Are High Performance Work Practices (HPWPs) enabling or disabling? Exploring the relationship between selected HPWPs and work-related disability disadvantage

Post-print version accepted for publication in *Human Resource Management (*infinite embargo)

Kim Hoque, Warwick Business School. kim.hoque@wbs.ac.uk
Vicki Wass, Cardiff Business School. wass@cardiff.ac.uk
Nick Bacon, Cass Business School, City University London. nick.bacon.1@city.ac.uk
Melanie Jones, Cardiff Business School. jonesm116@cardiff.ac.uk

Abstract

We develop the organizational characteristics element of Stone and Colella's (1996) framework by drawing on the Ability-Motivation-Opportunity (AMO) model to assess the relationship between High Performance Work Practices (HPWPs) and work-related disability disadvantage. We develop competing 'enabling' and 'disabling' hypotheses concerning the influence of selected HPWPs (competency testing, performance appraisal, individual performance-related pay, teamworking and functional flexibility) on disabled relative to non-disabled employees. An empirical assessment of these competing hypotheses using matched employer-employee data from the nationally representative British Workplace Employment Relations Study 2011 reveals a negative relationship between these HPWPs when used in combination and the proportion of disabled employees at the workplace, although this relationship disappears in workplaces with a wide range of disability equality practices. Although disabled employees report lower work-related well-being than their non-disabled counterparts we find limited evidence that this is associated with the presence of HPWPs.

Key words: Ability-motivation-opportunity, disability, high performance work practices, well-being at work, strategic human resource management

Acknowledgements

We are grateful to NatCen Social Research on behalf of the Department for Business, Innovation and Skills, the Economic and Social Research Council, the UK Commission for Employment and Skills, the Advisory, Conciliation and Arbitration Service and the National Institute of Economic and Social Research for the use of The Workplace Employment Relations Study (WERS) (2011). The data was distributed by the UK Data Archive at the University of Essex. All errors of analysis and interpretation lie with the authors.

Introduction

It is well established that disabled individuals are disadvantaged in terms of employment opportunities and treatment at work and that this disadvantage is extensive and enduring (ILO, 2009; OECD, 2010). In the UK, for example, the disability employment gap exceeds 30 percentage points (Jones & Wass, 2013) while the disability wage gap is estimated to be 14 and 30 percent for physical and mental health respectively (Longhi, Nicoletti, & Platt, 2012). Disabled employees also report lower work-related well-being than their non-disabled counterparts on measures such as job satisfaction and unfair treatment (Fevre, Robinson, Lewis, & Jones, 2013; Jones, 2016; Schur, Kruse, Blasi, & Blanck, 2009).

Considerable prior research has sought to explain this disadvantage, with Stone and Colella's (1996) model suggesting that these explanations fall into three broad categories. The first concerns person characteristics (attributes of the disabled person, their co-workers and supervisors), studies having highlighted the role of prejudice (affective and attitudinal bias), stereotyping (cognitive bias) and discrimination (behavioural bias) (see, for example: Lengnick-Hall, Gaunt, & Kulkarni, 2008). The second concerns environmental conditions, with studies having explored the impact of legislation and statutory obligations on disabled employees' outcomes (see: Schur, Nishii, Adya, Kruse, Bruyère, & Blanck, 2014; Simm, Aston, Williams, Hill, Bellis, & Meager, 2007; Williams, Copestake, Eversley, & Stafford, 2008). The third concerns organizational characteristics, previous studies having explored employee perceptions of organizational fairness (Schur et al., 2009) and the availability of flexible working practices (Schur, Kruse, & Blanck, 2013), for example.

Further to the organizational characteristics element of Stone and Colella's (1996) model, it might be expected that High Performance Work Practices (HPWPs) – defined following the Ability-Motivation-Opportunity (AMO) model as practices aimed at enhancing

employee ability, motivation and opportunity to contribute (Appelbaum, Bailey, Berg, & Kalleberg, 2000) – will also influence disability disadvantage. This matter has not been explored in prior studies, however, which is surprising given that research on the impact of such practices has dominated the Strategic Human Resource Management (SHRM) literature in recent times. This paper therefore makes a distinct contribution by drawing on nationally-representative British survey data to analyse the implications of selected HPWPs for disabled people, thereby enhancing understanding of the organizational characteristics element of Stone and Colella's (1996) model.

The paper also contributes to SHRM research that explores the relationship between HPWPs and the experience of work for all employees (not just disabled people) (Appelbaum et al., 2000). Prior studies addressing this relationship have proved inconclusive. Some studies find the impact of HPWPs on employees to be positive (Piening, Baluch, & Salge, 2013), thus supporting predictions from the AMO model (Appelbaum et al., 2000; Jiang, Lepak, Hu, & Baer, 2012) that HPWPs increase levels of employee ability, motivation and opportunities to contribute (Becker, Huselid, Pickus, & Spratt, 1997), which in turn increases employee well-being. Other studies find a negative relationship (Boxall & Macky, 2014; Kalleberg, Nesheim, & Olsen, 2009; Ramsay, Scholarios, & Harley, 2000) suggesting, commensurate with a 'hard' or 'calculative' approach, that HPWPs raise work intensification and thus result in increased stress and anxiety and lower employee well-being (Appelbaum, 2002; Boxall & Macky, 2014; Kalleberg, Nesheim, & Olsen, 2009; Ramsay, Scholarios, & Harley, 2000). However, while previous studies have addressed the impact of HPWPs on the workforce as a whole, little is known about whether this impact varies by employee characteristics. Our contribution therefore extends the literature by exploring the differential effects of selected HPWPs on disabled compared to non-disabled people.

Integrating the AMO model (Appelbaum et al., 2000) into Stone and Colella's (1996) framework, we develop and empirically test competing 'enabling effects' and 'disabling effects' hypotheses regarding the potential impact of HPWPs on disabled people. We argue that HPWPs may have either a disproportionately positive or negative influence on disabled people's ability, motivation and opportunity to contribute when compared to non-disabled people, and this in turn will be associated with the proportion of the workforce that is disabled and the size of the disability gap in work-related well-being. Associations may emerge not only as the result of deliberate employer discrimination towards people identified as disabled but also as a result of practices that are universally applied to the workforce as a whole having an unintended and disproportionate impact on disabled people (whether disability is disclosed or not).

In developing theorisation based on the AMO model (Appelbaum et al., 2000), we concentrate on five particular HPWPs: competency testing in employee selection; performance appraisals; individual performance-related pay (IPRP); teamworking and functional flexibility. As will be argued below, irrespective of whether the effect of these HPWPs on employees' experience of work is positive or negative overall, they are particularly likely to influence disabled people's ability (and the organization's recognition of this ability), their motivation and their opportunity to contribute. In particular, competency testing, performance appraisals and IPRP are likely to affect whether disabled employees' abilities and contributions are recognized, measured, developed and rewarded objectively, while teamworking and functional flexibility are likely to affect the scope for job adjustments to accommodate activity-related impairments, thereby influencing disabled people's motivation and opportunity to contribute. This in turn is likely to affect both the recruitment and retention of disabled people (and hence the proportion of the workforce that is disabled)

and also their well-being once in work. By contrast, other HPWPs (communication, fringe benefits, job security guarantees, internal labour markets for example) are less likely to have differential or disproportionate effects on disabled people's ability, motivation and opportunity to contribute, and as such they are not included in the analysis.

HPWPs and Disability

Enabling effects hypothesis

The 'enabling effects' hypothesis suggests that the selected HPWPs outlined above will have particular benefits for disabled people's ability, motivation and opportunity to contribute. This will be reflected in a higher proportion of disabled employees at the workplace and smaller disability gaps in work-related well-being. The following discussion explains why the five selected HPWPs (formal competency tests for selection, performance appraisals, IPRP, teamworking and functional flexibility) might have these effects.

