)
<b>Respondent characteristics:</b>						
Female			0.055 (0.53)	-0.023 (0.23)	-0.051 (0.51)	-0.116 (1.13)
ER specialist			-0.591 (5.24)**	-0.536 (4.46)**	-0.575 (4.45)**	-0.487 (3.67)**
Job tenure 6+ years			0.230 (1.99)*	0.278 (2.46)*	0.246 (2.19)*	0.200 (1.74)
<b>Workforce composition:</b>						
% female				0.006 (2.46)*	0.004 (1.29)	0.003 (1.08)
<i>% part-time (ref: none)</i>						
Under 10%				-0.525 (3.34)**	-0.581 (3.85)**	-0.617 (4.01)**
10, < 25%				-0.655 (2.97)**	-0.646 (3.10)**	-0.729 (3.51)**
25, < 50%				-0.360 (1.73)	-0.391 (1.99)*	-0.415 (2.07)*
50, < 75%				-0.159 (0.74)	-0.120 (0.56)	-0.087 (0.40)
75%+				0.218 (0.93)	0.379 (1.57)	0.401 (1.62)

	(1) mrelate3	(2) mrelate3	(3) mrelate3	(4) mrelate3	(5) mrelate3	(6) mrelate3
<i>% non-white ethnic minority (ref: none)</i>						
Under 5%				0.037 (0.36)	-0.057 (0.49)	-0.067 (0.55)
5-10%				-0.208 (1.20)	-0.174 (0.98)	-0.283 (1.62)
11-20%				-0.614 (2.40)*	-0.698 (2.76)**	-0.735 (2.90)**
Over 20%				-0.341 (1.47)	-0.481 (2.04)*	-0.495 (1.90)
<b>Workplace characteristics:</b>						
<i>Workplace size (ref: 200-499 employees)</i>						
10-24 employees					-0.347 (2.13)*	-0.363 (2.21)*
25-49 employees					-0.108 (0.70)	-0.091 (0.60)
50-99 employees					-0.201 (1.53)	-0.167 (1.28)
100-199 employees					-0.142 (1.19)	-0.139 (1.12)
500 or more employees					0.197 (1.62)	0.212 (1.71)
Owner-managed					0.245 (1.43)	0.318 (1.89)
<b>Public sector</b>					0.010 (0.05)	-0.041 (0.20)
<i>Country of ownership (ref: UK)</i>						
Foreign-owned					0.150 (0.86)	0.133 (0.72)
50/50 ownership					1.686 (4.68)**	1.659 (4.77)**
Single independent workplace					0.007 (0.05)	0.074 (0.52)
<i>Standard industrial classification (ref: wholesale/retail dist.)</i>						
Manufacturing					0.004 (0.02)	0.089 (0.41)
Electricity, gas, water					1.005 (3.64)**	1.012 (3.80)**
Construction					0.102 (0.39)	0.248 (0.90)
Hotels and restaurants					0.385 (1.74)	0.473 (2.10)*
Transport and communication					0.124 (0.54)	0.212 (0.96)
Financial services					0.289 (1.03)	0.251 (0.87)
Other business services					0.217 (1.14)	0.343 (1.79)
Public administration					0.357 (1.32)	0.544 (1.99)*
Education					0.526 (2.04)*	0.737 (2.88)**

	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
Health					0.099 (0.45)	0.298 (1.31)
Other community services					0.283 (1.11)	0.453 (1.74)
<i>Workplace activity (ref: produces goods or services for customers)</i>						
Supplier to other companies					-0.106 (0.75)	-0.025 (0.18)
Supplier to other parts of the organisation					0.178 (0.81)	0.165 (0.71)
Does not produce for open market					-0.084 (0.62)	-0.125 (0.87)
Administrative office					0.231 (0.85)	0.261 (1.00)
<i>Age of workplace (ref: 3-20 years)</i>						
Under 3 years					-0.217 (1.28)	-0.277 (1.55)
Over 20 years					-0.211 (1.94)	-0.239 (2.27)*
Built on greenfield site in last 10 years					0.180 (0.84)	0.114 (0.51)
<i>Standard statistical region (ref: rest of South East)</i>						
East Anglia					0.118 (0.60)	0.289 (0.220)
East Midlands					0.284 (1.46)	0.366 (1.77)
London					0.436 (2.35)*	0.478 (2.54)*
North					0.583 (3.20)**	0.688 (3.71)**
North West					0.456 (2.58)*	0.448 (2.44)*
Scotland					0.257 (1.40)	0.296 (1.57)
South West					0.000 (0.00)	0.092 (0.43)
Wales					0.577 (2.41)*	0.625 (2.64)**
West Midlands					0.377 (1.85)	0.554 (2.69)**
Yorks and Humberside					0.145 (0.74)	0.148 (1.12)

	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
<b>Management practices:</b>						
HRM score						0.024 (0.93)
Number of direct voice channels						-0.061 (1.06)
liP award						0.343 (3.30)**
Observations	2188	2086	2079	2033	1983	1890
F statistics	(5, 2113) = 1.87	(11, 2005) = 3.12	(14, 1995) = 4.36	(24, 1939) = 7.38	(62, 1851) = 4.62	(65,1755) = 4.53

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A4.3: 'Baseline' models estimating impact of bargaining arrangements on managerial perceptions of climate in the public sector**

	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
<b>Bargaining:</b>						
<i>Collective bargaining arrangements (ref: joint bargaining)</i>						
Single union	0.270 (1.22)	0.244 (1.13)	0.077 (0.39)	-0.123 (0.53)	0.002 (0.01)	-0.104 (0.49)
Separate bargaining, each union	0.068 (0.28)	0.081 (0.38)	-0.076 (0.30)	-0.091 (0.40)	0.039 (0.15)	-0.002 (0.01)
Separate bargaining, groups of unions	-0.673 (2.04)*	-0.634 (2.03)*	-0.545 (1.81)	-0.756 (1.99)*	-1.049 (2.07)*	-0.179 (0.52)
Multi-union, arrangement missing	0.811 (1.75)	0.609 (1.25)	0.448 (0.93)	0.214 (0.47)	0.431 (0.89)	0.251 (0.42)
No recognition	0.417 (1.65)	0.282 (1.04)	0.106 (0.40)	-0.177 (0.53)	0.258 (0.81)	0.130 (0.42)
<i>Bargaining coverage (ref: none)</i>						
100%		0.000 (0.00)	0.013 (0.04)	0.150 (0.48)	0.384 (1.28)	0.359 (1.25)
80-99%		0.409 (0.92)	0.416 (0.97)	0.590 (1.36)	0.713 (1.42)	0.340 (0.70)
60-79%		0.646 (1.53)	0.449 (1.10)	0.328 (0.79)	0.318 (0.80)	0.448 (1.07)
40-59%		0.893 (2.43)*	0.735 (2.04)*	0.712 (1.73)	0.676 (1.76)	0.637 (1.64)
20-39%		0.594 (1.76)	0.511 (1.56)	0.640 (1.81)	0.840 (2.46)*	0.776 (2.31)*
1-19%		1.435 (3.55)**	1.371 (3.51)**	1.407 (3.46)**	1.671 (4.23)**	1.537 (3.90)**
<b>Respondent characteristics:</b>						
Female			-0.115 (0.70)	-0.133 (0.69)	-0.112 (0.70)	-0.247 (1.44)
ER specialist			-0.547 (2.59)**	-0.588 (2.89)**	-0.498 (2.44)*	-0.324 (1.61)
Job tenure 6+ years			0.167 (1.04)	0.209 (1.16)	0.265 (1.55)	0.156 (0.87)
<b>Workforce composition:</b>						
% female				0.007 (1.41)	0.009 (1.84)	0.006 (1.09)
% part-time (ref: none)						
Under 10%				-0.146 (0.30)	-0.719 (2.08)*	-0.547 (1.61)
10, < 25%				-0.113 (0.21)	-0.593 (1.59)	-0.329 (0.89)
25, < 50%				-0.103 (0.20)	-0.561 (1.60)	-0.395 (1.12)
50, < 75%				0.202 (0.32)	-0.103 (0.26)	0.196 (0.50)
75%+				0.575 (0.97)	0.423 (0.85)	0.637 (1.32)

	(1) mrelate3	(2) mrelate3	(3) mrelate3	(4) mrelate3	(5) mrelate3	(6) mrelate3
<i>% non-white ethnic minority (ref: none)</i>						
Under 5%				-0.120 (0.59)	0.180 (0.92)	0.323 (1.64)
5-10%				-0.255 (1.35)	-0.028 (0.10)	-0.136 (0.51)
11-20%				-0.002 (0.01)	0.661 (1.89)	0.525 (1.54)
Over 20%				-0.794 (1.90)	-0.475 (1.47)	-0.501 (1.46)
<b>Workplace characteristics:</b>						
<i>Workplace size (ref: 200-499 employees)</i>						
10-24 employees					-0.139 (0.45)	0.149 (0.48)
25-49 employees					0.323 (1.07)	0.592 (1.92)
50-99 employees					-0.167 (0.69)	0.013 (0.05)
100-199 employees					-0.242 (1.02)	-0.126 (0.51)
500 or more employees					-0.125 (0.46)	-0.241 (0.92)
Single independent workplace					-0.450 (1.72)	-0.310 (1.18)
<i>Standard industrial classification (ref: wholesale/retail dist.)</i>						
Manufacturing					-2.272 (2.51)*	-2.162 (2.28)*
Electricity, gas, water					-0.302 (0.38)	-0.255 (0.29)
Construction					-0.775 (0.92)	-0.956 (1.06)
Hotels and restaurants					-2.838 (3.75)**	-3.077 (3.70)**
Transport and communication					-1.468 (1.92)	-1.671 (1.94)
Other business services					-2.680 (3.22)**	-2.712 (2.97)**
Public administration					-1.095 (1.65)	-1.129 (1.55)
Education					-1.173 (1.75)	-1.208 (1.64)
Health					-1.492 (2.29)*	-1.422 (1.96)*
Other community services					-0.702 (1.00)	-0.698 (0.91)
<i>Workplace activity (ref: produces goods or services for customers)</i>						
Supplier to other companies					0.142 (0.29)	0.303 (0.64)
Supplier to other parts of the organisation					0.301 (0.89)	0.499 (1.41)
Does not produce for open market					-0.048 (0.25)	-0.029 (0.15)



	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
Administrative office					0.025 (0.07)	0.137 (0.41)
<i>Age of workplace (ref: 3-20 years)</i>						
Under 3 years					-1.285 (3.66)**	-1.444 (4.20)**
Over 20 years					-0.215 (1.24)	-0.176 (1.03)
Built on greenfield site in last 10 years					0.752 (1.36)	0.543 (0.96)
<i>Standard statistical region (ref: rest of South East)</i>						
East Anglia					-0.522 (1.25)	-0.336 (0.76)
East Midlands					-0.105 (0.33)	-0.189 (0.52)
London					0.15 (0.52)	0.249 (0.82)
North					0.921 (2.53)*	1.068 (2.69)**
North West					0.173 (0.58)	0.090 (0.28)
Scotland					0.222 (0.69)	0.291 (0.86)
South West					0.006 (0.02)	0.100 (0.34)
Wales					0.997 (2.32)*	1.171 (2.97)**
West Midlands					0.060 (0.20)	0.289 (0.94)
Yorks and Humberside					0.659 (2.31)*	0.87 (2.79)**
<b>Management practices:</b>						
HRM score						0.056 (1.21)
Number of direct voice channels						0.122 (1.20)
liP award						0.341 (1.95)
Observations	677	634	631	618	602	553
F-statistics	(5,1668) = 2.50	(11,1576) = 5.03	(14,1568) = 4.55	(24,1520) = 5.44	(57,1454) = 4.74	(60,1374) = 4.70

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A4.4: 'Baseline' models estimating impact of bargaining arrangements on managerial perceptions of climate in the private sector**

	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
<b>Bargaining:</b>						
<i>Collective bargaining arrangements (ref: joint bargaining)</i>						
Single union	0.218 (0.82)	0.253 (0.99)	0.076 (0.31)	0.084 (0.30)	0.343 (1.26)	0.263 (0.94)
Separate bargaining, each union	0.233 (0.88)	0.283 (1.04)	0.236 (0.84)	0.191 (0.55)	0.317 (0.99)	0.370 (1.09)
Separate bargaining, groups of unions	0.328 (0.87)	0.412 (1.07)	0.485 (1.16)	0.863 (1.89)	0.923 (1.60)	1.124 (1.79)
Multi-union, arrangement missing	-0.825 (1.19)	-0.839 (0.99)	-0.955 (1.10)	-0.717 (0.63)	-0.574 (0.50)	-0.661 (0.56)
No recognition	0.383 (1.75)	0.334 (1.24)	0.166 (0.61)	0.257 (0.88)	0.483 (1.64)	0.421 (1.33)
<i>Bargaining coverage (ref: none)</i>						
100%		-0.297 (1.30)	-0.190 (0.84)	-0.140 (0.70)	-0.202 (0.93)	-0.311 (1.36)
80-99%		-0.153 (0.63)	-0.133 (0.51)	-0.172 (0.66)	-0.249 (1.02)	-0.412 (1.59)
60-79%		-0.412 (1.36)	-0.336 (1.05)	-0.285 (0.97)	-0.280 (0.97)	-0.326 (1.12)
40-59%		0.190 (0.41)	0.195 (0.44)	0.365 (0.95)	0.641 (1.55)	0.573 (1.39)
20-39%		0.045 (0.12)	0.064 (0.17)	0.295 (0.86)	0.226 (0.58)	0.116 (0.27)
1-19%		-0.090 (0.37)	-0.169 (0.65)	-0.013 (0.04)	-0.154 (0.58)	-0.328 (1.01)
<b>Respondent characteristics:</b>						
Female			0.079 (0.62)	0.007 (0.06)	-0.072 (0.62)	-0.097 (0.82)
ER specialist			-0.583 (4.32)**	-0.516 (3.46)**	-0.603 (3.98)**	-0.523 (3.50)**
Job tenure 6+ years			0.256 (1.84)	0.327 (2.38)*	0.272 (1.97)*	0.251 (1.85)
<b>Workforce composition:</b>						
% female				0.005 (1.87)	0.003 (0.74)	0.002 (0.62)
<i>% part-time (ref: none)</i>						
Under 10%				-0.572 (3.56)**	-0.583 (3.67)**	-0.620 (3.86)**
10, < 25%				-0.749 (3.19)**	-0.679 (2.92)**	-0.806 (3.54)**
25, < 50%				-0.376 (1.61)	-0.352 (1.49)	-0.333 (1.36)
50, < 75%				-0.207 (0.95)	-0.051 (0.20)	-0.003 (0.01)
75%+				0.193 (0.77)	0.427 (1.47)	0.456 (1.49)

	(1) mrelate3	(2) mrelate3	(3) mrelate3	(4) mrelate3	(5) mrelate3	(6) mrelate3
<i>% non-white ethnic minority (ref: none)</i>						
Under 5%				0.065 (0.52)	-0.096 (0.69)	-0.149 (1.00)
5-10%				-0.190 (0.89)	-0.185 (0.86)	-0.365 (1.76)
11-20%				-0.689 (2.45)*	-0.922 (3.24)**	-0.953 (3.30)**
Over 20%				-0.116 (0.62)	-0.344 (1.52)	-0.298 (1.19)
<b>Workplace characteristics:</b>						
<i>Workplace size (ref: 200-499 employees)</i>						
10-24 employees					-0.432 (2.17)*	-0.472 (2.34)*
25-49 employees					-0.240 (1.32)	-0.263 (1.45)
50-99 employees					-0.229 (1.40)	-0.192 (1.17)
100-199 employees					-0.105 (0.69)	-0.105 (0.66)
500 or more employees					0.426 (2.68)**	0.499 (3.08)**
Owner-managed					0.231 (1.36)	0.301 (1.79)
<i>Country of ownership (ref: UK)</i>						
Foreign-owned					0.160 (0.89)	0.078 (0.41)
50/50 ownership					1.536 (4.44)**	1.487 (4.46)**
Single independent workplace					0.056 (0.37)	0.126 (0.86)
<i>Standard industrial classification (ref: wholesale/retail dist.)</i>						
Manufacturing					-0.025 (0.11)	0.061 (0.277)
Electricity, gas, water					1.199 (3.26)**	1.245 (3.48)**
Construction					-0.053 (0.19)	0.072 (0.24)
Hotels and restaurants					0.467 (2.06)*	0.563 (2.46)*
Transport and communication					0.119 (0.46)	0.171 (0.69)
Financial services					0.384 (1.32)	0.323 (1.08)
Other business services					0.294 (1.52)	0.429 (2.17)*
Public administration					-0.152 (0.29)	-0.121 (0.21)
Education					0.850 (2.60)**	1.034 (3.19)**
Health					0.025 (0.10)	0.175 (0.70)
Other community services					0.048 (0.16)	0.219 (0.74)

