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Exploring mental health disability gaps in the labour market: the UK experience during COVID-19

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ABSTRACT

People with long-term mental health problems that affect their daily activities are a growing proportion of the UK working population and they have a particularly low employment rate. We analyse gaps in labour market outcomes between mental health disabled and non-disabled people during the COVID-19 pandemic in the UK. We also decompose the outcome gaps in order to explore the relative importance of different factors in explaining these gaps. Our results suggest that the employment effects of the pandemic for mental health disabled people may have been temporary. However, they were more likely to be away from work and/or working reduced hours than people without a disability. Workers with mental health disability were over-represented in part-time work and in caring, leisure and other service occupations, which were disproportionately affected by COVID-19 and the economic response. This is important new evidence on the contribution of segmentation and segregation in explaining the labour market position of people with mental health disability. The longer term effects of the pandemic were still not apparent at the end of our analysis period (2021:Q3), but the concentration of disabled workers in cyclically sensitive sectors and part-time work means that they will always be particularly vulnerable to economic downturns.

1. Introduction

The coronavirus (COVID-19) pandemic and associated policy response brought about a severe economic recession in the UK and in other countries around the world. COVID-19 is argued to have exacerbated already well-established patterns of inequality (Adams-Prassl et al., 2020; Blundell et al., 2020), and much concern has been expressed about the effects on the mental health (MH) of the population (Daly et al., 2020; Banks and Xu, 2020). Attention has also been paid to the labour market effects of the pandemic, including how these effects will be felt across different sectors of the workforce. However, in all of this literature, few if any studies have considered the labour market experiences of people with a MH disability during this period of severe economic disruption. This group, defined as people with a long-term MH problem that affects their daily activities, is a growing sector of the UK population and they have a particularly low employment rate; 37% at the start of 2018 compared to around 80% for people who are not disabled (Roberts et al., 2020). While this MH disability employment gap had been narrowing for a few years, one of the possible consequences for the post-pandemic labour market is that this narrowing of the gap may be partly, if not wholly, reversed. This is a serious concern because it is well known that work can be a route to improved financial and psychological well-being for disabled people (Meyer and Mok, 2019), and reducing the unequal treatment of disabled workers is a long-established feature of UK employment policy.[1]

In this study we attempt to fill some of this evidence gap by exploring the labour market experiences of people with MH disability in the UK. We trace how outcomes evolved from early 2018 (before the COVID-19 pandemic) to the latter part of 2021 when the strict lockdowns had ended. We compare the experience of MH disabled workers to that of workers who have no disability. There are a number of reasons to expect differential effects between these two groups, due to the unique health-related nature of the crisis and the specific economic policies adopted in response. On the demand side, the shutdown of non-essential sectors resulted in a particular pattern of job loss and associated effects that are not standard in an economic downturn. As we show in this paper, workers with MH disability were more likely to work in the shutdown sectors

[1] Reducing the disability employment gap is a UK government policy target (Department for Work and Pensions, 2017; 2021) and was the subject of a Work and Pensions Committee Inquiry in late 2021 (House of Commons Work and Pension Committee, 2021).

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and to be segmented into part-time jobs, so were at higher risk of job loss, reduced hours and furloughing. On the supply side, MH disabled workers may have chosen different working arrangements (including staying away from work and/or being furloughed). Further, employers may worry about the greater costs of protective measures in the workplace or funding reasonable adjustments to enable workers with MH problems to work from home. Such concerns could exacerbate discriminatory or unfair practices, resulting in MH disabled people being singled out unfairly for redundancy, furlough or hours reductions (Trades Union Congress, 2021).

Our work offers two main contributions. Firstly, we show how labour market MH disability gaps changed from before the pandemic through successive lockdowns until late 2021. We consider three outcomes: employment (*employment*), being temporarily away from work (*away from work*), and working reduced hours for COVID-related reasons (*reduced hours*). The first outcome was buffered from the full consequences of the pandemic by the UK government's Coronavirus Job Retention Scheme (JRS). This scheme was introduced at the beginning of the lockdown period, and was designed so that employers could furlough workers but receive a subsidy equivalent to 80% of employees' salaries; thus furloughed workers still received the majority of their pay. The latter two outcomes capture responses to COVID-19 more directly, and they are of interest in themselves as well as being potentially predictive of future employment changes. Secondly, we aim to explain the differential outcomes of people with MH disability by using an Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973) to evaluate the relative importance of different factors in explaining the outcome gaps before the pandemic and during the first lockdown. We interpret the MH labour market effects of COVID-19 in the context of the wider determinants of labour market inequality, framing our analysis within four related literatures: discrimination, segregation, segmentation and the effects of recessions on different groups of workers. The previous literature has emphasised discrimination at the expense of the other explanations, which is a shortcoming because, as we demonstrate below, these alternative explanations can help us to understand the differential experiences of MH disabled workers. As well as exploring the labour market effects of the COVID-19 pandemic on this group, we also attempt to redress the balance of the labour economics literature more generally, where MH disability has been relatively neglected compared to the effects of physical health problems.

Our results show that COVID-19 interrupted the narrowing of the MH disability *employment* gap that had been a feature of the UK labour market prior to the pandemic. Workers with MH disability were more likely to be *away from work* than non-disabled workers before the pandemic, and this gap widened substantially after the first lockdown. Similarly, MH disabled workers were more likely to report working *reduced hours* for COVID-related reasons. It is important to stress that the JRS was in operation throughout this period, ending only in September 2021. Our decomposition shows that the major share of the gaps can be attributed to differences in the treatment or behaviour of MH disabled people (coefficient effects). However, measurable factors (characteristics) play a significant role, which increased during the pandemic. The most important effects relate to workplace characteristics, which may reflect labour market segmentation and segregation. This arises largely because MH disabled people are concentrated in particular jobs, occupations and sectors that were disproportionately affected by COVID-19. The main drivers are managerial and professional occupations (where MH disabled people were under-represented), and part-time work, caring, leisure and other service occupations (where they were over-represented). Intersectionality with education is also important, because MH disabled workers were less likely to have a degree, and those without a degree were more likely to be away from work.

While the main labour market effects of the pandemic appear to have been temporary for MH disabled people, the large employment gap that existed before COVID-19 was still apparent in late 2021. Further, the short-term disruption of successive lockdowns may have adverse consequences in the longer term. While temporary absence from the labour market may have helped to protect vulnerable workers from the worst effects of the disease, time out of the labour market, even for short periods, can weaken labour market attachment and increase the probability of exiting to long-term inactivity. Further, these absences have consequences for material wellbeing because they were generally accompanied by reduced pay. The concentration of MH disabled workers in cyclically sensitive sectors and part-time work means that they will continue to be vulnerable to economic downturns.

2. Background and Motivation

There is already considerable evidence, in the UK and internationally, on the labour market effects of the coronavirus pandemic on younger people, those from ethnic minorities and, to a lesser extent, women (Graeber et al., 2021; Mongey et al., 2021; Montenovo et al., 2022; Platt, 2021; Proto and Quintana-Domeque, 2020). However, there is very little evidence on the experience of disabled people despite the health-induced nature of this economic upheaval. Two exceptions are Emerson et al. (2021) who found that disabled people in the UK were more likely to be working reduced hours and experiencing high levels of financial stress in the early lockdown period, and Jones (2022) who found that disabled workers did not experience reduced hours but were more likely to report being temporarily away from work. Neither of these studies focus on people with MH disability; Emerson et al. (2021) neglect this completely and Jones (2022) only includes this group in minor subsidiary analysis. It is important to consider MH disability because this group is a growing proportion of the working population and is already particularly disadvantaged in terms of labour market outcomes.

The JRS, introduced at the beginning of the lockdown period to help employers pay for the wage costs of furloughed employees, protected employment from the full consequences of the pandemic, and ensured that furloughed workers still received 80% of their pay. The UK entered its first lockdown on 23 March 2020; by May 2021 a cumulative total of 11.5 million jobs had been supported by the JRS.[2] Unfortunately, the official JRS statistics were not broken down by disability status, but, as our empirical work shows, people with MH disability have a high propensity to work in the industries and occupations that were most affected by the lockdown. At the end of 2021 as the economy began to open up again and the JRS scheme ended, the consequences for unemployment in the longer term are unlikely to be borne equally throughout the labour market.

Previous work on disability and the labour market has been dominated by a concern with discrimination and the disability wage gap (see for example (Jones et al., 2006) and Longhi et al. (2012) for the UK). Very little of this existing literature distinguishes between MH disability and that arising from physical health problems. While Johnson (1985) and Baldwin and Johnson (1994) argue that discrimination is likely to be greater where the disability is more visible, Mitra and Kruse (2016) find instead that it is greater for more stigmatised disability such as MH problems. Further, there is evidence that negative employer attitudes are stronger towards mental ill health (Baldwin and Marcus, 2011; Domzal et al., 2008).

