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Positive employee attitudes: how much human resource management do you need?

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Positive Employee Attitudes: How Much HRM Do You Need?

JEL Classification: J28; L23; M12; M54

Key Words: human resource management; high performance; organizational commitment; intrinsic job satisfaction.

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Abstract

We propose a selective view of HRM that is guided by work motivation theory, arguing that one of the means by which firms achieve higher performance is by investing in certain forms of HRM practice that help fulfill intrinsic work values and thereby influence employees' attitudes to their jobs and to the firm in a positive direction. Additionally, an accumulation of complementary practices has important communicative functions that intensify positive employee attitudes. Using nationally representative linked employer-employee data for Britain we investigate the strength and form of the association between the array of practices deployed by the workplace on one hand, and organizational commitment (OC) and intrinsic job satisfaction (IJS) on the other – two types of job attitude that research has shown to be related to a range of performance measures. We find strong evidence that the relationship between employee job attitudes and our measure of HRM is non-linear, rising chiefly at higher levels of HRM. Results are robust to altered composition of the HRM index. Higher OC and IJS emerge at HRM intensity values which are attained by roughly half the British population of workplaces.

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1. Introduction

Personnel policies are often designed to motivate employees and thus influence their behaviour (see Russell 1991 for an historical account). Employers redoubled these efforts in the 1980s with the deployment of Human Resource Management (HRM) practices in various configurations. It has been argued that when appropriately configured and directed HRM is effective in encouraging higher job performance and wider 'extra-role' contributions to the organization (for a review, see Becker and Huselid 2006). According to one interpretation, firms orientated toward highly involving forms of HRM obtain a comparative advantage over their rivals because employees contribute something more than routine job performance (Walton 1987). However the causal relationship between HRM practices and performance has been fiercely contested (see Wall and Wood 2005; Wright et al. 2005). In this paper we argue that one of the means by which firms achieve higher performance is by influencing employees' attitudes to their jobs and to the firm through configurations of practice that are supportive of intrinsic motivation. This builds on recent research revealing rather strong relationships between attitudes and performance (Harrison et al. 2006). We review theoretical arguments as to why one might anticipate either a linear or a non-linear relationship between job attitudes and the "intensity" of an HRM system. This is not a technical detail but an important substantive issue for the interpretation of HRM's effects. A linear, additive relationship implies uniform incremental effects on attitudes in keeping with universalist or "best fit" concepts of HRM, while a non-linear relationship implies HRM may need to reach a critical mass of complementary practices before markedly positive effects emerge.

In the (strategic) HRM literature, 'universalist' and 'best fit' concepts are often equated (e.g., Martín-Alcázar et al. 2005; Youndt et al 1996). However, Becker and Huselid (2006), provide a neat distinction that gives added meaning to 'best fit'. A universalist approach concerns the supposed ability of HRM practices, whether singly or collectively, to have a positive effect on desirable outcomes across the population of firms, while 'best fit' refers to 'core' practices or systems that are deemed to be valuable across all strategic options, while other practices provide added effectiveness when combined in order to support particular strategies. Concepts emphasising strategic combinations of practice ('bundles') are variously designated 'contingent'

(referring to business strategy), ‘configurationist’ (referring to human resource objectives), and ‘contextual’ (adapting strategy to the institutional environment): see Martín-Alcázar et al. (2005). These concepts suggest the possibility of non-linear relationships between practices and outcomes, for instance via models specifying interactions between practices (e.g., McDuffie 1995; Youndt et al. 1996). The present research has been particularly stimulated by the idea of ‘bundling’, but we interpret bundling in terms of the intensiveness of HRM system development rather than in terms of specific combinations of practice. In this we draw upon the theorization of Bowen and Ostroff (2004). Whereas configurational concepts have chiefly led to industry-specific studies such as those cited above, our broader concept is applicable across industries.

Using nationally representative linked employer-employee data for Britain we investigate the association between the array of HRM practices deployed by the workplace and employee job attitudes - organizational commitment (OC) and intrinsic job satisfaction (IJS). In doing so we rely on the employer to identify the existence of HRM practices in the workplace and employees to tell us how satisfied and how committed they are. In constructing our dependent variables we aggregate employee responses to produce workplace means, thus maintaining an employer perspective and obtaining smooth quasi-continuous measures of attitudes. We regress these employee attitudes on HRM intensity at the workplace, also conditioning on a range of structural workplace and workforce characteristics. Our HRM index draws on 43 items relating to five domains of HRM and is informed by previous research, notably Appelbaum et al. (2000), but we also test the robustness of our results through the use of an alternative, less extensive index based on recent British research.

We run regressions entering the HRM index as a linear, additive term, and alternative models which also incorporate a quadratic HRM term. We find strong evidence that the relationship between employee job attitudes and HRM is non-linear, with a positive quadratic term meaning that attitudes rise more steeply at higher levels of HRM. Results are robust to the composition of the HRM index. Significantly higher OC and IJS emerge at HRM intensity values which are attained by roughly half the workplaces in the British population of workplaces.

The structure of the article is as follows. In section 2, we discuss concepts, theory and hypotheses. Section 3 presents our data and analytical approach. Section 4 presents the results, and section 5 concludes. It should be noted at the outset that we make no claim to identify causal relationships in this study; we use the terms ‘association’ and ‘effect’ interchangeably. However, the theories to which we refer are generally causal in nature, and we hope to provide evidence that will contribute, along with other sources, toward assessment of those theories.