Turning first to formal competency tests, if these result in applicants' abilities being evaluated objectively against a job analysis and person specification, this may increase the likelihood of disabled applicants being evaluated fairly and impartially (Stone & Williams, 1997), and hence improve their chances of selection. This is in contrast to interviews (unstructured interviews in particular), within which high subjectivity (Ren, Paetzold, & Colella, 2008) may result in selection decisions based on negative assumptions or stereotypes concerning disabled applicants' abilities (Noon, Healy, Forson, & Oikelome, 2013:343). Additionally, competency test scores provide employers with opportunities to explore how jobs might be adjusted to fit with disabled applicants' abilities. Not only might this improve disabled employees' chances within selection processes, but once appointed, it might also result in better task assignment, thereby reducing the under-employment of disabled

employees and improving person-job fit (Colella & Bruyère, 2011). This in turn might increase disabled employees' motivation and opportunity to contribute, and hence improve their retention and well-being.

Where performance appraisal is concerned, Klimoski and Donahue (1997:111) argue that inaccurate, misaligned or unclear performance expectations 'frequently surface as part of the "problem" facing disabled people in their attempt to act as good sub-ordinates and colleagues'. Given this, performance appraisals may have particular motivation-enhancing effects for disabled employees by providing clear and objective standards, explicit expectations, accurate performance measurement and reliable feedback (Gelfand, Nishi, Aver, & Schneider, 2005). In addition, by facilitating discussions between disabled employees and their line managers, performance appraisals may enable explorations of how job roles can be adjusted (Armstrong & Baron, 2005), thus improving opportunity to contribute. They may also help identify the specific training disabled employees require to maximize their potential given activity restrictions. Beyond this, performance appraisals may have indirect motivating effects should they raise managers' awareness of disabled employees' positive contributions to the organization, thereby increasing their likelihood of receiving informal mentoring and sponsorship for promotion (Stone & Colella, 1996:380).

With regard to IPRP, if pay is awarded on the basis of appraisal outcomes, this might increase the likelihood that disabled employees will be rewarded for their actual achievements measured against objective criteria (Stone & Colella, 1996:374) rather than on the basis of subjective negative stereotypes concerning their contribution, hence raising their pay and motivation. Also, if rewards are based on the achievement of individualized goals or targets, this enables individual performance criteria to be developed that account for impairment-related restrictions, thereby increasing disabled people's opportunity to

contribute. Furthermore, groups that experience discrimination are often over-skilled for their job roles and hence perform highly within them (Dickens, 1998:31; Rubery, 1995:644). As such, disabled people may benefit disproportionately from pay systems that link pay to individual performance.

Turning to teamworking and functional flexibility, by providing disabled employees with greater control and autonomy over how they perform their work tasks (Appelbaum et al., 2000; Hackman & Oldham, 1980; Procter & Mueller, 2000), job adjustments may be facilitated that allow impairment-related restrictions to be accommodated, thus increasing disabled people's opportunity to contribute. Teamworking and functional flexibility might also provide latitude for disabled employees to switch between work tasks, or for tasks to be allocated within the team in a manner that enables them to focus on activities they are best able to perform. Teamworking may also generate greater interaction and information exchange (Evans & Davis, 2005) between disabled and non-disabled employees, the 'contact hypothesis' suggesting that this will help counter negative stereotypes concerning disabled employees' contribution (Stone & Colella, 1996:380).

As such, the 'enabling effects' hypothesis suggests that the selected HPWPs have particular benefits for disabled people. By allowing disabled people's competencies and performance to be measured and rewarded in a fair and impartial manner, and by facilitating job adjustments to accommodate impairment-related restrictions, these HPWPs will improve disproportionately the recognition and development of disabled people's ability, their motivation and their opportunity to contribute. This is likely to enhance the recruitment and retention of disabled people (hence there will be a higher proportion of disabled workers at the workplace) and reduce disability gaps in work-related well-being. This theorisation is contested, however, as discussed below.

Disabling effects hypothesis

The 'disabling effects' hypothesis argues that the selected HPWPs discussed above will render the workplace less hospitable for disabled employees (see Foster & Wass, 2013), thereby negatively influencing their ability, motivation and opportunity to contribute when compared to non-disabled people. This in turn will reduce the recruitment and retention of disabled people and increase the size of the disability gap in work-related well-being. This may not be a result of direct discrimination by employers but instead indirect discrimination whereby practices universally applied to the whole workforce have unintended and unrecognized negative consequences for disabled people. The ensuing discussion explains how our five selected HPWPs may have such disabling effects.

Turning first to formal competency tests for selection, these may have 'disabling effects' if it is especially difficult for disabled people to demonstrate ability within such tests. This might happen if tests do not consider how jobs might be adjusted to accommodate impairment-related restrictions (Stone & Williams, 1997:217), or if standard job descriptions on which competency tests are based contain assumptions about the ideal manner in which job tasks should be performed (Wolf & Jenkins, 2006). Therefore, formalized selection tests may result in biased selection decisions, despite having the appearance of impartiality (Noon et al., 2013). Additionally, if tests do not consider possible job adjustments, but are used to make decisions about the roles into which disabled recruits should be placed, this may result in under-employment and poor person-job fit, with negative implications for disabled people's motivation and opportunity to contribute.

Turning to performance appraisals, these might be particularly disadvantageous for disabled employees should appraisals focus on their ability to fit in with standard

organizational practice and norms (Rubery, 1995). Disabled employees might also be disadvantaged by appraiser bias that commonly affects performance ratings. For example, the 'horns' effect (in which appraisers give an unduly low overall performance rating due to appraisee under-performance regarding a single objective) may impact particularly heavily on disabled employees if impairment-related restrictions mean that they are unable to perform well across all aspects of their job role. Therefore, in the absence of equality training and transparency in appraisal criteria, performance appraisals are unlikely to provide accurate assessments and consistent feedback for disabled people, and may instead perpetuate negative stereotypes (Colella, DeNisi, & Varma, 1997). Beyond this, if managers attempt to use performance appraisals to renegotiate effort norms and increase work intensity (Marsden, 2004), this may be particularly demotivating for disabled people if, due to activity restrictions, they struggle to meet these increased job demands.

IPRP might also have disabling effects should unduly poor appraisal ratings (as discussed above) result in disabled employees receiving less generous pay awards (thereby reducing motivation), or should it prohibit deviation from standard job descriptions or performance targets (Stone & Colella, 1996:378). In addition, if IPRP increases competition for rewards, this may reduce co-operation and heighten tendencies to criticize co-worker performance. Such environments are unlikely to prove supportive of disabled employees (Colella et al., 1997; Stone & Colella, 1996:379), and may further reduce their motivation and opportunity to contribute.

Where teamworking and functional flexibility are concerned, these might have disabling effects if, rather than facilitating job adjustments to accommodate disabled people's activity restrictions, all employees are expected to perform job tasks in a prescribed manner (Vickers, 2012), and are required to perform a wide range of job roles within the team (Foster

& Wass, 2013:714). This may result in very broad job descriptions that are difficult for disabled people to fulfil, and thus may reduce their motivation and opportunity to contribute. Additionally, teamworking systems that increase work intensity – 'lean production' teamworking for example (Parker & Slaughter, 1988) – may demotivate disabled employees if the performance expectations within such systems are difficult for them to achieve. This demotivation might be compounded should non-disabled employees perceive that disabled co-workers reduce the team's ability to meet its performance goals, and hence react negatively towards them (Stone & Colella, 1996:378).

