



City Research Online

City, University of London Institutional Repository

Citation: Hoque, K. & Bacon, N. (2022). Working from home and disabled people's employment outcomes. *British Journal of Industrial Relations: an international journal of employment relations*, 60(1), pp. 32-56. doi: 10.1111/bjir.12645

This is the accepted version of the paper.

This version of the publication may differ from the final published version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/26757/>

Link to published version: <https://doi.org/10.1111/bjir.12645>

Copyright: City Research Online aims to make research outputs of City, University of London available to a wider audience. Copyright and Moral Rights remain with the author(s) and/or copyright holders. URLs from City Research Online may be freely distributed and linked to.

Reuse: Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge. Provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way.

City Research Online:

<http://openaccess.city.ac.uk/>

publications@city.ac.uk

Working from home and disabled people's employment outcomes

Kim Hoque & Nick Bacon

Forthcoming in *British Journal of Industrial Relations*

Abstract

This paper assesses disabled employees' likelihood of working from home relative to non-disabled employees, and the implications of doing so for their experiences of work. Analysing British nationally representative data, the findings suggest disabled employees are less likely to work from home than non-disabled employees, given they are disproportionately excluded from the higher-paying and/ or managerial roles in which working from home is more widely available. In addition, organisations in which working from home is more commonplace do not employ a higher proportion of disabled people. The results also confirm disabled employees report poorer experiences of work than non-disabled employees regarding job control, job-related mental health, job satisfaction, and work-life balance. Although working from home is positively associated with these outcomes (except for work-life balance) for both disabled and non-disabled employees, there is very little evidence it is associated with smaller disability gaps in these outcomes. Therefore, our analysis questions the potential for working from home to reduce disability disadvantage within organisations, and highlights the need for more substantial action to address the barriers to employment that disabled people encounter.

1. Introduction

Flexible working arrangements, in which employees are offered greater control over the number of hours they work (e.g., part-time employment), start and finish times (e.g., flexitime), and the location of work (e.g., working from home), are widely regarded as important in providing employment opportunities to individuals who might otherwise be

excluded from the labour market. These arrangements may be especially important for disabled people, given their potential to reduce the barriers to employment disabled people experience such as inaccessible workplaces and transport systems, and help reconcile employment and personal needs (Bonaccio *et al.* 2020; Schmidt and Smith 2007; Schur 2003; Stone and Colella 1996: 375).

Accordingly, government agencies, professional organisations, charities, and trade unions have called on employers to offer flexible working to help ensure job roles are less exclusionary towards disabled people (CIPD 2020; Equality and Human Rights Commission 2014; Scope 2014; Unison 2020). If this increases disabled people's employment opportunities, it may in turn help reduce the disability employment gap (the difference in disabled and non-disabled people's employment rate), calculated at 29 percentage points in the UK and 31 percentage points in OECD countries (House of Commons 2021; OECD 2010). It may also help improve disabled people's experience of work, and reduce the disability gaps identified in prior research in job control, work-life balance, job-related mental health, job satisfaction, and (in some studies) organisational commitment (Bruyère 2020; Hoque *et al.* 2018; Jones 2016a,b; Schur *et al.* 2013, 2017).

However, other than research focusing on the implications of part-time employment – which shows part-time working helps accommodate work-limiting disabilities, and that disabled people are more likely than non-disabled people to work part-time (Jones 2007; Schur 2003) – few prior studies have explored the implications of flexible working for disabled people. Nevertheless, attention has turned recently to the implications for disabled people of working from home (Kruse *et al.* 2011; Schur *et al.* 2013, 2020). This paper contributes to the emerging literature in this area. In particular, it focuses on disabled (and non-disabled) employees with standard employment contracts (rather than the self-employed or independent contractors, who may also work from home), who work at or from a spatially

bounded workplace rather than virtual organisations, but perform their usual work tasks at home (e.g., home office working, telework, remote working) either periodically or permanently (see: Felstead *et al.* 2002: 206).

Prior to COVID-19, approximately three-in-ten workplaces in Britain and three-in-five companies in the US provided employees with working from home opportunities (SHRM 2016; van Wanrooy *et al.* 2013), and in both countries one-in-four employees worked from home at some point in the reference year (BLS 2019; ONS 2020a).

Developments in information and communication technologies (ICT) have been instrumental in its growth. This may be especially important for certain groups of disabled people (Barnes and Mercer 2005: 534), with Schur *et al.* (2017: 490) arguing remote working in technology-based jobs (e.g., software development and data entry) may even have levelling effects on employment opportunities for individuals with specific impairments. Working from home increased dramatically during COVID-19, with 45% of British employees and over 50% of US employees working from home during the reference week in April 2020 (Brynjolfsson *et al.* 2020; ONS 2020b). Although this may reduce once the pandemic ends, increased appreciation of the feasibility and benefits of working from home (both for employers and employees) suggests it may not return to pre-pandemic levels.

Drawing on pre-COVID British nationally-representative data, this paper contributes towards evaluations of the implications of working from home for disabled employees. We assess whether disabled employees are more likely to work from home than non-disabled employees, as might be anticipated if it helps reduce barriers to employment. We also assess whether disabled employees' segregation into certain workplaces, occupations and pay bands affects their propensity to work from home. In addition, we provide a novel analysis of whether organisations in which working from home is more commonplace employ a higher proportion of disabled people. Beyond this, responding to recent calls for studies to explore

the implications of working from home for disabled people's experience of work (Schur *et al.* 2020: 535), we assess whether it is associated with better job control, work-life balance, job-related mental health, job satisfaction, and organisational commitment for disabled employees, and also with reduced disability gaps in these outcomes.

2. Working from home and disability

Working from home may have significant implications for disabled people's employment outcomes. Just under one-quarter of disabled employees' accommodation requests relate to working from home (Schur *et al.* 2014: 602), and it is the most frequently mentioned adjustment that unemployed disabled people state would help them find employment (cited by 21% of this group) (Williams *et al.* 2008). Accordingly, one-in-five UK employers reported having offered, or planning to offer, working from home opportunities to disabled employees, often to retain individuals with mental health conditions or individuals receiving treatment for an illness (Dewson *et al.* 2010: 52). Reflecting its perceived importance, working from home is included as a reasonable adjustment in the US *Americans with Disabilities Act* and in the UK *Equality Act 2010*, with the UK's *Access to Work* scheme also helping fund adjustment costs in the home.

Regarding the reasons *why* working from home might have positive implications for disabled people, it is frequently argued that it has the potential to reduce their exposure to both the environmental and cultural barriers (in the workplace and society more broadly) that the social model of disability suggests will constrain disabled people's access to, and experience of, work (Barnes 2000; Barnes and Mercer 2011; Oliver 1990).

Turning first to environmental barriers, working from home may help disabled people circumvent inaccessible transport and workplaces. Regarding inaccessible transport, one-in-three disabled people without employment cite this as a substantial obstacle to obtaining

work (Anand and Sevak 2017; McNaughton *et al.* 2014; West and Anderson 2005). Inaccessible transport may affect individuals with mobility impairments and difficulties functioning outside the home (Schur *et al.* 2020), as well as learning, cognitive or behavioural conditions that adversely affect ability to travel (Mackett 2017). Regarding inaccessible workplaces, working from home may help disabled employees avoid workplaces that lack sufficient access, and/or do not meet their comfort/posture, noise, privacy and lighting needs (Duval *et al.* 2020). It might also benefit disabled employees using assistive technology (AT) for communication purposes, given workplaces often lack suitable AT provision (McNaughton *et al.* 2014).

A further environmental barrier disabled people encounter in the workplace relates to job roles that offer limited control regarding the pace of work, how the work is undertaken, and start and finish times, for example. If working from home helps increase job control, this in turn may help disabled people accommodate activity limitations in performing job tasks, schedule work around non-work demands, accommodate medical appointments/ treatments, and manage mental health (Anderson *et al.* 2001; McNaughton *et al.* 2014; West and Anderson 2005). Consistent with these arguments, studies report a positive relationship between control over the pace and scheduling of work and disabled employees' job retention (Yelin *et al.* 1980), and that aligning actual and preferred working time (which working from home can facilitate) has disproportionate benefits for disabled employees' job satisfaction (Pagan 2018). Given this, it is possible working from home may help counteract disabled people's lower perceived control over their lives in general (Beedon 1992; Schur *et al.* 2013).

