Workplace Disability & Job Satisfaction in Britain: A Co-worker Test?

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Abstract: The paper examines the link between workplace disability (WD) and workplace job satisfaction (JS) using data from WESR2011. Controlling for a rich set of workplace characteristics including organisational culture, we find a significant negative relationship between JS and the share of disabled respondents within workplaces. Notably, SUR-based analysis distinguishing between disabled and non-disabled respondents reveals that the negative relationship found is specific to non-disabled respondents. Moreover, disability equality policies are found to be significantly positively related with disabled respondents' JS while they are negatively related with the JS of their non-disabled counterparts. The paper ponders if there is a co-worker aspect to the WD-JS link and whether HR policies may need to take heed of co-worker dynamics in this respect.

Key words: *Workplace disability; workplace job satisfaction; WERS2011; Britain*
JEL classification: *J14, J82, J7, I31*

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1. Introduction

There are several policy drivers in Britain that make research into issues of workplace disability vital. *First*, rising life expectancy and the pressure it has put on public finances have led to changes in policy whereby workers are encouraged to extend their working lives beyond the State Pension Age (SPA) (see Phillipson & Smith, 2005 for a review). Extending working lives is likely to increase the incidence of workplace disability, since the prevalence of disability rises with age.[1] *Secondly*, there has been a policy initiative aimed at encouraging employment among people claiming disability benefit, which was introduced in response to the large increase in the number of claimants in Britain (see, for example, Bewley *et al*., 2007; Sayce, 2018). More recently, the government has also made a manifesto pledge to halve the disability employment gap and to see one million more disabled people in work within a decade (DWP & DHSC, 2020; DWP & DoH, 2017), which is important given that a significant proportion (40%) of the working age population in Britain is predicted to have a long-term health condition by 2030 (Sayce, 2018). There has been significant progress in terms of legislative and regulatory framework designed to address the discrimination of disabled people since the introduction of the 1995 Disability Discrimination Act. There has also been rapid development in assistive technology and its dissemination (Hersh & Johnson, 2008), which are likely to promote the employment of disabled people. On the other hand, recent years have witnessed major shocks that may frustrate some of the gains in this respect. For example, the 2008 financial crisis and its fallouts are thought to have led to the rise in low-pay employment and in-work poverty, which were thought to impact marginalised groups such as the disabled disproportionately (Richards & Sang, 2019). There are also some concerns that provisions in the EU social policy, which are favourable to disabled people, may cease to be operational in Britain post Brexit, potentially jeopardising disabled employment (Teague & Donaghey, 2018). Covid-19 may pose by far the severest of challenges, as marginalised groups may take the brunt of its devastating economic fallouts and the loosening labour market.

The policy initiatives discussed above, and the changing demography of the working age population are likely to increase the proportion of disabled employees in workplaces in Britain. More research is therefore needed to better understand the implications of increased workplace disability (WD) on employment outcomes such as job satisfaction.[2] This paper attempts to examine empirically if there is a link between WD and job satisfaction (JS) in

[1] The prevalence of disability among adults over the State Pension age stands at 45% compared with that for working age adults, which is 16% (DWP, 2014).
[2] Other outcomes include employment-related benefits such as pay, training, turnover, and promotion.

Britain and whether there are differences between disabled and non-disabled workers in this respect. To that end, nationally representative data from the most recent WERS survey (WERS2011) and alternative empirical approaches have been used. WD is defined based on employees' self-reported disability status, including problems related to old age, which affect their day-to-day work activities and from administrative data on the group size of workers with long-term disability provided by employers.[3] Thus, we use the social model of disability distinguishing between 'impairment', which is an aspect of an individual, and disability, which is centred on the social arrangements and interactions workers with 'impairments' have with their environment (see, for example, Richards & Sang, 2019; Schur *et al*., 2013; Oliver, 1983). JS is derived from employees' self-reported responses on nine facets related to their jobs. JS represents an important employment outcome. It reflects both objective aspects of jobs such as pay, which are linked to the workplace, and subjective aspects, which include employees' aspirations and expectations (Perales & Tomaszewski, 2016; Haile, 2017). There has also been renewed interest in public policy discourses recently on the measurement and analysis of subjective wellbeing outcomes including JS. This is due to the presumed link these outcomes are thought to have with both mental and physical health and thence the broader notion of social wellbeing (OECD, 2018; Layard, 2014; Layard, 2013; Dolan *et al*., 2011; Black, 2008; Kahneman & Krueger, 2006; Rode, 2004; Sousa-Poza & Sousa-Poza, 2000; Warr, 1994; 1999).

Much of the existing evidence linking disability and JS is based on employee-level analysis and indicates that disabled workers fare poorly vis-à-vis non-disabled workers (Fevre *et al*., 2016; 2013; Jones, 2016; Perales & Tomaszewski, 2016; Jones *et al*., 2014). The evidence also points to workplace-related factors being most important determinants of disabled workers' JS. In fact, several studies find that disabled employees enjoy higher or similar returns in terms of JS vis-à-vis non-disabled employees when these factors are accounted for (Baumgartner *et al*., 2015; Schur *et al*., 2009; Pagan, 2011; Pagan & Melo, 2009; Uppal, 2005). What is also of interest to this paper is the evidence in the US that co-workers' and supervisors' attitudes and stereotypes, which are also workplace characteristics, being identified as fundamental barriers faced by disabled workers in workplace settings (Vornholt *et al*., 2018; Schur *et al*., 2009; Colella & Bruyere, 2011; Colella, 2001). Fevre *et al*. (2013) provide some evidence in Britain, which is broadly consistent with the US evidence, but underscore the dearth of evidence in Britain on co-worker or client instigated ill-treatment disabled employees experience.

[3] See Section Three for the exacting wordings of the employee and employer survey questions.

If non-disabled co-workers harbour negative attitudes towards disabled employees, it is not clear what the implication of this may be in the face of the potentially rising share of disabled employees in workplaces. This paper aggregates the JS of employees within WERS2011 workplaces and conducts workplace-level analysis. The paper is novel in distinguishing between disabled and non-disabled employees, which may allow capturing potential co-worker dynamics in the WD-JS link. The results obtained reveal that: (*i*) the mean level of workplace JS is significantly negatively related to the share of disabled respondents (%disabled) within workplaces, (*ii*) SUR-based analysis distinguishing between the mean levels of workplace JS for disabled and non-disabled respondents uncovers that the negative relationship found is exclusive to non-disabled respondents, and (*iii*) disability-friendly workplace policies are found to be significantly positively related to the mean level of workplace JS for disabled respondents while they are negatively related to that of non-disabled respondents. The results suggest intergroup dynamics as a potentially important factor given that the negative relationships found are specific to non-disabled co-workers. Such intergroup dynamics may arise due to co-worker attitude (e.g., Fevre *et al*., 2013), ableism (e.g., Jammaers *et al*., 2016) or accommodations (e.g., Colella, 2001) as highlighted in Section 2 below.

The remainder of the paper is organised as follows. Section Two provides a review of the related literature. Section Three describes the data used in the empirical analyses conducted. Section Four discusses the empirical framework used. Section Five discusses the results before the final section concludes the paper.