2 Conceptualization and theory

2.1 The HRM concept and intrinsic work motivation

We focus on those aspects of HRM practice that can be assumed to foster *intrinsic* motivation. This focus is close to, but more general than, the ideas of others who have sought to extract a ‘high involvement’, or ‘high commitment’ flavour from HRM. Involvement and commitment form part but not the whole of our concept; unfortunately, there is no adjectival equivalent to ‘fostering intrinsic motivation’, and in addition many authors now use the term motivation as a synonym for effort, or even for performance, so any neologism along these lines would only further confuse an already tangled area of terminology. Accordingly, we will allow the meaning of our concept to emerge from our discussion of work motivation and the HRM practices which are relevant, without offering a new label. Aspects of HRM that are omitted or set aside from our concept and resulting measures are briefly noted at a later point (section 3.3). Throughout the article, references to ‘HRM’ should be understood to refer selectively to those sets of practices included in our concept or, when speaking of research by other authors, to their selective concepts such as ‘high-involvement’ practices and systems.

Lawler and Hall (1970: 306) defined intrinsic work motivation as subjective rewards from doing work well, and focused particularly on feelings of accomplishment, growth, development, self-esteem, and personal satisfaction to operationalize the idea. One does not necessarily have to accept this as the best list of intrinsic values/rewards – it seems seriously incomplete, though so do other lists - however the approach is useful in illustrating the potential of work for providing intrinsic rewards.

We present HRM's potential significance for intrinsic motivation in terms of values and the rewards that are achieved when they are fulfilled through work. The value concept is flexible enough to link together a number of psychological concepts in work motivation theory. For instance Latham and Pinder (2005: 491) write, "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". According to Locke (1996: 121), values are also the basis of affective attitudes: "Emotions are the form in which one experiences automatized value judgements... according to the standard of one's values.... Events and situations seen as furthering one's values produce positive emotions (happiness, satisfaction, love)". This statement corresponds closely to the idea of evaluative attitudes offered by the founders of attitude theory (see Fishbein 1967: 389). Writers on HRM have pointed to a variety of values that can be fulfilled through work practices. For instance Walton (1972) referred to challenge, personal growth, the intrinsic interest of work, self-esteem and social responsibility. Guest (1987:511) highlighted challenge, autonomy, learning opportunities and self-control. Appelbaum et al. (2000:46) stated that 'Jobs that are challenging and make use of workers' skills are intrinsically rewarding'.

Values also appear to be important for processes of identification and commitment. Anderson (1993) argued that an individual seeks to define and respect herself as a certain kind of person through the evaluative choices she makes. Selznick (1957) explained how an organization that establishes a strong value system encourages employee commitment to those values and to itself. The reward for individuals here seems to be the feeling of being linked by organizational membership with values they respect.

Participative practices and team organization/teamworking practices appear the main methods through which intrinsic motivation/values/rewards have been fostered within HRM. By 'participation' we mean structures and processes through which employees make contributions that directly relate to work tasks and work organization. This often takes the form of meetings between management and staff or of 'briefing groups', now used in the majority of British workplaces (White et al. 2004: 66). Most employees see such meetings as offering two-way

communication, making them a channel for voice. Another widely used method of obtaining employee participation in work-related changes is the use of 'quality circles' or problem-solving groups. An analysis of national employee data (McGovern et al. 2007: 117-8) indicates that the main influences on whether employees see themselves as having a personal say in changes affecting their jobs are participation in two-way meetings or in quality circles.

Group- or team-working organization is highlighted in most studies on the HRM-performance relationship. It is common for teams to be permitted more responsibility and more discretion than has in the past been given to employees below supervisory level. Individuals within teams can also learn to carry out tasks and roles interchangeably with their colleagues, leading to greater flexibility to cope with work demands and to increased variety for the individual. Team-working combined with these learning opportunities is the main practical route through which earlier ideas of 'job design/enrichment' (Hackman and Oldham 1975, Hackman et al 1975)¹ have been taken forward.

One can surmise some of the ways that these areas of practice bring intrinsic rewards to employees. Participatory activities give individuals increased scope to contribute to problem-solving and management of change, hence deepening the interest of work and increasing self-esteem, while team roles supported by skill development enable them to widen skills and thus to experience more variety and challenge in their work, gain opportunities for personal growth, and experience increased relatedness with colleagues through shared goals and responsibilities.

In addition to these domains of practice that directly foster intrinsic motivation, there are several aspects of HRM that have formed part of traditional personnel management but can be given an altered and enhanced role in conjunction with participative and team practices within an overall HRM system. These domains are financial incentives, training/development, and recruitment/selection (selection and development may be considered together as skills formation). These are sometimes referred to as 'supporting' practices (e.g. Osterman 1994; Forth and Millward 2004), which suggests that they are less central to HRM that develops involvement, commitment or intrinsic motivation, but other authors treat one or more of them as

integral with such practices (for instance, Appelbaum et al. 2000 treat skills development and incentives as part of their high performance work system (HPWS) specification).

In our view all these domains of HRM practice are complementary and overlapping so that one should regard participation, teams, skills formation and incentives as a single system.² HRM systems directed towards intrinsic work motivation provide opportunities for each of these additional domains to be enhanced as well as for them to support participative and team organization. For instance, financial incentives can be extended with group/workplace bonuses or profit-shares, which complement participative and team organization, and will also provide an important form of feedback to employees. Training and development can be driven by the aim of maximizing individual potential as well as more specifically of equipping individuals to contribute to participative opportunities and to master enlarged and variable job roles within teams. The selection of employees with appropriate skills or values is important for developing commitment to high performance goals or to the organization as a whole (Hackman and Oldham 1975, Locke 1996). Moreover, each of these domains sends signals about the importance attached by the employer to employees, a point which will be elaborated shortly.

