
Article:
Valizade, D., Cook, H., Forde, C. orcid.org/0000-0001-9518-7151 et al. (1 more author) (2024) Do union strategic influence, job security and the industrial relations climate matter for the adoption of High Performance Work Systems? Journal of Organizational Effectiveness: People and Performance, 11 (2). pp. 262-281. ISSN 2051-6614

https://doi.org/10.1108/JOEPP-09-2022-0278

Do union strategic influence, job security and the industrial relations climate matter for the adoption of High Performance Work Systems?

Danat Valizade*, Hugh Cook*, Chris Forde*, Robert MacKenzie**

*CERIC, University of Leeds

**Karlstad University, Sweden

Correspondence address: c.j.forde@lubs.leeds.ac.uk

Paper accepted and forthcoming in Journal of Organisational Effectiveness: People and Performance

DOI: 10.1108/JOEPP-09-2022-0278

Abstract

Purpose: The paper explores the role of union strategic influence on the adoption of High Performance Work Systems (HPWS) in organisations and examines how the effects of job security and then in turn the industrial relations climate, mediate this relationship in a serial manner.

Design/methodology/approach: The research analyses an original quantitative survey of union negotiators and representatives in 382 workplaces in England. The analysis employs structural equation modelling techniques to examine the relationships between union influence, job security, industrial relations climate, and HPWS.

Findings: Union strategic influence has a positive effect on the take up of HPWS in unionised workplaces. Job security and the industrial relations climate demonstrate a serial mediation effect between union strategic influence and the take up of HPWS: union strategic influence has a positive effect on job security, which in turn positively impacts the industrial relations climate, thereby increasing the likelihood of the adoption of HPWS. The findings for the industrial relations climate are particularly strong.

Practical implications: Findings suggest that organisations will benefit from focusing on the development of positive industrial relations, where unions have genuine strategic influence, because this maximises the likelihood that HPWS can be adopted and sustained.

Originality/value: The paper provides a novel focus on the take up of HPWS within unionised workplaces. It focusses on the role of union strategic influence and the mediating effects of job security and the industrial relations climate, which are contextual factors that have been underexplored in the HPWS literature to date.

Research Paper

Key words: High-Performance Work Systems, unions, industrial relations climate, strategic influence, serial mediation

Introduction

There has been long-standing interest in the role played by unions in the operation of human resource management and 'High Performance Work Systems' (HPWS) (Freeman and Medoff, 1984; Kochan and Osterman, 2002; Mowbray et al., 2021). Attention has focused on whether unions impact upon the effectiveness of HPWS, with studies reporting mixed performance effects (Cook et al., 2020; Shin, 2014; Vernon and Brewster, 2013). Less focus has been directed towards the ways in which unions might impact upon the very *adoption* of HPWS. Some have argued that co-operative union-management relations may facilitate the take up of HPWS, with unions able to mobilise worker support for the adoption of HPWS in some circumstances (Mowbray et al., 2021). Others have suggested that unions may act as a resisting force to HPWS, as these practices may undermine wider union goals and objectives (Danford et al., 2008; Shin, 2014).

In the few studies that have explicitly examined the introduction of HPWS in unionised settings, the specific workplace context has been found to be critical to whether HPWS are adopted or not. Ramirez et al. (2007) found that where unions had a significant role to play in strategic decision making within organisations, this had a positive impact in some circumstances upon the take up of HPWS and any subsequent achievement of 'mutual gains' in terms of increased organisational performance alongside improved employee well-being (Kochan and Osterman, 2002; Vernon and Brewster, 2013; Wu et al., 2015). A good industrial relations climate, characterised by positive and supportive relations between workers, their representatives and managers, has also

been identified as potentially important for the successful adoption of HPWS (Mowbray et al., 2021; Pyman, 2010). Finally, Liu at el. (2009) have argued that credible job security commitments may be a necessary pre-condition to the take up of HPWS in unionised firms, which may otherwise be seen as posing a threat to jobs and to union objectives. However, the links between these contextual factors have not been systematically investigated in previous research, a gap we address in this study.

In this paper, we examine the role of industrial relations climate and job security as potential mediators in the relationship between union strategic influence and the successful adoption of HPWS. In doing so, we extend the existing knowledge of HPWS in two ways. First, we provide a much-needed focus on the *introduction* of HPWS, whereas, as noted above, most attention in research has been on the HR practices-performance relationship (Huselid, 1995; Kase et al., 2014; Siddique et al., 2019). Understanding the workplace conditions that are conducive or destructive to the adoption of HPWS is, we argue, an essential prior step to the investigation of performance effects. Drawing on the critical literature on mutual (employer and employee) gains and partnership, we theorise why strategic influence of unions might be important to the take up of HPWS, and we postulate how and why the industrial relations climate and job security might serially mediate this relationship. We also seek to contextualise the reality of union influence and HPWS by unpacking some of the underlying processes (job security and industrial relations climate) that seem to be key to realising mutual gains of increased performance and employee well-being within the historically low-trust, low-participation environment of the UK (Cook et al., 2016; Martinez Lucio and Stuart, 2004).

Secondly, much extant research on the relationship between trade unions and HPWS is concerned with comparisons between unionised and non-unionised workplaces (e.g. Machin and Wood, 2005). Although such comparisons are empirically useful, they are prone to omitted variable bias; that is, any differences observed between unionised and non-unionised workplaces may not necessarily be caused by the existence of a union (Bennett and Kaufman, 2004). Our focus on unionised workplaces allows us to isolate the factors impacting on the adoption of HPWS in an environment where employee collective voice is expressed through trade unions. Furthermore, unlike many other studies of HPWS which draw from management evidence, we gather evidence directly from union representatives, providing important but to date underexplored insight into workplace relations, union strategic influence and the role of unions in HPWS.

Our empirical analysis is drawn from an original survey (n=382) of union workplace representatives covering all regions and all of the largest unions in the Trades Union Congress (TUC) in England. Using indicators of a HPWS that cover recruitment, selection, pay and reward, development and employee participation and involvement, and employing structural equation modelling, we find that where unions have a strong influence on strategic decision making in organisations, this does have a positive impact on the take up of HPWS.

Crucially, however, when we consider job security and the industrial relations climate we find that these are indeed significant mediators of the relationship between

union strategic influence and the introduction of HPWS. Our findings show that union strategic influence exerts a positive impact on the take-up of HPWS by increasing job security, which in turn improves the industrial relations climate. In a low-trust, low-participation workplace environment like the UK, it seems these conditions are vital to provide the foundations for mutual buy-in from managers, unions and workers over HPWS. Unions may, in these circumstances, be able to assuage employee concerns about the likely impact of changes to work practices and jobs, using strategic influence to oversee their implementation and close off low-cost routes to competitiveness. This may pave the way for the possible long-term sustenance of HPWS (Cook et al., 2016; Frost, 2001; Ramirez et al., 2007). We argue, therefore, that studies of the HPWS-performance relationship need to focus more closely on the factors that influence the *take up* of high-performance work practices, particularly the impact of the strategic role of unions, the industrial relations climate and job security, as a precursor to understanding their effect.

The remainder of the paper is structured as follows. In the next section we introduce the theoretical background and justify the hypotheses for the study. Thereafter we provide an overview of the data, measurement scales and methods employed. We then report the findings derived from structural equation modelling and a serial mediation analysis. In the concluding discussion we turn to the theoretical and practical implications of the study.

Trade unions and the adoption of HPWS: what factors are important?

HPWS, mutual gains and the strategic influence of unions

There is an extensive and growing literature on HPWS, defined here as a set of practices that together seek to recruit, select, develop, motivate and retain employees and which allow employee involvement in organisational decisions (Wood, 2021). There is ongoing debate over the theoretical and conceptual foundations of the term, which practices should be considered as part of a HPWS, as well as whether there are any performance effects of these systems (see Guest et al., 2003; Han et al., 2021; Kase et al., 2014). There is a growing consensus among scholars that the context in which HPWS are introduced is also important to consider, particularly whether there is an underpinning goal of securing mutual gains for employers and workers (Edwards and Wright, 2001; Valizade et al., 2016; Wood, 2021). The focus of some empirical and conceptual research has thus started shifting towards studies of the specific contexts in which HPWS are adopted and implemented (Do et al., 2019; Mowbray et al., 2021; Siddique et al., 2019). It is to this growing debate that we seek to make a contribution.

