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CRediT authorship contribution statement

Melanie K. Jones: Conceptualization, Methodology, Software, Validation, Formal analysis, Data curation, Writing - original draft, Writing - review & editing, Visualization.

COVID-19 and the labour market outcomes of disabled people in the UK

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Keywords: Disability; COVID-19; furlough; employment.

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Abstract

The economic impact of COVID-19 has exacerbated inequalities in society, but disability has been neglected. This paper contributes to this knowledge gap by providing a comprehensive analysis of the differential labour market impact of COVID-19 by disability in the UK. Using data from the Labour Force Survey before and during the pandemic it estimates disability gaps in pre-pandemic risk factors, as well as changes in labour market inequality nearly one year on. Disabled workers are found to face higher COVID-19-related economic and health risks, including being more likely to work in 'shutdown' industries, and in occupations with greater proximity to others and exposure to disease. However, established measures of inequality, including the disability employment and pay gap suggest limited impact of COVID-19 in 2020. Nevertheless, the increase in the probability of being temporarily away from work, even among otherwise comparable workers, is 40% higher for disabled workers and consistent with disproportionate use of the government's job retention scheme. While the reasons for this are likely to be complex, there is a risk that it will contribute to future disability-related labour market inequality.

Keywords: Disability; COVID-19; furlough; employment.

1. Introduction

One of the defining features of COVID-19 has been the way it has reinforced inequalities in society, including in the UK. While attention focused most immediately on ethnicity because of dramatic differences in health risk (see Platt and Warwick, 2020) there was subsequent concern relating to gender due to the associated closure of schools and additional childcare responsibilities (see, Hupkau and Petrongolo, 2020) and age as a consequence of pronounced job losses among young people (see, Wilson and Papoutsaki, 2021). In contrast, disability has been largely neglected. Indeed, in a comprehensive analysis of COVID-19 on inequality in the UK by Blundell *et al*. (2020) which documented variation in labour market outcomes by socio-economic status, education, age, gender and ethnicity, disability is not mentioned. This is despite disabled people representing nearly 20% of the UK working-age population, being subject to some of the most profound and persistent labour market inequality pre-pandemic (Baumberg *et al*. 2015), and broader United Nations calls for a disability-inclusive COVID-19 government response.

In the UK, the Office of National Statistics (ONS) provided early statistical evidence relating to disability and health risks, and social isolation during COVID-19. Conditional on other risk factors (including underlying health conditions), the risk of death due to COVID-19 was found to be significantly higher for disabled compared to non-disabled people (ONS, 2021a). Disabled people also reported a more detrimental impact of COVID-19 on their life and wellbeing than non-disabled people (ONS, 2021b). The relative absence of disability in evidence on economic inequality is, however, consistent with broader neglect of the economic contribution of disabled people and dearth of labour market analysis relative to other protected characteristics (Jones and Wass, 2013), including in relation to the economic cycle (Jones *et al*., 2021).

This paper aims to address this knowledge gap by providing the first comprehensive analysis of the impact of COVID-19 on disability-related labour market inequality. We do this in the context of the UK, and provide evidence to December 2020, just less than one year into the pandemic. Building on a series of studies relating to other protected characteristics (for example, Blundell *et al*., 2020 and Platt and Warwick, 2020) we use data from the Quarterly Labour Force Survey (QLFS) to explore the differential labour market impact by disability in two stages. First, we use pre-pandemic (2019) data to estimate relative COVID-19 work-related economic and health risks by disability. For example, we explore economic risks such as working in a shutdown industry and health risks including exposure to disease. We estimate both raw disability gaps and those adjusted for other personal characteristics. Subsequently we

compare labour market outcomes in 2020 with those in 2019 to explore the differential labour market impact, including in relation to economic status, proxies for 'furlough' (the UK governments coronavirus job retention scheme (JRS) – see Adams-Prassl *et al*., 2020b), working reduced hours, working from home and pay. Again, we consider disability gaps before and after accounting for other characteristics, including occupational and industrial risks, in order to identify aggregate gaps and those among 'comparable workers'. Such evidence is clearly timely and relevant to policy designed to improve disability-related labour market equality, particularly the government's recent National Disability Strategy (NDS) and current 'levelling up' agenda.

Based on pre-COVID-19 job characteristics we find that, relative to comparable non-disabled workers, disabled workers face higher COVID-19-related economic and health risks. This includes a higher probability of working in a shutdown industry, and being in an occupation with greater proximity to others and exposure to disease. The likely protection provided by homeworking is unclear, with disabled workers more likely to work from home but to be employed in occupations with less homeworking potential. Established indicators of labour market inequality including the disability employment gap (DEG) and disability pay gap (DPG), however, show little change in 2020. In contrast, the increase in the probability of being temporarily away from work (which includes those on the government JRS) is about 40 percent larger for disabled workers even after accounting for differences in work-related characteristics. While potentially reducing the short-term labour market impact of COVID-19 on disability inequality, the risk is that some longer-term consequences of this remain.

The remainder of the paper is structured as follows. Section 2 provides a brief overview of pre-existing disability-related labour market inequality in the UK and early international evidence on disability inequality and COVID-19. Data from the QLFS and measures used in this analysis are introduced in Section 3 and the statistical analysis applied is outlined in Section 4. Section 5 presents our findings in relation to the labour market impact of COVID-19 by disability and Section 6 briefly concludes.

2. Pre and early pandemic disability-related labour market inequality

Disabled people in the UK experience some of the most pronounced labour market inequality of all groups protected under the 2010 Equality Act. Academic and policy attention has focused on the DEG, the percentage point difference in the employment rate between disabled and non-disabled people, which at about 30 percentage points is both large and enduring (see, for example, Baumberg *et al*., 2015). Conditional on employment, disabled workers have also been

found to be more likely to work part-time (Jones, 2007) and in self-employment (Jones and Latreille, 2011) with these differences potentially leading to greater susceptibility to COVID-19-related labour market consequences (see, Blundell *et al*. 2020 for evidence on the disproportionate impact on the self-employed). Further, there is evidence of a sizeable DPG (Longhi *et al*., 2012) likely to reinforce this sensitivity given evidence of a disproportionate COVID-19 impact on the low paid (see, Blundell *et al*. 2020). Disability gaps in labour market outcomes are typically smaller, but remain evident, after the adjustment for other observable personal and (where relevant) work-related characteristics, consistent with disability-related labour market inequality. In contrast, industrial and occupational segregation by disability, particularly important given the sectoral impact of COVID-19, has not been extensively explored.