2.2 How HRM influences job attitudes

Work motivation theorists of various persuasions have argued that what produces performance also produces positive work attitudes. Thus we have already cited the view of Locke (1996) who sees positive attitudes being generated by situations that help fulfill individuals' values. As individuals also choose performance goals to fulfill values, either a single process or two processes operating in tandem generate positive performance and positive attitudes. Hackman and Oldham (1975: 160) likewise maintain that when critical psychological states are turned on by enriched job design, there are parallel 'good outcomes' of internal (i.e., intrinsic) work motivation, satisfaction with work, and high quality work performance. Gagné and Deci (2005: 353) claim that "When people are autonomously motivated at work they tend to experience their jobs as interesting or personally important, self-initiated and endorsed by relevant others." *As a result*, they say, job performance is associated with an experience of satisfaction and formation of positive job attitudes.

Building on the meta-analytic study of Judge et al. (2001), Harrison et al. (2006) have synthesized a wide range of previous results and have concluded that job satisfaction and organizational commitment, which they jointly term 'overall job attitudes', together play the central role in predicting what they call work engagement. The outcome measures that they analyse are focal task performance, contextual performance (otherwise called organizational citizenship behaviour), lateness, absence and quit. Bringing these together into an overall concept of engagement, and collecting satisfaction and commitment into a single measure of overall job attitude, they estimate a correlation of 0.50 between overall attitudes and engagement. This suggests that these attitudes constitute an important link in the mechanism of the HRM effect on performance.

The present study uses very similar attitudinal measures to those considered by Harrison et al (2006). Consistent with our emphasis on intrinsic motivation, we construct a measure of 'intrinsic job satisfaction' (IJS) and another of affective organizational commitment (OC).

2.3 The form of the HRM-attitude relationship

Most studies estimating an HRM-attitude relationship have assumed the relationship is linear. In other words attitudes respond uniformly for each increment in a suitably defined index of HRM, whether the increment is from a low initial level of the measure of HRM or a high level. The USA manufacturing study of Appelbaum et al. (2000) provides the *locus classicus* in support of a positive linear relationship between the intensity of 'high performance work systems' (HPWS: a configuration of HRM focusing on participation, skills, and incentives) and measures of organizational commitment, trust, and job satisfaction.

There are however other perspectives that cast doubt on the assumption of a linear relationship. The HRM-performance literature often emphasizes a 'bundling' or HRM-system view. According to this, increases in performance are fully achieved only when some critical mass of HRM practice has been built up, and the complementarity of practices is important, pointing to non-linear effects (e.g., Becker and Huselid 1998; Guest et al. 2003; Ichniowski et al. 1997;

McDuffie 1995). Some small gains may be expected from the introduction of practices in isolation, but major impacts must await the development of a full HRM system (Becker and Huselid 2006).

The usual approach toward addressing bundling in the empirical HRM literature has been through the use of models with interaction terms, or by specifying certain combinations of practice as a criterion or threshold defining the type of system under consideration. Most studies along these lines seek to identify sets of practice having positive synergy; e.g., McDuffie (1995) and Forth and Millward (2004).³ However specified, all these studies imply some non-linearity in the relation between HRM and outcome variable. This is still more directly expressed in the study of Godard (2001) who included both linear and quadratic (squared) terms of his measure of practice.⁴ Our model specifications in the present study are similar to those of Godard although our hypotheses are very different.

Guided by the emphasis on ‘bundling’ in the HRM-performance literature, we argue that HRM systems will tend to produce an integrative experience of positive affect when they are *highly developed and pervasive*. How this may be so is suggested by Bowen and Ostroff (2004) (henceforth, BO). They propose that HRM can be interpreted as a *communication system*, and 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’ and the messages it communicates must be persuasive. BO emphasize that implementing *a wide range of practices* is valuable in strengthening the HRM message and making it salient. Numerous signals coming together have an increased chance of communicating a new or distinctive message. We 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 received and believed when the organization demonstrates its seriousness by implementing a wide range of practices that point in a common direction. Inconsistency or half-heartedness, on the other hand, can be interpreted as insincerity. When employees identify with and commit to the values embodied in the HRM system, even those aspects that often excite some contestation, notably external rewards and monitoring (Ouchi 1979; Gagné and Deci 2005), will be seen as

complementary parts of the system and the system as a whole will foster positive job attitudes in an integrated way. The overall effect on attitudes will therefore depend on how intensively the HRM system has been developed, as well as on the simple additive effect of practices that promote the fulfilment of intrinsic work values.

Applying BO's notion of a communicative HRM-system, one can also consider what happens when a firm implements relatively few of the key HRM practices. In that case, employees do not receive a strong signal of positive change, but they nevertheless receive a signal of change which they will interpret within their usual framework for assessing workplace changes. If they usually interpret change in a positive or cooperative way, then each HRM development may be viewed positively, but if employees tend to be sceptical about the employer's motives, or habitually contest change, then low-intensity HRM will also be viewed more negatively. This will of course also be affected by the kinds of practice that are adopted and how they are initially implemented. For instance team-working in some circumstances involves increased monitoring and control that can be experienced as coercive (Barker 1993). The value of implementing a wide range of HRM practices will then lie partly in encouraging employees to revise negative interpretations or conflictual stances where these are usual (Edwards 1987).

We therefore predict that the overall form of the HRM-attitude relationship will be non-linear, being steeply positive where HRM practices have been developed to constitute a 'strong system', but only weakly positive, flat or even somewhat negative where the implementation of HRM has not reached this threshold.