The dominance of discrimination in the literature is mirrored by a neglect of the potential usefulness of other theories to explain disability gaps in labour market outcomes. The overlapping theories of segregation and segmentation are broader structural alternatives to the neoclassical assumption that wages and employment conditions purely reflect workers human capital characteristics. Segregation refers to the unequal distribution of workers across occupations and/or industries based on socio-demographic characteristics (Anker, 1998; Jefferys, 2019). Seg-

[2] www.gov.uk/government/statistics/coronavirus-job-retention-scheme-statistics-3-june-2021/coronavirus-job-retention-scheme-statistics-3-june-2021

mentation stresses that persistent differences in working conditions between different groups may be due to demand side factors such as contractual arrangements and other institutional characteristics. As a result, distinct sub-markets emerge where workers in primary jobs enjoy stable employment, higher wages and good career prospects, while others are trapped in secondary jobs characterised by instability, low wages and poor working conditions (Boeri, 2011; Michon, 1987). It is important to stress that segmentation and segregation do not rely on discrimination; both institutional factors and individual preferences can result in workers with MH disability being concentrated in certain types of job. For example, part-time work or jobs involving lower levels of stress may enable MH disabled workers to better manage their condition. Of course, these processes together with discrimination are often mutually reinforcing, resulting in poorer labour market outcomes for these workers.

As well as these 'static' explanations, there are also a number of reasons why labour market outcomes for MH disabled people may be differentially sensitive to economic downturns (Jones et al., 2021). Firstly, the consequences will be influenced by the extent of segregation and segmentation. Some sectors are more cyclically vulnerable (a feature that was particularly relevant for the COVID-19 lockdowns) so, to the extent that MH disabled people are more concentrated in these sectors, they will suffer more job losses (Gore and Parcker, 2009; Jones, 2007; Kaye, 2010). However, the over-representation of MH disabled workers in public sector jobs, especially in health and education, may also have protected them because these jobs continued to operate throughout the pandemic, and even saw increased demand for labour. Secondly, there may be more opportunities for discrimination in economic downturns, due to employers being increasingly concerned about the productivity of disabled workers and the costs of making workplace adjustments (Gore and Parcker, 2009; Longhi et al., 2012). Finally, while we might expect MH disabled people to be protected via disability discrimination legislation (Reeves et al., 2014), in recessionary times the policy emphasis can shift towards overall growth and away from equality (Rubery and Rafferty, 2013).

Based on these theories, it is clear that COVID-19 may have affected MH disabled peoples labour market experiences in a number of different ways. We might expect the disability employment gap to have widened, although any increase could be largely or wholly contained by the JRS. Nonetheless, we can expect an increase in the gap measured by our two other indicators, *away from work* and *reduced hours*. Part of any gaps should be explained by measurable factors. On the supply side, these include demographics (age and family structure) and human capital (education and experience). On the demand side, industry and occupation will play a role, as well as workplace characteristics that might reflect segmentation, such as firm size, public sector affiliation and part-time status. It is also clear that many factors leading to the differential experiences of disabled people are not measured; thus we expect part of the gap to be unexplained. These factors include employer attitudes or prejudices, as well as their subjective evaluation of risk, and the preferences of disabled people, when faced with the COVID-19 pandemic.[3]

3. Data

We use Quarterly Labour Force Survey (QLFS) data from 2018:Q1 to 2021:Q3 to track differences in labour market outcomes between MH disabled and non-disabled people before and after the COVID-19 pandemic. Consisting of approximately 33,000 responding households in each quarter, the LFS is intended to be representative of the whole UK population and provides the official estimates of employment and unemployment. We use the cross-sectional data as these contain the necessary variables and provide the largest samples available for the period of interest.[4]

We consider three labour market outcomes; detailed definitions of these, as well as other variables used in the analysis, are given in Table A1 in the Appendix. First, we examine the probability of being in *employment* for 18-64 years olds in the UK using self-reported economic activity based on the International Labour Organisation definition. Our other two outcome measures are conditional on being employed. The first of these, *away from work*, measures whether or not the individual is employed but temporarily away from work in the reference week; we use this as a proxy for being furloughed.[5] It is worth stressing that people could be away from work either because their sector was 'shutdown' or operating under reduced demand conditions, or because they were unable to work due to caring responsibilities resulting from coronavirus, or because they were required to shield due to clinical vulnerability. For this reason, being away from work is not necessarily a 'bad' outcome, and it may be the preferred state for some workers. Indeed, the LFS COVID question on reasons for being away from work show that MH disabled workers (12%) were more likely than non-disabled workers (4%) to report shielding as the reason.[6] However, since the JRS only subsidised employers up to 80% of employees' salaries, most workers who were furloughed would not be on full pay and therefore would be materially disadvantaged, and we return to this below. Our final outcome is *reduced hours*, which measures whether or not the respondent is working fewer hours than normal in the reference week due to COVID related reasons. Working reduced hours may also be a preferred outcome if it enables the respondent to combine work and caring responsibilities (which may have increased due to COVID); however it could of course also be accompanied by reduced pay. As with *away from work*, MH disabled individuals (9%) were more likely than non-disabled people (3%) to report shielding as the reason for working reduced hours. In contrast non-disabled people were more likely to report a lack of demand as the reason that they had been furloughed or that their hours had been cut.

Disability status is defined based on the Equality Act 2010. An individual is considered to be MH disabled if they have a MH health condition/illness[7] lasting 12 months or more which reduces their ability to carry out day-to-day activities. Note that a respondent can report having a MH condition but state that it does not affect their ability to carry out day-to-day activities; in this case they can be described as having poor MH, but they are not considered to be MH disabled. We focus on the group of people with MH disability because of the greater severity

[3] Note that while we use the terms demand and supply side here, it is not possible to empirically separate these processes because we do not observe employee preferences. In our empirical work we are agnostic as to the origin of these effects.

[4] Longitudinal LFS data are also available but these have a much smaller sample size that is not sufficient for our analysis. Our samples include both personal and proxy interviews but exclude observations that were imputed using data brought forward from a previous quarter, which constitutes roughly a fifth of 18-64 year olds in each quarter.

[5] The LFS included some COVID specific questions in the relevant quarterly surveys, including a question on furlough as well as the *reduced hours* question that we use in our analysis. The ONS advise that these questions should be considered experimental and used with caution. The furlough question was subsequently removed because it was felt that respondents could not answer it with any certainty. Our exploratory analysis of the responses also suggest that it was not an accurate measure of whether or not someone was on the JRS (for example, it substantially underestimated the number of people who were furloughed compared with official figures derived from employer returns), so we have chosen not to use it in our analysis.

[6] Note that the reasons for being away from work or working reduced hours are part of the COVID specific questions in the LFS that ONS considers experimental.

[7] That is if they report one or more of the following health problems: depression, bad nerves or anxiety; autism (including Autism Spectrum Condition and Asperger syndrome); severe or specific learning difficulties (mental handicap); or mental illness, including suffering from phobia, panics or other nervous disorders.

of impairment implied and also because this group are the main focus of the relevant labour market policies (see Table A1 for further details).

Our descriptive analysis considers how outcomes evolved from 2018:Q1 to 2021:Q3, covering the period prior to COVID-19, its onset, and through successive lockdowns. In particular the later months are useful for studying the potential longer-term effects of the pandemic since they likely better reflect demand and supply side adjustments to the new working conditions. For the decomposition analysis, we focus specifically on quarter two (April-June) of 2019 and 2020. 2020:Q2 is the first period available exclusively after the first strict lockdown was implemented on 23 March 2020. This period is crucial for examining the impact of COVID-19 because it immediately followed the severe economic shock of government containment measures in response to the pandemic. These measures were slowly lifted beginning in the second half of June 2020, and the subsequent tightening leading to a second lockdown in November 2020 was to some extent anticipated. Thus we exploit 2020:Q2 in an attempt to uncover explanations for the differential outcomes of MH disabled workers during COVID-19, using 2019:Q2 for comparison in order to minimize any seasonal labour market fluctuations that may confound estimates. In total, our sample for 2020:Q2 consists of 24,401 non-disabled men and women and 2,694 men and women who were MH disabled (compared to 30,244 non-disabled people and 3,410 MH disabled people in 2019:Q2). The analyses relating to *away from work* and *reduced hours* comprise smaller samples since they include only individuals who were employed.[8]

4. Methods

We first adopt descriptive analysis to explore the evolution of the MH disability gaps over time using event study and Difference-in-Differences (DiD) techniques. The event study helps to illustrate the evolution of the gaps, and in particular, how the gaps in subsequent quarters compare to the final pre-pandemic quarter in 2020:Q1. This is undertaken for the two labour market outcomes that existed before the pandemic: *employment* and *away from work*. We use data from 2018:Q1 to 2021:Q3, and estimate the following equation for men and women separately:

$$Y_{it} = \alpha_1 + \sum_{\substack{t=-8 \\ t\neq 0}}^{6} \alpha_{2t} Q_t + \alpha_3 Disabled_i + \sum_{\substack{t=-8 \\ t\neq 0}}^{6} \alpha_{4t}\left(Q_t \times Disabled_i\right) + \eta_{it}, \qquad (1)$$

where $t = 2018{:}Q1, ..., 2021{:}Q3$ and the omitted category ($t = 0$) is the final pre-pandemic quarter (2020:Q1); Q_t is a dummy variable that is 1 if the observation is in quarter t and 0 otherwise; $Disabled$ is a dummy variable that is equal to 1 if individual i is MH disabled and 0 if the individual is not disabled; and η_{it} is an idiosyncratic error term. The coefficient of interest is α_{4t}, which captures the difference between the MH disability gap in 2020:Q1 and the gap in quarter t. We do not include any other controls in Equation (1), so the event study shows the raw MH disability gaps.