Evidence related to the impact of the economic cycle on disability inequality is useful in anticipating the impact of the COVID-19 as an economic contraction. Internationally disabled people have been found to be 'first fired, last hired' (Kruse and Schur, 2003), with US evidence relating to the financial crisis confirming that disabled workers were more likely to be displaced (Mitra, and Kruse, 2016). In the UK, Jones *et al*. (2021) explore the in-work experience of the financial crisis, finding comparable disabled employees more likely to report recession-induced changes to workload, work organisation, wages and access to training than their non-disabled counterparts, a possible reflection of employers' greater ability to discriminate in a downturn and/or changing priorities from equality towards performance. Nevertheless, while providing important context, COVID-19 is distinct from previous downturns in the speed of contraction and subsequent recovery, its dramatic sectoral impact, and the extent of government support. The latter, particularly the JRS designed to cushion job loss in the UK, is anticipated to limit the impact on employment (and the DEG) relative to similar cyclical contractions. COVID-19 has, however, also brought wider changes in the social and physical environment, benefit system and healthcare, potentially with differential effects by disability. Where these disproportionately affect disabled people, disability gaps in the labour market impact of COVID-19 are likely to be magnified.

In relation to the impact of COVID-19, while the evidence on other protected characteristics including gender and ethnicity has grown rapidly, including in the UK, the international evidence on disability is scarce. In terms of pre-COVID-19 risk factors, Schur *et al*. (2020) highlight the potential benefits of flexible working arrangements, particularly working from home, for disabled people. However, while they find disabled workers in the US are more likely to primarily work from home in their current role, they argue the potential

impact of increased homeworking is more limited since disabled workers are less likely to be employed in occupations with high homeworking potential. In the UK, Hoque and Bacon (2021) find that, in 2011, disabled employees are no more likely to work from home than comparable non-disabled employees. They set out conflicting arguments in relation to the benefits of homeworking for disabled people but confirm the restricting role of the less skilled occupational distribution among disabled workers. The additional health risks posed by COVID-19 may, however, create or exacerbate a pre-existing disability gap in the benefits of homeworking, leading to a differential increase during COVID-19.

In terms of early economic outcomes, Houtenville *et al*. (2021) use data from the US Current Population Survey to track employment rates for disabled and non-disabled people from February 2020 to January 2021 and find largely common trends. Using the same data but restricting their analysis to people in work within the last 12 months, Schur *et al*. (2021) instead find that the DEG increased during COVID-19, partially due to differential occupation-related risks. In the UK, Citizens Advice (2020) report, on the basis of a survey of 6,015 people, a higher risk of redundancy among disabled workers between June and July 2020, that increases with disability severity (particularly those required to 'shield'). Using national data from the COVID-19 monthly (April-June 2020) surveys of Understanding Society, Emerson *et al*. (2021) further explore the initial impact of COVID-19 and find that disabled people (albeit defined several years prior) were more likely than non-disabled people to work reduced hours and experience greater financial stress, as measured by food poverty, debt and self-assessed financial circumstances. These differences are reduced but not eliminated by controlling for basic demographic characteristics and pre-lockdown financial status. In contrast, they find no differences in redundancy rates or job loss. Importantly, however, the analysis does not control for established COVID-19 work-related risk factors, including industry and occupation. Finally, in evidence to the UK Work and Pensions Committee Inquiry into the DEG submitted during the development of this paper, Roberts *et al*. (2021) find no significant change in the DEG but a disproportionate increase in disabled people being away from work based on descriptive statistics from the QLFS from January 2018 until September 2020. They suggest a higher prevalence of disabled workers in part-time, insecure jobs and in sectors at high risk as potential drivers, something we explore in the multivariate analysis which follows.

The early UK evidence therefore tentatively suggests a disproportionate labour market impact of COVID-19 on disabled people. It is, however, limited in both scope and depth, with studies typically relying on descriptive statistics, sometimes based on relatively small samples, non-standard measures, periods early in the pandemic and undertaking limited pre-pandemic

comparison. This paper starts to address these limitations by using large-scale, nationally representative data, to analyse a comprehensive range of established indicators by disability as defined by legislation. Following Blundell *et al*. (2020) we first assess the potential differential impact based on pre-pandemic disability gaps in established COVID-19-related economic and health risk factors. We then trace changes in disability gaps in labour market outcomes post-pandemic, including national measures of disability inequality in employment status and pay (the latter highlighted by Schur *et al*., 2021 as important for future COVID-19-related research), as well as proxies for government employment support, changes in hours and homeworking. Our analysis considers the period up to the end of 2020, nearly a year post-pandemic, and extends the focus of the early literature beyond immediate short-term changes. Given the consistency of the QLFS over time, we utilise information pre-pandemic as a comparator and explore the influence of pre-existing trends. Importantly, we build on the disability inequality literature, to explore the extent to which disability gaps arise due to disability *per se* or pre-existing factors, including prior labour market disadvantage. In doing so, we extend the literature on disability inequality to consider whether this profound external health and economic shock compounded existing inequalities and contribute new evidence on disability to the growing literature on COVID-19-related labour market inequality (see Adams-Prassl *et al*., 2020a; Blundell *et al*., 2020 and Platt and Warwick, 2020 for the UK). Such evidence is clearly important to the NDS, and the government aim to get 1 million more disabled people into work by 2027.

3. The Quarterly Labour Force Survey (QLFS)

We use data from the QLFS (ONS, 2020), the largest nationally representative household survey in the UK, which contains comprehensive information on personal and work-related characteristics and has been extensively used for analysis of disability (for example, Baumberg *et al*. 2015) and to track the early impact of COVID-19 (for example, Blundell *et al*., 2020). It has several advantages in this context. It contains comparable data before and during COVID-19, including detailed information on occupation and industry to control for recognised risk factors. Critically it collects information on disability according to an established definition aligned to legislation, and for a large enough sample to perform robust analysis. A further advantage is that we track labour market outcomes using conventional measures that can be compared pre-pandemic. The trade-off is, however, that, unlike specialised surveys, current versions of the QLFS do not contain tailored COVID-19-related measures. COVID-related

questions added to the QLFS are currently classed as experimental, with access restricted (ONS, 2021c).

The QLFS has a rotational panel design such that, in every quarter, 20 percent of individuals are in their first wave and 20 percent are in their fifth and final wave. Two separate datasets are constructed for this analysis. First, to explore risk factors, an annual 2019 (pre-COVID-19) cross-sectional dataset is created by pooling individuals in their first or final wave across the four constituent quarters. Second, to explore the labour market impact, individuals in wave 5 are retained across the four quarters in 2019 and 2020 (the maximum post-pandemic period available at the time of writing). The restriction to individuals in wave 5 has two advantages. First, we utilise two independent annual cross sections. Second, it was particularly wave 1 data collection undertaken via face-to-face interviews which were replaced with telephone interviews, that was directly affected by COVID-19. The trade-off is that the wave 5 sample is most affected by attrition across QLFS panel element. Our findings are, however, robust to a series of changes, including pooling individuals in wave 1 and 5, and given COVID-19-related changes in sample composition (see, ONS, 2020b), additionally controlling for housing tenure (see Appendix Table A.5). Throughout we define post-COVID-19 as after the initial national lockdown (23rd March 2020) and principally compare this to the same period one year earlier (pre-COVID-19). This captures the initial national lockdown and relaxation, and subsequent devolved local and national restrictions in Autumn 2020. Albeit subject to a series of changes (including generosity), the government JRS operated throughout this period. Our sample is restricted to working-age individuals (aged 16-65) throughout, with additional restrictions imposed depending on the precise measure analysed (see below).

