Disability and High Performance Work Practices: Evidence from the 2011 Workplace Employment Relations Survey

Kim Hoque, Warwick Business School, Coventry, UK. kim.hoque@wbs.ac.uk (corresponding author)
Vicki Wass, Cardiff Business School, Cardiff, UK. wass@cardiff.ac.uk
Nick Bacon, Cass Business School, City University London, London, UK. nick.bacon.1@city.ac.uk
Melanie Jones, Sheffield University Management School, Sheffield, UK. m.k.jones@sheffield.ac.uk

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Abstract

Drawing on Stone and Colella (1996), this paper develops competing 'disabling' and 'enabling' effects hypotheses concerning the potential impact of High Performance Work Practices (HPWPs) on disability-related employment disadvantage, and also hypothesises that these effects will depend on the nature of the workplace equality climate. It draws on matched establishment-employee data from the nationally representative 2011 Workplace Employment Relations Study (WERS) in Britain to test these hypotheses. The results demonstrate that the proportion of the workforce that is disabled is lower in workplaces making extensive use of HPWPs but this influence is moderated by the nature of the equality climate. While disabled workers experience gaps in terms of well-being at work compared to their non-disabled counterparts, there is limited evidence to suggest these gaps vary with the use of HPWPs.

Introduction

Disability-related employment disadvantage among the working-age population is extensive and enduring across developed countries (OECD, 2007). Disadvantage is often measured in

terms of ‘gaps’ in outcomes between disabled and non-disabled people. For example, the wage gap has been estimated to be 10 to 15 percent (Jones, 2006), and disability gaps have also been identified in relation to job satisfaction and perceptions of fair treatment (Fevre et al., 2013; Schur et al., 2009). Perhaps most concerning – and therefore a consistent focus of government policy – is the disability employment gap (ILO, 2009; Smits, 2004). This is currently more than 30 percentage points (Jones & Wass, 2013), and is greater than for any other protected group (National Equality Panel, 2010:117).

Much of the prior research on disability has sought to explore issues surrounding this disability employment gap. Mirroring UK government policy initiatives, this research has typically focused on assessing individual supply side solutions to increase the motivation of disabled people to work (Bell & Smith, 2004; House of Commons, 2013). However, there is an emerging recognition that unless employers become more receptive to employing disabled people in larger numbers and offer more supportive workplace environments, the disability employment gap is unlikely to improve (Black, 2008; Department of Work and Pensions, 2013). In order to support this shift in policy emphasis, therefore, a greater understanding is needed of disabled people’s experience of work and the demand-side barriers they face.

In addressing this issue, a useful starting point is the theoretical framework developed by Stone and Colella (1996). This integrates the personal characteristics of disabled people and their co-workers, the legislative environment and organizational characteristics (such as the management and organization of work) into a set of inter-connected relationships and processes which ‘help us understand how persons with disability are perceived and treated at work’ (Stone & Colella, 1996:354). Previous studies highlight aspects of this framework such as the role of cognitive processes such as stereotyping in differential treatment (Lengnick-Hall et al., 2008), workplace accommodations for disabled people (Schur et al., 2014), and organisational characteristics such as pay systems and work organisation to better understand

the social relations in the workplace in which disadvantage for disabled people is constructed (Barnes & Mercer, 2005; Fevre et al., 2013; Schur et al., 2009). This paper is located within this latter strand of research.

The findings of much of the earlier research have, however, proved less than encouraging for disabled people. For example, in the Stone and Colella (1996) framework, anti-discrimination legislation is viewed as having the potential to narrow disability gaps by exerting influence on organizational policies, practices, norms and values. However, research has demonstrated that legislation requiring employers to make reasonable adjustments to accommodate disabled people has been at best only partially effective, with employers often failing to make even inexpensive adjustments to keep disabled people in work (Schur et al., 2014; Simm et al, 2007; Williams et al., 2008). Prior research also raises concerns over the nature of workplace disability equality practices, with studies reporting that many disability equality statements are often little more than 'empty shells' (Hoque & Noon, 2004). Only 23% of workplaces in Britain monitored recruitment and selection by disability and 9% monitored promotions by disability, while 19% reviewed recruitment and selection procedures, 10% reviewed promotion procedures and only 4% reviewed relative pay rates by disability (Kersley et al., 2006:246, 248). The limited uptake of disability equality practices is particularly disappointing given evidence that corporate culture and practices supportive of disability equality appear to reduce disability gaps (Schur et al., 2009, 2014; Stone & Colella, 1996).

Stone and Colella's (1996) framework also suggests that although equality practices may have an important role to play, broader organizational policies and practices might also have important implications for disabled people. This paper seeks to expand on and develop understanding in relation to this element of the framework. It does so in particular by exploring the influence of specific High Performance Work Practices (HPWPs) relating to the

design of jobs and management systems concerning selection, job design, performance management and reward. HPWPs of this nature have arguably become increasingly widely adopted in workplaces in recent years (van Wanrooy et al., 2013), and they may (as outlined below) potentially affect workplace receptiveness to employing disabled people and also impact on disabled people's well-being at work. By drawing on data from the nationally representative 2011 Workplace Employment Relations Study (WERS) these arguments are tested empirically by exploring the relationship between HPWPs and: first, the proportion of the workforce that is disabled; and second, disabled employees' well-being at work as measured by job satisfaction, anxiety-contentment and perceptions of fairness. Given that few studies have explored the implications of the management and organization of work for disability outcomes (Stone & Colella, 1996:374), the findings have the potential to inform both theoretical and practical understanding of the scope for contemporary developments in the management and organization of work to help or hinder greater disability equality.