	(1)	(2)	(3)	(4)	(5)	(6)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
<i>Workplace activity (ref: produces goods or services for customers)</i>						
Supplier to other companies					-0.082 (0.54)	0.001 (0.01)
Supplier to other parts of the organisation					0.186 (0.60)	0.139 (0.43)
Does not produce for open market					-0.123 (0.59)	-0.163 (0.75)
Administrative office					0.587 (2.15)*	0.613 (2.31)*
<i>Age of workplace (ref: 3-20 years)</i>						
Under 3 years					0.006 (0.03)	-0.031 (0.17)
Over 20 years					-0.219 (1.62)	-0.261 (2.06)*
Built on greenfield site in last 10 years					0.086 (0.34)	0.066 (0.25)
<i>Standard statistical region (ref: rest of South East)</i>						
East Anglia					0.223 (0.97)	0.427 (1.94)
East Midlands					0.484 (2.06)*	0.570 (2.41)*
London					0.541 (2.58)**	0.566 (2.65)**
North					0.467 (2.32)*	0.550 (2.77)**
North West					0.492 (2.32)*	0.502 (2.31)*
Scotland					0.272 (1.20)	0.320 (1.41)
South West					0.006 (0.02)	0.113 (0.47)
Wales					0.466 (1.64)	0.486 (1.69)
West Midlands					0.419 (1.74)	0.550 (2.31)*
Yorks and Humberside					0.108 (0.46)	0.181 (0.79)
<b>Management practices:</b>						
HRM score						0.030 (1.07)
Number of direct voice channels						-0.090 (1.31)
liP award						0.354 (2.89)**
Observations	1511	1452	1448	1415	1381	1337
F-statistics	(5, 2016) = 1.37	(11,1916) = 1.38	(14,1906) = 2.32	(24,1855) = 4.83	(60,1771) = 5.57	(63,1680) = 5.71

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A4.5: 'Baseline' models estimating impact of bargaining levels on managerial perceptions of climate in the whole economy**

	(1) mrelate3	(2) mrelate3	(3) mrelate3	(4) mrelate3	(5) mrelate3
<b>Collective bargaining levels</b>					
<i>(Ref: recognition, majority coverage, industry-level)</i>					
No recognition, no coverage	0.173 (1.04)	0.051 (0.31)	0.153 (0.91)	0.265 (1.20)	0.302 (1.37)
No recognition, minority coverage	0.197** (0.63)	0.050 (0.16)	0.248 (0.94)	0.250 (0.80)	0.227 (0.67)
No recognition, majority coverage	0.076 (0.33)	-0.072 (0.32)	-0.066 (0.30)	-0.008 (0.03)	-0.135 (0.50)
Recognition, no coverage	-0.164 (0.49)	-0.266 (0.78)	-0.263 (0.88)	-0.246 (0.85)	-0.279 (0.98)
Recognition, minority coverage	0.610 (2.89)**	0.474 (2.20)*	0.484 (2.12)	0.436 (1.92)	0.309 (1.34)
Recognition, majority coverage, workplace-level	-0.150 (0.83)	-0.013 (0.07)	-0.273 (1.37)	-0.227 (0.92)	-0.194 (0.78)
Recognition, majority coverage, organisation-level	-0.158 (0.92)	-0.173 (1.01)	-0.092 (0.48)	-0.056 (0.29)	-0.136 (0.66)
Recognition, majority coverage, multi-level	-0.141 (0.52)	0.114 (0.41)	0.328 (1.10)	0.277 (0.87)	0.309 (1.03)
<b>Respondent characteristics:</b>					
Female		0.056 (0.54)	-0.021 (0.20)	-0.049 (0.49)	-0.119 (1.17)
ER specialist		-0.644 (5.75)**	-0.580 (4.82)**	-0.610 (4.62)**	-0.512 (3.79)**
Job tenure 6+ years		0.226 (1.96)	0.273 (2.41)*	0.242 (2.13)*	0.192 (1.67)
<b>Workforce composition:</b>					
% female			0.006 (2.51)*	0.004 (1.33)	0.003 (1.15)
<i>% part-time (ref: none)</i>					
Under 10%			-0.527 (3.29)**	-0.576 (3.77)**	-0.616 (3.97)**
10, < 25%			-0.662 (3.01)**	-0.653 (3.16)**	-0.746 (3.62)**
25, < 50%			-0.338 (1.62)	-0.360 (1.85)	-0.382 (1.94)
50, < 75%			-0.155 (0.71)	-0.105 (0.49)	-0.074 (0.34)
75%+			0.219 (0.93)	0.392 (1.62)	0.393 (1.58)

	(1) mrelate3	(2) mrelate3	(3) mrelate3	(4) mrelate3	(5) mrelate3
<i>% non-white ethnic minority (ref: none)</i>					
Under 5%			0.035 (0.34)	-0.053 (0.46)	-0.054 (0.45)
5-10%			-0.226 (1.30)	-0.196 (1.09)	-0.323 (1.85)
11-20%			-0.602 (2.54)*	-0.674 (2.90)**	-0.696 (2.95)**
Over 20%			-0.367 (1.57)	-0.491 (2.11)*	-0.503 (1.94)
<b>Workplace characteristics:</b>					
<i>Workplace size (ref: 200-499 employees)</i>					
10-24 employees				-0.284 (1.84)	-0.308 (1.94)
25-49 employees				-0.044 (0.30)	-0.049 (0.33)
50-99 employees				-0.174 (1.37)	-0.152 (1.19)
100-199 employees				-0.129 (1.10)	-0.131 (1.07)
500 or more employees				0.172 (1.40)	0.212 (1.69)
Owner-managed				0.214 (1.25)	0.286 (1.70)
Public sector				-0.004 (0.02)	-0.034 (0.17)
<i>Country of ownership (ref: UK)</i>					
Foreign-owned				0.139 (0.79)	0.096 (0.52)
50/50 ownership				1.598 (4.40)**	1.530 (4.42)**
Single independent workplace				-0.005 (0.04)	0.052 (0.36)
<i>Standard industrial classification (ref: wholesale/retail dist.)</i>					
Manufacturing				0.066 (0.310)	0.166 (0.318)
Electricity, gas, water				0.975 (3.82)**	1.034 (4.15)**
Construction				0.128 (0.48)	0.287 (1.02)
Hotels and restaurants				0.384 (1.73)	0.480 (2.13)*
Transport and communication				0.186 (0.81)	0.277 (1.24)
Financial services				0.338 (1.21)	0.313 (1.07)
Other business services				0.199 (1.05)	0.326 (1.70)
Public administration				0.413 (1.48)	0.637 (2.28)*
Education				0.601 (2.40)*	0.840 (3.38)**

	(1) mrelate3	(2) mrelate3	(3) mrelate3	(4) mrelate3	(5) mrelate3
Health				0.102 (0.45)	-0.77 (1.37)
Other community services				0.313 (1.21)	0.489 (1.86)
<i>Workplace activity (ref: produces goods or services for customers)</i>					
Supplier to other companies				-0.094 (0.66)	-0.009 (0.07)
Supplier to other parts of the organisation				0.196 (0.90)	0.173 (0.76)
Does not produce for open market				-0.058 (0.42)	-0.096 (0.67)
Administrative office				0.233 (0.85)	0.273 (1.04)
<i>Age of workplace (ref: 3-20 years)</i>					
Under 3 years				-0.238 (1.41)	-0.299 (1.68)
Over 20 years				-0.237 (2.19)*	-0.260 (2.47)*
Built on greenfield site in last 10 years				0.167 (0.78)	0.099 (0.44)
<i>Standard statistical region (ref: rest of South East)</i>					
East Anglia				0.122 (0.62)	0.345 (0.27)
East Midlands				0.290 (1.50)	0.402 (2.01)*
London				0.407 (2.23)*	0.455 (2.45)*
North				0.550 (3.03)**	0.657 (3.59)**
North West				0.441 (2.47)*	0.442 (2.38)*
Scotland				0.210 (1.13)	0.270 (1.42)
South West				0.013 (0.05)	0.122 (0.55)
Wales				0.574 (2.34)*	0.614 (2.53)*
West Midlands				0.376 (1.84)	0.561 (2.73)**
Yorks and Humberside				0.171 (0.88)	-1.80 (1.38)

	(1)	(2)	(3)	(4)	(5)
	mrelate3	mrelate3	mrelate3	mrelate3	mrelate3
<b>Management practices:</b>					
HRM score					0.021 (0.81)
Number of direct voice channels					-0.061 (1.07)
liP award					0.358 (3.53)**
Observations	2080	2073	2027	1977	1885
F-statistics	(8, 2002) = 3.59	(11, 992) = 5.60	(21, 1936) = 7.94	(59, 1753) = 4.48	(62, 1753) = 4.48

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%



**Appendix Table A5.1: Control variables used in analysis of employee perceptions of climate**

	All	Public	Private
<b>Individual-level data:</b>			
<i>Demographic:</i>			
FEM, if female	49	60	44
ETHNIC, if non-white ethnic minority	4	4	4
AGE, age, in years:			
Under 20	5	1	7
20-24	8	5	9
25-29	12	10	14
30-39	28	29	27
40-49	25	31	22
50-59	18	21	17
60+	4	4	5
HEDQUAL, Highest educational qualification:			
No qualifications	26	21	28
CSE or equivalent	12	8	14
GCSE or equivalent	26	24	27
A level or equivalent	15	16	14
Degree or equivalent	16	21	13
Post-graduate	5	10	3
VOCQUAL, if any vocational qualifications	37	37	38
MEMBTU, union membership status:			
Current member	39	63	29
Ex-member	18	15	20
Never member	42	22	51
<i>Job-related characteristics:</i>			
OCCGRP2, occupation:			
Managers and senior administrators	9	6	10
Professional	11	20	7
Associate professional and technical	8	12	6
Clerical and secretarial	18	22	16
Craft and skilled service	10	4	13
Personal and protective service	12	21	8
Sales	9	1	13
Operative and assembly	13	3	18
Other occupations	10	11	10
TENURE, workplace tenure, in years:			
Less than one	17	12	19
One, less than two	13	11	13
Two, less than five	23	23	23
Five, less than ten	22	24	21
Ten or more	26	31	24
HOURS, usual weekly hours:			
Less than ten	5	6	4
Ten, less than twenty-nine	21	24	20
Thirty or more	74	71	76
PERM, if permanent contract	92	88	94
NETWAGE, net weekly wage:			
Less than £50	7	6	8
£51-80	7	5	8
£81-140	13	13	12
£141-180	9	8	10
£181-220	11	11	12
£221-260	10	11	10

	All	Public	Private
£261-310	10	9	10
£311-360	8	8	8
£361-430	10	12	9
£431-540	7	9	6
£541-680	4	4	3
£681 or more	3	3	4
<b>Workplace-level data:</b>			
<i>Collective bargaining:</i>			
CBA, collective bargaining arrangements:			
No recognised union	42	10	56
Single union	22	23	22
Multi-union, joint bargaining	20	38	12
Multi-union, separate bargaining by each union	11	17	8
Multi-union, separate bargaining by groups of unions	3	7	2
Multi-union, bargaining arrangement data missing	2	4	*
CBL4, collective bargaining levels:			
No recognition, no coverage	38	3	53
No recognition, minority coverage	2	3	1
No recognition, majority coverage	3	4	2
Recognition, no coverage	7	6	7
Recognition, minority coverage	9	20	3
Recognition, majority coverage, workplace-level	9	3	12
Recognition, majority coverage, organisation-level	18	22	17
Recognition, majority coverage, industry-level	14	36	5
Recognition, multi-level	1	2	*
NCOV2PC7, % of workforce covered by collective bargaining:			
None	44	9	60
1-19%	3	4	3
20-39%	5	15	1
40-59%	4	7	3
60-79%	6	5	6
80-99%	13	7	15
100%	25	53	12
NCOV2PC, % workforce covered by collective bargaining, continuous	44	71	32
NRECOG3, number of recognised unions:			
0	42	10	56
1	22	23	22
2	14	23	11
3	8	13	5
4 or more	14	31	6
<b>Other union-related variables based on management data:</b>			
UREP2, if on-site union representative	48	75	36
CLSHOP, union membership arrangements:			
No union members	31	1	45
Closed shop	1	1	1
Management strongly recommends union membership	9	21	3
Union members present but no closed shop/management endorsement	59	77	51
NDENS6, union density:			
No union members	32	1	45
1-24%	15	9	17
25-49%	17	27	12
50-74%	15	26	10
75-99%	18	27	14
100%	2	5	*

	All	Public	Private
Some members, don't know how many	3	5	2
NDENSITY, union density, continuous	35	58	25
EVIEWES, how would you describe management's general attitude towards trade union membership among employees at this establishment? (Management respondent data)			
In favour	38	71	23
Not in favour	11	1	15
Neutral	49	28	59
Not an issue	2	0	2
Other answer	*	*	*
APHRAS07, we would rather consult directly with employees than with unions:			
Strongly agree	25	9	32
Agree	32	25	35
Neither agree nor disagree	20	26	17
Disagree	20	34	13
Strongly disagree	3	6	2
VOICE3, nature of worker voice:			
Union only	5	4	5
Dual channel	54	90	40
Non-union only	34	6	45
No voice	7	1	10
<b>Union-related variables based on employee data:</b>			
C4, how would you rate the attitude of managers here towards trade unions?			
In favour	18	32	12
Neutral	54	56	53
Not in favour	28	12	35
Other answer	*	*	*
PROBLEMS, unions/staff associations at this workplace take notice of members' problems and complaints:			
Employee says not applicable and employer says no union present	29	1	42
Employee DK/NA, employer says union members present	27	35	23
Strongly agree	5	8	4
Agree	24	36	19
Neither agree nor disagree	11	16	9
Disagree	3	4	2
Strongly disagree	1	1	1
Multiple response where no members present according to employer	*	0	*
SERIOUS, unions/staff associations at this workplace are taken seriously by management:			
Employee says not applicable and employer says no union present	29	1	42
Employee DK/NA, employer says union members present	27	35	23
Strongly agree	3	5	3
Agree	19	30	14
Neither agree nor disagree	14	21	11
Disagree	6	7	5
Strongly disagree	2	2	2
Multiple response where no members present according to employer	*	0	*
<b>Workforce composition:</b>			
PCFEM, % of workforce who are women	49	60	44
PCPTCAT, % of workforce who are part-timers:			
None	10	4	13
Under 10%	35	22	41
10%, under 25%	14	18	13
25%, under 50%	17	32	11