Given evidence of diverging pre-COVID-19 trends, particularly narrowing of the DEG (see Appendix Figure A.2), in additional specifications we extend our pre-COVID-19 period to the same period each year from 2013 (the longest period over which disability is consistently measured) to control for pre-existing convergence/divergence in disability gaps which would otherwise potentially bias our estimate of the impact of COVID-19.

Disability

Disability is defined according to the 2010 Equality Act where a long-term health problem substantially limits day-to-day activities. Individuals are asked ‘Do you have any physical or mental health conditions or illnesses lasting or expecting to last 12 months or more?’. Those who respond positively are then asked ‘Does your condition or illness reduce your ability to carry out day-to-day activities?’ to which individuals can respond *Yes, a little*; *Yes, a lot*; and

Not at all. As per guidance from the UK Government Statistical Service on the Equality Act 2010, those who respond yes to the first and second question (either a little or a lot) are defined as disabled (see ONS, 2021c). Remaining individuals form the non-disabled group. As is typical in the literature, we predominately focus on this global, binary measure. However, since individuals indicate the nature of their health problem(s) from a list 17 (18 in 2020) responses, in a similar manner to Jones *et al*. (2018), we construct a measure of severity based on multiple health problems and use information on the main health problem to create a measure of physical versus mental impairment (see Appendix Table A.2 for definitions). In sensitivity analysis we explore impairment further by disaggregating it into 5 groups (see Appendix Table A.7).

While widely used, there are well-established limitations of using self-reported information on disability for labour market analysis. First, given the individual nature of the threshold for defining a health condition as limiting, self-reported information will suffer from measurement error and likely downward bias estimates. Second, offsetting this, if disability is used to justify inferior economic outcomes, disability inequality will be overestimated (see Bound, 1991).

While disability has been on a rising trend in the UK since 2013, it is possible that COVID-19 itself (particularly long-COVID) increased disability prevalence in 2020. COVID-19 might have also influenced disability reporting, although the direction of this is less clear. While there are potential incentives to over-report disability, such as to justify government support, there are likely to be opposing pressures given greater stigma/increased COVID-19-related economic risks. A significant increase in disability prevalence among the working-age population, from 19.3 to 20.1 percent pre- and post-COVID-19, is evident in the QLFS but this seems to follow a rising trend from 2016 rather than reflect a distinct COVID-19-related increase (see Appendix Figure A.1). In terms of type and severity, the increase is evident among those with multiple impairments and impairments relating to breathing and organs, and other.

Pre-pandemic Economic and Health Risk Factors

The impact of COVID-19 is separated into 2019 *risk factors* and changes in *outcomes* pre- and post-COVID-19. In defining the former we use established measures based on analysis of the early impact of COVID-19 (see Appendix Table A.1 for details). Our measures capture both economic and health-related risks. First, following Joyce and Xu (2020) and Blundell *et al*. (2020) we capture the risk of low labour demand resulting from the sectoral nature of the COVID-19 policy response using a binary measure for *shutdown industries* defined based on

detailed (4-digit) 2007 Standard Industry Classification (SIC) covering industries such as retail, transport, accommodation, and leisure.

Although the focus has been on job loss, following Farquharson *et al*. (2020) we also consider risks associated with being a key worker (defined using the ONS (2020a) classification based on detailed (4-digit) Standard Occupational Classification (SOC) 2010 and SIC codes). In being in high demand, key workers are likely to be at greater health risk from COVID-19 but also from high work intensity. We also measure health risks more directly utilising information on pre-pandemic exposure to COVID-19 derived from ONS analysis of the US Occupational Information Network (O*NET). More specifically, proximity to others and exposure to disease are measured on a standardised scale from 0-100 (increasing in risk) and mapped at the detailed SOC level. Proximity to others can also be considered as an economic risk due to the likely impact of social distancing.

Our final set of measures capture working from home, expected to reduce economic and health risks. First, we focus on the probability of 'mainly' working from home. Second, we use detailed SOC measures of potential homeworking (previously found to impact on COVID-19-related job loss, Adams-Prassl *et al*., 2020a) derived by ONS from O*NET. Overall homeworking ability is derived from five facets and measured as an index from 0 to 5, *decreasing* in ability. All work-related risks are measured conditional on work (employment or self-employment).

Economic Outcomes

Although much of the early literature focused on risk factors by necessity, we also consider peri-pandemic labour market outcomes. These include established measures of disability-related inequality. We also capture a reduction in labour demand not reflected in employment status, for example, individuals who are furloughed as part of the Government JRS (see Brewer *et al*., 2000). In the absence of a direct measure, we utilise the proportion temporarily away from paid work (compared to the previous year) as recommended by ONS (2020c) and applied by Wilson and Papoutsaki (2021) among others. We further explore changes in hours among those who remain in work to capture additional adjustment at the intensive margin and 'flexible' furlough. For being temporarily away and hours we create additional measures which capture these being the outcome of 'economic or other' causes to further align to COVID-19. This information can also be used to explore the probability of being away from work due to being 'sick or injured' but, consistent with evidence on sickness absence rates during COVID-19 (ONS, 2021d), we find no significant increase in this post-COVID-19. We complement this

with self-reported information on underemployment, measured as a preference to work more hours at the same rate of pay. We also explore differences in actual homeworking (as described above). Finally, given the potential for adjustment, both through furlough (which requires employers to pay a minimum of 80% of usual pay for hours not worked up to a monthly cap of £2,500) but also pay freezes or cuts, we consider the hourly DPG. Except for hours, in-work measures are considered for all workers to capture the full effect of COVID-19 including the influence of furlough, although we explore the robustness of our findings to restricting the analysis to those who remain in work (results available upon request).