Turning to the cultural barriers disabled people frequently encounter in the workplace, the greater anonymity working from home affords may reduce the impact of negative stereotyping (see, for example: Åslund and Nordström Skans 2012), particularly for individuals with visible, appearance, and communication-related impairments. Indeed,

research suggests individuals with complex communication impairments prefer ICT-based communication with customers, co-workers and supervisors (McNaughton *et al.* 2014). Greater anonymity may also lead to employee performance evaluations that rely more on objective indicators than on negative stereotypes (Felstead *et al.* 2003), which might reduce the impact of inadvertent cognitive bias on assessments of disabled employees' performance (Anderson *et al.* 2001; Bricout 2004). Additionally, working from home may help disabled employees avoid stigma associated with having to make often multiple or repeated requests for workplace adjustments (Baldrige and Veiga 2006). Similarly, it may help them avoid the stigma associated with the use of personal assistance services, given it is easier to keep the use of such services private in the home (Bricout 2004).

Therefore, given working from home may help reduce both the environmental and cultural barriers disabled employees encounter when working on-site, it might be expected that disabled employees are more likely to work from home than non-disabled employees, and cluster into workplaces and roles in which working from home is more commonplace. Disabled employees working from home might also report better experiences of work (regarding job control, work-life balance, job-related mental health, job satisfaction, and organisational commitment) than disabled employees not working from home, and working from home might also be associated with smaller disability gaps regarding these outcomes.

However, in contrast to the potential benefits outlined above, there are several arguments to suggest that working from home will not necessarily address the environmental and cultural barriers disabled people encounter, and indeed, may create additional barriers. Hence, it may not be associated with the aforementioned beneficial outcomes.

First, it should not be automatically assumed that the anonymity working from home might provide will be to disabled employees' advantage. Indeed, Solanke (2017) argues it could perpetuate disadvantage, given the lower visibility it implies may reduce the likelihood

of many of the specific barriers disabled individuals experience being addressed. Hence, many of the cultural (e.g., prevailing negative stereotypes) and environmental barriers disabled people encounter may remain unchanged.

Second, working from home may not be of benefit to disabled people where employees are allowed to work from home only some of the time (hybrid working), or where employees working from home have to attend the workplace periodically (e.g., for training, team-building, or to encourage corporate identification) (Felstead *et al.* 2003; Linden 2014). It might also be the case where on-site attendance is required at the start of employment for job interviews, initial training, induction, probation periods, or to build trust before working from home is allowed. Disabled people are likely to encounter significant stigma-related cultural barriers when on-site during these periods. They might also encounter significant environmental barriers, including inaccessible transport systems and workplaces. Indeed, workplace inaccessibility might be particularly great given likely employer reluctance to provide adjustments both at work and at home.

Third, it is questionable whether technology-enabled working from home will have the aforementioned levelling effects on disabled people's employment opportunities (Barnes and Mercer 2005; Schur *et al.* 2017: 490). ICT design is frequently imbued with able-bodied assumptions (Blanck 2014); hence, the employer's ICT may be incompatible with the AT disabled employees use at home, or it may become incompatible following recurring ICT software upgrades. This can constitute as significant a barrier to employment as workplace inaccessibility, and it might lead to employer reluctance to allow disabled individuals using AT to work from home (Baker *et al.* 2006). Other aspects of ICT inaccessibility may also limit disabled employees' opportunities to work from home, or worsen their experience of work, such as virtual meeting technology without live captioning, and non-screen reader-friendly video conferencing software.

Fourth, disabled people experience greater social isolation than non-disabled people (Schur *et al.* 2013). Given this, they may have a lower preference to work from home, especially if it has the potential to limit their participation in mainstream society (Felstead *et al.* 2003; Schur *et al.* 2020).

Finally, prior research suggests employers frequently offer flexible working (such as working from home) to aid recruitment and retention in higher-level occupational roles (Budd and Mumford 2006). However, reflecting the labour market disadvantage they experience, disabled employees are disproportionately excluded from such roles (Felstead *et al.* 2002; Schur *et al.* 2020). As such, they may have fewer opportunities to work from home than non-disabled employees given their segregation into lower organisational levels.

Therefore, it should not be automatically assumed that working from home will be associated with positive employment outcomes for disabled people. However, no research has been conducted on the implications of working from home for disabled employees' experience of work, and the prior research on disabled employees' likelihood of working from home relative to non-disabled employees is inconclusive. Kruse *et al.*'s (2011) analysis of the 2010 American Community Survey (ACS) finds disabled employees are more likely than non-disabled employees to work *primarily* from home in the reference week (see also: Schur *et al.* 2013: 55-7). This is upheld by Schur *et al.* (2020) pooling ACS data for 2009-2018. However, Schur *et al.* (2020) also find disabled employees are no more likely to do *any work from home* during the reference day using the American Time Use Survey pooled across 2008-2018. As noted above, research also casts doubt on disabled employees' propensity to work from home given their segregation into occupations and pay grades in which working from home is less widely offered (Felstead *et al.* 2002; Schur *et al.* 2020). Given the inconclusiveness of these findings (driven in part by how working from home is measured),

more studies are required before conclusions can be reached regarding disabled employees' propensity to work from home relative to non-disabled employees.

Turning to whether working from home has positive implications for disabled employees' experience of work, prior studies show it is associated for employees in general with higher job satisfaction (Azar *et al.* 2018; Golden and Veiga 2005; Gajendran and Harrison 2007), organisational commitment (Harker Martin and MacDonnell 2012), job control (Gajendran and Harrison 2007; Gajendran *et al.* 2015; Kossek *et al.* 2006), and lower stress and exhaustion (Allen *et al.* 2015). Some studies also show an association with lower work-life conflict (Hill *et al.* 2003; Kossek *et al.* 2006; Smeaton *et al.* 2014), although others report an association with increased home-to-work interruptions, and long working hours incompatible with family demands (Allen *et al.* 2013; Delanoeije *et al.* 2019; Golden *et al.* 2006; Michel *et al.* 2011).

It is feasible these (generally) positive associations not only hold where disabled employees are concerned, but are even stronger for disabled than non-disabled employees, given the potential for working from home to help reduce the environmental and cultural barriers disabled employees encounter. Nevertheless, as argued above, this might be questionable given: the anonymity working from home affords may not be to disabled people's advantage; disabled people will remain exposed to significant environmental and cultural barriers when working from home only some of the time; technological barriers may inhibit the experience of working from home; and working from home may increase social isolation. However, prior research has not assessed the implications of working from home for disabled employees' experience of work. Our analysis of this matter thus represents a unique contribution to the literature.

3. The study

The data

We draw on matched employer-employee data from the 2011 Workplace Employment Relations Study (WERS) (Department for Business, Innovation and Skills, Advisory Conciliation and Arbitration Service, National Institute of Economic and Social Research 2015). WERS is nationally representative of British workplaces with five or more employees in all industry sectors (excluding agriculture, hunting, forestry and fishing, and mining and quarrying) when probability weighted to account for its complex design. Our main study variables draw on the individual-level data, and much of our analysis is conducted at individual level, with the employer data being used to provide workplace-level controls. WERS has many advantages including its size, national representativeness, the ability to include a rich set of both individual and workplace-level controls, and the incorporation of measures not included in other surveys (Felstead *et al.* 2002: 205). Studies have previously drawn on WERS to assess flexible working (Budd and Mumford 2006), working from home (Felstead *et al.* 2002), and disability (Hoque *et al.* 2018; Jones 2016b; Jones *et al.* 2020). It thus provides a unique opportunity to explore working from home and disabled people's employment outcomes.

Regarding the two main components of WERS, the employer survey comprises 2,680 observations (response rate 46.5%). The respondent is the workplace manager with primary responsibility for employment relations matters. Overall, 1,552 workplaces are included in our workplace-level analysis once workplaces with missing data are excluded. Regarding the WERS employee survey, this was sent to a random sample of up to 25 employees in 2,170 of the workplaces in the employer survey (those in which the management respondent gave permission). The survey design thus allows the workplace-level data to be matched into the employee data (thereby allowing the inclusion of workplace-level controls in employee-level

analyses). The employee survey comprises 21,981 responses (response rate 54.3%) (van Wanrooy *et al.* 2013). Overall, 14,312 employees are included in our employee-level analysis after excluding observations with missing data.