Therefore, there are competing propositions concerning the likely association between HPWPs and work-related outcomes for disabled people. The 'enabling effects' hypothesis suggests that HPWPs render workplaces more hospitable for disabled people, thereby reducing disability-related disadvantage, while the 'disabling effects' hypothesis suggests that HPWPs render workplaces less hospitable for disabled people, thereby increasing disability-related disadvantage. Given this, we propose the following two competing hypotheses:

H1 (the enabling effects hypothesis): the selected individual HPWPs (formal competency tests for selection, performance appraisals, IPRP, teamworking and functional flexibility) are associated with (a) higher proportions of disabled employees within the workplace, and (b) lower disability gaps in work-related well-being.

H2 (the disabling effects hypothesis): the selected individual HPWPs (formal competency tests for selection, performance appraisals, IPRP, teamworking and functional flexibility) are associated with (a) lower proportions of disabled employees within the workplace, and (b) higher disability gaps in work-related well-being.

The analyses reported below will seek to establish which of these hypotheses is best supported empirically.

Positive and negative synergies

It is widely argued in the SHRM literature that single HPWPs used in isolation may have little impact on organizational performance, whereas multiple HPWPs introduced together may have greater synergistic performance effects (Becker & Huselid, 1998; Combs et al., 2006).

The selected HPWPs under exploration here may similarly, when used in combination with each other, result in positive (or negative) synergies for disabled employees. For example, where positive synergies are concerned, selection by competency tests may increase the likelihood of disabled people securing jobs as they are more likely to be fairly assessed in selection processes, and may also facilitate the job adjustments disabled people require. These positive effects might be enhanced further should functional flexibility and teamworking provide scope for these adjustments to be made, while performance appraisals and IPRP allow disabled people's contributions to be assessed and rewarded in a fair and impartial manner in light of these adjustments. As such, significant improvements in disabled people's employment levels and work-related well-being might be anticipated in workplaces adopting a higher number of these HPWPs.

There may, however, also be negative synergies between HPWPs. For example, the negative effect of teamworking and functional flexibility resulting in job roles that disabled people find particularly difficult to perform might be further compounded should competency tests aimed at identifying the candidates best able to perform such job roles reduce disabled

people's chances of selection, while performance appraisals and IPRP render disabled employees' difficulties in performing these job roles more apparent (with their rewards being reduced accordingly). It is likely that disabled people will be less able to secure or retain jobs in such workplaces, while for those who do remain, their levels of work-related well-being may well be lower.

Given this, we hypothesize a system effect for the relationship between HPWPs and enabling or disabling effects:

H3: The relationship between the selected HPWPs and (a) the proportion of disabled employees in the workplace, and (b) disability gaps in work-related well-being, is stronger where they are used together rather than in isolation.

HPWP implementation conditions and disability equality practices

Stone and Colella's (1996:375) framework suggests that the influence of organizational practices on disabled people depends on the broader norms and values embedded in the organization's culture regarding disabled people's treatment (Schur et al., 2009). Given this, whether HPWPs have enabling or disabling effects may depend on the conditions under which they are implemented, in particular whether these conditions reflect a commitment to social justice and equality that shapes beliefs about disabled individuals' capability to contribute positively. The existence of such a commitment is likely to be reflected in the adoption of a broad range of disability equality practices. Such practices help render visible top management commitment to social justice and fairness (Stone & Colella, 1996:375), encourage the selection of managers who embrace diversity-related values (ibid.), require managers to behave according to equality standards, help incentivize supportive behaviors

and deter bias and subjectivity in decisions (such as those affecting recruitment and selection, pay and promotion), and encourage assessments to make workplaces more accessible for disabled people (Gelfand et al., 2005). A growing literature identifies empirically the importance of such practices for disability gaps in work-related outcomes (Colella & Bruyère, 2011:494; Lengnick-Hall, 2007). For example, Forth and Rincon-Aznar (2008) report a positive association between equal opportunities (EO) policies and disabled employees' perceptions of fair treatment by management, while Jones and Latreille (2010) report a positive association between EO policies and disabled employees' relative wages.

Therefore, we argue that the quality of implementation of the HPWPs in our analysis (in that they are implemented in a more sensitive manner that mitigates potential disabling effects) is likely to be higher when they are implemented in conditions that emphasize social justice and equality, as identified by the adoption of a wide range of disability equality practices. In such instances, it is more likely that HPWPs such as competency tests, performance appraisals and IPRP will be monitored and reviewed to ensure they do not discriminate against disabled people (Stone & Colella, 1996: 376), and that managers will be sensitized to the potentially inadvertent or unintended disabling effects of these practices. Where teamworking and functional flexibility are concerned, it might be anticipated that managers will be trained and socialized to ensure that job design does not inadvertently disadvantage disabled employees and that reasonable adjustments are made (Schur et al., 2014). Disability equality practices might also be important in signalling to non-disabled team members the unacceptability of behaviour that excludes or otherwise disadvantages disabled employees. Hence:

H4a: the selected HPWPs have 'enabling effects' in workplaces that have adopted a wide range of disability equality practices.

H4b: the selected HPWPs have 'disabling effects' in workplaces where adoption of disability equality practices is limited.

Data and Methods of Analysis

The analysis uses matched employer-employee data from the 2011 Workplace Employment Relations Study (WERS) (Department for Business, Innovation and Skills, Advisory Conciliation and Arbitration Service, National Institute of Economic and Social Research, 2015). WERS is designed to be nationally representative of British workplaces with five or more employees (a workplace being defined as a single branch within a bank, or a single restaurant within a restaurant chain, for example) in all industry sectors (with the exception of agriculture, hunting, forestry and fishing, and mining and quarrying) when probability weighted to account for the complex nature of the survey design. It is widely regarded as an authoritative data source, being sponsored by the British government, the Economic and Social Research Council, the Advisory, Conciliation and Arbitration Service, and the Policy Studies Institute. The WERS employer survey comprises 2,680 observations with a response rate of 46.5 percent. The respondent is the workplace manager with primary responsibility for employment relations matters. The employee survey was sent to a random sample of up to 25 employees in 2,170 workplaces where there was permission from the management respondent. Within each workplace, all employees (disabled or otherwise) had an equal probability of selection into the sample, irrespective of the size of the workplace. The employee survey comprises 21,981 responses, with a response rate of 54.3 percent (van Wanrooy et al., 2013). Managers and senior officials (8 percent of the employee sample) are

excluded from our analysis as the questions on HPWPs in the management survey ask about whether these apply to either the largest non-managerial occupational group or to non-management employees, hence there are no data on whether they also apply to managers/ senior officials. After excluding data with missing observations, 14,637 employees are included within our analysis.

Measuring disability

Our measure of disability is drawn from the employee survey, within which respondents are asked 'Are your day-to-day activities limited because of a health problem or disability which has lasted, or is expected to last, at least 12 months?'. This wording is similar to that used in other UK government social surveys to identify disabled people with rights under the Equality Act 2010 and in EU Statistics on Income and Living Conditions (Office for National Statistics, 2011). Disability is defined as including the responses 'Yes, limited a little' and 'Yes, limited a lot', whereas 'No' defines the non-disabled group. On this basis, 9.1 percent of non-management respondents to the employee survey are classified as disabled. This figure is not dissimilar to the 11.5 percent reported within the Labour Force Survey in 2011 (the largest UK household survey). Although based on a slightly different definition for activity-limiting disability, it nevertheless provides some reassurance of the reliability of the WERS measure.