4. Analytical approach

Regression analysis is applied to estimate adjusted disability gaps in pre-COVID-19 risk factors and differential changes in outcomes pre- and post-COVID-19 by disability. We model each 2019 risk factor (R_i) for individual *i* using Ordinary Least Squares (OLS) as follows:

$$R_i = \alpha + \mu D_i + \gamma P_i + \varepsilon_i \quad (1)$$

where D_i is a binary measure of disability and P_i denotes personal characteristics namely gender; age band; marital status; presence of dependent children; highest qualification; ethnicity and region. All models also include a control for quarter given the nature of these data. We explore the disability gap (μ) before and after accounting for personal characteristics. Work-related characteristics are excluded since they are likely to be jointly determined with occupation and industry. Where risk factors are binary, we therefore estimate linear probability models, but estimates are similar to marginal effects from the corresponding probit models.

For each labour market outcome, the change in the disability gap pre- and post-COVID-19 is estimated as follows:

$$L_{it} = \alpha + \mu D_{it} + \theta Post_t + \beta D_{it} Post_t + \gamma P_{it} + \delta W_{it} + \varepsilon_{it} \quad (2)$$

where the labour market outcomes for individual *i* in year *t* are given by L_{it}, and disability, and personal characteristics are defined above. For in-work outcomes, we additionally include work-related characteristics (W_{it}) including part-time employment; self-employment (where relevant); months tenure with current employer (and tenure squared) and sector. In an additional specification we also control for SOC 2010 major occupations and SIC 2007 industry sectors to capture work-related economic risks as discussed above. Adams-Prassl *et al*. (2020a, 2000b) and Hupkau and Petrongolo (2020) among others estimate similar specifications when modelling job loss and furlough. Except for hourly pay, which is only available for employees, we retain self-employed workers in our sample given previous

evidence of their disproportionate COVID-19-related impact. Consequently, we are unable to include controls for temporary employment or workplace size, but these are included in an additional specification restricted to employees.

Our focus is on the interaction between disability and the period post-COVID-19 ($Post_t$) where β measures the change in the disability gap over time. Its statistical significance would indicate a differential change in outcomes pre- and post-COVID-19. While the sample is too small to explore variation over the post-COVID-19 period, the results are robust to controlling for post-COVID-19 x month interactions (see Appendix Table A.5). We introduce personal and (where relevant) work-related characteristics sequentially and explore the impact on β. Without controls, β measures the overall COVID-19 differential impact by disability. The inclusion of controls nets out other risk factors, including differences in the concentration of disabled workers in industries and/or occupations more affected by COVID-19. It comes closer to estimating the disproportionate impact on disabled workers in comparable jobs, or inequality which has been the focus of the literature. As in equation (1), μ is the pre-COVID-19 disability gap.

As is well-established, to interpret β, the change in the disability gap (or difference-in-difference) as approaching a causal impact of COVID-19 requires the assumption of parallel trends in outcomes by disability pre-COVID-19. This is not feasible for the DEG. In a final specification we extend the pre-COVID-19 period to 2013 and include a time trend and disability time trend interaction. The latter captures longer-term disability-related outcome convergence/divergence that could otherwise be attributed to COVID-19. Throughout OLS estimate are provided for ease of interpretation.

Appendix Table A.2 provides full definitions and means for all the control variables by disability and pre-/post-COVID-19. The descriptive statistics confirm some well-established differences, including that disabled people are older and less qualified on average; however, they also highlight some differences particularly relevant to COVID-19, including higher rates of part-time employment among disabled workers, and a relative concentration in less skilled occupations and industries including distribution, hotels and restaurants and public, administration, education and health.

5. Disability-related labour market inequality and COVID-19

Risk factors (pre-COVID-19)

Table 1 presents 2019 COVID-19 work-related risk factors for workers (employees and the self-employed), by disability status. Percentage point gaps between disabled and non-disabled workers are supplemented with differences (relative to the non-disabled) in percent to facilitate comparison between measures. Disabled workers face higher economic and health risks of COVID-19. For example, in terms of economic risks, disabled workers are 11 percent more likely to be employed in a shutdown industry, with disability gaps evident in retail, accommodation and food, and personal care (see Appendix Table A.3).

In terms of health risks, disabled and non-disabled workers have a similar probability of being a key worker, but this disguises differences between key worker occupations. Disabled workers are significantly more likely to work in health and social care; key public services; food and other necessary goods and in local and national government but are significantly less likely to work in transport or utilities, communication and financial services (see Appendix Table A.3). In relation to direct health risk measures, disabled workers are significantly more likely to work in occupations involving proximity to others and exposure to disease.

Consistent with recent US evidence (Schur *et al*., 2020), pre-pandemic disabled workers are slightly more likely than non-disabled workers to work from home but are less likely to work in occupations with high homeworking ability, consistent with homeworking providing a form of accommodation of disability. As noted by Schur *et al*. (2020), this generates an inconclusive picture in terms of COVID-19. While the higher homeworking probability reduces COVID-19-related health and economic risks, disability-related occupational differentials mean disabled workers will be less likely to benefit from COVID-19-related increases in homeworking.

Overall, disabled workers appear to have higher COVID-19-related health and labour market risks, albeit it is important not to infer higher risks for disabled people due to their lower employment rate. It is also worth noting that (except for actual homeworking) these disability gaps relate to differences in occupation and industry rather than disability *per se* but nevertheless are likely to have implications for disabled people's experience of work, and health and economic outcomes during COVID-19. Of course, disability gaps might be a consequence of other personal characteristics correlated with disability, to which we now turn.

Table 2 reports the disability gap (μ in equation (1)) for the six risk factors. Model (1) confirms the raw gaps discussed above. Controls for personal characteristics (coefficient estimates available upon request) are added in Model (2) and the disability gap tends to narrow slightly. Nevertheless, even after accounting for this, disabled workers remain at higher COVID-19-related economic and health risks, including working in a shutdown industry, and

in occupations with proximity to others and exposure to disease. This is a concern given the likely more acute implications of these risks for disabled workers due to existing economic inequalities and underlying differences in health. Consistent with the discussion of Table 1, the role of homeworking is confirmed as complex and to depend on the extent to which disabled workers had disproportionate access during COVID-19, something we explore below.

Early economic impact

Table 3 presents descriptive statistics for labour market outcomes including employment status, being temporarily away from work, and in-work measures such as hours, homeworking and pay, pre- and post-COVID-19 respectively, by disability status. We present disability gaps as well as post-COVID-19 values relative to pre-pandemic levels. The data confirm well-established disability-related labour market inequality, including a DEG of about 30 percentage points, an additional disability gap in hours for those in work, and a DPG of about 15 percent.