It is worth keeping in mind the data were collected at about the same time the Equality Act 2010 was passed. Hence, they will not reflect any changes to disabled people's employment outcomes resulting from the Act. Nevertheless, given the Equality Act was not followed by significant improvements in disability equality outcomes (such as a step-change reduction in the disability employment gap) there is no reason to assume the results presented here are not valid in the current legislative context.

Dependent variables

- i) *Working from home.* The employee survey asks respondents whether, in the last 12 months, they have made use of 'working at or from home in normal working hours', and if not whether it is available to them but they do not use it. We created a dichotomous variable coded 1 if employees respond 'I have used this arrangement', and 0 if they respond 'Not available to me' (mean=0.187; mean for disabled=0.128 and non-disabled=0.193).¹
- ii) *Proportion of the workforce disabled.* The employee survey uses the *Global Activity Limitation Indicator (GALI)* utilised across European surveys to measure disability (Amilon *et al.* 2021), asking respondents: 'Are your day-to-day activities limited because of a health problem or disability that has lasted, or is expected to last, at least 12 months?', with the following response options: 'No'; 'Yes, limited a little'; or 'Yes, limited a lot'. This is used to construct a dependent variable at workplace-level (see: Hoque *et al.* 2018) regarding the proportion of employees at the workplace who are disabled (mean=0.070). This is calculated by dividing the total number of disabled respondents at the workplace (answering either 'Yes, limited a little' or 'Yes, limited a lot') by the total number of respondents at the workplace

(hence, if 20 respondents at the workplace replied, and 5 were disabled, the workplace has a 25% disability employment rate). To reduce sampling error in workplaces where the proportion of respondents to the employee survey was low relative to workforce size, we exclude workplaces in which fewer than three respondents provide information on their disability status. This results in the exclusion of 146 workplaces. The average workplace within our analysis has information regarding the disability status of 27.19% of its entire workforce. This provides assurance regarding the validity of the measure given the estimate of the proportion of workforce that is disabled within each workplace is based on a significant proportion of all employees at the workplace.

It is possible, however, that this measure might be affected by non-response bias, given the possibility of employees not wishing to disclose their disability status. However, the WERS employee survey is anonymous, with responses being returned direct to the survey team and not to the employer. Hence, disabled respondents have significant assurance that disclosing their disability in the survey will not result in inadvertent or unintended disclosure to their employer. This is likely to have encouraged more accurate reporting, as well as reducing non-response. Also suggesting non-response among disabled employees is not a major concern in the WERS employee survey, 99.2% of respondents provided a valid response to the question on disability status. A further potential source of measurement bias, however, is that disabled employees in workplaces providing more comprehensive adjustments may not perceive (or report) themselves as disabled. However, the WERS disability measure relates to restrictions in daily activity rather than specifically to work, thereby reducing the likelihood that responses to the question are affected by employer-provided adjustments.

iii) Job control. Drawing on established control and autonomy measures (Jackson *et al.* 1993), the employee survey asks respondents: ‘In general, how much influence do you have

over the following? The tasks you do in your job, The pace at which you work, How you do your work, The order in which you carry out tasks, The time you start or finish your working day?', each measured on a 4-point scale coded 0='none' to 3='a lot'. Responses were combined into a single scale (range 0-15) with higher values denoting higher job control (mean=10.37; Cronbach's $\alpha=0.82$).

iv) *Work-life balance*. This is conceptualised as bi-directional representing how far work interferes with life outside work, and how far outside life outside work interferes with work (Frone *et al.* 1992). Employee survey respondents were asked 'thinking about both your commitments at this workplace and outside of work, do you agree or disagree with the following': 'I often find it difficult to do my job properly because of my commitments outside of work' (life interference with work) (5-point scale where 1=strongly disagree and 5=strongly agree; mean=1.99); and, 'I often find it difficult to fulfil my commitments outside of work because of the amount of time I spend on my job' (work interference with life) (5-point scale where 1='strongly disagree' and 5='strongly agree'; mean=2.76).

v) *Job-related mental health*. Using Warr's (1990) job-related mental health measure, employee survey respondents were asked: 'Thinking of the past few weeks, how much time has your job made you feel each of the following: tense/ depressed/ worried/ gloomy/ uneasy/ miserable?' (5-point scale coded 4='never' to 0='all of the time'). Responses were combined into a single scale (range 0-24; mean=17.94; Cronbach's $\alpha=0.91$), with higher values denoting higher levels of job-related mental health.

vi) *Job satisfaction*. This was based on eight items (see: Rose 2007) on a 5-point scale (coded from 0='very dissatisfied' to 4='very satisfied') that ask respondents 'how satisfied are you with the following aspects of your job?' (sample item: 'the sense of achievement you get from your work?'). These were combined into a single scale (range 0-32; mean=20.40; Cronbach's $\alpha=0.86$) with higher values denoting higher satisfaction.

vii) *Organisational commitment*. Following previous WERS-based studies (e.g. Ogbonnaya *et al.* 2017), this measure is based on three items in the employee survey that ask respondents to state how far they agree with the following statements: ‘I share many of the values of my organisation’; ‘I feel loyal to my organisation’; and ‘I am proud to tell people who I work for’ (5-point scale coded from 0=‘strongly disagree’ to 4=‘strongly agree’). These were combined into a single scale (range: 0-12; mean=8.42; Cronbach’s α =0.85).

Independent variables

i) *Working from home*. The working from home dependent variable outlined above was used as an independent variable in the equations evaluating whether working from home is associated with higher levels of job control, work-life balance, job-related mental health, job satisfaction, and organisational commitment.²

ii) *Proportion of the workforce working from home*. The individual-level question on working from home in the employee survey outlined above was used to calculate a workplace-level measure for the proportion of the workforce (at the workplace) that has worked from home in the past 12 months, by dividing the total number of respondents at the workplace who state they have worked from home by the total number of respondents at the workplace (mean=0.14). To reduce sampling error in workplaces where few respondents answered the working from home question, workplaces in which fewer than three respondents answered the question on working from home were dropped, resulting in the exclusion of a further 16 workplaces.

(iii) *Employees’ disability status*. As outlined above, employee survey respondents are asked ‘Are your day-to-day activities limited because of a health problem or disability that has lasted, or is expected to last, at least 12 months?’, with the following response options: ‘No’; ‘Yes, limited a little’; or ‘Yes, limited a lot’. We construct an employee-level categorical variable in which: 1=disabled employees (responding either ‘Yes, limited a little’

or ‘Yes, limited a lot’); and 0=non-disabled employees (mean=0.091).³ This mean is not dissimilar to the 11.9% reported within the Labour Force Survey (LFS) in 2011 (the largest UK household survey). Although LFS and WERS use slightly different definitions of activity-limiting disability, this nevertheless provides further reassurance regarding the reliability of the WERS measure.

Control variables

Means for the controls in the analysis are reported either in Table 2 or the Appendix Table. The workplace-level analysis included controls for: single independent workplace; log of workplace size; organizational size; Standard Industrial Classification (SIC) major group; national ownership; workplace age; standard statistical region; union recognition; proportion of workforce female, ethnic minority, aged 50 or over, part-time; proportion of workforce in each Standard Occupational Classification (SOC) major group. The individual-level analysis also included individual-level controls for: respondents’ SOC major group; weekly pay; marital status; age; job tenure; highest academic qualification; part-time, temporary or fixed-term contract; union membership; ethnicity; gender; and dependent children or caring responsibilities.

Analysis procedure

To explore whether disabled employees are more likely to work from home than non-disabled employees, we estimated a series of individual level equations where the dependent variable was the ‘working from home’ variable outlined above, and the independent variable was the employee’s disability status. Controls for workplace and individual characteristics were included in turn (with the SOC major group and pay band controls being included last to identify the influence of disabled employees’ segregation into lower-level job roles on their

propensity to work from home). Given the multi-level structure of the data whereby employee responses are nested within workplaces, multi-level mixed effects modelling incorporating both fixed and random effects was used. This allows the variance to be partitioned into within (Level 1) and between (Level 2) workplace variation, thus enabling between-workplace variance to be controlled for, thereby preventing assumptions of independent observations in multiple regression from being violated given the lack of independence between employees within a given workplace. In the fourth equation in Table 1 (the full model), the amount of variance due to between-workplace variation is 14.1% ($0.013 / [0.079 + 0.013]$).