This is particularly important given the workplace nature of the survey may give rise to the possibility of non-response bias if, for example, disabled employees are less likely to complete the survey as a result of accessibility issues or fear of disclosure to the employer. However, the WERS employee survey is anonymous, and is not intended to assess the performance of the worker. Also notable is that non-response to the above question (which

would suggest a reluctance to disclose disability and hence a possible reluctance for disabled employees to respond to the survey) is low, with 99.2 percent of respondents providing a valid response. As such there is no evidence to suggest that non-response among disabled employees is a major concern.

There are, however, some well-established criticisms of self-reported information on disability in survey data, including measurement error and justification bias (Bound, 1991). Measurement error may stem from difficulties in comparing subjective reports between individuals, which leads to a downward bias on estimates of the impact of disability on labor market outcomes. Justification bias stems from the tendency for those with inferior labor market outcomes to report disability and leads to an upward bias of the impact of disability. However, the latter tends to be more of an issue in analyses of labor market participation, hence is less important for our analysis, in which the focus is on employees. Nevertheless since disability is essentially the interaction between an individual's impairment and their environment there may be a concern that disability is reported differently across workplaces. Two features of our data limit this possibility. First, disability is self-reported by the employee and is not necessarily disclosed to the employer. This may encourage more accurate reporting. Second, our definition of disability relates to restrictions in daily activity rather than specifically to work, where differences in the work environment may play a more prominent role in determining whether people are disabled.

A further possible problem with the disability measure is that it aggregates disabled individuals who may have very different experiences of disability, due for example, to differences in the nature or severity of the condition or duration of disability. The distinction between disability arising from physical and mental health in particular has been found to be important in analyses of employment and earnings (see for example, Jones, Latreille, &

Sloane, 2006; Longhi et al., 2012). While acknowledging that different types of disability are likely to be associated with different experiences of work, in the absence of further details on disability in WERS we are constrained to aggregate across disabled and non-disabled employees and therefore, in a similar manner to Schur et al. (2009) and Jones (2016), focus on the average difference in outcomes by disability.

The disability measure as outlined above is used in two different ways in the analysis. First, it is used as an independent variable within the individual-level analysis that seeks to identify the differential effects of HPWPs on work-related well-being for disabled and non-disabled employees. Second, it is used to construct a dependent variable in the workplace-level analysis of the relationship between HPWP adoption and the proportion of the non-management workforce that is disabled. This is calculated by dividing the number of non-management disabled respondents to the employee survey within the workplace by the total number of non-management respondents within the workplace, thereby giving an estimate for the proportion of non-management disabled employees in each workplace. The workplace-level average for the proportion of non-management employees who are disabled is 10.0 percent on the basis of this measure. Although managers also report an estimate of the proportion of disabled employees at the workplace, we use data from the employee survey for three reasons. First, substantial measurement error may arise between employers should they operate different systems for recording disability. Second, and related to this, the measurement and monitoring of disability is likely to be related to employers' equality-related characteristics. Third, managers are only able to report disability which is known to them and this is likely to be an underestimate of the true underlying level of disability given the reluctance of employees to disclose (Jones & Latreille, 2010). Under-reporting of the proportion of disabled people in the workplace is borne out empirically in the WERS data as

managers' estimates average at 1.4 percent compared to an average of 10.0 percent from employee reports.

It is possible, however, that our employee survey-derived measure for the proportion of employees that are disabled will suffer from sampling error, given that there may be many workplaces within the sample within which the number of respondents is low relative to the total number of non-management employees at the workplace. To help avoid his problem, we exclude workplaces with 10 or more non-management employees in which fewer than three responded to the employee survey, thereby excluding workplaces in which the estimate for the proportion of disabled employees would otherwise be based on a very small number of responses. This results in the exclusion of 80 workplaces. Once these workplaces are excluded, the average workplace within our analysis has 27.5 non-management employees (when the data are weighted) and has data on 29.4 per cent of its total non-management workforce.

Disabled employees' work-related well-being.

We use three well-established and widely-applied individual-level indicators of employee work-related well-being, these being perceptions of: job satisfaction; fair treatment by managers; and anxiety-contentment. Previous research suggests these measures are important indicators of disabled people's experiences of disadvantage at work (Bewley & Forth, 2010; Fevre et al., 2013; Forth & Rincon-Aznar, 2008; Schur et al., 2009). For job satisfaction, eight items measured on a 5-point scale (where 1=very dissatisfied and 5=very satisfied) asked employees how satisfied they are with elements of their job (items include 'the sense of achievement you get from your work' and 'the amount of pay you receive'). These loaded onto a single factor in an exploratory factor analysis (Cronbach alpha reliability of 0.86) and

were therefore combined into a single (35-point) scale. The perception of fair treatment measure was developed using a single item measure asking: 'To what extent do you agree or disagree that managers here treat employees fairly' (on a 5-point scale where 1=strongly disagree and 5=strongly agree). Work-related anxiety-contentment was assessed using Warr's (1990) scale measuring six emotional states in response to the question 'Thinking of the past few weeks, how much of the time has your job made you feel each of the following? Tense/ depressed/ worried/ gloomy/ uneasy/ miserable' (on a 5-point scale where 1=all the time and 5=never). Responses loaded onto a single factor in an exploratory factor analysis (Cronbach alpha reliability of 0.91) and were combined into a single (25-point) scale with higher values denoting lower levels of anxiety.

Independent HPWP variables

Separate measures were developed using data from the management survey for the five HPWPs used in our analysis and these are used in both the employee and workplace-level analysis. Workplaces were classified as using competency testing where tests were used for filling non-management vacancies. They were classified as using performance appraisal and IPRP if these practices are applied to 60 per cent of non-managerial employees, and as using teamworking and functional flexibility where these practices were applied to at least 60 percent of the largest (non-management) occupational group. Appendix 1 contains details of these measures mirroring the wording used in the WERS survey and provides workplace-level means. Although we acknowledge that these measures are limited in the depth of information they provide in terms of the precise nature of implementation, these types of measures, which capture the prevalence in addition to the presence of selected HPWPs, have been widely used in previous research using the WERS data (see for example Wood &

Bryson, 2009). In addition, these limitations need to be balanced against the fact that WERS is unique in providing information about both HPWPs and employee self-reported disability and therefore offers a rare opportunity to conduct a nationally representative assessment of the relationship between HPWP adoption and disabled people's work-related outcomes.

To test the synergistic effects of HPWPs, 'count' measures for the number of HPWPs adopted are frequently used when exploring their impact on employees and organizational outcomes (Combs, Liu, Hall, & Ketchen, 2006). In order to establish whether similar synergistic effects emerge regarding the association between our five selected HPWPs and disability-related outcomes, we constructed a count measure (0-5) of the number of the five HPWPs used at the workplace (mean = 2.02).

Control variables

A range of workplace and individual characteristics might impact upon the experience of disability at the workplace (Stone & Colella, 1996) and were included in the analysis as controls. Workplace-level controls included: organization and workplace size; single independent workplace; Standard Industrial Classification major group; national ownership; workplace age; public sector; union recognition; the proportion of the workforce female, ethnic minority, aged 50 or older, part-time; and the proportion of the workforce in each Standard Occupational Classification major group. Employee-level equations also included controls for the employee's Standard Occupational Classification, weekly pay, marital status, age, tenure, highest qualification, part-time, temporary or fixed-term contract, union member, ethnicity, gender, and dependent child(ren).

Analysis procedure

To assess H1 (the enabling effects hypothesis) and H2 (the disabling effects hypothesis) the workplace-level measure for the proportion of the non-management workforce that is disabled was first regressed onto the five separate HPWP independent variable measures while controlling for the workplace-level factors outlined above. Given that the dependent variable is a proportion that is naturally bounded between 0 and 1, a fractional logit model was used which, unlike Ordinary Least Squares (OLS), generates predictions within the unit interval and is appropriate where zero and one values occur within the data (see, Papke & Wooldridge, 1996)[1].