In order to capture overall trend shifts we also employ a DiD framework that allows us to compare the average MH disability gaps for *employment* and *away from work* during the pandemic with the average pre-pandemic gaps. We estimate the following equation for men and women separately:

$$Y_{it} = \sum_{\substack{t=-8 \\ t\neq 0}}^{6} \delta_{1t} Q_t + \delta_2 Disabled_i + \delta_3\left(Disabled_i \times Post_t\right) + X_i\beta + \omega_{it}, \qquad (2)$$

where $Post_t$ is a treatment indicator that is equal to 1 for all pandemic quarters (2020:Q2 to 2021:Q3, i.e. $t = 1, \ldots, 6$) and zero otherwise. This approach is equivalent to a DiD regression in which the control group is non-disabled individuals and treatment begins in 2020:Q2. As such, the coefficient of interest, δ_3, is the average treatment effect. This is, however, not a true DiD because it violates the underlying identification assumptions. First, there is no real control group since the treatment (i.e. COVID-19 pandemic) applies to everyone regardless of disability status. Second, the pre-treatment trends of the MH disabled and non-disabled populations are not plausibly parallel for either outcome. For example, it is well known that the MH disability employment gap was decreasing prior to COVID-19. Nevertheless, we view the DiD framework as a useful descriptive tool which allows us to quantify differences in average levels of the disability gaps. Note that unlike the event study, the DiD specification includes a set of control variables (X), which take account of demographics, human capital, occupation, industry, workplace characteristics (as proxies for segmentation) and region (see notes to Table 1).

We then decompose the MH disability gaps in outcomes using an Oaxaca-Blinder decomposition (Blinder, 1973; Oaxaca, 1973). This is applied in cross-section for quarter two in each of the years 2019 and 2020. We undertake analyses separately for men and women. The approach allows us to decompose the disability gaps into components due to differences in characteristics and components due to differences in coefficients. The former represent differences in the composition of the measurable characteristics of MH disabled and non-disabled workers. These include individual socio-demographic or human capital characteristics, such as age or educational attainment. They also represent the characteristics of the sectors or type of employment opportunities afforded to MH disabled and non-disabled workers; for example, differences in the proportions of disabled and non-disabled workers in the various industrial sectors, or in full-time versus part-time jobs. Coefficient effects capture differences in the relationship between characteristics and the outcome that vary across disability status. These represent the differential mechanisms that lead to different outcomes for MH disabled and non-disabled workers. Where coefficients apply to human capital characteristics, they capture differential returns to investment. In the gender-wage inequality literature, these are often termed unexplained factors that lead to discrimination. More generally, they represent any structural differences in outcomes that might arise, for example, through differences in the treatment of disabled people, or their choices. We apply the decomposition to each of the two quarters of data and for each outcome separately. Our basic model for each year can be specified as:

$$Y_i^g = X_i^g \beta^g + \epsilon_i^g, \qquad (3)$$

where $g \in \left(\text{non-disabled:}0, \text{MH disabled:}1\right)$ represents MH disability status, X^g is a vector of individual characteristics together with a constant, β^g is a conformably dimensioned vector of parameters, and ϵ^g is an idiosyncratic error. The decomposition of the mean outcome between the two groups can then be expressed in the usual linear form as:

$$\begin{aligned}\Delta\mu = E(Y|G=0) - E(Y|G=1) = &[E(X|G=0) - E(X|G=1)]\beta^0 \\ &+ E(X|G=1)\left(\beta^0 - \beta^1\right),\end{aligned} \qquad (4)$$

where $[E(X|G=0) - E(X|G=1)]\beta^0$ represents the part of the outcome gap that is explained by the group differences in characteristics, X, and $E(X|G=1)\left(\beta^0 - \beta^1\right)$ represents the contribution of coefficient effects. The total decomposition can be extended to provide a detailed decomposition for the contribution of each regressor to the characteristics and coefficients components.[9] Inference is based on methods described by Jann (2005, 2008) which take into account sampling variation in the

[8] Sample sizes vary depending on outcome measure and these are noted in each of the relevant results tables.

[9] This is straightforward for cardinal variables which contain a natural zero. However, for categorical variables Oaxaca and Ransom (1999) show that the standard decomposition approach is dependent on the chosen reference category. We employ a solution proposed by Gardeazabal and Ugidos (2004) and Yun (2005) restricting the coefficients of the various categories of the variable to sum to zero by expressing individual effects as deviations from their mean. This ensures that the results of the decomposition are independent of the choice of omitted category.

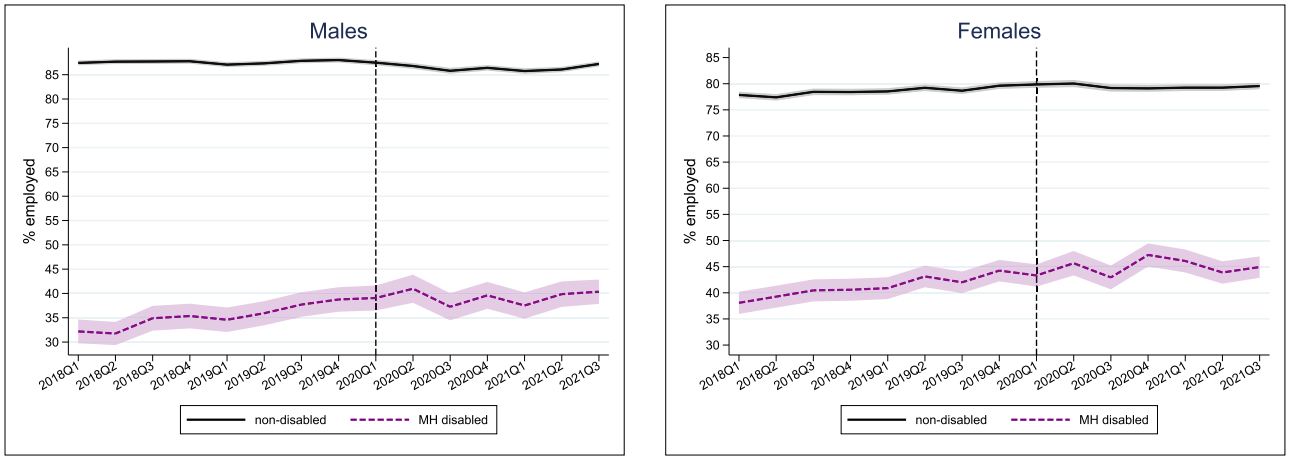

Fig. 1. *Employment* by disability and gender (95% Confidence Interval)

means of the covariates (X), together with the variance in the estimation of coefficients, $\hat{\beta}$. In the results section we refer to the characteristics effects as $\Delta\bar{X}$ and coefficient effects as $\Delta\hat{\beta}$.

The decompositions are based on linearity and additive separability of covariates intended for use with continuous dependent variables. Our outcomes of interest are measured as discrete binary variables. While standard decomposition analyses extend readily to nonlinear models, extensions to the detailed decomposition are less straightforward.[10] We estimate linear probability models, which assume an approximation to a linear functional form, and apply the Oaxaca-Blinder decomposition. This has the advantage of retaining the more familiar interpretation.[11]

5. Results

5.1. Descriptive analysis of the disability gaps over time

We first consider trends in the outcome gaps before and after the onset of COVID-19. Figures 1 - 3 show how the gaps evolved for all three of our outcomes from 2018:Q1 to 2021:Q3.[12] The difference between the employment rates of MH disabled and non-disabled people is clear from Figure 1. The MH disability employment gap for both men and women was narrowing before 2020:Q1, mostly due to increases in the employment rate for MH disabled people, but this trend was disrupted by COVID-19. Although the employment rate for disabled men and women with MH problems increased during the first lockdown (2020:Q2), it subsequently dipped in 2020:Q3. The corresponding MH disability gap in 2021:Q3 has returned to the immediate pre-pandemic level for men and is slightly smaller for women.

