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Human Resource Management and Corporate Performance in the UK

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Abstract

The relationship between HRM and performance was explored in 366 UK companies using objective and subjective performance measures and cross-sectional and longitudinal data. Using objective measures of performance, greater use of HRM is associated with lower labour turnover and higher profit per employee but not higher productivity. After controlling for previous years' performance, the association ceases to be significant. Using subjective performance estimates, there is a strong association between HRM and both productivity and financial performance. The study therefore confirms the association between HRM and performance but fails to show that HRM causes higher performance.

1. Introduction

A major challenge for organizations in the future seems likely to be an ever more urgent search for competitive advantage. It is increasingly argued that the organizations best able to meet this challenge will be those that can acquire and utilize valuable, scarce and inimitable resources (Barney 1995). Human resources can fall into this category, it is argued, particularly if they are effectively deployed through appropriate human resource practices and the management of organizational culture (Barney and Wright 1998). One of the key tasks for organizations will therefore be the effective management of human resources. This presents a challenge, both for organizations and for nations such as the UK, as firms seek to compete in world markets and search for increased productivity by encouraging the spread of high-performance workplaces.

Additional challenges to the future management of people at work arise from the growing expectations of an increasingly well-educated workforce

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that demands both challenging work but also scope for an acceptable work–life balance. To attract and retain key workers, it will be essential to present and apply the kind of human resource policies and practices that appeal to such workers. By implication, organizations may find that they need to ensure the involvement and commitment of workers as part of the route to high performance.

The research reported in this paper explores the relation between human resource management (HRM) and corporate performance in a cross-section of UK firms. A feature of the study is a comparison of various objective and subjective outcome measures. The paper starts by reviewing the relevant literature before describing the methods adopted and the core findings. The results suggest that, while there appears to be an association between greater use of human resource practices and some measures of corporate performance, there is no convincing evidence that use of HR practices is associated with a change in performance.

2. Review of the literature

There is a growing body of evidence showing an association between human resource management and corporate performance (see e.g. Appelbaum et al. 2000; Arthur 1994; Batt 2002; Becker and Gerhart 1996; Becker and Huselid 1998; Guthrie 2001; Huselid 1995; Ichniowski et al. 1997; MacDuffie 1995). Most of the published research supporting this association is American. Despite an extensive UK literature on the nature of HRM — on its growth, its link to strategy, its limitations, its biases and the extent and problems of application (see e.g. Legge 1995; Sparrow and Marchington 1999; Storey 2001) — there are still relatively few published UK company-level studies exploring the relation between HRM and organizational performance. Nevertheless, if we look at research reports, the pattern of available evidence is similar to the that of the USA in showing some association between HRM and performance (see e.g. Conyon and Read 1999; Patterson et al. 1997; Peccei et al. 2002; Thompson 1998; West 2002). However, each of these studies had a relatively small, sometimes sector-specific, sample, and the need remains for a comprehensive study that can determine whether the kind of findings apparently consistently reported in the USA can be replicated in the UK.

The case for an association between HRM and performance is based on two linked arguments. The first, noted above, is that the effective deployment of human resources offers one of the most powerful bases for competitive advantage (Barney 1995). The second argument is that effective deployment of human resources depends on the application of a distinctive combination of practices, sometimes described as *bundles* of practices (MacDuffie 1995) or as HRM *systems* (Becker and Huselid 1998). The nature of this distinctive combination continues to be a matter of debate. Some of the research has attempted to categorize HR practices in terms of a 'high performance work system' (e.g. Appelbaum *et al.* 2000), while others have described a system of 'high-commitment management' (Arthur 1994; Pfeffer 1998; Wood

and de Menezes 1998) or 'high-involvement management' (Guthrie 2001). In other words, once the general case for HRM has been made, there is a further argument about the form of HRM that is likely to be most effective. However, it is worth noting that positive results appear to be reported irrespective of the definition, and therefore the precise combination of practices, utilized by researchers.

Bundles and human resource systems focus on 'internal fit' (Becker and Huselid 1998; Guest 1997; Venkatraman 1989), or the use of a consistent set of HR practices. The utility of this emphasis has been challenged by those who argue that performance is more likely to be enhanced by achieving 'external fit', whereby the external environment will help to shape the business strategy, which in turn will determine the appropriate form of HRM (see e.g. Wright and McMahan 1992). There is a plausible case that HRM will be more effective if it fits the business strategy of the firm. A key implication of this focus on 'external fit' is that a distinctive form of HRM, however it is characterized, will not be equally effective in organizations with different business strategies. Despite this, reviews of the evidence (Becker and Gerhart 1996; Becker and Huselid 1998) acknowledge that from the American research there appears to be stronger support for the role of internal rather than external fit, and in this paper the focus will be primarily on internal fit.

One of the trends in the structure of employment in recent decades that may continue in the future is the shift from manufacturing to services. If this is the case, then it is important to show that the association between human resource management and performance applies across both sectors. As Batt (2002) notes, much of the earlier published work in the USA was conducted in the manufacturing sector (see e.g. Arthur 1994; Ichniowski *et al.* 1997; MacDuffie 1995; Appelbaum *et al*. 2000; Youndt *et al.* 1996). This has been only partly balanced by service-sector studies such as those reported by Delery and Doty (1996) and more recently by Batt herself (2002), as well as by cross-sector studies (Huselid 1995; Delaney and Huselid 1996; Becker and Huselid 1998; and Capelli and Neumark 2001). Despite this element of neglect, Hitt *et al.* (2001) argue that it is in some parts of the service sector, such as professional service firms, that 'intangible' human resources might be expected to play a key role, while research by Peccei and Rosenthal (2001) highlights an association between human resource practices and positive customer-oriented behaviour in stores. This reinforces the case for exploring the role of HRM in the service sector, where the great majority of people are employed, and for a systematic comparison of the two main sectors in the UK using the same research methods.

