

Management and Industrial Relations Practices and Outcomes in Australian Workplaces*

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Abstract

Poor industrial relations performance can be costly for firms. In particular, employee quits, employee absence, industrial action and substandard relations between management and employees can all be detrimental to the firm. Using the 1995 *Australian Workplace and Industrial Relations Survey* (AWIRS) this paper examines how particular human resource management techniques and industrial relations settings can influence the industrial relations outcomes of Australian workplaces. The results indicate that unions have played an important role in affecting performance outcomes. They also suggest that although particular human resource management techniques can have an influence on performance, there is not a single bundle of human resource management policies that will apply across workplaces to affect all measures of performance in the same way.

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1. Introduction

Poor industrial relations performance can be costly for firms. In particular, employee quits, employee absence, industrial action and substandard relations between management and employees can all be detrimental to the firm. Using the 1995 *Australian Workplace and Industrial Relations Survey* (AWIRS) this paper examines how particular human resource management techniques and industrial relations settings can influence the industrial relations outcomes of Australian workplaces. The results from such a study have potentially important implications, as they can indicate whether there are a 'bundle' of human resource management techniques, or particular industrial relations settings, that can contribute to the generation of positive performance outcomes.

The following section outlines the industrial relations outcomes to be used, and explains why human resource management techniques and industrial relations could have an impact on workplace performance. An outline of the empirical framework is given in section 3, introducing the independent variables to be included from the AWIRS and a discussion of the issues surrounding the use of this particular survey. An explanation of the data and some descriptive statistics are presented in section 4. The results are provided in section 5 and section 6 concludes.

2. Industrial relations outcomes

This paper follows a technique similar to that of Fernie *et al* (1994) in their analysis of human resource management practices and workplace performance in the UK, which used a comparable dataset to the AWIRS, the British WIRS3. In the present analysis, four industrial relations measures of workplace performance are used as 'outcome' variables: voluntary labour turnover (quits), absenteeism, industrial action and management/employee relations. These dependent variables are chosen for several reasons. Industrial relations performance is important if it is believed that stability is a key factor in attracting investors and maintaining financial performance. This set of variables is also easier to measure than other variables available such as customer satisfaction and product quality. Related to this is the observation that these measures are not obviously reliant on the type of product being produced or sold, or the type of customer they deal with. These outcome variables are also common in the literature, with perhaps the exception of management-employee relations (see for example

Balchin and Wooden, 1995; Cooke, 1990; Elsdon and Iyer, 1999; Fernie *et al*, 1994; Fernie and Metcalf, 1995; Osterman, 1987; Savery and Soutar, 1993; Wooden and Baker, 1984).

2.1. *Quits*

Employee dissatisfaction with current employment can be expressed in several ways; employees can do nothing, they can articulate their concerns, or they can leave. This is the underlying premise of the exit/voice literature (Freeman, 1980, Freeman and Medoff, 1984). Making this decision entails several key factors; the expected discounted utility of current employment, the expected discounted utility from alternative activities, and the costs involved with job search (Osterman, 1987; Wooden and Baker, 1994).¹ The expected discounted utility of current employment is related both to pecuniary benefits (wage rate, child care, employer superannuation contributions) and non-pecuniary benefits (leave entitlements, recreational facilities, safe work environment, training). Assuming that the cost of quits to the workplace is non-negligible, employers will compensate their employees so that quits are reduced to some acceptable level. Human resource management techniques could be used to improve the workplace environment in terms of general satisfaction through greater employee involvement, or through the use of different reward systems. Unions may also be beneficial to the workplace; using the union as a mechanism by which to voice their concerns from a position of strength, employees may be less inclined to quit the workplace (Freeman, 1980, Freeman and Medoff, 1984).

2.2. *Absenteeism*

Absenteeism (defined as time away from work not due to illness, injury or other approved leave) can operate as a method for employees to equalize the amount of hours they wish to work and the amount of hours they are supposed to work. There are a number of methods whereby employers may be able effectively to manage the extent of absenteeism. The ‘control’ view suggests that the ability of management to prevent such absences depends upon their skill in monitoring employees, and the extent of punishment for employees should they be caught. This depends on the opportunities available elsewhere as the threat of dismissal for shirking carries less weight if the employee believes that they are able to easily obtain other gainful employment (Balchin and Wooden, 1995). Other—more cooperative—

¹ Data limitations and the particular approach adopted (see below) prevent an empirical analysis of the effects of utility gained elsewhere and job search costs.

approaches include reward systems for a particular level of attendance, working time flexibility, or the reorganisation of work patterns such that hours are more in line with what employees prefer.

2.3. *Industrial Action*

Mumford (1993) provides a critical review of four theoretical models available for strike activity. First is the Ashenfelter and Johnson (1969) incomplete information approach, which posits that only the union leadership and employers have information regarding the bargaining surplus. A strike will occur if the minimum acceptable increase in wages (bargained for by the union) is greater than the target level of the firm, with unions adapting their expectations as the length of the strike increases. Second is Reder and Neumann's (1980) strike activity and associated costs model, which takes the form of a type of 'contractual' arrangement. The more expensive the possibility of a strike is, the greater the chance that the bargaining parties will reduce strike activity by developing protocols (contracts) that guide future bargaining, thereby lowering strike activity. The third model is the asymmetric information approach of Hayes (1984), which considers a union that bargains with a firm that is in either a weak or strong product market. Although the union does not know which state actually holds, the firm does. The strike then becomes the means by which the union determines the strength of the product market and the profitability of the firm: a low profit state gives rise to a greater number of strikes, but the *duration* of the strike is affected by the probability of a high profit state. The fourth model is the 'world wise' technique of Tracy (1986). This model has the least theoretical basis, preferring to adopt variables based on 'experience and insight' rather than based in theory. These include: firm specific characteristics (rate of return, the volatility of the rate of return, net sales, the change in inventories/sales, capital labour ratio); individual characteristics (age, education, gender, race); industry structure (concentration ratio, union coverage); and labour market conditions (industry predicted employment residual and growth rate, local predicted employment residual and growth rate).