The impact that unions have on the adoption and operation of HPWS is of particular interest. In environments where unions are recognised, the attempt to introduce HPWS may be seen as a deliberate ploy by management to substitute collective voice with direct voice mechanisms, as a means to legitimise and drive through workplace change (Fiorito, 2001). Under this view, there are likely to be

significant tensions and resistance to the adoption of HPWS in unionised settings. The adoption of individual high-performance practices such as individual performance related pay or forms of voice that do not involve unions may be a threat to union goals around collective representation (Danford et al., 2008; Shin, 2014). Liu et al. (2009) found some support for this view, highlighting a significant negative association between higher levels of trade union representation and the take up of HPWS in organisations.

However, a growing body of research points to potential complementarities between unions and the take up of HPWS. Direct voice mechanisms often fail to provide the levels of consultation and information sharing that are found when unions are present (Bryson et al., 2005; Machin and Wood, 2005). The presence of unions may therefore provide enhanced, independent collective voice, beyond the direct voice found in self-managed teams, suggestion schemes and continuous improvement groups (Mowbray et al., 2021). Collective voice mechanisms may also act synergistically with direct voice mechanisms, with the former helping to ensure that management respond and act on issues raised by the latter, and with unions effectively policing management's implementation and operation of HPWS (Cook et al., 2020). Unions may also provide an effective collective communication infrastructure, reducing the costs of negotiating and communicating with every individual worker (Gill, 2009), and increasing worker trust in management when change (such as the introduction of HPWS) is proposed. Finally, unions may also be able to 'shock' management into taking an organisation-wide perspective (Freeman and Medoff, 1984; Gill, 2009),

closing off short-term routes to competitiveness based on minimizing labour costs, thus making the adoption of (often costly) HPWS more likely in the presence of unions.

The issues outlined above suggest that much closer attention needs to be paid to the workplace context and the specific roles that unions play in workplaces where they are recognised and where HPWS are adopted. Theoretically, the critical literature on mutual gains offers some valuable insight into the specific circumstances and conditions under which the take up of HPWS may be increased in some unionised environments and reduced in others (Gill, 2009; Mowbray et al., 2021; Pyman et al., 2010). Kochan and Osterman's (2002) seminal contribution on mutual gains for employer and employee stimulated much interest in how human resources can be harnessed to achieve and maintain competitive advantage, through the genuine involvement of multiple stakeholders in organisational decision making. However, as Martinez Lucio and Stuart (2004) note, subsequent research has downplayed how union representatives and negotiators, as crucial workplace actors, interpret their 'field of change' and actually make decisions in organisations. In historically 'low trust' environments, like the UK, HPWS approaches have rarely been based on genuine co-operation, nor have they been found to deliver mutual gains in practice (Wu et al., 2015). It is unsurprising that in this context, unions may approach the prospect of the adoption of individual HRM practices, or a complete HPWS, with caution and will carefully weigh up the extent to which these are likely to offer a genuine prospect for them to engage with management and impact upon the way that the organisation is run.

The notion of 'union strategic influence' is proposed here as a way of conceptualising the role that unions have in decision making within workplaces. Discussion of 'strategic choice' within much of the mutual gains literature often focuses exclusively on conscious, formally articulated *management* strategic choice (Shin, 2014) and neglects a subtler appreciation of union motives, rationales and their influence on decision making (Martinez Lucio and Stuart, 2004). Ramirez et al. (2007), in their case studies of union roles in HPWS in the UK and US telecommunications sector, find that where unions were actively involved in discussions over the adoption of HPWS programmes, these initiatives were more likely to be initiated, and to secure buy-in from the widest set of stakeholders in organisations. Furthermore, where unions were able to hold management to account and ensure that the interests of workers were not slighted by HPWS, this helped to galvanize worker support behind the initiatives (see also Frost, 2001). Cook et al. (2020) found that unions were often able to reinforce and improve management communication systems around HPWS, and that formal platforms afforded to unions helped them to mitigate vulnerabilities in HRM systems. In such circumstances, unions may have the potential to impact upon the way that organisations are run by ensuring that worker views are meaningfully inputted into strategic decision making over HPWS (see also Mowbray et al., 2021; Vernon and Brewster, 2013). Overall then, this suggests that in analyses of the take up of HPWS there is merit in focusing on union strategic influence within organisations; specifically whether unions have significant influence over decision-making, whether they are able to hold management to account, and whether they have an impact upon the way that organisations are run.

Our first hypothesis reflects the debate over the role of unions in strategic decision making and the take up of HPWS:

Hypothesis 1: Trade union strategic influence in the workplace is positively associated with organisational adoption of HPWS.

Job security and industrial relations as serial mediators of union effects on HPWS

The main conceptual argument of this study is that a positive effect of union strategic influence on organisational adoption of HPWS is indirect, mediated through a chain of factors reflecting the workplace context in which HPWS are adopted. This approach is consistent with previous studies (e.g. Wood, 2021) that called for more attention to be placed on the role of mediating variables to progress our understanding of the impact of HPWS. The mutual gains HRM literature offers insights into a potential causal effect of a supportive 'workplace context' leading to the take up of HPWS in unionised firms (Cafferkey and Dundon, 2015). Two factors stand out as plausible mediators: job security (Liu et al 2009) and the industrial relations climate (Blyton et al., 1987; Mowbray et al., 2021; Pyman et al., 2010; Valizade et al., 2016). The serial mediation hypothesised in this study rests on the assumption of a chain mediation where the effect of an independent variable (union strategic influence) runs sequentially through different mediators (job security and industrial relations climate) to the outcome variable (the adoption of HPWS). The first mediator (job security) often has a direct effect on the second mediator (industrial relations climate) and through

that transmits the effect of an independent variable (union strategic influence). In what follows, we look at these assumptions in turn.

We begin the theoretical justification for the serial mediation effect from a rationale for the association between union strategic influence, job security and industrial relations climate. Job security commitments or guarantees may be a vital precondition for unions to accept and support HPWS. Amidst increasing levels of job insecurity, unions may accept some new workplace HR practices in concession for workplace security agreements (Rutherford and Frangi, 2021). Furthermore, job security is a key component of many models of HPWS (see Wood, 2021 for a review). Yet, despite this, a number of studies find that HPWS are associated with layoffs and job losses (Iverson and Zatzick, 2007; Osterman, 2000). In their study of steel mills in the US, Bacon and Blyton (2001) point to higher levels of job insecurity in the presence of HPWS: they argue that continual searches for flexibility, cost efficiencies and team-based empowerment initiatives that accompany HPWS often lead to waves of layoffs and lower staffing levels. The exception, they note, is where unions were able to work in 'genuine partnership' with management, and under these circumstances, HPWS may be associated with greater job security.

The industrial relations climate is our second mediating variable. This can be seen as a measure of the quality of the relationship between trade unions and managers (Dastmalchian, 2008). A positive industrial relations climate has been found to improve organisational performance in a range of studies of HPWS (Deery and Iverson, 2005; Valizade et al., 2016; Yoon-Ho et al., 2015). A positive industrial relations climate may help to foster norms of reciprocity and discretionary behaviour (Gill, 2009; Pyman et al., 2010), forged by union and management predispositions to

respond favorably to the intentions of their counterparts (Mowbray et al., 2021; Wilkinson et al., 2014). As a result, an atmosphere of trust and support between trade unions and managers is more likely, creating the cooperative workplace context in which HPWS might be effectively adopted and mutual gains for employers and employees secured (Dastmalchian, 2008; Deery et al., 2014; Marchington, 2015).