To explore whether disabled employees cluster into workplaces in which working from home is more commonplace, a workplace-level equation was estimated where the dependent variable was the 'proportion of the workforce disabled' measure, the independent variable was the proportion of the workforce working from home, and the control variables were the workplace-level controls listed above. Fractional logit was used given the dependent variable is a proportion naturally bounded between 0 and 1 (Papke and Wooldridge 1996).

The association between working from home and disabled employees' experience of work was assessed in a series of individual-level equations in which the dependent variables were the job control measure, the two work-life balance measures, and the job-related mental health, job satisfaction, and organisational commitment measures described above. To first identify the existence of disability gaps regarding these measures, equations were estimated in which the independent variable was the respondent's disability status dichotomous variable, and the control variables were the workplace and individual-level controls described earlier. Multi-level mixed effects modelling was used given the multi-level structure of the data. In the equations in columns 1 and 4 of Table 4, the variance due to between-workplace

variation ranged from 1.5% ($0.008/[0.521+0.008]$) for life interference with work, to 12.6% ($0.633/[4.398+0.633]$) for organisational commitment.

To assess the association between working from home and the experience of work, the ‘working from home’ variable outlined above was then included in the equations. To assess the implications of working from home for disabled employees’ experience of work, ‘disabled x working from home’ interaction terms were added, with significance of the interaction term indicating whether working from home is associated with smaller disability gaps in the experience of work, and post hoc tests of the linear combination of the working from home main effect and the interaction effects then being calculated to show whether the working from home effect holds for both disabled and non-disabled employees.

To allow unbiased population estimates to be obtained, the workplace-level equations were weighted by the inverse of the workplace’s selection into the sample to account for the complex nature of the WERS survey design, in which larger workplaces and workplaces in certain industrial sectors were deliberately over-sampled. The individual-level equations were weighted by: the probability of selection of the respondent’s workplace into the main management sample; the respondent’s own probability of selection from the employee population at the workplace; and bias resulting from employee non-response. The weights were also scaled to ensure consistency across lower-level clusters. The scaling specified that first-level (observation-level) weights were scaled so they summed to the sample size of their corresponding second-level cluster.

4. Results

Table 1 explores whether disabled employees are more likely to work from home than non-disabled employees.

The first equation in Table 1 suggests that before individual and workplace characteristic controls are added, and contrary to some of the recent research (e.g. Schur *et al.* 2020), disabled employees are *less* likely to work from home than non-disabled employees ($\beta=-0.031$, $p<0.05$).⁴

However, as Table 2 demonstrates, disabled people are segregated into lower paid and non-managerial roles. As well as demonstrating the labour market disadvantage disabled people experience (thereby raising the question of what more needs to be done to increase disabled people's access to more privileged labour market positions), this segregation might also help explain why disabled people are less likely to work from home. Indeed, when individual-level controls (excluding controls for respondents' pay band and Standard Occupational Classification (SOC) major group) are added in the second equation in Table 1, the disabled employees' coefficient remains significantly negative ($\beta=-0.038$, $p<0.01$). It also remains significantly negative in the third equation once workplace-level controls are added ($\beta=-0.032$, $p<0.05$). It is only when controls are added for respondents' pay band and SOC major group in the fourth equation that the disabled employees coefficient becomes insignificant ($\beta=-0.007$, $p=\text{non-significant}$). This suggests that disabled employees are less likely to work from home than non-disabled employees given their exclusion (as demonstrated by Table 2) from higher pay bands and management SOC groups in which working from home is more prevalent.

INSERT TABLE 1 HERE

INSERT TABLE 2 HERE

Table 3 explores whether workforce disability prevalence is higher in workplaces where working from home is more commonplace. The results show there is no association

between the proportion of the workforce at the workplace who work from home and the prevalence of disabled people in the workforce ($\beta=-0.267$, $p=\text{non-significant}$). There is no evidence, therefore, of disabled employees clustering into workplaces in which working from home is more widely used.

INSERT TABLE 3 HERE

Table 4 presents the results regarding experiences of work. Confirming the disadvantage found in prior studies, the results in the first and fourth columns of Table 4 show disabled employees report less positive experiences of work than non-disabled employees. This includes lower job control ($\beta=-0.634$, $p<0.01$), greater life interference with work ($\beta=0.153$, $p<0.01$), greater work interference with life ($\beta=0.278$, $p<0.01$), lower job-related mental health ($\beta=-2.431$, $p<0.01$), and lower job satisfaction ($\beta=-1.747$, $p<0.01$). However, in support of Schur *et al.* (2017), disabled employees do not report lower organisational commitment than non-disabled employees ($\beta=-0.199$, $p=\text{non-significant}$).

INSERT TABLE 4 HERE

The relationship between working from home and the experience of work, and whether this relationship holds for disabled as well as non-disabled employees, is explored in columns 2, 3, 5 and 6 of Table 4. The equations in columns 2 and 5 show that, overall, employees working from home report higher job control ($\beta=1.608$, $p<0.01$), job-related mental health ($\beta=0.701$, $p<0.01$), job satisfaction ($\beta=1.926$, $p<0.01$), and organisational commitment ($\beta=0.796$, $p<0.01$) than employees not working from home. The equations in columns 3 and 6 show this holds for both disabled and non-disabled employees regarding: job

control (1.566, $p < 0.01$ (non-disabled employees); $1.566 + 0.634 = 2.200$, $p < 0.01$ (disabled employees)); job-related mental health (0.620, $p < 0.01$ (non-disabled employees); $0.620 + 1.196 = 1.816$, $p < 0.05$ (disabled employees)); job satisfaction (1.890, $p < 0.01$ (non-disabled employees); $1.890 + 0.532 = 2.422$, $p < 0.05$ (disabled employees)); and organisational commitment (0.768, $p < 0.01$ (non-disabled employees); $0.768 + 0.416 = 1.184$, $p < 0.01$ (disabled employees)). Working from home is therefore associated with benefits where these outcomes are concerned for both disabled and non-disabled employees.

However, columns 2 and 5 of Table 4 show working from home is, overall, not associated with lower life interference with work (0.040, $p = \text{non-significant}$), or with lower work interference with life (-0.054, $p = \text{non-significant}$). Columns 3 and 6 show this holds for both disabled and non-disabled employees (life interference with work: 0.052, $p = \text{non-significant}$ (non-disabled employees); $0.052 + (-0.190) = -0.138$, $p = \text{non-significant}$ (disabled employees); work interference with life: -0.043, $p = \text{non-significant}$ (non-disabled employees); $-0.043 + (-0.161) = -0.204$, $p = \text{non-significant}$ (disabled employees)).

Whether working from home is associated with smaller disability gaps in the experience of work is given by the 'disabled x working from home' interaction terms in columns 3 and 6 in Table 4. These are non-significant for: job control ($\beta = 0.634$, $p = \text{non-significant}$); job-related mental health ($\beta = 1.196$, $p = \text{non-significant}$); job satisfaction ($\beta = 0.532$, $p = \text{non-significant}$); and organisational commitment ($\beta = 0.416$, $p = \text{non-significant}$), though this latter finding is unsurprising given the absence of an organisational commitment disability gap (as reported above). Regarding work-life balance, the 'disabled x working from home' interaction term is non-significant for work interference with life ($\beta = -0.161$, $p = \text{non-significant}$), but is negatively significant for life interference with work ($\beta = -0.190$, $p < 0.05$). Hence, even though (as shown above) disabled employees working from home do not report lower life interference with work than disabled employees not working from home, working

from home is associated with a smaller disability gap in life interference with work.

Nevertheless, apart from this latter finding, Table 4 shows working from home is, overall, not associated with smaller disability gaps in the experience of work, suggesting it does not benefit disabled employees' experience of work disproportionately.⁵

5. Discussion and conclusion

This paper has assessed the implications of working from home for disabled employees' employment outcomes. First, it reported whether disabled employees are more likely to work from home than non-disabled employees, and whether workforce disability prevalence is higher in workplaces where working from home is more commonplace, as might be anticipated if it helps reduce the environmental and cultural barriers disabled people encounter. It also explored whether disabled employees' propensity to work from home is explained by their exclusion from certain workplaces or managerial and/ or higher-paying job roles. Second, responding to calls for research into the implications of working from home for disabled employees' experience of work (Schur *et al.* 2020), it provided a unique analysis of whether disabled employees working from home report better experiences of work than disabled employees not working from home, and whether working from home is associated with smaller disability gaps in the experience of work.