2. Background and related literature

Various recent estimates put the proportion of working age people with long-standing illness or impairment in Britain to be around 30% of the population. Of this, some 17 per cent have a limiting long-term illness, impairment, or a disability (HLSC, 2016; DWP, 2014; Jones and Wass, 2013).[4] Moreover, the proportion of people with long-term health condition is predicted to reach 40% of the working age population by 2030 (Sayce, 2018). Thus, disabled people constitute a significant and rising proportion of the labour force. Correspondingly, the proportion of disabled employees is expected to increase given the changes in public policy priorities alluded to earlier, which include extending working lives beyond the SPA and the drive to encourage employment among disability benefit claimants. Given such changes in the

[4] Compared with other European countries Britain is reported to have larger numbers of people with long-term illnesses, although the figures are comparable to that of the USA (OECD, 2010; Blekesaune, 2007; EHRC, 2008).

workforce and in workplaces, the need for more research into WD and employment outcomes in Britain cannot be over emphasized, a point several of the studies reviewed below stress.

Notwithstanding the considerable variation in disability conditions, the evidence suggests that disabled people fare worse in labour market outcomes generally vis-à-vis their non-disabled counterparts. For example, the latest ONS statistics indicate that only 53.2% of disabled people were in employment vis-à-vis 81.8% of non-disabled people, thus an employment gap of 28.6% (DWP & DHSC, 2020; ONS, 2019; DWP & DOH, 2017). Disabled people not only face employment hurdles, but they also experience work-related challenges once they join the world of work. Based on a qualitative study of disabled respondents in Scotland, which included hard-to-reach disabled people selected using convenience sampling, Richard & Sang (2019) highlighted experiences of discrimination, which they note were: "typically related to management failure to grant adequate, reasonable adjustments, as well as long histories of patronising and insensitive comments from managers and colleagues" (p. 648). Fevre *et al*. (2016) conducted extensive study in Britain using data from three largescale household surveys (the LFS, GHS and HSE). They underscored the disadvantage disabled employees experienced across various employment outcomes stressing: "even those who are most directly affected often fail to understand the extent of disability discrimination" (p. 3), while Fevre *et al*. (2013) noted that disabled employees were far more likely to experience a wide range of ill-treatment in workplaces using data from the British Workplace Behaviour Survey. The 2016 HLSC report on whether the Equality Act 2010 adequately supports the fight against disability discrimination also concluded that much more needs to be done in this respect (HLSC, 2016).

There is still insufficient evidence on disability-related disadvantage in employment outcomes, however. Fevre *et al*. (2013; 2016) pointed that little is known about the ill-treatment of disabled employees by co-workers and called for "better knowledge of the extent to which the seemingly individual problems disabled people encounter in the workplace are part of a wider and more systematic pattern of less favourable treatment" (2016, p. 3). Much of the limited evidence also focuses on disparities in terms of objective outcomes such as employment, pay, job security/layoff, promotions, decision making and training, among others, where the broad consensus is that disabled employees fare worse in these outcomes vis-à-vis their non-disabled counterparts (Richard & Sang, 2019; Ameri *et al*., 2018; Febre *et al*., 2016, 2013; Schur *et al*., 2009; Jones and Latreille, 2010; Jones, 2008; 2007, 2006; Jones *et al*., 2003, Baldwin & Schumacher, 2002, Madden, 2004, Berthoud & Blekesaune, 2007; Berthoud, 2008, 2011; Kidd *et al*., 2000). On the other hand, the evidence on disparities in subjective outcomes

such as JS is even more limited despite renewed interest in public policy discourses on subjective wellbeing outcomes in Britain and elsewhere, which is informed by the link these outcomes are thought to have with the broader notion of mental health and social wellbeing (OECD, 2018; Layard, 2014; Layard, 2013; Dolan *et al*., 2011; Black, 2008; Kahneman & Krueger, 2006; Rode, 2004; Sousa-Poza & Sousa-Poza, 2000; Warr, 1994; 1999). In Britain, stress, depression, or anxiety constitutes the most frequently self-reported work-related ill health (HSE, 2020; Vickerstaff *et al.*, 2012), therefore making a study of this nature vital. [5]

The evidence on the link between disability and JS, which appears to vary greatly depending on whether and how far workplace characteristics are accounted for, is not entirely clear-cut. In Britain, there is a consensus that disabled workers fare poorly vis-à-vis their non-disabled counterparts though much of this evidence is based on employee-level analysis. Hoque *et al*. (2018) used data from WERS2011 to test for disparities related to employee's disability status in the link between selected HPWPs and employees' work-related well-being outcomes including JS. They found that disabled respondents report lower work-related well-being vis-à-vis their non-disabled counterparts, but they conclude that the evidence on whether this is linked to the presence of HPWPs is limited. Based on the raw comparison of the responses of disabled and non-disabled employees surveyed by WERS2011, Fevre *et al*. (2016) indicated about 10% lower average JS score for the former. They noted that the JS gap was significant not only because it forms an important aspect of one's life satisfaction but also due to its well-established link with employee productivity and intention to quit. Perales & Tomaszewski (2016), also used data from WERS2011 to find that workers with lasting health condition have lower job satisfaction vis-à-vis their counterparts without any such disability. Using an earlier wave of WERS (WERS2004), Jones (2016) also reported a significant gap in work-related perceptions between disabled and non-disabled employees, where disabled employees are found to hold more negative views on managers' treatment of workers as well as reporting significantly lower job satisfaction and commitment to their organisation.

Internationally, Baumgartner *et al*. (2015) used data on 4,141 employees in 110 small and medium-sized companies in Germany and found that disabled employees were less satisfied than their non-disabled counterparts in highly centralised environments. However, in

[5] Job satisfaction (JS) as an outcome captures both objective and subjective aspects of jobs including employees' aspirations and expectations. Traditionally, JS has been regarded as an important predictor of labour market behaviour such as quits and absenteeism (Hamermesh, 2001; Clark *et al*., 1998; Akerlof *et al*., 1988; Levy-Garboua *et al*., 2007) job performance and productivity (Oswald *et al*., 2015; Layard, 2013; Iaffaldano & Muchinsky, 1985), organisational performance (Bryson, *et al*., 2017; Ostroff, 1992), and even physical health (Layard, 2013), among others (see Perales & Tomaszewski, 2016; Haile, 2017 for recent studies).

decentralised organisational settings they found higher levels of job satisfaction particularly for disabled employees and concluded that HR policies need to promote flexible working environments. Jones *et al*. (2014) report work-limiting disability reducing job satisfaction in a causal manner in their study using data from the Australian HILDA survey. Pagan (2011) examined the levels of job satisfaction of older (aged 50-64) disabled and non-disabled workers in Europe using data from the Survey of Health, Ageing and Retirement in Europe (2004 and 2007). He found that older disabled workers with limiting conditions were less likely to be satisfied with their jobs vis-à-vis their non-disabled counterparts. However, his Oaxaca-Blinder decomposition-based analysis revealed that "older workers with limiting disabilities enjoy greater returns in terms of satisfaction from their job characteristics" (p. 213), which he attributed to disabled workers' lower expectations about jobs. Pagan and Malo (2009) find a similar result and arrive at the same conclusion based on their study, which used Spanish data from the European Community Household Panel (ECHP). Shier *et al*. (2009) conducted a qualitative study in Canada and concluded that the presence of workplace and employer discrimination and labelling, rather than the lack of accommodative practices and measures in the workplace, are the main reasons preventing disabled people from succeeding in the labour market.