High Performance Work Practices and Disability

There are a number of ways in which HPWPs might influence employment outcomes for disabled people. With regard to this, we propose an 'enabling effects' hypothesis within which HPWPs, by supporting, engaging and more fully utilising disabled employees, will enhance their recruitment, retention and well-being at work. The section below explores in turn the different HPWPs which may contribute towards these enabling effects before attention turns to the alternative 'disabling effects' hypothesis. The discussion focuses on selected HPWPs (teamworking, functional flexibility, competency testing in selection, performance-related pay and performance appraisal) that are particularly likely, as argued below, to influence employment outcomes for disabled people.

The 'enabling effects hypothesis'

Arguably, a number of HPWPs might influence employment outcomes positively for disabled people. For example, teamworking and functional flexibility have the potential to provide employees with greater control and autonomy over the ordering of work tasks (Bacon & Blyton, 2006; Gallie et al., 2012; Mueller et al., 2000). Rather than employees being deployed in a prescribed and inflexible manner, employers instead have the scope to switch employees between job roles, thereby facilitating the accommodation of impairment-related limitations to work activity. Disabled employees may also have greater discretion to adapt how they perform their work tasks in a manner that enables them to meet goal requirements. This is unlikely to happen where levels of task prescription are high, and where the manner in which jobs are performed cannot be modified by job incumbents. While this will not only improve disabled employees' well-being at work, but by enhancing the contribution disabled people are able to make to the organization, it may also help to counter managers' negative perceptions of disabled people's capabilities and thereby increase the likelihood that disabled people will be recruited. Beyond this, the 'contact hypothesis' suggests that teamworking will increase interaction between disabled and non-disabled employees. Where disabled people perform at a high level, this will help counter pre-existing stereotypes with regard to disabled employees' limitations (Stone & Colella, 1996:380).

A further HPWP that might have 'enabling effects' for disabled employees is performance appraisals. These have the potential to facilitate discussions between disabled employees and their line managers that might explore how job roles can best be shaped (Armstrong & Baron, 2005). They might also help to identify the training disabled employees require to maximise their potential. Performance appraisals might also focus managerial evaluations of disabled employees on whether they have met essential rather than ideal performance requirements (Stone & Colella, 1996:374), and focus on actual performance

levels rather than pre-existing stereotypes. Should this increase managers' awareness of the positive contribution made by disabled employees, this may in turn increase the likelihood of disabled people being recruited to the organization, and it may also increase managers' efforts to retain employees who become disabled. It might also increase the likelihood of disabled employees receiving informal mentoring and sponsorship for promotion (Stone & Colella, 1996:380).

Another HPWP with potential 'enabling effects' is performance-related pay. Such pay systems enable rewards to be allocated in a personalised manner that potentially takes activity limitations into account, particularly in instances where performance criteria are flexible and are discussed and agreed with employees in advance. In addition, performance-related pay systems increase the likelihood that disabled employees will be rewarded on the basis of their actual achievements measured against agreed criteria rather than on the basis of assumptions concerning their contribution. Beyond this, both Rubery (1995:644) and Dickens (1998:31) note that women who over-perform in their roles as a result of being over-skilled and discriminated against in promotion can receive some compensation for this through performance-related pay. It is possible that similar dynamics exist for disabled people.

A final HPWP that might have 'enabling effects' for disabled employees is competency testing within selection processes. Formalised selection processes have the potential to increase the recruitment of disabled people given that they provide disabled job applicants with the opportunity to display what they can do, rather than selection being based on assumptions about what they cannot do (Noon et al., 2013). As such, by countering negative stereotypes of disabled people's abilities, competency tests may restrict the scope for error discrimination. The use of such tests might also impact positively on disabled employees' well-being. Perceptions of job satisfaction, anxiety-contentment and fairness

might also be raised should the use of such tests improve person-job fit, thereby increasing the likelihood that disabled people will be recruited to appropriate jobs.

The 'disabling effects' hypothesis

While there are several arguments (as outlined above) to suggest that HPWPs may have a positive impact on work-related outcomes for disabled people, one might alternatively propose a 'disabling effects' hypothesis, within which, as argued by Foster and Wass (2013), contemporary changes to the management and organization of work are viewed as having rendered workplaces less hospitable for disabled employees. Here, the expectation is that workplaces using HPWPs will employ fewer disabled people, and disabled employees within such workplaces will report relatively poorer well-being at work. The ensuing discussion considers the ways in which HPWPs may have such 'disabling effects'.