In terms of the change pre- and post-COVID-19, and notwithstanding the rise in unemployment, there is relatively limited impact on employment status for either disabled or non-disabled people. This has been previously recognised (see, for example, Brewer *et al*., 2020) and largely attributed to the JRS, although it is thought to partially reflect changes in the QLFS sample composition, something we explore in the multivariate analysis which follows. There is more evidence of changes in outcomes among those in employment, and consistent with the government JRS scheme, the proportion of workers temporarily away from work more than doubles post-COVID-19. Moreover, consistent with Roberts *et al*. (2021), we find the disability gap in being away from work doubles from 4 to 8 percentage points, suggesting disabled workers are disproportionately affected, possibly reflecting a greater requirement to shield. Consistent with this, a greater proportion of disabled workers report being temporarily away from work post-COVID-19 due to economic reasons (9 percent compared to 7 percent). Interestingly, among those who remain in work, disabled workers are no more likely to report changes in hours for economic reasons suggesting a higher risk of full, but not partial, furlough. Aligned to this, actual hours among those who remain in work are reduced only slightly, albeit the gap between usual and actual hours widens more substantially. While homeworking increases during COVID-19, the growth according to our measure (from 14 percent to 18 percent) is surprisingly limited and might reflect a lack of clarity around whether temporary COVID-19-related changes should be included in the LFS definition of 'mainly' working from home. The rates are, for example, substantially lower than homeworking in the ONS Labour

Market Survey, which refers to working from home in the reference week (ONS, 2020d). There is evidence of nominal wage growth for both disabled and non-disabled employees and suggestive evidence that the DPG has widened.

These trends are explored more formally in Table 4 which presents the pre-COVID-19 disability gap, the impact of COVID-19 on non-disabled people and the differential COVID-19 impact by disability (β in equation (2)). It is the latter, which demonstrates whether the disability gap has changed and provides our estimate of a differential experience of COVID-19. Successively more comprehensive specifications are reported in Models (1)-(4) where, in Model (4) the controls for occupation and industry capture broad differences in risk factors (coefficient estimates available upon request). The sample necessarily varies between outcomes, but for those measured for workers we estimate an additional specification in Model (5) restricted to employees.

COVID-19 is associated with a significant but relatively small decline in the probability of employment among the working-age population. We find limited impact on the DEG, where there is weak evidence of significant narrowing (by about 2 percentage points) in Model 2. This appears to contrast to the evidence on expectations of redundancy from Citizens Advice (2020), but it is worth highlighting that because of the lower pre-COVID-19 employment rates among disabled people the same percentage reduction in the probability of employment will lead to a narrowing DEG. That is, non-disabled people are likely to be disproportionately impacted simply because they are more likely to be in work. Nevertheless, in contrast to the decline for non-disabled people, Table 3 shows a positive percentage change in the employment rate of disabled people pre- and post-COVID-19, albeit this is negligible and insignificant.

Since workers on furlough remain employed, we explore the impact on being away from work. Here we find an increase among non-disabled workers of about 10 percentage points post-COVID-19 and considerable widening of the disability gap, which nearly doubles. Further, this is not explained by differences in the jobs disabled workers hold and appears to relate to disability *per se*. Indeed, these results are robust to the inclusion of more detailed (4-digit) controls for occupation and industry or controls for shutdown industries and ability to work from home (see Appendix Table A.5). The widening disability gap is likely to arise from both demand and supply side influences and is not necessarily a signal of employer marginalisation since disabled workers might have greater need to 'shield' or desire to avoid COVID-19-related health risks which are higher for those with underlying conditions. It is also possible that employers might have selectively used 'furlough' to retain those experiencing

disability onset, particularly temporary disability. Nevertheless, the differential might have longer-term consequences on disability-related labour market inequality, not limited to disproportionate job losses following withdrawal of the JRS but through, for example, the impact on human capital accumulation and career progression. We additionally explored disability gaps in economic-related reasons for job loss and reductions in hours post-COVID-19 (see Appendix Table A.4), and consistent with Table 3 our findings confirm a significant disability gap in being away from work for economic reasons, but not hours conditional on remaining in work.

In terms of other outcomes, as expected, COVID-19 is associated with an increase in homeworking, but disabled workers experienced a much smaller increase (2 percentage points compared to 4 percentage points for non-disabled workers), albeit the difference is not significant among employees. The differential is also insignificant when the sample is restricted to those who remain in work, suggesting the disproportionate use of furlough likely contributes to the widening disability gap (results available upon request). Overall, therefore there is no evidence that disabled workers have disproportionately worked from home during COVID-19. This is true after controlling for occupation which, as noted above, likely limited the increase among disabled workers. Average hourly wages have grown during COVID-19 at a similar rate for disabled and non-disabled employees (7 percent and 3 percent before and after adjusting for characteristics respectively) resulting in stability of the raw and adjusted DPG. This is despite the disability gap in the probability of furlough.

Given the availability of data pre-COVID-19 we explore the extent to which changes estimated between 2019 and 2020 might reflect a continuation of a prior trend in Model (6). Disability differences in time trends are only statistically significant in the case of employment, and consistent with this, we find no significant change in the DEG during COVID-19 in this specification suggesting the previous evidence of narrowing reflected continuation of pre-existing trends. The remaining findings of a widening disability gap in being away from work, a smaller increase in homeworking among disabled people and no change in the DPG are confirmed.

In Table 5 we explore whether the changes post-COVID-19 exhibit heterogeneity by disability severity and type. For conciseness, we present the most comprehensive specification with personal and (where relevant) work-related characteristics, including occupation and industry, but the key findings are not sensitive to this choice (see Appendix Table A.6). In terms of severity the findings confirm previous evidence of more substantial pre-pandemic 'gaps' for those with multiple health problems. In most cases the differential impact of COVID-

19 is similar between single and multiple conditions, the main exception being that the DEG has narrowed exclusively among those with multiple health problems. In terms of type, the DEG, probability of being temporarily away from work and the DPG are wider pre-pandemic for those with mental health problems, but it is those with physical disabilities that appear to fare worse during COVID-19. There is no evidence of a reduction in the DEG among those with physical impairments, evidence of an increase in being away from work and relative reduction in the probability of homeworking. While the increase in furlough might reflect higher COVID-19-related health risks for those with physical impairments, the reduction in homeworking is more difficult to explain. Further analysis, which separates broad types of physical disabilities (see Appendix Table A.7) suggests it is with people with impairments relating to breathing and organs, who might be particularly at risk during COVID-19, who exhibit a differential labour market experience.

6. Conclusion

Using data from the largest household survey in the UK this paper provides the first comprehensive analysis of the economic impact of COVID-19. It explores both pre-COVID-19 work-related risks and the impact of COVID-19 on disability labour market inequality. Importantly the QLFS allows us to explore established measures of COVID-19-related impacts and disability inequality, and use multivariate analysis to control for a rich set of personal and work-related factors, and pre-pandemic trends. In doing so, the analysis integrates and extends two distinct themes within the inequalities literature. First, it explores disability, neglected in existing economic analysis of inequality arising from COVID-19. Second, it extends the literature on disability-related labour market inequality, to assess changes brought by COVID-19, a profound external health and economic shock.