Second, the individual-level dependent variables measuring work-related well-being were regressed onto employee-reported disability and the five HPWP variables while controlling for the employee and workplace-level controls outlined above. HPWP x disability interaction terms were then included to ascertain whether the association between the five individual HPWPs and the dependent variable differed for disabled and non-disabled employees (a positive significant interaction effect would denote an improvement in work-related well-being among disabled relative to non-disabled employees in workplaces where HPWPs are used, and hence would support H1). In order to account for the multi-level structure of the data in which employee responses are nested within workplaces, multi-level mixed effects modelling incorporating both fixed and random effects was used. This makes the same assumptions as OLS but also enables the variance to be partitioned into within (Level 1) and between (Level 2) workplace variation. This is important for statistical reasons as it enables between-workplace variance to be controlled for, thereby preventing assumptions of independent observations in multiple regression from being violated given that employees within a given workplace are not independent from each other. The analysis

in Panel A of Table 2 shows that the amount of variance that is due to between-workplace variation is 8.3 percent for job satisfaction (2.464/ [27.326 + 2.464]), 8.1 percent for fair treatment (0.089/ [1.014 + 0.089]), and 5.2 percent for anxiety-contentment (1.274/ [23.067 + 1.274]).

To test whether there is a system effect regarding the relationship between HPWPs used in combination and outcomes for disabled people (H3), the analysis outlined above was repeated replacing the separate HPWP measures with the HPWP count measure.

To ascertain whether implementation conditions, as identified by the intensity of use of disability equality practices, influence whether HPWPs are associated with advantage or disadvantage for disabled people (H4a and b), we drew on management survey data concerning workplace-level disability equality practices. Workplaces with at least three of the following five practices were classified as using a wide range of disability equality practices: recruitment and selection either reviewed or monitored by disability; promotion either reviewed or monitored by disability; pay reviewed by disability; specialist recruitment procedures in place to encourage applications from disabled people; and formal assessments conducted of the extent to which the workplace is accessible to disabled employees or job applicants. It is notable that the use of these practices was low, with workplaces adopting on average 0.9 of these five practices, and only 10.2 percent of workplaces[2] being classified as using a wide range of disability practices. The sample was then split depending on whether workplaces were classified as using a wide range of disability practices or otherwise. The analysis described above for H1-H3 was then repeated separately within each sub-sample to ascertain whether HPWPs have enabling effects in workplaces with a wide range of disability practices (H4a), and disabling effects in workplaces where the use of disability practices is more limited (H4b).

Results

The association between selected HPWPs and work-related disability outcomes

Turning first to the results concerning the proportion of the non-management workforce that is disabled, the first column of Table 1 reports the test of the competing 'enabling effects' (H1) and 'disabling effects' (H2) hypotheses. The results suggest that while all the coefficients of the individual selected HPWPs are negative, only one of these (IPRP) is significant (-0.637 $p<0.01$). Hence, there is no support for H1 but only limited support for H2. With regard to H3 (concerning HPWP synergy effects), the second column of Table 1 shows that within the sample as a whole, the proportion of the non-management workforce that is disabled is significantly negatively related to the HPWP count measure (-0.254 $p<0.01$). This suggests that HPWPs have disabling effects in instances where they are used in combination with each other, thereby suggesting the existence of (negative) synergistic effects between HPWPs (in support of H3)[3].

As outlined earlier, in order to reduce sampling error, the analysis omits workplaces with 10 or more non-management employees where fewer than 3 respond to the employee survey, thus excluding larger workplaces on which the estimate for the proportion of the non-management workforce that is disabled would otherwise be based on a very small number of responses. Further to this, we conducted an additional sensitivity test in which we omitted workplaces on which there were data on fewer than 10 per cent of the total non-management workforce, this threshold being commonly acknowledged as the point at which the finite population correction begins to substantively reduce the standard error associated with any survey estimate. This resulted in 567 workplaces being dropped from the analysis. The results

of this more heavily restricted analysis were, however, robust to this change and suggest that the results are not particularly sensitive to the inclusion of these workplaces[4].

Insert Table 1 here

The results in Table 2 present the employee-level estimates for the relationship between selected HPWPs and disabled employees' reports of their work-related well-being (perceptions of job satisfaction, fair treatment and anxiety-contentment). Panel A reports the results for the individual HPWPs (H1 and H2), while Panel B reports the results for the HPWP count measure (H3).

The results demonstrate the existence of disability disadvantage in work-related well-being, with disabled employees reporting significantly lower perceptions of job satisfaction (-1.666 $p<0.01$), fair treatment (-0.200 $p<0.01$) and anxiety-contentment (-2.084 $p<0.01$) compared to non-disabled employees. Where the impact of the five individual HPWPs on work-related well-being is concerned, the first, third and fifth columns in Panel A provide little evidence that these HPWPs affect the outcome measures. The exception is teamworking which is positively associated with all three outcomes. In terms of whether HPWPs are associated with enabling effects (H1) or disabling effects (H2) with regard to disability gaps in work-related well-being, there is a notable lack of significance among most of the interaction terms that are added in the second, fourth and sixth columns. This suggests the relationship between HPWPs and job satisfaction, fair treatment and anxiety-contentment varies very little between disabled and non-disabled employees, hence there is no consistent evidence that HPWPs have either enabling or disabling effects in relation to disability gaps in work-related well-being. The one notable exception is the significantly positive disabled x

IPRP interaction term in the anxiety-contentment equation (column 6) (0.711 $p<0.05$), which suggests that the use of IPRP is associated with a smaller anxiety-contentment disability gap. Overall, where the outcomes concerning disability gaps in work-related well-being are concerned, H1 (the enabling effects hypothesis) receives only very partial support, while H2 (the disabling effects hypothesis) is not supported.

Where HPWP system effects are concerned (H3), the results in Panel B suggest that the HPWP count measure is positively associated with anxiety-contentment (0.118 $p<0.05$), and weakly positively associated (at the 10 percent level) with fair treatment (0.023 $p<0.1$). However, all the disabled x HPWP count measure interaction effects are insignificant, suggesting that the association between the HPWP count measure and work-related well-being is no different for disabled than non-disabled employees. As such, where disability gaps in work-related well-being outcomes are concerned, there is no evidence supporting H3.

Insert Table 2 here

Implementation conditions and the relationship between selected HPWPs and work-related disability outcomes

The hypothesis concerning implementation conditions is that HPWPs have 'enabling effects' in workplaces that have adopted a wide range of disability equality practices (H4a), and they have 'disabling effects' in workplaces where adoption of disability equality practices is limited (H4b). Returning to Table 1, the results in columns 3 and 4 suggest that in workplaces with a wide range of disability equality practices there is no relationship between either the individual HPWPs or the HPWP count measure (0.038 p=non-significant) and the proportion of the workforce that is disabled. However, columns 5 and 6 show that in workplaces with a

limited adoption of disability equality practices, the IPRP (-0.645 $p<0.05$) and the HPWP count measures (-0.290 $p<0.01$) are both negatively associated with the proportion of the workforce that is disabled. This highlights the importance of implementation conditions given that disabling effects concerning the proportion of the workforce that is disabled only emerge in workplaces with a limited adoption of disability equality practices (supporting H4b).