2.4. *Management-Employee Relations*

The previous three measures of performance are indirect measures of industrial relations at the workplace, as they are assumed to be an outcome of employee dissatisfaction. A more 'exact' measure is to ask about the state of management and employee relations at the workplace, with the view that this could provide a more direct assessment of employee

dissatisfaction. One of the few papers to provide a theoretical framework for management-employee relations is Cooke (1990). Cooke assumes that union leaders, management and labour are ultimately attempting to optimise their respective gains from the employment relationship. It is also assumed that harmonious relations are valued by employees for the non-pecuniary benefit of providing a higher quality employment environment at a particular workplace. This is achieved having a balanced mix of the 'traditional relative power relationship' and collaboration between these groups. The greater the degree of 'intensity' of this collaboration, the more harmonious are relations.

3. Empirical framework

Examining each of the above outcomes yields some common variables. These include firm specific characteristics, personal characteristics of the workforce and market conditions. A key part of this analysis is to determine whether there is a common thread among human resource practices and industrial relations that may affect the four different performance measures chosen. A single regression equation designed to achieve this goal is of the form $y_j = \sum \beta_i x_i + \varepsilon$, where y_j represents the four different performance measures; quits, absenteeism, industrial action and management-employee relations. Six sets of management and industrial relations characteristics are defined as independent variables: the nature of the personnel function, employee involvement, pay incentives, organisational flexibility, the existence of formal procedures covering workplace issues and the strength of unions at the workplace. In order to limit the chances of making erroneous inferences regarding the impact of management characteristics, controls are put in place to account for workplace specific characteristics, personal characteristics of the workforce and market conditions. Human resource management techniques, industrial relations, workplace characteristics, personal characteristics and market conditions are represented in x_i .

Although the regression equation is the same for each dependent variable, three different estimation methods are used in this analysis, to reflect the different requirements of each dependent variable. Quits are measured as the share of full-time and part-time (permanent) employees that have voluntarily resigned in the 12 months to 18th August 1995, and absenteeism is measured as the percentage of employees away on an average working day without leave being approved in advance. Because both these variables are continuous, an

OLS regression is used.² To account for the fact that they both encounter zero observations, and that absenteeism is bound between 0 and 1, these equations are specified in adjusted log-odds form.³ That is, the dependent variable is represented by

$$\ln \left[\frac{Z_i + \frac{0.5}{N_i}}{1 - Z_i + \frac{0.5}{N_i}} \right]$$

Where Z represents quits or absenteeism and N is the number of workplace employees (Balchin and Wooden, 1995).

The industrial action variable is represented by an indicator variable which takes the value of one if any type of industrial action occurred over the previous year, and zero otherwise. Because the industrial action variable is a dummy variable, a probit estimation method is used. The type of action that respondents choose from are strikes, stop work meetings, overtime bans or restrictions, go slow, picketing, work to rule and 'other'. The management-employee relations variable is the response to the question, 'how would you rate the relationship between management and employees at this workplace?' Respondents were asked to rank the relationship between management and employees on a 5-point scale, where 1 represents 'very poor' and 5 represents 'very good'.⁴ As the responses to this question are (ordered) categorical, the estimation method used is an ordered probit.

Human resource management techniques

Human resource management theory postulates that, taking firm characteristics as given, management techniques can be organised into patterns that influence performance outcomes of the workplace (see for example, Purcell, 2000; Sheppeck and Militello, 2000; Tyson, 2000). As with any approach to running a workplace, particular human resource management

² A tobit could also have been used, but Wooden and Baker (1994, p. 407) indicate that this estimation technique should only be utilised when the dependent variable can (in principle) be negative, which is not the case here.

³ Quits do not necessarily have an upper bound of 1. However, given that use of a Tobit has been ruled out, observations above 1 were excluded (12 observations) to allow the use of the log-odds form.

⁴ This question was asked of the general manager, the employee relations manager and the union representative (if the latter two were available). Where more than one response was recorded, management-employee relations was calculated as an average across responses and rounded to the nearest integer.

techniques can only be of assistance if management devote time and resources to personnel issues.

The active involvement of employees in determining how production at the workplace is undertaken (employee involvement) has also been touted as a method of influencing workplace performance (Cooke, 1990; Fernie and Metcalf, 1995). *A priori* it is uncertain how such involvement affects performance. If greater employee involvement leads to shirking, or if employees are unwilling to participate, then the impact is likely to be negative. On the other hand, if employees know best how to undertake certain tasks, or if they get greater job satisfaction from being involved, there could be a positive association. Previous analysis indicates support for the notion that employee involvement will improve relations between management and employees, thereby reducing the likelihood of quits, absenteeism and industrial action (Cooke, 1990; Juravich *et al*, 1993).

The use of pay incentives for employees to improve their performance has been a subject of debate, particularly the adoption of profit sharing and employee share ownership plans.⁵ Profit sharing has been hypothesised to boost productivity through increasing worker effort, improving labour skills and improving information dissemination within the workplace (Kruse, 1992). However, Fernie and Metcalf (1995, p. 383) advise caution in attaching too much importance to such schemes as “most of the channels to potentially better outcomes read more like a wish list than a coherent theory of why performance might improve”. There are also several concerns surrounding contingent pay as a motivation device. For one, money is not necessarily the best motivator. Second—relating to share ownership plans and profit sharing—as a relatively small player in generating profit or a better share price, many employees may feel that greater effort is unwarranted, and therefore have a greater incentive to shirk. Finally, such a system involves risk-sharing between employees and the firm, risks that employees may not be willing to shoulder. Despite the possible drawbacks of using contingent pay as an incentive scheme to improve workplace performance, several firm-level studies from the United Kingdom, Germany and United States support the hypothesis of a positive association between contingent pay and labour productivity (Black and Lynch, 1997;

⁵ For an extensive examination of the effect of ESOPs on Australian firm performance, see <http://www.aph.gov.au/house/committee/eewr/ESO/index.htm>. It contains information on the *Inquiry into Employee Share Ownership in Australian Enterprises*, by the Standing Committee on Employment, Education and Workplace Relations.