2.4 HRM and Job Attitudes: Hypotheses

The analysis will test two alternative hypotheses about the form of the effect of HRM on overall job attitudes: a linear and a non-linear hypothesis. Both hypotheses will be tested against a null hypothesis of no effect. Workplaces that have not implemented any HRM practices, or so few as to be negligible, none the less have other personnel regimes and their employees may have positive attitudes. Failure to reject the null hypothesis will indicate that the positive impact of HRM is on average no greater than that of previous or traditional personnel regimes.

Although the hypothesis of a linear relationship is questionable, it is not unreasonable. Even rudimentary participation and teamworking should excite some positive attitudinal response, it

may be argued. And though there may be some negative reaction to some features of HRM this could also apply as much in non-HRM systems. Overall, then, the HRM-attitude relationship may still be approximately linear.

In support of a non-linear relationship, conversely, we would argue that as HRM develops initially but is still at a rather low or moderate level of implementation, positive reward from the changed practices will be small and perhaps no greater than in non-HRM regimes. Further, the new practices will not communicate strong work values or organizational values but rather will be experienced as a series of discrete changes lacking a unifying message. In this situation employees will interpret each new practice in terms that are familiar from past experience, rather than as part of a move to a more participative and fulfilling style of work, and the net effect will be correspondingly weak or even negative, depending on the customary response to workplace change. It is when HRM implementation rises to a high level that clearly positive effects on job attitudes can be expected (via the BO argument). Taking participation as an example, employees get increasing intrinsic reward as participatory activities (and other complementary practices such as training) are extended to a high level, and at the same time the firm's commitment to participation and its respect for employees' contributions are signalled strongly, leading employees to identify with the firm and the HRM system. As similar bundles of practice are implemented in other domains, positive messages from the overall HR system are reinforced. Thus, at high levels of implementation, the overall effect on attitudes is predicted to be increasingly positive.⁵ The quantification of this relationship, e.g. the threshold at which overall job attitudes begin to 'take off', is of course an empirical matter and may not be constant over time or place. However, the general form that is hypothesised is non-linear and positive in the quadratic term.

The overall shape of the relationship between the HRM measure and the attitude measure depends on the signs and magnitudes of both the linear and the quadratic terms in the model. Our conceptualization points towards an increasingly steep increase in positive attitudes at high values of the HRM measure, but makes less definite prediction about the shape of the relationship over low values of the HRM measure. A positive, flat or negative relationship over this lower range of HRM implementation are all compatible with our formulation.

The study by Godard (2001) found that the relationship between his AWP measure and employee attitudes was linear and positive up to moderate levels of AWP involvement, but became negative at high levels of AWP involvement. The interpretation offered by Godard is that high levels of AWP result in high work demands or work strain for employees. Macky and Boxall (2007) interpret the negatively signed interaction effects in their study in a similar way. We do not find these results or interpretations convincing,⁶ but our analysis specification does not *a priori* exclude a similar result.

3. Data, measures and analysis methods

3.1 Data

The Workplace Employment Relations Study 2004 (henceforth, WERS) 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 self-completion survey of employees. The management survey had an overall response rate of 64 per cent (N=2295). These face-to-face interviews last an average (mean) of 118 minutes (the median being 115 minutes). The 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 29 per cent of the total workforce per establishment. The present study was confined to market sector workplaces, and the effective samples were 1140 workplaces with 11,854 employee respondents.

The public-use database for WERS includes weights to account for survey design and non-response, and these are available on either an establishment-weighted or employment-weighted basis for analysis of the management interviews. We have used the establishment weights, consistent with an employer policy perspective. Additionally we make an adjustment to take account of sample attrition from absence of linked employee data in some cases. Because of the complex sampling design of the WERS survey, inferences would be biased if weighting were not used (see www.WERS2004.info/FAQ.php5). The analysis method of robust regression (Berk 1990) ensures that allowance is appropriately made for weighting.

3.2 Dependent variables

We represent overall job attitudes through two variables that we label intrinsic job satisfaction (IJS) and organizational commitment (OC). We construe these attitudinal measures as evaluations of, respectively, rewards that the individuals get from their jobs and rewards that they get from organizational membership.

The WERS-IJS measure has not to our knowledge previously been used but similar measures are encountered in the job satisfaction literature (e.g., Morrison et al. 2005). The WERS employee questionnaire contained seven 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). The items refer to satisfaction provided by the work done and more specifically to the values of achievement, initiative, and influence through work. Item selection was also tested by principal components analysis which showed the four items loading together and distinctly from the remaining three items, which referred to training, security and pay. Each item has five responses. The reliability alpha of the IJS items in the employee survey sample is 0.87. They are summed at the level of the individual respondent and the summed scores are averaged over the employee respondents at each workplace. The focus on intrinsic job satisfaction is conceptually appropriate because of our emphasis on the intrinsic values at the level of tasks and job roles fulfilled through HRM practices of the types we have designated.

The WERS measure of OC (WERS-OC) consists of three items which have counterparts in the widely used six-item Lincoln-Kalleberg measure of affective organizational commitment. Like the WERS-IJS items, these items are answered on a five-point response scale. WERS-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.

A principal components analysis was performed to assess the distinctness of WERS-IJS and WERS-OC items from each other and from other measures of satisfaction and well-being in the employee questionnaire. The results (available on request) confirmed their distinctness. Details of the source items and means for these variables are shown in Table 1. It will be seen that we

have scored the two summative measures differently. This underlines our view that such scoring is arbitrary. Both measures however are based on a 5-point response scale and the scoring in both cases retains the unit of response as its basis. Thus, estimated effects on either outcome can be interpreted as proportions of a unit change in the mean response.

