

Alternative pathways to high-performance workplaces

Marc Orlitzky and Stephen J. Frenkel

Abstract In this paper we outline four high workplace performance models, two of which have high-road or enabling characteristics. These are the strategic human resource management and organizational trust models, respectively. The second two models – the labour process and numerical flexibility models – motivate workers to raise productivity through the use of the stick (coercion) rather than the carrot. Based on a representative survey of Australian workers, we compare these models in terms of their capacity to explain relative workplace productivity. We find that all four models have some explanatory power. However, contrary to expectations, the low-road numerical flexibility model provides the best fit with the data. We interpret this finding by reference to recent evidence of workforce trends indicating the attraction and ability of employers to pursue this pathway toward higher productivity. We conclude with some suggestions for future research that would assist in developing this line of enquiry.

Keywords High-performance work practices; productivity; human resource management; flexibility; workplace relations; Australia.

Introduction

Paralleling management concern with intensified global competition, the past decade has seen an explosion of interest by human resource (HR) and industrial relations scholars in exploring the relationship between HR and work organization variables on the one hand and firm or workplace performance on the other (Becker and Huselid, 1998; Wright and Gardner, 2003). The dominant high-performance work practices (HPWP) paradigm posits a positive relationship between these variables, although, as we shall see, the variables differ and the presumed relationships vary in complexity depending on whether the model is based on universalist or contingency assumptions. Regardless, evidence for the HPWP paradigm has been mixed, leading scholars to propose many theoretical and methodological refinements (Becker and Huselid, 1998; Gerhart *et al.*, 2000; Guest, 2001). In addition, reflecting an emerging theoretical critique, some scholars have begun to pursue models based on the conflict paradigm (Godard, 2001; Ramsay *et al.*, 2000).

The HPWP paradigm has persisted in spite of variable empirical evidence. This can be explained by two of its characteristics: the appeal of its underpinning assumptions and its wide scope, i.e. its capacity to include widely different model specifications. Using Adler and Borys' (1996) distinction between enabling and coercive organization practices, the

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HPWP paradigm upholds HR and work organization practices that are designed to enable employees – i.e. to empower, develop and encourage employees – to work more effectively. These are practices that bring an integrative solution to what might be a distributive game: by doing good to employees (implementing high-performance practices), organizations do well (are rewarded with high performance). The HPWP paradigm therefore appeals to adherents of the pluralist perspective, offering a non-zero sum solution to liberal-minded managers. From a contrasting conflict perspective, such practices appear as tactical concessions in what is perceived as a continuing fundamental conflict between capital and labour over the generation and distribution of economic value.

HPWP theory suggests that introducing only one or two enabling practices is insufficient, for it is the synergies that derive from their mutual interaction that bring the highest returns. In other words, HPWP is presumed to constitute a system or ‘bundle’ (Ichniowski *et al.*, 1996). This leads to a consideration of the second characteristic – HPWP’s wide scope. Many HR and work organization practices come under the HPWP banner. Two reviews noted over twenty-five different practices (Becker and Gerhart, 1996; Dyer and Reeves, 1995) and in the latter case, based on five studies, no one practice was found to be common to this research (Wright and Gardner, 2003: 312). It is not only the number of practices but also the many performance measures, different levels of analysis and varying industry coverage that increase the probability of finding support for one or another variant of the paradigm. Thus, subjective and objective measures of performance include productivity, quality, reductions in labour costs, profitability and market value (Becker and Huselid, 1998; Guest, 2001). Some within-industry studies use industry-specific measures (Appelbaum *et al.*, 2000). Levels of analysis include most commonly the firm or workplace and much less frequently the business unit (Wright and Gardner, 2003). Studies vary in coverage from national samples of private-sector manufacturing and services (Guest *et al.*, 2003; Osterman, 1995), occasionally including the public sector (Guerrero and Barraud-Didier, 2004), publicly held companies (Huselid, 1995), the manufacturing sector (Cappelli and Neumark, 2001) or specific industries (Dunlop and Weil, 1996; Ichniowski *et al.*, 1997; Paul and Anantharaman, 2003; Youndt *et al.*, 1996). Rarely do we find studies focusing on all or most of the private service sector (Hunter, 2000).

While there are benefits from continuing to refine and test models based on the HPWP paradigm, it is important to acknowledge that HR and work organization practices commonly regarded as enabling may be coercive, either because this effect is unintended or because they are motivated by multiple management goals, with coercive aspects dominating. This results in varying patterns of subtle and more visible forms of distributive conflict that may enhance or limit workplace performance. Accordingly, we test both enabling (or ‘high-road’) models and coercive (or ‘low-road’) models of human resource management. By attempting to compare and assess their respective predictive power, we are responding to demands for strong inference (Pedhazur and Schmelkin, 1991; Platt, 1964), in which alternative hypotheses or models are clearly specified *a priori* and research is conducted to test the relative validity of these alternative, typically contrasting, models. In addition, path analysis permits exploration of the causal mechanisms associated with theory underpinning these different models. This approach responds to calls for opening the black box that lies between the presence of particular HR or work organization practices and their impact on performance (Guest, 2001; Ramsay *et al.*, 2000; Wright and Gardner, 2003).

The paper is organized into five sections. In the first section, we briefly review relevant research on HPWP and other possible explanations of high performance at the workplace level. Four high workplace performance models are outlined, two high-road or enabling

models, referred to as the strategic human resource management (SHRM) contingency model and the organizational trust model respectively, and two low-road models, both based on conflict theory. These are a labour process model and a numerical flexibility model. The latter takes flexible labour markets and associated external and internal adjustments in labour inputs (e.g. use of contract and part-time workers and changes in working hours) as its central feature. The second section describes our data and measures. Our results are presented in the third section. In the subsequent discussion section, we interpret our findings in light of theory and extant economic and institutional conditions, paying attention to the black box of intervening variables, several of which speak to the issue of workers' attitudes and their effects on workplace performance. We also note some methodological limitations of our analysis. The concluding section summarizes our key findings and suggests several important implications for future research.

People management and workplace performance

In this section, we briefly review people management theory that might help explain variations in workplace performance. We begin with HPWP theory that assumes that management's unilateral action in developing HRM strategy and practice will enable employees to develop their capabilities, thereby influencing performance. The second, organizational trust theory, has a similar enabling logic. Derived from industrial sociology, it posits that trust is central to workplace performance and that management's efforts to build trust will foster a congenial employee relations (ER) climate that leads to high performance. Our two subsequent models emphasize coercion. They are drawn from political economy, which views management's pursuit of profit conflicting with workers' interests in higher pay and improved conditions, resulting in coercive practices to secure worker compliance. The labour process model posits work intensification as the main influence on performance, while the numerical flexibility model views a significant proportion of the labour force as a commodity, with management continually tailoring its supply to changing demand. It is assumed that effective matching will yield high workplace performance.

