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Department of Quantitative Social Science
Working Paper No. 16-01

February 2016

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Alex Bryson¹ and Michael White²

Abstract

Using nationally representative workplace data we find substantial use of high-performance work systems (HPWS) in Britain's small enterprises. We find empirical support for the proposition that HPWS have a non-linear association with employees' overall job attitude, with a positive association apparent where HPWS are used intensively. These associations are robust to factors often cited as obstacles to HPWS implementation such as informality and family ownership.

JEL codes: J28, M50, M54

Keywords: Human Resource Management; High-performance Work System; Small Firms; Organisational Commitment; Job Satisfaction.

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Acknowledgements: The authors acknowledge the Department of Trade and Industry, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service and the Policy Studies Institute as the originators of the 2004 Workplace Employment Relations Survey data, and the Data Archive at the University of Essex as the distributor of the data. The

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National Centre for Social Research was commissioned to conduct the survey fieldwork on behalf of the sponsors. Alex Bryson thanks TEKES and the Research Institute of the Finnish Economy and the Labour Institute for Economic Research for funding.

1 Introduction

In Britain during the period 1997-2008, small firms created 65 per cent of new jobs and provided about half of all employment in the private sector (Hijzen et al. 2010). On a net basis – i.e. after allowing for job ‘destruction’ – small firms constitute the main locus of employment growth in Britain. Given small firms’ high degree of dynamism, any set of policies or practices that helps them survive and flourish has large potential for positively impacting the national labour market.

The research reported in the present article focuses on human resource management (HRM) and more particularly on a set of HRM practices that are now often labeled ‘high performance work systems’ (HPWS) . HRM/HPWS looks a plausible source of strength for the smaller enterprise, in view of the extensive theoretical analysis and empirical evidence concerning its positive effects on firm performance and/or on employee attitudes and welfare (see e.g. Appelbaum et al. 2000; Becker and Huselid 2006; Bloom and van Reenen 2010). On the other hand, it has been argued (e.g., Marlow 2006) that small firms have distinctive characteristics making them unsuitable sites for the application of HRM systems. These critiques suggest not only that HRM may not be

useful but that its introduction in small workplaces may be harmful. The issue is hard to resolve from existing evidence, for while a voluminous literature on HRM and HPWS has grown up, this chiefly focuses on large firms and the role of these practices in small enterprises has been much less explored.

The present research considers the possibility that HRM/HPWS may have *both* negative *and* positive impacts on small enterprises, depending on the intensity with which these practices are implemented and developed at various times. This possibility is suggested by ideas already established in the HRM literature that effective implementation depends on the ‘bundling’ of work practices, and that there are ‘thresholds’ of effectiveness. These ideas indicate that the effects of HRM/HPWS are likely to take a non-linear form. From the viewpoint of practice, the problem for small enterprise management may be how to arrive at the threshold where HRM/HPWS is a big enough ‘bundle’ to have a positive impact.

Although as already mentioned there is a large body of evidence indicating that HRM/HPWS has positive effects on performance, the causal interpretation of the findings has been strongly contested (see, e.g., Wall and Wood 2005; Wright et al. 2005). The approach adopted here is to focus on a specific *causal mechanism* – the strategy adopted in much medical research (Bradford Hill 1966). We postulate that the

mechanism underlying HPWS' impact on performance is an increase in the intrinsic motivation of work.³

We conceptualize work motivation as the fulfillment of values that can be found in work, and we assess employees' motivation in terms of work attitudes. The link between attitudes and motivation comes both from psychological theory (Fishbein 1967; Locke 1996; Gagné and Deci 2005; Latham and Pinder 2005) and from the empirical work of Harrison et al. (2006) in developing the 'overall job attitude' concept and demonstrating the strong relationship between overall attitude measures and employee behaviour.

The findings of this research make several new contributions to the literature on HRM/HPWS in small enterprises. As hypothesized, we find a markedly non-linear relationship between HRM/HPWS and employee attitudes/labour performance, indicative of a threshold that has to be reached before such systems become effective. We find however that once this threshold has been crossed HRM/HPWS has positive effects across size groupings in the 5-99 employees range, and we also find surprisingly high implementation rates of HRM/HPWS in even the smallest enterprises considered. Thus, effective HRM/HPWS appears achievable in small enterprises even though it often falls short of this goal. Finally, we find that the HRM/HPWS effects are unaffected

³ 'Motivation' is sometimes used in applied work to indicate effort or performance, e.g. see the 'motivation' scale in Godard (2001); this usage reverses cause and consequence. We use the term in its common-language sense (see the Oxford Concise Dictionary) – a clearly causal one – which is also the sense of the term in the 'motivation theories' of classical psychology.

by controls for degree of formalization, family ownership, and newness of workplace, which have previously been cited as obstacles to HRM implementation .

2 Conceptualizing HRM/HPWS and its effects

2.1 A dual concept of work motivation via HRM

This research focuses on that part of HRM that is concerned with encouraging higher job performance, especially the notion of ‘high performance work systems’(HPWS: Appelbaum et al. 2000). Closely related to the HPWS idea are notions of ‘high commitment’ or ‘high involvement’ HRM practice that are prominent in the British literature .