In a large-scale study involving 30,000 employees from fourteen companies in the US over the period 2001-2006, Schur *et al*. (2009) also found results that highlighted the importance of workplace-related factors. They reported that where employees reported higher levels of company fairness and responsiveness, there was no significant gap between disabled and non-disabled employees in terms of job satisfaction, company loyalty, willingness to work hard and turnover. Where employees reported lower levels of company fairness and responsiveness, however, they found a significant gap between disabled and non-disabled employees in terms of these outcomes. They concluded that corporate cultures, which are responsive to the needs of all employees, are especially beneficial for disabled employees. Similarly, Uppal (2005) used nationally representative Canadian data to find that some disabled workers (with mobility disability) no longer had lower job satisfaction vis-à-vis their non-disabled counterparts once workplace characteristics were controlled for. He concluded that workplace-related factors such as discrimination, harassment and the lack of assistive technology or sufficient employer accommodations being the likely reasons for the disparity in job satisfaction for other types of disabilities.

The evidence reviewed here points to workplace-related factors being critical determinants of disabled workers' JS and disparities therein vis-à-vis their non-disabled

counterparts. This calls for workplace-level analysis that may shed new light into the role played by job- and workplace-related factors. What is also of particular interest is the evidence that co-worker attitudes and stereotypes forming major workplace barriers for disabled workers (Beatty *et al*., 2019; Vornholt *et al*., 2018; Colella & Bruyere, 2011; Schur *et al*., 2009; Colella, 2001). For example, in their US based study Schur *et al*. (2009) highlighted that "…supervisor and co-worker attitudes have a profound impact on the employment experiences of people with disabilities" (p. 385). Colella (2001) discussed disability-related accommodation and workplace dynamics among co-workers, where co-workers as stakeholders in the accommodation process was highlighted following some court decision that "have taken co-worker reactions into account in cases where an accommodation was judged contrary to a collective bargaining agreement…because co-workers' negative responses (in the form of grievances) would make the accommodation 'unreasonable'" (p. 101). Schur *et al*. (2014) noted the possibility of a positive or negative spillover effect of partially granted or denied accommodation requests on co-workers but concluded that their mixed-methods study covering more than 5,000 employees did not find negative co-worker reactions. Stone & Colella (1996)'s model emphasised the importance of non-disabled co-workers' cognition and affective states in determining the type of treatment disabled workers receive.

Given the evidence of non-disabled co-workers' unfavourable attitude towards disabled employees (Schur *et al*., 2009; Fevre *et al*., 2013), which may be related to ableism (Jammaers *et al*., 2016; Mik-Meyer, 2016) or accommodations (Colella, 2001; Stone & Colella, 1996) or other, the increase in the proportion of disabled employees in workplaces may lead to workplace dynamics that may be negatively related to workplace JS overall. Also, if disabled workers were to have lower expectations about jobs (Pagan, 2011; Pagan & Malo, 2009), then the JS of non-disabled co-workers may be where the adverse WD-JS link is reflected. In Britain we do not have data that capture co-worker attitudes in workplace settings. This paper attempts to overcome this challenge using a novel approach of aggregating the JS of disabled and non-disabled employees within WERS2011 workplaces. It is hoped that this approach allows capturing co-worker attitude indirectly. Moreover, much of the evidence in Britain is based on employee-level analysis, while this paper undertakes a workplace-level analysis, which is a departure from much of the literature on its own right.

3. Data and variables

The data come from the 2011 British Workplace Employment Relations Survey (WERS) (Department for Business, Innovation & Skills, 2015). The 2011 survey constitutes the most recent and authoritative source of information on employment relations in Britain covering a battery of topics on employers and employees. The surveys solicited responses from managers and employees through: (*i*) management questionnaire, which was administered in a face-to-face interview with managers in charge of the day-to-day task of employment relations and (*ii*) employee questionnaire, which was self-completed by up to 25 employees in study workplaces. WERS offers linked employer-employee data representative of all workplaces in Britain with five or more employees provided that suitably weighted, covering all sectors except agriculture and mining (Van Wanrooy *et al*., 2013).

The 2011 survey monitored 2680 establishments in total, 1923 of which took part in the employee surveys. The elimination of missing values on relevant workplace and employee characteristics led to the retention of 1716 workplaces, which account for 89.2% of the workplaces with the employee survey. Of the retained 1716 workplaces, 947 had at least one respondent with a self-reported disability (see details in the next sub-section), while the remaining 769 workplaces had none. Of the 947 workplaces, 933 workplaces had a mix of respondents with and without disabilities, while 14 workplaces had all respondents reporting to have disabilities. As detailed in Section 4, the analysis examining the JS differentials *between* workplaces with and without disabled respondents uses all 1716 workplaces in the final sample. On the other hand, the analyses investigating the within workplace differential in the WD-JS link between disabled and non-disabled employees, which necessitates a mix of respondents with and without disabilities, relies on the 933 workplaces, thus covering 48.5% of the workplaces with responding employees. All the empirical analysis undertaken in this paper use weights provide by the WERS to account for sample selection probabilities (see Van Wanrooy *et al*., 2013, 212-213).

3.1. Workplace disability (WD) control

The WERS2011 survey has two sources of disability information. First, the survey monitored disability status based on employees' own responses to the question: "*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? Please include problems related to old age*", with three possible answers of '*no*', '*yes, limited a little*' and '*yes, limited a lot*'. In the original sample of workplaces with responding employees, 89.6%, 8.3% and 1.3% of the respondents reported '*no*', '*yes, limited a little*' and '*yes, limited a lot*' respectively. If an employee responded '*yes*'

to the disability question, i.e., regardless of whether the condition limits one's day-to-day activities 'a little' or 'a lot', the employee is regarded as disabled in this study.[6] Secondly, the survey also solicited employers' responses on the following two questions: (*i*) "*Currently how many employees do you have on the payroll at this workplace*" (total number of employees) and (*ii*) "*How many have a long-term disability that affects the work they can do*" (number of disabled employees). Responses to these two questions were then used to generated a *%disabled measure of WD* as: %disabled = [(No. of disabled employees/Total no. of employees) × 100]. The mean level of %disabled across all workplaces is 9.2% (*s.d.* = 13.4) while it is 16.7% (*s.d.* = 14.1) among workplaces with at least one disabled respondent.

The use of both the employee and employer provided responses on disability are justified for two reasons. First, the employee self-reported disability status is vital to construct the mean levels of JS for disabled and non-disabled respondents within each workplace retained (see details in the next sub-section). Secondly, the use of the employer provided response to generate the %disabled measure is likely to be superior to doing so using the employee responses, since it avoids the risk of identifying a workplace with a nonresponding disabled employee as a non-disabled workplace (i.e., %disabled = 0). This is a real risk given that disabled employees are a minority in workplaces to begin with (<10% of all respondents report a disability) and only up to a maximum of 25 employees would complete the employee survey in each workplace. Therefore, even though the employee response may be a better information in identifying individual disability conditions (see, for example, Schur *et al*. 2013; Hoque *et al*. 2018 on measurement issues) using it to generate a workplace measure of %disabled can be risky on account of the higher likelihood of nonresponse by a minority group.[7] Also, some of the literature reviewed alludes to disability adjustment/accommodation being part of the reason for co-worker and employer attitudes. For that to be the case, the disability condition needs to be known by employers, which makes the employer provided information a better data to construct %disabled as done here.