	All	Public	Private
50%, under 75%	16	20	14
75% or more	7	4	9
PCETHNI5, % of workforce from non-white ethnic minorities:			
None	37	34	38
Under 5%	41	43	40
5-10%	10	10	10
11-19%	6	6	7
20% or more	5	7	4
PCMANFE2, % of managers who are women:			
None	22	16	25
Under 50%	46	39	49
50-99%	19	26	16
All	7	10	6
No managers at workplace	5	9	3
NOCCS, number of occupations at the workplace	5.3	5.1	5.4
NEMPSIZE, number of employees at workplace:			
10-24	13	9	14
25-49	14	14	15
50-99	15	12	16
100-199	15	14	15
200-499	20	17	22
500 or more	24	34	19
<b>Workplace ownership:</b>			
PUBLIC, if public sector	31	100	0
SINGLE, if single independent workplace (as opposed to part of a multi-site organisation)	22	13	26
UKFOR, UK or foreign-owned:			
UK-owned	86	100	80
Foreign-owned	13	0	18
50/50	1	0	2
<b>Workplace activity, age and location:</b>			
ASIC, standard industrial classification (single digit):			
Manufacturing	23	*	34
Electricity, gas and water	1	*	1
Construction	3	3	3
Wholesale and retail distribution	15	1	21
Hotels and restaurants	4	1	6
Transport and communication	6	6	6
Financial services	4	0	6
Other business services	8	2	11
Public administration	9	28	*
Education	10	27	3
Health	13	27	7
Other community services	3	4	3
KACTIVI, activity at the workplace:			
Produce goods or services for customers	53	52	54
Supplier of goods or services to other companies	22	3	31
Supplier of goods/services to other parts of organisation	7	9	7
Do not produce goods or services for sale in open market	14	32	6
Administrative office only	4	5	3
AGECAT2, age of establishment at current address:			
Under 3 years	8	6	8
3-20 years	41	30	46
Over 20 years	51	64	46

	All	Public	Private
<i>SSR, Standard statistical region:</i>			
East Anglia	5	5	5
East Midlands	9	8	9
London	10	12	9
North	7	8	6
North West	10	10	10
Scotland	10	14	9
Rest of South East	19	16	20
South West	8	6	9
Wales	4	6	3
West Midlands	10	8	11
Yorkshire and Humberside	8	6	9
<b>Management practices:</b>			
SPECIAL, if main managerial respondent is an employee relations specialist	49	55	46
HRMSCORE, count of 13 human resource management practices	7.5	7.7	7.4
NINFO, number of items of information regularly given to employees regarding internal investment plans, the financial position of the workplace, and staffing plans:			
0	13	8	15
1	17	15	18
2	28	31	27
3	42	46	40
AUTOTEAM, degree of autonomy for team-working, scoring points for if any team-working, then extra points if team appoints own team-leaders, decides how work is done, has responsibility for specific products/services:			
0	13	9	15
1	7	6	8
2	36	36	36
3	38	45	35
4	6	4	6
TROTHJ2, if some of employees from largest non-managerial occupational group are formally trained to jobs other than their own	78	74	80
PCOFFJOB, percentage of experienced workers in largest non-managerial occupational group having formal off-the-job training in the previous 12 months:			
None	13	4	16
1-19%	19	12	23
20-39%	18	16	19
40-59%	12	15	11
60-79%	11	16	9
80-99%	12	15	11
100%	15	22	12
ONGOING, if ongoing training is one of the main methods by which employees in the largest non-managerial occupational group are made aware of their job responsibilities	69	88	61
SELECTIV, if skills, qualifications, experience and motivation all important in recruitment	62	74	57
JOBSECUR, if policy of guaranteed job security, no compulsory redundancies	15	25	10

	All	Public	Private
EMPOWER, count based on whether largest non-managerial occupational group at the workplace has a lot of variety in their work, discretion over how they do their work, and control over the pace at which they do their work:			
0	47	41	50
1	32	35	30
2	15	18	13
3	7	7	7
APPRAISE, if 80% or more of non-managerial staff are formally appraised	57	51	60
INTERPRO, if preference given to internal applicants, other things being equal, when filling vacancies	36	24	42
SAMETERM, if management has same non-pay terms and conditions as employees in the largest non-managerial occupational group	40	71	27
PROFITPY, if workplace has a profit-related pay scheme	39	5	55
PERFPAY, if workplace has performance-related pay scheme	27	25	28
CASHBO, if workplace has cash bonuses	26	15	31
ESOP, if workplace has an employee share option scheme	23	0	33
JCC, if workplace has a joint consultative committee dealing with a range of issues	45	62	38
NONUCHAN, counts up to three direct non-union communication channels, based on: regular meetings with entire workforce; team briefings involving identifiable work groups meeting at least once a month where at least some of the time is devoted to questions from employees or employees offering their views; problem-solving groups such as quality circles	1.4	1.5	1.4
REGMEET, if regular meetings with entire workforce present	35	38	34
TBRIEF3, if team briefings involving identifiable work groups meeting at least once a month where at least some of the time is devoted to questions from employees or employees offering their views	54	57	53
MANCHAIN, if systematic use of management chain or systematic cascading of information	70	77	66
SUGGEST1, if suggestion scheme	28	27	29
NEWSLET, if regular newsletter distributed to all employees	65	79	58
OTHCONS, if other ways in which management communicates or consults with employees	20	25	18
PCQCIRC, proportion of non-managerial employees involved in problem-solving groups/quality circles in last 12 months:			
None	52	51	53
1-19%	11	11	11
20-39%	15	14	16
40-79%	12	13	11
80% or more	11	11	11
TARCON, if targets set in consultation with employees:			
Yes	42	47	40
Targets set but no consultation	49	44	52
No targets set	9	10	9
STRATEGY, if workplace is covered by a formal strategic plan	85	94	81
AWARD, if workplace or organisation to which it belongs has been accredited as an Investor in People	35	39	34

	<b>All</b>	<b>Public</b>	<b>Private</b>
GRIEVPRO, if formal procedure for dealing with individual grievances	96	100	94
FORMPROC, if formal procedure for dealing with collective disputes	66	88	56
WRITPOL, if workplace has a formal written policy on equal opportunities or managing diversity	81	98	73

**Base:** all employees with non-missing data in workplaces with 10 or more employees.

Column 2 confined to employees in public sector and column 3 confined to employees in workplaces in private sector. Note all are column percentages, except HRMScore, NONUCHAN and NOCCS, all of which are the mean scores of count variables.

**Appendix Table A5.2: 'Baseline' models estimating impact of bargaining arrangements on employee perceptions of climate in the whole economy**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<b>Bargaining:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.170 (3.67)**	0.177 (3.89)**	0.075 (1.71)	0.06 (1.37)	0.000 (0.01)
Separate bargaining, each union	-0.149 (2.72)**	-0.165 (3.23)**	-0.169 (3.40)**	-0.171 (3.56)**	-0.183 (3.65)**
Separate bargaining, groups of unions	-0.110 (1.49)	-0.123 (1.97)*	-0.135 (2.36)*	-0.122 (2.33)*	-0.037 (0.54)
Multi-union, arrangement missing	0.181 (2.21)*	0.136 (1.52)	0.082 (0.92)	0.027 (0.36)	0.024 (0.19)
No recognition	0.340 (8.51)**	0.279 (4.48)**	0.095 (1.50)	0.089 (1.56)	0.011 (0.19)
<i>Bargaining coverage (ref: none)</i>					
100%		-0.016 (0.27)	0.042 (0.71)	0.016 (0.29)	0.000 (0.00)
80-99%		-0.233 (3.69)**	-0.127 (2.07)*	-0.073 (1.29)	-0.111 (1.95)
60-79%		-0.185 (1.87)	-0.103 (1.11)	-0.050 (0.57)	-0.074 (0.98)
40-59%		0.046 (0.46)	0.069 (0.71)	0.036 (0.38)	0.048 (0.52)
20-39%		0.013 (0.16)	0.035 (0.44)	0.050 (0.66)	0.005 (0.07)
1-19%		-0.069 (1.00)	-0.071 (0.99)	-0.089 (1.23)	-0.116 (1.63)
<b>Demographics:</b>					
Female			0.217 (9.46)**	0.153 (5.82)**	0.082 (2.99)**
<i>Age of respondent (ref: 30-39 years)</i>					
Under 20 years			0.327 (5.03)**	0.095 (1.35)	0.112 (1.49)
20-24 years			0.156 (3.81)**	0.130 (2.82)**	0.132 (2.84)**
25-29 years			0.019 (0.58)	0.052 (1.52)	0.049 (1.40)
40-49 years			0.052 (1.94)	0.038 (1.39)	0.027 (1.08)
50-59 years			0.081 (2.58)**	0.107 (3.21)**	0.089 (2.61)**
60+ years			0.424 (8.18)**	0.467 (8.24)**	0.474 (8.24)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>					
No educational qualifications			0.095 (3.24)**	0.186 (6.21)**	0.201 (6.35)**
CSE or equivalent			0.053 (1.54)	0.124 (3.43)**	0.147 (3.80)**
A level or equivalent			0.017 (0.52)	-0.043 (1.31)	-0.041 (1.22)



	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Degree or equivalent			0.128 (4.11)**	-0.053 (1.46)	-0.051 (1.37)
Post-graduate degree			0.167 (4.05)**	-0.114 (2.46)*	-0.132 (2.70)**
Has vocational qualification			-0.047 (2.29)*	-0.030 (1.43)	-0.040 (1.82)
Member of non-white ethnic minority			0.050 (1.02)	0.062 (1.13)	0.139 (2.24)*
<i>Union membership (ref: current member)</i>					
Ex-member			0.183 (5.93)**	0.072 (2.32)*	0.100 (3.14)**
Never member			0.335 (11.63)**	0.199 (6.65)**	0.237 (7.70)**
<b>Job characteristics:</b>					
<i>Occupational classification (ref: clerical and secretarial)</i>					
Managers and senior administrators				0.258 (5.69)**	0.258 (5.37)**
Professional				0.078 (1.62)	-0.005 (0.10)
Associate professional and technical				-0.018 (0.39)	-0.018 (0.35)
Craft and skilled service				-0.226 (4.25)**	-0.165 (3.00)**
Personal and protective service				0.118 (2.38)*	0.008 (0.16)
Sales				-0.039 (0.70)	0.059 (0.93)
Operative and assembly				-0.314 (6.81)**	-0.204 (4.02)**
Other occupation				-0.164 (3.13)**	-0.153 (2.83)**
<i>Workplace tenure (ref: 10+ years)</i>					
Less than one year				0.468 (12.17)**	0.466 (11.95)**
1, <2 years				0.206 (5.12)**	0.208 (5.08)**
2, <5 years				0.130 (4.62)**	0.116 (4.05)**
5, <10 years				0.036 (1.23)	0.032 (1.06)
Permanent employment contract				-0.009 (0.20)	0.026 (0.59)
<i>Usual weekly hours (ref: less than 10)</i>					
10, <29 hours				-0.137 (1.95)	-0.089 (1.19)
30+ hours				-0.226 (2.92)**	-0.180 (2.14)*

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<i>Net weekly wage (ref: £141-180)</i>					
£50 or less				0.262 (3.22)**	0.165 (1.94)
£51-80				0.099 (1.68)	0.044 (0.71)
£81-140				0.097 (2.18)*	0.075 (1.57)
£181-220				0.025 (0.60)	0.049 (1.14)
£221-260				-0.027 (0.60)	0.013 (0.27)
£261-310				0.041 (0.92)	0.081 (1.78)
£311-360				0.099 (1.83)	0.135 (2.45)*
£361-430				0.096 (2.00)*	0.158 (3.21)**
£431-540				0.148 (2.65)**	0.184 (3.11)**
£541-680				0.285 (4.49)**	0.346 (5.33)**
£681 or more				0.419 (5.60)**	0.510 (6.47)**
<b>Workforce composition:</b>					
<i>Number of employees at workplace (ref: 100-199)</i>					
10-24					0.200 (2.75)**
25-49					0.037 (0.63)
50-99					0.114 (2.22)*
200-499					0.011 (0.24)
500 or more					0.045 (1.10)
Number of occupations					-0.008 (0.85)
<i>% managers who are women (ref: under 50%)</i>					
None					-0.062 (1.53)
50-99%					-0.004 (0.09)
100%					0.073 (1.05)
No managers at workplace					-0.010 (0.14)
% employees who are women					0.002 (1.78)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<i>% employees working part-time (ref: under 10%)</i>					
None					-0.043 (0.81)
10-24%					-0.037 (0.75)
25-49%					0.017 (0.28)
50-74%					0.029 (0.42)
75% or more					0.079 (0.93)
<i>% employees who are non-white (ref: none)</i>					
Under 5%					-0.063 (1.81)
5-10%					-0.104 (1.81)
11-19%					-0.186 (3.34)**
20% or more					-0.174 (2.19)*
<b>Workplace characteristics:</b>					
Public sector					-0.033 (0.56)
<i>Place of ownership (ref: 100% UK)</i>					
Foreign-owned					0.064 (1.34)
50/50					0.221 (2.20)*
Single independent workplace					0.026 (0.62)
<i>Standard industrial classification (ref: manufacturing)</i>					
Electricity, gas and water					0.044 (0.62)
Construction					0.147 (1.79)
Wholesale and retail distribution					-0.143 (1.96)
Hotels and restaurants					0.080 (0.91)
Transport and communication					-0.065 (1.03)
Financial services					0.020 (0.26)
Other business services					0.070 (1.03)
Public administration					0.106 (1.33)
Education					0.189 (2.21)*
Health					0.001 (0.02)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Other community services					0.091 (0.88)
<i>Workplace activity (ref: produces goods/services for customers)</i>					
Supplier to other companies					-0.061 (1.41)
Supplier to other parts of organisation					-0.006 (0.11)
Does not produce for open market					0.021 (0.49)
Administrative office only					0.054 (0.75)
<i>Age of workplace at current address (ref: more than 20 years)</i>					
Under 3 years					-0.115 (1.70)
Between 3 and 20 years					0.035 (1.05)
Respondent to managerial interview is an ER specialist					-0.103 (2.87)**
HRM score					0.010 (1.12)
Number of direct voice channels					0.014 (0.84)
liP award					0.100 (3.56)**
<i>Region (ref: rest of South East)</i>					
East Anglia					0.043 (0.62)
East Midlands					0.114 (1.93)
London					0.117 (1.97)*
North					0.063 (0.96)
North West					0.092 (1.63)
Scotland					-0.031 (0.51)
South West					0.153 (2.46)*
Wales					0.159 (2.22)*
West Midlands					0.120 (2.03)*
Yorkshire and Humberside					0.035 (0.58)
Observations	27691	26531	25767	24144	21688
F-statistics	(5,1706) = 27.93	(11,1627) = 17.49	(27,1611) = 25.74	(53,1584) = 25.60	(108,1350) = 15.54

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A5.3: 'Baseline' models estimating impact of bargaining arrangements on employee perceptions of climate in the public sector**