HPWS advocates have referred to the values and rewards that people could find in their work . Appelbaum et al. (2000:46) stated simply that ‘Jobs that are challenging and make use of workers’ skills are intrinsically rewarding’. Guest (1987:511) highlighted challenge, autonomy, learning opportunities and ‘self-control’ as the values that HRM could or should release. Early contributions to this type of concept include Lawler and Hall (1970: 306), and Walton (1972). In another line of argument, Walton (1985) spoke of HRM systems as facilitating a transition ‘from control to commitment’.

Work psychology proposes that people approach employment with certain personal *values* that they want to fulfill: insofar as the nature of their work permits them to do so, work activity is reinforced and strengthened. This idea is succinctly summarized by Latham and Pinder (2005: 491) who state: 'Values are rooted in needs and provide a principal basis for goals. They are acquired through cognition and experience ... Goals are the mechanism by which values lead to action'. Goal theory and its relation to values is developed by Locke (1996).

Values are further implicated in the pathway to 'commitment'. Selznick (1957) argued that organizations can establish service values that are attractive to individuals, who in identifying themselves with those values and acting in accordance with them also become committed to the organization. The idea is developed by Kalleberg and Berg (1987) who define organizational commitment as employee identification with the goals and values of an organization coupled with willingness to exert effort to help the organization succeed.

The motivation that we associate with HRM/HPWS thus consists of a value loop between job (or task) design via goal fulfilment to intrinsic job satisfaction (IJS), and a value loop from the organization's service mission via employee identification to organizational commitment (OC). To assess motivation, we take advantage of a close

linkage between motivation and attitudes that has been proposed both from the side of work motivation theory (e.g., Locke 1996; Gagné and Deci 2005:353) and from the side of attitude theory (Fishbein 1967). Consistent with theory, the dual motivational concept has an attitudinal equivalent that has been operationalized by Harrison et al. (2006) as 'overall job attitude'. These authors show that job satisfaction and organizational commitment (together called 'overall jobs attitude') play a central role in predicting 'work engagement', where the latter consists of task performance, contextual performance (elsewhere called organizational citizenship behaviour), lateness, absence, and propensity to quit. Synthesizing a wide range of research studies, they estimate a correlation of 0.50 between overall job attitude and work engagement.

2.2 How HRM/HPWS embodies motivation

Previous research (e.g. Appelbaum et al. 2000) suggests participation and team organization (team-working) are the central domains of HRM practice that raise performance. 'Participation' refers to methods by which employees can make contributions that directly relate to work tasks and work organization. This may take the form of two-way communication meetings and 'briefing groups' for management and staff, or the use of 'quality circles' or problem-solving groups, that feed ideas and proposals upward. McGovern et al. (2007: 117-8) show that these are the main influences on whether British employees see themselves as having a personal say in

changes affecting their jobs. Group- or team-working organization is highlighted in most studies on the HRM-performance relationship. Team roles supported by skill development enable employees to widen skills, experience more challenge in their work, and experience increased relatedness with colleagues.

Whereas participation and team-working represent relatively recent innovations in work organization, there are several more traditional aspects of HRM/personnel management that have been adapted to fit into an HPWS specification (see Appelbaum et al. 2000). Financial incentives can be extended with group/workplace bonuses or profit-shares. Training and development can help employees take on variable job roles within teams. Recruitment and selection are complementary to training and also help develop commitment to high performance goals (Hackman and Oldham 1975, Locke 1996).

Becker and Huselid (2006) argue that for a major positive impact from HRM it is necessary that relevant work practices are 'bundled' in a mutually supportive way. Why this may be so is theorized more fully by Bowen and Ostroff (2004) (henceforth, BO). These authors maintain that 'HRM practices can be viewed as a symbolic or signalling function' (BO: 206). If HRM is to alter employee behaviour and performance, it must be a 'strong system' communicating persuasive messages: implementing a *wide range of practices* is valuable in strengthening the HRM message and making it salient. We

further suggest that the BO thesis also connects with the idea that HRM systems can project organizational values, such as caring for employees and regarding their views as important, with which individuals can identify. Such a message is more likely to be trusted when the organization demonstrates its seriousness by implementing a wide range of complementary practices. Inconsistency or half-heartedness, on the other hand, can be interpreted as insincerity.

2.3 Adapting the HRM/HPWS concept to small enterprises

Before discussing the application of HPWS to small enterprises, one needs to consider how they differ from larger workplaces or larger firms – as almost all authorities agree they do. To this question three main answers have been proposed: (1) Small enterprises have a high degree of informality, (2) they are often affected by family ownership and family management, and (3) smallness is often coupled with ‘newness’. (For reviews exploring these issues, see deKok and Uhlaner 2001; Cardon and Stevens 2004). We focus our further discussion on (1) as it is the most frequently invoked concept to explain small firm distinctiveness.