In all periods, MH disabled workers were more likely to report being *away from work* than non-disabled workers (Figure 2). The graph shows a steep jump between 2020:Q1 and 2020:Q2 and a subsequent fall in 2020:Q3 as the economy began to open up again. Both the increase and decrease were slightly steeper for disabled workers. The first lockdown seems to have increased the gap between disabled and non-disabled workers. There was a slight increase again during the second lockdown in 2020:Q4, followed by another fall in the percentage of workers being away from work, for disabled and non-disabled men. This is not the case for women, where there was a clear widening of the gap between non-disabled women and MH disabled women in 2021:Q1. The percentage of disabled women *away from work* increased while that for non-disabled women decreased during this period.

Figure 3 shows the percentage of men and women who were employed but reported working *reduced hours* due to COVID (an outcome that was zero prior to 2020:Q1). This increased steeply in 2020:Q2, with some recovery later in 2020, followed by another clear increase in 2021:Q1. At the same time, a clear gap emerged between MH disabled workers and non-disabled workers. For women (but not men), this gap even increased in 2021:Q1.[13]

We report above that MH disabled workers were more likely to give shielding as a reason for being away from work or working reduced hours, rather than demand conditions, so to some extent this can be considered a choice (albeit one that may be subject to tight constraints). We can also use the LFS data to get an idea of the consequences of these labour market outcomes for pay, and here it appears that MH disabled people were particularly disadvantaged, although the picture is far from clear.[14] Averaged across the quarters 2020:Q2 to 2021:Q3, 13% of MH disabled individuals reporting being away from work also reported receiving no pay compared to 9% of non-disabled workers. However, 27% of these MH disabled workers reported receiving full pay compared to only 25% for non-disabled workers. Of those reporting reduced hours, 43% of MH disabled workers reported receiving full pay compared to 45% of non-disabled workers. MH disabled workers working reduced hours were more likely to have received no pay (10% versus 7% for non-disabled).[15]

Figures 4 and 5 plot the estimated values of α_{4t} from the event study specified in Equation (1) and the associated 95% confidence intervals. Each point represents how the MH disability gap changed relative to 2020:Q1. Since the disability employment gap is negative (i.e. MH disabled individuals have lower employment rates than non-disabled individuals so $\alpha_3 < 0$), a positive (negative) coefficient means that the employment gap is smaller (larger) in magnitude than it was in 2020:Q1. The opposite interpretation is applied when looking at the disability gap for *away from work* because the gap in this case is positive (i.e. $\alpha_3 > 0$ for this outcome).

As suggested by our trend analysis, the employment gaps are decreasing over time; a trend observed prior to COVID-19. Although the MH

[10] While the set of covariates X are linear and separable in the index function they are nonlinear as a function of the differences in mean outcomes, and hence the contribution of any particular covariate or its coefficient is influenced by the values of other covariates.

[11] It is worth noting that the disability gaps are largely close to the middle of the distribution of the outcomes (available on request).

[12] Based on weighted data using weights provided with the LFS data files.

[13] Our finding that disabled workers were more likely to work reduced hours in the first lockdown contrasts with that of Jones (2022). However, Jones' analysis uses a different hours variable to the one we use here, because the LFS COVID module information was not available at the time of her analysis.

[14] Note that the pay questions we use here are also part of the survey that the ONS considers to be experimental.

[15] Note that reduced hours in the LFS question can also include zero hours.

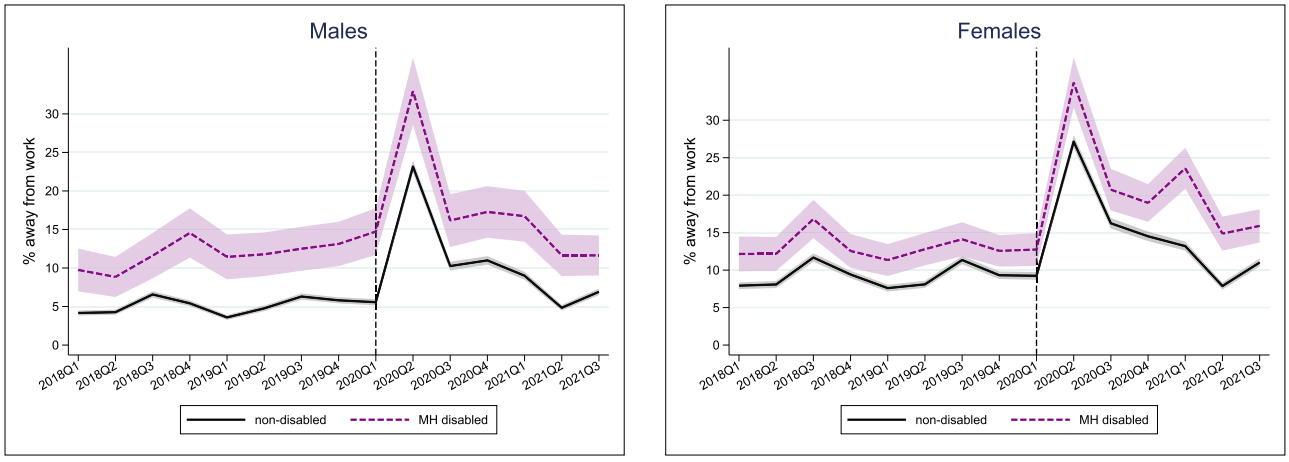

Fig. 2. *Away from work* by disability and gender (95% Confidence Interval)

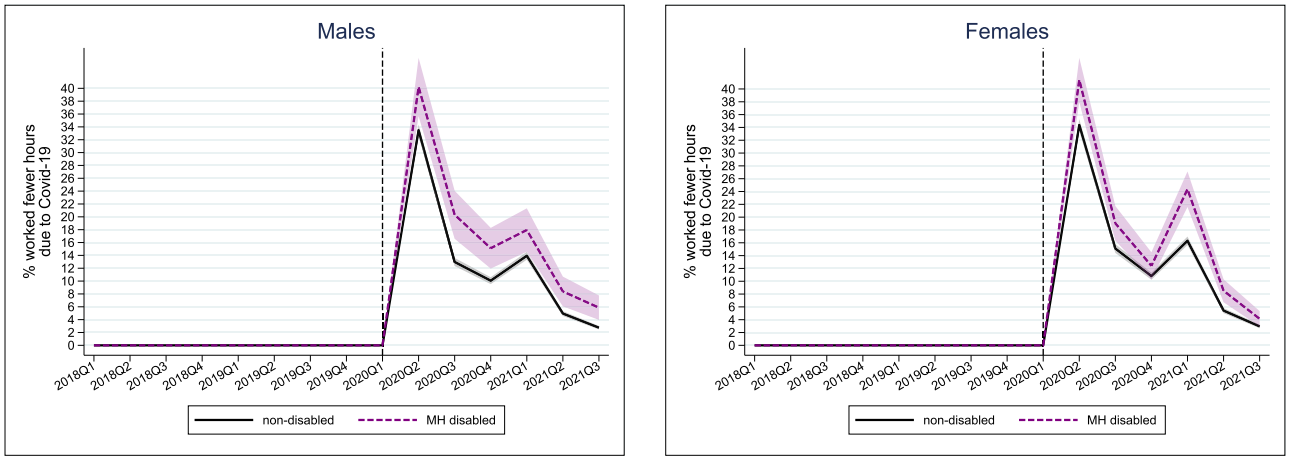

Fig. 3. *Reduced hours* by disability and gender (95% Confidence Interval)