Turning first to teamworking, while one strand of the literature points to the positive effects of teamworking on employee outcomes given its potentially empowering effects (Batt, 2004), another strand argues that, particularly where used as part of a 'lean production' system, it constitutes a form of normative control that extends work intensification (Parker & Slaughter, 1988; Sewell, 1998). This can arguably provide a divisive and difficult environment for disabled people if everyone in the team is expected to perform to a particular or similar standard (Vickers, 2012). Also, task interdependence in teams may result in non-disabled employees reacting negatively to disabled co-workers if they perceive that their presence within the team will reduce the team's ability to meet its performance goals (Stone & Colella, 1996:378). Functional flexibility within teamworking settings can also compromise disabled people if this requires them to display multiple skills and the ability to perform a wide range of job roles as and when required. Indeed, rather than producing less specific job descriptions, employers may instead specify that all employees must be able to

perform multiple job tasks (see Foster & Wass, 2013:714). Hence, to the extent that teamworking and functional flexibility require a universal and polyvalent employee, this may result in job descriptions which can be unrealistic for a disabled person.

Where performance appraisals are concerned, these can involve close monitoring of work activity and assessments of performance against ideal performance norms across different elements of the job (Marsden, 2004). However, disabled employees with activity restrictions may be able to perform some elements of the job better than others. Hence by highlighting what disabled employees cannot do rather than emphasising what they can do, performance appraisals may have the effect of perpetuating negative disability stereotypes rather than challenging them. This might be compounded by assessors' inadvertent cognitive appraisal bias resulting from the 'halo' and 'horns' effect, for example (Grint, 1993) whereby poor performance in just one area results in an unduly harsh appraisal overall. This problem is particularly likely to emerge where line managers conducting performance appraisals have had insufficient equality training (Dickens, 1998; Rubery, 1995), hence appraisal ratings may ultimately come to reflect discriminatory preferences.

These problems regarding performance appraisals might in turn also lead to disability disadvantage in relation to PRP. In instances where PRP is determined by performance appraisal ratings, disabled people may receive less generous awards given the difficulties they experience (as outlined above) in securing high appraisal scores. However, where PRP is not based on appraisal ratings but instead on objective measures of employee output, this might also disadvantage disabled people. Should these measures be based on assumptions about the ideal employee's characteristics, activity restrictions may hinder the ability of disabled people to achieve the required performance levels (given the need for work breaks or time off for medical appointments, for example). In addition, as PRP systems are based on competitive and individualist assessment, this can reduce cooperation and increase

competition for rewards (Storey & Sisson, 1993). If this in turn results in a less supportive working environment within which there is a tendency to criticise the performance of others (Stone & Colella, 1996: 379), this may be further to the detriment of disabled employees. Beyond this, Foster and Wass (2013: 715) demonstrate how disabled employees can be disadvantaged where performance-related pay overlaps with teamworking in the form of team-based targets where there is no provision for the disabled employee to deviate from either the standard job description or performance target.

Finally, where recruitment and selection competency testing is concerned, this may be based on tasks that make it hard for disabled people to demonstrate 'competence', or to score as highly as the non-disabled, especially if the test is designed to reflect a standard job design/description containing assumptions about the 'ideal' manner in which job tasks should be performed (Wolf & Jenkins, 2006). Formalised selection processes can also be used by managers to provide an appearance of impartiality to justify discriminatory selection decisions (what Noon et al. (2013: 343) describe as 'circumvention by compliance'). Such tests may therefore significantly reduce the likelihood of disabled people being hired.

The first aim of the paper, therefore, is to evaluate these competing enabling and disabling hypotheses by exploring the relationship between the HPWPs discussed above and two disability-related outcomes: the proportion of the workforce reporting disability at the workplace; and disabled employee's well-being at work (their perceptions of job satisfaction, anxiety-contentment and fairness.

The influence of the disability equality climate

Within the Stone and Colella (1996) framework, it is argued that whether the HPWPs discussed above have enabling or disabling effects will depend on broader organizational norms and values, in particular whether these reflect a commitment to social justice and

equality. For example, in workplaces with strong performance cultures where values and norms encourage competitive performance between individuals (Stone & Colella 1996), the impact of HPWPs may be quite different from workplaces in which there is a greater awareness of (and sensitivity to) the particular difficulties faced by disabled employees (see Jones, 2013; Schur et al., 2009, 2014). As such, whether HPWPs have enabling or disabling effects in a given workplace may depend on the workplace's broader equality climate. The importance of such a climate has been identified in previous research. For example, Schur et al. (2009) demonstrate the positive impact of a justice climate on outcomes for disabled employees. Similarly, insofar as the existence of a supportive disability equality climate is demonstrated by the existence of a set of equality disability policies and practices, Forth and Rincon-Aznar (2008) report evidence of a positive association between an equal opportunities (EO) policy and disabled employees' perceptions of fair treatment by management, while Jones and Latreille (2010) report a positive association between an EO policy and disabled employees' relative wages.

In terms of how the nature of the equality climate might impact on the relationship between HPWPs and outcomes for disabled people, one might anticipate that HPWPs are more likely to be deployed in a manner that improves outcomes for disabled people in workplaces where the climate is supportive. Within such a climate, HPWPs such as competency tests, performance-related pay and performance appraisals might be monitored and reviewed to ensure they do not discriminate against disabled people (Stone & Colella, 1996: 376). Specialist recruitment procedures might also be adopted to encourage applications from disabled people. In addition, one might anticipate that managers will have a greater awareness of the need for sensitivity in ensuring that jobs are designed in a manner that does not disadvantage disabled employees and reasonable adjustments are negotiated (Schur et al., 2014). One might also anticipate that there will be broader organizational

support in place to help ensure that disadvantage does not occur. Beyond this, the nature of the equality climate might also be important in signalling to non-disabled employees the unacceptability of behaviour that excludes or otherwise discriminates against disabled employees. The second aim of the study, therefore, will be to assess whether the enabling/disabling influence of HPWPs depends on the broader workplace disability equality climate (as measured by whether a set of disability-related EO practices has been adopted).