Our analysis produced several notable findings. Contrary to prior research (Kruse *et al.* 2011; Schur *et al.* 2013, 2020), we find disabled employees are not more likely to work from home than non-disabled employees. Indeed, we find they are *less* likely to do so. Reflecting the labour market disadvantage disabled people experience, we also demonstrate their lower propensity to work from home is explained by their disproportionate exclusion from privileged managerial and/ or higher-paying roles (Schur *et al.* 2020) within which working from home is more widely available (Budd and Mumford 2006; Felstead *et al.*

2002). This in turn raises the question, as noted earlier, of what more needs to be done to increase disabled people's access to more privileged labour market positions. We also find disabled employees do not cluster into workplaces in which working from home is more commonplace, thereby further suggesting working from home does not offer greater employment opportunities for disabled people. These findings highlight notable differences between the implications of working from home and other forms of flexible working for disabled people. Prior research suggests part-time employment helps disabled employees accommodate work-limiting disabilities (Jones 2007; Schur 2003), and given its widespread availability in job roles into which disabled employees cluster, it helps increase their employment opportunities. Working from home, by contrast, does not appear to have similar beneficial effects.

It remains open to question, however, why our results regarding disabled employees' relative likelihood of working from home differ from those of previous studies. One potential explanation relates to differences in how working from home is measured. Prior studies reporting disabled employees are more likely to work from home measure whether employees work *primarily* from home (Kruse *et al.* 2011; Schur *et al.* 2013: 55-7; Schur *et al.* 2020). In contrast, WERS asks respondents whether they have 'made use of working at or from home in normal working hours in the past 12 months'. Hence, it is also likely to capture hybrid working whereby employees work partially or infrequently from home. As argued earlier, in such instances disabled employees may encounter significant stigma-related cultural barriers and environmental barriers in the form of inaccessible transport and workplaces when working on-site; hence, the benefits to disabled employees of working partially or infrequently from home may be limited. Given the WERS measure likely captures more of this form of hybrid working, this may explain why our WERS-based results appear

less favourable than those of other studies. Further research is needed, nevertheless, to confirm this argument.

Against this, however, the way in which WERS measures disability suggests it should be *more* (not less) likely than prior studies to find disabled employees' propensity to work from home is higher than that of non-disabled employees. Prior studies reporting disabled employees are more likely to work from home use the *Washington Group Short Set* (WGSS) questions to measure disability. This invites respondents to indicate whether they have one or more of six broad categories of impairment (visual, hearing, cognitive, mobility impairments, difficulty with self-care, and difficulty going outside alone) (Schur *et al.* 2020: 524). By contrast, WERS uses the single question *Global Activity Limitation Indicator* (GALI) common across European surveys.

These different ways of measuring disability have important implications, with Amilon *et al.* (2021) showing the WGSS produces higher estimates of disability prevalence than the GALI, while the GALI measure (as used in WERS) captures a disproportionately higher proportion of people with severe mental health or physical health impairments. This in turn suggests that WERS-based studies should be more likely than those using the WGSS to find disabled people's propensity to work from home is higher than that of non-disabled people, given respondents defined as disabled in WERS may, given the severity of their impairment, have a particular need or desire to work from home. However, given we find the opposite, this might be viewed as increasing confidence in our conclusion that disabled employees are not more likely to work from home than non-disabled employees. Either way, the choice of disability measure appears to matter. Therefore, future studies should consider how this affects estimates of disabled people's propensity to work from home, and any outcomes associated with it.

Turning to the association between working from home and disabled employees' experience of work, our analysis revealed several notable findings. Consistent with prior studies, we found positive associations between working from home and employee perceptions of job control, job-related mental health, job satisfaction, and organisational commitment (Azar *et al.* 2018; Golden and Veiga 2005; Gajendran and Harrison 2007; Harker Martin and MacDonnell 2012), but not work-life balance (Allen *et al.* 2013; Delanoëje *et al.* 2019; Golden *et al.* 2006; Michel *et al.* 2011). We also demonstrated these findings hold for both disabled and non-disabled employees.

However, in support of prior research (Bruyère 2020; Hoque *et al.* 2018; Jones 2016a,b; Schur *et al.* 2013, 2017), we found significant disability gaps in these outcomes, thereby further highlighting the in-work disadvantage disabled employees experience. In addition, contrary to the arguments earlier that working from home might help reduce the environmental and cultural barriers to employment that disabled people encounter, we found working from home is not associated with smaller disability gaps in the experience of work (except for life interference with work). These findings therefore cast doubt on the ability of working from home to reduce disabled people's in-work disadvantage, thus raising the question regarding the additional accommodations that are needed for this disadvantage to be addressed.

However, these findings might also further explain why disabled employees are no more likely than non-disabled employees to work from home. If it disproportionately benefitted disabled employees' experience of work, it would be anticipated that disabled people would be more strongly attracted than non-disabled people into jobs allowing working from home. However, our findings suggest it enhances disabled and non-disabled employees' experience of work equally. Notwithstanding the exclusion of disabled people working on a

self-employed or independent contractor basis from our analysis, this may help explain why disabled people do not apparently sort into such jobs in proportionately greater numbers.

Our findings have important implications for policy and practice. Given working from home benefits employees as a whole, this suggests employers and governments should promote it for all (not just disabled) employees. Although the pandemic has demonstrated the feasibility of widespread working from home, legislation may be required to ensure it remains widely available. Options governments might consider include introducing legal rights for all employees to work from home, as in Finland's *Working Hours Act 2020*; or making flexible working the default for all jobs, as proposed in the UK's *Employment Bill 2019-20*. However, although working from home increased dramatically during the pandemic, it did not increase across all occupations and pay grades, and typically not within those into which disabled employees are segregated (see also: Schur *et al.* 2020). Therefore, if new legislation does not require employers to extend working from home significantly beyond the occupations and pay grades in which it is currently offered, its implications for disabled employees are likely to be minimal.

Nevertheless, even if working from home becomes more widely available across a wider range of job roles, our analysis suggests this will still not improve disabled people's employment outcomes relative to those of non-disabled people. This in turn highlights the danger in governments assuming that encouraging greater working from home will help to address disability disadvantage. Indeed, an inadvertent policy focus on working from home as a potential solution to disability disadvantage risks deflecting attention away from the need for more substantial action to address the broader environmental and cultural barriers to employment that disabled people encounter.

Two particular limitations to our study should be noted. First, despite the use of rich sets of individual and workplace controls, longitudinal analysis is ideally required to assess

whether the relationships we identify between working from home and the experience of work are causal in nature. This is important given employees who are already more committed or satisfied with their jobs, for example, may be granted greater opportunities to work from home, rather than working from home leading to these outcomes.

Second, as alluded to above, there are several caveats regarding the WERS measures. For example, the single general question on disability status prevents exploration of variation in the propensity to work from home by impairment type or severity (Schur *et al.* 2020). Also, the WERS working from home measure prohibits identification of the proportion of time worked from home, its frequency, and whether it is combined with on-site work. As outlined above, it is possible different working from home arrangements have differing implications for disabled employees. Additionally, as also outlined above, WERS focuses on mainstream employment in organisations with spatially bounded workplaces; hence, it excludes disabled people working from home on a self-employed or independent contractor basis, for whom working from home may have more positive implications than identified in our study. Further research should consider these groups to better inform understanding of how working from home might correlate with the experience of work for a more representative group of disabled workers. This might, for example, be important in understanding our finding that disabled employees do not cluster into workplaces in which working from home is more commonplace. It is possible disabled sole traders/self-employed contractors engaged at these workplaces may be working from home, but they will not have been included in the WERS data.

In conclusion, notwithstanding the caveats outlined above, our analysis suggests disabled employees are less likely to work from home than non-disabled employees, given their disproportionate exclusion from the managerial and/ or higher-paying jobs in which working from home is more widely available. Although disabled employees working from

home report better experiences of work than those not working from home, there is very little evidence it is associated with smaller disability gaps in the experience of work. Therefore, our analysis questions the potential for working from home to reduce disability disadvantage within organisations.

