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## Original Article

## How has COVID-19 impacted disability employment?

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## ABSTRACT

**Background:** While the COVID-19 public health emergency has had disastrous health impacts for people with disabilities, it remains unclear what impact the associated economic recession and subsequent recovery have had on disability employment.

**Objective:** We evaluated employment trends for people with and without disabilities over the course of the COVID-19 recession and subsequent economic recovery, both overall and by occupational category (essential, non-essential, teleworkable, non-teleworkable, frontline, non-frontline).

**Methods:** We made use of data from the nationally representative Current Population Survey. Linear probability models were used to estimate percent changes in employment-to-population ratios and identify differences between disabled and non-disabled employment in each quarter broadly and within specific occupational categories.

**Results:** As the COVID-19 recession began in Q2 2020, people with disabilities experienced employment losses that were proportionately similar to those experienced by people without disabilities. However, during the subsequent economic recovery, the employment rate of people with disabilities grew more quickly in Q4 2021 through Q2 2022, driven by increased labor force participation. These employment gains have been concentrated in teleworkable, essential, and non-frontline occupations.

**Conclusion:** Our findings suggest that people with disabilities are disproportionately benefiting from the rapid recovery from the initial economic contraction at the start of the pandemic.

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The COVID-19 public health emergency has presented serious challenges for people with disabilities (PWD). While the health impacts of COVID-19 have been negative, it remains unclear how the pandemic has impacted disability employment.<sup>1,2</sup> There are strong arguments for both positive and negative effects. Like other marginalized groups, PWD experience employment discrimination, placing them at greater risk of job loss during recessions.<sup>3</sup> PWD in frontline jobs may have chosen to quit to protect their health. At the same time, PWD have long been more likely to work from home, and therefore the pandemic-induced shift to telework may have created new employment opportunities by making it easier for people with disabilities to telework.<sup>4</sup> In addition, tightening labor markets during the economic recovery may have contributed to employment gains for PWD. Recent labor market trends have important implications for the health and welfare of PWD. Prior work has documented that employment is associated

with improved health outcomes, both for PWD and the general public.<sup>5,6</sup>

Analyses of previous recessions find that PWD are at greater risk of job loss during periods of economic contraction.<sup>7,8</sup> During the Great Recession (2007–2009), PWD experienced a much greater decline in employment<sup>9</sup> and greater underemployment.<sup>10</sup> The Great Recession also induced large numbers of SSDI applications and awards that would not otherwise have been filed.<sup>11</sup> Prior work has found that PWD had a longer recovery from the Great Recession than their non-disabled counterparts.<sup>12</sup>

Houtenville, Paul, and Brucker (2021) documented comparable percentage decreases in employment for people with and without disabilities from February 2020 to April 2020, the crucial early months of the pandemic during which most job losses took place and the economic recession occurred.<sup>13</sup> In contrast, Schur, Rodgers, and Kruse (2021) found that PWD experienced worse employment losses than non-disabled people over the course of 2020, although PWD with college degrees had recovered and even exceeded pre-COVID-19 employment levels by year's end.<sup>12</sup> As these studies focused on the initial months of the COVID-19 pandemic, little is

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understood about the trajectory of disability employment in subsequent years.

Just as overall labor market trends may mask considerable heterogeneity by disability status (i.e., people with and without disabilities), they also fail to capture heterogeneity by occupational type in particular occupational categories likely to be differentially impacted by the pandemic, such as essential and frontline workers or workers in teleworkable professions. Analyses early in the pandemic indicated that drops in employment were more severe in occupations not conducive to telework.<sup>14</sup> Subsequent analyses confirmed that workers in occupations suitable for telework were less likely to lose their jobs through at least the end of 2020.<sup>15</sup> Making use of large-scale surveys, Barrero, Bloom, and Davis (2021) predicted that telework arrangements may quadruple (from 5 to 20% of full workdays) in the post-COVID-19 era.<sup>16</sup> Though telework has long been highlighted by the Employment Equal Opportunity Commission (EEOC) as a potential reasonable accommodation for workers with disabilities, its availability in any given employment setting is dependent on both the nature of job requirements (which determine whether such an accommodation is “reasonable” and does not constitute an “undue burden” to employers) and employer compliance with disability rights law.<sup>17</sup> At the same time, disabled workers may not reap the full benefit of the expansion in telework availability if they are concentrated in industries and occupations that are not conducive to it and lack the opportunity to shift into telework-friendly employment. Consistent with this concern, Kruse et al. (2018) documented that PWD were less likely than non-disabled people to telework during the early period of the COVID-19 recession, owing largely to occupational differences between disabled and non-disabled workers.<sup>18</sup>

In the several years preceding the COVID-19 recession, disability employment had begun rising—in both absolute and relative terms. This historic reversal of the decades-long decline in disability employment emerged following the recovery from the Great Recession. During prior recessions, the employment rate of disabled workers tended not to recover to pre-recession levels, reinforcing a long-term downward trend in employment.<sup>7,8,19</sup>

Given this context, it is important to evaluate whether workers with disabilities are benefiting from the rapid recovery from the COVID-19 recession to the same extent as workers without disabilities, recovering more rapidly, more slowly, or not recovering at all. Should the pre-Great Recession downward employment trend reassert itself in the aftermath of COVID-19, this would represent a step backwards for efforts to integrate PWD into the workforce. Alternatively, if employment for PWD is recovering at the same or greater rate as that of persons without disabilities, it might suggest the return of the upward employment trend documented prior to COVID-19. To explore these issues, we examined employment trends for PWD and non-disabled people during and after the COVID-19 recession making use of data from the Current Population Survey.