Cable and Wilson, 1989, 1990; Kruse, 1992; Wadhvani and Wall, 1990). If it is believed that industrial relations variables affect productivity, then there is no reason to suspect that contingent pay and other measures of firm performance are not related.

Formal procedures on issues such as grievances, discipline and occupational health and safety are also thought to be a requirement for good workplace industrial relations (Ferne *et al*, 1994, p. 2). Disciplinary procedures act as ‘controls’ on employee behaviour that ensure employees are aware of the consequences of providing a substandard level of effort (Balchin and Wooden, 1995). Such procedures are likely to have the most influence on the absenteeism measure used here. Both grievance and occupational health and safety procedures may also have an influence on quits, as they provide a mechanism through which employees can voice their concerns. Grievance procedures are also expected to influence industrial action as one of the reasons they were introduced into the award system was to help prevent strikes.

Finally, workplace ‘adaptability and flexibility’ is an important part of the human resource management literature (Ferne *et al*, 1994). Process innovation is considered to be a key response to an increased demand for flexibility within the firm, in order to deal with the greater competitive challenges associated with increasing globalisation.

Industrial relations practices

The importance of the trade union movement in Australia means that any analysis of workplace performance must include some measure of workplace unionisation. The final impact of unions on these performance measures is hard to judge *a priori*. The ‘union voice’ mechanism of unions may have a negative impact on the quit rate, although Wooden and Baker (1994) note that the presence of a closed shop reduces the incentive for unions to trouble themselves with employee concerns. The effect of unions on absenteeism is uncertain. The case for reducing absenteeism rests on the belief that union presence improves monitoring, but the opposite affect could occur if unions were able to influence the cost of disciplining or dismissing employees. Relations between management and employees can also go either way in the presence of unions. If they improve collaboration there is a good chance that relations will improve, but if unions take on a more adversarial role relations may deteriorate. Industrial action is the only performance measure for which a definitive direction may be predicted; it should be positively related to union presence. The last variable is enterprise bargaining, which is measured by the percentage of employees covered by

agreements (both written and verbal). The rapid increase in coverage of employees by enterprise agreements after 1993 is a distinctive feature of the Australian industrial relations landscape over the past decade. This phenomenon has been driven by a number of factors, including structural change in the labour market, rising unemployment, increased competition in product markets, technological change and a change in the organization of work (Hawke and Wooden, 1998). Assuming enterprise bargaining can improve flexibility, and that flexibility can assist in generating better performance outcomes, it then becomes an issue as to whether the indirect effect of enterprise bargaining is large enough to have an impact on performance outcomes.

Workplace characteristics, employee characteristics and market conditions

Recognising that workplaces do not operate in a vacuum, several market structure variables are included to control for the operating environment, as it is generally accepted that one of the reasons firms are able to adopt different human resource management strategies is because product market conditions differ across firms (Block *et al*, 1987). Industrial organisation theory emphasises that the environment a firm operates in (the market structure) influences the strategy that firms adopt (market conduct) which in turn has an impact on their performance. Those features of market structure that are expected to have the most influence over market conduct are seller and buyer concentration, product differentiation and barriers to entry (Capon, 1996). A range of control measures for both workplace specific and employee specific characteristics were also included, and are discussed in more detail below.

4. Data

The data are taken from the 1995 AWIRS, which is based on a random sample of 3892 workplaces with 20 or more employees—stratified by industry and size—selected from the ABS Business Register.⁶ Of these, 2732 were identified as being eligible, and a further 185 were not used.⁷ The remaining 2547 workplaces yielded the 2001 interviews required by AWIRS. The survey was conducted as separate face-to-face interviews with (where possible) a general manager, an employee relations manager, and a union representative where applicable. The exception was the Workplace Characteristics Questionnaire, which was

⁶ The sample excludes agriculture, forestry, fishing and defence.

⁷ No reason for the exclusion of these 185 workplaces was given in the technical notes.

completed at the workplace before the interviews started.⁸ Since the release of the data in May 1997, a number of studies have utilised the results from the 1995 survey to examine workplace performance and industrial relations issues (see for example, DEWRSB, 1999; Hawke and Drago, 1998; Hawke and Wooden, 1997, 1998; Joint Governments Submission, 1999; Rogers 1998, 1999; Wooden and Hawke, 1998). Few of these however incorporate many human resource management measures.