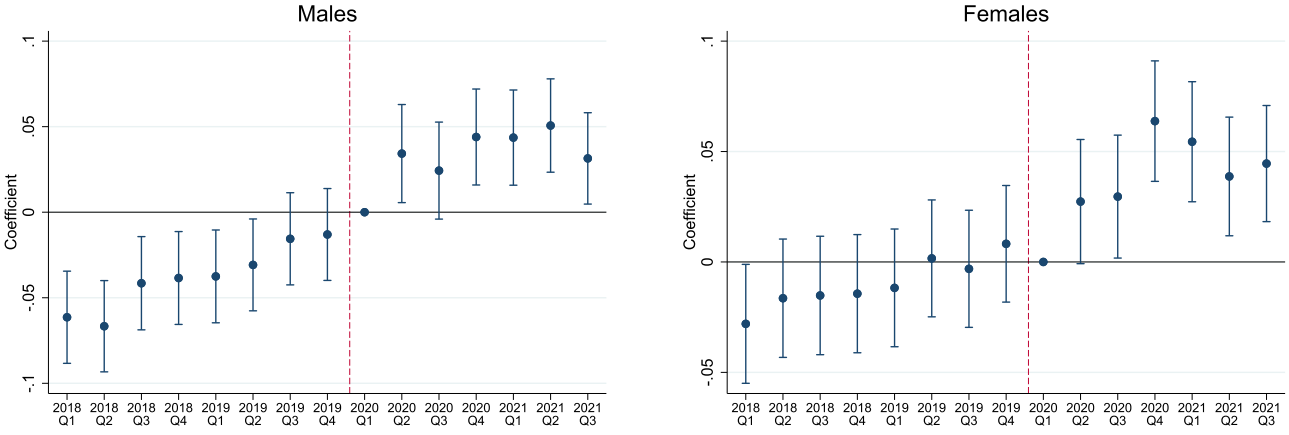

Fig. 4. Event study of the MH disability *employment* gap (95% Confidence Interval)

disability employment gap was smaller after the start of the pandemic for both men and women relative to 2020:Q1, these differences are not always statistically significant (Figure 4). Notably, women seemed to experience a more drastic reduction of the gap after the onset of the pandemic with the MH disability gaps being significantly smaller in 2020:Q4 and afterward compared to 2020:Q1.

Looking at *away from work*, we find two substantial jumps in the MH disability gap for women immediately at the start of the pandemic (2020:Q2) and then again in 2021:Q1. This pattern is not observed for men. This suggests that the relative disadvantage of disabled workers was more sensitive to the economic shocks brought on by COVID-19 for women than for men since 2020:Q2 and 2021:Q1 were periods of strict lockdown measures. However, this seems to be a temporary disruption given the disability gap for *away from work* returned close to pre-pandemic levels in subsequent quarters.

Table 1 shows selected results from the DiD analysis specified in Equation (2).[16] The interaction coefficient, δ_3, is positive and statisti-

[16] Full results available from the authors upon request.

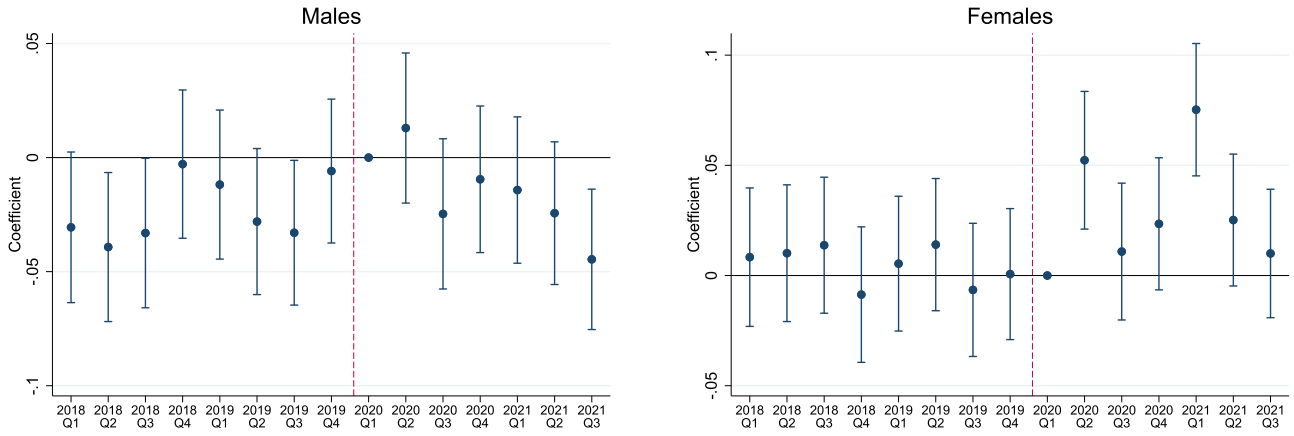

Fig. 5. Event study of the MH disability *away from work* gap (95% Confidence Interval)

Table 1
Difference-in-Differences: MH disability

	Employment		Away from work	
	Males	Females	Males	Females
MH Disabled	-0.449 ***	-0.333 ***	0.058 ***	0.045 ***
	(0.003)	(0.003)	(0.004)	(0.004)
MH Disabled*Post	0.057 ***	0.042 ***	0.003	0.029 ***
	(0.005)	(0.005)	(0.007)	(0.006)

Regressions include quarter fixed-effects, demographics (age, ethnicity, children in household, marital status, adults in household, other employed individual in household), education & experience (educational attainment, tenure with current employer), industry (19 categories), occupation (9 categories), workplace characteristics (number of employees, self-employed, public/private, part-time/full-time work), region (12 regions of residence). Standard errors are provided in parentheses; *** denotes significance at $p < 0.01$.

cally significant for *employment*, which means that the average employment gaps were smaller during the pandemic for both men and women relative to the average gaps observed between 2018:Q1 and 2020:Q1. The reduction for MH disabled individuals was 5.7pp for men and 4.2pp for women. These results should be interpreted with caution because the disability employment gap was already narrowing in the years leading up to 2020:Q1, so it is difficult to say whether this reduction captures the true effect of COVID-19 or pre-existing trends. In addition, our trend analysis (Figure 1) and the event study show a slowdown in the narrowing of the employment gap after 2020.

In contrast, the average MH disability gap for *away from work* was larger during the pandemic and this difference was stronger for women (2.9pp). In fact, the average *away from work* gap for MH disabled men is not statistically different from the average pre-pandemic level. Given there were no discernible converging or diverging trends in being away from work between disabled and non-disabled individuals prior to 2020:Q1, we expect these results reflect the impact of COVID-19 on the disability gap to a greater extent than the estimated treatment effect on *employment*.

5.2. Decomposition of the disability gaps

Our decomposition analysis focuses on 2020:Q2 which, as mentioned above, is the first available period following the initial strict lockdown and accompanying economic shock of March 2020. Summary statistics for 2020:Q2, split by gender, are shown in Table A2 in the Appendix. Approximately 41% of MH disabled men were employed compared to 87% of non-disabled men; for women the respective figures were 46% and 81%. About 30% of MH disabled men and 34% of MH disabled women were temporarily *away from work*. This compares with 20% of non-disabled men and 25% of non-disabled women. The percentages working *reduced hours* were higher overall, with 37% (39%) of MH disabled men (women) working *reduced hours* compared with 30% (38%) of non-disabled people.

Figure 6 shows percentages of disabled and non-disabled workers by occupation; similar figures for industries are provided in Figure 7. Looking first at occupations, it is clear that MH disabled men were under-represented in the higher level occupational categories of professional occupations, skilled trades, and managers and directors; they were also under-represented in the plant and machine operative occupations. In contrast they were over-represented in the elementary occupations, administrative and secretarial roles, in sales and customer services and in caring roles. This pattern was largely the same for women with MH disability, with the exception of administrative and secretarial roles, where employment rates for women were similar regardless of disability status.

Across industries, again we see a high level of concentration of both men and women with MH problems. For men, those with MH disability were over-represented in wholesale and retail, public administration, health and social care, education, administration and support services, accommodation and food, the arts, entertainment and recreation, and other services. They were under-represented in manufacturing, construction, professional, scientific and technical activities, information and communication and finance. This pattern was similar for women with MH disability, except that they were under-represented in public administration and education, as well as in the transport sector.

Table 2 reports the disability gaps and summary decompositions for *employment, away from work* and *reduced hours*. For *employment* and *away from work*, we show results for 2019:Q2 and 2020:Q2, while for *reduced hours* we only report figures for 2020:Q2 because the outcome did not exist prior to the pandemic. We perform separate analyses for men and women.

The top row of each panel in the table shows the disability gaps. The *employment* gap was 52pp for men and 38pp for women in 2019:Q2 but, continuing the pre-pandemic trend seen above, these gaps had shrunk to 46pp and 35pp by 2020:Q2. The gaps in *away from work* in 2020:Q2 were about 9pp (with similar figures across genders), which was approximately double the gap in 2019:Q2 for women. For *reduced hours*, the disability gaps in 2020:Q2 were slightly smaller than for *away from work* in that year, at 7pp, and again very similar across genders.

The lower two rows in each panel summarise the Oaxaca-Blinder decompositions of the gaps into contributions due to differences in characteristics and those due to differences in coefficients. These are expressed as percentages of the relevant gaps.