3.2. Job satisfaction (JS) outcomes

[6] We make the reasonable assumption that if a health condition is reported to limit one's day-to-day activities, the condition must also limit one's work activities. Distinguishing between those whose health condition limits their day-to-day activities 'a little' and 'a lot' is not feasible empirically given that only 1.3% of all respondents in the original sample reported the health condition limits their day-to-day activities 'a lot', which drops further in the final sample.

[7] The weights we use in our workplace-level analysis are workplace weights, which would not address this higher likelihood of nonresponse/nonparticipation.

The WERS2011 survey solicited employees' responses on nine facets of JS. The survey asked employees: "how satisfied are you with the following nine aspects of your job": '*sense of achievement from work'*; '*scope for using own initiative'*; '*amount of influence over job'*; '*training receive'*; '*opportunity to develop skills'*, '*amount of pay receive'*; '*job security'*; '*the work itself"* and '*involvement in decision making'*, which they rate from 'very satisfied' to 'very dissatisfied' on a five-point Likert scale. Principal Component Analysis (PCA) on the nine facets of JS identified a single factor with an eigen value above 1 (4.72) and a Kaiser-Meyer-Olkin (KMO) sampling adequacy measure of 0.90. We therefore generated a summative JS outcome for each employee by adding across the nine domains. Thus, the summative job satisfaction outcome for each worker *i* in a workplace *j* with responses for each of the *k* domains of satisfaction is obtained as: $JS_{ij} = \sum_{k=1}^{9} JS_{ijk}$, where $1 \leq i \leq 25;\ j = 1,\ldots,1716,\ \&\ k = 1,\ldots,9$.

The summative job satisfaction measure (JS_{ij}) is then used to generated three outcomes as follows. First, the mean level of workplace job satisfaction ($\bar{JS}_j$) is obtained as: $\bar{JS}_j = \sum_{i=1}^{N} \frac{JS_{ij}}{N_j}$.[8] Secondly, we disaggregate the JS scores by respondent disability status. Having identified disabled employees in this way, we then obtain separate mean levels of workplace JS for disabled ($\bar{JS}_j^D$) and non-disabled ($\bar{JS}_j^N$) respondent within a workplace, respectively, as: $\bar{JS}_j^D = \sum_{i=1}^{N} \frac{JS_{ij}^D}{N_j^D}$ and $\bar{JS}_j^N = \sum_{i=1}^{N} \frac{JS_{ij}^N}{N_j^N}$, where N_j^D and N_j^N represent the total number of disabled and non-disabled employees in a workplace so that: $N_j = N_j^D + N_j^N$. Appendix Table A0 provides descriptive statistics on these three mean levels of workplace job satisfaction outcomes.[9]

3.3. Workplace disability equality and other controls

A count measure of workplace disability policy and practice has been generated from employers' '*yes*'/'*no*' responses to the following seven questions on whether the workplace: "*has formal strategic plan on employee diversity*", "*the strategic plan explicitly mentions disability*", "*monitors promotion to identify indirect discrimination by disability*", "*reviews promotions to identify indirect discrimination by disability*", "*review relative pay to identify indirect discrimination by disability*", "*whether employer has special procedure to encourage*

[8] Bryson *et al*. (2017) and Perales & Tomaszewski (2016) have used a similar disaggregation.
[9] All Appendix Tables are available as separate files.

workers with disabilities" and "*has made formal assessment of accessibility of the workplace to those with disabilities*".

Organisational culture is found to be an important determinant of the experiences of disabled workers (see, for example, Schur *et al*., 2013; 2009). Taking this into account we generate a measure of 'organisational culture' based on employees' response to the following seven questions on their perceptions of how managers in their workplace: "*Can be relied upon to keep to their promises*", "*Are sincere in attempting to understand employees' views*", "*Deal with employees honestly*", "*Understand about employees having to meet responsibilities outside work*", "*Encourage people to develop their skills*", "*Treat employees fairly*" and "*In general, how would you describe relations between managers and employees here*?" The responses to these questions are provided based on a five-point Likert scale from 'strongly agree' to 'strongly disagree' (first six questions) and 'very good' to 'very poor' (seventh question). Principal Component Analysis (PCA) identified a single factor with an Eigenvalue above 1 (4.95) explaining more than 94% of the variation and with a Kaiser-Meyer-Olkin (KMO) sampling adequacy measure of 0.94. We therefore generated a summative *organisational culture* measure with the resulting scale running from 1 to 29. The summative organisational culture measure was aggregated (in a similar fashion to the way JS was aggregated above) to generate a mean level of workplace organisational culture.

In addition, several other workplace-level controls have been generated for use in the empirical analysis conducted, which include demographic composition of employees in terms of gender, old/age and ethnicity; proportions of employees on part-time contract; proportion of employees on minimum wage; workplace age; workplace size; whether single or multi-plant workplace; whether there is a recognised trade union; whether public or private ownership; type of industry, and geographic location.[10]

4. Empirical methodology

The paper uses two different empirical approaches. The first approach is meant to establish the *JS-WD* link and regresses the mean level of JS among employees at a workplace *j* ($\overline{JS}_j$) on a rich set of workplace controls specific to the organisation. The estimated model has the following general form:

[10] Summary statistics on the full range of outcome and control variables are provided as an Appendix Table.

(1) $$\overline{JS}_j = \alpha_j + \delta WD_j + X_j^{'}\beta + \varepsilon_j, \quad j = 1, \dots, J$$

where the sub-script *j* indexes workplaces; *WD* represents the % of disabled employees in a workplace; *X* stands for the vector of workplace characteristics, which include measures of disability equality policy and organisational culture, and ε represents the (workplace-level) idiosyncratic error term.

The *second* empirical approach seeks to determine if there are differences in the JS-WD relationship between disabled and non-disabled employees within workplaces. This is achieved by using mean levels of JS disaggregated by the disability status of respondents within each workplace described in Section 3. In other words, here we regress the mean levels of JS among disabled ($\overline{JS}_j^D$) and non-disabled ($\overline{JS}_j^N$) employees within a workplace *j* on a rich set of workplace characteristics. Since the disaggregated JS outcomes come from two different groups of employees within the same workplace, they are likely to be correlated due to shared observable and unobservable workplace-level influences. Given this, it is important that they are modelled jointly, which is achieved using Seemingly Unrelated Regression (SUR) (Zellner, 1962) with the following form:

(2) $$\begin{cases} \bar{JS}_j^D = \alpha_j^D + \delta_j^D WD_j + X_j'\beta_j^D + \varepsilon_j^D \\ \bar{JS}_j^N = \alpha_j^N + \delta_j^N WD_j + X_j'\beta_j^N + \varepsilon_j^N \end{cases}$$

where, as before, the sub-script *j* indexes workplaces; the super-scripts *D* and *N* represent disabled and non-disabled employees, respectively; *WD* is the % of disabled employees in a workplace *j*; *X* stands for the vector of workplace characteristics including, measures of disability equality policy and organisational culture as before, and ε in each equation represents the idiosyncratic error term associated with each groups of employees, which are assumed to be conditionally homoscedastic, independent across workplaces and with zero mean. As noted earlier, within a workplace it is likely that $E\left(\varepsilon_j^D \varepsilon_j^N \mid WD_j, X_j\right) = \sigma^{D,N} \neq 0$. The SUR framework, which is implemented using the Stata software (StataCorp., 2019), accounts for such correlation between the two equations using the GLS estimator, which also

provides Chi-squared statistics from the Breusch-Pagan test on the independence of the errors from the jointly estimated equations.[11]