	(1)	(2)	(3)	(4)	(5)
	irclimat	irclimat	irclimat	irclimat	irclimat
<b>Bargaining:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.210 (2.68)**	0.175 (2.17)*	0.134 (1.79)	0.109 (1.47)	0.005 (0.07)
Separate bargaining, each union	-0.135 (1.95)	-0.118 (1.62)	-0.102 (1.46)	-0.128 (1.89)	-0.089 (1.21)
Separate bargaining, groups of unions	-0.121 (1.57)	-0.135 (1.57)	-0.167 (2.00)*	-0.158 (2.18)*	-0.116 (1.20)
Multi-union, arrangement missing	0.121 (1.33)	0.110 (1.16)	0.094 (0.99)	0.044 (0.55)	0.143 (1.11)
No recognition	0.308 (2.91)**	0.248 (2.12)*	0.173 (1.47)	0.153 (1.41)	0.255 (2.71)**
<i>Bargaining coverage (ref: none)</i>					
100%		-0.071 (0.79)	-0.029 (0.33)	-0.034 (0.40)	0.150 (2.03)*
80-99%		-0.111 (1.00)	-0.067 (0.58)	-0.038 (0.36)	0.111 (1.00)
60-79%		0.398 (2.79)**	0.354 (2.45)*	0.259 (1.93)	0.138 (1.05)
40-59%		0.114 (0.72)	0.121 (0.82)	0.043 (0.28)	0.213 (1.65)
20-39%		-0.010 (0.09)	0.029 (0.26)	0.070 (0.67)	0.278 (2.86)**
1-19%		-0.132 (0.99)	-0.135 (0.98)	-0.165 (1.30)	-0.120 (1.03)
<b>Demographics:</b>					
Female			0.152 (3.78)**	0.150 (3.34)**	0.035 (0.76)
<i>Age of respondent (ref: 30-39 years)</i>					
Under 20 years			0.416 (1.74)	0.284 (1.21)	0.334 (1.31)
20-24 years			0.112 (1.35)	0.023 (0.25)	0.086 (1.02)
25-29 years			0.029 (0.43)	0.021 (0.31)	0.005 (0.07)
40-49 years			0.066 (1.59)	0.042 (1.01)	0.042 (1.13)
50-59 years			0.182 (3.43)**	0.208 (3.87)**	0.196 (3.42)**
60+ years			0.311 (3.99)**	0.396 (4.55)**	0.442 (4.83)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>					
No educational qualifications			0.089 (1.70)	0.148 (2.81)**	0.184 (3.10)**
CSE or equivalent			0.048 (0.66)	0.081 (1.10)	0.106 (1.45)
A level or equivalent			-0.139 (2.66)**	-0.145 (2.76)**	-0.133 (2.45)*

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Degree or equivalent			-0.051 (1.07)	-0.140 (2.53)*	-0.101 (1.74)
Post-graduate degree			-0.071 (1.25)	-0.254 (3.39)**	-0.187 (2.22)*
Has vocational qualification			-0.010 (0.30)	-0.002 (0.05)	-0.005 (0.13)
Member of non-white ethnic minority			0.076 (0.95)	0.072 (0.83)	0.039 (0.40)
<i>Union membership (ref: current member)</i>					
Ex-member			0.153 (3.25)**	0.055 (1.06)	0.034 (0.64)
Never member			0.333 (7.35)**	0.217 (4.90)**	0.239 (5.50)**
<b>Job characteristics:</b>					
<i>Occupational classification (ref: clerical and secretarial)</i>					
Managers and senior administrators				0.340 (4.19)**	0.390 (4.36)**
Professional				0.107 (1.40)	-0.035 (0.46)
Associate professional and technical				-0.044 (0.58)	-0.097 (1.07)
Craft and skilled service				-0.186 (1.91)	-0.014 (0.14)
Personal and protective service				0.153 (2.25)*	0.052 (0.71)
Sales				-0.162 (0.49)	0.150 (0.42)
Operative and assembly				-0.148 (1.14)	0.004 (0.04)
Other occupation				-0.209 (2.10)*	-0.245 (2.59)**
<i>Workplace tenure (ref: 10+ years)</i>					
Less than one year				0.538 (8.98)**	0.485 (7.36)**
1, <2 years				0.296 (4.42)**	0.315 (4.84)**
2, <5 years				0.187 (3.76)**	0.168 (3.16)**
5, <10 years				0.045 (0.94)	0.051 (1.10)
Permanent employment contract				0.027 (0.39)	0.004 (0.06)
<i>Usual weekly hours (ref: less than 10)</i>					
10, <29 hours				-0.086 (0.77)	-0.053 (0.46)
30+ hours				-0.120 (0.93)	-0.184 (1.35)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<i>Net weekly wage (ref: £141-180)</i>					
£50 or less				0.225 (1.54)	0.068 (0.45)
£51-80				0.195 (1.79)	0.165 (1.51)
£81-140				0.105 (1.30)	0.045 (0.47)
£181-220				0.067 (0.79)	0.084 (0.99)
£221-260				-0.109 (1.26)	-0.029 (0.33)
£261-310				-0.055 (0.62)	0.059 (0.66)
£311-360				0.103 (1.11)	0.216 (2.32)*
£361-430				-0.013 (0.16)	0.100 (1.19)
£431-540				0.064 (0.65)	0.127 (1.28)
£541-680				0.363 (2.94)**	0.387 (3.17)**
£681 or more				0.287 (1.88)	0.347 (2.29)*
<b>Workforce composition:</b>					
<i>Number of employees at workplace (ref: 100-199)</i>					
10-24					0.083 (0.64)
25-49					0.035 (0.34)
50-99					-0.019 (0.21)
200-499					-0.050 (0.76)
500 or more					0.021 (0.35)
Number of occupations					-0.027 (1.63)
<i>% managers who are women (ref: under 50%)</i>					
None					0.090 (1.18)
50-99%					0.003 (0.06)
100%					0.140 (1.55)
No managers at workplace					0.024 (0.26)
% employees who are women					0.006 (3.74)**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<i>% employees working part-time (ref: under 10%)</i>					
None					0.045 (0.39)
10-24%					-0.077 (1.07)
25-49%					-0.113 (1.35)
50-74%					-0.240 (2.15)*
75% or more					-0.035 (0.23)
<i>% employees who are non-white (ref: none)</i>					
Under 5%					-0.007 (0.12)
5-10%					-0.111 (1.04)
11-19%					0.011 (0.10)
20% or more					-0.054 (0.40)
Single independent workplace					-0.025 (0.36)
<i>Standard industrial classification (ref: manufacturing)</i>					
Electricity, gas and water					0.282 (1.58)
Construction					0.552 (2.60)**
Wholesale and retail distribution					0.335 (0.93)
Hotels and restaurants					0.439 (1.32)
Transport and communication					0.515 (2.69)**
Other business services					0.423 (2.38)*
Public administration					0.634 (3.86)**
Education					0.698 (3.99)**
Health					0.567 (3.12)**
Other community services					0.749 (4.18)**
<i>Workplace activity (ref: produces goods/services for customers)</i>					
Supplier to other companies					-0.229 (2.05)*
Supplier to other parts of organisation					-0.057 (0.64)
Does not produce for open market					0.030 (0.61)



	(1)	(2)	(3)	(4)	(5)
	irclimat	irclimat	irclimat	irclimat	irclimat
Administrative office only					-0.082 (0.58)
<i>Age of workplace at current address (ref: more than 20 years)</i>					
Under 3 years					-0.060 (0.46)
Between 3 and 20 years					0.101 (1.75)
Respondent to managerial interview is an ER specialist					-0.067 (1.17)
HRM score					0.009 (0.66)
Number of direct voice channels					-0.016 (0.53)
liP award					0.095 (1.97)*
<i>Region (ref: rest of South East)</i>					
East Anglia					0.141 (1.03)
East Midlands					0.150 (1.70)
London					-0.061 (0.59)
North					0.069 (0.76)
North West					-0.062 (0.64)
Scotland					0.031 (0.34)
South West					0.235 (2.03)*
Wales					0.099 (1.20)
West Midlands					0.204 (2.32)*
Yorkshire and Humberside					-0.058 (0.53)
Observations	9593	9040	8725	8209	6973
F statistics	(5,1293) = 5.70	(11,1224) = 4.85	(27,1208) = 7.13	(53,1181) = 10.84	(104, 991) = 25.91

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A5.4: 'Baseline' models estimating impact of bargaining arrangements on employee perceptions of climate in the private sector**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<b>Bargaining:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.237 (4.04)**	0.204 (3.69)**	0.033 (0.58)	0.018 (0.30)	-0.012 (0.19)
Separate bargaining, each union	-0.121 (1.47)	-0.163 (2.40)*	-0.219 (3.26)**	-0.208 (3.17)**	-0.168 (2.50)*
Separate bargaining, groups of unions	-0.169 (1.75)	-0.071 (0.66)	-0.047 (0.54)	-0.029 (0.31)	0.132 (1.90)
Multi-union, arrangement missing	0.134 (0.62)	0.068 (0.32)	-0.051 (0.21)	-0.147 (0.68)	-0.120 (0.55)
No recognition	0.466 (9.15)**	0.302 (3.82)**	0.035 (0.43)	0.041 (0.53)	-0.063 (0.78)
<i>Bargaining coverage (ref: none)</i>					
100%		-0.034 (0.42)	0.009 (0.11)	0.005 (0.07)	-0.041 (0.61)
80-99%		-0.258 (3.41)**	-0.170 (2.32)*	-0.129 (1.94)	-0.170 (2.58)**
60-79%		-0.366 (3.67)**	-0.265 (2.74)**	-0.189 (1.93)	-0.158 (1.75)
40-59%		-0.062 (0.42)	-0.025 (0.18)	-0.017 (0.13)	-0.042 (0.31)
20-39%		-0.215 (1.46)	-0.194 (1.43)	-0.181 (1.30)	-0.294 (2.27)*
1-19%		-0.058 (0.71)	-0.063 (0.78)	-0.053 (0.63)	-0.139 (1.40)
<b>Demographics:</b>					
Female			0.210 (7.43)**	0.152 (4.65)**	0.118 (3.52)**
<i>Age of respondent (ref: 30-39 years)</i>					
Under 20 years			0.339 (4.85)**	0.122 (1.58)	0.116 (1.41)
20-24 years			0.164 (3.50)**	0.172 (3.27)**	0.159 (2.99)**
25-29 years			0.028 (0.75)	0.067 (1.69)	0.062 (1.54)
40-49 years			0.041 (1.20)	0.028 (0.79)	0.030 (0.93)
50-59 years			0.027 (0.70)	0.050 (1.22)	0.047 (1.14)
60+ years			0.461 (7.08)**	0.495 (7.05)**	0.480 (6.87)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>					
No educational qualifications			0.115 (3.24)**	0.211 (5.81)**	0.206 (5.49)**
CSE or equivalent			0.070 (1.77)	0.140 (3.38)**	0.159 (3.58)**
A level or equivalent			0.079 (1.97)*	-0.003 (0.08)	-0.010 (0.24)
Degree or equivalent			0.199 (4.91)**	-0.020 (0.43)	-0.035 (0.73)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Post-graduate degree			0.313 (5.02)**	-0.019 (0.31)	-0.075 (1.25)
Has vocational qualification			-0.064 (2.55)*	-0.049 (1.93)	-0.054 (2.04)*
Member of non-white ethnic minority			0.027 (0.44)	0.060 (0.87)	0.181 (2.39)*
<i>Union membership (ref: current member)</i>					
Ex-member			0.206 (4.88)**	0.085 (2.07)*	0.124 (2.84)**
Never member			0.341 (8.49)**	0.196 (4.60)**	0.235 (5.27)**
<b>Job characteristics:</b>					
<i>Occupational classification (ref: clerical and secretarial)</i>					
Managers and senior administrators				0.241 (4.47)**	0.226 (3.96)**
Professional				0.078 (1.22)	0.052 (0.81)
Associate professional and technical				0.028 (0.47)	0.044 (0.74)
Craft and skilled service				-0.214 (3.60)**	-0.172 (2.80)**
Personal and protective service				0.029 (0.37)	-0.040 (0.52)
Sales				-0.019 (0.33)	0.066 (0.99)
Operative and assembly				-0.304 (6.09)**	-0.205 (3.77)**
Other occupation				-0.142 (2.34)*	-0.116 (1.90)
<i>Workplace tenure (ref: 10+ years)</i>					
Less than one year				0.442 (9.22)**	0.465 (9.97)**
1, <2 years				0.162 (3.26)**	0.174 (3.49)**
2, <5 years				0.095 (2.85)**	0.101 (2.99)**
5, <10 years				0.029 (0.77)	0.036 (0.92)
Permanent employment contract				0.004 (0.06)	0.039 (0.67)
<i>Usual weekly hours (ref: less than 10)</i>					
10, <29 hours				-0.104 (1.18)	-0.090 (0.96)
30+ hours				-0.214 (2.22)*	-0.148 (1.43)
<i>Net weekly wage (ref: £141-180)</i>					
£50 or less				0.264 (2.76)**	0.198 (0.33)
£51-80				0.065 (0.91)	0.026 (0.36)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
£181-220				0.016 (0.33)	0.038 (0.78)
£221-260				0.018 (0.34)	0.037 (0.67)
£261-310				0.089 (1.70)	0.094 (1.74)
£311-360				0.108 (1.65)	0.121 (1.82)
£361-430				0.150 (2.42)*	0.213 (3.48)**
£431-540				0.183 (2.63)**	0.218 (2.96)**
£541-680				0.227 (2.99)**	1.97 (4.24)**
£681 or more				0.473 (5.57)**	0.574 (6.22)**
<b>Workforce composition:</b>					
<i>Number of employees at workplace (ref: 100-199)</i>					
10-24					0.238 (2.87)**
25-49					0.049 (0.70)
50-99					0.163 (2.60)**
200-499					0.027 (0.47)
500 or more					0.061 (1.20)
Number of occupations					0.000 (0.00)
<i>% managers who are women (ref: under 50%)</i>					
None					-0.081 (1.74)
50-99%					0.031 (0.59)
100%					0.067 (0.69)
No managers at workplace					0.036 (0.35)
% employees who are women					0.000 (0.10)
<i>% employees working part-time (ref: under 10%)</i>					
None					-0.077 (1.32)
10-24%					-0.001 (0.02)
25-49%					0.051 (0.68)
50-74%					0.147 (1.72)
75% or more					0.173 (1.71)

	(1)	(2)	(3)	(4)	(5)
	irclimat	irclimat	irclimat	irclimat	irclimat
<i>% employees who are non-white (ref: none)</i>					
Under 5%					-0.084 (2.03)*
5-10%					-0.088 (1.34)
11-19%					-0.272 (4.35)**
20% or more					-0.174 (1.78)
<b>Workplace characteristics:</b>					
<i>Place of ownership (ref: 100% UK)</i>					
Foreign-owned					0.068 (1.40)
50/50					0.203 (2.10)*
Single independent workplace					0.064 (1.25)
<i>Standard industrial classification (ref: manufacturing)</i>					
Electricity, gas and water					0.022 (0.28)
Construction					0.152 (1.65)
Wholesale and retail distribution					-0.159 (2.01)*
Hotels and restaurants					0.105 (1.14)
Transport and communication					-0.088 (1.36)
Financial services					0.024 (0.28)
Other business services					0.078 (1.11)
Public administration					0.365 (2.37)*
Education					0.285 (2.27)*
Health					-0.086 (0.77)
Other community services					-0.002 (0.02)
<i>Workplace activity (ref: produces goods/services for customers)</i>					
Supplier to other companies					-0.044 (0.94)
Supplier to other parts of organisation					0.020 (0.30)
Does not produce for open market					-0.046 (0.57)
Administrative office only					0.137 (1.51)

	(1)	(2)	(3)	(4)	(5)
	irclimat	irclimat	irclimat	irclimat	irclimat
<i>Age of workplace at current address (ref: more than 20 years)</i>					
Under 3 years					-0.137 (1.73)
Between 3 and 20 years					0.019 (0.48)
Respondent to managerial interview is an ER specialist					-0.115 (2.60)**
HRM score					0.014 (1.32)
Number of direct voice channels					0.009 (0.48)
liP award					0.104 (2.99)**
<i>Region (ref: rest of South East)</i>					
East Anglia					0.050 (0.63)
East Midlands					0.116 (1.53)
London					0.183 (2.68)**
North					0.074 (0.84)
North West					0.143 (2.08)*
Scotland					-0.050 (0.69)
South West					0.147 (1.96)*
Wales					0.172 (1.63)
West Midlands					0.099 (1.41)
Yorkshire and Humberside					0.067 (0.94)
Observations	18098	17491	17042	15935	14715
F statistics	(5,1585) = 30.75	(11,1520) = 18.54	(27,1504) = 23.30	(53,1477) = 20.18	(106,1261) = 20.97

Absolute value of t-statistics in parentheses  
\* significant at 5%; \*\* significant at 1%