Based on pre-pandemic (2019) data, disabled workers are found to be at higher COVID-19 work-related economic and health risks. For example, disabled workers, are 11 percent more likely than non-disabled workers to work in shutdown industries. The higher risks are partly a function of differences in other personal characteristics, but a significant residual disability gap remains. Regardless of the underlying reason, the higher risks for disabled workers are of concern since they suggest a compounding effect of COVID-19 on health and labour market inequalities. Our analysis traces the latter. The role of occupational risks in explaining differential COVID-19 health impacts on disabled people remains an important question to be explored.

By the end of 2020 we observe an impact of COVID-19 on employment, being temporarily away from work and homeworking. While there is limited impact on established measures of disability inequality, including the DEG and DPG, disabled people appear to be more likely to use the government JRS, with the rise in being temporarily away from work 40% greater among disabled workers. Importantly, this disability gap is evident among comparable workers and does not simply reflect differences in pre-COVID-19 risk factors. This difference is also evident if we define the reason for being temporarily away from work as economic, aligned to COVID-19 restrictions. Interestingly, the effect appears to operate through being completely rather than partially away from work, with disabled people remaining in work being no more likely to reduce their hours. It also appears to reflect changes for those with physical rather than mental health impairments, and particularly those with impairments relating to breathing and organs, a likely reflection of high COVID-19 related health risks. The higher probability of being way from work among disabled people might therefore reflect personal choice, the requirements of shielding, as well as employer-initiated protection or discrimination, and distinguishing between these is an important avenue for future research.

The longer-term implications of this remain to be seen but there is a clear risk that disabled workers will be disproportionately in jobs unsustainable in the absence of government support, albeit early evidence suggests this is far less than the number of people on furlough at the end of the JRS (ONS, 2021e). It is also possible that there is a longer-term scarring impact resulting from the depreciation of human and firm specific capital, which may itself have differential effects by disability. Tracing the longer-term impact of COVID-19 and the future DEG and DPG is therefore critical. Related to this, several important questions remain including the impact of COVID-19 on disability prevalence, as well as the differential impact of more permanent labour market changes brought by COVID-19. Indeed, there is a question as to whether in highlighting the vulnerabilities of those with underlying health conditions COVID-19 may have reinforced negative stereotypes relating to disabled workers (see Bui *et al*., 2020 for similar arguments relating to older workers). Conversely and albeit not without risks, there are likely to be potential disproportionate benefits for disabled people of permanently higher rates of homeworking. Our evidence suggests these have not been realised during COVID-19 and therefore questions the impact of more permanent change. This, however, requires ongoing scrutiny, particularly given the imperfect nature of our measure of homeworking.

Evidence of widening disparities for many protected groups during COVID-19 has focused attention on inequality. It is critical that disability is embedded within this and the

current UK ‘levelling up’ policy agenda. In this respect, future analysis of the impact of COVID-19 needs to explore disability gaps in broader measures including income and poverty, and health and wellbeing. Longitudinal data offers additional opportunities to explore the impact of COVID-19 on disability gaps in labour market entry and exit, including whether the impact of disability onset on job retention has changed. Of course, COVID-19 has also disrupted existing data collection, including the QLFS and these findings remain to be explored with complementary data. Internationally, future research is also needed to assess the extent to which our findings are specific to the UK context and policy response, where the emphasis has been on protecting jobs.

References

Adams-Prassl, A., Boneva, T., Golin, M. and Rauh, C. (2020a) Inequality in the impact of the coronavirus shock: Evidence from real time surveys, *Journal of Public Economics*, 189, Article 104245.

Adams-Prassl, A., Boneva, T., Golin, M. and Rauh, C. (2020b) Furloughing, *Fiscal Studies*, 41(3): 591-622.

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 and Medicine*, 141: 72-81.

Blundell, R., Costa Dias, M., Joyce, R. and Xu, X. (2020) COVID-19 and inequalities, *Fiscal Studies*, 41(2): 291–319.

Bound, J. (1991) Self-reported versus objective measures of health in retirement models, *Journal of Human Resources*, 26(1): 106-138.

Brewer, M., Gardiner, L and Handscomb, K. (2020) The truth will out: Understanding labour market statistics during the crisis, Resolution Foundation, July 2020.

Bui, M. T. T., Button, P. and Picciotti, E. G. (2020) Early evidence on the impact of Coronavirus Disease 2019 (COVID-19) and the recession on older workers, *Public Policy and Aging Report*, 30(4): 154–159.

Citizens Advice (2020) An unequal crisis, August 2020.

Emerson, E. Stancliffe, R., Hatton, C., Llewellyn, G., King, T., Totsika, V., Aitken, Z. and Kavanagh, A. (2021) The impact of disability on employment and financial security following the outbreak of the 2020 COVID-19 pandemic in the UK, *Journal of Public Health*, fdaa270.

Farquharson, C., Rasul, I. and Sibieta, L. (2020) Differences between key workers. Institute for Fiscal Studies, Briefing Note BN285.

Houtenville, A. J., Paul, S. and Brucker, D., L. (2021) Changes in the employment status of people with and without disabilities in the United States during the COVID-19 pandemic, *Archives of Physical Medicine and Rehabilitation*, 102: 1420−3.

Hupkau, C. and Petrongolo, B. (2020) Work, care and gender during the COVID-19 crisis, *Fiscal Studies*, 41(3): 623-651.

Jones, M. (2007) Does part-time employment provide a way of accommodating a disability? *The Manchester School*, 75(6): 695-716.

Jones, M., Davies, R. and Drinkwater, S. (2018) The dynamics of disability and work in Britain, *The Manchester School*, 86: 279-307.

Jones, M., Hoque, K., Wass V. and Bacon, N. (2021) Inequality and the economic cycle: disabled employees' experience of work during the Great Recession in Britain, *British Journal of Industrial Relations,* 59(3): 788-815.

Jones, M. and Latreille, P. (2011) Disability and self-employment: evidence from the UK LFS, *Applied Economics*, 43(27): 4161-4178.

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

Joyce, R. and Xu, X. (2020) Sector shutdowns during the coronavirus crisis: which workers are most exposed? Institute for Fiscal Studies Briefing Note BN278.

Kruse, D. and Schur, L. (2003) Employment of people with disabilities following the ADA, *Industrial Relations*, 42(1): 31-66.

Hoque, K. and Bacon, N. (2021) Working from home and disabled people's employment outcomes, *British Journal of Industrial Relations*, Early View https://doi.org/10.1111/bjir.12645.

Longhi, S., Nicoletti, C. and Platt, L. (2012) Interpreting wage gaps of disabled men: The roles of productivity and of discrimination, *Southern Economic Journal,* 78(3): 931-53.