To summarise, the paper seeks to extend and develop understanding of the argument within the Stone and Colella (1996) framework that organizational characteristics (such as the management and organization of work) have the potential to influence outcomes for disabled people by addressing the following two aims. The first is to evaluate the competing enabling and disabling effects hypotheses outlined above concerning the association between the HPWPs discussed earlier and (1) the proportion of the workforce that is disabled and (2) disabled employees' relative well-being at work. The second aim is to assess whether the extent to which HPWPs have enabling or disabling effects varies depending on the nature of the broader disability equality climate.

Data and Methods of Analysis

The analysis uses matched establishment-employee data from WERS 2011. WERS is designed to be nationally representative of British workplaces with five or more employees 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. The management survey comprises 2,680 observations with a response rate of 46.5 percent. The respondent is the manager at the workplace who has primary responsibility for employment relations matters. The survey of employees (sent to a random sample of up to 25 employees in each workplace) comprises 21,981 responses, with a response rate of 54.3

per cent (van Wanrooy et al., 2013). By linking the management and employee data, it is possible to explore the relationship between workplace characteristics (including HPWPs) and disabled employees' experiences of work. Respondents to the survey of employees in the management and senior official occupational category are excluded from the analysis as the questions on HPWPs in WERS ask about whether these apply to either the largest 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 the analysis.

Dependent variables

i) Proportion of workforce disabled. The data for this dependent variable are taken from the survey of employees rather than the management survey. This is because the estimate given by management respondents concerning the proportion of their workforce that is disabled is very low (1.4%). While this is consistent with figures reported in earlier management surveys (Woodhams & Corby, 2007), it is a substantial underestimate (and hence potentially somewhat unreliable) when compared to the percentage of disabled employees recorded in the Labour Force Survey in 2011 (11.5%). This discrepancy is nevertheless notable in highlighting the extent to which disability remains a hidden and unrecognised feature in many workplaces. The survey of employees asks '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 is the wording of the standardised question for government social surveys to identify people with rights under the Equality Act 2010 and the EU-SILC disability (Office for National Statistics, 2011). Disability is defined to include the responses 'Yes, limited a little' and 'Yes, limited a lot', whereas 'No' defines the non-disabled group. When employee responses are integrated into the main management survey, the average percentage of the

non-management workforce that is disabled is 9.9% suggesting that the WERS employee data are reasonably representative in terms of disability presence.

ii) Disabled employees' well-being at work. This is measured using three commonly considered individual-level indicators of employee well-being at work, namely job satisfaction, anxiety-contentment (Warr, 1990) and perceptions of fairness. Previous research has suggested such measures are important indicators of disabled people's experienced disadvantage at work (Bewley & Forth, 2010; Fevre et al., 2013; Forth & Rincon-Aznar, 2008; Schur et al., 2009). Such outcomes are not only important in their own right (Jones & Wass, 2012), but may also have important implications for employee performance in the workplace (Stone & Colella, 1996: 386).

Where the job satisfaction measure is concerned, eight items measured on a 5-point scale (where 1=very dissatisfied and 5=very satisfied) ask employees how satisfied they are with elements of their job (sample items include the sense of achievement they get from their work and the amount of pay they receive). These load onto a single factor in an exploratory factor analysis and are therefore combined into a single scale (Cronbach alpha reliability of 0.86). The perceptions of fairness 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 scale of 1-5 where 1=strongly disagree and 5=strongly agree). Work-related anxiety-depression is assessed by 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 scale of 1-5 where 1=all the time and 5=never). Responses load onto a single scale in an exploratory factor analysis and are combined into a single scale which decreases in anxiety-depression (Cronbach alpha reliability of 0.91).

Independent HPWP variables

Separate measures are developed using data from the management survey for five HPWPs and these are used in both the employee and workplace level analysis. These measures relate (in accordance with the HPWPs discussed in the literature section of the paper) to: functional flexibility, teamworking, competency testing, performance appraisal and individual performance-related pay (Appendix 1 contains details of how these measures were constructed and their workplace-level means). However, it is widely argued in strategic human resource management that the impact of single HPWPs used in isolation on organizational performance may be minimal. Instead, where a 'bundle' of HPWPs is introduced in an integrated, mutually reinforcing manner, performance effects will emerge (Becker & Huselid, 1998; Guest, 2011). To account for this, 'count' measures for the number of HPWPs adopted are frequently used to identify whether the performance relationship is stronger in workplaces with a wider range of HPWPs (Combs, Liu, Hall, & Ketchen, 2006). In order to establish whether similar effects emerge with regard to the association between HPWPs and disability-related outcomes, the five HPWPs were combined into a count measure (0-5) (workplace mean = 2.03) onto which the dependent variables outlined above were regressed.