Overall, then, the hypotheses connecting our independent variables, mediators and the outcome are as follows:

Hypothesis 2a. Union strategic influence is positively associated with job security.

Hypothesis 2b. Union strategic influence is positively associated with the industrial relations climate.

Hypothesis 3a. Job security is positively associated with organisational adoption of HPWS.

Hypothesis 3b. Industrial relations climate is positively associated with organisational adoption of HPWS.

Central to our theoretical reasoning is an explanation of how job security and industrial relations climate might mediate in a serial fashion any relationship between union strategic influence and the take up of HPWS. Liu et al. (2009) highlight the firm-specific nature of many skills acquired by employees through HPWS. Whilst HPWS may ultimately improve organisational productivity, employees bear some risks, they argue, as the skills and capabilities acquired as part of HPWS may be of limited use in other workplace contexts. Both workers and unions will need reassurances that any productivity gains secured will not result in layoffs. Under circumstances in which unions have a high degree of strategic influence in workplaces, it may be that higher levels of job security can be negotiated and agreed (Valizade et al., 2022), to provide

the assurances necessary to allow HPWS to be taken up. Similarly, where unions have lower levels of strategic influence, it may be that they are less likely to establish commitments around job security, which in turn may hold back the take up of HPWS.

But how, specifically, might job security first affect the industrial relations climate, which in turn then facilitates the cooperative workplace dynamics necessary for HPWS, as we propose in our serial mediation model? Valizade et al. (2016) found that worker-management commitments on job security were perceived by workers to have a positive effect on performance, and in turn, these positive attributions were significantly associated with a better industrial relations climate. Ali et al. (2018) also find that higher levels of job security are associated with more positive employee perceptions of the prevailing industrial relations climate. Newman et al. (2019), using social exchange theory, argue that with a more positive industrial relations climate workers are more likely to put in discretionary effort, due to the greater trust they have in management. It is this higher level of trust that may be important to removing barriers to the take up of HPWS.

The above argument, however, does depend also on the broader institutional arrangements and system of employment relations in which these 'micro-level' dynamics are played out. As Newman et al. (2019) point out, job security commitments may be more commonplace in some contexts (such as the state sector in China) than others. In the context of low-trust relations common in the UK, supposedly cooperative workplace relations and a positive climate may actually serve to undermine traditional union powers of veto and opposition (Valizade et al., 2016). What matters is the nature of relations in particular workplaces, or as Freeman and Medoff allude to (1984: 179)

‘unionism per se is neither a plus nor a minus to productivity; what matters is how unions and management interact at the workplace.’

Following from the above, the way that union strategic influence impacts upon the take up of HPWS is likely to vary from context to context. In the low-trust context of the UK, it would seem plausible to argue that strategic influence is likely to have an effect on the take up of HPWS where this influence increases job security, which in turn bolsters the underlying industrial relations climate in organisations. Unions may have a high level of strategic influence on decision making in some workplaces, and because of this power they can ultimately compel employers to act in a way that strengthens job security and fosters a harmonious climate of positive employer-employee relationships. Such processes can be seen in Cook et al.’s (2020) case study of partnership working, where unions policed the effective implementation of company HR practice and were able to cement mutual gains outcomes. So, any union strategic influence needs to be realised in improved job security and a positive industrial relations climate, where unions and management work together towards a common goal, have respect for each others’ objectives and conduct bargaining and dialogue in good faith, in order for this to lead to a greater take-up of HPWS.

Our review has highlighted how job security and consequently the industrial relations climate may mediate the impact of union strategic influence on the take up of HPWS. In modelling these relationships, it is important to note two points. First, union strategic influence is likely to have a *direct* effect on both job security and the industrial relations climate, as well as potentially influencing the take up of HPWS. Where unions have involvement in decision making, this itself is likely to have a positive impact on

worker-management relations in firms (Deery and Iverson, 2005; Ramirez et al., 2007), and union influence in these firms may allow them to push more effectively for higher levels of job security (Bacon and Blyton, 2001). Secondly, the inclusion of job security and the industrial relations climate in a theoretical model may completely eliminate (a full mediation effect) or lead to a significant reduction (a partial mediation effect) in the size of the individual effect of union strategic influence upon the adoption of HPWS. If any direct union effect on HPWS is over-ridden, then job security and industrial relations climate would remain as the most meaningful predictors in the model, thus suggesting that they both may enable adoption of HPWS in unionised organisations, but that the presence of influential unions may still matter, through a direct impact upon security and climate.

The concluding hypothesis is as follows:

Hypothesis 4: Job security and the industrial relations climate serially mediate the positive effect of union strategic influence on industrial relations climate and adoption of HPWS.

The conceptual model for the current study is shown in Figure 1 (direct relationships) and Figure 2 (a serial mediation model with job security and industrial relations climate):

Figure 1 here

Figure 2 here

Methodology

The data for this study were generated through a survey questionnaire examining the role of unions in organisations, collective bargaining, human resource practices and performance outcomes. This was distributed amongst union workplace negotiators using a complete database provided by six regional branches of the Trades Union Congress in England: North West, Northern, Yorkshire and Humber, Midlands, Southern and Eastern, and South West. Over 1000 surveys were distributed online in 2014, with the response rate standing at nearly 40 per cent with 382 complete, usable questionnaires.

Twenty-three trade unions affiliated with the TUC were represented in the survey, with the majority of responses coming from UNISON (public services), Unite, GMB (both general unions), PCS (Public and Commercial Services), NUT (National Union of Teachers, now National Education Union) and UCU (University and College Union). The majority of union branches were located in large organisations (with 250 or more employees), our sample was therefore broadly consistent with the national-level union membership statistics in terms of workplace size. Of the workplaces covered by the responses, 24 per cent had a membership density between 50-75 per cent; a further 40 per cent of the sample had union membership density between 20-49 per cent; the rest of the responses came from workplaces with union membership density below 20 per cent. Estimates reported in this study were weighted by workplace size, industry and union membership density to adjust for potential sampling biases relative to the wider population.

Survey-based studies looking at HPWS traditionally gathered data from management respondents, and more recently employee perceptions of management practice, however few studies have directly consulted union representatives (see Boon et al., 2019 for a review). There have been valuable studies based on union respondents, which have usefully provided insight into the role of unions in organisational processes and outcomes, including HPWS (Bacon and Blyton, 2007; Rutherford and Frangi, 2021). Martinez Lucio and Stuart's (2002) study of the rhetoric and reality of partnership agreements, for example, draws on a survey of union representatives, which included questions on HR practices. Advantages of accessing union actors rather than management to look at HR practices and HPWS include a likely reduction in potential bias in overstating the extent of HPWS, as might be expected from management respondents. Our focus on the strategic influence of unions, job security and perceptions of organisational climate in *unionised* workplaces also merits the gathering of data from union representatives. However, the limitations of such evidence, that technical data on organisational practices are gathered from a union respondent, should also be acknowledged. Seeking responses from management and union respondents might have yielded data in which responses could be calibrated and checked against each other, and dissonance explored and explained, however this was not possible in the study, and would have significantly reduced the sample size.

Measurements

The key study variables were measured as 7-point Likert-type scales comprised of at least two items, with union negotiators being asked about the presence and extent of these phenomena in the organisation in which their union was present. Our dependent variable, *High Performance Work Systems (HPWS)*, was measured through eight items. There remains debate over what measures are most appropriate to capture HPWS. Here, we seek to build on recent meta-analyses and overviews of HPWS research. In line with suggestions made in recent overviews of the field (Wood, 2021) we seek to adopt a broad, inclusive set of indicators whilst utilizing measures that have been developed and widely used in other studies of HPWS (Kase et al., 2014). Our indicators cover the extent of HR practices relating to recruitment and selection, training and development and individual and organisation-level performance related pay, as well as measures of the extent of participation and employee involvement. Thus, our measures include indicators widely used in both 'high commitment' and 'high performance' conceptualisations of HPWS (Wood, 2021). Our measures also included practices widely considered as 'work supports' in studies exploring 'mutual gains' processes (employers supporting staff in their development, and employers encouraging employee involvement and participation). These practices have been found to be important supporting measures for other HR practices in a high-performance work 'system' (Brown et al., 2008). Respondents were asked the extent to which they agreed with statements about the presence and operation of these practices in the organisation where they represented their union members. Details of these measures and descriptive statistics can be found in Figure 3, revealing wide variation in their presence. The highest scores were found for recruitment, employee

participation and training, whilst lower scores were reported for performance pay, information sharing, and career development opportunities.