5. Empirical results and discussion

Table 1 reports results based on the first specification (equation 1). The estimated coefficients from the baseline and fully specified models both for the full sample (left pair of columns) and those from the sensitivity analysis (middle and right pairs of columns) suggest that the mean level of workplace JS is negatively related with the % of disabled employees in a workplace. The results are significant in all cases at the conventional or better level of significance, suggesting a strong negative relationship between the two. The results from the sensitivity analysis suggest that the negative relationship found is stronger in smaller sized (<50 employees) workplaces. This may suggest that in smaller establishments, where perhaps there are less developed HRM structures to accommodate disabled workers better, increasing the proportion of disabled workers leads to less favourable outcomes in terms of the mean level of workplace JS.

The estimated coefficients on the perceptions of organisational culture control are positive and strongly significant both for the main model and for the sub-group analysis. There is therefore a strong evidence suggesting that employees' perception of good organisational culture promotes workplace job satisfaction significantly. What is noteworthy is that the link found is stronger for smaller-sized organisations. Thus, employees' perceptions of good organisational culture seem to be particularly important in smaller organizations, where the positive influences of trade unions and well developed HRM structures may be lacking. On the other hand, none of the estimated coefficients of the disability equality control variable in Table 1 is found to be statistically significant.

[Insert Table 1_about here]

Table 2 reports results from the SUR regression (equation 2) for the sub-set of workplaces with a mix of disabled and non-disabled employees. It represents by far the most important part of the analysis in this study for two reasons. First, this analysis is based on workplaces with a mix of disabled and non-disabled respondents thus allowing us to capture

[11] SUR regression also provides some efficiency gain from combining the two equations. Another advantage of the model is that it permits conducting joint test(s) of significance on the coefficients of interest from the two equations straightforwardly.

potential inter-group dynamics within workplaces. Secondly, it is also superior methodologically on account of the joint estimation of the JS equations of disabled and non-disabled respondents, which accounts for potentially correlated unobserved workplace characteristics. In addition, the SUR framework allows us to test for the joint significance of estimated coefficients from the two equations estimated jointly.

Once again, we have a baseline specification with only the '%disabled' control and a fully specified model, which controls richly for workplace characteristics including organisational culture and disability equality policies and practices. In all cases, the Breusch-Pagan tests of independence of the job satisfaction equations for disabled and non-disabled respondents reject the null hypothesis of 'no contemporaneous correlation', thus lending support for the joint estimation strategy adopted. Also, tests on the joint significance of the WD, the organisational culture and the disability equality measures have been carried out; and the results obtained reject the null hypotheses that the respective coefficient estimates are zero.

The estimated coefficients on the %disabled employee control in the baseline and the fully specified models reveal that the statistically significant negative relationship found earlier between $\overline{JS}$ and WD is specific to non-disabled respondents. Thus, it appears that the higher the proportion of disabled workers in a workplace, the more adverse its influence would be on the mean level of workplace JS of non-disabled co-workers. The baseline and fully specified results from the SUR models in Table 2 also reveal a remarkable result, which the earlier specification concealed. Accordingly, workplace disability equality policies and practices are found to have a strongly significant positive relationship with the mean level of workplace JS of disabled employees ($\overline{JS}_j^D$), but a strongly significant negative relationship with that of their non-disabled counterparts ($\overline{JS}_j^N$). Therefore, it appears that disability equality policies and practices do seem to have their desired and favourable influence on the job satisfaction of disabled employees. On the other hand, these policies and practices are found to have a significant adverse influence on the workplace JS of non-disabled co-workers. These two results seem to reinforce each other in that the job satisfaction of non-disabled co-workers is significantly adversely linked with the share of disabled employees in workplaces. The latter, of course, is expected to increase where there are policies and practices favourable to disabled employees. The question of why this is the case cannot be fully addressed based on the results we have here. However, the review of literature in Section two has highlighted candidate explanations that tackle co-worker dynamics, which may provide some answers. Specifically, co-worker dynamics related to disability accommodations (Vornholt *et al*., 2018; Colella &

Bruyere, 2011; Colella, 2001), ableism (Jammaers *et al*., 2016; Mik-Meyer, 2016) or even attitude (Fevre, 2013; Schur *et al*., 2009) may hold the key to why there may be a negative relationship between the share of disabled workers in a workplace and the JS of non-disabled co-workers. If non-disabled co-workers harbour negative attitudes towards disabled workers or have some concerns about their abilities or indeed the accommodations given to them, then the more the number of disabled workers in the workplace the greater the intensity of such attitudes and concerns may become. As can be seen from Table 2, better perceptions of organisational culture are once again found to have a strongly significant positive link with the mean level of workplace job satisfaction irrespective respondents' disability status.

[Insert Table 2_about here]

Table 3 reports results from the establishment size-based sensitivity analysis from SUR. The results from the baseline and fully specified models confirm the significant negative relationship between '%disabled' and the mean level of workplace JS for non-disabled respondents found earlier. The sub-group analysis also reinforces the establishment size related patterns observed in Table 2, where the negative relationship found was noted to be stronger for smaller sized (<50 employees) workplaces. Thus, based on results from the fully specified models, the negative association found between '%disabled' and the mean level of workplace JS for non-disabled co-workers is stronger (in fact, twice so) in smaller workplaces vis-à-vis workplaces with 50 or more employees. This result seems to be consistent with what we speculated earlier that in smaller organisations, where well-developed HRM structures and institutions such as trade unions may be lacking (i.e., vis-à-vis larger organisations), the co-worker dynamics might not have alternative venting channels, thus the adverse link ending up being stronger there.

[Insert Table 3_about here]

The estimated coefficients from the establishment size-based sensitivity analysis indicate that the results related to the disability equality policy and practice control variable found are significant only in larger establishments. This is not entirely surprising given that it is larger establishments with relatively developed HRM structures and employee representations (in the form of unions) to monitor them that are more likely to adopt and implement such equality policies and practices. For smaller establishments, the directions of

the relationship for disabled and non-disabled respondents still hold although insignificant statistically. The estimated coefficients on the perceptions of organisational culture control variable reveal strongly significant positive relationship regardless of establishment size, thus suggesting once again that better perception of organisational culture is linked to favourable JS outcome irrespective of respondent disability status or organisational size.