[Table 1 about here]

3.3 Measures of HRM practice

We view HRM as a set of practices that, in principle, can be objectively described. Some of the recent studies supporting a positive and linear HRM-motivation model (Gong et al. 2009; Nishii et al. 2008; Takeuchi et al. 2007; 2009) show that when employees have favourable perceptions of workplace practices, they also tend to have relatively high levels of job satisfaction, commitment, or other attitudes. A drawback of these studies is that one cannot discount the possibility that employee attitudes to HRM and their ratings of the more general attitudes are driven by unobservable traits, such as the common influence of personality (Lykken and Tellegen 1996; Ferrer-i-Carbonell and Frijters 2004). Further, while it is certainly of interest to learn that general attitudes are influenced by feelings about HRM, this still leaves unanswered the question of what configuration of practices management should adopt to influence attitudes positively. We reduce the risk of common method artefact by extracting attitude measures from the employee survey, as described above, but drawing all information about HRM practices 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. Because the HRM measure is defined from the managerial viewpoint, its effects on workplace outcomes can be interpreted directly in terms of implications for employer policy choices. There are numerous studies that have a similar approach to obtaining descriptive measures of HRM practice: e.g., in Britain, using the WERS data, Brown et al. (2008), Cox et al. (2006), Forth and Millward (2004); Ramsey et al. (2000); Wood and de Menezes (2011) (who however also use employee perceptions or evaluations alongside their descriptive measure); for North America, see e.g. Cappelli and Neumark (2001); Collins and Smith (2006); Godard (2001); Osterman (1994; 2000; 2006); Wright et al. (2005); Zatzick and Iverson (2006).

The notion of bundling has led the great majority of researchers to aggregate item-level data about HRM practices into summative measures. Becker and Huselid (1998:63) say: “The overwhelming preference in the literature has been for a unitary index that contains a set (though not always the same set) of theoretically appropriate HRM policies derived from prior work”. The majority aggregate their items into a single overall measure or ‘index’, while others have aggregation at the level of HRM domains, such as participation or incentives (Batt 2002 measures both levels). For the purposes of the present paper, we also use a single overall index of practices, but we build it up from the five domains of participation, teams, development, selection (development and selection can also be regarded jointly as skills formation), and incentives, which were discussed earlier in our conceptualization of HRM. We have also used domain concepts in deciding what to omit – for instance, we have omitted all aspects of traditional industrial relations practice such as wage fixing, disciplinary or grievance procedures, and information disclosure. We have also omitted personnel welfare practices (benefits, health and safety) and though we have experimented with inclusion of equal opportunities practices and work-life balance practices we have eventually excluded these since they appear less important with respect to intrinsic work values. We originally intended to include a domain concerning job security and long-term employment, since this has received emphasis in the HRM literature, but found that the available items inter-correlated weakly, so we eventually included them only as control variables (see later).

The use of domains to build up the overall index has the advantage that reliability can be assessed, aiding interpretation and helping to ensure that each domain of practice is adequately covered and constitutes in its own right a bundle of coherent practices. The Kuder-Richardson reliabilities (closely similar to Cronbach alpha) 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 (see Table 2). These reliabilities for HRM domain measures are similar to those found in the US HRM-performance literature when descriptive reports of practice are obtained.

Most of the source items were binary; 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). This differs from most US studies of HRM, which have used Likert-scale type source items, or quantified estimates. 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 do not seem to have 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. As shown in Table 2, the distribution of our HRM index is approximately symmetrical and skewness and kurtosis are not far from the normal distribution values of zero and 3 respectively.

[Table 2 about here]

[Table 3 about here]

Overall, 43 items were included in the index of HRM practice (see Table 3 for contents). This is a larger number than used in most other British studies of HRM practice (exceptions being Guest et al. 2003 and Ramsay et al. 2000). There may be some suspicion that the results to be reported depend on the sheer range of our HRM measure, or on the inclusion of numerous practices that could be considered idiosyncratic since they do not figure elsewhere in the British literature. We therefore compared our list of items with items from recent British studies that constructed an overall index from WERS descriptive items – Brown et al. (2008), Forth and Millward (2004), Wood and de Menezes (2011). We found that 18 of the items used in our index also appeared in one or more of these studies (see Table 3), and after adding 2 further items in the recruitment domain (similar to items in Godard 2001) to improve balance, we formed these into an alternative index of 20 items to test the sensitivity of results to the inclusion/exclusion of items. Labelled RHRHP (i.e. a restricted version of TOTHRHP) this is shown in Table 2 to be, like the parent index, symmetrically distributed and with similar skewness and kurtosis.

3.4 Control variables

Control variables that can be regarded as ‘structural’ are included in all the reported analyses. They are: workplace size: the natural logarithm of number of employees at the workplace; a

four-category dummy indicating size of parent organization (with single site organization as reference category); industry (12 dummies); 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 five-banded percentage of employees in non-permanent jobs; a dummy for presence of recognised union(s); and the rank of travel-to-work area unemployment rate in 2004. Except for the last two variables, all the ‘structural’ controls were found to be significantly related to WERS-OC in an earlier exploratory study (Bryson and White 2008). In unpublished exploratory research we also found that size, industry, and workforce composition were associated with the extent of HRM practices at the workplace and in some instances with change in practice over time. Union recognition is included because it is known to be associated both with employee attitudes (especially job satisfaction measures) and with the adoption of HRM practices. The local unemployment rate was included as representing local labour market conditions that would likely affect employee wages, attitudes and possibly the resources available to firms in developing HRM. Finally we included as controls four items relating to job security and long-term employment practices which have been regarded as important in the HRM literature although we found they did not form a cohesive domain.