Mitra, S. and Kruse, D. (2016) Are workers with disabilities more likely to be displaced? *The International Journal of Human Resource Management*, 27(14): 1550-79.

Office for National Statistics (2020a) Coronavirus and key workers in the UK, May 2020.

Office for National Statistics (2020b) Coronavirus and its impact on the labour force survey, October 2000.

Office for National Statistics (2020c) People temporarily away from paid work in the UK: August 2020.

Office for National Statistics (2020d) Coronavirus and homeworking in the UK: April 2020.

Office for National Statistics (2021a) Updated estimates of coronavirus (COVID-19) related deaths by disability status, England: 24 January to 20 November 2020.

Office for National Statistics (2021b) Coronavirus and the social impacts on disabled people in Great Britain: February 2021.

Office for National Statistics (2021c) Labour Force Survey User Guide, Volume 3 – Details of LFS Variables 2021.

Office for National Statistics (2021d) Sickness absence in the UK labour market: 2020.

Office for National Statistics (2021e) Labour market overview, UK: November 2021.

Office for National Statistics. Social Survey Division, Northern Ireland Statistics and Research Agency. Central Survey Unit. (2020) Quarterly Labour Force Survey, from January-March 2019 to October-December 2020 (inclusive). UK Data Service. SN: 8485-8777.

Platt, L. and Warwick, R. (2020) COVID-19 and ethnic inequalities in England and Wales, *Fiscal Studies*, 41: 259–89.

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

Schur, L., van der Meulen Rodgers, Y. and Kruse, D. (2021) COVID-19 and employment losses for workers with disabilities: an intersectional approach, The Centre for Women and Work Working Paper Series No 2021-2.

Roberts, J., Bryan, M., Bryce, A., Rice, N. and Sechel, C. (2021) Written evidence to the Work and Pensions Committee Inquiry into the Disability Employment Gap (DEG0132).

Wilson, T. and Papoutsaki, D. (2021) An unequal crisis: the impact of the pandemic on the youth labour market, Institute for Employment Studies Report.

Table 1: COVID-19 Work-related Risk Factors, by Disability

	All	Disabled	Non-disabled	Disability gap (%)	
Shutdown industries (%)	16.73	18.34	16.46	1.88***	(11.42)
	[62,674]	[8,861]	[53,813]		
Key worker (%)	31.68	32.42	31.55	0.86	(2.76)
	[62,631]	[8,857]	[53,774]		
Health risk					
Proximity to others	61.91	63.07	61.72	1.36***	(2.19)
	[61,432]	[8,701]	[52,731]		
Exposure to disease	21.11	22.66	20.85	1.81***	(8.68)
	[61,432]	[8,701]	[52,731]		
Homeworking					
Mainly work from home (%)	13.25	14.63	13.03	1.61***	(12.34)
	[62,871]	[8,877]	[53,994]		
Ability to work from home	1.74	1.77	1.74	0.04***	(1.72)
	[62,717]	[8,871]	[53,846]		

Notes: Authors calculations based on the QLFS 2019 (waves 1 and 5). (i) All figures relate to workers (employees and the self-employed). (ii) The percentage disability gap (in parenthesis) is measured relative to the non-disabled. (iii) ***,**,* denote statistical significance from zero at the 1%, 5% and 10% level respectively. (iv) Sample sizes are specific to the risk measure and are reported in parenthesis [].

Table 2: Disability Gaps in COVID-19 Work-related Risk Factors

	Shutdown industry		*Key worker*	
	(1)	(2)	(1)	(2)
Disabled	0.019***	0.015***	0.009	0.002
	(0.004)	(0.004)	(0.005)	(0.005)
Personal characteristics	No	Yes	No	Yes
Adjusted-R^2	0.00	0.07	0.00	0.03
N	62,674	61,389	62,631	61,352
	Proximity to others		*Exposure to disease*	
	(1)	(2)	(1)	(2)
Disabled	1.356***	0.910***	1.810***	0.906***
	(0.175)	(0.174)	(0.260)	(0.255)
Personal characteristics	No	Yes	No	Yes
Adjusted-R^2	0.00	0.06	0.00	0.09
N	61,432	60,173	61,432	60,173
	Mainly work from home		*Ability to work from home*	
	(1)	(2)	(1)	(2)
Disabled	0.016***	0.012***	0.035***	0.029***
	(0.004)	(0.004)	(0.010)	(0.009)
Personal characteristics	No	Yes	No	Yes
Adjusted-R^2	0.00	0.03	0.00	0.16
N	62,871	61,579	62,717	61,441

Notes: Authors calculations based on the QLFS 2019 (waves 1 and 5). (i) Reference category is non-disabled. (ii) Robust standard errors in parentheses. (iii) $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. (iv) All models include a constant and quarter fixed effects. (v) All figures relate to workers (employees and the self-employed).

Table 3: COVID-19 Labour Market Indicators, by Disability

	Pre-COVID-19				Post-COVID-19			
	All	Disabled	Non-disabled	Disability gap	All	Disabled [% change]	Non-disabled [% change]	Disability gap
Employment status among the working-age population								
Employed	76.29	51.30	82.26	-30.96***	75.61	52.29 [1.93]	81.47 [-0.96]	-29.18***
Unemployed[a]	3.55	6.65	2.97	3.57***	4.09	7.44 [11.88]	3.52 [18.52]	3.91***
Inactive	20.98	45.11	15.22	29.89***	21.17	43.51 [-3.55]	15.56 [2.23]	27.94***
'Furlough' among workers								
Temporarily away	8.30	12.01	7.75	4.25***	18.39	25.57 [112.91]	17.24 [122.45]	8.33***
Temporarily away (economic reasons)	-	-	-	-	7.11	9.22	6.77	2.45***
Hours among those in work during the reference week								
Fewer hours (economic reasons)	-	-	-	-	5.17	5.42	5.14	0.27
Actual hours	33.26	30.06	33.72	-3.66***	32.58	29.72 [-1.13]	33.00 [-2.14]	-3.28***
Usual-actual hours	2.14	2.50	2.09	0.42**	3.26	3.38 [35.20]	3.24 [55.02]	0.14
Job characteristics among workers								
Underemployed	8.96	11.72	8.56	3.17***	9.91	12.36 [5.46]	9.53 [11.33]	2.82***
Work from home	14.14	15.81	13.89	1.93***	17.71	17.67 [11.76]	17.71 [27.50]	-0.03
Average hourly pay (£)[b]	15.72	13.86	16.02	-2.15***	16.76	14.41 [3.97]	17.16 [7.12]	-2.75***

Notes: Authors calculations based on the QLFS 2019 and 2020 (wave 5). [a] Unemployment is measured as a percentage of the economically active population. [b] sample is restricted to employees. (i) Figures in parenthesis [] show the percentage change relative to pre-COVID-19. (ii) ***,**,* denote significance of the disability gap at the 1%, 5% and 10% level respectively. (iv) Usual and actual hours include paid overtime.