High-performance work practices: theory and research

HPWP is an attempt at a unifying theory of people management practice. In essence, the universal variant of this theory claims that if management implements a specified set of employment and work practices, these will lead to higher performance (Boxall and Purcell, 2003: 47–70). Many of these practices – e.g. selective hiring, teamwork, redesigned jobs, employee participation, teamwork and communication or information sharing – have been shown to improve performance, but not in a consistent manner (Appelbaum *et al.*, 2000; Cappelli and Neumark, 2001; Osterman, 1995; Paul and Anantharaman, 2003; Wood and de Menezes, 1998). The strongest results have been obtained where models appear to approximate the real world of work and where measurement and sampling errors are reduced by using special-purpose surveys targeted at workplaces in specific industries (Appelbaum *et al.*, 2000; Dunlop and Weil, 1996; Ichniowski *et al.*, 1997). A common thread running through these studies is that HPWP contributes to high performance where workers are expected and encouraged to perform at a high standard. This occurs where HR and work organization practices provide workers with discretion or control over their work, where they are developed to work competently, and where they are supported and rewarded by management to work co-operatively with colleagues. Theory suggests three mechanisms – structural,

motivational and cognitive – that lead to high performance. Structural alterations, for example, the creation of teams or introduction of a new reward system, may provide an initial rather than continuing improvement in performance. For continuous improvement, employees need to increase and sustain their motivation at a high level – a possibility that arises through perceptions and emotions related to greater work satisfaction and empowerment – and/or cognitive changes need to be introduced. These might include improved management communication and investment in formal training and/or on-the-job learning (Adler and Cole, 1993; Appelbaum *et al.*, 2000; Ichniowski *et al.*, 1996).

Evidence for the impact of bundles of HR or work organization practices has been contradictory, with some studies showing strong evidence (Ichniowski *et al.*, 1997; MacDuffie, 1995) but most others finding little support for their presence or impact on performance (e.g. Guest, 2001; Guest *et al.*, 2003; Osterman, 1995; Wood, 1999). The very limited adoption of such bundles by employers in the US (Gittleman *et al.*, 1998; Osterman, 1995), the UK (Cully *et al.*, 1999), Australia and European countries (OECD, 1999) tends to confirm that, if bundling has performance advantages, it is probably for a relatively small proportion of workplaces. This is consistent with the observation, noted earlier, that no consensus exists on which practices should comprise the bundle. In addition, proposed bundles are more costly to introduce than one or two practices, and their pay-off is likely only in circumstances where employees rather than management or technology can add significant value to the final product or service (Boxall and Purcell, 2003: 6). This points to the SHRM contingency or 'fit' perspective on HPWP (Boxall and Purcell, 2003: 51–61). What evidence is there for this theory?

Before responding to this question, it may be helpful to clarify two kinds of fit. External fit assumes that the organization has a business strategy that is in tune with its environment and that there exists a close correspondence between management's HR strategy and the business strategy. It also implies that this fit is successfully carried through in implementing HR and work organization practices. This being so, the proposition is that the better the external fit, the higher the organization's performance. A more complete SHRM model would include internal fit, i.e. consistency in application of HR and work organization practices among employees doing similar work, and temporal fit, i.e. maintaining both kinds of alignment over time (Baron and Kreps, 1999).

Despite its theoretical appeal and confirmation in some industry-specific studies (Arthur, 1994; Dunlop and Weil, 1996; MacDuffie, 1995), the SHRM model has received little empirical support (Becker and Huselid, 1998: 65; Wright and Sherman, 1999). Various theoretical and empirical reasons have been advanced to explain this (Becker and Huselid, 1998; Boxall and Purcell, 2003; Wright and Gardner, 2003), three of which are worth mentioning here. The first is the assumption that, through its business strategy, there is a good fit or alignment between the organization and its environment. Second, there is the difficulty of obtaining reliable survey data on the many aspects required by this type of theory and, third, the appropriateness of this approach is questionable when research is conducted at the workplace level. This is where divisional or operational strategy is more relevant than the overall business strategy of the firm (Wright and Gardner, 2003: 315). Acknowledging these problems and the restrictions placed on model building in our case by limited survey data, we nevertheless develop and test a SHRM model.

In this model we hypothesize that the more predictable the environment, the more likely it is that management will develop an HR strategy that will drive HPWP. These HR and work organization practices will in turn positively influence workplace performance. This is likely to occur through the mechanism of management communication: the more frequently (and presumably effectively) management gets its message across to

employees, the more employees will understand the connection between their work and employment prospects and high workplace performance. This will encourage them to work more effectively, thereby raising workplace productivity.

Insights from industrial sociology and political economy

Organizational trust theory

Hodson (1996, 2001) has been concerned with the antecedents and consequences of workers achieving dignity at work. His pluralist framework admits conflict and co-operation; it is management action that holds the key to their patterning in particular workplaces. Where management is inefficient in organizing production and in implementing human resource and work organization practices that ensure worker dignity, this leads to worker dissatisfaction and conflict between employees and management and among employees. By contrast, where management organizes production efficiently, and treats workers fairly and respectfully, a high level of organizational trust is said to prevail. This gives rise to a co-operative ER climate that encourages worker commitment and extra effort (Hodson, 2004), and hence contributes to high workplace performance. The practices used to confer dignity on workers are similar to those identified by HPWP theorists; for example, high pay, good benefits, jobs with some discretionary element, employee participation, internal job opportunities, job security and training (Hodson, 2001, 2004). Hodson's (2004) analysis also indicates that high organizational trustworthiness is more likely where product markets are stable, contracting-out of production or services is limited and local ownership prevails, and where workplaces are relatively large and employ an ethnically homogeneous, male workforce. These conditions may be an artefact of Hodson's sample of ethnographies rather than being representative of the workplace population. Nevertheless, we are able to test most elements of this organizational trust model.¹

The models addressed so far view particular management practices as having positive attributes that motivate or facilitate employees to perform more effectively. This enabling logic differs from the theories that underpin the labour process and numerical flexibility models, which are based on a coercive logic where work strain and insecurity associated with fear of unemployment are claimed to be the main forces motivating high performance.

Labour process theory

As indicated earlier, a conflict perspective informs this theory. In an era of flexible specialization or post-Fordism, workers are no longer expected to simply comply with management requirements leading to conflict over wages, conditions and control. Instead, they are encouraged to solve problems proactively and generally develop and use their skills to assist management to compete more effectively. This is not, however, a new world of benign management, as anticipated and promoted by HPWP adherents. Rather, it depicts management 'lifting the bar' in an era of global competition: work becomes more intense and job insecurity more clearly spelled out in management communications. These characteristics complement greater employee discretion within a system of continuous performance management. The essentially coercive nature of the model is rooted in the notion that, while workers may have more task autonomy, they feel more pressure to perform and have less overall control over their working lives. The labour process model we address has been proposed and tested by Ramsay *et al.* (2000) using British survey data.² The reasoning behind it is that HPWP – practices that appear

to promote employee involvement and development and tend to more or less coexist with one another (Ramsay *et al.*, 2000: 508–9) – provide increased job discretion to employees. While this and HPWP benefit workers, these work practices are claimed to impose net costs on employees in the form of additional responsibility leading to work intensification and possibly job insecurity, which in turn contribute to job strain. This coercive context is said to foster more effort (Ramsay *et al.*, 2000: 505), so that, overall, it is a combination of positive inducements and dominant negative pressure that contributes to high performance. In effect, an iron fist in a velvet glove.