5.2.1. Employment

Only about 10% of the *employment* gaps in 2019:Q2 can be explained by differences in characteristics. The characteristics share increased somewhat for men in 2020:Q2 (to 11%) but reduced for women

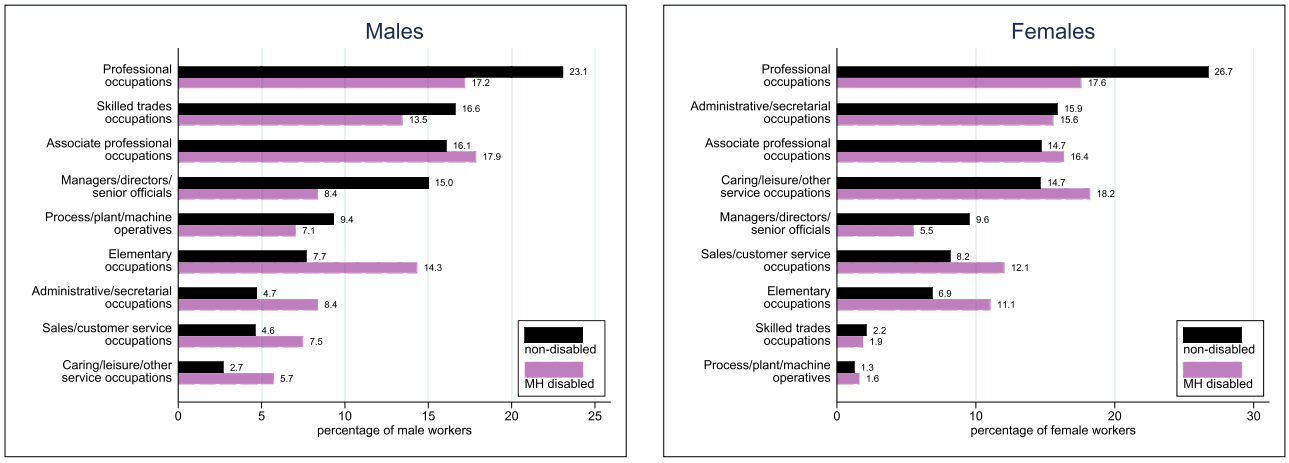

Fig. 6. Percentage of workers by Occupations (2020:Q2)

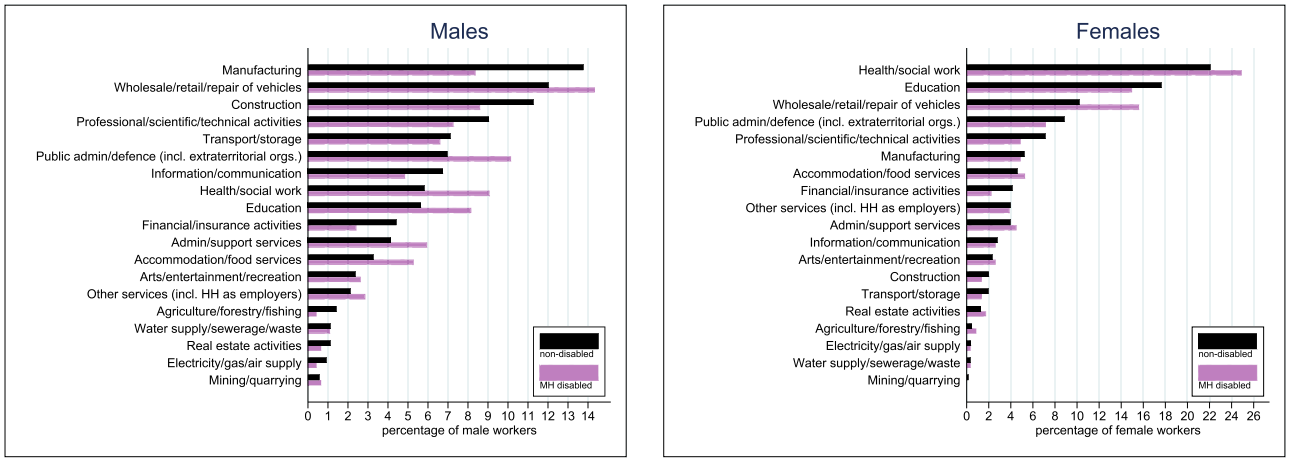

Fig. 7. Percentage of workers by Industries (2020:Q2)

Table 2
Decomposition of outcome gaps: MH disability

	Employment		Away from work		Worked reduced hours
	2019:Q2	2020:Q2	2019:Q2	2020:Q2	2020:Q2
			Males		
Gap	0.518***	0.458***	-0.071***	-0.091***	-0.070**
	(0.014)	(0.016)	(0.018)	(0.026)	(0.028)
Characteristics (%)	9.6***	11.4***	9.8***	32.6***	38.2***
Coefficients (%)	90.4***	88.6***	90.2***	67.4**	61.8
			Females		
Gap	0.377***	0.346***	-0.046***	-0.092***	-0.069***
	(0.011)	(0.013)	(0.013)	(0.019)	(0.020)
Characteristics (%)	9.7***	8.1***	-23.6***	20.6**	34.3***
Coefficients (%)	90.3***	91.9***	123.6***	79.4***	65.7**

Employment regressions include demographics (age, ethnicity, children in household, marital status, adults in household, other employed individual in household), educational attainment and region dummies (12 regions of residence). Regressions for *away from work* and *reduced hours* additionally include experience (tenure with current employer, in months) industry (19 categories), occupation (9 categories), and workplace characteristics (number of employees, and dummy variables for self-employed, public/private, part-time/full-time work). Standard errors are provided in parentheses; **, *** denote significance at $p < 0.05$, and $p < 0.01$ respectively.

(to 8%). To examine these results in more detail, in Table 3 we present breakdowns of the decompositions based on groups of explanatory variables (defined below). We report these breakdowns for the characteristics shares only, because the majority of the group coefficient effects were not statistically significant at conventional levels; that is, the data are not sufficiently rich in most cases to apportion this gap across the various coefficient groups. However, we report the aggregate effects for both characteristics ($\Delta\bar{X}$) and coefficients ($\Delta\hat{\beta}$) in the first row of the tables.

Given the size of the coefficient effects, it is worth commenting here on how to interpret them. In essence, they capture differences in outcomes after accounting for measured characteristics. These differences

Table 3
Detailed decomposition by MH disability: *Employment*

	Males				Females			
	2019:Q2		2020:Q2		2019:Q2		2020:Q2	
Decomposition	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$
Aggregate effect	0.050***	0.468***	0.052***	0.406***	0.037***	0.340***	0.028***	0.319***
	(0.005)	(0.013)	(0.005)	(0.015)	(0.005)	(0.011)	(0.005)	(0.012)
Detailed effects								
Demographics	0.042***		0.039***		0.003		0.005	
	(0.004)		(0.005)		(0.004)		(0.004)	
Education	0.007***		0.013***		0.034***		0.023***	
	(0.002)		(0.003)		(0.003)		(0.002)	
Region	0.001		0.000		0.000		0.000	
	(0.001)		(0.001)		(0.001)		(0.001)	

Regressions include demographics (age, ethnicity, children in household, marital status, adults in household, other employed individual in household), education, and region dummies (12 regions of residence). Standard errors are provided in parentheses; *, **, *** denote significant at $p < 0.10$; $p < 0.05$, and $p < 0.01$ respectively.

probably reflect a mix of employer attitudes, cost considerations, and worker preferences; all of which were likely influenced by COVID-19. For example, employers may see the retention of disabled people as more risky during the pandemic, or face additional costs of making work adjustments. On the other hand, as we have already discussed, more MH disabled than non-disabled workers requested absence from work in order to shield.

For the characteristic effects ($\Delta\bar{X}$) the variable groups are: demographic characteristics, education and experience, and region. The variables included in each group are listed under the tables and are defined in Appendix Table A1. These variable group decompositions can in turn be broken down into the contributions due to each individual variable. For reasons of space we do not report these detailed decompositions (they are available from the authors on request), but we refer to them below in interpreting the results.

For men, demographics and education emerge as significant components of the characteristics share of the *employment* gap in both years. The more detailed decomposition shows this is partly because MH disabled men have an age profile associated with lower employment (they are over-represented in the youngest and oldest age groups) and they are less likely to live with other employed individuals (which predicts higher employment). The education effect is driven by an absence of qualifications (more likely among MH disabled men) and, in 2020:Q2, degree level education (less likely). For women, educational differences, but not demographics, contribute to the employment gap in both years, and they are again related to differences in the tails of the education distribution.