We have stressed changes in communication as a feature of HPWS practice, and communication also seems helpful in interpreting the notion of informality. In a small enterprise employees form dense networks such that each receives and imparts information and influence to all others either directly or at a small remove. Especially,

the senior management of the small enterprise is able to keep in close contact with all employees and they in turn are able to 'read' management's goals, methods and principles directly from what is said and done day by day. Small enterprises may well want to take advantage of this situation by avoiding formalization (e.g., documentation, set rules and procedures): informal communication saves costs and leaves goals, methods and business principles free to evolve continuously while keeping employees on-side. Larger organizations with greater hierarchical separation and/or numerous sites use formalization to regulate policy and practice in order to align employees with organizational goals, since coordination does not arise in a natural way. However, conversely large organizations may choose to avoid formalization, so giving local management freedom to operate according to their own ideas and/or local circumstances, and seeking to capture some of the flexibility advantages of the smaller enterprise.

Though it is reasonable to stress the value of informality in small enterprises, it is in our view questionable to assume that HPWS is *necessarily* disadvantaged by being 'too formal'. The large enterprise will usually follow the formal path in implementing HPWS, but the small enterprise can make progress in the same direction informally. Training, for instance, can rest on an understanding that the proprietor or general manager is sympathetic toward personal development needs, so that individual employees can

approach her with a training proposal and stand a good chance of success. The crucial areas of participation and team-working may be so interwoven with the small-firm's operational practice and management style as to require little or no formalization. However, while it seems *possible* for implementation of HRM/HPWS practices to proceed without much formality, in actuality small enterprises may choose to adopt a more formal approach. This may happen partly through imitation of large firms (especially in small enterprises that aspire to grow), and partly through the influence of HRM (or people management) professionals, when these enter the scene. Another influence driving small enterprises toward formality is the avoidance of downside risk, e.g. from malfeasance or from employee litigation (CIPD 2002). Thus there can well be an adverse impact of (formal) HRM/HPWS during the period when informality is being undermined without a 'strong system' of HPWS being yet established.

2.4 Previous findings on the effects of HRM in small enterprises

We next consider what further light is cast on our conceptual discussion by quantified studies of HRM in small enterprises. Here we consider HRM in a broad sense rather than in terms of HPWS specifically. Although as already noted small enterprise research has largely been of a qualitative nature, there exist several small-firm HRM

studies derived from national sample surveys. Bryson (1999) used the WERS 1990⁴ to assess the effect of HRM practices on small-firm performance as perceived by management. He found that the systematic use of communication to transmit information to employees had positive effects. The study was constrained by a somewhat limited range of HRM information available in the survey, and by the limitation of the survey to workplaces with at least 25 employees. In the USA, Way (2002) used data from the 1996 National Employer Survey of US firms (also analysed by Cappelli and Neumark 2001), and investigated the effect of seven types of HRM practice with respect to labour turnover and labour productivity. He found a positive effect of the overall HRM index on the former (i.e. reduced turnover) but not on the latter. Within HRM, reward systems appeared to be the main source of positive effects. The study was limited to firms with 20-100 employees. Reverting to Britain, Matlay (2002) conducted an inquiry into the industrial relations approach of small firms, initially based on a telephone survey of 6000 firms and then an interview survey with a subsample of 600. Although not considering HRM as such, the study is of interest in suggesting that in firms with less than 50 employees an informal approach is preferred, while above that size managements veer toward a more formal or 'professionalized' approach to industrial relations. Bacon and Hoque (2005) used the 1998 WERS and

⁴ WERS = Workplace Employment Relations Survey. These surveys were conducted in Britain in 1980, 1984, 1990, 1998, 2004 and 2011; the original titles of the surveys varied.

studied influences, both internal to the firm and external, on the adoption of a wide range of HRM practices within the SME sector. They concluded that the skill level of the workforce was the main influence on adoption, but limited their investigation of this variable to different proportions of unskilled employees in the workplace. Informality was not considered as such. Barrett and Mayson (2007) also focused on HRM adoption, this time in Australia, and considered firm growth as an independent rather than dependent variable. The study used data from a small business survey in 2002 and is unusual in including the micro-business sector. The main conclusion was that growing firms were more likely to be adopting virtually all aspects of HRM. Finally, Storey et al. (2010) used the WERS 2004 dataset, as the present study also does. These authors analysed the relation between a measure of HRM formality⁵ and employees' self-reported 'job quality' (SRJQ). As well as showing that their measure of formality varied with size in the expected way, they concluded that increased formality explained much of the observed decline in SRJQ with increasing size both among SMEs and in workplaces owned by larger organizations.

In part this quantified evidence suggests that, despite the conceptual objections, HRM can be conducive to small-firm performance even when it is of a formal type (Bryson

⁵ The same measure of HRM formality is used in Lai et al. (2015) and is shown to be related to several consequences of a recessionary situation on employees. We do not discuss this study here as it raises different issues to those considered in the present article.

1999; Way 2002). However it may be that (formal) HRM practices are (successfully) adopted only when the small enterprise is expanding toward a larger form – both these studies omit many workplaces toward the smaller end. The results of these studies appear to be partially at variance with Storey et al. (2010) who suggest that formalization in HRM has adverse effects on employees' well-being.