The prior evidence for the model's effectiveness in predicting UK labour productivity is weak. While HPWP were shown to have a significant effect on productivity, the addition of employee discretion, work intensification and job insecurity into the regression analysis made little difference, suggesting that these are not mediating variables (Ramsay *et al.*, 2000: 519–20). Indeed, in the case of job security, there is a significant positive overall effect on productivity, indicating that job security rather than insecurity is an important variable (which is in line with Pfeffer, 1998, for example).

Numerical flexibility theory

As noted earlier, numerical flexibility theory assumes that labour is a net cost so that improving pay and conditions fundamentally conflicts with management's profit-maximizing goal. Labour flexibility is most frequently used to denote numerical, i.e. a means of tailoring and hence containing costs relative to demand by adjusting the quantity of labour employed. This contrasts with functional flexibility, which includes developing employees' capabilities so that workers perform a wider range of more highly skilled work tasks. It is the threat or unilateral imposition of numerical flexibility, through job loss, reduction in working hours or conversion of job status (permanent to temporary or full-time to part-time), that represents a form of coercion.

In Gordon's (1996) political economic analysis, American managers use the stick (numerical flexibility) to motivate workers rather than the carrot (functional flexibility including HPWP), although he admits that some managers attempt to supplement the former with the latter, a combination that has long been used by Japanese manufacturing firms (Dore, 1973). This combined approach is likely to have spread both internationally and across industries in recent years (Kalleberg, 2001). The numerical flexibility model does not deny these tendencies but points to an emphasis on cost containment and hence numerical flexibility as the main part of the mix. In regard to labour, this means three things: first, keeping unit labour costs as low as possible, hence a preference for using labour that is relatively plentiful, diligent and amenable (e.g. women and young immigrant workers); second, opposition to labour market regulation, including consultation or negotiation with trade unions; and, third, adjusting labour costs as rapidly as possible to changes in demand, which in turn means being able readily to recruit and replace labour. Associated with this model is relatively intense supervision, which, on the one hand, reinforces a high level of performance, but, on the other hand, increases payroll costs. However, the widespread use of digital technology counteracts this tendency by providing effective performance monitoring systems and enabling workplaces to operate with fewer levels of management and larger spans of control (Cappelli, 1999: 105).

Why should this paradigm be relevant outside the US? First, because flexible labour markets have become one of the factors commonly believed to account for the success of the US economy. It is a paradigm that has come to be believed and implemented by many governments (e.g. Britain and New Zealand in the 1980s and Australia in the 1990s),

which are accused of perpetuating high unemployment. It has also become a convenient stick for employers and governments to use against trade unions. More fundamentally, it supports management unilateralism, which is the managers' preferred option regardless of their company's country of origin.

The model we test proposes that management selectively hires part-time, female employees. These more vulnerable workers can be more easily managed through the use of external and internal flexibility mechanisms, including use of contractors, selling part of the business, changes in working hours, changing the number of full-time, part-time or casual employees and changes in pay. We posit a direct effect of structural change on performance and, more speculatively, the possibility of these changes being mediated through an employment relations climate of dissatisfaction and fear.

In analysing the four models, we distinguish between manufacturing and service sectors. This helps to redress the emphasis that has been placed up to now on manufacturing. Guest *et al.* (2003: 306) have shown that the strength of the HR practices-performance relationship is more robust for manufacturing than for services. Hunter (2000: 484–5) demonstrated that service industries tended to employ different kinds of HPWP, with more emphasis on numerical flexibility in the form of job sharing and flexitime and less stress on work organization associated with functional flexibility, for example, total quality management, teams and job rotation. This may be related to the higher labour intensity and hence greater relative cost of labour in service firms (Boxall, 2003). In services, there is therefore a stronger incentive to utilize labour more efficiently, and in serving mass service and mass-customized markets, this can be done mainly by flexibly employing low- to medium-skilled employees in some cases with ameliorative HR practices intended to limit worker discontent (Boxall, 2003: 12–14; Houlahan, 2003); in other words, by pursuing what are essentially low-road models of high performance. By contrast, in manufacturing located in Western countries, we expect the adoption of HPWP to reflect employment of relatively highly skilled, adaptable employees whose work is enabled by advanced technology. The emphasis is on functional flexibility because it is increasingly difficult to compete with low-cost, simple product manufacturers located in developing countries. We therefore anticipate that, in comparison with the service sector, high-road models of workplace performance will characterize high-performance manufacturing. Generally, various industry characteristics may exert a moderating influence on the relationship between HPWP and productivity (Datta *et al.*, 2005).

Methods

Sample and survey procedure

Our study is based on a representative sample of 2001 Australian workplaces employing twenty or more employees. The sample size corresponds to an overall response rate of 80 per cent (Morehead *et al.*, 1997). The Australian Workplace Industrial Relations Survey (AWIRS) used a stratified sampling strategy, so that the standard errors calculated for each of the eighteen industry band proportions and each of the five size-band proportions were approximately equal.

Each workplace received four questionnaires. For our analysis, we rely on three of these: the General Management Questionnaire, the Employee Relations Management Questionnaire and the Employee Survey. The most senior workplace manager completed the first questionnaire, while the most senior HR manager completed the second questionnaire. In 40 per cent of all workplaces, this person was different from the manager completing the first questionnaire. The Employee Survey was distributed to a

random sample of employees in each workplace where the senior manager agreed to this procedure. Ninety-five per cent of senior managers consented to the employee survey, which employees filled out anonymously. The number of employees surveyed per workplace depended on workplace size; each employee had about a 1 per cent chance of being randomly selected.

Table 1 provides an overview of some of the major characteristics of the workplaces in the sample. The highest proportion of workplaces were in manufacturing (17 per cent), retail trade (14 per cent) and education (13 per cent) (Morehead *et al.*, 1997: 28). The Australian Bureau of Statistics judged the management and employee surveys to be representative. More details about the sampling procedure are provided in Morehead *et al.* (1997).

Measures

Table 2 presents the operational definitions of all variables included in our statistical analysis, their measurement errors (if applicable) and their source. Whenever possible, we combined items to form multi-item variables for further statistical analysis. This aggregation of items made it possible to calculate reliability coefficients for the respective variable. As Table 2 indicates, many of the measures came from different questionnaires, thus reducing common source bias.