The measurement of trade *union strategic influence* denoted union representatives' perceptions of trade unions' ability to change the way the workplace operated. Here we draw on relevant insights from the strategic choice, union voice and union power literatures (Appelbuam and Hunter, 2003; Mowbray et al., 2021; Ramirez et al., 2007; Shin, 2014). A common theme in the management strategic choice and influence literatures is the involvement of different agents in decision-making and the way firms are run (see for example Judge Jr et al., 1992); the involvement of union representatives in decision making, and their impact, is also a key indicator in studies of union power and union voice (Mowbray et al., 2021; Ramirez et al., 2007). Bacon and Blyton (2002) argue that one way of measuring union influence is through their ability to hold management to account for their actions. On the basis of these previous studies, we designed three questions capturing aspects of union strategic influence, namely: whether unions have influence over decision making in the workplace; whether the union is able to hold management to account; and whether the union significantly impacts upon the way the organisation is run.

Our measure of the *Industrial relations climate* was composed of five items adopted from previously used survey-based questions on this construct, which pick up parties' cooperation, trust, mutual regard, participation and hostility (Blyton et al., 1987; Dastmaltchian at al., 1989). Two items were used to capture perceived *job security*, reflecting union representatives' views firstly on how likely it is that employees will lose

their job in the near future and secondly, their overall satisfaction with job security in the workplace. Similar indicators of job security (satisfaction with job security and perceptions around the likelihood of job loss) have been used in a range of other studies (see for example Newman et al., 2018).

Our empirical model included additional covariates as control variables: union representatives' tenure, gender, workplace size, sector, industry, union membership density and the presence of a union-management partnership agreement. These control variables are ones commonly used in studies of HPWS, union voice, power and influence, industrial relations climate and job security (see for example, Ali et al., 2018; Liu et al, 2009; Newman et al., 2018; Valizade et al., 2016).

Non-response bias and common method variance

Owing to the online nature of the survey design and a single source of independent and dependent variables, consideration was given to the possibility of non-response bias (relating to demographic and social distinctions between the groups of respondents and non-respondents) and common method variance (which occurs where variance is attributable to the measurement method rather than to the constructs that the measures represent) (Armstrong and Overton, 1977; Podsakoff et al., 2003). While non-response bias is difficult to rule out in cross-sectional surveys, we deployed a conventional technique (Armstrong and Overton, 1977; Shlomo et al., 2012) and compared sampling characteristics across the whole distribution of respondents with populations characteristics using such variables as union membership density, sector, workplace size, and gender composition of union membership. For the most part the

differences were insignificant, except for union membership density and workplace size suggesting the possible oversampling of larger organisations with higher union membership density. This has potential implications for the interpretation of our findings and the types of organisations (larger, with more significant union presence) where our empirical results are likely to hold.

Two statistical tests were conducted to account for a possible presence of common method variance: a single common method factor method and a marker variable test (Podsakoff et al., 2003). We adopted confirmatory factor analysis (CFA) to ensure that a single factor could not accurately explain covariance between the observed items. To perform the marker variable test we used a variable that captured union representatives' views on trade union collaboration with their European counterparts. No significant correlations were observed between the marker variable and key study variables. Our tests also showed that a single common method factor is unlikely to be present in the sample (Podsakoff et al., 2003). Overall, common method variance is unlikely to contaminate the results of the study.

Methods

We utilized structural equation modelling (SEM) with the maximum likelihood estimator and robust (Huber-White) standard errors to test our hypotheses (Bagozzi and Yi, 2012). SEM is a pertinent technique since our theoretical model assumes multiple, interconnected relationships and serial mediation. We followed a conventional strategy for serial mediation analysis, using PROCESS packages for R statistical software. Prior to estimating structural equations, Confirmatory Factor Analysis was performed to establish validity and reliability of measurement scales. The analysis

returned fit indices consistent with the conventional cut-off points (Bagozzi and Yi, 2012): χ^2/df = 1.37, RMSEA = 0.031, CFI = 0.989, TLI = 0.985, and SRMR = 0.051. We computed Composite Reliability (CR) and Average Variance Extracted (AVE), all of which exceeded recommended cut-off points (0.6 and 0.5 respectively). These results were taken as evidence of convergent validity. AVE exceeded squared inter-construct correlations, which was taken as evidence of discriminant validity (Fornell and Larcker, 1981). Main study variables, their means, standard deviations, internal consistency of measurement scales (Cronbach's Alpha), factor loadings, CR and AVE are reported in Table 1. Table 2 contains squared inter-construct correlations.

Table 1 here

Table 2 here

Results

The structural equation modelling outputs for direct effects between strategic influence and HPWS, job security and industrial relations climate are reported in Table 3, including unstandardized path coefficients (*ß*) and 95 per cent confidence intervals. Table 4 contains the outputs for the serial mediation effects through job security and industrial relations climate, including estimated confidence intervals for indirect effects with bootstrapping (10,000 samples).

Table 3 is organised into three parts. Part 1 reports the outcomes of the total effects model where union strategic influence has a direct effect on the adoption of HPWS without any mediators in the model. Union strategic influence presented a positive association with the likelihood of organisational adoption of HPWS ($ß = 0.289$ at $p < 0.001$) thus supporting *Hypothesis 1*. Parts 2 and 3 of the table correspond to

the models measuring the direct effect of union strategic influence on the proposed mediators: job security and the industrial relations climate. Since we hypothesise a serial mediation effect, Part 3 of the table reports a path coefficient for the effect of job security (mediator one) on industrial relations climate (mediator two). Overall, we found support for *Hypotheses 2a and 2b* as union strategic influence was positively associated with the hypothesized serial mediators (job security and industrial relations climate with $\beta = 0.526$ at $p < 0.001$ and $\beta = 0.201$ at $p < 0.05$ respectively). Furthermore, job security was positively associated with the second mediator – industrial relations climate ($\beta = 0.147$ at $p < 0.01$). Together, these findings highlight that the extent of union strategic influence is an important determinant of whether organisations adopt HPWS, as well as a factor which impacts directly on job security and the industrial relations climate in workplaces.

Table 3 here

Table 4 (Part 1) provides regression estimates when union strategic influence and the two mediators are entered in the regression equation. Both mediators were positively and significantly associated with organisational adoption of HPWS ($\beta = 0.098$ at $p < 0.05$ for the effect of job security and $\beta = 0.470$ at $p < 0.001$ for the effect of industrial relations climate). This demonstrates support to Hypotheses 3a and 3b. Crucially, while the two mediators were positively associated with the outcome, the estimate for union strategic influence went down in size and turned non-significant. This suggests the potential serial mediation effect of job security and industrial relations climate, which we explored further by producing bootstrapped confidence intervals for possible combinations of indirect effects. These are reported in Part 2 of Table 4, alongside the total effect. The outputs confirm a statistically significant total effect of

union strategic influence (as reported in Table 3) with bootstrapped confidence intervals. Crucially, considering a serial mediation model, individual paths from union influence through job security and then separately through industrial relations climate are non-significant, while a serial effect through both mediators returned statistically significant confidence intervals. This suggests a significant serial mediation model with a fully mediated effect, which supports Hypothesis 4.