A general limitation of all these studies is that they assume simple linear (or additive) relations between the independent and dependent measures. They do not explore the possibility that HPWS has a negative influence at low levels of implementation (e.g., because an informal work situation is being disrupted), yet has a positive influence at high levels of intensity because it then provides an alternative way of relating to work. Moreover, formality and informality are explicitly addressed only in the Matlay (2002) study, which does not address HRM as such, and in the Storey et al. study (2011) which discusses HRM but does not measure the intensity of HRM implementation. The present study aims to fill these gaps in the quantified evidence.

3 Hypotheses

On the basis of the foregoing discussion, we propose the following hypotheses:

H1. Intensive adoption of HPWS (BO's 'strong system') results in increased intrinsic work motivation, and this is expressed in two testable forms:

H1a. There is a positive relationship between the intensity of HRM/HPWS practices and the intrinsic job satisfaction (IJS) of employees.

H1b. There is a positive relationship between the intensity of HRM/HPWS practices and the organizational commitment (OC) of employees.

The positive relationships indicated in H1a and H1b only apply at and above some threshold of HRM/HPWS implementation that is to be identified empirically.

H2. At low levels of adoption of HRM/HPWS, there will tend to be reduced levels of intrinsic work motivation, because of disruption of the customary informality of the work situation, while HPWS has not been developed sufficiently to enhance intrinsic motivation. This will have identifiable consequences H2a and H2b, relating to reduction in IJS and reduction in OC, respectively.

H3. Workplace formality has a similar negative effect as that described in H2, so if separately represented in analysis its effect will be to reduce the non-linearity of the HPWS-IJS and HPWS-OC relationships.

4. Data, measures and analysis methods

4.1 Data

We use the Workplace Employment Relations Study 2004 (henceforth, WERS04).

WERS04 provides comparison with several other studies of HRM that have used the

same dataset. Additionally, the period around 2004 in Britain was one of a stable and prosperous economy that offered good conditions for HPWS development. By the time of WERS 2011, a major recession had taken place, introducing a number of complications for research that we hope to address in future work (see Zatzick and Iverson 2006 for a previous North American study addressing HRM in recessionary conditions).

WERS04 is a national survey of workplaces with five or more employees, consisting of face-to-face interviews with the senior workplace manager responsible for employee relations, and a linked self-completion survey of employees. The management survey had an overall response rate of 64 per cent (N=2295). An employee survey was conducted in the 1,967 workplaces where management agreed to allow a survey of workers. Questionnaires were distributed to a random sample of 25 employees in workplaces with more than 25 workers and to all employees in workplaces with 5-25; employee respondents comprised a mean of 47 per cent of the total workforce per establishment in private sector workplaces with less than 100 employees, and this proportion increased to 54 per cent in those with less than 50 employees and 61 per cent in workplaces with less than 25 employees. The present study excludes both public sector workplaces, and those private sector workplaces that employed more than

100 employees at the time of interview.⁶ Subpopulation analyses are conducted for workplaces with less than 25, less than 50, and less than 100 employees. We conduct analyses for all workplaces within the size-cuts, and then separately for workplaces that are sole independent enterprises and workplaces that are part of multi-site organizations. In the light of our conceptual discussion (section 2.3) we expect small workplaces in multi-site organizations to be faced with similar issues regarding HRM implementation, and formality/informality, as small independent firms.

5.2 Dependent variables

The chief analyses refer to overall job attitude (Harrison et al. 2006) through two variables that we label intrinsic job satisfaction (IJS) and organizational commitment (OC). We construe these attitudinal measures as evaluations of, respectively, intrinsic rewards that the individuals get from their jobs and rewards that they get from organizational membership.

The WERS employee questionnaire contained eight facet satisfaction items and from these four were selected, on the basis of wording, for their similarity to the 'job itself intrinsic satisfaction' subscale of Warr et al. (1979). Table 1 provides details. The reliability alpha of the IJS items in the employee survey sample is 0.87. They are

⁶ Analysis has been conducted inclusive of workplaces with 100-199 employees but the present paper covers only workplaces with 5-99 employees as the larger workplaces add no further insight to the research,

summed at the level of the individual respondent and the summed scores are averaged over the employee respondents at each workplace.

The WERS measure of OC consists of three items which have counterparts in the six-item Lincoln-Kalleberg measure of affective organizational commitment. OC has a reliability (Cronbach alpha) of 0.85 in the employee survey. To compute the measure, the three items were summed at the individual level and then averaged across the employees at each workplace. See Table 1 for further details.

[Table 1]

5.3 Measures of HRM/HPWS practice

Information about HRM practices come from the WERS interview with the senior manager responsible for HRM or personnel management at the workplace, considering only items that are descriptive of current practice and ignoring any items that seek the manager's opinion about climate, management-employee relationships etc. Studies that have a similar approach to obtaining descriptive measures of HRM practice include, in Britain, Brown et al. (2008), Forth and Millward (2004); Ramsay et al. (2000); Wood and de Menezes (2011) (who however also use employee perceptions or evaluations); and for North America, see e.g. Cappelli and Neumark (2001); Collins and Smith

(2006); Godard (2001); Osterman (2006); Wright et al. (2005); Zatzick and Iverson (2006).