Control variables

In the Stone and Colella (1996) framework, several organizational, individual and environmental characteristics are viewed as potentially impacting upon disability gaps. Data for many of these characteristics are collected in WERS 2011 and are therefore included in the analysis as controls. Workplace-level controls include organization size, workplace size, single independent workplace, Standard Industrial Classification major group, national ownership, workplace age, public sector, union recognition and the proportion of the

workforce female, ethnic minority, aged 50 or older, part-time. Employee-level controls include Standard Occupational Classification, weekly pay, marital status, respondent age, tenure, highest qualification, part-time, temporary or fixed-term contract, union member, ethnicity, gender, and the presence of a dependent child.

Analysis procedure

To assess the paper's first research question, the proportion of the workforce that is disabled was first regressed onto both the five separate HPWP measures and also, in a separate regression, on the HPWP count measure, 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, generates predictions within the unit interval and is appropriate where zero and one values occur within the data (see, Papke & Wooldridge, 1996).

Second, the dependent variables measuring well-being at work were regressed onto the disability and HPWP variables at the employee level. HPWP x disability interaction terms were then inserted into the equation to ascertain whether the effect of HPWPs on the dependent variable varied between disabled than non-disabled employees (where the disability gap is negative a positive significant interaction effect would denote a smaller disability gap in workplaces where HPWPs are used). This analysis was conducted using both the individual HPWP measures and also the HPWP count measure. 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 enables between-establishment 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.

Where the paper's second aim is concerned, (to assess whether the extent to which HPWPs have enabling or disabling effects for disabled employees varies depending on the nature of the broader equality climate) a disability equality climate proxy measure was developed using data from the management survey concerning the disability-related EO practices in place at workplace-level. A supportive equality climate was defined as workplaces with at least three of the following five 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 have been conducted of the extent to which the workplace is accessible to employees or job applicants with disabilities. A less supportive climate was defined as workplaces with two or fewer of these practices in place. Perhaps notable is that the use of these practices is low, with workplaces adopting on average 0.9 of these five practices. Only 9.9 percent of workplaces are deemed to have a supportive disability equality climate.

In order to ascertain whether the disability equality climate influences the extent to which HPWPs have enabling or disabling effects, the sample was split depending on whether the equality climate is more supportive or less supportive. The analysis described above in relation to the first research question was then repeated within each sub-sample to ascertain whether enabling effects are more likely to emerge in more supportive climates, while disabling effects are more likely to emerge in less supportive workplaces.

Results

The association between HPWPs and work-related disability outcomes

The first two columns of Table 1 present the workplace-level estimates of the relationship between HPWPs and the proportion of the workforce that is disabled. The second column

demonstrates that within the sample as a whole, the proportion of the workforce that is disabled is significantly negatively related to the HPWP count measure (lending support to the negative effects hypothesis). The first column suggests that where individual HPWPs are concerned, while all the coefficients are negative, there is only a significantly negative relationship between the use of PRP and the proportion of the workforce that is disabled.

Insert Table 1 here

The results in Table 2 present the employee-level estimates for the relationship between HPWPs and disabled employees' well-being at work (job satisfaction, anxiety-contentment and perceptions of fairness). Panel A reports the results relating to the effect of individual HPWPs, while Panel B reports the results for the HPWP count measure.

The results demonstrate significant disability gaps, with disabled people reporting significantly poorer outcomes in relation to job satisfaction, anxiety-contentment and perceptions of fairness than the non-disabled. Where the impact of HPWPs is concerned, the first, third and fifth columns in Panel A provide little evidence that (with the exception of teamworking) individual HPWPs affect these outcome measures. In terms of whether HPWPs have enabling or disabling effects, there is a notable lack of significance among the interaction terms that are added in the second, fourth and sixth columns, thus suggesting there is no difference in the relationship between HPWPs and job satisfaction, anxiety-contentment and fairness for disabled employees relative to their non-disabled counterparts. There is no evidence, therefore, that HPWPs either increase or decrease the disability gap with regard to employees' well-being at work. The one exception to this is the positive interaction for performance-related pay in the anxiety-contentment equation (column 6). The suggestion here, in contrast to the above analysis of workforce composition, is that the use of this

practice reduces the anxiety-contentment disability gap (though it does not reduce the job satisfaction or fairness disability gaps).

Where the HPWP count measure is concerned, the results in Panel B suggest that there is a positive association between the HPWP count measure and anxiety-contentment, and a weak positive association (at the 10 percent level) for fairness. However, all of the disabled x HPWP interaction effects are insignificant, suggesting that the effect of the extent of adoption of HPWPs is no different for disabled than for non-disabled employees. Again, therefore, there is no evidence that HPWPs either reduce or increase disability gaps (and hence no support for either the enabling or disabling effects hypotheses).

Insert Table 2 here

Disability equality climate and the relationship between HPWPs and work-related disability outcomes

The papers' second aim is to assess whether the extent to which HPWPs have enabling or disabling effects varies depending on the nature of the broader disability equality climate. Returning to Table 1, columns 3 and 4 report the relationship between HPWPs and the proportion of the workforce that is disabled in workplaces with supportive disability equality climates, while columns 5 and 6 report the relationship in those with less supportive climates. The results in columns 3 and 4 suggest that in workplaces with supportive disability equality climates there is no negative relationship between either the individual HPWPs or the HPWP count measure and the proportion of the workforce that is disabled. However, columns 5 and 6 show that in workplaces with less supportive climates, the PRP and the HPWP count measures are negatively associated with the proportion of the workforce that is disabled. This

supports the argument that negative effects are more likely to emerge in workplaces with less awareness of, and sensitivity to, disability equality issues.