In the literature on HRM and corporate performance, the concept of performance has been addressed in a variety of ways. The most obvious measure is some indicator of financial performance, and measures used include return on investment and Tobin's Q (firm market value/book value: see Huselid 1995). However, it can be argued that financial performance lies at the distant end of the causal chain, and that outcome measures more closely linked to HRM might be more appropriate. This is reflected in some of the other

measures that have been reported in the literature, ranging from labour turnover to aspects of productivity such as scrap rates and sales per employee. Ideally, we need to use a range of proximal and distal measures and examine how the human resource system relates to each.

A further issue is the role and value of subjective and objective indicators (Guthrie 2001). While there are clear attractions in objective measures, the accountancy protocols on which financial indicators are based have recently come under critical scrutiny in the context of a number of corporate scandals. Furthermore, managers are likely to act on the basis of their subjective perceptions of firm performance, often in relation to the performance of competitors, rather than solely in the light of objective performance. In workplace-level studies the scope to use objective indicators, particularly in relation to financial outcomes, is severely limited. Research to date has used both objective and subjective indicators, and a case can be made for both. What we need to know therefore is whether the results are similar irrespective of which measure is used.

A final issue that needs to be addressed is the question of what the research seeks to explain. Much of the published research has shown an association between HRM and performance, either at the same point in time or over time. This demonstration of an association is an important step in advancing research but leaves uncertainties about cause and effect. A second and rather different question seeks more explicitly to determine whether HRM causes a change in performance. Ideally, this requires measurement of both HRM and performance over time and an opportunity to control for previous practices and performance. This is likely to be highly problematic with respect to HRM, whether considered at a strategic or an operational level. For example, for each practice we may need to take account not only of whether it is applied, but of any change in form, coverage and frequency of use. It may therefore be more realistic to focus on performance where measures over time tend to be more consistent. However even this approach is not without its problems, since, if we do not know when HR practices (or systems) were introduced or significantly amended, we cannot determine whether they have already had an effect which would be apparent in the test of association but not in the test of change. The gains from HRM may already have accrued, so no further change will be recorded. For this reason, there are benefits in exploring both the associational and the causal relationship while collecting performance data over a period of time. This is the approach adopted in this study, using both cross-sectional and longitudinal data.

Several points that emerge from this review shape the focus of the study presented in this paper. The first is that a large majority of published studies find an association between HR practices and firm performance, regardless of whether they are cross-sectional or longitudinal, whether conducted at establishment or company level, whether based on strong performance data or subjective estimates, whatever sector they are based on, whatever operational definition of HRM is used and wherever they are conducted. The study by Capelli and Neumark (2001) is probably the most notable exception,

although in the UK Wood and de Menezes (1998) also failed to find consistent associations between HRM and performance. Despite the positive thrust of most published empirical findings, Wood (1999) among others has noted that the quality of the research base supporting the relationship between HRM and performance is relatively weak, even in the USA. Given the possibility that institutional and market constraints in Europe lead to different outcomes (Pauuwe 1996), research exploring the association between HRM and performance in countries like the UK is urgently needed. Furthermore, although research has been conducted in both manufacturing and service sectors, the potentially key role of human resources in the service sector, and the importance of the larger and rather more disparate service sector for employment in the future, point to the need for further cross-sector research. More generally, questions remain about the measurement of both HRM and performance, and about the weight and relevance of tests of association and causation. It is in this context, and recognizing the potential implications for theory, research and national policy on productivity and related issues associated with the future of work, that further research was undertaken in the UK on the relationship between HRM and performance.

3. The research framework

The broad aims of the study were: to explore the relationship between the use of human resource management and a range of performance measures in a sample of UK organizations; to compare the results based on subjective and objective indicators of performance; and to compare results obtained in the manufacturing and service sectors. On this basis, we explore the following hypotheses.

- *Hypothesis 1a*: There will be an association between greater use of HR practices and lower labour turnover.
- *Hypothesis 1b*: There will be an association between greater use of HR practices and higher labour productivity.
- *Hypothesis 1c*: There will be an association between greater use of HR practices and higher profitability.

We have noted that research to date has been based on both objective and subjective indicators of performance, and that there is some evidence from research by Guthrie (2001), based on a rather different kind of analysis by Machin and Stewart (1996), that subjective data may be as valid as more objective measures. On this basis, we add a further hypothesis.

- *Hypothesis 2*: The direct relationship between HRM and performance outcomes will be significant when both objective and subjective measures of performance are used.

We have noted that one of the aims of the research is to compare results for manufacturing and service-sector companies, bearing in mind the growing

importance of the service sector in the context of the future of work. However, since there is no basis on which to expect systematic differences between the sectors, we offer no specific hypothesis about this comparison.