The results concerning H4a and b in relation to disability gaps in work-related well-being are presented in Tables 3 and 4. Table 3 presents the results for individuals in workplaces with a wide range of disability equality practices (H4a). Notable here is that in such workplaces, while disabled people report lower job satisfaction (-1.836 $p<0.01$) and lower anxiety-contentment (-2.027 $p<0.01$) than comparable non-disabled workers, they do not report lower levels of fair treatment (-0.058 p=non-significant). Where the relationship between individual HPWPs and the outcome variables are concerned, columns 1, 3 and 5 in Panel A suggest a positive relationship between teamworking and all three of the outcomes, though the relationship is weak for fair treatment. This is countered by a negative relationship between functional flexibility and both job satisfaction and anxiety-contentment. Nevertheless, the interaction terms in columns 2, 4 and 6 are all insignificant, suggesting that the selected HPWPs do not have a differential effect on the outcome measures for disabled employees compared to non-disabled people. This also holds in the analysis in Panel B where the HPWP count measure replaces the individual HPWP measures. There is no support, therefore, for H4a.

Insert Table 3 here

Insert Table 4 here

Table 4 presents the results for well-being in workplaces with a limited adoption of disability equality practices (H4b). Columns 1, 3 and 5 in Panel A suggest that disabled employees report lower perceived job satisfaction (-1.582 $p<0.01$), fair treatment (-0.277 $p<0.01$) and anxiety-contentment (-2.141 $p<0.01$) than non-disabled employees in such workplaces. They also suggest that HPWPs are not positively related with the three measures with the exception that teamworking is positively associated with perceptions of fair treatment (0.078 $p<0.05$). However, almost all of the interaction effects in columns 2, 4 and 6 are statistically insignificant. Hence, there is no consistent evidence that the selected HPWPs have disabling effects regarding well-being in workplaces with fewer disability equality practices. Indeed, to the contrary, the disability x IPRP interaction term for anxiety-contentment is weakly positively significant at 10 percent (0.764 $p<0.1$), suggesting that the use of IPRP closes the disability gap in anxiety-contentment. The finding that HPWPs do not have disproportionately negative effects on disabled employees in workplaces with fewer disability equality practices is also supported in the analysis in Panel B using the HPWP count measure, within which the interaction effects are all insignificant. Hence there is no support for H4b where work-related well-being is concerned.

Discussion and Conclusions

This paper draws on the AMO model (Appelbaum et al., 2000) to develop and test competing enabling and disabling effects hypotheses concerning the association between selected HPWPs and work-related outcomes for disabled people. It has also tested whether these associations are stronger when HPWPs are used together rather than in isolation, and whether the associations vary depending on whether HPWPs are implemented in conditions that emphasize social justice and equality (as measured by the adoption of workplace disability

equality practices). As such, the paper has extended knowledge regarding the organizational characteristics element of Stone and Colella's (1996) framework explaining work-related disability disadvantage. It has also added to the broader SHRM literature concerning the impact of HPWPs on employee outcomes. We found some evidence for a positive association between the HPWP count measure and well-being for all employees, thereby offering a degree of support to the conclusions drawn in earlier studies concerning the positive implications of HPWP bundles for employees (Becker, Huselid, Pickus, & Spratt, 1997; Piening, Baluch, & Salge, 2013). However, in contrast to the prior SHRM literature that has predominately focused on the influence of HPWPs on the workforce as a whole, our findings also highlight the importance of understanding the differential effects of HPWPs on different employee groups (in this case, disabled people).

The analysis makes several distinct contributions with regard to this. First, it suggests that the relationship between HPWPs and outcomes for disabled people is both complex and non-uniform. For example, while we found little evidence that individual HPWPs are associated with the proportion of the workforce that is disabled, we identified a negative association (and hence support for the disabling effects hypothesis) where the HPWP count measure was concerned. It would appear, therefore, that workplaces making use of a greater number of the selected HPWPs under observation here employ proportionately fewer disabled people. This suggests a system effect in which disabling effects emerge where HPWPs are used in conjunction with each other. This is consistent with the SHRM literature where HPWP-performance effects are found to be more evident where multiple HPWPs are introduced together in a synergistic, mutually reinforcing bundle (Becker & Huselid, 1998). Our results suggest a parallel argument may hold concerning the negative synergistic association between the use of HPWPs and the proportion of the workforce that is disabled.

Nevertheless, while the results suggest support for the disabling effects hypothesis concerning the proportion of the workforce that is disabled, a different picture emerges regarding disability disadvantage in work-related well-being. While the analysis found that disabled employees reported, on average, lower levels of perceived job satisfaction, fair treatment and anxiety-contentment than their non-disabled counterparts (consistent with Fevre et al., 2013; Schur et al., 2009), there was little evidence that these disability gaps were any larger or smaller in workplaces that had adopted the selected HPWPs than in workplaces that had not adopted them. One should not conclude from this, however, that HPWPs have no bearing on disabled employees' work-related well-being whatsoever. In the full sample there was a positive overall relationship between the HPWP count measure and anxiety-contentment, and a weak positive overall relationship with fair treatment. Given that the strength of this relationship did not vary between disabled and non-disabled employees (as demonstrated by the insignificant interaction terms), this suggests that disabled employees in workplaces with more HPWPs have higher work-related well-being than their counterparts in workplaces with fewer HPWPs. As such, HPWPs may have some potentially positive in-work effects for disabled (as well as non-disabled) employees overall.

The paper's second contribution is that it illuminates the importance of the conditions under which HPWPs are implemented, in particular whether these conditions emphasize social justice and equality (as measured by the adoption of a wide range of disability equality practices). These implementation conditions did not affect whether the selected HPWPs were associated with disability gaps in work-related well-being. However, contrary to the results for the sample as a whole, there was no evidence in workplaces that had adopted a range of disability equality practices of a negative association between the HPWP count measure and the proportion of the workforce that is disabled. This suggests that the quality of HPWP

implementation may be substantively different (in that they are implemented in a more sensitive manner that mitigates potential disabling effects) where the broader workplace context emphasizes social justice and equality (Stone & Colella 1996:375). This supports previous research highlighting the importance of disability equality practices in improving outcomes for disabled employees (Forth & Rincon-Aznar, 2008; Jones & Latreille, 2010; Schur et al., 2009, 2014). In arguing this point, however, it is important to remember that very few workplaces have adopted a wide range of disability equality practices (only 10.2 percent in WERS based on the classification used in our analysis).

The paper's third contribution is that it identifies IPRP as having particularly distinct implications for disabled people. We found IPRP to be negatively related to the proportion of the workforce that is disabled. While we are unable to identify the precise channels through which our results operate, one possible explanation relates to Lazear's (2000) argument that IPRP is associated with selection effects, whereby employees that obtain relatively low performance ratings are more likely to select out of the organization. Our research would suggest these selection effects may be particularly relevant to disabled people – disabled employees may tend not to select into (and may select out of) workplaces with IPRP, given the demotivating effects of assessment criteria that emphasize unobserved deleterious productivity effects associated with disability (Jones et al., 2006). Our finding that IPRP is associated with a reduction in the anxiety-contentment gap might also be explained by selection effects. Arguably, the disabled employees that remain in (or join) workplaces using IPRP are likely to have productivity characteristics similar to those of non-disabled individuals, hence for these disabled employees, IPRP may reduce the anxiety-contentment gap by increasing the likelihood that they will be fairly rewarded, given that rewards will be

allocated on the basis of actual achievement rather than on the basis of negative stereotype (Stone & Colella, 1996:374).

These selection effects arguments might also explain why HPWPs more broadly are associated with disabling effects concerning the proportion of the workforce that is disabled while simultaneously not having disabling effects concerning work-related well-being. While disabled people may be less likely to get into (or remain in) workplaces making greater use of the HPWPs explored here, those that do so may well have the sorts of impairment-related restrictions that are not particularly limiting within such workplaces. While we can only speculate on this explanation, future studies might usefully explore this matter further. Nevertheless, our results question the assumption in the literature (see Jones 1997) that disabled people's access to/ retention of employment and their relative experience of employment are positively related with each other.