The results relating to disabled people's well-being at work with regard to levels of job satisfaction, anxiety-contentment and perceptions of fairness are presented in Tables 3 and 4. Table 3 presents the results for supportive equality climates. Notable here is that while disabled people report poorer job satisfaction and anxiety-contentment in such climates than the non-disabled, they do not report lower levels of fairness. Where the relationship between individual HPWPs and the outcome variables is concerned, columns 1, 3 and 5 in Panel A suggests a positive relationship for teamworking (though this is weak where fairness is concerned), but a negative relationship (with regard to job satisfaction and anxiety-contentment) for functional flexibility. However, the interaction terms in columns 2, 4 and 6 are all insignificant, suggesting that individual HPWPs do not have a differential effect on the outcome measures for disabled employees compared to non-disabled employeess. There is no evidence therefore to support the argument that HPWPs will have enabling effects (and therefore reduce disability gaps) in workplaces with a supportive equality climate. This also holds in the analysis in Panel B using the HPWP count measure as opposed to the individual HPWP measures.

Insert Table 3 here

Insert Table 4 here

Table 4 presents the results for workplaces with less supportive disability equality climates. Columns 1, 3 and 5 in Panel A suggest that disabled employees report lower job satisfaction, anxiety-contentment and perceptions of fairness than do the non-disabled (as would be expected). They also suggest that HPWPs are not positively related with the

outcome measures except that teamworking is positively associated with perceptions of fairness. However, where the interaction effects in columns 2, 4 and 6 are concerned, none of these are negative and statistically significant. Hence, there is support for the argument that HPWPs will increase disability gaps in workplaces with less supportive disability equality climates. These findings are also supported in the analysis in Panel B for the HPWP count measure, within which the interaction effects are also insignificant.

Discussion and Conclusions

This paper has sought to extend and develop understanding of the argument within the Stone and Colella (1996) framework that organizational characteristics (such as the management and organization of work) have the potential to influence outcomes for disabled people. In doing so, it first developed competing enabling and disabling effects hypotheses concerning the potential association between the use of HPWPs and disability-related outcomes. Using nationally representative data for Britain from WERS 2011 the paper then sought to test these competing hypotheses empirically by identifying whether the use of HPWPs is associated with (1) the proportion of the workforce that is disabled and (2) disability gaps with regard to well-being at work. It then sought to assess whether the extent to which HPWPs have enabling or disabling effects varies depending on the nature of the broader equality climate.

In the event, and consistent with previous research (Fevre et al., 2013; Jones & Wass, 2012; Schur et al., 2009), the analysis provided evidence of significant disability disadvantage in well-being at work, with disabled employees reporting poorer outcomes than their non-disabled counterparts with regard to levels of job satisfaction, anxiety-contentment and perceptions of fairness. There was, however, no evidence supporting the enabling effects hypothesis that HPWPs reduce these disability gaps. Instead, in the full sample, the proportion of the workforce that is disabled was negatively associated with the HPWP count

measure and there was no evidence that HPWPs reduce the disability gap concerning well-being at work. Even in workplaces with supportive equality climates (where evidence of enabling effects might be expected to emerge) there was no evidence of a positive relationship between the use of HPWPs and the proportion of the workforce that is disabled, or reduced disability gaps with regard to well-being at work.

One might argue instead that the results lend support to the negative effects hypothesis, especially given the negative relationship between the HPWP count measure and the proportion of the workforce that is disabled (both within the full sample and also in workplaces with less supportive disability equality climates). In reaching this conclusion, however, one must remember that no significant findings emerged concerning the individual HPWP measures (except for PRP). This suggests that while individual HPWPs used in isolation may not have negative effects for disabled employees, HPWPs used in combination may indeed have negative implications. As discussed above, in the HPWP-performance literature it is widely argued that where a 'bundle' of HPWPs is introduced in an integrated, mutually reinforcing manner, performance effects will emerge (Becker & Huselid, 1998; Guest, 2011). It may be the case that the same argument holds in relation to the deleterious effects of HPWPs on disability outcomes.

The fact that one particular HPWP (PRP) is negatively related with the proportion of the workforce that is disabled is, however, worthy of further consideration. As discussed in the introduction, there are several reasons why such a negative relationship might emerge. While the results presented here appear to support for these arguments, further research is needed to explore the precise dynamics explaining this relationship, and to explore why PRP appears to stand out from other HPWPs in having particularly negative implications. One potential explanation is that disabled employees are not selecting into (or are opting out of) workplaces with PRP, possibly as a reflection of unobserved productivity effects (Jones et al.,

2006), but also possibly because of assessment criteria which fail to account for disability. If this results in disabled employees securing lower financial reward, this will send a particularly strong signal to disabled employees that their contribution is not highly valued. This in turn may provide a particularly strong incentive for them to leave the organization.

However, in concluding that the results offer greater support to the disabling effects than the enabling effects hypothesis, one must also remember that there was no evidence that HPWPs increase the disability gap with regard to well-being at work (even in less supportive disability equality climates). There was also evidence in the full sample of a positive relationship between the HPWP count measure and anxiety-contentment, and a weak positive relationship with fairness. Given that the strength of this relationship does not vary between disabled and non-disabled employees (as demonstrated by the insignificant interaction terms within the analysis), this suggests that disabled employees in workplaces with more HPWPs may be better off with regard to these outcomes than are their counterparts in workplaces with fewer HPWPs. As such, while HPWPs may not close disability gaps relative to the non-disabled, they may nevertheless potentially have some positive effects for disabled (as well as non-disabled) employees.