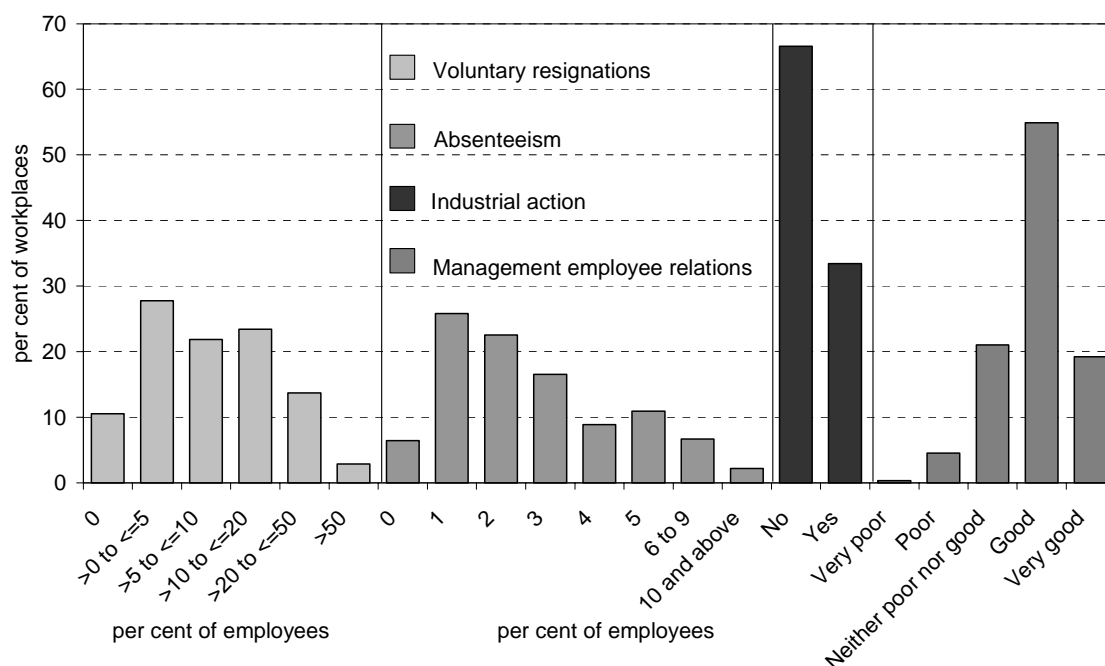
There has been some debate regarding the usefulness of using standard surveys for a large number of workplaces (as opposed to case studies) to determine what types of human resource management practices can improve workplace performance. Those not in favour of this approach stress that it has limited value because such surveys inadequately measure the complex nature of the management techniques that are available, especially if the respondents are ‘making judgements which go well beyond their competence’ (McCarthy, 1994, p. 318; Purcell, 2000). In particular, the range of measures available in these types of surveys are not fully exploited, in that authors are very selective in the measures they use to analyse associations between human resource management and performance. Finally, they suggest that analysts who use them are threatening to become the dominant paradigm in industrial relations research, with the associated view that such analysis is the ‘last word’ on investigations into useful human resource management techniques.

However, others argue that the majority of practitioners acknowledge that even with the array of information to be had from surveys information, they still do not necessarily cover all possible permutations of the different techniques available to employers in managing their employees (Fernie and Woodland, 1995; Millward and Hawes, 1995). The selection of variables for inclusion in any analysis from such a dataset not only varies with the individual practitioner, but will also be limited to those on hand. As such, the survey approach should be considered a supplement—rather than a replacement—to techniques involving case studies of particular firms or workplaces.

Figure 1 illustrates the responses to the questions on voluntary resignations, the share of employees away on any given day without leave being approved in advance, whether there was any industrial action at the workplace in the previous year and relations between management and employees.

⁸ Unfortunately not all workplaces completed this questionnaire, which led to some loss of the sample.

Figure 1. Voluntary resignations, absenteeism, industrial action and management/employee relations (unweighted)



Nearly one in five workplaces reported more than 20 per cent of their employees voluntarily resigned over the year prior to the 18th August 1995. The average quit rate was 14.3 per cent (using weighted data), which compares well with the 11.5 per cent average for 1996 obtained by Cully and VandenHeuval (1999) from the ABS.⁹ During these 12 months the unemployment rate averaged 8.8 per cent, a 1.7 percentage point fall on the 12 months to August 1994. This provides weak evidence of the association alluded to earlier regarding other opportunities available to workers; with unemployment declining, employees may feel that there are lower costs associated with job search and therefore will be more willing to separate from their workplace, other things being equal.

The majority of the 1403 workplaces that reported an observation for absenteeism appear to have 5 per cent or less of their workforce away, with around 7 per cent indicating that no-one took time off without leave being approved in advance. Only 2 per cent of workplaces appear to suffer from 'chronic' absenteeism. The maximum reported rate of absenteeism in 1995 was 50 per cent, which is only a little higher than that reported by Fernie and Metcalf (1995) for the UK (45 per cent). The average absenteeism rate was 2.6 per cent (using weighted data),

⁹ The AWIRS data exclude casuals and are expected to be higher than that from the ABS as larger workplaces (which is what this analysis is based on) are typically characterised by a higher quit rate.

which also compares well with the ABS estimate of 2.4 per cent for 1996 (Cully and VandenHeuval, 1999). In 1995, more than half of respondents considered relations 'good' with a further fifth indicating that they were 'very good'.

Summary statistics for industrial action indicate that 33 per cent of workplaces experienced industrial action over the year prior to the survey. Stop work meetings were the most common (26 per cent), followed by strikes (13 per cent) and overtime bans (11 per cent). Seventeen per cent of all workplaces had only one form of industrial action occur, 14 per cent had between 2 and 4, and just over 2 per cent had more than 5 types of industrial action occurring in the year. Summary statistics of the other variables to be used in this analysis are also provided in Table 1, and are discussed further below.

Human resource management techniques

The extent to which a workplace commits resources to an official personnel function is measured by whether there is a specialist employee relations manager at the workplace and whether first line supervisors receive employee relations training to help them deal effectively with employees.¹⁰ Sixty per cent indicated that there was a specialist employee relations manager at the workplace and 44 per cent indicated that first line supervisors received employee relations training.

Table 1: Descriptive statistics (unweighted), n = 865

	Mean	Std. Dev.	Min	Max
Dependent variables				
Per cent of employees voluntarily resigning over the past year	13.77	14.9	0	100
Per cent of employees away on any given day without leave being approved in advance	2.83	2.9	0	50
Industrial action in the past year (1 = Yes)	0.33	0.5	0	1
Employee/management relations (1 = Very poor, 5 = Very good)	3.88	0.8	1	5
Composite variable	0.24	0.4	0	1
Workplace characteristics				
Number of employees	207.95	369.8	20	5942
Commercial workplace (1 = Yes)	0.76	0.4	0	1
Single workplace (1 = Yes)	0.85	0.4	0	1
Age of the workplace	29.80	31.3	0	172
Wages (average weekly workplace earnings, \$)	712.50	354.9	107.8	6365.1
<i>Industry</i>				
Mining, construction	0.09	0.3	0	1
Manufacturing	0.27	0.4	0	1
Utilities, govt. admin.	0.12	0.3	0	1
Wholesale, retail trade	0.12	0.3	0	1

¹⁰ Where there is no specialist employee relations manager, this was measured as whether one of the senior managers spent more than 25 per cent of their time on employee relations matters.