Notes

1. Respondents answering 'Don't know' were excluded. Respondents could also answer 'Available to me but I do not use'. These respondents were excluded given they might have consciously chosen not to work from home, or because they feel unable to do so given negative career implications, or logistical difficulties. Hence, this response cannot be categorised as either positive or negative. Nevertheless, we re-ran the analysis of disabled employee's relative likelihood of working from home reported in Table 1 including respondents answering 'Available to me but I do not use' in the 'not working from home' category. The results remained qualitatively the same.
2. Respondents answering 'Available to me but I do not use' were excluded, given an assessment of the implications of working from home requires a clear comparison between individuals working from home and those not doing so. Nevertheless, we re-ran the analysis of working from home and disabled/ non-disabled employees' experience of work reported in Table 4 including respondents answering 'Available to me but I do not use' in the 'not working from home' category. The results remained qualitatively the same.
3. If working from home is an effective accommodation it may affect whether an individual reports disability, and this may suppress any association between disability and working from home. However, this is potentially mitigated as the question focuses on day-to-day activities rather than just work.
4. To explore whether this relationship varies by gender, we re-estimated the equation in column 1 including a 'disabled x female' interaction term. This was non-significant, suggesting the relationship between disability and working from home does not vary between men and women.
5. To explore whether the relationships reported in Table 4 vary by gender, we re-estimated the equations in column 1 and 4 including 'disabled x female' interaction terms. These were non-significant in all of the equations, demonstrating the size of the disability gaps reported in these equations do not vary between disabled men and women. We also re-estimated the equations in columns 3 and 6 including 3-way 'disabled x working from home x female' interaction terms. These were also non-significant in all of the equations, showing the relationship between working from home and disability employment gaps reported in these equations does not vary between men and women.

References

- Allen, T.D., Golden, T.D. and Shockley, K.M. (2015). 'How effective is telecommuting? Assessing the status of our scientific findings.' *Psychological Science in the Public Interest*, 16(2): 40-68.
- Allen, T.D., Johnson, R.C., Kiburz, K.M. and Shockley, K.M. (2013). 'Work–family conflict and flexible work arrangements: Deconstructing flexibility.' *Personnel Psychology*, 66(2): 345-376.
- Amilon, A., Hansen, K.M., Aslaug Kjær, A. and Steffensen, T. (2021). 'Estimating disability prevalence and disability-related inequalities: Does the choice of measure matter?' *Social Science & Medicine*, 272, Article 113740.
- Anderson, J., Bricout, J.C. and West, M.D. (2001). 'Telecommuting: Meeting the needs of businesses and employees with disabilities.' *Journal of Vocational Rehabilitation*, 16(2): 97-104.
- Anand, P. and Sevak, P. (2017). 'The role of workplace accommodations in the employment of people with disabilities.' *IZA Journal of Labor Policy*, 6(12): 1-20.
- Åslund, O. and Nordström Skans, O. (2012). 'Do anonymous job application procedures level the playing field?' *Industrial & Labor Relations Review*, 65(1): 82-107.
- Azar, S., Khan, A. and Van Eerde, W. (2018). 'Modelling linkages between flexible work arrangements' use and organizational outcomes.' *Journal of Business Research*, 91: 134-143.
- Baker, P.M.A., Moon, N.W. and Ward, A.C. (2006). 'Virtual exclusion and telework: Barriers and opportunities of technocentric workplace accommodation policy.' *Work*, 27(4): 421-430.
- Baldrige, D.C. and Veiga, J.F. (2001). 'Toward a greater understanding of the willingness to request an accommodation: Can requesters' beliefs disable the Americans with Disabilities Act?' *Academy of Management Review*, 26(1): 85-99.
- Baldrige, D.C. and Veiga, J.F. (2006). 'The impact of anticipated social consequences on recurring disability accommodation requests.' *Journal of Management*, 32(1): 158-179.
- Barnes, C. (2000). 'A working social model? Disability, work and disability politics in the 21st century.' *Critical Social Policy*, 20(4): 441-457.
- Barnes, C. and Mercer, G. (2005). 'Disability, work, and welfare: challenging the social exclusion of disabled people.' *Work, Employment and Society*, 19(3): 527-545.
- Barnes, C. and Mercer, G. (2011). *Exploring Disability* (2nd edn). Cambridge: Polity.
- Beedon, L. (1992). 'Autonomy as a policy goal for disability and aging.' *Generations: Journal of the American Society on Aging*, 16(1): 79-81.

Blanck, P. (2014). *eQuality: The Struggle for Web Accessibility by Persons with Cognitive Disabilities*. Cambridge: Cambridge University Press.

BLS (2019). *American time use survey – 2018 result*. News Release.
<https://www.bls.gov/news.release/pdf/atus.pdf>

Bonaccio, S., Connelly, C.E., Gellatly, I.R., Jetha, A. and Martin Ginis, K.A. (2020). ‘The participation of people with disabilities in the workplace across the employment cycle: Employer concerns and research evidence.’ *Journal of Business and Psychology*, 35(2): 135-158.

Bricout, J.C. (2004). ‘Using telework to enhance return to work outcomes for individuals with spinal cord injuries.’ *NeuroRehabilitation*, 19(2): 147-159.

Bruyère, S.M. (2020). (Ed) *Employment and disability: Issues, innovations, and opportunities*. Labor and Employment Research Association, Cornell University Press.

Budd, J.W. and Mumford, K. (2006). ‘Family-friendly work practices in Britain: Availability and perceived accessibility.’ *Human Resource Management*, 45(1): 23-42.

Brynjolfsson, E., Horton, J., Ozimek, A., Rock, D., Sharma, G. and Yi Tu Ye, H. (2020). *COVID-19 and remote work: An early look at US data*.
<https://mitsloan.mit.edu/shared/ods/documents/?PublicationDocumentID=6322>

CIPD (2020). *Disability employment gap: Submission to the Work and Pensions Select Committee*. https://www.cipd.co.uk/Images/Disability%20employment%20gap_tcm18-89607.pdf

Colella, A. (2001). ‘Coworker distributive fairness judgments of the workplace accommodation of employees with disabilities.’ *Academy of Management Review*, 26(1): 100-116.

Delanoëje, J., Verbruggen, M. and Germeys, L. (2019). ‘Boundary role transitions: A day-to-day approach to explain the effects of home-based telework on work-to-home conflict and home-to-work conflict.’ *Human Relations*, 72(12): 1843-1868.

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

Dewson, S., Williams, C., Aston, J., Carta, E., Willison, R. and Martin, R. (2010). *Organisations’ responses to the Disability Discrimination Act: 2009 study*. Department for Work and Pensions. Norwich: Stationery Office.

Duval, A., Gulseren, D.B. and Kelloway, E.K. (2020). ‘Supporting employees with invisible disabilities via flexible work.’ In: Norgate, S.H. and Cooper, C.L. (eds) *Flexible work: Designing our healthier future lives*. New York: Routledge.

Equality and Human Rights Commission (2014) *Your rights to equality at work: Working hours, flexible working and time off*.

https://www.equalityhumanrights.com/sites/default/files/your_rights_working_hours_and_flexible_working.pdf

Felstead, A., Jewson, N., Phizacklea, A. and Walters, S. (2002). 'The option to work at home: another privilege for the favoured few?' *New Technology, Work and Employment*, 17(3): 204-223.

Felstead, A., Jewson, N. and Walters, S. (2003). 'Managerial control of employees working at home.' *British Journal of Industrial Relations*, 41(2): 241-264.

Frone, M.R., Russell, M. and Cooper, M.L. (1992). 'Antecedents and outcomes of work-family conflict: testing a model of the work-family interface.' *Journal of Applied Psychology*, 77(1): 65-78.

Gajendran, R.S. and Harrison, D.A. (2007). 'The good, the bad, and the unknown about telecommuting: Meta-analysis of psychological mediators and individual consequences.' *Journal of Applied Psychology*, 92(6): 1524-1541.

Gajendran, R.S., Harrison, D.A. and Delaney-Klinger, K. (2015). 'Are telecommuters remotely good citizens? Unpacking telecommuting's effects on performance via i-deals and job resources.' *Personnel Psychology*, 68(2): 353-393.

Golden, T.D. and Veiga, J.F. (2005). 'The impact of extent of telecommuting on job satisfaction: Resolving inconsistent findings.' *Journal of Management*, 31(2): 301-318.