6. Summary and Conclusion

The paper sought to examine the link between workplace disability (WD) and job satisfaction (JS) in Britain. It argued that workplaces are likely to have more disabled workers given the changing workforce demographics and factors such as the changing public policy priorities including the increase in State Pension Age (SPA), the promotion disabled people's employment through the raft of legislative measures as well as the rapid development in assistive technologies and their distribution. It also highlighted the potential adverse impacts recent national and international shocks may have on the experiences of disabled workers. The paper posed the question of whether the growing workplace share of disabled employees may have some workplace dynamics among co-workers, which may influence some employment outcomes. The paper examined the link between workplace disability and job satisfaction, given that the latter reflects both objective aspects of jobs (such as job tenure, pay and promotion) and employees' own subjective assessments including their aspirations and expectations. To that end, it reviewed the literature and carried out empirical analysis using rich data from WERS2011 and alternative empirical approaches. The paper highlighted that job satisfaction is an integral part of overall well-being, fitting within the broader notion of mental health and directly contributing to several employment and workplace outcomes.

The literature review highlighted: (*i*) the importance of co-worker dynamics relating to non-disable co-workers' negative attitudes towards disabled workers or wrong perceptions about the ability of disabled workers or the workplace accommodations they may be given, (*ii*) job- and workplace-related factors being most important in determining the JS of disabled workers and disparities therein vis-à-vis non-disabled workers, and (*iii*) the need for a workplace-level analysis in contrast to much of the evidence in Britain, which is based on employee-level analysis, and (*iv*) the WD-JS link being not entirely clear-cut, especially when international evidence is taken into account. Taking these into account, the paper used a novel approach to conduct a workplace-level analysis distinguishing between the workplace JS

outcomes of disabled and non-disabled workers within workplaces. It is thought that the approach adopted allows determining potential co-worker dynamics in the WD-JS link.

The results obtained indicate that: (*i*) there is a significant negative relationship between the mean level of workplace JS in a workplace and the share of disabled employees (% disabled) within the workplace, (*ii*) the negative relationship between %disabled and the mean level of workplace JS found is specific to non-disabled co-workers, and (*iii*) there is a statistically significant positive relationship between the mean level of workplace job satisfaction for disabled employees and workplace disability policies and practices. As argued earlier, the preceding two results reinforce each other in that where there are policies and practices that supported disabled employees better, they score better in job satisfaction terms. On the other hand, the same policies and practices are found to be significantly negatively related with the job satisfaction of non-disabled co-workers. The paper speculated if this may be due to co-worker dynamics related to disability accommodations (Vornholt *et al*., 2018; Colella & Bruyere, 2011; Colella, 2001), ableism (Jammaers *et al*., 2016; Mik-Meyer, 2016) or even attitude (Fevre, 2013; Schur *et al*., 2009). In addition, the paper also found that better employee perception of good workplace culture to be significantly positively related with workplace job satisfaction, which is in line with the findings of Scheur *et al*. (2014) and Kochan *et al*. (2003).

There is a well-established link between job satisfaction and employee turnover. If non-disabled co-workers were to be dissatisfied at their work due to prejudices or wrong perceptions about the accommodations accorded to their disabled co-workers, that may lead them to quit their jobs, or this may send the wrong signal to employers who might fear that they do. This might also discourage workplace accommodations aimed at supporting disabled workers. However, in a situation where the share of disabled co-workers is increasing due to the changing workforce demographics and the policy drivers aimed at promoting disabled employment, quits by non-disabled co-workers or employers' concerns about them are unlikely to be the remedy. What is likely to be the panacea is for workplace policies and HRM practices to address potentially unfavourable outcomes arising from co-worker dynamics head-on. This could be achieved through formal inclusion and diversity training to curtail negative attitudes and misconceptions about the abilities of disabled workers, or the accommodations they require. Where these are non-existent, workplaces may also put in place KPIs targeting non-disabled employees and supervisors to ensure training effectiveness and better accommodation of disabled workers.

Finally, the paper is novel in its use of workplace-level analysis and in distinguishing between disabled and non-disabled co-workers within workplaces. It is also rigorous in its use of rich data and alternative empirical approaches, including the sensitivity analysis conducted. The results obtained are very much robust. On the other hand, there are some caveats worth pointing. The nine domains of JS considered do not directly monitor co-worker attitude towards disabled workers. We may, therefore, be measuring this indirectly at best. It is also worth pointing out the well-known measurement error concerns associated with self-reported information on disability (see, for example, Hoque *et al.*, 2018; Baumberg *et al.*, 2015 on measurement issues). The workplace-level aggregation of JS might minimise such errors in the statistical sense though there is the other well-established concern that there is a great deal of variation in disability conditions across employees. Moreover, the reliance on the WERS2011 cross-section may not address concerns about potential endogeneity problems entirely. On the other hand, the robustness of the results to alternative econometric specifications and the consistency in the direction of significance observed between the baseline and the fully parametrised specifications give us some confidence in this respect. At the very least, the paper has highlighted the need for further research on disability to focus on the dynamics vis-à-vis non-disabled co-workers, which may be best served by a mixed-methods research. In this regard, it is also worth pointing that the WERS2011 data are almost a decade old now. Although the literature review provided a more recent account of disabled workers and their labour market fortunes, it may be time to revisit the survey, preferably with some additional questions that will allow monitoring co-workers' attitudes more directly.

References

Akerlof, G., Rose, A. and Yellen, J. (1988), Job Switching and job satisfaction in the US labour market, *Brooking Papers on Economic Activity*, 2, 495-582.

Ameri, M., Schur, L., Adya, M., Bentley, F.S., McKay, P. and Kruse, D. (2018), The Disability Employment Puzzle: A Field Experiment on Employer Behaviour, *Industrial and Labor Relations Review*, 71(2), 329-364.

Argyle, M. (1989), *The Social Psychology of Work*, 2nd edition, Penguin, Harmondsworth.

Baert, S. (2016), Wage subsidies and hiring chances for the disabled: some causal evidence, *European Journal of Health Economics*, 17, 71-86.

Baldwin, M. and Schumacher, E. (2002), A Note on Job Mobility among Workers with Disabilities. *Industrial Relations*, 41,430-441

Baumberg, B., Jones, M. and Wass, V. (2015), Disability prevalence and disability-related employment gaps in the UK 1998-2012: Different trends in different surveys? *Social Science & Medicine*, 141, 72-81.

Baumgartner, M., Dwertmann, D., Boehm, S. and Bruch, H. (2015), Job Satisfaction of Employees with Disabilities: The Role of Perceived Structural Flexibility, *Human Resource Management*, 54 (2), 323-343.

Beatty, J., Baldridge, D., Boehm, S., Kulkarni, M. and Colella, A. (2019), On the treatment of persons with disabilities in organizations: A review and research agenda, *Human Resource Management*, 58, 119-137.

Berthoud, R. (2008), Disability employment penalties in Britain. *Work Employment Society*, 22 (1), 129 – 148.

Berthoud, R. (2011), Trends in the Employment of Disabled People in Britain. ISER Working Paper Series No. 2011-03, Institute for Social and Economic Research.

Berthoud, R. and Blekesaune, M. (2007), *Persistent Employment Disadvantage*. DWP Research Report 416. London: Department for Work and Pensions.

Bewley, H., Dorsett, R. and Haile, G. (2007), The Impact of Pathways to Work, DWP research report 436, Department for Work and Pensions.

Black, C. (2008), *Working for a healthier tomorrow*, Dame Carol Black's Review of the health of Britain's working age population, Report to the Secretary of State for Health and the Secretary of State for Work and Pensions, London: TSO, UK.

Blekesaune, M. (2007), Have Some European Countries Been More Successful At Employing Disabled People Than Others? ISER Working Paper 2007-23, University of Essex, UK.