**Appendix Table A5.5: 'Baseline' models estimating impact of bargaining arrangements on employee perceptions of climate in the unionised sector**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<b>Bargaining:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.173 (3.67)**	0.183 (3.98)**	0.083 (1.89)	0.073 (1.63)	0.009 (0.18)
Separate bargaining, each union	-0.152 (2.72)**	-0.169 (3.24)**	-0.169 (3.37)**	-0.174 (3.60)**	-0.178 (3.55)**
Separate bargaining, groups of unions	-0.112 (1.48)	-0.124 (1.91)	-0.136 (2.27)*	-0.128 (2.37)*	-0.054 (0.75)
Multi-union, arrangement missing	0.185 (2.22)*	0.144 (1.57)	0.093 (1.03)	0.011 (0.15)	-0.015 (0.14)
<i>Bargaining coverage (ref: none)</i>					
100%		-0.055 (0.79)	-0.010 (0.15)	-0.026 (0.44)	0.005 (0.08)
80-99%		-0.264 (3.68)**	-0.167 (2.34)*	-0.107 (1.70)	-0.093 (1.39)
60-79%		-0.245 (2.27)*	-0.173 (1.68)	-0.108 (1.12)	-0.097 (1.12)
40-59%		0.062 (0.62)	0.058 (0.57)	0.016 (0.16)	0.089 (0.86)
20-39%		0.047 (0.58)	0.042 (0.52)	0.076 (1.00)	0.053 (0.63)
1-19%		-0.116 (1.22)	-0.155 (1.59)	-0.163 (1.61)	-0.164 (1.77)
<b>Demographics:</b>					
Female			0.249 (8.14)**	0.215 (6.10)**	0.131 (3.43)**
<i>Age of respondent (ref: 30-39 years)</i>					
Under 20 years			0.201 (2.11)*	-0.004 (0.04)	0.018 (0.18)
20-24 years			0.096 (1.66)	0.080 (1.25)	0.079 (1.19)
25-29 years			-0.001 (0.02)	0.025 (0.53)	0.024 (0.48)
40-49 years			0.052 (1.51)	0.022 (0.64)	0.011 (0.38)
50-59 years			0.131 (3.18)**	0.144 (3.31)**	0.129 (2.91)**
60+ years			0.372 (5.03)**	0.423 (5.36)**	0.429 (5.33)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>					
No educational qualifications			0.041 (1.10)	0.151 (3.93)**	0.165 (3.90)**
CSE or equivalent			-0.026 (0.55)	0.032 (0.62)	0.036 (0.63)
A level or equivalent			-0.063 (1.37)	-0.091 (1.96)*	-0.080 (1.67)
Degree or equivalent			0.058 (1.46)	-0.111 (2.52)*	-0.091 (1.99)*

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Post-graduate degree			0.030 (0.64)	-0.241 (4.25)**	-0.231 (3.59)**
Has vocational qualification			-0.005 (0.20)	0.008 (0.28)	0.012 (0.40)
Member of non-white ethnic minority			0.121 (1.85)	0.110 (1.44)	0.161 (1.86)
<i>Union membership (ref: current member)</i>					
Ex-member			0.197 (4.90)**	0.062 (1.57)	0.077 (1.85)
Never member			0.351 (9.83)**	0.186 (5.07)**	0.201 (5.30)**
<b>Job characteristics:</b>					
<i>Occupational classification (ref: clerical and secretarial)</i>					
Managers and senior administrators				0.300 (4.65)**	0.335 (4.74)**
Professional				0.051 (0.83)	-0.039 (0.60)
Associate professional and technical				-0.072 (1.12)	-0.101 (1.38)
Craft and skilled service				-0.207 (3.02)**	-0.169 (2.24)*
Personal and protective service				0.195 (3.03)**	0.116 (1.77)
Sales				-0.173 (2.24)*	0.042 (0.50)
Operative and assembly				-0.275 (4.52)**	-0.215 (3.21)**
Other occupation				-0.263 (3.33)**	-0.209 (2.57)*
<i>Workplace tenure (ref: 10+ years)</i>					
Less than one year				0.510 (10.17)**	0.506 (9.63)**
1, <2 years				0.251 (4.56)**	0.249 (4.15)**
2, <5 years				0.164 (4.63)**	0.149 (4.00)**
5, <10 years				0.029 (0.76)	0.036 (0.90)
Permanent employment contract				0.016 (0.29)	-0.003 (0.06)
<i>Usual weekly hours (ref: less than 10)</i>					
10, <29 hours				-0.083 (0.87)	0.029 (0.29)
30+ hours				-0.116 (1.11)	-0.014 (0.13)
<i>Net weekly wage (ref: £141-180)</i>					
£50 or less				0.373 (3.01)**	0.312 (2.48)*
£51-80				0.167 (2.01)*	0.117 (1.40)



	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
£81-140				0.046 (0.76)	0.017 (0.25)
£181-220				0.006 (0.12)	0.006 (0.10)
£221-260				-0.105 (1.85)	-0.097 (1.67)
£261-310				0.008 (0.15)	0.046 (0.78)
£311-360				0.057 (0.80)	0.076 (1.08)
£361-430				0.043 (0.71)	0.100 (1.66)
£431-540				0.095 (1.33)	0.081 (1.13)
£541-680				0.316 (3.75)**	0.297 (3.60)**
£681 or more				0.441 (3.97)**	0.466 (4.21)**
<b>Workforce composition:</b>					
<i>Number of employees at workplace (ref: 100-199)</i>					
10-24					0.132 (1.24)
25-49					0.057 (0.68)
50-99					0.153 (2.28)*
200-499					0.028 (0.50)
500 or more					0.034 (0.75)
Number of occupations					-0.013 (1.17)
<i>% managers who are women (ref: under 50%)</i>					
None					-0.034 (0.65)
50-99%					0.007 (0.13)
100%					0.164 (1.89)
No managers at workplace					-0.015 (0.16)
% employees who are women					0.003 (2.02)*
<i>% employees working part-time (ref: under 10%)</i>					
None					-0.030 (0.39)
10-24%					-0.028 (0.44)
25-49%					-0.012 (0.17)
50-74%					-0.112 (1.19)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
75% or more					0.040 (0.31)
<i>% employees who are non-white (ref: none)</i>					
Under 5%					-0.069 (1.56)
5-10%					-0.182 (2.41)*
11-19%					-0.129 (1.68)
20% or more					-0.173 (1.68)
<b>Workplace characteristics:</b>					
Public sector					-0.061 (0.89)
<i>Place of ownership (ref: 100% UK)</i>					
Foreign-owned					-0.065 (0.94)
50/50					0.198 (1.80)
Single independent workplace					-0.030 (0.49)
<i>Standard industrial classification (ref: manufacturing)</i>					
Electricity, gas and water					0.023 (0.30)
Construction					0.064 (0.55)
Wholesale and retail distribution					-0.264 (2.22)*
Hotels and restaurants					-0.318 (1.77)
Transport and communication					-0.120 (1.67)
Financial services					-0.071 (0.81)
Other business services					-0.129 (1.06)
Public administration					0.031 (0.33)
Education					0.113 (1.05)
Health					0.057 (0.54)
Other community services					0.206 (1.55)
<i>Workplace activity (ref: produces goods/services for customers)</i>					
Supplier to other companies					0.035 (0.58)
Supplier to other parts of organisation					0.066 (1.06)

	(1) irclimat	(2) irclimat	(3) irclimatv	(4) irclimat	(5) irclimat
Does not produce for open market					0.020 (0.41)
Administrative office only					-0.034 (0.33)
<i>Age of workplace at current address (ref: more than 20 years)</i>					
Under 3 years					0.035 (0.43)
Between 3 and 20 years					0.039 (0.88)
Respondent to managerial interview is an ER specialist					-0.094 (2.07)*
HRM score					0.011 (0.95)
Number of direct voice channels					0.015 (0.69)
liP award					0.082 (2.40)*
<i>Region (ref: rest of South East)</i>					
East Anglia					0.038 (0.39)
East Midlands					0.047 (0.69)
London					0.002 (0.03)
North					-0.026 (0.37)
North West					0.027 (0.38)
Scotland					-0.076 (1.07)
South West					0.132 (1.71)
Wales					0.112 (1.37)
West Midlands					0.146 (2.13)*
Yorkshire and Humberside					-0.045 (0.65)
Observations	16618	15783	15341	14460	12781
F statistics	(4,1681) = 10.31	(10,1602) = 8.74	(25,1586) = 15.37	(52,1559) = 15.93	(107,1325) = 11.76

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A5.6: 'Baseline' models estimating impact of bargaining arrangements on union members' perceptions of climate in the unionised sector**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<b>Bargaining:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.104 (1.88)	0.119 (2.19)*	0.090 (1.65)	0.087 (1.52)	-0.004 (0.06)
Separate bargaining, each union	-0.210 (3.41)**	-0.219 (3.64)**	-0.194 (3.24)**	-0.190 (3.22)**	-0.211 (3.41)**
Separate bargaining, groups of unions	-0.182 (2.55)*	-0.167 (2.52)*	-0.168 (2.33)*	-0.168 (2.54)*	-0.142 (1.66)
Multi-union, arrangement missing	0.222 (2.64)**	0.180 (2.01)*	0.156 (1.83)	0.063 (0.84)	0.027 (0.22)
<i>Bargaining coverage (ref: none)</i>					
100%		-0.034 (0.46)	-0.020 (0.29)	-0.048 (0.68)	-0.002 (0.03)
80-99%		-0.219 (2.84)**	-0.151 (1.95)	-0.107 (1.43)	-0.094 (1.09)
60-79%		-0.289 (2.60)**	-0.238 (2.22)*	-0.160 (1.49)	-0.162 (1.57)
40-59%		0.106 (0.82)	0.071 (0.51)	0.097 (0.60)	0.185 (1.41)
20-39%		0.097 (1.14)	0.037 (0.42)	0.096 (1.09)	0.141 (1.34)
1-19%		-0.069 (0.52)	-0.127 (0.95)	-0.060 (0.42)	-0.076 (0.54)
<b>Demographics:</b>					
Female			0.269 (6.79)**	0.264 (6.04)**	0.193 (3.82)**
<i>Age of respondent (ref: 30-39 years)</i>					
Under 20 years			0.393 (2.32)*	0.125 (0.71)	0.051 (0.29)
20-24 years			0.057 (0.67)	0.013 (0.13)	-0.012 (0.13)
25-29 years			0.062 (1.14)	0.063 (1.15)	0.046 (0.84)
40-49 years			0.052 (1.21)	0.007 (0.15)	0.010 (0.26)
50-59 years			0.142 (2.88)**	0.139 (2.68)**	0.153 (2.99)**
60+ years			0.400 (3.15)**	0.450 (3.59)**	0.431 (3.16)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>					
No educational qualifications			-0.014 (0.29)	0.121 (2.24)*	0.140 (2.39)*
CSE or equivalent			-0.083 (1.44)	-0.013 (0.21)	-0.002 (0.03)
A level or equivalent			-0.057 (0.85)	-0.096 (1.38)	-0.089 (1.19)
Degree or equivalent			0.055 (1.04)	-0.136 (2.29)*	-0.072 (1.16)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Post-graduate degree			0.074 (1.10)	-0.234 (3.06)**	-0.202 (2.32)*
Has vocational qualification			0.027 (0.84)	0.045 (1.32)	0.052 (1.44)
Member of non-white ethnic minority			0.146 (1.58)	0.140 (1.34)	0.240 (2.19)*
<b>Job characteristics:</b>					
<i>Occupational classification (ref: clerical and secretarial)</i>					
Managers and senior administrators				0.357 (4.28)**	0.451 (5.12)**
Professional				0.051 (0.63)	-0.030 (0.35)
Associate professional and technical				-0.128 (1.86)	-0.100 (1.28)
Craft and skilled service				-0.231 (2.76)**	-0.153 (1.63)
Personal and protective service				0.138 (1.69)	0.129 (1.61)
Sales				-0.219 (2.03)*	0.047 (0.36)
Operative and assembly				-0.234 (3.54)**	-0.149 (2.13)*
Other occupation				-0.263 (2.56)*	-0.165 (1.70)
<i>Workplace tenure (ref: 10+ years)</i>					
Less than one year				0.549 (8.62)**	0.582 (8.37)**
1, <2 years				0.187 (2.63)**	0.218 (3.00)**
2, <5 years				0.117 (2.78)**	0.116 (2.55)*
5, <10 years				-0.014 (0.27)	0.012 (0.22)
Permanent employment contract				0.071 (0.74)	-0.026 (0.30)
<i>Usual weekly hours (ref: less than 10)</i>					
10, <29 hours				-0.031 (0.20)	0.103 (0.63)
30+ hours				-0.096 (0.64)	0.054 (0.33)
<i>Net weekly wage (ref: £141-180)</i>					
£50 or less				0.398 (2.27)*	0.232 (1.15)
£51-80				0.297 (2.22)*	0.264 (1.98)*
£81-140				0.086 (1.05)	0.062 (0.69)
£181-220				0.063 (0.91)	0.044 (0.60)
£221-260				-0.078 (1.10)	-0.103 (1.30)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
£261-310				0.060 (0.84)	0.055 (0.69)
£311-360				0.183 (2.15)*	0.166 (1.82)
£361-430				0.117 (1.59)	0.158 (1.96)*
£431-540				0.158 (1.78)	0.099 (1.08)
£541-680				0.430 (4.22)**	0.343 (3.30)**
£681 or more				0.440 (3.11)**	0.411 (2.80)**
<b>Workforce composition:</b>					
<i>Number of employees at workplace (ref: 100-199)</i>					
10-24					0.080 (0.60)
25-49					-0.023 (0.23)
50-99					0.097 (1.16)
200-499					0.059 (0.86)
500 or more					0.055 (1.00)
Number of occupations					-0.019 (1.36)
<i>% managers who are women (ref: under 50%)</i>					
None					0.072 (1.19)
50-99%					0.087 (1.35)
100%					0.252 (2.24)*
No managers at workplace					0.020 (0.19)
% employees who are women					0.004 (2.73)**
<i>% employees working part-time (ref: under 10%)</i>					
None					-0.035 (0.44)
10-24%					-0.018 (0.21)
25-49%					-0.049 (0.52)
50-74%					-0.055 (0.45)
75% or more					0.110 (0.58)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<i>% employees who are non-white (ref: none)</i>					
Under 5%					-0.071 (1.35)
5-10%					-0.211 (2.33)*
11-19%					-0.026 (0.26)
20% or more					-0.232 (1.95)
<b>Workplace characteristics:</b>					
Public sector					0.045 (0.51)
<i>Place of ownership (ref: 100% UK)</i>					
Foreign-owned					-0.164 (2.06)*
50/50					0.249 (1.31)
Single independent workplace					-0.031 (0.40)
<i>Standard industrial classification (ref: manufacturing)</i>					
Electricity, gas and water					-0.070 (0.75)
Construction					-0.159 (1.11)
Wholesale and retail distribution					-0.476 (2.84)**
Hotels and restaurants					-0.879 (2.63)**
Transport and communication					-0.231 (2.80)**
Financial services					-0.196 (1.73)
Other business services					-0.388 (2.28)*
Public administration					-0.157 (1.36)
Education					-0.188 (1.33)
Health					-0.266 (1.94)
Other community services					-0.032 (0.21)
<i>Workplace activity (ref: produces goods/services for customers)</i>					
Supplier to other companies					0.079 (1.13)
Supplier to other parts of organisation					0.099 (1.26)
Does not produce for open market					-0.015 (0.25)
Administrative office only					-0.042 (0.30)