4. Research methods and data collection

The Research Strategy

Data were collected through structured questionnaires using telephone interviews. The decision to use telephone interviews was based on evidence from previous UK research suggesting that senior directors were increasingly reluctant to complete written questionnaires and that a low response rate was therefore likely. There is no evidence that telephone interviews result in different responses from face-to-face interviews. While it restricts the flexibility of the questions, since response categories have to be read out over the telephone, it has the advantage over questionnaires of allowing for clarification of responses and increasing the likelihood that the appropriate person will answer the questions. The interviews with the head of HR, or the most senior person responsible for HR, covered HR practices; aspects of HR strategy and questions concerning effectiveness of HR practices; employee responses; and subjective assessments of performance. Independent data on employee numbers, sales and financial performance were obtained from Dun and Bradstreet.

The interviews were conducted in mid-1999 and were carried out on behalf of the research team by TNS Ltd. Information on financial performance was collected for the years from 1996–97 to 2000–01. Much of the research reported to date on HRM and performance has been based on cross-sectional data. In this study we adopted two methods to ensure that the data were longitudinal. The first was to analyse the information on HR practices in 1999 in relation to independent data on labour productivity and profitability for 2000–01. By ensuring that the performance measures are collected after the HR measures, we can partially address the potential problem of reverse causality and present a convincing test of association. The second method was to take account of prior performance by controlling for average performance in the three previous years, using the average to limit the impact of idiosyncratic single-year changes. This provides a test of whether HR practices are associated with any change in performance. The further attraction of this approach is that it takes into account the possibility that prior financial performance may explain the adoption of HR practices. Set against this, there is the risk, noted above, that companies that have already seen the benefits of HR practices and are long-term high performers may not improve their performance any further over a year. This implies that we should consider both methods set out here, recognizing that the analysis of the relationship between HR practices in 1999 and performance in 2000 seeks to explore the presence of an association between HRM and performance, while

the addition of controls for prior performance seeks to test for the impact of HR practices on *change* in performance.

The Sample

The sample was drawn from the lists provided by Dun and Bradstreet of UK-based companies employing more than 50 people. Interviews were completed with 610 managers responsible for HR (hereafter described as 'HR managers', although not all were HR specialists). Despite the source of the sample, we were able to collect full financial information from Dun and Bradstreet on only 366 of the 610 firms for which we have data on HR practices.[1]

The sample of 610 firms included 60 per cent in manufacturing and 40 per cent in services according to the SIC classification. This indicates that manufacturing was heavily over-represented. Indeed, some service-sector organizations, including those in financial services, were notably less enthusiastic about being interviewed. Fifty per cent of the companies had a workforce of between 50 and 200, 31 per cent between 201 and 1000, and 9 per cent more than 1000. Only 52 per cent were HR specialists; the remainder, predominantly in smaller organizations, had someone with a title such as 'company director', 'payroll manager' or 'general manager responsible for HR issues'. Fifty-one per cent of the respondents were women and 49 per cent were men. Thirty-four per cent recognized a trade union, although 42 per cent of these estimate that less than half the workforce belongs to a union. The 366 firms for which independent performance data were available differed significantly from the full sample of 610 in three respects: they were likely (i) to be somewhat smaller, (ii) to be in manufacturing rather than services and (iii) not to be multinationals.

The Measures

(a) Measures of HR Practices

Human resource management was measured through 48 items in the interview schedule for HR managers. These are outlined in Box 1. The 48 items were drawn from the existing literature (see e.g. Becker and Gerhart 1996; Dyer and Reeves 1995; Foulkes 1980; Guest and Hoque 1994; Huselid 1995; Pfeffer 1994, 1998; Wood and Albanese 1995), rather than from a specific a priori definition of HRM, although there was some emphasis on what have been described as 'high-commitment' (Wood and De Menezes 1998) or high-performance (Appelbaum *et al*. 2000) practices. They covered nine main areas of HRM: recruitment and selection; training and development; appraisal; financial flexibility; job design; two-way communication; employment security and the internal labour market; single status and harmonization; and quality. The items were a mix of estimates of the proportion of the workforce that experienced a particular practice and some dichotomous variables where proportions made no sense.

BOX 1
Items included in the Measure of Human Resource Practices

Note: Unless indicated otherwise all items were assessed on a scale where respondents were asked to estimate the proportion of the workforce that experienced the particular practice.

1. Recruitment and selection

How often does your recruitment process generate as many good/qualified applicants as you need? (5 point Likert-type scale)

Is there a deliberate attempt to provide a preview of what work in the organization will be like, including the more negative aspects, as part of the recruitment and selection process? (yes/no scale)

What percentage of all permanent recruits are given a performance, ability or personality test as part of the selection process?

2. Training and development

Approximately what percentage of employees in the positions which your organization recruits for in the largest numbers, has received some form of planned training either on or off the job during the past year?

How many days of training does a new employee for the same position typically receive in the first year of employment? (Open-ended response reflecting number of days)

How many days a year does an experienced employee in that position typically receive? (Open-ended response reflecting number of days)

If experienced employees receive some training,

- approximately what percentage is concerned with their present job?
- approximately what percentage is concerned with their future development?

3. Appraisal

Approximately what percentage of your non-managerial employees:

- regularly (e.g. quarterly or annually) has their performance formally appraised?
- regularly has a proportion of their pay determined by a performance appraisal?
- regularly received feedback on job performance from multiple sources — e.g. from superiors, customers, etc.?

4. Financial flexibility

What percentage of your non-managerial employees:

- is covered by a system of individual performance-related pay?

- is covered by a system of group of team-based rewards (not including share ownership schemes)?

If yes to either or both,

- percentage added to basic pay for employees covered by either scheme
- percentage of non-managerial employees eligible for some form of cash incentive plans
- percentage of non-managerial employees eligible for some form of profit-related payment or bonus

What is the percentage of non-managerial employees covered by:

- a system of individual performance-related pay?
- a system of group or team-based rewards?