Overall, therefore, the results suggest that HPWPs (particularly the HPWP count measure and PRP) have disabling effects in terms of the proportion of the workforce that is disabled, but they do not have disabling effects in relation to well-being at work. This finding might be regarded as particularly notable. One possible interpretation of this is that disabled people may have difficulties either in getting into workplaces that use HPWPs extensively or in remaining in work in such workplaces should they become disabled. However, for those who are successful within selection processes, or are able to remain in work, HPWPs do not have any negative effects beyond this. The findings may, therefore, be consistent with a selection effect argument whereby the types of disabled people who get into or remain in

work in high HPWP-use workplaces are those that do not have the sorts of activity limitations which might be particularly compromising within such an environment. This is consistent with the findings in relation to PRP, which is associated with both a lower prevalence of disability among the workforce but a narrower disability gap in anxiety-contentment. While it is only possible to speculate on this line of argument, further exploration of this issue might provide a fruitful avenue for future research on the effects of HPWPs on disability-related outcomes.

One further notable feature of the findings concerns the effects of the disability equality climate. The results suggest that HPWPs are no more likely to have enabling effects for disabled employees concerning well-being in workplaces with a supportive equality climate than elsewhere. They do, however, suggest that the negative relationship between HPWPs and the proportion of the workforce that is disabled disappears in supportive climates, and that disabled people do not report poorer perceptions of fairness in such climates than the non-disabled. These findings support research highlighting the importance of corporate culture and supportive disability equality practices in reducing disability gaps (Schur et al., 2009, 2014; Stone & Colella 1996). In the analysis presented here, equality climate is proxied by the adoption of disability EO practices. This in turn suggests that the adoption of a substantive EO disability policy may have the scope to improve at least some outcomes for disabled people, as has been found to be the case for ethnic minorities (Noon & Hoque, 2001), as well as in prior research on disabled people (Forth & Rincon-Aznar, 2008; Jones & Latreille, 2010). It may also have a role to play in ensuring that HPWPs do not have deleterious effects on disabled people's employment levels.

Finally, it is necessary to highlight several caveats. First, a limitation of the analysis is that the WERS employee survey includes only a single general question on disability. Future research might explore whether the relationship between HPWPs and disability-related

outcomes vary by different types and severities of impairment. Second, as discussed above, the analysis is unable to shed light on the precise mechanisms that lead to a lower proportion of disabled employees in workplaces with larger numbers of HPWPs or PRP. Future research may therefore seek to explore the precise ways in which HPWPs influence the recruitment and retention of disabled people. Third, the analysis draws on perceptions of well-being (job satisfaction, anxiety-contentment and fairness). Research is also needed on other indicators such as rates of dismissal, turnover, grievances and occupational health. Should future research be conducted that takes these issues into consideration, this will extend further the understanding of the consequences of HPWPs for disabled people.

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Table 1: Relationship between HPWPs and the proportion of workforce that is disabled

	Proportion of workforce disabled (full sample)		Proportion of workforce disabled (supportive disability equality climate)		Proportion of workforce disabled (without a supportive disability equality climate)	
Functional flexibility	-0.339		-0.203		-0.265	
	(0.239)		(0.293)		(0.251)	
Teamworking	-0.021		-0.175		-0.092	
	(0.220)		(0.195		(0.258)	
Competency tests	-0.093		0.167		-0.069	
	(0.224)		(0.235)		(0.258)	
Performance-related pay	-0.622		0.081		-0.626	
	(0.233)***		(0.252)		(0.250)**	
Performance appraisal	-0.301		0.758		-0.420	
	(0.277)		(0.557)		(0.293)	
HPWP count measure		-0.279		0.047		-0.318
		(0.099)***		(0.112)		(0.109)***
N	1629	1629	437	437	1191	1191

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, HPWPs and work-related experience (full sample)

	Job satisfaction		Fairness		Well-being	
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)***
Functional flexibility	-0.118	-0.123	-0.033	-0.050	-0.256	-0.243
	(0.191)	(0.193)	(0.038)	(0.038)	(0.160)	(0.167)
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)**
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-related pay	-0.065	-0.083	0.034	0.033	0.073	0.014
	(0.142)	(0.146)	(0.028)	(0.028)	(0.119)	(0.122)
Performance appraisal	0.190	0.168	-0.031	-0.030	0.202	0.237
	(0.200)	(0.204)	(0.036)	(0.038)	(0.163)	(0.166)
Disabled x Functional flexibility		0.025		0.195		-0.195
		(0.512)		(0.104)*		(0.415)
Disabled x Teamworking		0.371		0.028		0.309
		(0.342)		(0.069)		(0.309)
Disabled x Competency tests		-0.267		-0.024		-0.208
		(0.362)		(0.072)		(0.325)
Disabled x Performance-related pay		0.232		-0.023		0.711
		(0.371)		(0.073)		(0.339)**
Disabled x Performance appraisal		0.257		-0.001		-0.392
		(0.516)		(0.097)		(0.461)
Level 1 intercept	2.464	2.461	0.089	0.089	1.274	1.276
Level 2 intercept	27.326	27.321	1.014	1.013	23.067	23.055
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 measure	0.071	0.059	0.023	0.020	0.118	0.108
	(0.064)	(0.064)	(0.012)*	(0.013)	(0.050)**	(0.51)**
Disabled x HPWP		0.133		0.027		0.113
		(0.161)		(0.032)		(0.134)
Level 1 intercept	2.490	2.490	0.091	0.091	1.299	1.300
Level2 intercept	27.322	27.319	1.014	1.013	23.067	23.065
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 1 percent.
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. Individual 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, HPWPs and work-related experience (supportive disability equality climate)