Bryson, A., Forth, J. and Stokes, L. (2017), Does employees' subjective well-being affect workplace performance? *Human Relations*, 70 (8), 1017-1037.

Clark, A., Georgellis, Y and Sanfey, P (1998), Job satisfaction, wage changes, and quits, *Research in Labour Economics*, 17, 95-121.

Colella, A. (2001), Coworker Distributive Fairness Judgements of the Workplace Accommodation of Employees with Disability, *The Academy of Management Review*, 26 (1), 100-116.

Colella, A., & Bruyère, S. (2011), Disability and employment, In S. Zedeck (Ed.), *APA handbook of industrial and organizational psychology*, Vol. 1, 473–504, American Psychological Association, Washington, DC, US

Department for Business, Innovation and Skills; Advisory, Conciliation and Arbitration Service, and National Institute of Economic and Social Research. (2015). *Workplace Employee Relations Survey, 2011. 6th Edition.* UK Data Service. SN: 7226.

Department for Work & Pensions and Department of Health & Social Care (2020), The Employment of Disabled People, Official Statistics, 24 March 2020, UK

Dolan, P., Layard, R. and Metcalfe, R. (2011), *Measuring Subjective Wellbeing for Public Policy: Recommendations on Measures*, Centre for Economic Performance, London School of Economics and Political Science, London.

DWP (2014), Statistics: Disability facts and figures, Department for Work & Pensions, Office for Disability Issues, London.

DWP and DoH (2017), Improving Lives: The Future of Work, Health and Disability, Report Presented to Parliament by the Secretary of State for DWP and the Secretary of State for Health by the Command of Her Majesty, November 2017.

EHRC (2008), Insight: Work fit for all – disability, health, and the experience of negative treatment in the British workplace.

Fevre, R., Foster, D., Jones, M. and Wass, V. (2016), Closing Disability Gaps at Work: Deficits in Evidence and Differences in Experience, Cardiff University, Wales.

Fevre, R., Robinson, A., Lewis, D. and Jones, T. (2013), The ill-treatment of employees with disabilities in British workplaces, *Work, Employment and Society*, 27(2), 288-307.

Haile, G. (2017) Workplace Job Satisfaction in Britain: Evidence from Linked Employer-Employee Data, *Labour*, 29 (3), 225-242.

Hamermesh, D. (2001), The Changing Distribution of Job Satisfaction, *Human Resources*, 36 (1), 1-30.

Hersh M. and Johnson M. (2008) Disability and Assistive Technology Systems. In: Hersh M., Johnson M. (eds.) *Assistive Technology for Visually Impaired and Blind People*, Springer, London.

HLSC (2016), The Equality Act 2010: the impact on disabled people, House of Lords Select Committee on the Equality Act 2010 & Disability, Report of Session 2015-16, House of Lords, London.

Hoque, K., Wass, W., Bacon, N. and Jones, M. (2018), Are high-performance work practices (HPWPS) enabling or disabling? Exploring the relationship between selected HPWPs and work-related disability disadvantage, *Human Resource Management*, 57, 499-513.

HSE (2020), Historical picture statistics in Great Britain, 2020: Trends in work-related ill health and workplace injury, Health and Safety Executive, November 2020, London.

Iaffaldano, M. and Muchinsky, P. (1985), Job Satisfaction and Job Performance: A Meta-Analysis, *Psychological Bulletin*, 97 (2), 251-273.

Jammaers, E., Zanoni, P., & Hardonk, S. (2016), Constructing positive identities in ableist workplaces: Disabled employees' discursive practices engaging with the discourse of lower productivity, *Human relations, 69* (6), 1365- 1386.

Jones, M. (2006), Is there employment discrimination against the disabled? *Economic Letters*, 92, 32-37.

Jones, M. (2008), Disability and the labour market: a review of the empirical evidence. *Journal of Economic Studies*, 35 (5), 405-424.

Jones, M. (2016), Disability and Perceptions of Work and Management, *British Journal of Industrial Relations*, 54 (1), 83-113.

Jones, M. and Latreille, P. (2010), Disability and earnings: are employer characteristics important? *Economics Letters*, 106, 191-194.

Jones, M. and Wass, V. (2013), Understanding changing disability-related employment gaps in Britain 1998-2011, *Work, Employmetn and Society*, 27 (6), 982-1003.

Jones, M., Latreille, P. and Sloane, P. (2006), Disability, Gender and the British Labour Market, *Oxford Economic Papers*, 58, 407-449

Jones, M., Mavromaras, K., Sloane, P. and Zhang, W. (2014) Disability, job mismatch, earnings and job satisfaction in Australia, *Cambridge Journal of Economi*cs, 38, 1221-1246.

Kahneman, D. and Krueger, A. (2006), Developments in the Measurement of Subjective Well-Being, *Journal of Economic Perspective*, 20 (1), 3-24.

Kidd, M., Sloane, P. and Ferko, I. (2000), Disability and the labour market: an analysis of British males, *Journal of Health Economics*, 19, 961-981.

Kochan T, Bezrukova K, Ely R, Jackson S, Joshi A, Jehn K, Leonard J, Levine D and Thomas D (2003), The Effects of Diversity on Business Performance: Report of the Diversity Research Work, *Human Resource Management*, 42 (1), 3-21.

Layard, R. (2013), Mental health: the new frontier for labour economics, *IZA Journal of Labor Policy*, 2:2, 1-16.

Layard, R. (2014), Mental Health: The New Frontier for Labour Economics, in McDaid, D. & Cooper, C. (Eds.), *The Economics of Wellbeing: Wellbeing: A Complete Reference Guide*, Volume V, John Wiley & Sons, Inc., London.

Levy-Garboua L, Montmarquette C and Simonnet V (2007), Job satisfaction and quits: Theory and evidence from the German socioeconomic panel, *Labour Economics*, 14 (2), 251 - 268.

Madden, D. (2004), Labour market discrimination on the basis of health: an application to UK data. *Applied Economics*, 36, 421-442.

Mik-Meyer, N. (2016), Othering, ableism and disability: A discursive analysis of co-workers construction of colleagues with visible impairments, *Human relations*, *69* (6), 1341 - 1363.

OECD (2010), *Sickness, disability, and work: Breaking the barriers*, Organization for Economic Cooperation and Development, Paris, France, OECD Publishing.

OECD (2018), *Beyond GDP: Measuring What Counts for Economic and Social Performance*, High-Level Expert Group Report on the Measurement of Economic Performance and Social Progress (HLEF), OECD Publishing, Paris

OECD (2018), *For Good Measure: Advancing Research On Well-Being Metrics Beyond GDP*, High-Level Expert Group Report on the Measurement of Economic Performance and Social Progress (HLEF), OECD Publishing, Paris

Oliver, M. (1983), *Social Work with Disabled People*, Basingstoke, Macmillan.

ONS (2019), Disability and employment, UK: 2019, Office for National Statistics, London, UK

ONS (2019), Disability, well-being and loneliness, UK: 2019, Office for National Statistics, London, UK

Ostroff, C (1992), The Relationship Between Satisfaction, Attitudes, and Performance: An Organization Level Analysis, *Journal of Applied Psychology*, 77 (6), 963-974.