Table 4 here

Discussion

The key finding of this paper is that job security and in turn the industrial relations climate play mediating roles in the relationship between union strategic influence and the take up of HPWS. Unions, through their strategic influence in organisations, are able to exert a positive impact on the take up of HPWS because this influence translates into a mutually supportive trustworthy relationship with managers, thereby providing the foundations for mutual buy-in from managers and workers into HPWS. Our study shows that in unionised workplaces, success relating to the adoption of HPWS is therefore strongly facilitated by good working relations between trade unions and employers, supported by high job security and leading to a positive industrial relations climate (Mowbray et al., 2021). Thus an effective workplace relationship between unions and management serves as an underlying enabling mechanism by which HPWS may be more successfully adopted. These findings add a new level of understanding to the existing body of literature that explores the complex interactions between unions and management practices (Deery et al., 2014; Pohler and Luchak, 2015; Pyman et al., 2010).

Our findings provide new evidence on the impact of unions on HPWS. It is important to note that union strategic influence does, individually, have a strong positive impact upon job security and the industrial relations climate, pointing to the mechanisms through which unions actually impact upon the adoption of HPWS. Our findings serve as a further level of explanation contributing to current knowledge on the links between the role of unions, industrial relations climate and performance (Newman et al., 2019). Following on from this, these findings enrich our understanding of how mutual gains for employer and employee are realised from effective relations between unions and management (Valizade et al., 2016; Wilkinson et al., 2014). Where unions are able to use their collective voice to exert a strategic influence on decision making in workplaces, our data suggest this provides the foundations on which HPWS can be effectively implemented, through the positive effect that it has on job security, which then facilitates a positive industrial relations climate. Through establishing collective voice, unions strengthen the communication of worker views, and through the policing of HPWS they build confidence, assuaging concerns that mutual benefits will not be shared (Cook et al., 2020; Marchington, 2015). Unions also serve to protect employees from overly exploitative policies of employers that might damage the industrial relations climate. This in turn, may pave the way to the increasing acceptance of initiatives such as HPWS, as our data found (Gill, 2009; Ramirez et al, 2007).

Conclusion

This study has uncovered the crucial role that union strategic influence, the industrial relations climate and job security play in determining the take up of HPWS in unionised workplaces. Our argument has advanced in three stages. Firstly, we find that union strategic influence has a positive effect on the take up of HPWS in unionised workplaces. Secondly, we find that union strategic influence has a positive effect on job security and in turn the industrial relations climate in these workplaces. Through their influence, unions can help to build an environment in which, for example, workers have greater security over their employment, and the communication of their views is strongly embedded. Thirdly, job security and the industrial relations climate are serial mediators of the relationship between union strategic influence and the take up of HPWS. Job security and the industrial relations climate both help explain the take up of HPWS in workplaces. Where unions have the ability to meaningfully input into strategic discussions and debates, they are able to build confidence amongst workers, assuaging concerns that mutual benefits will not be shared.

The main contribution of this study is that it is the quality of union-management interaction that facilitates the adoption of HPWS in unionised organisations, which extends understanding of how union activity interacts with HRM systems in the workplace. The identification of a positive industrial relations climate as a mediator between strategic influence and the take up of HPWS in unionised workplaces provides empirical support for this argument (Freeman and Medoff, 1984; Kochan and Osterman, 2002; Mowbray et al., 2021). Crucially, union activities and actions may contribute positively to that climate; with strong strategic influence helping to develop job security and in turn trust between management and workers, improving

communication, ensuring effective implementation and policing of HPWS, and thus building confidence across the workforce in the adoption and take up of HPWS. Our results suggest that, even within the lower-trust environment of the UK (Martinez Lucio and Stuart, 2004) there may be circumstances in which a positive industrial relations climate can occur. In short, the right kind of union-management engagement can pay dividends for managers looking to implement performance enhancing HRM systems.

Practical implications

The implications of these findings are of considerable importance for HR practitioners and trade unions' representatives because they cast light upon factors that can improve the adoption of HPWS in unionised settings. While the study was limited to responses from union representatives or negotiators, this unique perspective marks an important focal change from the extensive body of literature that has researched similar concepts relying on the voices of managers or employees. Indeed, union respondents were very well-placed to inform us on union strategic involvement, job security and the climate of industrial relations; and while their knowledge of the internal workings of HPWS may have been limited, the extent of their implementation was less likely to be over-reported. We suggest that where organisations intend to implement novel HRM practices such as HPWS, they first consider the context of job security, because not only is this a central theorised tenet of a HPWS, but also our mediation analysis found it to support a positive industrial relations climate. Following on from this, managers should pay close attention to the wider climate within which union-management communication takes place, because in our study, where trade

union representatives perceived their relationships with management to be constructive and genuine, the likelihood for adopting HPWS increased markedly. Furthermore, alongside constructive relationships, it would seem important for managers to embrace union influence at the workplace level, as this study implies that strong trade unions might bridge the distance between management and employees, and through a positive industrial relations climate, contribute to the adoption of HPWS. Finally, this study has implications for union representatives and negotiators in terms of their potential to influence organisational HRM practices through constructive relationships with management, especially as many of the tenets of HPWS such as pay, security and training, are fundamental union concerns. Whilst relying on union respondents is a potential limitation to the dataset, on the other hand it is a unique angle from which to view management practices such as HPWS, and this should make the findings of particular interest to those who represent the interests of workers.

Limitations and Future Research Directions

Future studies might build on these findings with qualitative or case-based research that delves into the complex social processes at play where union-management interaction has led to successfully implemented HPWS. This survey research has shown at a broad and nationally representative level the processes through which trade unions may have a positive impact on HPWS implementation. However, there is more to be learned about the detail of these relationships and how they might work in practice in different sectoral and workplace contexts. For example, we have found job security as a precursor to a positive industrial relations climate, but

how this effect manifests in sectors with typically high job security (such as healthcare or teaching) might be qualitatively different to that in sectors characterised by more precarious forms of employment. Similarly, the way in which union influence is mobilised and the workplace dynamics associated with a positive industrial relations climate are indeed likely to vary across workplaces and sectors, so more intensely focused research would further deepen understanding of how unions influence HPWS take-up. Finally, further research on these concepts would be welcome in different economic contexts, given that mutual gains outcomes of HPWS are threatened by recession, austerity or labour market change (Cook et al., 2016). Analysis of union strategic influence on HPWS where the industrial relations climate is threatened by such external forces, or indeed by below inflation pay increases, would be of particular interest for further study.

Acknowledgment

Support for some of the time on this research for Danat Valizade and Chris Forde has been provided by the Economic and Social Research Council (grant number ES/S012532/1) as part of the Digital Futures at Work Research Centre (Digit).

References

Ali, M., Lei, S. and Wei, X.Y., (2018). The mediating role of the employee relations climate in the relationship between strategic HRM and organizational performance in Chinese banks. *Journal of Innovation & Knowledge*, *3*(3), pp.115-122.

Appelbaum, E. and Hunter, L.W., (2003) Union participation in strategic decisions of corporations, National Bureau of Economic Research Working Paper: 9590, available at: https://www.nber.org/papers/w9590

Armstrong, J.S. & Overton, T.S. (1977). Estimating nonresponse bias in mail surveys. *Journal of marketing research*, 14(3), 396-402.

Bacon, N. and Blyton, P. (2001). High involvement work systems and job insecurity in the international iron and steel industry. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de l'Administration*, *18*(1), pp.5-16.

Bacon, N. and Blyton, P. (2002) Militant and moderate trade union orientations: what are the effects on workplace trade unionism, union-management relations and employee gains?, The International Journal of Human Resource Management, 13:2, 302-319.

Bacon, N. and Blyton, P., (2007). Conflict for mutual gains?. *Journal of Management Studies*, *44*(5), pp.814-834.

Bagozzi, R. P., & Yi, Y. (2012). Specification, evaluation, and interpretation of structural equation models. *Journal of the Academy of Marketing Science*, 40(1), 8–34.

Bennett, J.T. & Kaufman, B.E. (2004). What do unions do?: A twenty-year perspective. *Journal of Labor Research*, 25(3), 339-349.