Consistent with the existing HRM-performance literature (see, e.g., Becker and Huselid (1998:63), we aggregate all the HPWS items into a single overall index of practices, but we build that up from the five domains of participation, teams, development, selection (development and selection can also be regarded jointly as skills formation), and incentives. We have omitted all aspects of traditional industrial relations practice such as wage fixing, disciplinary or grievance procedures, and information disclosure (except as it occurs through face-to-face meetings). The Kuder-Richardson reliabilities (closely similar to Cronbach alpha) for the domains were in the range 0.68-0.79, except in the case of recruitment (KR=0.52), where the set of items available is somewhat limited.

The overall index sums over 43 items. Most of the source items were binary (i.e. a practice is or is not operative); others that had more complex scoring (e.g. proportions of employees receiving off-job training) were reduced to binary form (e.g. above median on the item, or not). Binary items have a restricted range by comparison with ordinal or cardinal scales, and this may bias estimates conservatively toward zero. Binary items however also tend to reduce measurement error that may be present in ratings or estimates. Previous HRM studies using binary source items have not suffered from

inadequate precision. Here, moreover, we are summing the items into an index that has a wide range and can reasonably be regarded as quasi-continuous. A detailed table of included items, including descriptive statistics, is available on request.

The distribution of the HPWS index by size of workplace within the size range 5-99 employees is shown in Table 2. As can be expected, there is a strong association between workplace size and HPWS intensity. None the less, even among workplaces with only 5-9 employees, 20 per cent report having more than 20 of the practices and 45 per cent report having more than 15. Among workplaces with 10-24 employees – which few would hesitate to call ‘small’ – the proportions rise to 28 and 50 per cent respectively at these HPWS intensities.

[Table 2]

5.4 Measures of formality, family ownership and age of workplace

As discussed in section 2, ideas of informality, family control and ‘newness’ have been prominent in discussions of the small enterprise, and we seek to assess their impact alongside that of HRM/HPWS intensity. The time that the business has been located at its present workplace is used as the measure of ‘age’ (no information is available about the age of the parent organization if any). From this a dummy variable ‘new site’ is

derived taking value 1 when the workplace has been present at its present site for less than five years.

To represent family, we use a question in WERS04 that asks whether there is a family that controls more than half the shareholding in the controlling firm: a dummy variable takes value 1 if the answer is 'yes' and value zero otherwise. The proportion of workplaces with 5-9 employees that satisfy this definition was 39 per cent, falling to 31 per cent in workplaces with 50-99 employees.

To represent formality/informality, we use the formalization measure developed by Storey et al. (2010), who also worked with the WERS04 data. For full details, see Storey et al. (2010:311) ; in outline, the measure sums over 12 items, covering: the presence of a manager chiefly concerned with HR or personnel, the existence of a formal strategic plan and of business targets, attainment of the Investors in People standard, the use of performance appraisals, the use of selection tests, several items concerned with communications and meetings, the establishment of disciplinary and grievance procedures, a formal equal opportunities policy, and the provision of non-pay benefits to employees. Our implementation of this measure has a Cronbach alpha of 0.73. Table 3 shows how the mean value of the formality index varies across size-groups.

[Table 3]

Four of the items for the formality measure are also present in our HPWS index,⁷ so when the formality index is included in the analysis we omit these four variables from the HPWS index. Even so, there remains a correlation of 0.63 between the formality index and the modified HPWS index.

5.5 *Control variables*

Control variables that can be regarded as ‘structural’ are included in all the reported analyses. We control for size variations *within* each subpopulation analysed; additionally, a five-category variable indicates size of parent organization (single site organization as reference category, then less than 250 employees; 250-999, 1000-9999, and 10,000 or more); industry is represented by 11 dummies; and there are controls indicating the percentage of workplace employees in ‘higher’ (professional and managerial) occupations; the percentage in ‘intermediate’ (administrative, technician and craft) occupations; the percentage of female employees; the rank of travel-to-work area unemployment rate in 2004; the percentage (banded) of employees in non-permanent jobs; and a dummy for presence of recognised union(s). Finally we included as controls four items relating to job security and long-term employment practices which have been regarded as important in some HRM literature although we

⁷ The overlapping items are Investors in People standard, performance appraisals, selection tests, and management-staff meetings.

found they did not form a cohesive domain. Provision of occupational pensions also figures in the formality index (see above) so it is omitted from the specification when the formality index is included.