	Mean	Std. Dev.	Min	Max
Accommodation, cafes, restaurants, cultural, recreational, personal, other	0.14	0.3	0	1
Transport, communication	0.10	0.3	0	1
Finance, property, insurance, business	0.07	0.2	0	1
Education, health, community	0.09	0.3	0	1
Employee characteristics				
<i>Per cent of employees that are:</i>				
Part-time/casual	22.77	28.1	0	98
Female	37.03	27.5	0	100
Non-English speaking background (1 = more than 10%)	0.35	0.5	0	1
Younger than 21 (1 = more than 25%)	0.10	0.3	0	1
Time taken for new employee to work to incumbent standard (1 = less than 1 month)	0.62	0.5	0	1
Managers, professionals	14.32	17.0	0	98
Paraprofessional, tradespersons	22.01	25.5	0	98
Clerks, salespersons	30.88	31.3	0	99
Plant & machine operators, labourers	32.80	32.3	0	100
Market structure				
Capital intensity (1 = less than 20%, 5 = more than 80%)	3.20	1.2	1	5
Four firm concentration ratio	24.51	17.2	3.9	81.2
Intensity of competition (1 = limited, 5 = intense)	3.88	1.0	1	5
Demand for product expanding (1 = Yes)	0.53	0.5	0	1
Unions				
Union density	60.73	29.3	0	100
Closed shop (% of employees required to be a union member to do their job)	1.32	6.2	0	56
Management recommend membership (1 = Yes)	0.21	0.4	0	1
Recognition (1 = Yes)	0.71	0.5	0	1
No recognition (1 = Yes)	0.01	0.1	0	1
Per cent on agreements	46.72	40.9	0	100
Personnel function				
Personnel manager at the workplace (1 = Yes)	0.56	0.5	0	1
1st line supervisors get employee relations training (1 = Yes)	0.42	0.5	0	1
Employee involvement				
Joint consultative committees in place (1 = Yes)	0.49	0.5	0	1
Formal performance appraisal (1 = Yes)	0.69	0.5	0	1
Communication between management and labour on all matters (1 = Yes)	0.58	0.5	0	1
Employee representatives on the board of management (1 = Yes)	0.10	0.3	0	1
Contingent payment systems				
Employee share ownership plans (1 = more than 50% own shares)	0.07	0.4	0	1
Performance pay (1 = more than 50% receive performance pay)	0.12	0.4	0	1
Process innovation				
Introduction of new technology/plant & equipment over the past 2 years (1 = Yes)	0.57	0.5	0	1
Major change to work organisation over the past 2 years (1 = Yes)	0.69	0.5	0	1
Formal procedures				
Formal procedures on all of disputes, discipline, safety (1 = Yes)	0.74	0.4	0	1

- 'All matters' consist of future staffing plans, investment plans, workplace performance, product or service quality, customer or client satisfaction, occupational health and safety.
- Whether management recommended employees join a union was the excluded parameter. 'Recognition only' is defined as where employees are neither encouraged nor discouraged by management from being a member of a union. 'No recognition' is defined as where employees are discouraged by management from joining a union.

Employee involvement is measured using four separate variables. The first of these is the existence (or otherwise) of a Joint Consultative Committee, which were in place in 51 per cent of workplaces. The second is whether employees have their work formally evaluated, of which 71 per cent of workplaces indicated that they did. Third is the existence of any communication between management and employees on staffing, corporate and investment plans, marketing strategies and the workplaces' financial position, which was undertaken by 59 per cent of workplaces. Finally, a measure of whether there are employee representatives on the board of management/ directors is included, and 11 per cent reported that there were.

Employee share ownership plans and performance-based pay were included as economic incentive variables, and take a value of one if more than 50 per cent of employees at the workplace own shares or receive performance based pay, and zero otherwise. Only 7 per cent of workplaces had more than 50 per cent of employees owning shares, and only 12 per cent had more than 50 per cent receiving performance-related pay.

Two composite variables were included to capture process innovation—the introduction of new technology and a change in work organisation. The former comprised the introduction of major new office technology and major new plant, machinery or equipment, with 57 per cent of workplaces indicating that they had introduced new technology over the past 2 years. The latter comprised of a major reorganisation of workplace structure and major changes to how non-managerial employees do their work. More than two-thirds of workplaces indicated that they had undertaken to reorganise how work was done over the past 2 years.

Formal procedures are measured by constructing an indicator variable equal to one if workplaces have written procedures covering grievances, discipline and safety, and 73 per cent of workplaces reported that they had these formal procedures.

Industrial relations practices

To estimate the strength of the union movement at a particular workplace, five variables are included: the percentage of employees that are members of a union, the share of employees that are required to be a member of a union (a closed shop), whether employees are neither discouraged nor encouraged by management from being a member of a union (recognition only), whether employees are discouraged by management from joining a union (no recognition), and the percentage of employees covered by agreements. On average, 48 per cent of employees in this sample were covered by an agreement.

Workplace characteristics, employee characteristics and market structure

Workplace specific characteristics include the number of workplace employees, whether it is commercial, whether it operates as an entity in its own right, its age, industry, and the average wage paid at the workplace. Employee characteristics include the share of part-time and casual employees, females, employees under the age of 21, employees from a non-English speaking background, and employees in different occupation categories. How long a new employee takes to work to the same standard as incumbents is also included as a proxy for the opportunity cost of quitting, that is, it is a (proxy) measure of the level of firm-specific human capital possessed by a worker.