3.5 *Analyses*

We use survey regression with a robust variance estimator. All analyses are confined to the market sector subpopulation. The measures of OC and IJS are treated as continuous variables, since they are smoothly distributed workplace means. The main technical issue concerns the fact that 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 and stratification. The HRM index variable is specified in alternative analyses either in linear form or with both linear and quadratic (squared) terms.

4. **Results**

Table 4 displays the estimated effects on OC and IJS of the summative index variable TOTHRHP. Model (1) for each outcome has the index in linear form, while Model (2) shows the estimates when the quadratic (squared) term is added. The models also contain the control variables but the results for these are not shown in the tables for reasons of space (the full results are available on request from the authors; generally they are unsurprising, for instance large workplaces and those that belong to large organizations tend to have less positive employee attitudes, while those with large proportions of managerial and professional occupations tend to have more positive attitudes).

The estimated linear effects of the HRM index (Models (1)) are positive but not statistically different from zero and thus give little support to the view that overall attitudes respond positively to small-scale increments in HRM practices. In Models (2), both the linear and quadratic terms have estimates that are significant at the one per cent level: the linear term is negatively signed while the squared term is positively signed. This suggests that the overall attitudes initially decline as HRM practices are implemented at a low or moderate level, but become positive at higher levels of implementation. This is consistent with our non-linear hypothesis and the 'strong system' interpretation of HRM effects. To clarify the results, we compute and plot mean marginal predictions from models of type (2) over selected values of the TOTHRHP index (Figures 1 for OC and 2 for IJS). These show the mean predicted or simulated levels of OC and IJS when all other variables are kept at their observed values while every observation is first given a value of zero on TOTHRHP, then a value of 5, and so on up to a maximum value of 40. The non-linear form of the predictions is apparent. Both OC and IJS are at their lowest mean level for workplaces where about 15 of the practices included in the index are implemented, and rise progressively with increases in the number of practices above this minimum point. At the highest observed level of HRM implementation, mean OC and IJS are substantially higher than the minimum (an average difference of 0.7 to 0.8 of a unit of response per scale item). On a weighted basis, it is estimated that 50 per cent of workplaces have from 1-15 practices within the TOTHRHP index (none has zero), and are therefore on the descending part of the curves or at the minimum level, while the remaining 50 per cent have more than 15 practices and are therefore located on the rising part of the mean prediction curves. Too much

emphasis should not be placed on the decline in mean marginal job attitudes over the range 1-15 on the HRM index, since the confidence intervals are wide at the lower end of the index and the quadratic specification can induce some artefact in the estimates at the extremes because of the inherent symmetry of the quadratic form (see Murphy and Welch 1990). Furthermore, our theoretical discussion and hypotheses, while admitting the possibility of a negative slope over low values of the HRM index, do not strongly predict such an outcome.⁷ Despite this caution, the hypothesis of a non-linear relationship between our index of HRM and job attitudes, with a positive quadratic term, is strongly supported by these results. In accordance with the discussion of section 3, we interpret the results as indicating that HRM practices of participation, teamworking, skill formation and incentives need to be implemented at a somewhat high level – a ‘strong system’ level - before British employees perceive them as offering superior opportunities for the fulfilment of their intrinsic work values.

[Table 4 about here]

[Figure 1 about here]

[Figure 2 about here]

4.1 Alternative index of HRHP

We next use the alternative measure of HRM practice to assess whether the previous results depend on the particular index we have used or whether the non-linear functional form is common to similarly constructed indices with fewer constituent items.

As discussed earlier, variable RHRHP is an index that is restricted to the items that are the same as or closely similar to those used by Brown (2008), and/or Forth and Millward (2004), and/or Wood and de Menezes (2011). RHRHP takes values 0-20. Table 5 shows that the pattern of estimated effects for RHRHP are similar to those for TOTHRHP. Estimated effects in linear models are not distinguishable from zero, while in the quadratic specifications, the linear term is negative and significant at least at the 5 per cent level, and the squared term is positive and significant at least at the 5 per cent level. Computing mean marginal predictions, it is found that

for this restricted index the predicted minimum mean level of OC is reached at workplaces with 7 practices; the corresponding prediction for IJS has its minimum value at 8 practices. For reasons of space, we do not show plots of the mean marginal prediction curves; they are similar in form to those shown for TOTHHP, and are available on request. On a weighted basis 52 % of workplaces are estimated to have up to but not more than 7 practices on the RHRHP index. *The general picture, whichever index used, is that there is a roughly half-and-half split between lower-HRM workplaces on the portion of the curve predicting static or declining job attitudes, and higher-HRM workplaces on the portion of the curve showing rising job attitudes.*

Overall, one can assert that although the estimated magnitudes of the effects of HRM vary a little depending on which index measure one chooses, the overall non-linear pattern of results remains very much the same, as does the interpretation.

[Table 5 about here]

5. Conclusions and Discussion

In this paper we show that HRM intensity is linked to employees' intrinsic job satisfaction (IJS) and organizational commitment (OC). Around one-half of British workplaces have HRM regimes sufficiently intensive to foster positive IJS and OC, potentially contributing to the HRM/performance effect often discussed in the literature. Universalist accounts of HRM indicate that even a little HRM produces some gain, and the gain grows proportionally with HRM intensity. But we find that it is only once a fairly large number of HRM practices are in place that the positive impact on attitudes is apparent, a finding that runs counter to the universalist concept of HRM. These findings are robust to substantial variation in the measure of HRM intensity used. Thus, if the objective is to raise performance via more positive employee attitudes, a little HRM does not meet the need.