5.6 *Analyses*

We use survey regression with a robust variance estimator (Berk 1990). Each analysis refers to a size-defined subpopulation of the private sector (private sector is defined as in Forth et al. 2006). The measures of OC and IJS are treated as continuous variables, since they are smoothly distributed workplace means. The means of OC and IJS are themselves sample-based estimates. They are therefore measured with error, and heteroskedastic because the workplace samples vary in size. However, as OC and IJS are always dependent variables, measurement error is incorporated in the usual disturbance term and this does not affect consistency of estimates. The robust variance estimator allows for heteroskedasticity as well as for complex survey design including weighting. Unless otherwise indicated analyses make use of establishment weights provided with the public use data and further adjusted for non-response. The HPWS index variable was specified in alternative analyses either in linear form or with both linear and quadratic (squared) terms; only the latter will be reported here as the simple linear effect was always non-significant. The linear-quadratic specification makes it

possible to assess the existence of nonlinearities as specified in the hypotheses (section 3).

5 Results

5.1 HRM/HPWS and overall attitudes – the basic analyses

The core results of the research are summarized in Table 4. Each row of the table shows the effects of the HPWS index within one size-delimited subgroup. All analyses have negative and significant linear effect and positive and significant quadratic effect. This means that at lower values of HPWS attitudes are tending to decline, while at higher values they are tending to increase. The column in Table 4 headed 'turning point' indicates the approximate value of the HPWS index at which the trend becomes upward. This is always around 20 HPWS practices. The next column in Table 4 shows the percentage of workplaces that are on the rising portion of the curve. This is one quarter even among the lowest size-grouping of 5-24 employees, and rises to nearly one third (31%) if one considers all workplaces with 5-99 employees.

[Table 4]

Table 4 for space reasons only shows the estimates for the HPWS variable, but the controls are always present. Of particular interest are the workplace and organization

size dummies. The reference category for workplace size is 5-9 employees. In the analysis for the 5-24 subsample, a dummy for size 10-24 is included; for the 5-49 subsample, there are dummies for 10-24 and 25-49; and so on. Organizational size refers to multi-site organisations and is represented by five dummies (see section 5.5), using 'single-site' organizations as the reference category (for single-site organizations evidently organization size= workplace size, see foregoing sentence). Relative to these reference values, all estimated coefficients have a negative sign, so the workplaces with the highest levels of OC and IJS are the smallest (5-9 employees) and those that are a single independent site. The size effects are always significant for OC, but for IJS the influence of size is never significant at the 5 per cent level though weakly significant at the 10 per cent level in a few contrasts (no table shown).

5.3 Overall attitudes – the role of formality, family ownership and 'newness'

The results presented in Table 4 are from model specifications that do not include the index of formality nor the family ownership and 'newness' dummies. The next step is to see what difference it makes when these are introduced into the model. Table 5 provides the answers. The formality effect has a generally positive sign while the family effect has a generally negative sign, but neither effect ever approaches significance. 'Newness' has negative effects that are significant in the case of the IJS outcome. The main point however is that estimates for the HPWS index remain close to

what was reported in Table 4 (even though four items are omitted from the index to avoid overlap with formality), the significance of these estimates is similar, the turning point is the same, and R-squared is similar. To economize on space, Table 5 covers only the 5-24 and 5-49 definitions of small workplaces, but results are similar for the 5-99 subpopulation analysis. Overall, then, we find no evidence that formality (as here defined) affects conclusions concerning the impact of HPWS on small workplaces. Neither do family ownership and 'newness' change the HPWS effect.

5.4 Focusing on small independent firms

We now split the small enterprise sample into two: (a) those workplaces that are single-site independent organizations (= small firms as usually conceived); (b) those that are part of multi-site organizations. By analysis of these two workplace subpopulations, it is possible to test whether the effect of HPWS is greater in one than the other, and to judge whether the results shown earlier in Table 4 are robust. The comparative findings are shown in Table 6; for presentational simplicity some columns present in Table 4 are omitted from this table. The index of formality, family ownership and newness variables are omitted, making these results comparable with Table 4.

[Table 7]

Comparison of the estimated effects between Table 6 and Table 4 shows that so far as the single independent workplaces go they are of similar sign and magnitude. This is

the case both for OC and for IJS. As before, the linear term has negative sign and the quadratic term has positive sign, indicating that there is a downward slope followed by an upturn; the point at which the upturn emerges is also the same as before (not shown in table). The estimated effects for the workplaces in multi-site organizations look somewhat different from those in the single-workplace organizations, but when tested in corresponding pairs these apparent differences are never statistically significant at the 10 per cent level.

The proportion of small independent workplaces on the rising part of the HPWS-attitude curve is relatively low. For the 5-24 subpopulation it is only one in seven (14%), rising to one in six (16.4%) if all workplaces of size 5-99 are considered. Corresponding percentages for workplaces from multi-site organizations are roughly twice as great. Presumably small workplaces that are part of multi-site firms have greater resources for installing HRM/HPWS.

With smaller Ns the magnitudes of the standard errors of the Table 6 estimates are considerably larger than in Table 4. As a result, the estimated linear and quadratic estimates are always non-significant in the case of mean OC. Even so, the linear-quadratic specification, with its implication of a non-linear relation between HPWS and

attitude, remains preferable to the simple linear model.⁸ The estimated effects on mean IJS, being larger, remain significant at the five per cent level for all the estimates.