Golden, T.D., Veiga, J.F. and Simsek, Z. (2006). 'Telecommuting's differential impact on work-family conflict: Is there no place like home?' *Journal of Applied Psychology*, 91(6): 1340-1350.

Harker Martin, B. and MacDonnell, R. (2012). 'Is telework effective for organizations? A meta-analysis of empirical research on perceptions of telework and organizational outcomes.' *Management Research Review*, 35(7): 602-616.

Hill, E.J., Ferris, M. and Mårtinson, V. (2003). 'Does it matter where you work? A comparison of how three work venues (traditional office, virtual office, and home office) influence aspects of work and personal/family life.' *Journal of Vocational Behavior*, 63(2): 220-24.

Hoque, K., Wass, V., Bacon, N. and Jones, M. (2018). 'Are high performance work practices enabling or disabling? Exploring the relationship between selected HPWPs and work-related disability.' *Human Resource Management*, 57(2): 499-513.

House of Commons (2021). *Disabled people in employment*. Briefing Paper Number 7540, 1 April.

Jackson, P.R., Wall, T.D., Martin, R. and Davids, K. (1993). 'New measures of job control, cognitive demand, and production responsibility.' *Journal of Applied Psychology*, 78(5): 753-762.

Jones, M.K. (2007). 'Does part-time employment provide a way of accommodating

a disability?' *The Manchester School*, 75(6): 695–716.

Jones, M. (2016a). 'Disability and labor market outcomes.' *IZA World of Labor*: 253 doi: 10.15185/izawol.253.

Jones, M. (2016b). 'Disability and perceptions of work and management.' *British Journal of Industrial Relations*, 54(1): 83-113.

Jones, M., Hoque, K., Wass, V. and Bacon, N. (2020). 'Inequality and the economic cycle: Disabled employees' experience of work during the Great Recession in Britain.' *British Journal of Industrial Relations*, online first published: 26 November 2020.

Kossek, E.E., Lautsch, B.A. and Eaton, S.C. (2006). 'Telecommuting, control, and boundary management: Correlates of policy use and practice, job control, and work-family effectiveness.' *Journal of Vocational Behavior*, 68(2): 347-67.

Kruse, D., Schur, L., Han, K. and Kim, A. (2011). *Employer demand for alternative workers and work arrangements*. Syracuse, NY: Syracuse University, Burton Blatt Institute.

Linden, M. (2014). 'Telework research and practice: Impacts on people with disabilities.' *Work*, 48(1): 65-7.

Mackett, R.L. (2017). 'Building confidence-improving travel for people with mental impairments.' https://www.researchgate.net/publication/322100204_Building_Confidence-Improving_travel_for_people_with_mental_impairments

McNaughton, D., Rackensperger, T., Dorn, D. and Wilson, N. (2014) 'Home is at work and work is at home': Telework and individuals who use augmentative and alternative communication.' *Work*, 48(1): 117-126.

Michel, J.S., Kotrba, L.M., Mitchelson, J.K., Clark, M.A. and Baltes, B.B. (2011). 'Antecedents of work–family conflict: A meta analytic review.' *Journal of Organizational Behavior*, 32(5): 689-725.

OECD (2010). *Sickness, disability and work: Breaking the barriers: A synthesis of findings across OECD Countries*. OECD Publishing, Paris. <https://doi.org/10.1787/9789264088856-en>

Ogbonnaya, C., Daniels, K. and Nielsen, K. (2017). 'Does contingent pay encourage positive employee attitudes and intensify work?' *Human Resource Management Journal*, 27(1): 94-112.

Oliver, M. (1990). *The politics of disablement*. Basingstoke: Macmillan.

ONS, (2020a). *Coronavirus and homeworking in the UK labour market: 2019*. Office for National Statistics. <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/coronavirusandhomeworkingintheuklabourmarket/2019>

ONS, (2020b). *Coronavirus and the social impacts on Great Britain: 29 May 2020*. Office for National Statistics.
<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandwellbeing/bulletins/coronavirusandthesocialimpactsongreatbritain/29may2020>

Pagan, R. (2018). 'Are workers with disabilities more likely to be constrained in their working hours.' *Employee Relations*, 40(3): 529-548.

Papke, E. and Wooldridge, J.M. (1996). 'Econometric methods for fractional response variables with an application to 401(k) plan participation rates.' *Journal of Applied Econometrics*, 11(6): 619-632.

Rose, M. (2007). 'Job satisfaction.' In Whitfield, K. and Huxley, K. eds. *Innovations in the 2004 Workplace Employment Relations Survey* (Cardiff University, Cardiff), 162-174.

Schmidt, M.A. and Smith, D.L. (2007). 'Individuals with disabilities perceptions on preparedness for the workforce and factors that limit employment.' *Work*, 28(1): 13-21.

Schur, L.A. (2003). 'Barriers or opportunities? The causes of contingent and part-time work among people with disabilities.' *Industrial Relations*, 42(4): 589-622.

Schur, L.A., Ameri, M. and Kruse, D. (2020). 'Telework after COVID: A "silver lining" for workers with disabilities?' *Journal of Occupational Rehabilitation*, 30(4): 521-536.

Schur, L., Han, K., Kim, A., Ameri, M., Adya, M., Blanck, P. and Kruse, D. (2017). 'Disability at work: A look back and forward.' *Journal of Occupational Rehabilitation*, 27(4): 482-497.

Schur, L., Kruse, D. and Blanck, P. (2013). *People with disabilities: Sidelined or mainstreamed?* Cambridge: Cambridge University Press.

Schur, L., Nishii, L., Adya, M., Kruse, D., Bruyère, S.M. and Blanck, P. (2014). 'Accommodating employees with and without disabilities.' *Human Resource Management*, 53(4): 593-621.

Scope (2014). *A million futures: Halving the disability employment gap*. London: Scope.

SHRM (2016). *2016 Employee Benefits: Looking Back at 20 Years of Employee Benefits Offerings in the U.S.* <https://www.shrm.org/hr-today/trends-and-forecasting/research-and-surveys/pages/2016-employee-benefits.aspx>

Smeaton, D., Ray, K. and Knight, G. (2014). *Costs and benefits to business of adopting work life balance working practices: A literature review*. Department for Business, Innovation and Skills. London.

Solanke, I. (2017). *Discrimination as stigma: A theory of anti-discrimination law*. Oxford: Hart.

Stone, D. and Colella, A. (1996). 'A model of factors affecting the treatment of disabled individuals in organizations.' *The Academy of Management Review*, 21(2): 352-401.

Unison (2020). 'Covid-19 and disabled workers: Time for a home working revolution.'
<https://www.unison.org.uk/content/uploads/2020/08/Covid19-and-disabled-workers-Time-for-a-home-working-revolution.docx>

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*. London, England: Palgrave Macmillan.

Warr, P. (1990). 'The measurement of well-being and other aspects of mental health.'
Journal of Occupational Psychology, 63(3): 193-210.

West, M.D. and Anderson, J. (2005). 'Telework and employees with disabilities: Accommodation and funding options.'
Journal of Vocational Rehabilitation, 23(2): 115-122.

Williams, B., Copestake, P., Eversley, J. and Stafford, B. (2008). *Experiences and expectations of disabled people*. London: Office for Disability Issues.

Yelin, E., Nevitt, M. and Epstein, W. (1980). 'Toward an epidemiology of work disability.'
Milbank Memorial Fund Quarterly: Health and Society, 58(3): 386-415.

Table 1: Working from home and disability status

Dependent variable: working from home				
Disabled	-0.031 (0.016)**	-0.038 (0.016)***	-0.032 (0.015)**	-0.007 (0.014)
Individual-level controls ¹	NO	YES	YES	YES
Workplace controls	NO	NO	YES	YES
<i>SOC major group (reference category: Manager or senior official)</i>				
Professional				-0.062 (0.032)*
Associate professional or technical				-0.040 (0.031)
Administrative and secretarial				-0.118 (0.030)***
Skilled trades				-0.180 (0.031)***
Caring, leisure and other personal service				-0.150 (0.032)***
Sales and customer service				-0.149 (0.032)***
Process, plant and machine operatives and drivers				-0.149 (0.031)***
Routine occupations				-0.169 (0.039)***
<i>Pay band (p.w.) (reference category: £60 or less)</i>				
£61-£100				0.038 (0.027)
£101-£130				0.027 (0.022)
£131-£170				-0.009 (0.024)
£171-£220				-0.013 (0.024)
£221-£260				-0.010 (0.033)
£261-£310				-0.024 (0.034)
£311-£370				-0.031 (0.035)
£371-£430				-0.005 (0.040)
£431-£520				0.005 (0.043)
£521-£650				0.074 (0.047)
£651-£820				0.230 (0.054)***
£821-£1,050				0.290 (0.066)***
£1,051+				0.414 (0.064)***
Wald chi2	3.96	233.75	753.73	1434.03
Prob > chi2	0.047	0.000	0.000	0.000
Level 1 intercept	0.041	0.032	0.016	0.013
Level 2 intercept	0.094	0.090	0.089	0.079

Notes:

*** p<0.01; ** p<0.05; * p<0.1.

Mixed effects multilevel model.