Table 4: COVID-19 Labour Market Indicators, Difference-in-Difference Estimates

Employment	(1)	(2)	(3)	(4)	(5)	(6)
Disability	-0.310***	-0.267***	-	-	-	-0.305***
	(0.007)	(0.007)				(0.006)
Post-COVID-19	-0.008**	-0.014***	-	-	-	-0.021***
	(0.004)	(0.004)				(0.003)
Disability × Post-COVID-19	0.018	0.018*	-	-	-	0.011
	(0.011)	(0.010)				(0.010)
Personal characteristics	No	Yes	-	-	-	Yes
N	49,020	48,435	-	-	-	231,690
Adjusted-R^2	0.08	0.20	-	-	-	0.22
Temporarily away from work	(1)	(2)	(3)	(4)	(5)[a]	(6)
Disability	0.043***	0.038***	0.033***	0.032***	0.033***	0.041***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.006)
Post-COVID-19	0.095***	0.095***	0.096***	0.096***	0.087***	0.092***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Disability × Post-COVID-19	0.041***	0.040***	0.039***	0.039***	0.040***	0.049***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.013)	(0.011)
Personal characteristics	No	Yes	Yes	Yes	Yes	Yes
Work-related characteristics	No	No	Yes	Yes	Yes	Yes
Occupation and industry	No	No	No	Yes	Yes	Yes
N	37,155	36,741	36,493	36,348	30,038	169,793
Adjusted-R^2	0.03	0.04	0.04	0.05	0.04	0.03
Working from home	(1)	(2)	(3)	(4)	(5)[a]	(6)
Disability	0.019**	0.018**	0.017***	0.021***	0.017***	0.008
	(0.008)	(0.008)	(0.006)	(0.006)	(0.006)	(0.005)
Post-COVID-19	0.038***	0.034***	0.039***	0.038***	0.041***	0.042***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)
Disability × Post-COVID-19	-0.020*	-0.019*	-0.022**	-0.020**	-0.015	-0.022**
	(0.011)	(0.011)	(0.010)	(0.010)	(0.009)	(0.009)
Personal characteristics	No	Yes	Yes	Yes	Yes	Yes
Work-related characteristics	No	No	Yes	Yes	Yes	Yes
Occupation and industry	No	No	No	Yes	Yes	Yes
N	37,144	36,731	36,485	36,340	30,030	169,760
Adjusted-R^2	0.00	0.04	0.26	0.28	0.08	0.32
(Log) Hourly pay	(1)	(2)	(3)	(4)	(5)	(6)
Disability	-0.144***	-0.093***	-0.079***	-0.058***	-0.063***	-0.050***
	(0.016)	(0.014)	(0.014)	(0.013)	(0.013)	(0.010)
Post-COVID-19	0.066***	0.035***	0.033***	0.028***	0.026***	0.013**
	(0.009)	(0.008)	(0.008)	(0.007)	(0.007)	(0.006)
Disability × Post-COVID-19	-0.008	-0.013	-0.010	-0.004	0.002	-0.007
	(0.024)	(0.020)	(0.020)	(0.018)	(0.018)	(0.016)
Personal characteristics	No	Yes	Yes	Yes	Yes	Yes
Work-related characteristics	No	No	Yes	Yes	Yes	Yes
Occupation and industry	No	No	No	Yes	Yes	Yes
N	19,455	19,363	19,295	19,277	18,736	94,059

Adjusted-R^2	0.01	0.28	0.31	0.41	0.42	0.47

Notes: Authors calculations based on the QLFS 2019 and 2020 (wave 5) (and in Model (6) QLFS 2013-2020 (wave 5)). The sample is the working-age population for employment, workers (employees and self-employed) for temporarily away and working at home and employees for pay. [a] sample is restricted to employees. (i) Reference categories are non-disabled and pre-COVID-19. (ii) Robust standard errors in parentheses. (iii) $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. (iv) All models include a constant term. Work-related characteristics for employees (Model (5)) additionally include temporary employment and workplace size. Model (6) additionally controls for a time trend and disability, time trend interaction.

Table 5: COVID-19 Labour Market Indicators, Difference-in-Difference Estimates, Disability Heterogeneity

	Employment	*Temporarily away*	*Working from home*	*(Log) Hourly pay*
Severity				
Single	-0.147***	0.020**	0.022**	-0.034
	(0.011)	(0.010)	(0.009)	(0.021)
Multiple	-0.332***	0.041***	0.021**	-0.074***
	(0.009)	(0.009)	(0.008)	(0.017)
Post	-0.014***	0.096***	0.038***	0.028***
	(0.004)	(0.004)	(0.004)	(0.007)
Single × Post	0.006	0.042***	-0.027*	-0.020
	(0.017)	(0.018)	(0.014)	(0.029)
Multiple × Post	0.034***	0.035***	-0.016	0.007
	(0.012)	(0.015)	(0.012)	(0.023)
N	48,423	36,340	36,332	19,274
Adjusted-R^2	0.21	0.05	0.28	0.41
Type				
Mental	-0.348***	0.050***	-0.004	-0.092***
	(0.013)	(0.015)	(0.011)	(0.025)
Physical	-0.212***	0.026***	0.023***	-0.057***
	(0.009)	(0.008)	(0.008)	(0.018)
Post	-0.014***	0.096***	0.038***	0.028***
	(0.004)	(0.004)	(0.004)	(0.007)
Mental × Post	0.049**	0.020	0.027	0.016
	(0.019)	(0.024)	(0.018)	(0.035)
Physical × Post	0.012	0.037***	-0.035***	-0.007
	(0.014)	(0.015)	(0.012)	(0.024)
N	46,437	35,427	35,418	18,748
Adjusted-R^2	0.19	0.04	0.28	0.41

Notes: Authors calculations based on the QLFS 2019 and 2020 (wave 5). The sample is the working-age population for employment, workers (employees and self-employed) for temporarily away and working at home and employees for pay. (i) Reference categories are non-disabled and pre-COVID-19. (ii) Robust standard errors in parentheses. (iii) $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$. (iv) Specification includes personal and (where relevant) work-related characteristics, including occupation and industry.

COVID-19 and the labour market outcomes of disabled people in the UK

SSM Highlights

- We explore disability-related labour market inequality in the UK during COVID-19
- We estimate COVID-19 work-related risk factors and changes in outcomes
- Disabled workers face greater COVID-19 economic and health risks pre-pandemic
- Disability gaps in employment and pay exhibit minimal change one year post-pandemic
- Disabled workers have a markedly larger rise in being temporarily away from work