Because the high-performance work practices (HPWP) variable assumes a central role in two of our models, it requires more explanation. We decided to investigate a bundling or systems approach as explained earlier. However, we did not assume that the HPWP items listed in Table 2 form an internally consistent set of procedures. Rather, we sought to examine empirically whether this is the case (Guest, 2001: 1099–100; Becker and Huselid, 1998: 88–90). If HPWP formed a system, the items measuring these practices would be internally consistent and, thus, demonstrate a high coefficient alpha reliability among the items. Our analyses show this not to be the case. Internal consistency, as measured by Cronbach's alpha, was only .31. Coefficient alpha, as an overall measure of internal consistency, was in line with results of other analyses suggested by Guest (2001) and Becker and Huselid (1998). The items did not comprise a general factor or several sub-factors nor did they form a cluster on which different

Table 1 Descriptive summary statistics of sample of Australian workplaces

Variable	Mean	Standard deviation	Minimum	Maximum
Workplace size (employment)	344	187	20	5,942
Female workers %	41.34	27.68	.00	100
Organizational size ^a	4.00	2.02	1	7
Union density % ^b	51	29	0	100
Ownership ^c	1.62	1.29	1	5

Notes

N = 2001.

^a 1 = less than 100; 2 = 100 to less than 500; 3 = 500 to less than 1,000; 4 = 1,000 to less than 5,000; 5 = 5,000 to less than 10,000; 6 = 10,000 to less than 20,000; 7 = more than 20,000.

^b Defined as percentage of employees who are members of a union.

^c 1 = wholly Australian owned; 2 = predominantly Australian owned (51 per cent or more); 3 = equally 50 per cent Australian and 50 per cent foreign owned; 4 = predominantly foreign owned (51 per cent or more); 5 = wholly foreign owned.

Table 2 Variables included in empirical analysis

<i>Variable</i>	<i>Operational definition</i>	<i>Reliability^a</i>	<i>Source^b</i>
Communication	Number of communication channels (count) used by management (e.g. surveys, e-mails, etc.)	N/A	ERQ
Decentralized management	Extent to which organizational decision-making is decentralized	N/A	ERQ
Employee participation	Extent to which employees have influence on workplace organization and decisions	.82	EMP
Employee relations (ER) climate	Aggregate of one item measuring org. commitment ('good place to work?') and eight items of job satisfaction (e.g. 'satisfied with the way management treat you and others here?')	.83	EMP
Fair pay	Extent to which employees perceive their compensation to be fair	N/A	EMP
Fair procedures	Extent to which workplace ensures equal opportunity procedures	N/A	ERQ
Good benefits	Extent to which employees are satisfied with pay and benefits	N/A	EMP
Market unpredictability	Item indicating the unpredictability of product/service demand	N/A	GMQ
High-performance work practices (HPWP)	Four items measuring conventional characteristics of high-performance work practices; rigorous selection; formal training and development; employee participation; equal employment opportunity/affirmative action	N/A ^c	ERQ
HRM strategy	Two items measuring role of human resource function at workplace and HRM investments	.59	ERQ and GMQ
Job discretion	Four items measuring the influence of employees over their day-to-day work activities	.81	EMP
Job insecurity	One item measuring the extent to which employees feel insecure about their future at their workplace	N/A	EMP

Table 2 (*Continued*)

<i>Variable</i>	<i>Operational definition</i>	<i>Reliability^a</i>	<i>Source^b</i>
Job satisfaction	Eight items measuring the extent to which employees are satisfied with various aspects of work	.81	EMP
Job strain	One item measuring the extent to which employees perceive their jobs as stressful or straining	N/A	EMP
Labour productivity	One item measuring the level of labour productivity at the workplace, compared to major competitors, on a scale from 1 to 5	N/A	GMQ
Management competence	Three items measuring the existence of workplace planning, use of key performance indicators, and benchmarking	.66	GMQ
Motivation/effort	One item measuring the extent to which employees put effort into their work	N/A	EMP
Numerical flexibility	Two items measuring external numerical flexibility (e.g. contracting out), and internal numerical flexibility (e.g. use of overtime, changes in the number and type of workers and changes in pay)	.69	GMQ
Ownership	Proportion of foreign ownership (scale see note to Table 1)	N/A	GMQ
Proportion of female workers	Women as percentage of total workplace employment	N/A	WCQ
Proportion of part-time workers	Part-time workers as percentage of total workplace employment	N/A	WCQ

Table 2 (*Continued*)

<i>Variable</i>	<i>Operational definition</i>	<i>Reliability^a</i>	<i>Source^b</i>
Task variety	One item measuring extent to which employees perform different tasks in their work	N/A	EMP
Training	Extent to which organization offers formal training and development	N/A	ERQ
Trust	Two items measuring the extent of trust that employees have in management	.75	EMP
Work intensification	Three items measuring employees' perceptions of change in work effort expected of employees, change in stress and change in work pace	.65	EMP
Workplace size	Number of employees in workplace (adjusted for skew by natural log)	N/A	GMQ

Notes^a Cronbach's coefficient alpha (which is based on the Kuder-Richardson formula in the case of dichotomous items).^b EMP = Employee Questionnaire; ERQ = Employment Relations Management Questionnaire; GMQ = Workplace Characteristics Questionnaire.^c No coefficient alpha reliability reported because there is no assumption that measures of HPWP are internally consistent.

workplaces consistently scored high or low. With the inclusion of other variables relating to employee enablement (increased discretion and/or capacity to develop capabilities) forming the measure of HPWP (e.g. use of appraisals, pay for performance, team building, etc.), internal consistency was reduced.³

Our dependent variable is labour productivity relative to major competitors. This was rated by senior workplace manager survey respondents on a 5-point scale. In the absence of so-called objective performance data from other sources, this variable has the advantage of being the most proximate and valid of available dependent variables. As long as there is a relatively wide distribution of responses across several response categories, the fact that fewer managers claim to be a lot lower than average or a little lower than average compared to their competitors than is warranted does not invalidate the measure. In fact, if workplaces with high performance were more likely to respond to AWIRS than those with low performance, the problem would be one of range restriction, not measurement invalidity. Range restriction has been shown to attenuate observed empirical relations between variables (Ghiselli *et al.*, 1981; Thorndike, 1982). Thus, the possibility of range restriction ought to be considered because the path coefficients (γ) leading to labour productivity might appear smaller than they really are. Viewed from this perspective, our reported path coefficients are likely to exhibit a conservative (downward) bias.

A noteworthy implication of using labour productivity as the dependent variable is that it tends to exclude public-sector workplaces from our analyses. This is because public-sector workplace managers often do not compare their workplace labour productivity with competitors (indeed they may not have any). For all four of our models, the coverage of public-sector workplaces is less than 6 per cent, compared to 19 per cent in the total sample.

Analytic procedure

We use structural equation modelling (SEM) to analyse the data. SEM presents causal processes in a series of simultaneous regression equations applied to the data set and assesses overall empirical fit with the theoretical specification(s). Therefore, SEM allows not only for an assessment of the validity of the causal model relating various observable (i.e. one-item) or unobservable (i.e. latent) constructs to each other, but also for an evaluation of the underlying measurement model of each latent variable. SEM is particularly useful for cross-sectional research because model fit indicates the extent to which common method variance (one-factor solution) does not affect the results. SEM permits examination of direct and indirect (that is, mediated) causal effects, as well as moderator effects, that is, contingency factors or boundary conditions (such as industry) that often remained unexplored in the HPWP and strategic human resource management literature (Boxall and Purcell, 2003). Those studies mainly use multiple regressions, which do not usually provide evidence about the 'black box' between HR practices and outcome variables such as labour productivity. In a related vein, the testing of mediation can be more complex and error-prone in multiple regressions than in SEM, which depicts mediation visually. Moreover, unlike SEM, multiple regressions do not typically correct for measurement error.