Limitations of the data prevent adequate control for all industrial organisation variables, but proxies for seller concentration, barriers to entry and competition are included. Market concentration estimates for two digit industry classification are calculated using a combination of ABS concentration statistics and the Australian Tax Office company tax return database, which were then matched to the AWIRS two digit industry classification. Barriers to entry are proxied by the share of labour in total costs, with the view that a lower share of labour implies greater capital intensity and therefore higher sunk costs. Intensity of competition is a variable that is included to measure the (self-reported) degree of competition that a particular workplace faces in its industry. Product demand is included to take account of whether or not a workplace is facing rising demand, and takes a value of one if demand is rising and zero otherwise.

5. Results

Table 2 shows the results for each of the four estimated relationships. As with all cross section analysis, care should be taken when interpreting the estimates since the direction of causation is often unclear. For example, a high quit rate could induce workplaces to introduce Joint Consultative Committees to combat the problem. As Fernie and Metcalf (1995, p. 380) point out, ‘union recognition, employee involvement and contingent pay are not randomly distributed among workplaces. Their incidence is related, for example, to management style and product and labour markets. These may also be associated with better or worse performance, so it is often difficult to disentangle the true effect of the industrial relations practices’. Consequently these estimates may be better thought of as ‘associations’ rather than ‘causation’.

Additionally, the inclusion of independent variables that are related to each other (such as the existence of personnel managers and the number of employees) may drive some variables to insignificance due to collinearity. A step-wise approach was adopted for each specification to test for this, and the results indicate that there is little qualitative difference between the results in Table 2 and those from the step-wise estimation.

Table 2: The impact of human resource management practice on industrial relations outcomes (unweighted, t-statistics in parentheses)

	Voluntary quits	Absenteeism	Industrial action over the past year	Management/ employee relations	Composite indicator
	OLS	OLS	Probit	Ordered probit	Probit
Workplace characteristics					
Number of employees	0.000 (0.48)	0.000 (-0.52)	0.000 (2.34)	0.000 (-2.57)	-0.001 (-2.46)
Commercial workplace	0.365 (2.75)	-0.052 (-0.55)	0.295 (1.82)	0.287 (2.17)	0.073 (0.42)
Single workplace	-0.347 (-2.54)	0.015 (0.20)	0.429 (2.64)	-0.279 (-2.18)	-0.122 (-0.71)
Age of the workplace	-0.004 (-2.97)	-0.001 (-0.90)	-0.001 (-0.64)	-0.002 (-1.32)	0.002 (0.91)
Wages	-1.212 (-1.65)	-0.353 (-0.81)	0.154 (0.18)	0.846 (1.33)	-0.878 (-1.02)
Employee characteristics					
<i>Per cent of employees that are:</i>					
Part-time/casual	0.006 (2.55)	0.001 (0.93)	-0.002 (-0.57)	0.003 (1.10)	0.003 (0.93)
Female	0.002 (1.00)	-0.001 (-0.45)	-0.012 (-3.66)	0.005 (2.13)	0.010 (2.94)
Non-English speaking background	0.070 (0.72)	0.045 (0.80)	0.111 (1.03)	-0.216 (-2.46)	-0.177 (-1.57)
Younger than 21	-0.278 (-1.43)	0.013 (0.12)	-0.434 (-1.78)	0.277 (1.46)	0.150 (0.61)
Time taken for new employee to work to incumbent standard	0.146 (1.48)	-0.010 (-0.18)	-0.060 (-0.57)	-0.032 (-0.38)	-0.055 (-0.48)
Unions					
Union density	-0.003 (-2.02)	0.001 (1.14)	0.010 (4.82)	-0.005 (-3.42)	-0.009 (-3.91)
Closed shop	0.009 (1.26)	0.010 (2.34)	-0.039 (-3.91)	0.020 (2.83)	0.039 (3.69)
Recognition	0.150 (1.41)	0.176 (2.70)	-0.063 (-0.51)	-0.178 (-1.82)	0.088 (0.66)
No recognition	-0.261 (-0.63)	-0.155 (-0.56)	0.492 (1.03)	0.066 (0.14)	-0.711 (-1.01)
Per cent on agreements	-0.001 (-0.64)	0.001 (1.45)	0.001 (0.46)	0.000 (-0.32)	-0.002 (-1.20)
Market structure					
Labour intensity	-0.006 (-0.13)	0.027 (1.06)	0.125 (2.53)	-0.012 (-0.30)	-0.081 (-1.52)
Four firm concentration ratio	-0.001 (-0.42)	0.000 (0.14)	-0.001 (-0.41)	-0.004 (-1.43)	0.000 (0.07)

	Voluntary quits	Absenteeism	Industrial action over the past year	Management/ employee relations	Composite indicator
	OLS	OLS	Probit	Ordered probit	Probit
Intensity of competition	0.032 (0.64)	-0.004 (-0.13)	0.006 (0.10)	0.039 (0.79)	0.007 (0.12)
Demand for product expanding	-0.087 (-0.95)	-0.054 (-1.00)	-0.010 (-0.09)	0.290 (3.52)	0.231 (2.14)
Personnel function					
Personnel manager	0.281 (3.03)	-0.005 (-0.09)	0.024 (0.23)	-0.061 (-0.72)	0.126 (1.09)
1st line supervisors get employee relations training	-0.065 (-0.71)	0.029 (0.54)	0.087 (0.81)	-0.061 (-0.76)	-0.008 (-0.08)
Employee involvement					
Joint Consultative Committees	-0.161 (-1.59)	-0.027 (-0.46)	0.255 (2.27)	-0.280 (-3.23)	-0.374 (-3.21)
Performance appraisal	0.126 (1.29)	-0.113 (-1.91)	-0.090 (-0.82)	0.120 (1.36)	0.204 (1.72)
Communication between management and labour	-0.030 (-0.33)	-0.061 (-1.04)	0.068 (0.62)	0.127 (1.49)	0.073 (0.63)
Employee representatives	-0.370 (-2.37)	0.156 (1.76)	-0.059 (-0.32)	0.379 (2.50)	0.291 (1.48)
Contingent payment systems					
Employee share ownership plans	-0.210 (-1.07)	-0.108 (-1.16)	0.290 (1.48)	-0.154 (-0.94)	-0.218 (-1.04)
Performance pay	0.097 (0.70)	-0.003 (-0.04)	-0.482 (-3.03)	0.320 (2.48)	0.482 (2.88)
Process innovation					
Introduction of new technology	-0.107 (-1.19)	-0.028 (-0.49)	-0.156 (-1.54)	0.062 (0.77)	-0.023 (-0.21)
Major change to work organisation	-0.092 (-0.94)	0.015 (0.25)	0.222 (1.99)	-0.145 (-1.56)	-0.133 (-1.15)
Formal procedures					
Formal procedures on all of disputes, discipline, safety	-0.029 (-0.26)	-0.039 (-0.54)	0.008 (0.06)	-0.243 (-2.30)	-0.111 (-0.80)
Number of observations	832	729	862	862	705
R ²	0.199	0.064	0.176	0.097	0.165
RESET test	0.23	0.42			
F-statistic	6.23*	1.60*			
Log likelihood			-452.4	-841.1	-407.5
Wald χ^2			170.6*	172.6*	140.8*