	(1) irclimat	(2) irclimat	(3) irclimatv	(4) irclimat	(5) irclimat
<i>Age of workplace at current address (ref: more than 20 years)</i>					
Under 3 years					-0.014 (0.13)
Between 3 and 20 years					0.040 (0.72)
Respondent to managerial interview is an ER specialist					-0.106 (1.94)
HRM score					0.019 (1.36)
Number of direct voice channels					0.030 (1.12)
liP award					0.042 (1.01)
<i>Region (ref: rest of South East)</i>					
East Anglia					0.042 (0.31)
East Midlands					0.041 (0.44)
London					-0.038 (0.39)
North					-0.065 (0.76)
North West					0.011 (0.13)
Scotland					-0.048 (0.54)
South West					0.136 (1.43)
Wales					0.075 (0.72)
West Midlands					0.122 (1.38)
Yorkshire and Humberside					-0.072 (0.81)
Observations	10172	9706	9448	8895	7820
F statistics	(4,1661) = 9.32	(10,1582) = 7.64	(24,1568) = 7.71	(50,1541) = 11.31	(105,1308) = 7.12

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%



**Appendix Table A5.7: 'Baseline' models estimating impact of bargaining arrangements on union non-members' perceptions of climate in the unionised sector**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<b>Bargaining:</b>					
<i>Collective bargaining arrangements (ref: joint bargaining)</i>					
Single union	0.103 (1.72)	0.122 (2.06)*	0.075 (1.26)	0.057 (1.02)	0.038 (0.63)
Separate bargaining, each union	-0.087 (1.19)	-0.102 (1.42)	-0.095 (1.26)	-0.124 (1.99)*	-0.110 (1.6)
Separate bargaining, groups of unions	0.064 (0.63)	0.007 (0.06)	-0.041 (0.39)	-0.006 (0.06)	0.134 (1.24)
Multi-union, arrangement missing	0.066 (0.63)	0.028 (0.24)	-0.022 (0.18)	-0.074 (0.49)	-0.103 (0.81)
<i>Bargaining coverage (ref: none)</i>					
100%		0.007 (0.06)	0.007 (0.07)	0.005 (0.06)	0.034 (0.51)
80-99%		-0.200 (1.82)	-0.178 (1.58)	-0.122 (1.39)	-0.081 (0.99)
60-79%		-0.061 (0.43)	-0.038 (0.26)	-0.020 (0.15)	-0.020 (0.19)
40-59%		0.025 (0.20)	0.049 (0.41)	-0.109 (1.04)	-0.064 (0.56)
20-39%		0.032 (0.26)	0.021 (0.17)	0.020 (0.19)	-0.074 (0.71)
1-19%		-0.163 (1.32)	-0.191 (1.51)	-0.301 (2.43)*	-0.262 (2.71)**
<b>Demographics:</b>					
Female			0.204 (4.55)**	0.109 (2.21)*	0.034 (0.65)
<i>Age of respondent (ref: 30-39 years)</i>					
Under 20 years			0.216 (1.97)*	-0.024 (0.21)	0.006 (0.04)
20-24 years			0.187 (2.41)*	0.154 (1.69)	0.156 (1.68)
25-29 years			-0.058 (0.84)	0.002 (0.02)	0.021 (0.24)
40-49 years			0.043 (0.84)	0.028 (0.57)	0.006 (0.11)
50-59 years			0.099 (1.65)	0.123 (2.02)*	0.091 (1.39)
60+ years			0.280 (2.95)**	0.326 (3.18)**	0.372 (3.43)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>					
No educational qualifications			0.147 (2.30)*	0.203 (3.34)**	0.199 (3.07)**
CSE or equivalent			0.087 (1.21)	0.134 (1.78)	0.136 (1.74)
A level or equivalent			-0.070 (1.11)	-0.093 (1.44)	-0.062 (0.89)
Degree or equivalent			0.038 (0.61)	-0.103 (1.49)	-0.109 (1.53)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
Post-graduate degree			-0.056 (0.76)	-0.287 (3.48)**	-0.296 (3.18)**
Has vocational qualification			-0.061 (1.51)	-0.058 (1.41)	-0.096 (2.23)*
Member of non-white ethnic minority			0.098 (1.21)	0.047 (0.55)	0.029 (0.29)
<b>Job characteristics:</b>					
<i>Occupational classification (ref: clerical and secretarial)</i>					
Managers and senior administrators				0.238 (2.76)**	0.196 (2.06)*
Professional				-0.015 (0.18)	-0.078 (0.88)
Associate professional and technical				-0.009 (0.09)	-0.117 (1.09)
Craft and skilled service				-0.143 (1.51)	-0.113 (1.20)
Personal and protective service				0.283 (2.91)**	0.114 (1.25)
Sales				-0.131 (1.38)	0.011 (0.10)
Operative and assembly				-0.459 (4.59)**	-0.391 (3.62)**
Other occupation				-0.219 (2.31)*	-0.247 (2.41)*
<i>Workplace tenure (ref: 10+ years)</i>					
Less than one year				0.544 (7.08)**	0.506 (6.49)**
1, <2 years				0.369 (4.71)**	0.340 (3.96)**
2, <5 years				0.261 (4.09)**	0.226 (3.21)**
5, <10 years				0.144 (2.28)*	0.129 (2.02)*
Permanent employment contract				-0.022 (0.35)	0.004 (0.05)
<i>Usual weekly hours (ref: less than 10)</i>					
10, <29 hours				-0.099 (0.80)	-0.010 (0.08)
30+ hours				-0.097 (0.64)	-0.038 (0.25)
<i>Net weekly wage (ref: £141-180)</i>					
£50 or less				0.321 (1.93)	0.287 (1.90)
£51-80				0.079 (0.66)	0.036 (0.31)
£81-140				0.010 (0.11)	-0.029 (0.32)
£181-220				-0.062 (0.78)	-0.083 (1.00)
£221-260				-0.120 (1.32)	-0.106 (1.15)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
£261-310				-0.039 (0.41)	0.023 (0.24)
£311-360				-0.207 (1.61)	-0.181 (1.42)
£361-430				-0.038 (0.38)	-0.029 (0.28)
£431-540				0.058 (0.56)	0.086 (0.73)
£541-680				0.124 (0.98)	0.176 (1.33)
£681 or more				0.482 (3.28)**	0.569 (3.34)**
<b>Workforce composition:</b>					
<i>Number of employees at workplace (ref: 100-199)</i>					
10-24					0.331 (2.63)**
25-49					0.222 (2.18)*
50-99					0.219 (2.63)**
200-499					0.040 (0.55)
500 or more					0.015 (0.22)
Number of occupations					-0.004 (0.25)
<i>% managers who are women (ref: under 50%)</i>					
None					-0.200 (2.89)**
50-99%					-0.107 (1.81)
100%					0.037 (0.34)
No managers at workplace					0.039 (0.31)
% employees who are women					0.000 (0.26)
<i>% employees working part-time (ref: under 10%)</i>					
None					-0.095 (0.80)
10-24%					-0.053 (0.76)
25-49%					-0.023 (0.27)
50-74%					-0.199 (1.84)
75% or more					-0.070 (0.52)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat	(5) irclimat
<i>% employees who are non-white (ref: none)</i>					
Under 5%					-0.019 (0.33)
5-10%					-0.113 (1.30)
11-19%					-0.245 (2.33)*
20% or more					-0.079 (0.64)
<b>Workplace characteristics:</b>					
Public sector					-0.185 (2.29)*
<i>Place of ownership (ref: 100% UK)</i>					
Foreign-owned					0.047 (0.52)
50/50					-0.187 (0.97)
Single independent workplace					-0.023 (0.34)
<i>Standard industrial classification (ref: manufacturing)</i>					
Electricity, gas and water					0.085 (0.74)
Construction					0.314 (2.31)*
Wholesale and retail distribution					-0.036 (0.28)
Hotels and restaurants					0.266 (1.28)
Transport and communication					0.094 (0.81)
Financial services					0.077 (0.72)
Other business services					0.077 (0.67)
Public administration					0.189 (1.71)
Education					0.454 (3.46)**
Health					0.437 (3.20)**
Other community services					0.485 (2.82)**
<i>Workplace activity (ref: produces goods/services for customers)</i>					
Supplier to other companies					-0.007 (0.09)
Supplier to other parts of organisation					0.018 (0.22)
Does not produce for open market					0.112 (1.75)

	(1)	(2)	(3)	(4)	(5)
	irclimat	irclimat	irclimat	irclimat	irclimat
Administrative office only					0.016 (0.15)
<i>Age of workplace at current address (ref: more than 20 years)</i>					
Under 3 years					0.068 (0.83)
Between 3 and 20 years					0.055 (1.10)
Respondent to managerial interview is an ER specialist					-0.038 (0.72)
HRM score					-0.001 (0.09)
Number of direct voice channels					0.005 (0.20)
liP award					0.128 (2.89)**
<i>Region (ref: rest of South East)</i>					
East Anglia					0.143 (1.23)
East Midlands					0.067 (0.88)
London					0.107 (1.15)
North					0.131 (1.36)
North West					0.081 (0.87)
Scotland					-0.072 (0.79)
South West					0.143 (1.54)
Wales					0.143 (1.43)
West Midlands					0.187 (2.13)*
Yorkshire and Humberside					0.056 (0.68)
Observations	6407	6042	5893	5565	4961
F statistics	(4,1681)	(10,1602)	(24,1588)	(50,1561)	(105,1327)
	= 1.95	= 2.04	= 3.66	= 6.14	= 5.98

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A5.8: 'Baseline' models estimating impact of bargaining levels on employee perceptions of climate in the whole economy**

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat
<b>Bargaining:</b>				
<i>Collective bargaining levels (ref: recognition, majority coverage, industry-level)</i>				
No recognition, no coverage	0.259 (5.55)**	0.059 (1.23)	0.105 (2.23)*	0.087 (1.38)
No recognition, minority coverage	0.066 (0.57)	-0.058 (0.53)	-0.015 (0.16)	-0.008 (0.09)
No recognition, majority coverage	0.355 (2.90)**	0.223 (1.87)	0.235 (2.14)*	0.104 (1.00)
Recognition, no coverage	0.076 (1.03)	0.023 (0.33)	0.052 (0.79)	0.052 (0.77)
Recognition, minority coverage	0.045 (0.76)	-0.008 (0.14)	0.025 (0.43)	0.014 (0.21)
Recognition, majority coverage, workplace-level	-0.290 (4.88)**	-0.225 (3.90)**	-0.085 (1.42)	0.004 (0.06)
Recognition, majority coverage, organisation-level	-0.081 (1.48)	-0.041 (0.81)	0.008 (0.17)	-0.004 (0.07)
Recognition, majority coverage, multi-level	0.089 (1.12)	0.096 (1.53)	0.160 (2.15)*	0.205 (3.45)**
<b>Demographics:</b>				
Female		0.223 (9.49)**	0.155 (5.90)**	0.079 (2.89)**
<i>Age of respondent (ref: 30-39 years)</i>				
Under 20 years		0.331 (5.09)**	0.096 (1.36)	0.110 (1.46)
20-24 years		0.157 (3.90)**	0.130 (2.84)**	0.132 (2.81)**
25-29 years		0.017 (0.50)	0.050 (1.45)	0.047 (1.34)
40-49 years		0.046 (1.70)	0.035 (1.27)	0.028 (1.11)
50-59 years		0.078 (2.55)*	0.107 (3.25)**	0.092 (2.68)**
60+ years		0.424 (8.32)**	0.472 (8.36)**	0.476 (8.24)**
<i>Highest educational qualification (ref: GCSE or equivalent)</i>				
No educational qualifications		0.095 (3.22)**	0.186 (6.17)**	0.199 (6.22)**
CSE or equivalent		0.048 (1.36)	0.121 (3.31)**	0.144 (3.67)**
A level or equivalent		0.020 (0.63)	-0.042 (1.28)	-0.043 (1.27)
Degree or equivalent		0.131 (4.20)**	-0.051 (1.40)	-0.052 (1.40)
Post-graduate degree		0.170 (4.06)**	-0.111 (2.39)*	-0.136 (2.77)**
Has vocational qualification		-0.052 (2.54)*	-0.034 (1.60)	-0.042 (1.89)
Member of non-white ethnic minority		0.049 (0.99)	0.061 (1.11)	0.143 (2.31)*

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat
<i>Union membership (ref: current member)</i>				
Ex-member		0.195 (6.30)**	0.080 (2.55)*	0.103 (3.20)**
Never member		0.347 (12.18)**	0.207 (6.87)**	0.238 (7.72)**
<b>Job characteristics:</b>				
<i>Occupational classification (ref: clerical and secretarial)</i>				
Managers and senior administrators			0.263 (5.84)**	0.256 (5.31)**
Professional			0.088 (1.83)	-0.002 (0.04)
Associate professional and technical			-0.010 (0.21)	-0.015 (0.28)
Craft and skilled service			-0.232 (4.38)**	-0.169 (3.07)**
Personal and protective service			0.109 (2.21)*	0.002 (0.03)
Sales			-0.032 (0.60)	0.058 (0.90)
Operative and assembly			-0.324 (7.16)**	-0.213 (4.17)**
Other occupation			-0.175 (3.32)**	-0.157 (2.87)**
<i>Workplace tenure (ref: 10+ years)</i>				
Less than one year			0.469 (12.30)**	0.467 (11.94)**
1, <2 years			0.207 (5.19)**	0.211 (5.17)**
2, <5 years			0.131 (4.66)**	0.118 (4.07)**
5, <10 years			0.040 (1.35)	0.037 (1.22)
Permanent employment contract			0.001 (0.02)	0.029 (0.67)
<i>Usual weekly hours (ref: less than 10)</i>				
10, <29 hours			-0.127 (1.77)	-0.088 (1.16)
30+ hours			-0.212 (2.71)**	-0.178 (2.10)*
<i>Net weekly wage (ref: £141-180)</i>				
£50 or less			0.271 (3.37)**	0.162 (1.91)
£51-80			0.104 (1.76)	0.044 (0.70)
£81-140			0.098 (2.19)*	0.074 (1.57)
£181-220			0.022 (0.52)	0.046 (1.09)
£221-260			-0.032 (0.72)	0.012 (0.26)

	(1) irclimat	(2) irclimat	(3) irclimat	(4) irclimat
£261-310			0.031 (0.69)	0.075 (1.64)
£311-360			0.092 (1.71)	0.132 (2.38)*
£361-430			0.075 (1.52)	0.154 (3.08)**
£431-540			0.130 (2.34)*	0.182 (3.06)**
£541-680			0.264 (4.09)**	0.345 (5.23)**
£681 or more			0.395 (5.24)**	0.502 (6.34)**
<b>Workforce composition:</b>				
<i>Number of employees at workplace (ref: 100-199)</i>				
10-24				0.216 (2.93)**
25-49				0.052 (0.89)
50-99				0.129 (2.53)*
200-499				0.022 (0.48)
500 or more				0.055 (1.29)
Number of occupations				-0.008 (0.78)
<i>% managers who are women (ref: under 50%)</i>				
None				-0.068 (1.63)
50-99%				-0.003 (0.08)
100%				0.066 (0.93)
No managers at workplace				0.001 (0.01)
% employees who are women				0.002 (2.02)*
<i>% employees working part-time (ref: under 10%)</i>				
None				-0.051 (0.92)
10-24%				-0.056 (1.11)
25-49%				0.010 (0.17)
50-74%				0.016 (0.22)
75% or more				0.060 (0.70)



	(1)	(2)	(3)	(4)
	irclimat	irclimat	irclimat	irclimat
<i>% employees who are non-white (ref: none)</i>				
Under 5%				-0.075 (2.13)*
5-10%				-0.115 (2.01)*
11-19%				-0.181 (3.23)**
20% or more				-0.167 (2.07)*
<b>Workplace characteristics:</b>				
Public sector				-0.008 (0.13)
<i>Place of ownership (ref: 100% UK)</i>				
Foreign-owned				0.043 (0.87)
50/50				0.210 (2.00)*
Single independent workplace				0.010 (0.24)
<i>Standard industrial classification (ref: manufacturing)</i>				
Electricity, gas and water				0.072 (1.02)
Construction				0.166 (1.99)*
Wholesale and retail distribution				-0.125 (1.69)
Hotels and restaurants				0.102 (1.16)
Transport and communication				-0.080 (1.21)
Financial services				0.046 (0.60)
Other business services				0.085 (1.26)
Public administration				0.080 (1.00)
Education				0.184 (2.11)*
Health				0.018 (0.21)
Other community services				0.117 (1.13)
<i>Workplace activity (ref: produces goods/services for customers)</i>				
Supplier to other companies				-0.047 (1.09)
Supplier to other parts of organisation				-0.003 (0.05)
Does not produce for open market				0.039 (0.92)