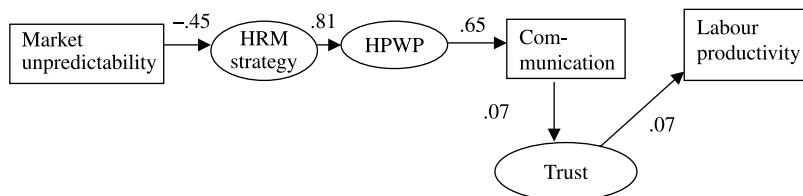
Results

In line with the theory section above, we present our findings for the different pathways to higher labour productivity in the following order: (1) SHRM model, (2) organizational trust model, (3) labour process model and (4) numerical flexibility model. Overall, the

findings suggest that there may be several, very different pathways to enhanced organizational performance. Each model has its own strengths and weaknesses. However, overall, the numerical flexibility model demonstrated the best empirical fit with the data. The four models are sub-divided into manufacturing versus services in order to examine whether industry context acts a contingency, or moderator.

The *SHRM model* generally had adequate fit statistics ($\chi^2 = 360.90$ with 42 degrees of freedom; goodness of fit index [GFI] = .93; adjusted GFI = .89; Tucker–Lewis Index = .60). As Figure 1 shows, one or two disappointingly small path coefficients may be responsible for this less than perfect, but still quite good fit overall. The small path coefficients from communication to trust (.07) and from trust to labour productivity (.07) may account for the low comparative fit indexes (incremental fit index [IFI] = .70; comparative fit index [CFI] = .69; relative fit index [RFI] = .57). While these latter two paths went in a direction consistent with the theoretical model, the other paths were much larger, thus supporting the model. The findings suggest that greater market

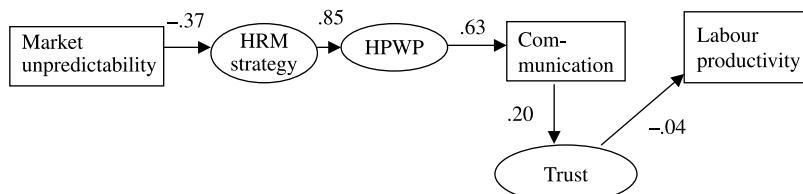
(a) Overall model



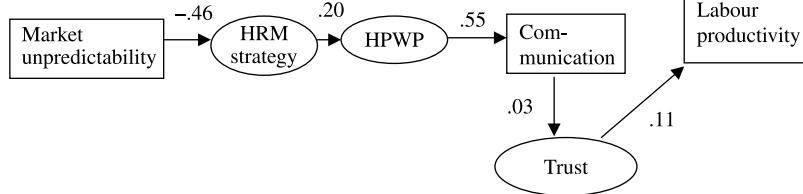
$\chi^2 = 360.90$ (df = 42); GFI = .93; AGFI = .89; TLI = .60; IFI = .70; CFI = .69; RFI = .57; RMSEA = .10.

(b) Contingency model

Manufacturing:



Services:



$\chi^2 = 650.15$ (df = 84); GFI = .87; AGFI = .79; TLI = .44; IFI = .58; CFI = .57; RFI = .41; RMSEA = .10.

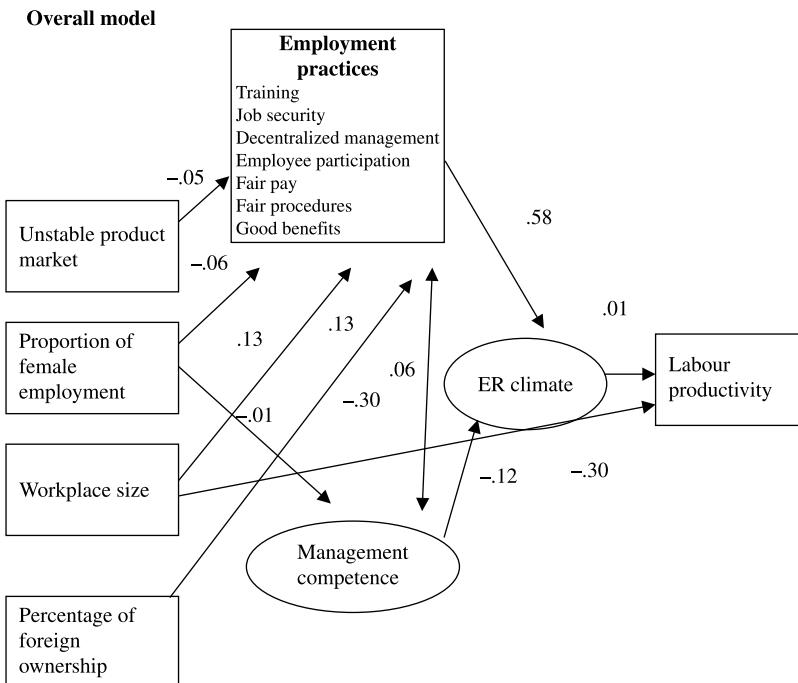
χ^2 difference (df = 42) = $650.15 - 360.90 = 289.25$ ($p < .005$).

Figure 1 Strategic human resource management model

unpredictability decreased the likelihood of HRM strategizing ($\gamma = -.45$). Conversely, the more predictable the product market, the more likely it is that management will develop an HRM strategy. HRM strategy in turn was positively related to the adoption of HPWP ($\gamma = .81$), which in turn predicted greater management communication ($\gamma = .65$).

The contingency analysis suggests that the broad industry context functions as an important moderator of the SHRM model (χ^2 difference ($df = 42$) = 289.25; $p < .005$). The most noteworthy difference between the SHRM model in manufacturing compared to service industries is probably the much smaller effect of HRM strategizing to adoption of HPWP in the service industry ($\gamma_{\text{service}} = .20$ vs. $\gamma_{\text{mfg.}} = .85$). Furthermore, trust may have a negligible or even negative impact on labour productivity in manufacturing ($\gamma = -.04$), whereas interpersonal trust between management and service workers contributed to labour productivity in the service sector ($\gamma = .11$).

The second high-road model, the *organizational trust model*, suggested that Hodson's dignified employment practices would, in combination with management competence, lead to organizational trust, creating a favourable ER climate and thus resulting in enhanced labour productivity. With the exception of the path between management competence and ER climate ($\gamma = -.12$, which was expected to be positive), Figure 2 shows that all path coefficients were in the right direction. Most notable and consistent



$\chi^2 = 323.10$ ($df = 34$); GFI = .93; AGFI = .86; TLI = .56; IFI = .73; CFI = .73; RFI = .53; RMSEA = .11.