5.2.2. *Away from work*

For the *away from work* outcome, only a small proportion of the MH disability gaps can be attributed to differences in characteristics. In 2019:Q2, this contribution was only 10% for men, and for women it was negative (-24%); a negative percentage indicates that if disabled and non-disabled workers had the same characteristics the gap would be even wider (the observed differences in characteristics contributed to narrowing the gap relative to this counterfactual). However, it is striking that the characteristics shares increased sharply during the pandemic; in other words characteristics explained more of a larger gap. Corresponding to the small shares due to characteristics, the shares attributed to coefficients make up the majority of the gaps. However, mirroring the changes in the characteristics shares already seen, there were substantial declines in coefficient shares from 2019:Q2 to 2020:Q2. For men the MH coefficients share went from 90% to 67% and for women it fell from 124% to 79%.

Table 4 presents the detailed decomposition of the *away from work* gap. Because all individuals in this sub-sample were in employment, the decomposition includes additional job-related variables, grouped as industry, occupation, and workplace characteristics; and we now also include job tenure with education in a combined education and experience group (the individual variables are listed under the tables and defined in Appendix Table A1).

Table 4 shows that for men in 2019:Q2, workplace characteristics explained all of the characteristics component of the MH disability gap. The detailed decomposition indicates that this is wholly driven by the segmentation of MH disabled workers into part-time employment. Part-time workers were more likely to be *away from work*, and 20% of male workers with MH disabilities worked part time, compared with only 8% of non-disabled male workers (see Appendix Table A2).

For men in 2020:Q2, the workplace characteristics effect remained. However, the detailed results show that the part-time work effect within this category had doubled, but was offset by a public sector effect in the other direction. The latter effect arose because men with MH disabilities were more likely to work in the public sector, and public sector workers were less likely to be away from work in the pandemic. In addition, education and experience, industry and occupation also contributed to the larger gap during the pandemic. For instance, disabled workers were less likely have a degree and those without a degree were more likely to be away from work. As we report above, men with MH disabilities were also more likely to work in accommodation and food than non-disabled workers, and this was one of the main sectors shut down during the pandemic. Meanwhile, managerial and professional occupations were less likely to be away from work, but workers with MH disabilities were under-represented in these jobs. All of these results suggest that COVID-19 exacerbated pre-existing segregation and segmentation based on education, occupation and workplace characteristics such as contract type.

For women (Table 4), before the pandemic there was little contribution from labour market characteristics to the MH *away from work* disability gap (it was wholly explained by demographic characteristics). In contrast, during the pandemic in 2020:Q2 when the gap had doubled, education and experience, occupation and workplace characteristics all contributed, with the latter two being the main factors. The contribution of occupational group was dominated by managerial and professional occupations (where as reported above, disabled women were under-represented), caring, leisure and other service occupations, and elementary occupations (where they were over-represented). The workplace characteristics effect was again driven by the segmentation of MH disabled women into part-time work. As for men, the unequal distribution of women with MH disabilities across occupations and types of job meant they were more likely to be away from work during the pandemic.

5.2.3. *Working reduced hours*

As explained above, working reduced hours due to COVID was zero by definition prior to 2020, so we look only at the gaps that emerged

Table 4
Detailed decomposition by MH disability: *Away from work*

	Males				Females			
	2019:Q2		2020:Q2		2019:Q2		2020:Q2	
Decomposition	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$
Aggregate effect	-0.007***	-0.064***	-0.030***	-0.061**	0.011***	-0.057***	-0.019**	-0.073***
	(0.002)	(0.018)	(0.010)	(0.025)	(0.003)	(0.013)	(0.008)	(0.018)
Detailed effects								
Demographics	0.000		-0.001		-0.011***		0.008**	
	(0.001)		(0.002)		(0.003)		(0.003)	
Education &	0.001		-0.004***		0.001		-0.003**	
experience	(0.001)		(0.002)		(0.001)		(0.002)	
Industry	0.000		-0.010*		0.002*		-0.002	
	(0.001)		(0.006)		(0.001)		(0.005)	
Occupation	-0.001		-0.006*		-0.001		-0.011***	
	(0.001)		(0.003)		(0.001)		(0.003)	
Workplace	-0.007***		-0.007*		0.000		-0.008**	
characteristics	(0.002)		(0.004)		(0.001)		(0.003)	
Region	-0.001		-0.002		-0.002**		-0.002**	
	(0.001)		(0.001)		(0.001)		(0.001)	

Regressions include demographics (age, ethnicity, children in household, marital status, adults in household, other employed individual in household), education & experience (educational attainment, tenure with current employer), industry (19 categories), occupation (9 categories), workplace characteristics (number of employees, self-employed, public/private, part-time/full-time work), region (12 regions of residence). Standard errors are provided in parentheses; *, **, *** denote significant at $p < 0.10$; $p < 0.05$, and $p < 0.01$ respectively.

Table 5
Detailed decomposition by MH disability: *reduced hours*

	Males		Females	
	2020:Q2		2020:Q2	
Decomposition	$\Delta\bar{X}$	$\Delta\hat{\beta}$	$\Delta\bar{X}$	$\Delta\hat{\beta}$
Aggregate effect	-0.027***	-0.043	-0.024***	-0.045**
	(0.010)	(0.027)	(0.008)	(0.019)
Detailed effects				
Demographics	-0.004		-0.006**	
	(0.003)		(0.002)	
Education &	-0.003*		-0.001	
experience	(0.002)		(0.002)	
Industry	-0.013*		0.002	
	(0.007)		(0.006)	
Occupation	-0.002		-0.010***	
	(0.003)		(0.003)	
Workplace	-0.002		-0.006*	
characteristics	(0.005)		(0.003)	
Region	-0.002*		-0.002	
	(0.001)		(0.001)	

Regressions include demographics (age, ethnicity, children in household, marital status, adults in household, other employed individual in household), education & experience (educational attainment, tenure with current employer), industry (19 categories), occupation (9 categories), Workplace characteristics (number of employees, public/private, part-time/full-time work), region (12 regions of residence). Standard errors are provided in parentheses; *, **, *** denote significant at $p < 0.10$; $p < 0.05$, and $p < 0.01$ respectively.

in 2020:Q2. Table 2 shows that coefficient shares made up most of the *reduced hours* gaps accounting for 61-65% of the gaps. However, similar to *away from work*, in general the data did not enable us to apportion the coefficient shares across the different groups of factors. So in the detailed decompositions by groups presented in Table 5 we only report the breakdown for the characteristics shares.

For men, none of the group effects are significant at the 5% level, but for women there is a significant contribution to the MH disability gap due to occupation (as well as demographics). The occupation effect was via the concentration of disabled workers in the caring, leisure and other service occupations, and in the elementary occupations; and also by their under-representation among managers and professionals. The first two occupational groups were especially likely to work reduced hours during 2020.

6. Discussion and Conclusion

The analysis that we have presented here suggests that the main labour market effects of the pandemic were temporary for disabled people; gaps in being away from work and working reduced hours widened after the first lockdown but narrowed by the end of 2021. However, the employment gap that existed before COVID-19 is still apparent, and those with MH disability are in the most disadvantaged position. The potential longer term consequences of this short-term disruption are not yet clear. Temporary absence from the labour market during the height of the pandemic may have helped to protect vulnerable workers from the worst effects of the disease. However, the gap in being away from work widened for those with MH disability (especially for women), so this was clearly not simply a case of shielding because of clinical vulnerability. Further, the absences and reduced hours were generally accompanied by reduced pay. These adverse financial consequences are also exacerbated for MH disabled people by the fact that being disabled already puts households at higher risk of living in poverty (Barry et al., 2020; Tinson, Aldridge, Born, Hughes, 2022). Short-term absence from work can also weaken labour market attachment and increase the probability of exiting to long-term inactivity, through a variety of mechanisms including the negative effects on human capital accumulation and the potential adverse health effects of inactivity, which can be worse for those with mental ill-health. Data from the LFS reveals that redundancies following the implementation of COVID restrictions peaked in the months leading up to 2020:Q4 and were higher for MH disabled workers (2.2% of previous quarters employment) than for non-disabled people (at 1.4%).

Our decomposition analysis shows that at a given point in time only small proportions of the disability gaps can be explained by observed characteristics. However, the importance of characteristics increased during the pandemic, and these characteristics are mostly those associated with the workplace. MH disabled workers are concentrated in those jobs and sectors that were most affected by the pandemic and associated response. This points to the importance of segmentation and segregation as explanations of labour market inequality. Overall, the main observed drivers of MH disability gaps, for both men and women, are part-time work and occupation. Segmentation theory predicts that workers in the secondary labour market are most likely to be adversely affected and our results suggest that this has largely been driven by the over-representation of workers with MH disabilities in part-time jobs; which of course may be an important way for disabled people to

manage their condition. This is particularly striking for men, for whom part-time work is not normally considered a significant phenomenon. In terms of occupational segregation, MH disabled people tend to be under-represented in those occupations (notably managerial or professional) that were less likely to be away from work in the pandemic, and over-represented in those (caring, leisure and other service occupations, and elementary jobs) that were more likely to be away from work. Industry perhaps played less of a role than expected, because while MH disabled workers tended to be over-represented in the shutdown sectors (e.g. accommodation and food services), they were also over-represented in other sectors (notably health and social work, and for men education and public administration) where employment has been maintained.