If yes to either or both:

- percentage added to basic pay for employees covered by either an individual or a group scheme
- percentage of employees eligible for some form of cash incentive plans
- percentage of employees eligible for some form of profit-related payments or bonuses
- percentage of employees eligible for some form of deferred profit-related payments or bonuses
- percentage of employees eligible for some form of SAYE share option scheme
- percentage of employees eligible for some form of executive share options scheme

5. Job design

Percentage of employees working in self-managed teams
Percentage of employees working in cross-function teams
Percentage of employees working in project based teams
Percentage of employees having flexible job descriptions
Percentage of employees whose jobs are deliberately designed to make full use of their skills and abilities
Percentage of employees qualified or capable to perform more than one job
Percentage of employees who have access to flexible work arrangements

6. Two-way communication

Percentage of employees who receive formal information on business operations and performance
Percentage of employees distributed formal surveys that ask for their views and opinions
Information on business plans is regularly provided to all employees (yes/no scale)

Information on the firm's performance targets to all employees (yes/no scale)
Information on performance results is provided to all employees (yes/no scale)
Mechanisms to inform employees about important new initiatives (yes/no scale)
Mechanisms to consult employees on organization's business plan (yes/no scale)
Employees or their reps are consulted before performance targets are set (yes/no scale)

7. Employment security/internal labour market

Percentage of non-entry level vacancies filled from within over the last three years
The organization promotes from within whenever possible (yes/no scale)
The organization is committed to employment security (yes/no scale)
Have voluntary redundancies occurred in the past three years (yes/no scale)
Have compulsory redundancies occurred in the past three years (yes/no scale)

8. Single status and harmonization

Harmonized holiday entitlement for all employees (yes/no scale)
Harmonized maternity and sick leave entitlements for all employees (yes/no scale)
A common pension scheme for all employees (yes/no scale)
The same canteen and/or eating arrangements for all employees (yes/no scale)
A formal commitment for achieving single status (yes/no scale)

9. Quality

Percentage of employees participating regularly in employee problem-solving groups
Percentage of employees participating regularly in quality circles
Percentage of employees participating regularly in work improvement teams
Level of responsibility of employees in ensuring the quality of their own work (5-point Likert-type scale)

The process employed in arriving at this mean score was as follows. Most models underlying HRM suggest that HR practices should be widely dispersed within the organization (for an exception see Wright and Snell 1998). We therefore adopted a demanding cut-off point whereby the item was counted if it applied to 90 per cent or more of the workforce. Within each of the nine HR practices, the average number of specific items applying to more than 90 per cent of the workforce was then counted. For dichotomous items, the score was computed as a straight count of the number of items that applied to the whole workforce. The scores within each of the nine HR practices approximated to a normal distribution. Scores were standardized within the nine HR practices since the number of items describing each of the practices varied.

Initial factor analysis of these nine aggregate HR practices revealed no coherent factors or what might be described as 'bundles' of practices. Therefore, in line with the argument of Becker and Huselid (1998) about the need to measure the overall human resource system, a measure was used based on the combined mean scores across the nine practices.

(b) Measures of organizational performance

Various estimates of performance were obtained within the interviews. These included employment relations items such as labour turnover, absence and industrial conflict. Estimates of labour productivity and financial performance were also obtained using a format similar to that in the Workplace Employee Relations Survey (Cully *et al.* 1999), whereby performance is compared against the average for the industry on a five-point scale from 'a lot below average' (1) through 'about average' (3) to 'a lot better than average' (5).[2] Specific figures on labour turnover for the previous year were obtained. These were coded as follows: 0–4.9 per cent (0); 5–14.9 per cent (1); 15–50 per cent (2); >50.1 per cent (3).

Independent financial data were collected from Dun and Bradstreet. Labour productivity was measured by the value of sales per employee, and financial performance was measured by the company's profit per employee.[3] The measure of sales per employee has been quite extensively used as an indicator of labour productivity. The use of profit per employee to measure profitability reflects a desire to use a measure that is related in some way to employees in the organization. Other potential measures such as Tobin's Q and return on investment were not readily calculated on the basis of the information we were able to obtain from Dun and Bradstreet.

(c) Control variables

Information was collected on UK company workforce size from Dun and Bradstreet. Sectors (services = 1, manufacturing = 0), trade union membership (membership density >25 per cent = 1, else = 0), and whether the organization was part of a multinational (yes = 1, no = 0) were identified from interview responses. Information was also collected on aspects of

employment relations, including the presence of a consultative committee, a staff association and whether there was a single union deal (yes = 1, no = 0). These were intended to provide some indication of employment relations formalization. Finally, information was collected on whether the respondent held an HR post (yes = 1, no = 0), and the perceived importance of the overall HR policy in terms of controlling labour costs (vital = 5, not very important = 1), the latter of which serves as a crude proxy for a cost-based HR strategy. These items were used as control variables.

Full details of all the survey questions and the descriptive results can be found in Guest *et al.* (2000).