Blyton, P., Dastmalchian, A. & Adamson, R. (1987). Developing the concept of industrial relations climate. *Journal of industrial relations*, 29(2): 207-216.

Boon, C., Den Hartog, D. N., & Lepak, D. P. (2019). A Systematic Review of Human Resource Management Systems and Their Measurement. Journal of Management, 45(6), 2498–2537.

Brown, A., Forde, C., Spencer, D. and Charlwood, A., (2008). Changes in HRM and job satisfaction, 1998–2004: Evidence from the Workplace Employment Relations Survey. *Human Resource Management Journal*, *18*(3), pp.237-256.

Bryson, A., Forth, J. & Kirby, S. (2005). High-involvement management practices, trade union representation and workplace performance in Britain. *Scottish Journal of Political Economy*, 52(3), 451-491.

Cafferkey, K. & Dundon, T. (2015). Explaining the black box: HPWS and organisational climate. *Personnel Review*, 44 (5), 666-688.

Cook, H., MacKenzie, R., & Forde, C. (2016). HRM and performance. The vulnerability of soft HRM practices during recession and retrenchment. *Human Resource Management Journal,* 26(4), 557-571.

Cook, H., MacKenzie, R. and Forde, C. (2020). Union partnership as a facilitator to HRM: improving implementation through oppositional engagement. *The International Journal of Human Resource Management*, 31(10), 1262-1284.

Cropanzano, R., & Mitchell, M. S. (2005). Social Exchange Theory: An Interdisciplinary Review. *Journal of Management*, *31*(6), 874–900.

Danford, A., Richardson, M., Stewart, P., Tailby, S. & Upchurch, M. (2008). Partnership, high performance work systems and quality of working life. *New Technology, Work and Employment*, 23(3): 151-166.

Dastmalchian, A., Blyton, P., & Adamson, R. (1989). Industrial relations climate: Testing a construct. *Journal of Occupational Psychology,* 62(1), 21-32.

Dastmalchian, A. (2008). Industrial relations climate. *The SAGE handbook of industrial relations*, 548-571.

Deery, S.J. & Iverson, R.D. (2005). Labor-management cooperation: Antecedents and impact on organizational performance. *ILR Review*, 58(4), 588-609.

Deery, S.J., Iverson, R.D., Buttigieg, D.M. & Zatzick, C.D. (2014). Can union voice make a difference? The effect of union citizenship behavior on employee absence. *Human Resource Management*, 53(2), 211-228.

Do, H., Budhwar, P. and Patel, C. (2019). High-performance work system practices in Vietnam: a study of managers' perceptions. *Journal of Organizational Effectiveness: People and Performance*, 6(3), 154-160.

Edwards, P., & Wright, M. (2001). High-involvement work systems and performance outcomes: the strength of variable, contingent and context-bound relationships. *International Journal of Human Resource Management*, 12(4), 568-585.

Fiorito, J. (2001). Human resource management practices and worker desires for union representation. *Journal of Labour Research*, 22(2), 335-354.

Fornell, C., and Larcker, D.F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* 18(1), 39-50.

Freeman, R.B. & Medoff, J.L. (1984). *What do unions do*. N.Y., Basic Books.

Frost, A. (2001). Reconceptualizing local union responses to workplace restructuring in North America. *British Journal of Industrial Relations*, 39(4), 539–64.

Gill, C. (2009). Union impact on the effective adoption of high-performance work practices. *Human Resource Management Review*, 19(1), 39-50.

Godard, J. (2004). A Critical Assessment of the High-Performance Paradigm. *British Journal of Industrial Relations*, 42(2), 349-378.

Guest, D.E., Michie, J., Conway, N. and Sheehan, M. (2003). Human resource management and corporate performance in the UK. *British journal of industrial relations*, *41*(2), pp.291-314.

Han, J.H., Kang, S., Allen, D.G. and Pan, Y. (2021). High-Performance Work Systems and Firm Performance: A Cross-National Meta-Analysis. In *Academy of Management Proceedings* (Vol. 2021, No. 1, p. 16216). Briarcliff Manor, NY 10510: Academy of Management.

Huselid, M.A. (1995) The Impact of Human Resource Management Practices on Turnover, Productivity, and Corporate Financial Performance. Academy of Management Journal, 38, 635-672.

Iverson, R.D. and Zatzick, C.D. (2007). High-commitment work practices and downsizing harshness in Australian workplaces. *Industrial Relations: A Journal of Economy and Society*, *46*(3), pp.456-480.

Judge Jr, W.Q. and Zeithaml, C.P., (1992). Institutional and strategic choice perspectives on board involvement in the strategic decision process. *Academy of management Journal*, *35*(4), pp.766-794.

Kaše, R., Paauwe, J. and Batistič, S. (2014). In the eyes of Janus: The intellectual structure of HRM-performance debate and its future prospects. *Journal of Organizational Effectiveness: People and Performance*, 1(1), 56-76.

Kochan, T.A. and Osterman, P. (2002). The mutual gains enterprise. *Industrial Relations: Critical Perspectives on Business and Management*, *5*, p.63.

Liu, W., Guthrie, J. P., & Flood, P. C. (2009). Unions and the Adoption of High Performance Work Systems: Does Employment Security Play a Role? *Industrial and Labour Relations Review*, 63(1), 109-127.

Machin, S., & Wood, S. (2005). Human resource management as a substitute for trade unions in British workplaces. *Industrial and Labour Relations Review*, 58(2), 201-218.

Mackinnon, D. P., Fritz, M. S., Williams, J., Lockwood, C. M., & Edu, D. M. (2007). Distribution of the product confidence limits for the indirect effect: Program PRODCLIN. *Behavioural Research Methods*, 39(3), 384-396.

Marchington, M. (2015). Analysing the forces shaping employee involvement and participation (EIP) at organisation level in liberal market economies (LMEs). *Human Resource Management Journal*, 25(1), 1–18.

Martinez Lucio, M. and Stuart, M., (2002). Assessing the principles of partnership: Workplace trade union representatives' attitudes and experiences. *Employee Relations*, *24*(3), pp.305-320.

Martinez Lucio, M.. and Stuart, M. (2004). Swimming against the tide: social partnership, mutual gains and the revival of 'tired' HRM. *The International Journal of Human Resource Management*, *15*(2), pp.410-424.

Mowbray, P.K., Wilkinson, A., & Tse, H.H.M. (2021). High-performance work systems and employee voice behaviour: an integrated model and research agenda. *Personnel Review*, 50(6), 1530-1543.

Newman, A, Cooper, B, Holland, P, Miao, Q, Teicher, J. (2019). How do industrial relations climate and union instrumentality enhance employee performance? The mediating effects of perceived job security and trust in management. *Human Resource Management*, 58: 35–44.

Osterman, P. (2000). Work reorganization in an era of restructuring: Trends in diffusion and effects on employee welfare. *Industrial and Labor Relations Review*, *53*(2), pp.179-196.

Podsakoff, P. M., Mackenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), 879-903.

Pohler, D., & Luchak, A. (2015). Are Unions Good or Bad for Organizations? The Moderating Role of Management's Response. *British Journal of Industrial Relations*, 53(3), 423–459.

Pyman, A., Holland, P., Teicher, J., & Cooper, B. K. (2010). Industrial Relations Climate, Employee Voice and Managerial Attitudes to Unions: An Australian Study. *British Journal of Industrial Relations,* 48(2), 460–480.

Ramirez, M., Guy, F., & Beale, D. (2007). Contested resources: unions, employers, and the adoption of new work practices in US and UK telecommunications. *British Journal of Industrial Relations*, 45(3), 495-517.

Rutherford, T.D. and Frangi, L., (2021) Acted upon and acted through: Unions, consent and contestation vis-a-vis High Performance Work Systems in the automobile industry. *Economic and Industrial Democracy*, *42*(4), pp.983-1003.