	Job satisfaction		Fairness		Well-being	
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)**
Functional flexibility	-0.868	-0.834	-0.033	-0.061	-0.994	-0.910
	(0.336)***	(0.334)**	(0.062)	(0.060)	(0.236)***	(0.251)***
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)***
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-related pay	-0.151	-0.174	0.044	0.041	0.118	0.060
	(0.220)	(0.224)	(0.046)	(0.049)	(0.175)	(0.179)
Performance appraisal	-0.112	0.030	-0.020	-0.050	0.094	0.085
	(0.479)	(0.476)	(0.080)	(0.078)	(0.318)	(0.339)
Disabled x Functional flexibility		-0.423		0.285		-0.880
		(0.846)		(0.194)		(0.708)
Disabled x Teamworking		0.498		-0.016		0.449
		(0.568)		(0.117)		(0.518)
Disabled x Competency tests		-0.671		-0.025		-0.544
		(0.651)		(0.137)		(0.579)
Disabled x Performance-related pay		0.319		0.018		0.647
		(0.580)		(0.120)		(0.542)
Disabled x Performance appraisal		0.578		0.232		0.025
		(1.207)		(0.212)		(0.954)
Level 1 intercept	1.296	1.292	0.046	0.046	0.101	0.116
Level 2 intercept	27.016	27.001	1.004	1.002	23.913	23.876
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 measure	-0.000	-0.009	0.044	0.038	0.160	0.151
	(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	1.457	1.459	0.048	0.048	0.292	0.293
Level2 intercept	26.984	26.982	1.003	1.003	23.895	23.893
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 1 percent.
Controls as in table 2.

Table 4: Relationship between disability, HPWPs and work-related experience (without a supportive disability equality climate)

	Job satisfaction		Fairness		Well-being	
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)***
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)
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)
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-related pay	-0.044	-0.065	0.019	0.016	0.037	-0.023
	(0.178)	(0.183)	(0.034)	(0.035)	(0.152)	(0.157)
Performance appraisal	0.192	0.171	-0.023	-0.012	0.238	0.286
	(0.221)	(0.228)	(0.042)	(0.043)	(0.185)	(0.189)
Disabled x Functional flexibility		0.163		0.167		0.195
		(0.646)		(0.117)		(0.513)
Disabled x Teamworking		0.321		0.020		0.157
		(0.439)		(0.086)		(0.390)
Disabled x Competency tests		-0.017		-0.060		-0.096
		(0.443)		(0.087)		(0.399)
Disabled x Performance-related pay		0.270		0.031		0.764
		(0.478)		(0.090)		(0.435)*
Disabled x Performance appraisal		0.262		-0.120		-0.578
		(0.582)		(0.111)		(0.531)
Level 1 intercept	2.575	2.575	0.098	0.098	1.590	1.591
Level 2 intercept	27.345	27.339	1.010	1.010	22.543	22.530
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 measure	0.074	0.057	0.015	0.016	0.076	0.068
	(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	2.590	2.592	0.099	0.099	1.596	1.597
Level 2 intercept	27.344	27.338	1.010	1.010	22.545	22.543
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 1 percent.
Controls as in table 2.

Appendix Table: Individual HPWP variable definitions and means

HPWP variable	Definition	Workplace mean
Teamworking	At least 60% of the largest occupational group (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	0.340
Functional flexibility	At least 60% of the LOG actually do jobs other than their own	0.217
Competency testing	A performance/ competency test is conducted in filling LOG vacancies	0.412
Individual performance-related pay	At least 60% of non-manual employees are paid by results, receive merit pay or their pay is linked to the outcome of their appraisal	0.419
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	0.643

Author biographies

Kim Hoque is Professor of Human Resource Management at Warwick Business School. His current research explores workplace equality, small and medium sized firms, HRM in family owned firms and agency working. He has published widely on these topics in journals such as *British Journal of Industrial Relations*, *Human Relations*, *Public Administration* and *Work Employment and Society*. He is an Associate Editor of *Human Relations*

Victoria Wass is a Reader at Cardiff Business School. She has a long-term interest in the employment effects arising from disability and she advises the courts on how to quantify these in claims for loss of earnings.

Nick Bacon is Professor of Human Resource Management at Cass Business School. His research explores trade unions, partnership, training, small and medium sized firms and private equity. He co-edited both the Sage Handbook of Industrial Relations (2008) and the Sage Handbook of Human Resource Management (2009).

Melanie Jones is Professor of Management Economics at Sheffield University Management School. Her work focuses on the relationship between disability and labour market outcomes and she has presented this work at sessions organized by the Department for Work and Pensions, the Office for Disability Issues and the Welsh Assembly Government.