The Data Analysis

The data were analysed using correlation and regression analysis to test the hypotheses set out above. The analysis is based on the 366 organizations for

TABLE 1
Correlations between Main Study Variables[a]

	M	*S.D.*	*1*	*2*	*3*	*4*	*5*	*6*	*7*
1. Organization size	223.84	244.97							
2. Services sector	0.37	0.48	–0.05						
3. High TU density (25%+)	0.24	0.43	0.19	–0.22					
4. HR post	0.51	0.50	0.43	–0.03	0.15				
5. Single union deal	0.13	0.34	0.08	–0.12	0.47	0.08			
6. Staff association	0.06	0.24	0.05	–0.15	0.05	0.11	0.10		
7. Consultative committee	0.33	0.47	0.15	–0.06	0.17	0.10	0.17	0.10	
8. HR as cost control	4.35	0.77	0.01	0.05	0.05	0.00	0.03	0.01	–0.04
9. Multinational	0.14	0.35	0.07	–0.13	0.13	0.11	0.05	0.08	0.09
10. High use of HRM practices	–0.09	4.20	–0.01	–0.11	0.00	0.09	–0.01	0.06	0.10
11. Labour productivity	3.49	0.75	0.05	–0.01	–0.01	0.10	–0.06	0.00	0.00
12. Quality of goods and services	3.96	0.73	0.07	–0.10	–0.02	0.06	–0.04	0.10	–0.03
13. Employee turnover	0.99	0.80	0.21	0.13	–0.09	0.09	–0.09	–0.06	–0.14
14. Employee absenteeism	2.60	0.83	0.05	–0.02	–0.02	0.07	0.02	–0.05	0.02
15. Employee grievances	0.76	0.61	0.39	–0.12	0.22	0.18	0.11	–0.01	0.16
16. Sales/employee 2000–01	119577.48	78018.23	–0.12	0.19	–0.10	–0.01	–0.11	–0.12	–0.08
17. Sales/employee 1997–99	116603.38	77805.82	–0.12	0.22	–0.13	–0.02	–0.10	–0.13	–0.07
18. Profit/employee 2000–01	2676.54	5775.44	0.03	–0.11	0.02	–0.02	–0.03	0.01	0.02
19. Profit/employee 1997–99	3692.96	5128.47	0.00	–0.09	0.03	0.09	–0.01	0.08	0.03
20. Financial performance	3.54	0.86	0.13	–0.09	0.01	0.10	–0.05	0.00	0.02

[a] All are reports by HR managers with the exception of sales per employee and profit per employee and organization size.
For correlations > 0.11, $p < 0.05$; correlations > 0.15, $p < 0.01$; correlations > 0.19, $p < 0.001$.

which independent performance data are available, sometimes divided by sector.

5. The results

Descriptive Results

The correlations among the items, the means and standard deviations for the sample of 366 firms for which independent financial data are available, are shown in Table 1. The HR scores have been standardized around zero for the full sample of 610, and the table indicates that, for this group of 366 organizations, the number of HR practices in use is slightly below the mean. Although it is not shown here, it is worth noting that the number and range

8	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*	*18*	*19*	*20*
–0.20												
0.03	0.13											
–0.12	0.01	0.19										
–0.12	0.05	0.15	0.40									
0.03	–0.08	–0.18	–0.08	–0.02								
–0.08	0.00	0.05	0.03	0.08	0.04							
0.11	–0.03	–0.03	–0.03	–0.02	0.18	–0.06						
–0.11	0.20	0.05	0.05	0.01	–0.08	–0.03	–0.13					
–0.13	0.17	0.07	0.06	0.03	–0.09	–0.02	–0.09	0.90				
–0.16	0.12	0.12	0.19	0.03	–0.05	0.04	–0.07	0.15	0.12			
–0.10	0.24	0.21	0.11	0.02	–0.12	0.03	–0.02	0.25	0.31	0.52		
–0.16	0.05	0.13	0.45	0.31	0.00	0.07	0.07	0.01	0.05	0.23	0.33	

of HR practices applied across the organizations in the full sample is relatively low.[4] (For full details, see Guest *et al*. 2000.)

Two points are worth noting from Table 1. With respect to employment relations, 24 per cent of firms have a union density of 25 per cent or more, 33 per cent have a consultative committee, and 13 per cent have a single union deal. These variables tend not to be strongly associated with any of the outcomes, except for a weak negative association with the measure of productivity, namely sales per employee. Second, there is a relatively low correlation of 0.33 between the objective measure of profit per employee between 1997 and 1999 and the subjective assessment of comparative profit in 1999. Even more starkly, the correlation between the objective measure of productivity between 1997 and 1999, namely sales per employee, and the comparative assessment of productivity is only 0.06. It is tempting to suggest that these results question the validity of the subjective assessments. However, it is possible that they are valid accounts of comparative performance and that we are not comparing like with like.

The Association between HRM and 'Objective' Indicators of Performance

Hypothesis 1 proposed a relationship between greater use of HR and lower labour turnover, higher labour productivity and higher profit per employee. Results for the test of the direct link between these variables are shown in Table 2. It should be noted that labour turnover is based on reports from the HR managers, while productivity and profitability are based on Dun and Bradstreet data.

The results show that there is a significant association between greater use of HR practices and lower reported levels of labour turnover (beta –0.14; $p < 0.01$). When the association between HRM and labour turnover is examined by sector, the results remain significant in manufacturing (beta –0.18; $p < 0.01$) but not in services (beta –0.10, n.s.). We tested for the interaction effect between sector and HR practices, entering the interaction after HR practices, but the results showed no significant interaction (beta 0.05, n.s.).

The results show no significant association between HR practices and productivity (beta 0.05, n.s.). However, productivity is significantly associated with sector and appears to be higher in the service sector (beta 0.17; $p < 0.05$). An analysis within each sector shows that there is no association between HRM and productivity in either sector (beta 0.00; n.s. in manufacturing and beta 0.13, n.s. in services).