Our analysis also has important implications for managers and public policy-makers. In particular, it highlights the possibility that HPWPs may generate previously unrecognized and inadvertent forms of indirect discrimination against employee groups such as disabled people. As such, managers need to be conscious that HPWPs, if implemented in conditions that do not emphasize social justice and equality, may have negative unintended consequences for the recruitment and/or retention of disabled people even if these HPWPs are applied to the workforce as a whole in an apparently neutral manner. This is important given that the proportion of employers adopting HPWPs has increased in recent years, while the adoption of disability equality practices has remained low (van Wanrooy et al., 2013). Where public policy-makers are concerned, in countries where governments are seeking to increase disabled people's employment rates (in the UK for example, the government is aiming to halve the disability employment gap), the findings might be interpreted as

highlighting the potential effects of employer practice on disability employment rates. While further work is clearly needed on this matter before definitive policy advice can be offered, our results suggest that governments may need to raise awareness among employers of the potential inadvertent impact of HPWPs on disabled employees' chances of getting into or remaining in work. The results might also suggest that governments need to encourage the wider adoption of disability equality practices to help ensure HPWPs are implemented under conditions that do not negatively affect the recruitment and/or retention of disabled people.

Finally, it is necessary to note several caveats and directions for future research. First, caution is required in drawing conclusions regarding causality from the analysis given the cross sectional nature of the survey design. Second, as previously noted, the WERS employee survey includes only a single general question on disability. Future research is needed to explore whether the relationship between HPWPs and disability-related outcomes varies by different types and severity of impairment. Third, the analysis is unable to shed light on the exact mechanisms (for example, barriers to entry into work or greater propensity to exit) that explain why the proportion of non-management disabled employees is lower in workplaces making more extensive use of HPWPs. Future research using longitudinal data or qualitative case-based approaches would be well-suited to explore this matter. Fourth, future analysis might focus on why IPRP stands out as having particular effects on the proportion of disabled employees at the workplace and on perceptions of anxiety-contentment. Fifth, while equal opportunities practices are identified as an important implementation condition, future research should explore other conditions which might affect whether HPWPs have enabling or disabling effects. Finally, while the analysis here explores the association between HPWPs and the proportion of the workforce that is disabled and perceptions of work-related well-being, research is also needed on other indicators such as the rates of dismissal, turnover,

grievances and occupational health. Should future research address these issues, this will have the potential to deepen our understanding of the consequences of HPWPs for disabled people. Future research may also draw on the theoretical approach developed in this paper to explore the implications of HPWPs for other typically-disadvantaged groups such as women, ethnic minorities and older workers.

Notes

1. The results are qualitatively similar irrespective of whether a fractional logit or OLS is used.

2. In terms of the unweighted sample size, 426 out of 1549 workplaces are defined as having a supportive disability equality environment. The weighted percentage of workplaces is lower than this because WERS oversamples large workplaces, and larger workplaces are more likely to have these disability equality practices.

3. Although not reported in the table for reasons of space, the coefficients for some of the control variables in the equations are worthy of note. In the equation in column 2 of table 1, the proportion of the workforce that is disabled is slightly higher (at the 10 per cent level) in medium-sized organizations (500-999 employees) and very large organizations (10k+ employees) than in small organizations (5-49 employees). Compared with manufacturing, it is lower in construction but higher in: the administrative and support service activities sector; public administration and defence and compulsory social security; the human health and social work activities sector; and the 'other services activities' sector. It is lower in ROW (non-European/ non-US) owned workplaces than in UK-owned workplaces, and (perhaps surprisingly) lower in workplaces with union recognition. As expected, it is positively correlated with the proportion of the workforce that is aged 50+ and the proportion of part-time employees. It is negatively correlated with the proportion of employees that are in: administrative and secretarial occupations; caring, leisure and other personal service occupations; and routine occupations.

4. Results available on request from the authors.

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Table 1: Relationship between HPWP and the proportion of non-management workforce that is disabled

	Proportion of workforce disabled (full sample)		Proportion of workforce disabled (workplaces with a wide range of disability equality practices)		Proportion of workforce disabled (workplaces with a limited use of disability equality practices)	
Competency tests	-0.035		0.059		0.013	
	(0.226)		(0.236)		(0.257)	
Performance appraisal	-0.273		0.794		-0.392	
	(0.275)		(0.563)		(0.288)	
IPRP	-0.637***		0.103		-0.645**	
	(0.238)		(0.251)		(0.255)	
Teamworking	-0.001		-0.166		-0.085	
	(0.216)		(0.194)		(0.244)	
Functional flexibility	-0.282		-0.164		-0.192	
	(0.246)		(0.305)		(0.258)	
HPWP count measure		-0.254***		0.038		-0.290***
		(0.098)		(0.110)		(0.107)
N	1549	1549	426	426	1123	1123

Notes: Coefficients given, standard errors in brackets. Fractional logit model.
*** significant at 1 percent ** significant at 5 percent
Controls for: organization size; workplace size; single independent workplace; SIC major group; national ownership; workplace age; public sector; union recognition; proportion of workforce female, ethnic minority and aged 50 or over; proportion of workforce part-time; proportion of workforce in each SOC (one-digit).

Table 2: Relationship between disability, HPWP and well-being (full sample)

	Job satisfaction		Fair treatment		Anxiety-contentment	
Panel A						
Disabled	-1.666***	-1.977***	-0.200***	-0.235**	-2.084***	-2.002***
	(0.174)	(0.527)	(0.036)	(0.101)	(0.157)	(0.445)
Competency tests	-0.003	0.019	0.030	0.032	0.102	0.116
	(0.140)	(0.142)	(0.028)	(0.029)	(0.115)	(0.119)
Performance	0.190	0.168	-0.031	-0.030	0.202	0.237
appraisal	(0.200)	(0.204)	(0.036)	(0.038)	(0.163)	(0.166)
IPRP	-0.065	-0.083	0.034	0.033	0.073	0.014
	(0.142)	(0.146)	(0.028)	(0.028)	(0.119)	(0.122)
Teamworking	0.286**	0.253*	0.071***	0.068***	0.313***	0.284**
	(0.132)	(0.134)	(0.026)	(0.026)	(0.109)	(0.111)
Functional	-0.118	-0.123	-0.033	-0.050	-0.256	-0.243
flexibility	(0.191)	(0.193)	(0.038)	(0.038)	(0.160)	(0.167)
Disabled x		-0.267		-0.024		-0.208
Competency tests		(0.362)		(0.072)		(0.325)
Disabled x		0.257		-0.001		-0.392
Performance		(0.516)		(0.097)		(0.461)
appraisal						
Disabled x IPRP		0.232		-0.023		0.711**
		(0.371)		(0.073)		(0.339)
Disabled x		0.371		0.028		0.309
Teamworking		(0.342)		(0.069)		(0.309)
Disabled x		0.025		0.195*		-0.195
Functional		(0.512)		(0.104)		(0.415)
flexibility						
Level 1 intercept	27.326	27.321	1.014	1.013	23.067	23.055
Level 2 intercept	2.464	2.461	0.089	0.089	1.274	1.276
N	13761	13761	12301	12301	14247	14247
Panel B						
Disabled	-1.667***	-1.988***	-0.201***	-0.266***	-2.086***	-2.360***
	(0.175)	(0.439)	(0.036)	(0.088)	(0.158)	(0.371)
HPWP count	0.071	0.059	0.023*	0.020	0.118**	0.108**
measure	(0.064)	(0.064)	(0.012)	(0.013)	(0.050)	(0.051)
Disabled x HPWP		0.133		0.027		0.113
		(0.161)		(0.032)		(0.134)
Level 1 intercept	27.322	27.319	1.014	1.013	23.067	23.065
Level 2 intercept	2.490	2.490	0.091	0.091	1.299	1.300
N	13761	13761	12301	12301	14247	14247

Notes: Coefficients given, standard errors in brackets. Mixed effects multi-level model.
*** significant at 1 percent ** significant at 5 percent * significant at 10 percent.
Managers excluded from analysis.
Workplace characteristics controlled for: organization size; workplace size; single independent workplace; SIC major group; national ownership; workplace age; public sector; union recognition; proportion of workforce female, ethnic minority and aged 50 or over. Employee characteristics controlled for: SOC major group; pay; marital status; age; tenure; highest qualification; part-time; temporary/ fixed term contract; union membership; ethnicity; gender; dependent children.