Notes: * represents significant at the 1 per cent level in a two-tailed test.

Quits

The nature of commercial workplaces appears to inspire a greater proportion of individuals to leave. Part-time and casual workers are also more likely to leave the workplace voluntarily, possibly because they have less attachment to the workforce than their full-time colleagues. The age of the workplace exerts a negative influence on the quit rate, possibly because the older a workplace gets, the more chance there is that there will be systems in place that

encourage employees to stay. Single workplace firms are also associated with a lower rate of voluntary separation.

The voice mechanism of unions appears to have some influence on the rate of quits according to this estimation, which is similar to the results obtained by Wooden and Baker (1994). Employee representatives on the board of management also exert a negative influence on the quit rate, suggesting that this is a method whereby employees can voice their concerns to management, through using either a union representative or some other delegate on the board. There is some evidence that personnel managers are not fulfilling their role, in that the presence of personnel managers increases the incidence of quits. However, personnel managers may have been introduced because the quit rate is too high (reverse causation). There is also the added concern that specialist personnel managers are correlated with workplace size, as larger workplaces are typically the only ones that require them. However, where there is no specialist employee relations manager, this variable was defined as whether one of the senior managers spent more than 25 per cent of their time on employee relations matters, which should go some way to alleviating this problem.

Absenteeism

The performance of the model in determining the association between absenteeism and human resource management is poor. Only four variables in this model have any significant bearing on absenteeism, and the R^2 is relatively low. The first of these variables is union membership arrangements at the workplace. When a closed shop operates at a workplace (for at least some employees) or where employees are neither encouraged nor discouraged by management from being a member of a union, the incidence of absenteeism increases. Closed shop workplaces may be more inclined towards absenteeism in the knowledge that a strong union would defend them against employer-imposed penalties, although this does not explain how a recognition only stance on unions also has an impact. Absenteeism also increases where there are employee representatives on the board of management, although employee representatives may have been introduced as a measure to combat a high incidence of absenteeism (reverse causation). The only technique that appears to reduce the level of absenteeism is when employees have their work formally evaluated by management. Such a management technique may require closer monitoring by employers, and therefore employees may feel that the chance of being caught shirking is heightened, encouraging them to minimise their absences.

There are several reasons why absenteeism may not be responsive to these particular human resource management techniques. First, very few workplaces in the sample (3 per cent) actually consider absenteeism to be a key performance measure, and therefore minimal effort will be made (compared to other performance measures) to reduce absenteeism using the tools available. Second, this model does not allow for measures of the threat of dismissal, which, according to Balchin and Wooden (1995), can have a significant negative effect on absenteeism rates.

Industrial action

The more employees there are, and the higher their share of total costs, the greater the chance of industrial action occurring in the previous 12 months. Single and commercial workplaces were also more likely to have reported industrial action, although the latter was only significant at the 10 per cent level. Having more than 10 per cent of the workforce made up of females or individuals under the age of 21 reduces the likelihood of industrial action having taken place in the past year.

The share of union members at a workplace is positively associated with some type of industrial action having taken place in the past year. The type of union arrangement also had an impact. Closed shops are strongly associated with *no* industrial action. However, as noted above, this could simply indicate that unions who operate a closed shop have little incentive to address employee concerns and could even accede to employer wishes if it ensures the survival of current arrangements. This is in line with a study on the 1990 AWIRS by Savery and Soutar (1992, p. 204) who find that ‘strike prone’ and ‘industrial action active’ workplaces have the largest number of employees, more unions, significant union activity, the lowest percentage of females, and were more likely to employ full-timers. They concluded that workplace size and union importance were particularly important in distinguishing why different workplaces experience quite different patterns of industrial activity, and suggested that growing workplaces were “likely to experience increasing industrial activity unless appropriate workplace reforms prevent a movement to a ‘large organisation’ philosophy among management and workers.”

The incidence of industrial action declines when more than 50 per cent of employees receive performance related pay, which is to be expected if pay is reliant on the workplace operating at some minimal requirement. The existence of a Joint Consultative Committee is *positively* associated with industrial action. Again, causation may be a factor here as 15 per cent of

workplaces indicated that Joint Consultative Committees were implemented specifically to reduce the level of disputation and 22 per cent felt that they played an important role in implementing change at the workplace. This latter point is particularly relevant here as the results indicate that the introduction of changes in the way work is organised is positively associated with the incidence of industrial action over the past year.

Management and employee relations

Care should be taken when interpreting coefficients on ordered probit estimates for several reasons. First, the impact of a change in an explanatory variable on the estimated probabilities of the intermediate classifications (a little higher, about the same, a little lower) cannot be determined *a priori*, but relies on the shape of the density function as well as the magnitude of the specific coefficient.¹¹ Second, the absolute magnitude of the coefficients cannot be given any meaning, because of the identifying restriction that the variance on the error term equals one (Becker and Kennedy, 1992).