In contrast to productivity — and therefore somewhat unexpectedly, since it is the more distal measure — Table 2 indicates that there is a significant association between HRM and profit per employee (beta 0.11; $p < 0.05$). Although there is no significant effect for sector in the initial regression analysis, a more detailed sector-by-sector analysis indicates that the association between HRM and financial performance is stronger in manufacturing

TABLE 2
HRM and Performance: Direct Associations[a]

	Labour turnover			*Sales per employee in 2000*			*Profit per employee in 2000*		
	Full sample	*Mfg*	*Services*	*Full sample*	*Mfg*	*Services*	*Full sample*	*Mfg*	*Services*
Organization size	0.22***	0.18**	0.29**	–0.11*	–0.16*	–0.07	0.05	0.00	0.16
Services sector	0.08			0.17**			–0.08		
High TU density (25%+)	–0.07	–0.05	–0.06	–0.03	–0.05	0.06	0.03	–0.01	0.05
HR post	0.04	0.11	–0.04	0.04	0.17*	–0.13	–0.06	–0.02	–0.15
Single union deal	–0.04	–0.03	–0.08	–0.05	–0.04	–0.13	–0.05	–0.04	–0.10
Staff association[b]	–0.03			–0.10			0.00		
Consultative committee	–0.12*	–0.16*	–0.05	–0.05	–0.05	–0.08	0.00	–0.03	–0.02
HR as cost control	0.02	–0.01	0.01	–0.07	–0.05	–0.12	–0.14**	–0.12	–0.11
Multinational	–0.04	–0.14*	0.17*	0.20***	0.23**	0.16	0.07	0.20**	–0.23**
High use of HRM practices	–0.14**	–0.18**	–0.10	0.05	0.00	0.13	0.11*	0.18**	–0.04
Adjusted *R*-squared	0.09	0.11	0.06	0.08	0.06	0.04	0.06	0.07	0.05
F	4.50***	4.40***	2.14*	4.33***	2.90**	1.71	2.00*	3.27**	1.86

[a] This and the following tables show beta weights derived from regressions in which all the items in each column are entered simultaneously.
[b] Staff association omitted from manufacturing/service sector split analysis, as the incidence of staff associations in the service sector was too small.

(beta 0.18; $p < 0.01$) than in services (beta –0.04; n.s.) and suggests that the positive association in the full sample is explained almost entirely by the results for the manufacturing sector. This is confirmed when we interact HR practices and sector (beta –0.12; $p < 0.05$). In other words, it appears that greater use of HR practices has a positive link to profit per employee in manufacturing but little or no association in the service sector.

We tested the impact of HRM on change in productivity and profitability between 1999 and 2000, controlling for the average performance over the years from 1997 to 1999.[5] It was not possible to explore labour turnover in this way, since data were available only for 1999. The results are shown in Table 3.

The data on productivity continue to show no association with greater use of HRM for the sample as a whole (beta –01, n.s.) or for the sub-samples of manufacturing (beta –0.03, n.s.) or service-sector firms (beta 0.02, n.s.). Similarly, once controls for previous profitability are included, there is no association between HRM and profitability for the sample as a whole (beta 0.02, n.s.) or for the manufacturing (beta 0.08, n.s.) and service (–0.10, n.s.) sectors.

In summary, there is partial support for Hypotheses 1a and 1c based on the test of association. There is no support for Hypothesis 1b proposing an association between HRM and productivity. Greater use of HR practices is associated with lower labour turnover on a cross-sectional analysis. Greater use of HR practices is associated with higher profitability in the subsequent year, at least in the manufacturing sector, but this association disappears once profitability in previous years is taken into account.

TABLE 3
HRM and Performance: Direct Associations Controlling for Previous Performance

	Sales per employee in 2000			*Profit per employee in 2000*		
	Full sample	*Mfg*	*Services*	*Full sample*	*Mfg*	*Services*
Dependent variable at 1997–99	0.86***	0.88***	0.85***	0.51***	0.52***	0.45***
Organization size	–0.02	–0.02	–0.03	0.07	0.05	0.13
Services sector	0.01			–0.06		
High TU density (25%+)	0.02	–0.02	0.12	0.02	–0.01	0.04
HR post	0.01	0.00	0.00	–0.10*	–0.09	–0.14
Single union deal	–0.03	–0.04	–0.06	–0.03	–0.02	–0.09
Staff association[a]	0.00			–0.03		
Consultative committee	–0.02	0.01	–0.05	0.00	–0.02	–0.03
HR as cost control	0.02	0.03	–0.01	–0.11*	–0.12*	–0.02
Multinational	0.05	0.07*	0.03	–0.02	0.08	–0.27***
High use of HRM practices	–0.01	–0.03	0.02	0.02	0.08	–0.10
Adjusted *R*-squared	0.76	0.80	0.71	0.27	0.32	0.24
F	103.39***	101.23***	37.61***	13.18***	12.84***	5.78***

[a] Staff association omitted from manufacturing/service sector split analysis, as the incidence of staff associations in the service sector was too small.

HR Practices and Subjective Estimates of Firm Performance

This analysis is based on the interview data provided by HR managers in the 366 firms for which financial data were available. They are inevitably cross-sectional data, and this should be borne in mind in making comparisons. The same regressions were applied, but using comparative estimates of productivity and financial performance as the dependent variables. The results are shown in Table 4.