N=14,312

¹ excluding SOC major group and pay band

Table 2: Sorting of disabled and non-disabled employees by SOC major group and pay band

	Full sample n=14,312	Non-disabled n=12,950	Disabled n=1,362
<i>Respondent's SOC major group</i>			
Manager or senior official	0.081	0.085	0.039
Professional	0.172	0.176	0.126
Associate professional or technical	0.158	0.160	0.146
Administrative and secretarial	0.173	0.171	0.197
Skilled trades	0.070	0.069	0.078
Caring, leisure and other personal service	0.080	0.078	0.095
Sales and customer service	0.078	0.076	0.095
Process, plant and machine operatives and drivers	0.071	0.070	0.087
Routine occupations	0.117	0.115	0.137
<i>Pay band (p.w.)</i>			
£60 or less	0.025	0.025	0.027
£61-£100	0.035	0.035	0.038
£101-£130	0.031	0.030	0.042
£131-£170	0.042	0.041	0.054
£171-£220	0.063	0.063	0.065
£221-£260	0.069	0.069	0.077
£261-£310	0.096	0.093	0.123
£311-£370	0.111	0.109	0.125
£371-£430	0.111	0.110	0.120
£431-£520	0.115	0.114	0.120
£521-£650	0.107	0.108	0.096
£651-£820	0.083	0.087	0.048
£821-£1,050	0.052	0.053	0.042
£1,051+	0.059	0.063	0.024

SOC major group disabled vs. non-disabled: $\chi^2=75.63$, $p<0.01$.

Pay band disabled vs. non-disabled: $\chi^2=83.20$, $p<0.01$.

Table 3: Relationship between the proportion of the workforce working from home and workforce disability prevalence

	Proportion of the workforce disabled
Proportion of workforce working from home	-0.267 (0.444)
F	3.82
Prob>F	0.000
N	1,552

Notes:

Coefficients given, robust standard errors in brackets

Fractional logit model

Workplace level controls included

Table 4: Working from home, disability, and experience of work

Column	1	2	3	4	5	6
		Job control		Life interference with work		
Disabled	-0.634*** (0.190)	-0.625*** (0.190)	-0.705*** (0.218)	0.153*** (0.047)	0.153*** (0.047)	0.176*** (0.052)
Working from home		1.608*** (0.137)	1.566*** (0.142)		0.040 (0.040)	0.052 (0.041)
Disabled x working from home			0.634 (0.411)			-0.190** (0.093)
Wald chi ²	1645.83	1935.66	1933.76	277.65	278.11	280.45
Prob>chi ²	0.000	0.000	0.000	0.000	0.000	0.000
Level 1 intercept	10.157	10.009	10.006	0.521	0.521	0.520
Level 2 intercept	0.620	0.508	0.508	0.008	0.007	0.007
N	14,043	14,043	14,043	14,270	14,270	14,270
		Work interference with life		Job-related mental health		
Disabled	0.278*** (0.056)	0.278*** (0.056)	0.297*** (0.065)	-2.431*** (0.365)	-2.426*** (0.366)	-2.574*** (0.431)
Working from home		-0.054 (0.062)	-0.043 (0.061)		0.701*** (0.238)	0.620*** (0.238)
Disabled x working from home			-0.161 (0.197)			1.196 (0.750)
Wald chi ²	799.54	805.67	810.24	696.33	723.39	727.38
Prob>chi ²	0.000	0.000	0.000	0.000	0.000	0.000
Level 1 intercept	1.000	1.000	1.000	21.353	21.313	21.295
Level 2 intercept	0.078	0.078	0.079	1.717	1.712	1.723
N	14,293	14,293	14,293	14,108	14,108	14,108
		Job satisfaction		Organisational commitment		
Disabled	-1.747*** (0.355)	-1.738*** (0.365)	-1.806*** (0.443)	-0.199 (0.123)	-0.197 (0.124)	-0.251* (0.149)
Working from home		1.926*** (0.306)	1.890*** (0.307)		0.796*** (0.119)	0.768*** (0.116)
Disabled x working from home			0.532 (0.936)			0.416 (0.447)
Wald chi ²	753.39	808.41	819.20	746.03	778.13	778.51
Prob>chi ²	0.000	0.000	0.000	0.000	0.000	0.000
Level 1 intercept	25.361	25.058	25.054	4.398	4.358	4.356
Level 2 intercept	3.499	3.465	3.468	0.633	0.606	0.606
N	13,665	13,665	13,665	13,953	13,953	13,953

Notes:

Coefficients given, robust standard errors in brackets.

*** p<0.01, ** p<0.05, * p<0.1. Mixed effects multilevel model.

Workplace and individual level controls included.

Appendix table. Control variable means

Workplace level controls (n=1,552)	
Single independent workplace	0.395
Log of workplace size	2.842
Organisational size (employees)	
5-49	0.468
50-249	0.113
250-499	0.044
500-999	0.040
1,000-4,999	0.120
5,000-9,999	0.071
10,000+	0.143
SIC Major group	
Manufacturing	0.097
Electricity, gas, steam, and air conditioning supply	0.001
Water supply; sewerage, waste management and remediation activities	0.004
Construction	0.039
Wholesale and retail trade; repair of motor vehicles and motorcycles	0.235
Accommodation and food service activities	0.035
Transport and storage	0.070
Information and communication	0.032
Financial and insurance activities	0.009
Real estate activities	0.027
Professional, scientific and technical activities	0.082
Administrative and support service activities	0.039
Public administration and defence; compulsory social security	0.029
Education	0.084
Human health and social work activities	0.157
Arts, entertainment and recreation	0.029
Other service activities	0.029
National ownership	
UK	0.935
North American	0.023
European Union	0.031
Rest of World	0.010
Workplace Age (years)	
0 to <5	0.094
5 to <10	0.187
10 to <20	0.248
20+	0.472
Standard statistical regions	
North	0.046
Yorkshire and Humberside	0.075
East Midlands	0.084
East Anglia	0.033
South East	0.311
South West	0.110
West Midlands	0.101
North West	0.097
Wales	0.039
Scotland	0.103
Union recognition	0.249
Proportion of workforce:	
Female	0.553
Ethnic minority	0.060
Aged 50+	0.255

Part-time	0.303
Proportion of workforce in SOC major group	
Professionals	0.097
Associate professional/ technical occupations	0.101
Administrative and secretarial occupations	0.138
Skilled trades occupations	0.061
Caring, leisure and other personal service occupations	0.123
Sales and customer service occupations	0.150
Process, plant, and machine operatives and drivers	0.066
Routine occupations	0.097
Additional controls for individual level analysis (n=14,312)¹	
Marital status	
Single	0.221
Married	0.693
Divorced/ separated/ widowed	0.086
Respondent age (years)	
16-21	0.045
22-29	0.169
30-39	0.217
40-49	0.269
50-59	0.223
60-65	0.059
65+	0.020
Respondent's job tenure (years)	
<1	0.120
1 to <2	0.108
2 to <5	0.254
5 to <10	0.251
10+	0.268
Highest academic qualification	
None	0.074
Other	0.022
GCSE grade D-G	0.055
GCSE grade A-C	0.199
A-level	0.242
Degree	0.312
Higher degree	0.097
Part-time	0.274
Temporary/ fixed-term contract	0.065
Union member	0.293
Ethnicity	
White	0.922
Mixed	0.012
Asian or Asian British	0.039
Black	0.019
Other	0.007
Female	0.511
Respondent has dependent child/ caring responsibilities	0.480

¹ For means of Standard Occupational Classification and pay band controls, see Table 2.