But ours is also the first compelling evidence of a strong non-linear relationship between job attitudes and HRM intensity in a national representative sample of workplaces. Why is this the case? One reason is that many studies are predicated on the idea, which is not always explicitly stated, that HRM "intensity" is an inherently linear concept such that incremental gains (usually conceived in terms of firm performance) can be made through the addition of practices. Consequently, analysts do not test for non-linear relationships. Second, much of the US literature tends to exclude smaller establishments. The linear model may fit the larger workplace subpopulation better because larger workplaces tend to have a more developed set of HRM practices. Nevertheless, there are studies that do test for non-linear relationships, as we do, but report different results. Most notably, Godard's (2001) study finds declining organizational attitudes at higher levels of HRM intensity while we show the opposite. Godard's study was based on a general sample of employees in Canada, presumably including the public as well as the market sector. His measure of 'alternative work practices' is much briefer than, and considerably different from our HRM measure that focuses on a range of complementary practices conducive to fulfillment of intrinsic work values. The reasons for the differences in results may be both cultural and methodological. But there is clearly value in replicating this type of analysis across time and place and for disaggregated subpopulations to establish its external validity.

The findings raise an important question for academics and policy analysts, namely, why don't firms adopt more intensive HRM regimes involving participation, teamworking and linked domains of practice? One possible reason is that, for these workplaces, the costs of doing so outweigh the benefits we have identified in this study. Alternatively, these benefits may be heterogeneous across firms such that the benefits accruing to current adopters would not be apparent if no/low intensity HRM firms increased the number of practices they deployed. A further possibility is that weaker and less intensive HRM systems deliver other benefits to firms which we do not explore in this study, such that firms are actually adopting systems which are optimal along these other dimensions. However, it is conceivable that many employers are operating HRM systems which are not optimal, and that they would benefit from the adoption of a broader array of HRM practices to foster intrinsic work values and positive overall attitudes. It is possible, for example, that they have insufficient information regarding the potential benefits of such practices to make a judgment. If this is so then policy discussion might play a role in furnishing firms with the knowledge they need to make more informed decisions. Another possibility is that employers face constraints in implementing a more thorough-going HRM programme capable of eliciting greater organizational commitment and offering greater intrinsic job satisfaction. It is possible, for example, that developing team-working and participation may need a lot of time, thus running into various kinds of obstacle, e.g. Baron and Kreps (1999: 204) emphasize resistance and obstruction by middle management. Thus many firms may be on the road to the kind of HRM system that we focus upon but have a long way to go and may be bogged down by various problems. While we can speculate as to the possible reasons for selective, partial or constrained implementation of HRM systems in British workplaces, only additional research will reveal whether workplaces with low or moderate HRM development are suffering real losses as a result.

Notes

1. Also referred to in the USA as 'motivational job design' (Morgeson and Campion 2002).

2. We have tested this by considering whether results similar to those we report here can be obtained with an HRM index based solely on participative and team-working practices, but this turns out not to be the case.

3. Delery (1998) has argued that synergy may be either positive or negative, and notes that modelling with interaction terms is limited for technical reasons to a small number of practices or dimensions. The study of Macky and Boxall (2007) is unusual in estimating models with as many as four to six practices in high-order interaction terms: it is also unusual in obtaining interaction estimates with a negative sign.

4. Godard's measure, which he called 'alternative work practices' (AWP) included several lean production practices as well as others that are usually included under the HRM or HPWS rubric.

5. Of course, if the employer in other ways acts inconsistently with the central HRM messages, or plays false to its promises, the potentially positive effect of the HRM system can still be undermined (Hope-Hailey et al. 2005 provide a case example).

6. It is not obvious why high work demands or work strain should be viewed negatively by employees, since work demands rise with skill level and responsibility; the inference of negative effects requires additional assumptions, e.g. as in the labour process theory of Ramsay et al. (2000); see the discussion in Gallie (2007:5-6).

7. Such a prediction would require a separate theory or evidence that in Britain employees tend to react negatively to change or to the particular forms of change involved in low-intensity development of HRM.

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Table 1. Organizational Commitment (OC) and Intrinsic Job Satisfaction (IJS): Descriptives

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		0.4776	0.4773
I feel loyal to my organization	-2 ... 2	0.7924	0.4730
I am proud to tell people who I work for		0.6482	0.5451
OC summative measure	-6 ... 6	1.932	1.370
IJS items: How satisfied are you with ...			
The sense of achievement you get from your work		3.752	0.4551
The scope for using your own initiative	1 ... 5	3.823	0.4203
The amount of influence you have over your job		3.591	0.4612
The work itself		3.767	0.4408
IJS summative measure	4 ... 20	14.95	1.605

Table 2. Development of HRM practice indices via HRM domains

Domain measures

Label	No. of items (binary)	Median category ^a	Reliability (KR ^b)
Participation	11	3	0.79
Teams	7	2	0.69
Incentives	8	1	0.68
Development	10	4	0.73
Recruitment	7	4	0.52

Across-domain measures

Label	No. of domains	Mean ^c	S.d ^c	Median ^c	skew ^c	kurtosis ^c
TOTHRHP= summative index of practices	5	19.69	7.73	20	-0.20	2.31
RHRHP=restricted index of practices ^d	5	9.42	4.17	10	-0.12	2.31

^a Category that includes the median for the domain, from weighted distribution, within the market sector, of each domain score.