	(1)	(2)	(3)	(4)
	irclimat	irclimat	irclimat	irclimat
Administrative office only				0.061 (0.85)
<i>Age of workplace at current address (ref: more than 20 years)</i>				
Under 3 years				-0.109 (1.57)
Between 3 and 20 years				0.043 (1.28)
Respondent to managerial interview is an ER specialist				-0.102 (2.84)**
HRM score				0.009 (1.00)
Number of direct voice channels				0.016 (0.94)
liP award				0.099 (3.48)**
<i>Region (ref: rest of South East)</i>				
East Anglia				0.017 (0.25)
East Midlands				0.099 (1.68)
London				0.091 (1.49)
North				0.054 (0.82)
North West				0.086 (1.50)
Scotland				-0.029 (0.48)
South West				0.147 (2.32)*
Wales				0.155 (2.16)*
West Midlands				0.106 (1.79)
Yorkshire and Humberside				0.025 (0.41)
Observations	26486	25722	24101	21645
F statistics	(8,1626) = 17.03	(24,1610) = 25.33	(50,1583) = 24.34	(105,1349) = 15.42

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A6.1 Control variables used in analysis of workplace financial performance**

	All	Public sector	Private sector	Private trading sector
<b>CBA, collective bargaining arrangements:</b>				
No recognised union	65	16	78	78
Single union	23	47	16	17
Multi-union, joint bargaining	7	20	3	2
Multi-union, separate bargaining by each union	5	14	2	2
Multi-union, separate bargaining by groups of unions	*	1	*	*
Multi-union, bargaining arrangement data missing	*	1	*	*
<b>CBL4, collective bargaining levels:</b>				
No recognition, no coverage	60	7	74	74
No recognition, minority coverage	2	4	1	1
No recognition, majority coverage	4	6	4	3
Recognition, no coverage	7	7	7	7
Recognition, minority coverage	5	18	2	2
Recognition, majority coverage, workplace-level	2	*	2	2
Recognition, majority coverage, organisation-level	9	20	6	6
Recognition, majority coverage, industry-level	11	37	4	5
Recognition, multi-level	*	1	*	*
<b>NCOV2PC7, % of workforce covered by collective bargaining:</b>				
None	66	14	81	81
1-19%	3	7	2	2
20-39%	2	8	1	1
40-59%	5	13	2	3
60-79%	4	9	2	2
80-99%	4	3	5	5
100%	16	46	8	8
NCOV2PC, % workforce covered by collective bargaining, continuous	25	64	15	15
<b>NRECOG3, number of recognised unions</b>				
0	65	16	78	78
1	23	47	16	17
2	8	25	3	3
3	3	6	2	1
4 or more	2	6	1	1
<b>Other union-related variables:</b>				
UREP2, if on-site union representative	18	49	11	11
<b>CLSHOP, union membership arrangements:</b>				
No union members	54	1	69	69
Closed shop	1	*	1	2
Management strongly recommends union membership	9	32	3	2
Union members present but no closed shop or management endorsement	36	67	27	28
<b>NDENS6, union density:</b>				
No union members	55	1	69	69
1-24%	13	6	14	15
25-49%	10	26	6	6
50-74%	10	28	6	6
75-99%	8	22	4	4
100%	4	15	*	*
Some members, don't know how many	1	2	1	1
NDENSITY, union density, continuous	22	64	11	11

	All	Public sector	Private sector	Private trading sector
EVIIEWS, how would you describe management's general attitude towards trade union membership among employees at this establishment?				
In favour	25	70	13	13
Not in favour	18	1	22	24
Neutral	54	29	61	60
Not an issue	3	0	3	3
Other answer	*	0	*	*
APHRAS06, unions help find ways to improve workplace performance:				
Strongly agree	2	6	1	2
Agree	23	37	19	18
Neither agree nor disagree	38	38	38	38
Disagree	27	14	30	31
Strongly disagree	10	5	12	11
APHRAS07, we would rather consult directly with employees than with unions:				
Strongly agree	33	19	37	39
Agree	44	37	46	45
Neither agree nor disagree	14	21	12	12
Disagree	8	22	4	3
Strongly disagree	1	1	1	1
VOICE3, nature of worker voice:				
Union only	5	3	5	5
Dual channel	30	85	17	17
Non-union only	48	11	57	56
No voice	17	1	21	22
VOICE4, nature of worker voice:				
Representative only	10	10	10	10
Representative and direct	36	82	25	24
Direct only	37	8	44	44
No voice	17	1	21	22
<b>Respondent's characteristics:</b>				
RESPFEM, if respondent a woman	36	41	34	35
FINMAN, if respondent is proprietor/owner/managing director/partner/financial manager/company secretary/general manager according to job title	81	73	83	82
<b>Workforce composition:</b>				
PCFEM, % of workforce who are women	54	72	49	49
PCPT, % of workforce who are part-timers	34	39	30	30
PCETHNIC, % of workforce from non-white ethnic minorities	4	5	4	4
NEMPSIZE, number of employees at workplace:				
10-24	50	42	52	51
25-49	26	32	25	26
50-99	12	12	12	13
100-199	6	8	6	6
200-499	4	4	4	4
500 or more	1	2	1	1
<b>Workplace ownership:</b>				
SINGLE, if single independent workplace (as opposed to part of a multi-site organisation)	31	3	39	39

	All	Public sector	Private sector	Private trading sector
UKFOR, UK or foreign-owned:				
UK-owned	92	100	90	90
Foreign-owned	6	0	8	9
50/50	1	0	2	1
<b>Workplace activity, age and location:</b>				
ASIC, standard industrial classification (single digit):				
Manufacturing	14	*	18	20
Electricity, gas and water	*	*	*	*
Construction	4	1	5	4
Wholesale and retail distribution	21	2	26	28
Hotels and restaurants	9	2	10	11
Transport and communication	5	4	5	5
Financial services	3	0	4	5
Other business services	11	6	12	12
Public administration	4	15	*	0
Education	12	44	4	4
Health	13	21	11	9
Other community services	5	6	5	3
KACTIVI, activity at the workplace:				
Produce goods or services for customers	56	53	56	65
Supplier of goods or services to other companies	24	3	30	35
Supplier of goods or services to other parts of organisation to which we belong	3	5	2	0
Do not produce goods or services for sale in open market	14	35	8	0
Administrative office only	4	4	4	0
AGECAT2, age of establishment at current address:				
Under 3 years	11	5	13	11
3 to 4 years	6	5	6	6
5 to 9 years	20	9	23	25
10 to 20 years	25	20	26	27
Over 20 years	38	61	32	32
GREENFLD, if workplace set up on greenfield site in last 10 years	5	3	5	5
<b>SSR, Standard statistical region:</b>				
East Anglia	4	2	4	4
East Midlands	8	12	6	6
London	11	12	10	10
North	6	5	6	6
North West	13	17	11	12
Scotland	8	6	8	9
Rest of South East	21	16	22	23
South West	9	7	9	10
Wales	4	5	3	3
West Midlands	10	10	10	10
Yorkshire and Humberside	8	8	9	7

	All	Public sector	Private sector	Private trading sector
<b>Management practices:</b>				
HRMSCORE, count of 13 human resource management practices	6.8	7.5	6.7	6.7
NINFO, number of items of information regularly given to employees regarding internal investment plans, the financial position of the workplace, and staffing plans:				
0	18	6	22	21
1	18	11	20	20
2	29	28	29	29
3	35	55	30	30
AUTOTEAM, degree of autonomy for team-working, scoring points for if any team-working, then extra points if team appoints own team-leaders, decides how work is done, has responsibility for specific products/services:				
0	25	14	28	28
1	5	2	6	5
2	28	28	28	29
3	36	52	32	30
4	6	4	6	7
TROTHJ2, if some of employees from largest non-managerial occupational group are formally trained to jobs other than their own	71	71	71	70
PCOFFJOB, percentage of experienced workers in largest non-managerial occupational group having formal off-the-job training in the previous 12 months:				
None	24	5	30	29
1-19%	21	19	22	22
20-39%	13	12	13	14
40-59%	9	8	10	10
60-79%	8	9	7	8
80-99%	8	12	7	7
100%	16	36	11	10
ONGOING, if ongoing training is one of the main methods by which employees in the largest non-managerial occupational group are made aware of their job responsibilities	69	85	65	65
SELECTIV, if skills, qualifications, experience and motivation all important in recruitment	54	76	48	48
JOBSECUR, if policy of guaranteed job security, no compulsory redundancies	11	22	8	7
EMPOWER, count based on whether largest non-managerial occupational group at the workplace has a lot of variety in their work, discretion over how they do their work, and control over the pace at which they do their work:				
0	38	34	40	39
1	33	39	31	32
2	17	16	18	17
3	11	11	11	12
APPRAISE, if 80% or more of non-managerial staff are formally appraised	55	50	56	57
INTERPRO, if preference given to internal applicants, other things being equal, when filling vacancies	26	16	29	30
SAMETERM, if management has same non-pay terms and conditions as employees in the largest non-managerial occupational group	41	69	33	32
PROFITPY, if workplace has a profit-related pay scheme	36	6	44	46

	All	Public sector	Private sector	Private trading sector
PERFPAY, if workplace has performance-related pay scheme	19	13	21	21
CASHBO, if workplace has cash bonuses	23	8	27	27
ESOP, if workplace has an employee share option scheme	15	0	19	19
JCC, if workplace has a joint consultative committee dealing with a range of issues	20	31	17	16
NONUCHAN, counts up to three direct non-union communication channels, based on: regular meetings with entire workforce; team briefings involving identifiable work groups meeting at least once a month where at least some of the time is devoted to questions from employees or employees offering their views; problem-solving groups such as quality circles	1.2	1.6	1.0	1.1
REGMEET, if regular meetings with entire workforce present	42	56	38	37
TBRIEF3, if team briefings involving identifiable work groups meeting at least once a month where at least some of the time is devoted to questions from employees or employees offering their views	41	59	36	38
MANCHAIN, if systematic use of management chain or systematic cascading of information	53	77	47	47
SUGGEST1, if suggestion scheme	25	30	23	22
NEWSLET, if regular newsletter distributed to all employees	42	59	38	37
OTHCONS, if other ways in which management communicates or consults with employees	14	18	13	14
PCQCIRC, proportion of non-managerial employees involved in problem-solving groups/quality circles in last 12 months:				
None	69	59	72	71
1-19%	5	5	5	6
20-39%	7	7	7	7
40-79%	7	10	6	6
80% or more	12	19	10	10
STRATEGY, if workplace is covered by a formal strategic plan	75	94	70	71
AWARD, if workplace or organisation to which it belongs has been accredited as an Investor in People	34	54	29	28
GRIEVPRO, if formal procedure for dealing with individual grievances	88	100	85	85
FORMPROC, if formal procedure for dealing with collective disputes	48	86	38	38
WRITPOL, if workplace has a formal written policy on equal opportunities or managing diversity	66	98	57	57
NATMARK, if primary market is national or international	36	14	41	41
LARGE, if largest customer supplied more than 50 per cent of the total annual of goods and services	25	45	22	22
COMPETE, if have five or fewer competitors	36	66	31	31
LOWCOMP, if degree of competition is assessed as low or very low	10	38	4	4
KSTAMAR, current state of the market:				
Growing	47	38	49	49
Mature	19	25	17	17
Declining	12	12	12	12
Turbulent	23	24	22	22
KVALSAL, value of sales for main product or service in the last twelve months:				
Rising	55	41	57	57
Falling	13	16	12	12
Stable	32	43	30	30
KPROSER, if establishment output is concentrated on a single product or service	43	69	38	38
MARKSH, if UK market share for main product or service in terms of sales is greater than 50 per cent	16	34	13	13

Base: all workplaces with 10 or more employees where the financial performance question is answered and with non-missing data.

**Appendix Table A6.2: 'Baseline' models estimating impact of bargaining arrangements on workplace financial performance**

	(1) Whole economy	(2) Whole economy	(3) Trading sector	(4) Trading sector
<b>Bargaining:</b>				
<i>Collective bargaining arrangements (ref: no recognition)</i>				
Single union	0.047 (0.44)	0.129 (1.04)	0.015 (0.12)	0.034 (0.25)
Joint bargaining	-0.168 (0.85)	0.128 (0.61)	-0.327 (1.38)	0.146 (0.73)
Separate bargaining, each union	0.072 (0.34)	0.250 (1.01)	0.022 (0.09)	0.353 (1.49)
Separate bargaining, groups of unions	-0.329 (2.12)*	-0.027 (0.14)	-0.367 (2.06)*	-0.119 (0.56)
Multi-union, arrangement missing	-0.589 (2.15)*	-0.573 (1.57)	-0.741 (2.37)*	-0.699 (1.80)
<b>Respondent characteristics:</b>				
Non-ER specialist		0.254 (2.49)*		0.251 (2.29)*
<b>Workforce composition:</b>				
% female		0.005 (2.15)*		0.004 (1.71)
% part-time		-0.004 (1.81)		-0.006 (1.99)*
<b>Workplace characteristics:</b>				
500 or more employees		0.293 (2.69)**		0.250 (1.92)
Employment growth in last year		0.269 (2.79)**		0.050 (0.50)
Employment growth data missing		0.113 (0.37)		-0.111 (0.36)
Public sector		-0.417 (2.37)*		-0.477 (2.28) *
<i>Standard industrial classification (ref: manufacturing)</i>				
Electricity, gas, water		0.076 (0.32)		0.512 (1.57)
Construction		-0.088 (0.39)		0.057 (0.22)
Wholesale and retail		-0.077 (0.36)		0.048 (0.21)
Hotels and restaurants		0.055 (0.22)		0.140 (0.47)
Transport and communication		-0.006 (0.03)		-0.023 (0.09)
Financial services		-0.167 (0.72)		0.047 (0.18)
Other business services		-0.177 (0.82)		-0.133 (0.63)



	(1) Whole economy	(2) Whole economy	(3) Trading sectorv	(4) Trading sector
Public administration		0.288 (1.19)		0.550 (1.61)
Education		-0.057 (0.19)		0.279 (0.78)
Health		-0.160 (0.56)		0.034 (0.10)
Other community services		0.192 (0.75)		0.257 (0.90)
<i>Standard statistical region (ref: East Anglia)</i>				
East Midlands		0.185 (0.84)		0.117 (0.44)
London		0.220 (0.99)		0.160 (0.62)
North		-0.039 (0.15)		-0.284 (1.00)
North West		0.061 (0.27)		0.038 (0.14)
Scotland		-0.212 (0.93)		-0.265 (1.02)
Rest of South East		-0.125 (0.57)		-0.186 (0.73)
South West		0.155 (0.60)		0.130 (0.46)
Wales		-0.279 (1.25)		-0.414 (1.48)
West Midlands		-0.243 (1.03)		-0.432 (1.54)
Yorks and Humberside		0.018 (0.07)		-0.078 (0.29)
<b>Management practices:</b>				
Financial participation		0.148 (1.25)		0.048 (0.37)
Upward problem solving		0.369 (1.45)		0.474 (1.68)
Joint consultative committee		-0.258 (2.23)*		-0.159 (1.25)
HRM score		0.083 (3.08)**		0.072 (2.50)*
<b>Market factors:</b>				
Market share greater than 50 per cent				0.323 (2.27)*
Market share data missing				0.149 (0.99)
Falling value of sales				-0.870 (4.40)**
Stable value of sales				-0.309 (2.66)**