Shin, E. (2014). Unions and the adoption of high-performance work systems in Korea: moderating roles of workplaces' competitive strategies. *The International Journal of Human Resource Management*, 25(13), 1858-1880.

Shlomo, N., Skinner, C., & Schouten, B. (2012). Estimation of an indicator of the representativeness of survey response. *Journal of Statistical Planning and Inference*, 142: 201-211.

Siddique, M., Procter, S. and Gittell, J.H. (2019). The role of relational coordination in the relationship between high-performance work systems (HPWS) and organizational performance. *Journal of Organizational Effectiveness: People and Performance*. 6(4), 246-266.

Valizade, D., Ogbonnaya, C., Tregaskis, O., & Forde, C. (2016). A mutual gains perspective on workplace partnership: employee outcomes and mediating role of the employment relations climate. *Human Resource Management Journal,* 26(3), 351-368.

Valizade, D., Cook, H., Forde, C., & MacKenzie, R. (2022). Are bargaining concessions inevitable in recessions? An empirical investigation into union bargaining priorities and trade-offs of pay rises for job security. *Employee Relations*, 44(6), 1485-1503.

Vernon. G., & Brewster, C. (2013). Structural spoilers or structural supports? Unions and the strategic integration of HR functions. *International Journal of Human Resource Management*, 24(6), 1113-1129.

Wilkinson, A., Dundon, T., Donaghey, J., & Townsend, K. (2014). Partnership, collaboration and mutual gains: evaluating context, interests and legitimacy. *International Journal of Human Resource Management*, 25(6), 737–747.

Wood, S. (2021). Developments in the HRM-Performance Workstream. *German Journal of Human Resource Management*, 35(1), 83-113.

Wu, N., Hoque, K, Bacon, N., & Bou Llusar, J. (2015). High performance work systems and workplace performance in small, medium-sized and large workplaces. *Human Resource Management Journal*, 25(4), 408-423.

Yoon-Ho, K., Dong-One, K., & Ali, M. (2015). The effects of mutual trustworthiness between labour and management in adopting high performance work systems. *Relations Industrielles/Industrial Relations*, 70(1), 36-61.

Table 1: Study variables

	Items	Mean	SD	Alpha	FL	CR	AVE
Union strategic influence	The trade union has a lot of influence over decisions made at this workplace	4.21	1.679		0.861		
	The trade union here is able to hold management to account	4.64	1.625	0.893	0.813	0.894	0.738
	The trade union here significantly affects the way the organisation is run	4.01	1.639		0.900		
Job security	It is unlikely the employees at this workplace will lose their jobs in the near future	3.35	1.864	0.752	0.790	0.797	0.663
	I am satisfied with the level of job security for employees at this workplace	3.10	1.785		0.845		
Climate	Union and management work together to make this organisation a better place in which to work	4.41	1.671		0.843		
	Union and management have respect for each other's role	4.33	1.694		0.887		
	Once agreement is made management stick to it	3.99	1.755	0.934	0.771	0.940	0.758
	In this organisation bargaining takes place in an atmosphere of good faith	4.23	1.678		0.907		
	A sense of fairness is associated with management-union relations	4.01	1.687		0.936		
HPWS	Considerable importance is placed on the recruitment process	4.38	1.737		0.540		
	Extensive training programmes are provided for employees	3.82	1.663	0.797	0.577	0.884	0.500
	Employees have clear career paths in this organisation	3.26	1.580		0.722		

	Managers regularly inform employees about the relevant aspects of organisational life	3.60	1.611	0.732	
	Employers support staff in their development	3.63	1.606	0.854	
	Some elements of pay are based on employee individual performance	3.70	2.058	0.749	
	Some elements of pay are based on organisational performance	3.55	1.919	0.670	
	Employees are encouraged to suggest improvements in the way things are done in this organisation	4.21	1.797	0.713	

Note: Sample size: 382. Fit indices derived from confirmatory factor analysis: Chi-square= 113.988, degrees of freedom (88) at $p<0.05$; CFI= 0.991; TLI= 0.987; RMSEA= 0.028; SRMR= 0.032. FL - CFA factor loadings; CR - Composite Reliability; AVE - Average Variance Extracted. Estimator – maximum likelihood with robust (Huber-White) standard errors.

Source: Table created by authors

Table 2: Correlation matrix and inter-construct squared correlations

	HPWS	Climate	Influence	Security	Size	Industry	Density	Tenure	Gender	Sector	Industrial action	Partnership agreement
HPWS	1											
Climate	0.628***	1										
Influence	0.341***	0.531***	1									
Security	0.248***	0.248***	0.150**	1								
Size	0.100*	0.081	0.160**	0.014	1							
Industry	0.061	-0.063	-0.158	-0.221	-0.1	1						
Density	-0.049	0.096*	0.163	0.129	0.017	-0.275	1					
Tenure	0.053	0.132	0.12	0.068	0.112	0.02	0.001	1				
Gender	-0.001	-0.064	0.032	0.006	-0.02	0.137	-0.124	-0.198	1			
Sector	0.045	-0.088	-0.11	-0.215	-0.03	0.65	-0.215	-0.046	0.128	1		
Industrial action	0.063	0.108	0.011	0.149	-0.03	-0.295	-0.006	-0.064	-0.018	-0.21	1	
Partnership agreement	-0.15	-0.173	-0.158	-0.089	-0.06	-0.068	-0.001	0.065	-0.094	0.002	0.04	1

Main inter-construct squared correlations and Average Variance Extracted

	HPWS	Influence	Security	Climate
	(AVE=0.500)	(AVE=0.728)	(AVE=0.663)	(AVE=0.758)
HPWS	1			
Influence	0.117***	1		
Security	0.049***	0.016*	1	
Climate	0.418***	0.326***	0.034***	1

*** p<0.001; ** p<0.01; * p<0.05

Source: Table created by authors

Table 3: Path estimates for total and direct relationships

	ß – path estimates	Lower CI 95%	Upper CI 95%	p-value
	Part 1: Total effects model (Union influence - HPWS)			
Union strategic influence	0.289***	0.191	0.388	0.000
Membership density	-0.088	-0.228	0.052	0.216
Gender	-0.123	-0.450	0.203	0.458
Tenure	0.009	-0.145	0.162	0.909
Sector	0.041	-0.277	0.360	0.798
Workplace size	0.093	-0.113	0.300	0.375
Partnership agreement	-0.227	-0.514	0.060	0.121
Industry	0.176	-0.062	0.415	0.147
Industrial action	0.249	-0.044	0.542	0.095
R-sq		0.158		
Mean squared error		2.732		
	Part 2: Direct effects model (Union influence - Job security)			
Job security	0.201*	0.086	0.315	0.005
R-sq		0.347		
Mean squared error		1.626		
Control variables		Included		
	Part 3: Direct effects model (Union influence - Climate; Job security - Climate)			
Union strategic influence	0.526***	0.416	0.637	0.000
Job security	0.147**	0.052	0.242	0.003
R-sq		0.347		
MSE		1.626		
Control variables		Included		
Model fit	Sample size: 382. Estimator – maximum likelihood with robust (Huber-White) standard errors. Fit indices: Chi-square=400.493, degrees of freedom (241) at p<0.001; CFI=0.966; TLI=0.957; RMSEA=0.040; SRMR= 0.055; *** p<0.001; ** p<0.01; * p<0.05 .			