Looking first at all 366 firms, the first two columns in Table 4 show that there is a significant association between greater use of HR practices and estimates of both productivity (beta 0.19; $p < 0.000$) and financial performance (beta 0.12; $p < 0.05$). The results in other columns in Table 4 indicate that firms in both manufacturing and service sectors show a similar set of associations to the overall sample with respect to estimated productivity. Greater use of HR practices is significantly associated with higher estimated productivity (beta 0.19; $p < 0.001$ in manufacturing and beta 0.18; $p < 0.05$ in services). The results for financial performance in the two sectors are less clear-cut. In both sectors the association between HR practices and estimated financial performance falls just short of significance (beta 0.10, n.s., in manufacturing and beta 0.13, n.s., in services).

In summary, there is evidence, based on estimates of productivity and financial performance, of a positive association between greater use of HR practices and superior performance; but, in contrast to the objective measures, the association is greater with productivity than with financial performance. When subjective estimates of performance are used, there are no major differences between the results for the two sectors. The results based on objective and subjective measures of performance differ in a number of ways. We must therefore reject Hypothesis 2, which suggested that there would be similar set of results using objective and subjective performance measures.

6. Discussion and conclusions

This study set out to explore the relationship between HRM and performance for a sizeable sample of UK organizations in the manufacturing and service sectors. The results are very mixed and on balance predominantly negative. The tests of association show a positive relationship between use of more HR practices and lower labour turnover and higher profitability, but show no association between HR and productivity. The test of whether the presence of more HR practices results in a change in performance shows no significant results.

These results are consistent with the argument that the benefits of HR have accrued in previous years and therefore, while reflected in the association between HRM and profitability, do not show up in further gains when prior performance is controlled. However, this argument must be viewed with considerable caution. Inspection of Table 1 shows a correlation of 0.12 between

TABLE 4
Analysis Based on Subjective Estimates of Productivity and Financial Performance

	Full sample		*Manufacturing sector*		*Service sector*	
	Productivity	*Financial performance*	*Productivity*	*Financial performance*	*Productivity*	*Financial performance*
Organization size	0.02	0.11	0.05	0.15*	–0.03	0.03
Services sector	0.00	–0.07				
High TU density (25%+)	0.01	0.01	0.02	0.05	–0.09	–0.18
HR post	0.08	0.05	0.06	0.03	0.13	0.07
Single union deal	–0.06	–0.06	–0.14*	–0.14	0.20	0.18
Staff association[a]	–0.01	–0.02				
Consultative committee	–0.02	–0.01	–0.02	–0.02	–0.02	0.01
HR as cost control	–0.13*	–0.15**	–0.12	–0.12	–0.11	–0.18*
Multinational	–0.04	–0.01	–0.04	0.01	–0.04	–0.01
High use of HRM practices	0.19***	0.12*	0.19**	0.10	0.18*	0.13
Adjusted *R*-squared	0.03	0.04	0.07	0.07	0.03	0.03
F	2.30*	2.40**	2.23*	2.06*	1.55	1.49

[a] Staff association omitted from manufacturing/service sector split analysis, as the incidence of staff associations in the service sector was too small.

HRM and profitability in the 2000–01 financial year but one of 0.21 between HRM and average profitability in the years between 1997 and 1999. This appears to lend stronger support to the view that profitability creates scope for more HRM rather than vice versa. Therefore, while the results reveal a positive association between HRM and profitability, they do not support the assumption that HRM led to the higher profitability. Future research might try to determine when specific practices were introduced as a means of exploring whether there is any real causal effect that has not already been accounted for in increased performance once they have been in place for some time. However, attempts to measure the introduction of practices that are likely to have existed in some form for a number of years are fraught with difficulty.

Disaggregation of the results to compare the manufacturing and service sectors revealed no consistent differences, with a single notable exception: both the disaggregated analysis and the interaction effect confirm that the association between HRM and the objective measure of performance is stronger in manufacturing than in services. Given the arguments about the potential role of HRM in service effectiveness, and bearing in mind the positive results obtained by Batt (2002) and others, this is a surprising finding. Why have we found these different results? We used two sources of data to explore this issue further. One is the Workplace Employee Relations Survey (WERS) (Cully *et al*. 1999), the other is the background information provided for a subset of the firms by the CEOs who were interviewed.

The first step was to examine the WERS data, recognizing that they are based on establishment rather than company-level research, to find out whether similar results would be found. Using regression equations constructed as far as possible in a similar way to those in this study, the analysis revealed that there was a significant association between having a greater number of HR practices in place and estimates of comparative financial performance in both sectors (manufacturing: beta 0.27; $p < 0.05$; services: beta 0.16; $p < 000$). Since these results ask for comparisons within the sector, they are not directly comparable with profit per employee. However, we might expect them to be more in line with the subjective estimates provided by the managers in the Future of Work study and, as our results have shown, this was indeed the case.

The second step was to examine the data on context provided by the CEOs in the manufacturing and service firms to search for any differences that might help to explain the findings. Data were available on both the market and the level of competition within it for 144 firms in the sample of 366. Based on this subgroup, the analysis suggests that manufacturing firms are more likely than service firms to report that the main market for their key products is overseas, and they are more likely to sell at least 5 per cent of their main product to a single customer. Not surprisingly, they are also more likely to see overseas firms as major competitors. Another and largely predictable difference is that manufacturing firms are likely to spend more on R&D. It is also notable that in the manufacturing sector being a multina-

tional organization is likely to be associated with higher performance, while in services it is more likely to be associated with lower performance.