Subdivision into manufacturing versus services: solution did not converge.

Figure 2 *Organizational trustworthiness model*

with the organizational trust model was the positive path between employment practices, as specified by Hodson, and ER climate ($\gamma = .58$). Overall, this more complex model fitted the data about as well as the previous model ($\chi^2 = 323.10$ with 34 df; GFI = .93; AGFI = .86; TLI = .56; IFI = .73; CFI = .73; RFI = .53). The root mean square error of approximation (RMSEA = .11) was slightly worse than that of the first high-road model (RMSEA = .10), suggesting that this model would not fit the population correlation matrix well. The complexity of the model is the most likely culprit.

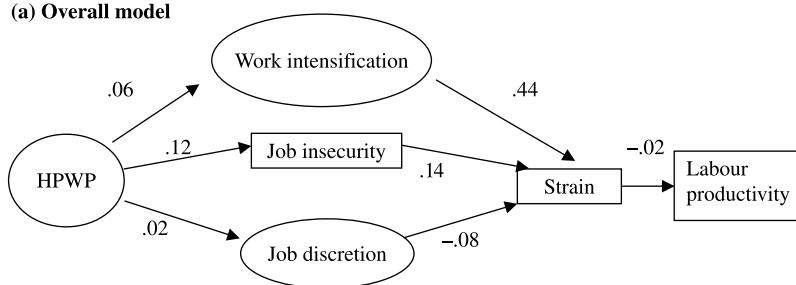
When manufacturing workplaces were differentiated from service workplaces, the parameter estimates did not converge and minimization was not achieved. This was the case even after the four exogenous variables (market unpredictability, proportion of female workers, workplace size and foreign ownership) were dropped from the model. Because the subgroup moderator analysis did not converge, no cross-industry differences can be inferred from the industry moderator analysis of the organizational trust model.

The *labour process model* includes elements of a high road strategy (e.g. HPWP), but is largely based on the notion that workers are coerced into high performance. Again, overall, this model fitted the data quite well ($\chi^2 = 356.28$ with 73 df; GFI = .93; AGFI = .91; TLI = .79). Considering the relatively high number of variables included in this model, the RMSEA was quite good (.07), as well as the comparative fit indexes (IFI = .84; CFI = .83; RFI = .75). In this model, the calculated path coefficients were particularly interesting. In line with the model, HPWP appeared to intensify work ($\gamma = .06$), albeit not by much, and led to greater job insecurity ($\gamma = .12$). Job discretion was not affected by HPWP in this model ($\gamma = .02$). Very much in line with the model, employee-perceived job strain is greatly increased by work intensification ($\gamma = .44$), increased by job insecurity ($\gamma = .14$) and decreased by greater job discretion ($\gamma = -.08$). However, job strain was not positively related to labour productivity ($\gamma = -.02$).

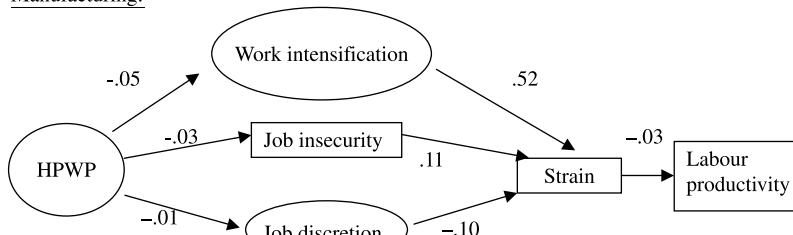
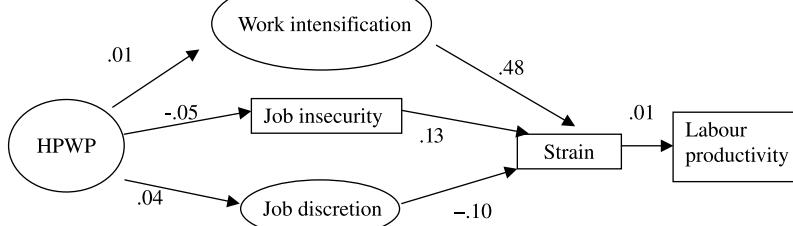
Also noteworthy is the labour process model's level of generalizability. The industry environment did not seem to matter ($\chi^2 = 65.15$ with 73 df; ns). Although Figure 3b shows some differences in the path coefficients between workplaces in manufacturing and services, respectively, the moderator analysis suggests that overall these differences are negligible.

Our fourth and final model is the low-road numerical flexibility model. It has the best empirical fit overall ($\chi^2 = 41.45$ with 4 df). All goodness of fit indexes were impressive (GFI = .98; AGFI = .93; TLI = .92; IFI = .97; CFI = .97; RFI = .91). The relatively high RMSEA of .11 suggests that the goodness of fit of this model is not only due to the causal relations being in line with the predictions, but also the relative absence of latent constructs from this model (i.e. with one exception, one-item measures captured all variables). This caveat does not detract from the high path coefficients, however. The proportion of part-time and female workers enhanced workplace numerical flexibility to a great extent (path coefficients γ were .35 and .34, respectively). Numerical flexibility in turn strongly predicted higher labour productivity ($\gamma = .40$).⁴

The contingency analysis suggests that industry sector exerts a moderating influence, which is both statistically significant ($\chi^2 = 22.15$ with 4 df; $p < .005$) and conceptually interesting. In the manufacturing sector, management adjustment of labour inputs with changes in demand receives strong empirical support, with the hiring of part-time workers completely dominating female workers as a means of achieving numerical flexibility. Although the numerical flexibility model is also valid in the service sector, the causal relationships are attenuated, with the calculated path coefficients indicating that changes in part-time and female workforce composition contributed almost equally to numerical flexibility ($\gamma = .38$ and .27, respectively). However, numerical flexibility affected labour

(a) Overall model

$\chi^2 = 356.28$ (df = 73); GFI = .93; AGFI = .91; TLI = .79; IFI = .84; CFI = .83; RFI = .75; RMSEA = .07.

(b) Contingency modelManufacturing:Services:

$\chi^2 = 421.42$ (df = 146); GFI = .91; AGFI = .87; TLI = .78; IFI = .82; CFI = .82; RFI = .69; RMSEA = .06.

χ^2 difference (df = 73) = $421.42 - 356.28 = 65.14$ (ns).

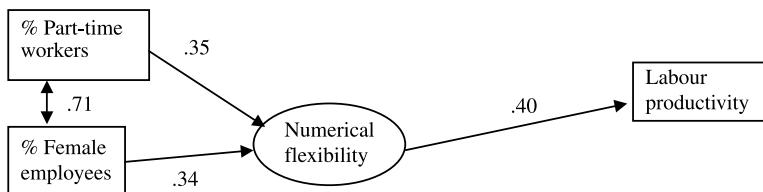
Figure 3 Labour process model

productivity much less in service than manufacturing workplaces ($\gamma_{svc} = .12$ vs. $\gamma_{mfg} = .59$). In sum, the analyses presented in Figure 4b suggest that the numerical flexibility model may be slightly more effective in manufacturing than service contexts.