Source: Table created by authors

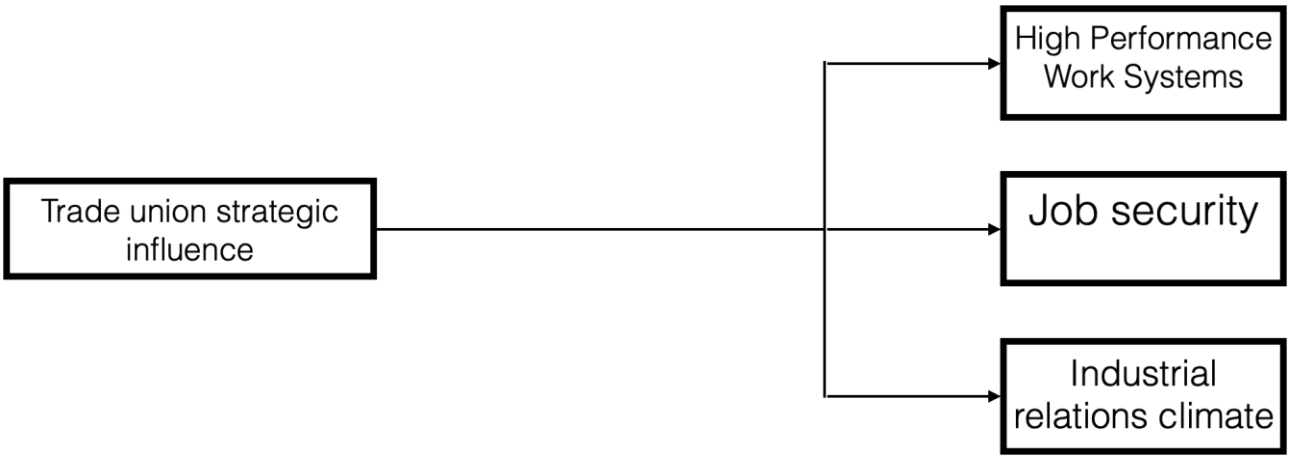
Table 4: Serial mediation model (summary of indirect effects)

	ß – path estimates	Lower CI 95%	Upper CI 95%
	Part 1: Complete mediation model		
Union strategic influence	0.025	-0.077	0.124
Job security	0.098*	0.024	0.172
Industrial relations climate	0.470***	0.381	0.557
Membership density	-0.112	-0.225	0.003
Gender	-0.006	-0.271	0.253
Tenure	-0.054	-0.168	0.062
Sector	0.132	-0.129	0.378
Workplace size	0.109	-0.050	0.270
Partnership agreement	-0.048	-0.298	0.195
Industry	0.115	-0.083	0.322
Industrial action	0.027	-0.210	0.262
	Part 2: Indirect effects (serial mediation, bias corrected bootstrapping with 10,000 samples)		
TOTAL EFFECT	0.264***	0.195	0.341
Union influence - Security - HPWS	0.010	-0.005	0.032
Union influence - Climate - HPWS	0.007	-0.003	0.021
Union influence - Security - Climate - HPWS	0.247***	0.181	0.321

Sample size: 382. Estimator – maximum likelihood with robust (Huber-White) standard errors. Fit indices: Chi-square=317.519; CFI=0.960; TLI=0.952; RMSEA=0.043; SRMR=0.075; *** p<0.001; ** p<0.01; * p<0.05

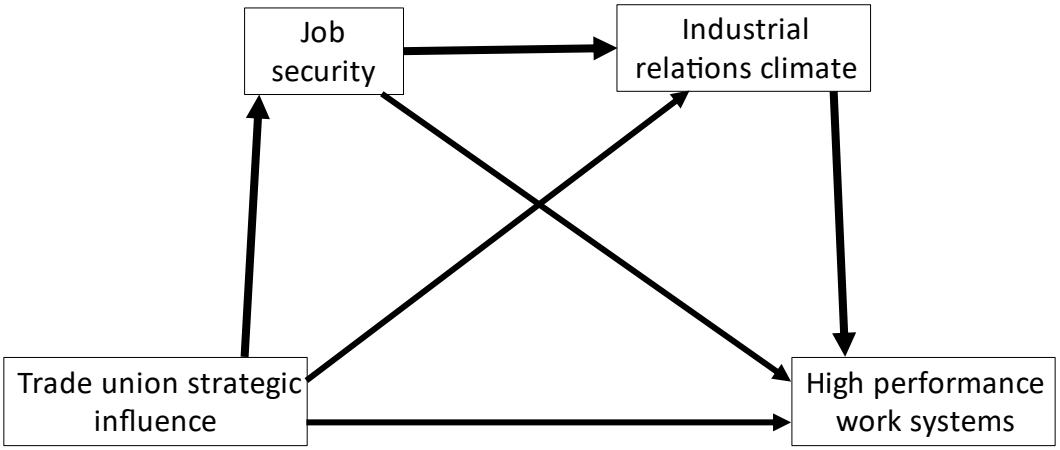
Source: Table created by authors

Figure 1: Direct effects of trade union strategic influence on HPWS, job security and industrial relations climate



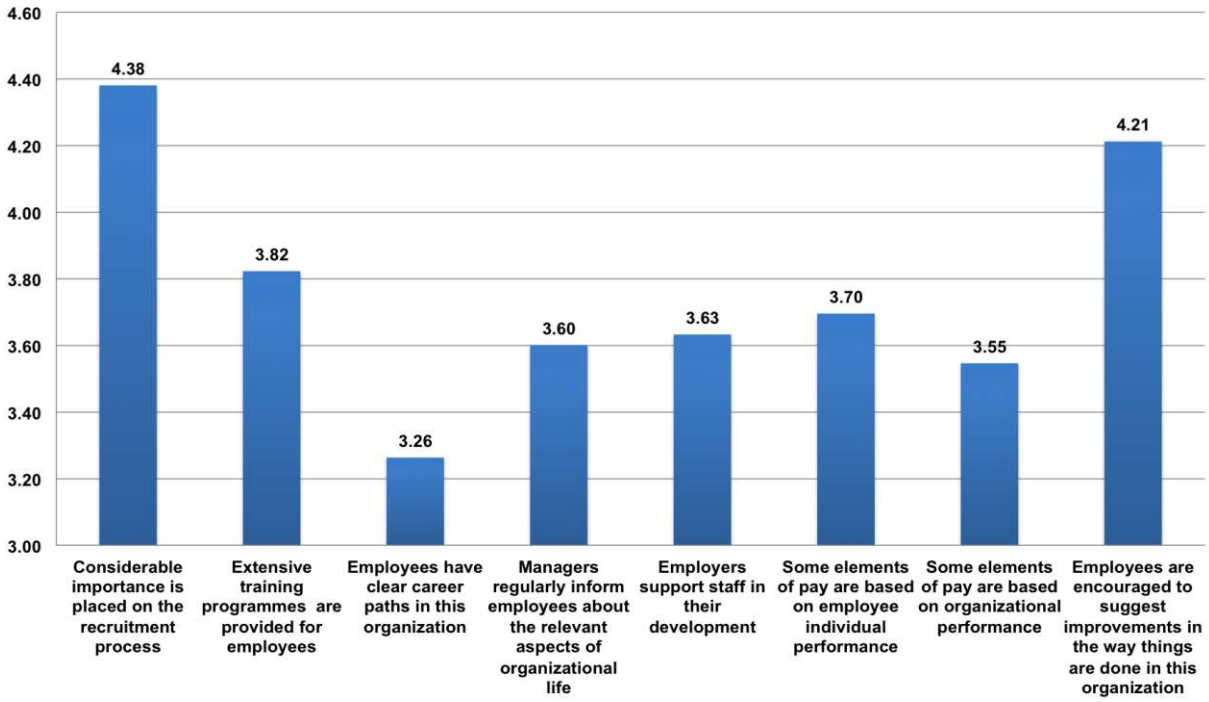
Source: Figure created by authors

Figure 2: Serial mediating effects of trade union strategic influence on the adoption of HPWS



Source: Figure created by authors

Figure 3: High Performance Work System indicators


4.60
4.40
4.20
4.00
3.80
3.60
3.40
3.20
3.00
4.38
3.82
3.26
3.60
3.63
3.70
3.55
4.21
Considerable importance is placed on the recruitment process
Extensive training programmes are provided for employees
Employees have clear career paths in this organization
Managers regularly inform employees about the relevant aspects of organizational life
Employers support staff in their development
Some elements of pay are based on employee individual performance
Some elements of pay are based on organizational performance
Employees are encouraged to suggest improvements in the way things are done in this organization