Our results provide important new evidence on the importance of the segregation and segmentation of disabled workers, and the implications of these theories in explaining labour market outcomes; this has often been overlooked in the literature in favour of more direct reference to discrimination. The concentration of MH disabled workers in cyclically sensitive sectors and part-time work means that they will always be vulnerable to economic downturns. Any secular trend in labour market outcomes will also depend on longer-term structural shifts in the occupational and industrial mix, resulting for example from the decline in high-street retail and city centre working, and the increase in home-working, as well as the effects of Brexit on the UK economy. It is also important to take account of intersectionality with education, because MH disabled workers are less likely have a degree and those without a degree were more likely to be away from work.

As of mid-2022 it was still too early to fully evaluate the long-term consequences of COVID-19 on the labour market for disabled workers. The JRS was in operation in the UK up to the end of our data period; ending only in September 2021. Queuing theory predicts that job queues are likely to be longer due to structural unemployment, with disabled people at the back of the queue. However, a combination of Brexit and supply-side responses to the pandemic means that staff shortages are being reported in some industries, in particular hospitality, a key employer of MH disabled people. If labour markets are tight, disabled people will have a higher chance of finding employment as the economy recovers. However, if there are further structural changes to the economy in the longer term, the lower levels of education among workers with MH disability may act as a constraint on this process. A sensible policy response would be to provide appropriate training for workers with MH disability, to increase their overall employment rate and ensure that they are ready to take advantage of the labour market opportunities that emerge in the restructured post-COVID, post-Brexit economy.

Acknowledgements

We are grateful to the Health Foundation for funding this research under their Social and Economic Value of Health programme, Award No. 751630. The Labour Force Survey is accessible from the UK Data Service under an End User Licence.

Appendix A

Table A1
Variable definitions

Variable	Definition
Disability status	
MH disabled	=1 if respondent is disabled according to the Equality Act 2010 and has at least one MH problem, 0 if not disabled. Excluding respondents who are disabled but (1) do not report any specific health problems OR (2) report only physical health problems or "other health problems or disabilities"
Outcome measures	
Employed	=1 if employee or self-employed based on ILO definition, 0 if non-employed (including unemployed, inactive, unpaid family workers, on government training schemes).
Away from work	=1 if employed but temporarily away from work in reference week, 0 if employed and worked in ref week. Excluding respondents who are employed but did not confirm whether or not they worked in the reference week
Reduced hours	=1 if employed and worked reduced hours in reference week due to Covid-19 related reasons, 0 if did not work less hours OR worked reduced hours due to other reasons.
Explanatory variables	
Age group dummies	Age of respondent: 18-24 (omitted category), 25-34, 35-44, 45-54, 55-64
Ethnicity	=1 if white, 0 otherwise
Children 0-2	=1 if there are children in family aged under 2, 0 otherwise
Children 2-4	=1 if there are children in family aged between 2 and 4, 0 otherwise
Children 5-9	=1 if there are children in family aged between 5 and 9, 0 otherwise
Children 10-15	=1 if there are children in family aged between 10 and 15, 0 otherwise
Marital status	=1 if married/cohabitating/civil partner, 0 otherwise
Adults in HH	Number of adults in household
Other employed person in HH	=1 if there is another working adult in the household, 0 otherwise
Region dummies	London (omitted category), North East, North West, Yorkshire and Humber, East Midlands, West Midlands, East of England, South East, South West, Northern Ireland, Scotland, Wales.
Education dummies	No qualifications (omitted category), GCSE, A level, degree or equivalent.
Tenure w/ current employer	Number of months worked continuously with current employer/as self-employed
Industry dummies	Industry section in main job based on 2007 SIC including: (1) Agriculture, forestry and fishing (2) Mining and quarrying (3) Manufacturing (4) Electricity, gas, air cond supply (5) Water supply, sewerage, waste (6) Construction (7) Wholesale, retail, repair of vehicles (8) Transport and storage (9) Accommodation and food services (10) Information and communication (11) Financial and insurance activities (12) Real estate activities (13) Prof, scientific, technical activities (14) Admin and support services (15) Public admin and defence + Extraterritorial organisations (16) Education (17) Health and social work (18) Arts, entertainment and recreation (19) Other service activities + Households as employers.
Occupation dummies	Occupation in main job based on the SOC2010 including: (1) Managers, Directors and Senior Officials (2) Professional Occupations (3) Associate Professional and Technical Occupations(4) Administrative and Secretarial Occupations (5) Skilled Trades Occupations (6) Caring, Leisure and Other Service Occupations (7) Sales and Customer Service Occupations (8) Process, Plant and Machine Operatives (9) Elementary Occupations.
Workplace size dummies	Number of employees at workplace: 500 or more (omitted category), 25-499, under 25.
Public/private	=1 if working in the public sector, 0 if working in the private sector.
Part-/full-time	=1 if main job is part-time, 0 if working full-time.
Self-employed	=1 if respondent is self-employed, 0 if employee.

Table A2
Summary statistics (2020:Q2)

	Males		Females	
	Non Disabled	MH Disabled	Non Disabled	MH Disabled
Outcome variables				
Employed	0.867	0.409	0.808	0.461
Away from work	(0.206)	(0.297)	(0.250)	(0.342)
Reduced hours	[0.298]	[0.368]	[0.319]	[0.388]
Age in years				
Age 18 - 24	0.113	0.141	0.093	0.102
	(0.092)	(0.110)	(0.081)	(0.094)
Age 25 - 34	0.174	0.166	0.195	0.184
	(0.196)	(0.206)	(0.215)	(0.232)
Age 35 - 44	0.218	0.166	0.225	0.202
	(0.247)	(0.247)	(0.242)	(0.256)
Age 45 - 54	0.246	0.249	0.239	0.257
	(0.262)	(0.261)	(0.261)	(0.264)
Age 55 - 64	0.250	0.278	0.248	0.255
	(0.203)	(0.176)	(0.201)	(0.154)
Ethnicity				
White	0.911	0.952	0.900	0.931
	(0.916)	(0.945)	(0.911)	(0.931)
Household (HH) characteristics				
Child 0 - 2 yrs	0.062	0.024	0.067	0.041
	(0.070)	(0.027)	(0.066)	(0.040)
Child 2 - 4 yrs	0.096	0.047	0.101	0.076
	(0.107)	(0.096)	(0.096)	(0.066)
Child 5 - 9 yrs	0.151	0.083	0.168	0.133
	(0.162)	(0.124)	(0.166)	(0.147)
Child 10 - 15 yrs	0.186	0.117	0.203	0.176
	(0.194)	(0.146)	(0.204)	(0.203)
Married	0.703	0.398	0.693	0.444
	(0.730)	(0.577)	(0.694)	(0.540)
Adults in HH	2.239	2.062	2.178	1.924
	(2.228)	(2.113)	(2.161)	(1.974)
Other employed in HH	0.732	0.471	0.737	0.490
	(0.761)	(0.640)	(0.766)	(0.621)
Educations				
No qualifications	0.045	0.211	0.038	0.128
	(0.036)	(0.049)	(0.027)	(0.029)
GCSE	0.210	0.274	0.212	0.304
	(0.201)	(0.258)	(0.204)	(0.244)
A level	0.272	0.239	0.207	0.229
	(0.256)	(0.261)	(0.200)	(0.247)
Degree or equivalent	0.473	0.276	0.543	0.340
	(0.508)	(0.431)	(0.570)	(0.480)
Current job tenure				
Months current employer	(114)	(101)	(108)	(87)
Workplace size				
500 +	(0.219)	(0.214)	(0.212)	(0.209)
25 - 499	(0.471)	(0.475)	(0.472)	(0.468)
less than 25	(0.310)	(0.310)	(0.316)	(0.323)
Employment type				
Public sector	(0.192)	(0.288)	(0.384)	(0.379)
Part-time	(0.079)	(0.198)	(0.365)	(0.449)
Self-employed	(0.033)	(0.008)	(0.014)	(0.007)
N	11809	1042	12592	1652
	(8690)	(364)	(9179)	(681)

Figures without (with) parentheses represent the samples used to analyse employment (away from paid work) as an outcome. The samples for reduced hours as an outcome are very slightly smaller than the ones for away from paid work due to missing hours data (8689 for non-disabled men and 364 for MH disabled men; 9177 for non-disabled women and 681 for MH disabled women), hence the statistics for these two outcomes are virtually the same (not shown here, except for reduced hours in square brackets).

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