Discussion

In this section we interpret some of the more important and unexpected findings reported above. We also mention some of the limitations of our study.

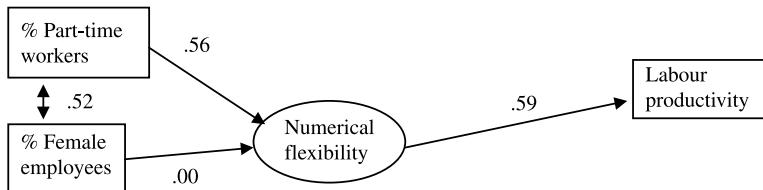
Addressing some of our key findings in turn, beginning with the SHRM model, the positive relationship between relatively predictable markets, HR strategy and HPWP can be interpreted in terms of predictability permitting and encouraging HR planning,

(a) Overall model

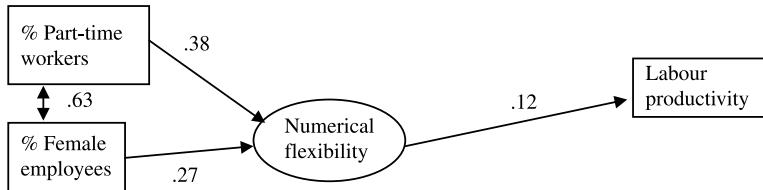
$\chi^2 = 41.45$ (df = 4); GFI = .98; AGFI = .93; TLI = .92; IFI = .97; CFI = .97; RFI = .91;
RMSEA = .11.

(b) Contingency model

Manufacturing:



Services:



$\chi^2 = 63.60$ (df = 8); GFI = .96; AGFI = .86; TLI = .85; IFI = .94; CFI = .94; RFI = .83;
RMSEA = .10.

χ^2 difference (df = 4) = 22.15 ($p < .005$).

Figure 4 Numerical flexibility model

thereby enabling the development of a stable workforce. For employees to be productive, managers need to provide encouragement and support. They do so by introducing HPWP and frequently communicating with employees. These practices do not, however, exert a substantial positive effect on trust, and neither does trust have much impact on labour productivity. How can these results be explained?

In the wake of considerable organizational restructuring, downsizing, and institutional change leading to widespread perceptions of employment insecurity (Watson *et al.*, 2003:⁵ 82), workers are likely to have become more sceptical of the content of management communications. Paradoxically, professionalizing communications in the form of public relations expertise may also work against trust in management. Two possible explanations for the low trust-productivity relationship are that, first, trust is much less important than management competence – management may not have the capability to deliver productivity outcomes, and, second, trust in local management is less

relevant to worker motivation in an era characterized by corporate headquarters' control over investment and management pressure to respond to short-term movements in the company's share price. Nevertheless, in labour-intensive services, where local management can make a substantial difference to customer outcomes, trust in management is likely to have more influence: hence the positive, albeit relatively weak relationship with productivity in service environments. More generally, over the longer term, labour productivity may benefit from high trust by attracting high-quality employees to a company known for its trusting culture and by reducing labour turnover.

The stronger relationship between HRM strategy and HPWP in manufacturing suggests that the specific practices that comprise HPWP – viz. rigorous selection, training and development, employee participation and equal employment/affirmative action – are more suited to a functionally flexible manufacturing sector than numerically flexible service industry, a finding that recalls Hunter's (2000) results. An explanation of why communication should be stronger in building trust in manufacturing compared to services is that in manufacturing workplaces relationships with workers are more continuous. In service workplaces, there are proportionately more workers employed on non-standard contracts (Watson *et al.*, 2003). This makes communication more difficult, and interactions with customers mediate management communications and influence how messages are interpreted.

In regard to the organizational trust model, contrary to expectation, a positive ER climate may indicate an indulgence pattern (Gouldner, 1955) and hence a lack of pressure to increase labour productivity. This finding is consistent with some studies that show little relationship between job satisfaction and performance (Brief, 1998; Iaffaldano and Muchinsky, 1985).

The surprisingly small positive relationship between supportive employment practices and management competence suggests that managers who are good at allocating and utilizing financial and physical capital do not necessarily engage in exemplary human resource practices. These managers are mainly task- rather than people-oriented, and concerned with creating economic value rather than building organizational competence. Contrary to expectation, management competence has a negative effect on ER climate. This contrasts with the strongly positive impact of supportive employment practices. A possible interpretation of this is that being more efficient may mean more management control and either less worker discretion or more worker discretion coupled with greater work responsibility and collegial pressure to perform; in other words, increased work intensification (Boxall and Purcell, 2003). In either case, tension between management and employees is likely to rise, as indicated by a negative relationship between management competence and ER climate.

The finding that foreign-owned workplaces are more likely to use supportive employment practices, though contrary to Hodson's (2004) results, is unsurprising, for multinationals, in contrast to local firms, are well-known for introducing more sophisticated HR practices, including higher pay, into their affiliate workplaces (Muller-Camen *et al.*, 2001: 439; Wolf, 2004: 235–42).

Our results in relation to the labour process model show that, as anticipated, work intensification is strongly and positively related to job strain. This contrasts with the small negative relationship between job strain and labour productivity, which was expected to be strongly positive. We interpret this result as indicating that stressful work leads to lower productivity because health and safety deteriorates, which in turn contributes to errors, accidents, lower quality work, and possibly also higher absenteeism and higher labour turnover (Jex, 1998; Lee and Ashforth, 1996). Measurement error may also account for this weaker than expected finding since job strain is a single item rather than

multiple items. For services, compared to manufacturing, this relationship is relatively small and positive, perhaps because service employees feel some obligation to customers and so are prepared to wear a limited amount of strain in order to not let customers down.

The numerical flexibility model works as predicted and is consistent with a great deal of evidence that employers have been pursuing numerical flexibility strategies in order to increase their ability to respond to unpredictable market developments, optimize the use of new technology, and contain costs in a world of intense competition and excess capacity in many industries (Watson *et al.*, 2003). For example, casual employment (temporary work without several basic entitlements) – the largest component of non-standard employment – has grown much faster than standard employment over the past twenty years. Its present relative significance in Australia is greater (around 25 per cent of total employment) than in all other OECD countries except Spain. Australia has also witnessed a substantial growth in part-time work with 29 per cent of total jobs classified as part-time in 2002 and an estimated two-thirds of these comprising casual employment (Pocock *et al.*, 2004). By employing non-standard workers, especially casual employees, management reap several benefits, including lower costs (through avoidance of maternity protection, redundancy pay, paid annual leave including public holiday pay and sick leave), flexibility to dismiss without worker recourse to unfair dismissal protection and a capacity to intensify work based on the threat of unemployment and very limited union protection.