Oswald, A. (2010), Emotional prosperity and the Stiglitz Commission, *British Journal of Industrial Relations*, 48 (4), 651–69.

Oswald, A., Proto, E. and Sgroi, D. (2015), Happiness and productivity, *Journal of Labor* Economics, 33(4), 789–822.

Pagan, R. (2011), Ageing and disability: Job satisfaction differentials across Europe, *Social Science & Medicine*, 72, 206-215.

Pagan, R. and Malo, M. (2009), Job satisfaction and disability: lower expectations about jobs or a matter of health? *Spanish Economic Review*, 11, 51-74.

Perales, F., and Tomaszewski, W. (2016), Happier with the same: job satisfaction of disadvantage workers, *British Journal of Industrial Relations*, 54 (4), 685-708.

Phillipson, C. & Smith, A. (2005), Extending working life: A review of the research literature, DWP Research Report No. 299, Department for Work and Pensions.

Richards, J. and Sang, K. (2019), The intersection of disability and in-work poverty in an advanced industrial nation: The lived experience of multiple disadvantage in a post-financial crisis UK, *Economic and Industrial Democracy*, 40 (3), 636-659.

Rode, J. (2004), Job Satisfaction and life satisfaction revisited: a longitudinal test of an integrated model. *Human Relations*, 57 (9), 1205 – 1230.

Sayce, L. (2018), Switching Focus: Whose responsibility to improve disabled people's employment and pay, a Joseph Rowntree Research Fellowship Report, London School of Economics and Political Science, London.

Schur, L., Kruse, D. and Blanck, P. (2013), *People With Disabilities Sidelined or Mainsttreamed*? Cambridge Disability Law and Policy Series, Cambridge University Press.

Schur, L., Kruse, D., Blasi, J and Blanck, P. (2009), Is disability disabling in all workplaces? Workplace disparities and corporate culture, *Industrial Relations*, 48 (3), 381-410.

Schur, L., Nishii, L., Adya, M., Kruse, D., Bruyere, S. and Blanck, P. (2014), Accommodating Employees With and Without Disabilities, *Human Resource Management*, 53 (4), 593-621.

Shiera, M., Grahamb, J. and Jones, M. (2009), Barriers to employment as experienced by disabled people: a qualitative analysis in Calgary and Regina, Canada, *Disability & Society*, 24 (1),63-75.

Smith, A. and Twomey, B. (2002), Labour Market Experiences of People with Disability. National Statistics Feature, Office of National Statistics

Sousa-Poza, A. and Sousa-Poza, A. (2000), Well-being at work: a cross-national analysis of the levels and determinants of job satisfaction, *Journal of Socio-economics*, 29, 517-538.

StataCorp. 2019. *Stata Statistical Software: Release 16*. College Station, TX: StataCorp LLC.

Stone, D. and Colella, A. (1996), A Model of Factors Affecting the Treatment of Disabled Individuals in organizations, *Academy of Management Review*, 21 (2), 352-401.

Teague, P. and Donaghey, J. (2018), Brexit: EU social policy and the UK employment model, *Industrial Relations Journal*, 49, 5-6, 512-533.

Uppal, S. (2005), Disability, workplace characteristics and job satisfaction, *International Journal of Manpower*, 26 (4), 336-349.

Van Wanrooy, B., Bewley, H., Bryson, A., Forth, J., Freeth, S., Stokes, L. and Wood, S. (2013), *Employment Relations in the Shadow of Recession: findings from the 2011 Workplace Employment Relations Study*, Palgrave, Macmillan.

Vickerstaff, S; Phillipson, C and Wilkie, R (2012), Work Health and Wellbeing, Bristol: Policy Press.

Vornholt, K., Villotti, P., Muschalla, B., Bauer, J., Colella, A., Zijlstra, F., Ruitenbeek, G.V., Uitdewilligen, S. and Corbière, M. (2018), Disability and employment – overview and highlights, *European Journal of Work and Organizational Psychology*, 27 (1), 40-55.

Warr, P. (1994), Conceptual framework for the study of work and mental health, *Work and Stress*, 8, 84 – 97.

Warr, P. (1999), Well-being and the Workplace. In Kahneman, D., Diener, E. and Schwarz, N. (eds.), *Well-being: the foundations of hedonic psychology*, Russell Sage Foundation, New York.

Zellner, A. (1962), An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests for Aggregation Bias, *Journal of the American Statistical Association*, 57: 348–368.

Table 1: Workplace job satisfaction and disability, estimates from OLS.

	Full sample		Size <50		Size 50 or more	
% Disabled	-0.075**	-0.068**	-0.118**	-0.081***	-0.071**	-0.064**
	(0.033)	(0.028)	(0.052)	(0.026)	(0.035)	(0.030)
Disability equality		-0.048		-0.095		-0.039
		(0.070)		(0.099)		(0.073)
Organisational culture		0.521***		0.630***		0.508***
		(0.035)		(0.042)		(0.038)
Other workplace controls	no	yes	no	yes	no	yes
Constant	31.430***	22.404***	32.043***	20.889***	31.404***	21.294***
	(0.138)	(1.140)	(0.416)	(1.215)	(0.143)	(1.077)
Observations	1716	1716	775	775	941	941
R-squared	0.008	0.520	0.011	0.654	0.008	0.515

Estimation used WERS2011 establishment sampling weights.
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Workplace job satisfaction and disability, estimates from SUR.

	Full sample			
	Disabled	Non-disabled	Disabled	Non-disabled
% Disabled	-0.071	-0.118***	-0.076	-0.077***
	(0.052)	(0.024)	(0.049)	(0.020)
Disability equality			0.436***	-0.093**
			(0.113)	(0.045)
Organisational culture			0.471***	0.487***
			(0.063)	(0.025)
Other workplace controls	no	no	yes	yes
Constant	29.887***	31.502***	23.081***	23.391***
	(0.201)	(0.094)	(5.702)	(2.287)
Observations	933	933	933	933
R-squared	0.005	0.025	0.286	0.489

Estimation used WERS2011 establishment sampling weights.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Workplace job satisfaction and disability, estimates from SUR (sensitivity analysis).

	Est. size <50				Est. size 50+			
	Disabled	Non-disabled	Disabled	Non-disabled	Disabled	Non-disabled	Disabled	Non-disabled
% Disabled	0.003	-0.152***	0.083	-0.141***	-0.074	-0.117***	-0.076	-0.071***
	(0.080)	(0.046)	(0.074)	(0.031)	(0.063)	(0.029)	(0.060)	(0.024)
Disability equality			0.018	-0.159			0.458***	-0.081*
			(0.246)	(0.102)			(0.136)	(0.047)
Organisational culture			0.433***	0.500***			0.478***	0.477***
			(0.102)	(0.042)			(0.077)	(0.031)
Other workplace controls	no	no	yes	yes	no	no	yes	yes
Constant	29.330***	31.681***	21.525***	22.201***	29.907***	31.441***	26.328***	22.743***
	(0.383)	(0.222)	(4.272)	(1.774)	(0.234)	(0.109)	(2.232)	(0.891)
Observations	289	289	289	289	644	644	644	644
R-squared	0.004	0.033	0.364	0.684	0.005	0.023	0.296	0.491

Estimation used WERS2011 establishment sampling weights.
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1