Table 3: Relationship between disability, HPWP and well-being (workplaces with a wide range of disability equality practices)

	Job satisfaction		Fair treatment		Anxiety-contentment	
Panel A						
Disabled	-1.836***	-2.211*	-0.058	-0.287	-2.027***	-2.024**
	(0.287)	(1.312)	(0.060)	(0.242)	(0.263)	(1.003)
Competency tests	-0.003	0.066	0.067	0.071	0.153	0.201
	(0.229)	(0.231)	(0.049)	(0.051)	(0.188)	(0.201)
Performance	-0.112	0.030	-0.020	-0.050	0.094	0.085
appraisal	(0.479)	(0.476)	(0.080)	(0.078)	(0.318)	(0.339)
IPRP	-0.151	-0.174	0.044	0.041	0.118	0.060
	(0.220)	(0.224)	(0.046)	(0.049)	(0.175)	(0.179)
Teamworking	0.438**	0.389*	0.075*	0.075*	0.648***	0.608***
	(0.220)	(0.220)	(0.042)	(0.044)	(0.169)	(0.175)
Functional	-0.868***	-0.834**	-0.033	-0.061	-0.994***	-0.910***
flexibility	(0.336)	(0.334)	(0.062)	(0.060)	(0.236)	(0.251)
Disabled x		-0.671		-0.025		-0.544
Competency tests		(0.651)		(0.137)		(0.579)
Disabled x		0.578		0.232		0.025
Performance		(1.207)		(0.212)		(0.954)
appraisal						
Disabled x IPRP		0.319		0.018		0.647
		(0.580)		(0.120)		(0.542)
Disabled x		0.498		-0.016		0.449
Teamworking		(0.568)		(0.117)		(0.518)
Disabled x		-0.423		0.285		-0.880
Functional		(0.846)		(0.194)		(0.708)
flexibility						
Level 1 intercept	27.016	27.001	1.004	1.002	23.913	23.876
Level 2 intercept	1.296	1.292	0.046	0.046	0.101	0.116
N	4246	4246	3683	3683	4380	4380
Panel B						
Disabled	-1.844***	-0.206**	-0.057	-0.188	-2.029***	-2.245***
	(0.288)	(0.914)	(0.060)	(0.186)	(0.264)	(0.769)
HPWP count	-0.000	-0.009	0.044**	0.038*	0.160*	0.151*
measure	(0.104)	(0.101)	(0.021)	(0.022)	(0.089)	(0.090)
Disabled x HPWP		0.079		0.049		0.079
		(0.307)		(0.065)		(0.260)
Level 1 intercept	26.984	26.982	1.003	1.003	23.895	23.893
Level 2 intercept	1.457	1.459	0.048	0.048	0.292	0.293
N	4246	4246	3683	3683	4380	4380

Notes: Coefficients given, standard errors in brackets. Mixed effects multi-level model.
*** significant at 1 percent ** significant at 5 percent * significant at 10 percent.
Managers excluded from analysis.
Controls as in table 2.

Table 4: Relationship between disability, HPWP and well-being (workplaces with a limited use of disability equality practices)

	Job satisfaction		Fair treatment		Anxiety-contentment	
Panel A						
Disabled	-1.582***	-2.031***	-0.277***	-0.198*	-2.141***	-1.995***
	(0.222)	(0.583)	(0.044)	(0.114)	(0.196)	(0.496)
Competency tests	-0.048	-0.049	0.018	0.023	0.010	0.015
	(0.168)	(0.172)	(0.034)	(0.034)	(0.140)	(0.143)
Performance	0.192	0.171	-0.023	-0.012	0.238	0.286
appraisal	(0.221)	(0.228)	(0.042)	(0.043)	(0.185)	(0.189)
IPRP	-0.044	-0.065	0.019	0.016	0.037	-0.023
	(0.178)	(0.183)	(0.034)	(0.035)	(0.152)	(0.157)
Teamworking	0.242	0.214	0.078**	0.076**	0.145	0.128
	(0.160)	(0.166)	(0.032)	(0.033)	(0.137)	(0.141)
Functional flexibility	0.015	0.000	-0.047	-0.062	-0.105	-0.125
	(0.230)	(0.233)	(0.047)	(0.048)	(0.200)	(0.206)
Disabled x		-0.017		-0.060		-0.096
Competency tests		(0.443)		(0.087)		(0.399)
Disabled x		0.262		-0.120		-0.578
Performance		(0.582)		(0.111)		(0.531)
appraisal						
Disabled x IPRP		0.270		0.031		0.764*
		(0.478)		(0.090)		(0.435)
Disabled x		0.321		0.020		0.157
Teamworking		(0.439)		(0.086)		(0.390)
Disabled x		0.163		0.167		0.195
Functional flexibility		(0.646)		(0.117)		(0.513)
Level 1 intercept	27.345	27.339	1.010	1.010	22.543	22.530
Level 2 intercept	2.575	2.575	0.098	0.098	1.590	1.591
N	9515	9515	8618	8618	9867	9867
Panel B						
Disabled	-1.581***	-2.040***	-0.278***	-0.261***	-2.142***	-2.354***
	(0.222)	(0.511)	(0.044)	(0.101)	(0.196)	(0.428)
HPWP count	0.074	0.057	0.015	0.016	0.076	0.068
measure	(0.077)	(0.077)	(0.015)	(0.015)	(0.060)	(0.062)
Disabled x HPWP		0.205		-0.007		0.095
		(0.198)		(0.039)		(0.162)
Level 1 intercept	27.344	27.338	1.010	1.010	22.545	22.543
Level 2 intercept	2.590	2.592	0.099	0.099	1.596	1.597
N	9515	9515	8618	8618	9867	9867

Notes: Coefficients given, standard errors in brackets. Mixed effects multi-level model.
*** significant at 1 percent ** significant at 5 percent * significant at 10 percent.
Managers excluded from analysis.
Controls as in table 2.

Appendix Table 1: Individual HPWP variable definitions and means

HPWP variable	Definition	Workplace mean
Competency testing	A performance/ competency test is conducted in filling non-management vacancies	0.418
Developmental performance appraisal	At least 60% of non-managerial employees at the workplace have their performance appraised at least annually, and the appraisal is linked to training	0.642
Individual performance-related pay	At least 60% of non-managerial employees are paid by results, receive merit pay or their pay is linked to the outcome of their appraisal	0.415
Teamworking	At least 60% of the LOG at the workplace are working in formally designated teams, in which team members depend on each other to do their job and team members jointly decide how the work is to be done	0.337
Functional flexibility	At least 60% of the LOG actually do jobs other than their own	0.210