	(1) Whole economy	(2) Whole economy	(3) Trading sector	(4) Trading sector
Value of sales data missing				0.289 (0.99)
Growing market				0.148 (1.41)
Low or very low competition				-0.235 (1.34)
Single product or service				-0.222 (1.91)
Observations	1856	1842	1428	1397
F statistics	(5,1781) = 2.15	(38,1734) = 3.03	(5,1353) = 2.29	(46,1281) = 3.11

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A6.3 ‘Baseline’ models estimating impact of bargaining arrangements on workplace financial performance in the private trading sector**

	(1) Standard controls	(3) Profit or value added measure
<b>Bargaining:</b>		
<i>Collective bargaining arrangements (ref: no recognition)</i>		
Single union	0.024 (0.16)	0.132 (0.75)
Joint bargaining	-0.069 (0.24)	0.136 (0.44)
Separate bargaining, each union	0.308 (1.14)	0.205 (0.52)
Separate bargaining, groups of unions	-0.103 (0.35)	0.143 (0.31)
Multi-union, arrangement missing	-1.104 (1.51)	-1.427 (2.24)*
<b>Respondent characteristics:</b>		
Non-ER specialist	0.307 (2.60)**	0.391 (2.81)**
<b>Workforce composition:</b>		
% female	0.004 (1.37)	0.007 (1.87)
% part-time	-0.007 (2.22)*	-0.008 (1.94)
<b>Workplace characteristics:</b>		
500 or more employees	0.329 (2.16)*	0.338 (1.69)
Employment growth in last year	0.032 (0.30)	0.032 (0.23)
Employment growth data missing	-0.031 (0.10)	-0.654 (1.87)
<i>Standard industrial classification (ref: manufacturing)</i>		
Electricity, gas, water	0.830 (2.02)*	0.973 (2.46)*
Construction	-0.010 (0.04)	0.176 (0.45)
Wholesale and retail	0.074 (0.33)	0.088 (0.33)
Hotels and restaurants	0.101 (0.35)	0.361 (1.01)
Transport and communication	-0.068 (0.21)	-0.464 (1.81)
Financial services	0.152 (0.60)	0.085 (0.24)
Other business services	-0.104 (0.48)	-0.166 (0.65)

	<b>(1)</b> <b>Standard controls</b>	<b>(3)</b> <b>Profit or value added measure</b>
Education	0.628 (1.44)	0.186 (0.34)
Health	0.093 (0.27)	0.280 (0.56)
Other community services	0.129 (0.43)	0.497 (0.99)
<i>Standard statistical region (ref: East Anglia)</i>		
East Midlands	0.145 (0.48)	0.290 (0.62)
London	0.088 (0.32)	-0.047 (0.12)
North	-0.295 (0.95)	-0.184 (0.43)
North West	0.144 (0.50)	0.248 (0.58)
Scotland	-0.287 (1.03)	-0.377 (0.92)
Rest of South East	-0.275 (0.99)	-0.454 (1.11)
South West	0.155 (0.51)	-0.019 (0.04)
Wales	-0.300 (0.94)	-0.123 (0.27)
West Midlands	-0.418 (1.39)	-0.446 (1.04)
Yorks and Humberside	0.000 (0.00)	-0.260 (0.60)
<b>Management practices:</b>		
Financial participation	0.010 (0.07)	0.037 (0.20)
Upward problem solving	0.395 (1.39)	0.351 (1.19)
Joint consultative committee	-0.292 (2.03)*	-0.312 (1.58)
HRM Score	0.075 (2.46)*	0.034 (0.84)
<b>Market factors:</b>		
Market share greater than 50 per cent	0.427 (2.44)*	0.361 (1.64)
Market share data missing	0.164 (0.98)	0.431 (1.82)
Falling value of sales	-0.814 (3.75)**	-0.605 (2.13)*
Stable value of sales	-0.317 (2.47)*	-0.177 (1.03)
Value of sales data missing	0.726 (1.01)	1.052 (1.30)
Growing market	0.209 (1.87)	0.471 (2.98)**

	<b>(1)</b> <b>Standard</b> <b>controls</b>	<b>(3)</b> <b>Profit or</b> <b>value added</b> <b>measure</b>
Low or very low competition	-0.272 (1.10)	-1.042 (3.26)**
Single product or service	-0.263 (2.09)*	-0.406 (2.52)*
Observations	1127	715
F statistics	(44,1019) = 2.30	(44,615) = 2.37

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%

**Appendix Table A6.4 'Baseline' models estimating impact of bargaining levels on workplace financial performance**

	Whole economy		Private trading sector with controls	
	(1) No controls	(2) With controls	(3) All wkplaces	(4) Profit/value added measure
<b>Bargaining:</b>				
<i>Collective bargaining levels (ref: no recognition and no coverage)</i>				
No recognition and minority coverage	-0.255 (0.42)	-0.137 (0.27)	0.484 (1.58)	0.347 (0.63)
No recognition and majority coverage	-0.120 (0.70)	-0.244 (1.39)	-0.437 (2.11)*	-0.542 (1.69)
Recognition and zero coverage	0.056 (0.34)	0.136 (0.75)	0.017 (0.06)	-0.216 (0.83)
Recognition and minority coverage	-0.072 (0.42)	0.026 (0.13)	-0.361 (1.46)	-0.253 (0.54)
Recognition and majority coverage, workplace-level	-0.023 (0.13)	0.002 (0.01)	0.047 (0.20)	0.259 (0.95)
Recognition and majority coverage, organisation-level	-0.104 (0.77)	-0.081 (0.55)	-0.076 (0.39)	0.110 (0.40)
Recognition and majority coverage, industry-level	-0.042 (0.25)	0.283 (1.47)	0.257 (0.96)	0.605 (2.25)*
Recognition and majority coverage, multiple-level	-0.140 (0.46)	-0.194 (0.52)	-0.468 (1.66)	-0.380 (1.04)
<b>Respondent characteristics:</b>				
Non-ER specialist		0.252 (2.48)*	0.336 (2.78)**	0.376 (2.66)**
<b>Workforce composition:</b>				
% female		0.005 (2.06)*	0.004 (1.39)	0.008 (2.14)*
% part-time		-0.004 (1.69)	-0.007 (2.25)*	-0.008 (1.91)
<b>Workplace characteristics:</b>				
500 or more employees		0.364 (3.42)**	0.394 (2.63)**	0.391 (1.87)
Employment growth in last year		0.287 (2.91)**	0.033 (0.30)	0.069 (0.47)
Employment growth data missing		0.027 (0.07)	-0.168 (0.44)	-0.772 (2.10)*
Public sector		-0.484 (2.67)**		
<i>Standard industrial classification (ref: manufacturing)</i>				
Electricity, gas, water		0.264 (1.23)	0.790 (2.23)*	1.031 (3.09)**
Construction		-0.061 (0.26)	0.005 (0.02)	0.184 (0.44)
Wholesale and retail		-0.072 (0.31)	0.086 (0.37)	0.122 (0.44)
Hotels and restaurants		0.090 (0.33)	0.167 (0.57)	0.372 (1.01)

	Whole economy		Private trading sector with controls	
	(1) No controls	(2) With controls	(3) All wkplaces	(4) Profit/value added measure
Transport and communication		0.126 (0.57)	-0.063 (0.18)	-0.437 (1.67)
Financial services		-0.123 (0.51)	0.153 (0.60)	0.016 (0.05)
Other business services		-0.163 (0.72)	-0.089 (0.40)	-0.155 (0.58)
Public administration		0.424 (1.70)		
Education		0.056 (0.18)	0.672 (1.51)	0.197 (0.38)
Health		-0.178 (0.61)	0.116 (0.34)	0.322 (0.64)
Other community services		0.225 (0.83)	0.112 (0.36)	0.561 (1.06)
<i>Standard statistical region (ref: East Anglia)</i>				
East Midlands		0.153 (0.66)	0.042 (0.13)	0.181 (0.38)
London		0.172 (0.76)	-0.055 (0.19)	-0.115 (0.28)
North		-0.105 (0.41)	-0.478 (1.50)	-0.301 (0.69)
North West		-0.083 (0.35)	-0.044 (0.14)	0.122 (0.28)
Scotland		-0.279 (1.16)	-0.440 (1.50)	-0.453 (1.10)
Rest of South East		-0.203 (0.90)	-0.471 (1.63)	-0.575 (1.40)
South West		0.119 (0.45)	0.007 (0.02)	-0.097 (0.21)
Wales		-0.359 (1.53)	-0.478 (1.45)	-0.189 (0.41)
West Midlands		-0.299 (1.23)	-0.571 (1.85)	-0.483 (1.14)
Yorks and Humberside		-0.073 (0.27)	-0.169 (0.54)	-0.387 (0.91)
<b>Management practices:</b>				
Financial participation		0.180 (1.50)	0.008 (0.06)	-0.009 (0.05)
Upward problem solving		0.378 (1.46)	0.437 (1.54)	0.478 (1.58)
Joint consultative committee		-0.250 (2.19)*	-0.293 (1.99)*	-0.332 (1.69)
HRM score		0.081 (2.98)**	0.082 (2.59)**	0.041 (0.96)

	Whole economy		Private trading sector with controls	
	(1) No controls	(2) With controls	(3) All wkplaces	(4) Profit/value added measure
<b>Market factors:</b>				
Market share greater than 50 per cent			0.432 (2.33)*	0.457 (1.87)
Market share data missing			0.135 (0.81)	0.391 (1.63)
Falling value of sales			-0.754 (3.38)**	-0.555 (1.94)
Stable value of sales			-0.359 (2.58)*	-0.242 (1.36)
Value of sales data missing			0.941 (1.21)	0.979 (1.20)
Growing market			0.214 (1.87)	0.530 (3.15)**
Low or very low competition			-0.295 (1.17)	-1.198 (3.68)**
Single product or service			-0.250 (1.95)	-0.424 (2.57)*
Observations	1775	1772	1090	693
F statistics	(8,1697) = 0.20	(41,1661) = 2.88	(47,980) = 2.72	(47,590) = 2.45

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%



**Appendix Table A6.5: 'Baseline' models estimating impact of union recognition and market conditions on workplace financial performance**

		Private trading sector with profit or value added performance measure		
	(1)	(2)	(3)	(4)
<b>Market and recognition effects:</b>				
<i>Collective bargaining arrangements (ref: no recognition)</i>				
Recognition	0.123 (0.78)			
Market share greater than 50 per cent	0.359 (1.64)	0.362 (1.33)	0.358 (1.64)	0.352 (1.59)
High market share and recognition		0.052 (0.29)		
Low market share and recognition		0.095 (0.26)		
Market share data missing and recognition		0.759 (1.61)		
Low competition	-1.047 (3.28)**	-1.036 (3.30)**	-0.900 (2.47)*	-1.130 (3.46)**
'Not low' competition and recognition			0.154 (0.95)	
Low competition and recognition			-0.695 (0.98)	
Growing market	0.475 (3.01)**	0.483 (3.09)**	0.462 (2.93)**	0.616 (3.30)**
Growing market and recognition				0.389 (1.87)
'Not growing' market and recognition				-0.138 (0.67)
<b>Respondent characteristics:</b>				
Non-ER specialist	0.382 (2.83)**	0.381 (2.81)**	0.370 (2.72)**	0.415 (3.04)**
<b>Workforce composition:</b>				
% female	0.007 (1.88)	0.007 (1.90)	0.007 (1.85)	0.008 (2.00)*
% part-time	-0.008 (1.94)	-0.008 (1.89)	-0.008 (1.95)	-0.009 (2.07)*
<b>Workplace characteristics:</b>				
500 or more employees	0.365 (1.89)	0.381 (1.95)	0.362 (1.86)	0.386 (2.00)*
Employment growth in last year	0.039 (0.28)	0.023 (0.17)	0.038 (0.27)	0.037 (0.27)
Employment growth data missing	-0.639 (1.82)	-0.622 (1.75)	-0.564 (1.65)	-0.687 (1.86)
<i>Standard industrial classification (ref: manufacturing)</i>				
Electricity, gas, water	0.980 (2.99)**	1.002 (3.04)**	1.209 (3.13)**	1.059 (3.57)**
Construction	0.172 (0.44)	0.171 (0.44)	0.214 (0.55)	0.181 (0.46)

	<b>Private trading sector with profit or value added performance measure</b>			
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
Wholesale and retail	0.082 (0.31)	0.096 (0.36)	0.096 (0.36)	0.086 (0.33)
Hotels and restaurants	0.349 (0.98)	0.357 (0.99)	0.353 (0.99)	0.382 (1.08)
Transport and communication	-0.457 (1.79)	-0.544 (2.01)*	-0.436 (1.68)	0.509 (1.94)
Financial services	-0.013 (0.04)	-0.041 (0.12)	-0.025 (0.07)	-0.020 (0.06)
Other business services	-0.172 (0.68)	-0.190 (0.73)	-0.155 (0.60)	-0.196 (0.77)
Education	0.190 (0.35)	0.162 (0.30)	0.210 (0.39)	0.188 (0.37)
Health	0.270 (0.54)	0.249 (0.49)	0.268 (0.53)	0.314 (0.64)
Other community services	0.502 (1.01)	0.502 (0.97)	0.486 (0.94)	0.519 (1.02)
<i>Standard statistical region (ref: East Anglia)</i>				
East Midlands	0.295 (0.63)	0.242 (0.53)	0.302 (0.65)	0.292 (0.61)
London	-0.069 (0.17)	-0.094 (0.24)	-0.058 (0.14)	-0.069 (0.16)
North	-0.163 (0.38)	-0.235 (0.57)	-0.148 (0.34)	-0.191 (0.43)
North West	0.250 (0.58)	0.175 (0.41)	0.261 (0.61)	0.229 (0.51)
Scotland	-0.370 (0.90)	-0.388 (0.98)	-0.344 (0.84)	-0.409 (0.96)
Rest of South East	-0.457 (1.11)	-0.500 (1.25)	-0.449 (1.10)	-0.473 (1.10)
South West	-0.009 (0.02)	-0.047 (0.11)	0.000 (0.00)	-0.067 (0.14)
Wales	-0.117 (0.26)	-0.122 (0.28)	-0.163 (0.36)	-0.129 (0.28)
West Midlands	-0.444 (1.04)	-0.484 (1.16)	-0.436 (1.02)	-0.411 (0.93)
Yorks and Humberside	-0.258 (0.60)	-0.302 (0.71)	-0.238 (0.55)	-0.319 (0.70)
<b>Management practices:</b>				
Financial participation	0.033 (0.18)	0.005 (0.03)	0.040 (0.22)	0.010 (0.06)
Upward problem solving	0.351 (1.18)	0.361 (1.21)	0.301 (1.05)	0.348 (1.14)
Joint consultative committee	-0.329 (1.70)	-0.321 (1.66)	-0.330 (1.70)	-0.329 (1.75)
HRM score	0.034 (0.85)	0.035 (0.86)	0.033 (0.81)	0.035 (0.87)
<b>Market factors:</b>				
Market share data missing	0.439 (1.86)	0.259 (0.90)	0.429 (1.80)	0.440 (1.87)
Falling value of sales	-0.614 (2.22)*	-0.606 (2.18)*	-0.607 (2.18)*	-0.560 (2.05)

	<b>Private trading sector with profit or value added performance measure</b>			
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
Stable value of sales	-0.181 (1.06)	-0.195 (1.14)	-0.178 (1.04)	-0.173 (1.03)
Value of sales data missing	1.029 (1.27)	0.883 (0.97)	1.027 (1.25)	0.970 (1.16)
Single product or service	-0.403 (2.52)*	-0.379 (2.32)*	-0.402 (2.52)*	-0.388 (2.42)*
Observations	715	715	715	715
F statistics	(40, 619) = 2.41	(42, 617) = 2.39	(41, 618) = 2.49	(41, 618) = 2.31

Absolute value of t-statistics in parentheses

\* significant at 5%; \*\* significant at 1%