6 Conclusions

For small enterprises as a whole (i.e., small workplaces that are either single-site independent businesses or in multi-site organizations), the analysis provides substantial evidence in support of H1 and H2. H1 and H2 can also be reasonably maintained for the small independent firm subpopulation (section 5.4). In brief, the effects of HPWS in the small enterprise sector and small firm subsector are *non-linear*. At low levels of implementation HPWS erodes OC and IJS, but in workplaces that have reached a high level of HPWS these attitudes move in the positive direction, indicative of increased employee motivation. The practical implications of these findings are both important and challenging for small enterprise management. As the enterprise grows, there is a normal, if not inevitable, movement toward more regulation and more systematization that breaks down the previous ‘informality’. Such a transition is certain to be difficult and the early stages of HPWS implementation may well form a part of this difficulty. The majority of small independent firms are on the downward-sloping part of the HPWS curve, but a minority (around one in six) have got onto the upward-sloping part.

⁸ Models of OC with only a linear main effect of the HPWS index variable always give non-significant estimates, the model F statistics are always higher for the linear-quadratic specification; the plotted marginal effects are also consistent with a non-linear relationship.

Positive experience of HPWS is more common in small workplaces that are part of multi-site organizations, possibly because of the larger resources available from the centre. A striking descriptive point is how far these minorities have developed HPWS, despite small size.

The other main finding of the research is that the HPWS-OC and HPWS-IJS relationships are unaffected when controls are introduced for 'formality', family ownership and 'newness' of the workplace. H3, suggesting that increased formality would reduce the non-linearity of the HPWS-attitude relationship, fails. Neither the formality index nor the family ownership variable is significantly related to either outcome in the small enterprise sample.

There are several possible explanations for the failure of H3. (1) The measure of formality may be deficient. The significant results obtained in Storey et al. (2010) come from an analysis that omits HPWS variables, and as we reported earlier, the formality measure is highly correlated with the HPWS measure. There is a need for a formality measure that is more distinct from HRM variables. (2) It may be that there is still some way to go in interpreting informality rightly. For instance, in her discussion Marlow (2006) refers to such concepts as owner idiosyncrasy, arbitrariness, and particularism, and these suggest the complexities involved in informality/formality. (3) It may be that

informality is not the right concept to express what is distinctive about the work situation in small enterprises – even though their distinctiveness is not in question.

Acknowledgements.

The authors acknowledge the Department of Trade and Industry, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service and the Policy Studies Institute as the originators of the 2004 Workplace Employment Relations Survey data, and the Data Archive at the University of Essex as the distributor of the data. The National Centre for Social Research was commissioned to conduct the survey fieldwork on behalf of the sponsors. Alex Bryson thanks the Research Institute of the Finnish Economy and the Labour Institute for Economic Research for funding.

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Table 1. Organizational Commitment (OC) and Intrinsic Job Satisfaction (IJS) in Small (5-99 employees) Workplaces

OC items: To what extent do you agree or disagree ...	Values taken	Workplace mean	Workplace s.d.
I share many of the values of my organization	-2 ... 2	0.563	0.525
I feel loyal to my organization		0.892	0.509
I am proud to tell people who I work for		0.738	0.589
OC summative measure	-6 ... 6	2.212	1.482
IJS items: How satisfied are you with ...	1 ... 5		
The sense of achievement you get from your work		3.857	0.485
The scope for using your own initiative		3.912	0.441
The amount of influence you have over your job		3.691	0.487
The work itself		3.855	0.477
IJS summative measure	4 ... 20	15.333	1.695

Note: Unweighted data. Item means do not sum to equal summative means because of missing values.

Table 2 Distribution of HPWS practice index in small workplaces, by workplace size

column %, unweighted

Practices (number)	5-9 employees	10-24 employees	25-49 employees	50-99 employees	5-99 employees
1-5	12.2	8.0	1.8	0.7	5.9
6-10	25.9	16.7	13.5	6.1	15.6
11-15	17.7	25.5	15.3	14.2	19.1
16-20	23.8	21.3	25.2	22.3	23.0
21-25	9.5	15.9	24.5	31.1	19.8
26-30	7.5	10.5	14.1	20.3	12.8
31-35	2.7	2.1	4.9	4.1	3.3
36-39	0.7	0.0	0.6	1.4	0.6
All	100	100	100	100	100
Sample N	147	239	163	148	697

Note: There are no workplaces in the sample with zero practices or with more than 39 practices.

Table 3. Estimated workplace mean score on formality index, by workplace size

Size group>>	5-9	10-24	25-49	50-99	5-99
mean score (s.e.) (weighted)	6.5 (0.26)	6.5 (0.19)	7.8 (0.21)	8.7 (0.18)	6.8 (0.14)
N (unweighted)	160	252	176	161	749

For formality index, see text and Storey et al. (2010).