The numerical flexibility model shows a highly positive relationship between the proportion of female workers in workplaces and the number of part-time workers, thereby indicating that most part-time workers tend to be women. This is confirmed by data indicating that, in October 2001, 71 per cent of Australian part-time employees were women (ABS, 2001). The model begs an important question, though: what is the mechanism through which numerical flexibility leads to higher labour productivity? The model indicates a direct relationship, suggesting that it is management's ability continually to adjust the sourcing and production of goods and/or services to changes in market demand that makes the difference. In other words, labour productivity in this model appears to be strongly related to management's capacity to secure organizational flexibility rather than relying on employee motivation, knowledge or skills.

We did find some sector differences: manufacturing had a stronger positive relationship between the proportion of part-time employees and numerical flexibility than services (although both were very strong). However, the variable indicating the proportion of females in manufacturing had no impact on numerical flexibility compared with a high positive relationship in services. This suggests that manufacturing workplaces use a different mix of labour compared to service establishments to secure numerical flexibility. In manufacturing, part-time workers are employed to meet management's numerical flexibility demands and fewer women are employed. These women tend to be part of the less flexible core, employed mainly as clerical, administrative and marketing staff, while in services women comprise a much higher proportion of the workforce and, as mentioned above, part-time workers, such as hospitality workers, customer service representatives and sales assistants, tend to be women.

In manufacturing we find a strong positive relationship between numerical flexibility and labour productivity compared to a small positive relationship for services. Why is this so? Arguably, manufacturing workplaces that use numerical flexibility are strongly advantaged, while in services it is more commonly used (particularly in the retail, health and community service, and property and business service sub-sectors) and consequently does not confer much of a productivity advantage over competitors. This finding

contradicts the proposition we advanced in the theory section of the paper to the effect that high-road models of workplace performance would tend to be more effective in manufacturing. It is, however, consistent with the evidence that increasing competition, coupled with an institutional context conducive to non-standard working and very limited incentives to train workers (Watson *et al.*, 2003: ch. 10), has resulted in manufacturing management taking the low road to high performance.

Having completed our analysis, three limitations of the study are worth bearing in mind. First, our data did not include all concepts relevant to our research topic (e.g. the fit between business and HR strategies) and provided limited information on some others (e.g. labour productivity was measured by a single subjective item). Second, although the data derived from various related surveys, this is a cross-sectional study, which, like others of its kind (e.g. Delaney and Huselid, 1996; Guthrie, 2001), does not permit unequivocal interpretations of causal relations. Third, although SEM methodology has the advantages described in the 'Methods' section, it also has three limitations. These are, first, some of the assumptions on which SEM is based (continuous measurement and multivariate normality) remain untested, although this is unlikely to be a serious problem.⁶ Second, unlike multiple regressions, SEM does not directly control for the influence of potential confounding variables. When the goodness-of-fit statistics are above .95, it can be safely assumed that no confounding occurs. However, in our empirical analyses, goodness of fit was typically below the .95 threshold, so that confounding remains a possibility.⁷ Third, because some of the largest path coefficients were observed between variables from the same survey source, common source bias might be a problem. Accordingly, we need to be cautious in drawing conclusions from our analysis.

Conclusion

In this paper we explore four different models that were designed to explain high workplace performance. The two high-road variants, which we label the strategic HRM and organizational trust models respectively, display some strong linkages in the right direction between environmental and structural variables, on the one hand, and mediating variables (e.g. communication, trust and ER climate), on the other. However, the influence of these variables on relative workplace labour productivity is weak. One of the low-road models – the labour process model – also showed posited mediators mainly working in the right direction, with little impact, however, on labour productivity. By contrast, the final low-road model demonstrates influence paths that are both strong and in the expected direction, with the proportion of part-time workers in manufacturing accounting for substantially more numerical flexibility than in service workplaces, where this variable and the proportion of women employees both contribute to numerical flexibility. This in turn influences labour productivity, albeit to a considerably smaller extent than in manufacturing.

We argue that the institutional context is conducive to employers pursuing a numerical flexibility strategy, which, by tailoring the supply of labour to demand, enables some management to attain high workplace productivity. We need, however, to be careful about drawing conclusions from these findings. This is partly because of the methodological issues raised in the previous section, but also because we are measuring a narrow, short-term outcome – current workplace productivity compared to competitors. If a broader, longer-term, multidimensional concept of performance associated with the idea of sustainable success was used (Paauwe, 2004: ch. 4), the results might have been very different. We therefore need to pay more attention to developing more

comprehensive dependent variables. Furthermore, our analyses highlight the need for further theorizing and research on the relationship between mediating variables and performance. Motivational arguments relying on variables such as communication, trust and ER climate fail to work as strongly as anticipated. While measurement problems may account for some of this explanatory failure (particularly in light of Harter *et al.*, 2002), our findings may also suggest the potential importance of cognitive processes (such as organizational learning, knowledge creation, knowledge sharing) and the role of social capital (Delery and Shaw, 2001) in accounting for high performance. The likely importance of these processes points to the need for case studies that would generate new theory and inform survey design so that the field can move beyond the HPWP paradigm.

Notes

- 1 Owing to measurement problems, we were not able to include extent of contracting-out of work, minorities as a proportion of the workforce and extent of competition in the product market.
- 2 We question the construct validity of Ramsay *et al.*'s. (2000: 527) usage of management reports of changes in labour productivity in the last five years as a measure of work intensification. Labour productivity may have various sources aside from increased worker effort. Accordingly, we prefer to use a composite measure of worker perceptions of work intensification as indicated in Table 2.
- 3 In some cases, internal consistency among this larger set of items was so low that the path analyses either did not converge or had inadmissible negative error variances. This evidence casts doubt on the systemic (i.e. internally consistent) nature of HPWP.
- 4 We tried a variant of the model inserting ER climate as a mediator between numerical flexibility and labour productivity. This was based on the proposition that practices such as outsourcing of labour and hiring of mainly casual, part-time workers will lift worker effort through fear of possible job loss. However, this mediation model did not converge.
- 5 At the time of the survey (1995–6), the economy was growing at around 3 per cent a year following a recession. Structural change is indicated by reductions in tariff protection (in manufacturing from 15 per cent in 1989–90 to 8 per cent in 1995–6) and institutional change is signalled by decentralization of the industrial relations system, with workplace bargaining having been formalized in 1994 following major legislative change. By the time the survey was undertaken, workplace agreements were becoming a common alternative to arbitrated award provisions (Morehead *et al.*, 1997: 2–7).
- 6 Although violations of these two assumptions are common and usually ignored, an optimal research strategy would test these assumptions, particularly multivariate normality. While univariate normality can be tested relatively easily with Q-Q plots, tests of multivariate normality are complex and none of the common statistical packages offers these χ^2 plots (Sharma, 1996). However, we performed tests of univariate normality on all variables, and most did not violate the assumption of univariate normality. Even if the assumption of multivariate normality was violated, research suggests that, in practice, this assumption rarely holds (West *et al.*, 1995).
- 7 To control for such potential confounding variables, we would need to (1) draw on theory and specify these confounding variables and (2) collect data on them and control for their impact statistically.

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