Several variables that affect the incidence of industrial action also impact on the likelihood that a workplace will report 'very good' management-employee relations (with the opposite sign). This should hardly come as a shock if it is believed that improved management-employee relation is inversely related to industrial action. Specifically, workplaces with a higher union density are less likely to report 'very good' employee relations, a result that also holds for workplaces that currently use Joint Consultative Committees, have a larger number of employees, and operate as a single entity. Although Cooke (1990) suggests that unions can improve the collaboration between management and employees, and thereby improve relations between the two, it appears from these results that the adversarial role of unions overshadows any collaborative role they may have. The result on Joint Consultative Committees could be an example of where causation is important; management-employee relations may have been bad enough to introduce a Joint Consultative Committee, but the positive effects of this introduction have not yet been realised. On the positive side, a larger share of females are likely to improve matters at the workplace, as does the existence of a closed shop for employees and more than 50 per cent of employees receiving performance related pay. Although commercial workplaces are associated with a higher degree of

¹¹ Note however that the impact of a change in the explanatory variable on the extreme ends of the classification *can* be determined *a priori* by looking at the sign.

industrial action, they are also (perversely) associated with improved management-employee relations.

There are other variables of interest that have an impact on management-employee relations outside those that influence industrial action. Workplaces with more than 10 per cent of their employees from a non-English speaking background are less likely to choose 'very good' management-employee relations. Workplaces where employees are neither encouraged nor discouraged by management from being a member of a union are weakly associated with poor relations. The existence of formal procedures on a range of issues does not appear to assist much either. However, it is not *all* bad news. A growing product market has a positive influence on relations, possibly because in this situation a workplace can afford to adopt practices that may keep their employees happy with management. Employee representatives on the board of management also increase the chance of choosing 'very good' management-employee relations.

Composite indicator

In order to provide a more stringent test of the types of human resource management techniques that may influence performance outcomes, the same regression was run on workplaces that were deemed to have had 'good' industrial relations outcomes. This variable was computed as an indicator variable that took the value of one if a workplace had less than 10 per cent of employees quitting or absent, had no industrial action over the past year, and responded with 'good' or 'very good' to the management-employee relations question. Table 1 indicates that nearly 20 per cent of cases fell into this category.

Larger workplaces appear less likely to fall into the 'good' industrial relations category, possibly because larger workplaces are 'out-of-touch' with their employees. The negative perception of unions appears to be borne out with these results, as higher union density is associated with poor industrial relations outcomes (although closed shops appear to be good for industrial relations). The general negative result for joint consultative committees is also carried through to this performance measure.

A higher percentage of women at the workplace increase the chances of being in the good industrial relations category. There's nothing quite like economic growth to improve matters either, as workplaces that reported that their product market was expanding were likely to have good industrial relations outcomes. A formal performance appraisal system is weakly

associated with good industrial relations, and performance related pay also boosts overall performance.

6. Conclusion

The results from using the above technique indicate that the human resource management practices which have the most significant impact on industrial relations outcomes are employee representatives on the board of management, performance related pay and joint consultative committees (although in this case the direction is not as expected). There are several plausible explanations for why more human resource management techniques are not significantly related to industrial relations outcomes. The fact that a generic regression equation has been used to explain relatively complex outcomes is the most obvious starting point. Each of these performance measures has their own theoretical basis in the literature, which does not tie in neatly with use of a general regression equation. Additionally, the unique industrial relations system that has operated in Australia over the eighties and nineties suggests that more complex models may be required to explain these outcomes, rather than the use of a range of human resource management characteristics in conjunction with various workplace characteristics as control variables.¹²

Employee share ownership plans are a case in point. A possible reason why the coefficients on the share ownership variable were insignificant is that the sheer size of listed companies could result in an employee not considering their contribution significant enough to influence the overall outcome. According to the ACTU, the effectiveness of such schemes is limited because they apply to a minority of employees, as employees in the 'public sector, non profit sector and small to medium size private firms are generally unable to participate in a practical way' (ACTU, 1999). Therefore, even if employees are involved in such schemes it may have little impact on their effort. This contention is partly borne out by the observation that employee share ownership plans significantly reduced the absenteeism rate when the regression equation was estimated using only large (above 100 employees) commercial workplaces.

¹² Another problem is that these procedures have to be complied with to be effective (Wooden, 1991), although additional estimations using a compliance measure from the AWIRS failed to yield any significant relationship.

Despite these drawbacks, the estimates contain some useful information. Unions have a particularly influential role for performance outcomes, at least in 1995. Even with the relatively crude measures adopted in this paper, union density is significant at the five per cent level or better for four of the five specifications. The percentage of employees working under closed shop arrangements is also significant for four of the five specifications at the one per cent level or better. Despite the obvious strength of unions, several human resource management techniques still show themselves to be associated with performance outcomes. The monitoring nature of a formal performance appraisal appears to (weakly) discourage absenteeism and generally lead to 'good' industrial relations outcomes. Employee representatives on the board of management appear to be a part of some sort of 'voice' mechanism in terms of being associated with a lower quit rate (although it is also weakly associated with an increase in absenteeism). Economic incentives in the form of performance-related pay reduce the chance of industrial action over the past year, is strongly associated with the probability of choosing the 'very good' management-employee relations option, and increases the chance of having 'good' industrial relations outcomes.

Some of these associations were not always in the expected direction (personnel managers and joint consultative committees). However, information can still be gleaned from such results as they provide a guide to the types of techniques workplaces adopt if performance measures are not meeting some pre-specified target. What is immediately obvious however is that there is not 'one bundle' of human resource management techniques that can be applied across the board to effect all performance measures in the same way. Rather, employers have to decide what performance targets they are most interested in and *then* determine the types of strategies to adopt that best meet those needs.

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