Table 4. Estimates of effects of HPWS index on overall attitudes, in samples with different workplace size limits
(from C:\wers04\finoc\xphran2dsize3.log)

sample	(a) mean OC				
	linear (b,s.e.,t)	quadratic (b,s.e,t)	turning point	% ^a above turning point	N, R-sq
5-24	-0.093,0.048,-1.94+	0.0033,0.0013,2.44*	20	25%	364,0.278
5-49	-0.099,0.043,-2.29*	0.0034,0.0012,2.88**	20	29%	514,0.271
5-99	-0.092,0.041,-2.24*	0.0032,0.0011,2.93**	20	31%	654,0.259
	(b) mean IJS				
5-24	-0.189,0.059,-3.22**	0.0064,0.0017,3.73**	20	25%	365,0.294
5-49	-0.174,0.053,-3.29**	0.0056,0.0015,3.77**	20	29%	516,0.269
5-99	-0.156,0.050,-3.10**	0.0050,0.0014,3.58**	20	31%	656,0.257

Notes: a: Weighted basis.

Standard errors are computed by a robust estimator. All specifications include full controls (see text).

+ significant at 10 per cent level * significant at 5 per cent level ** significant at 1 per cent level.

Table 5. Comparison of effects on overall attitudes in models without (1) and with (2) formality, family control and new workplace control variables (from xphran2dsize5b.log)

sample	model		mean OC		
			linear (b,s.e.,t)	quadratic (b,s.e,t)	N, R-sq
5-24	(1)	HPWS	-0.093,0.048,-1.94+	0.0033,0.0013,2.44*	364,0.278
5-24	(2)	HPWS	-0.091,0.060,-1.51	0.0030,0.0017,1.70+	348,0.252
5-24	(2)	Formal	0.049,0.050,0.99	---	
5-24	(2)	Family	-0.052,0.188,-0.28	---	
5-24	(2)	age <5 years	-0.182,0.219,-0.83	---	
5-49	(1)	HPWS	-0.099,0.043,-2.29*	0.0034,0.0012,2.88**	514,0.271
5-49	(2)	HPWS	-0.101,0.054,-1.86+	0.0033,0.0015,2.15*	495,0.254
5-49	(2)	Formal	0.050,0.046,1.07	---	
5-49	(2)	Family	-0.087,0.171,-0.51	---	
5-49	(2)	age <5 years	-0.223,0.202,-1.10	---	
			mean IJS		
5-24	(1)	HPWS	-0.189,0.059,-3.22**	0.0064,0.0017,3.73**	365,0.294
5-24	(2)	HPWS	-0.208,0.071,-2.94**	0.0072,0.0022,3.31**	349,0.246
5-24	(2)	Formal	0.019,0.058,0.33	---	
5-24	(2)	Family	-0.214,0.226,-0.95	---	
5-24	(2)	age <5 years	-0.590,0.325,-1.82+	---	
5-49	(1)	HPWS	-0.174,0.053,-3.29**	0.0056,0.0015,3.77**	516,0.269
5-49	(2)	HPWS	-0.190,0.065,-2.93**	0.0063,0.0019,3.33**	497,0.232
5-49	(2)	Formal	0.013,0.054,0.24	---	
5-49	(2)	Family	-0.129,0.205,-0.63	---	

5-49	(2)	age <5 years	-0.588,0.286,-2.06*	---	
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Notes: Model (1) is the same as in Table 3. Model (2) adds the index of formality variable, the family ownership dummy and the 'new site' dummy; the HPWS variable is modified by removal of four items that are also present in the formality index; and one control variable (occupational pension) is also omitted for the same reason. Standard errors are computed by a robust estimator. Results for the 5-99 subpopulation are not shown but are available on request. + significant at 10 per cent level * significant at 5 per cent level ** significant at 1 per cent level.

Table 6. Comparison of effects of HPWS index on overall attitudes for workplaces in single-site and multi-site subpopulations (from C:\wers04\finoc\phran2dsize4.log)

	single-site			multi-site		
sample	(a) mean OC		N	(a) mean OC		N
	linear (b,s.e.,t)	quadratic (b,s.e,t)		linear (b,s.e.,t)	quadratic (b,s.e,t)	
5-24	-0.105,0.082,-1.28	0.0031,0.0025,1.24	166	-.059,0.051,1-16	0.0023,0.0014,1.66+	198
5-49	-0.093,0.075,-1.24	0.0027,0.0022,1.20	216	-0.080,0.045,-1.78+	0.0029,0.0012,2.36*	298
5-99	-0.081,0.073,-1.12	0.0024,0.0022,1.11	256	-0.077,0.044,-1.77+	0.0028,0.0011,2.46*	398
	(b) mean IJS			(b) mean IJS		
5-24	-0.235,0.098,-2.40*	0.0071,0.0030,2.39*	167	-0.093,0.066,-1.41	0.0041,0.0019,2.20*	198
5-49	-0.224,0.090,-2.49*	0.0067,0.0026,2.52*	217	-0.086,0.058,-1.49	0.0035,0.0016,2.21*	299
5-99	-0.209,0.087,-2.41*	0.0061,0.0025,2.42**	257	-0.073,0.055,-1.34	0.0029,0.0015,1.99*	399

Notes: Standard errors are computed by a robust estimator. All specifications include full controls (see text).

* significant at 5 per cent level ** significant at 1 per cent level