^b Kuder-Richardson reliability measure for binary items; it returns closely similar estimates to Cronbach alpha.

^c These are unweighted sample statistics.

^d RHRHP is restricted to items occurring in several recent British publications – see section 3.3 for details.

Table 3. Content of HRM domain measures

Domain name	Contents
Participation	Meeting time, briefing time, changes with employees involved, subjects discussed (organization/production/ <u>staffing/finance/planning/pay</u>), consultative committee, <u>attitude surveys</u>
Team working	Proportion in teams, task rotation, teams have <u>inter-dependence./responsibility/autonomy/choice of leader, quality circles</u>
Development	Investor in people standard, development included in strategy, <u>proportion off-job training, proportion cross-training, varied training courses, induction courses</u> , team training, training discussed in briefing groups, <u>appraisal for non-managers/range of groups</u>
Selection	selection criteria: qualifications, skills, references, <u>motivation</u> , experience, <u>use personality tests, use skill tests</u>
Incentives	bonus: individual, <u>group/team, workplace, organization; profit-sharing for non-managers</u> , merit-based or performance pay, appraisals affect pay differentials, incentives affect pay differentials

Notes: Underlined items are included in index RHRHP. All items are included in index TOTRHP. A more complete definition of items is available on request.

Table 4 : Estimates from regressions of OC and IJS on summed-practice (TOTHRHP) variable.
 Cell entries are the estimated coefficients with robust standard errors in brackets.

	OC		IJS	
model	(1)	(2)	(1)	(2)
Total HR/HP – linear	0.0137 (0.0107)	-0.1037 (0.0382)**	0.0072(0.0137)	-0.1513 (0.0459) **
Total HR/HP-squared	-	0.0035 (0.0010) **	-	0.0048 (0.0013) **
R-squared(N)	0.2336 (1113)	0.2552 (1113)	0.2288 (1115)	0.2528 (1115)

Notes: All analyses include controls, as described in section 3.4. ** significant at the 1% level.

Table 5: Estimates from regressions of OC and IJS on alternative (restricted) index of HRHP practice

	OC		IJS	
model	(1)	(2)	(1)	(2)
RHRHP – linear	0.0162 (0.0186)	-0.1229 (0.0608)*	0.0048 (0.0234)	-0.2306 (0.0740)* *
RHRHP– squared	-	0.0087 (0.0034)*	-	0.0147 (0.0042) **
R-squared (N)	0.2261 (1118)	0.2360 (1118)	0.2170 (1120)	0.2371 (1120)

Notes: All analyses include controls, as described in section 3.4. * significant at the 5 % level ** significant at the 1% level.

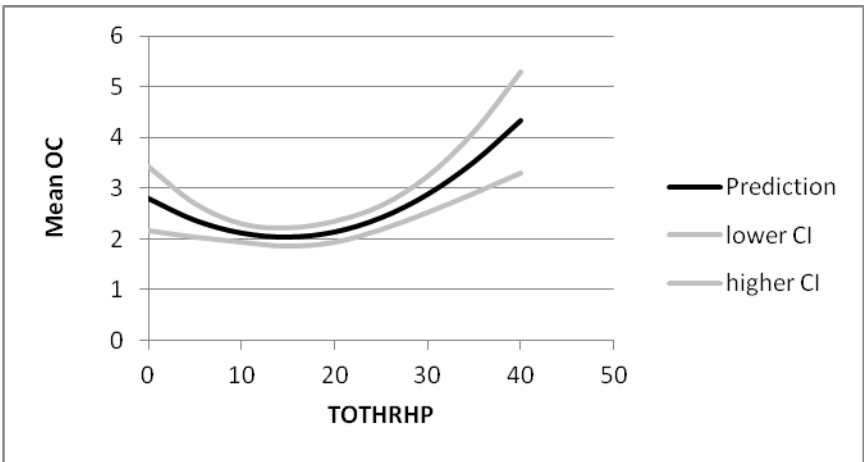


Figure 1: Plot of mean marginal predicted OC over index of HRM practices (TOTHHP), showing estimated 95% confidence intervals.

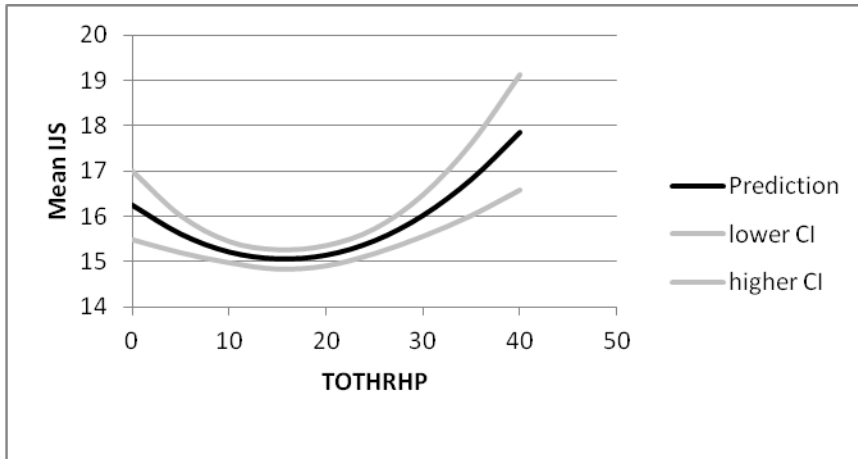


Figure 2: Plot of mean marginal predicted IJS over index of HRM practices (TOTHRHP), showing estimated 95% confidence intervals.