We hypothesized that there would be no differences in the results when using objective and subjective measures of performance. As noted, the differences between the manufacturing and service-sector results are stronger when the more objective and independent information provided by Dun and Bradstreet is used than with the subjective comparisons provided by the managers. Indeed, the association between HRM and performance is consistently positive when the subjective performance measures are used. Furthermore, the subjective measures show a stronger association between HRM and productivity than between HRM and financial performance, in line with expectations and in contrast to the results using the objective measures. It is important to emphasize that we are not comparing like with like. Indeed, as noted earlier, the correlation between average sales per employee from 1997 to 1999 and estimated productivity is only 0.06, while the correlation between profit per employee in the same period and estimated financial performance is a rather more encouraging 0.33. It is, for example, possible to report low 'objective' profit per employee and also high comparative financial performance when set alongside that of competitors. It is also important to bear in mind that the subjective results are cross-sectional.

Given the relatively limited impact of HRM on performance, one possibility is that other formal features of the employment relationship were more important. The evidence, based on analysis of the impact of the control variables in the regression analysis, shows that this was not the case. Union density and union recognition were very highly correlated, and just over half the firms that had a union density of over 25 per cent also had a single union deal. In the regressions, a single union deal was associated with lower subjective estimates of manufacturing productivity, and the presence of a consultative committee was associated with lower labour turnover, notably in manufacturing. Other contextual factors such as size, being a multinational and using HR to control costs had a stronger association with outcomes than the formal aspects of the employment relationship.

A distinctive feature of this study has been the use of a variety of research strategies along three dimensions. The performance measures are either subjective or objective; the data are collected cross-sectionally and over time; and the key test is one of either association or causation. The results vary according to the methods used, and they fall into a distinctive pattern. Essentially, when we use what might be described as the weaker tests, namely subjective performance estimates in cross-sectional data, to explore associations, the results show a positive relationship between HRM and performance. With what we can term 'intermediate tests', consisting of objective performance measures, collected after the introduction of HRM but still testing for association, the results are mixed. When we apply the strict test, using objective performance measures, controlling for past performance and testing for change in performance, then no associations of any sort are found.

In summary, the results depend on the specific research question explored, the measures used and the test applied. If we are interested in demonstrating an association between greater use of HR practices and performance, then the results are generally positive; if we are more interested in showing that HR practices are associated with a change in performance, then they are negative.

We are still left with the question of why, when the stricter tests are used, the results of this study appear to be more negative than many other published studies in showing little or no association between HRM and performance. One possible explanation lies in the choice of measure of HRM. This study has been concerned with HR practices rather than HR strategy, business strategy and the strategic context. This reflects the dominant finding in most American studies suggesting that 'internal fit', based on some count of HR practices and assumptions about their alignment, provides the more important link to outcomes (Becker and Huselid 1998). We used a measure of HR practices that sought to capture the concept of an HR system, and therefore combined the scores on the nine core HR practices. We also used a strict cut-off whereby the practices had to apply to 90 per cent of the workforce. As noted earlier, this reflected the view that a distinctive feature of some models of HRM is that practices should apply to the whole workforce. Some experimentation, based on a lower percentage cut-off point, a continuum from 0 to 100 per cent or different combinations of practices based on notions of a high-performance or high-commitment work system, did not significantly alter the results. Therefore, while acknowledging that different ways of measuring HR practices are possible and that these may be based on different theories about what constitutes HRM, we do not believe that they would significantly alter the results in this study. The neglect of the strategic dimension of 'external fit' in this paper is a limitation, but it is based on previous evidence about the key associations.

Further explanations for the absence of evidence about the impact of HRM on performance may lie in the sample and context. There is some evidence that parts of the service sector are under-represented. However, there is a strong representation from manufacturing, and even in this sector the results fail to demonstrate any causal link between HRM and performance. It is possible that a study of this type that is based in the European context may reflect some of the constraints highlighted by Pauuwe (1996: 88) such as the need to impose a set of relatively standard employment practices, and the somewhat stronger traditions of taking some account of stakeholder interests; but this seems unlikely. We are therefore left with the somewhat paradoxical conclusion that these results, in what is probably the largest company-level UK study to date, show some evidence of an association between HRM and performance but, in the absence of evidence about when HR practices were introduced, fails to provide any convincing indication that greater application of HRM is likely to result in improved corporate performance.

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Notes

1. The study also included interviews with 462 chief executives, including 237 from firms where the HR manager was also interviewed. Since detailed information on HR practices was collected only from the HR managers, it was decided to omit the CEO data from this study. The disadvantage of this is that they provided the information on strategy and context. Furthermore, since we had financial data on only 144 of the firms for which we had matched pairs of responses, this would have considerably reduced the sample size. Further details of the CEO responses can be found in Guest *et al*. (2000).
2. In this context it is worth noting that 63 per cent of CEOs in the study said they benchmarked financial performance, and 44 per cent said they benchmarked labour productivity, so there is some basis for the comparisons. Questions about benchmarking were not put to the HR managers.
3. In both cases we considered using the log of sales or profit per employee. However, there was no evidence of an abnormal distribution so we did not use the log scores in the reported analysis. We did in fact test the results using log scores, and they were not significantly different.
4. Even when a different cut-off point, such as use of practices with 50 per cent or more of the workforce, was used, the adoption of practices remained low.
5. We used the three-year period 1997–99 because the data for 1996 were less complete for a number of companies in the sample.

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