## Methods

### Data

The Current Population Survey (CPS) is a nationally representative survey of approximately 60,000 households conducted by the Bureau of Labor Statistics for the purpose of reporting monthly unemployment and labor force statistics. When households enter the CPS, they are surveyed for four consecutive months, not surveyed for the next eight months, and then surveyed again for four months before rotating out of the CPS. The CPS collects information on respondent disability status through the use of a standard six-question sequence inquiring about: a) hearing difficulty, b) vision

difficulty, c) cognitive difficulty, d) ambulatory difficulty, e) self-care difficulty, and f) independent living difficulty. Respondents who report any of these difficulties are classified as disabled for the purposes of our analyses, consistent with their intended use and established norms for disability policy research. We use data from the CPS monthly files from July 2008 to June 2022, though our primary analyses begin in July 2012. Our time period of interest is the COVID-19 public health emergency, spanning from Q1 2020 to Q2 2022.

### Outcome variables

We collapse the individual-level data to the month- or quarter-level to calculate employment-to-population ratios separately for PWD and non-disabled people. This month-level data is used in our regressions; the quarter-level data is used in our plots. To calculate the employment-to-population ratio for each disability status group (PWD, non-disabled), the numerator is the number of employed and “at work” persons in the disability status group in a given month/quarter while the denominator is the total number of persons ages 18–64 in the disability status group in the same month/quarter. We make use of employed at work as our outcome in order to address a misclassification issue that BLS indicated resulted in furloughed workers inaccurately classified as employed but not at work (rather than unemployed on temporary layoff) in the first few months of the pandemic.<sup>20</sup> We do this for the sample as a whole and by occupation type. The occupation types are teleworkable/non-teleworkable, essential/non-essential, and frontline/non-frontline. We classify occupations as essential or non-essential based on the Department of Homeland Security’s “Identifying Critical Infrastructure During COVID-19” guidelines.<sup>21</sup> Our definition of teleworkable jobs comes from Dingel and Neiman (2020).<sup>22</sup> Frontline jobs are those that are essential and not teleworkable.

### Covariates

As we describe below, we incorporate demographic control variables in our regression analyses to account for baseline differences between persons with and without disabilities and to capture shifts over time in the demographic composition of people with and without disabilities arising from the pandemic. Since our data are structured at the monthly level, covariates are constructed as the percentage of people in each disability status group with a particular demographic characteristic in each month. Demographic characteristics are: age group (18–34, 35–49, and 50–64), sex, race/ethnicity (white, Black, Hispanic, or other), and educational attainment (no Bachelor’s degree or Bachelor’s degree).

### Analyses

Focusing on the months surrounding the COVID-19 public health emergency, we set Q1 2019 as the reference quarter rather than Q1 2020 (the immediate pre-COVID-19 quarter). We do so for two reasons. First, Q1 2020 includes March 2020 when the pandemic began. Second, in Q1 2020 PWD in non-essential occupations experienced a sudden and anomalous increase in their employment-to-population ratio (equal to a 12.3% increase relative to Q1 2019, see Table 2, col. 3). Since this sudden increase is an outlier relative to the pre-COVID-19 trend and likely represents sampling noise, making use of Q1 2020 as a reference quarter could yield a misleading estimate of the percentage change in disabled employment due to COVID-19 (in particular, overstating their employment loss during the early months of the pandemic). To address this, we make use of the same quarter one year earlier,

**Table 1**  
Sample statistics before, during, and after COVID-19 recession.

Panel A						
	Percentage of total population			Percentage employed at work, conditional on disability status		
	Before 2019:Q1	During 2020:Q2	After 2022:Q2	Before 2019:Q1	During 2020:Q2	After 2022:Q2
Any disability (%)	7.58	7.20 ***	8.12 ***	29.24	24.95 ***	32.79 ***
Hearing difficulty	1.43	1.40	1.52 **	49.34	42.64 ***	48.39
Vision difficulty	1.13	0.95 ***	1.16	38.22	30.21 ***	37.68
Difficulty remembering	2.99	2.80 ***	3.65 ***	22.27	19.70 ***	30.32 ***
Physical difficulty	3.98	3.54 ***	3.78 ***	18.76	14.83 ***	19.42
Disability limiting mobility	2.52	2.45	2.75 ***	11.66	7.77 ***	12.11
Personal care limitation	1.18	1.13	1.22	9.27	6.58 ***	9.87
Panel B						
	With disability			No disability		
	Before 2019:Q1	During 2020:Q2	After 2022:Q2	Before 2019:Q1	During 2020:Q2	After 2022:Q2
Working age population (in millions)	15.0	14.2 ***	16.1 ***	182.4	182.9	182.3
<b>Age</b>						
Mean age	47.33	46.76***	46.71 ***	40.27	40.36	40.34
18–34 (%)	21.71	24.41***	23.46 ***	38.64	38.38	38.08 ***
35–49 (%)	24.18	23.35	24.39	31.48	31.54	32.02 ***
50–64 (%)	54.11	52.24***	52.15 ***	29.88	30.08	29.90
<b>Sex</b>						
Female (%)	51.07	49.20***	51.07	50.80	50.85	50.37 **
<b>Race</b>						
White, non-Hispanic (%)	63.62	62.55	63.82	59.34	58.81***	57.83 ***
Black, non-Hispanic (%)	16.32	16.13	15.14 **	12.31	12.45	12.56 *
Hispanic (%)	13.29	15.28***	14.64 ***	18.96	19.15	19.87 ***
<b>Education</b>						
Bachelor's degree (%)	15.60	16.04	17.34 ***	35.41	37.43***	36.91 ***
<b>Employment outcomes</b>						
Employed at work (%)	29.24	24.95***	32.79 ***	74.48	63.38***	74.02 ***
Labor force participation (%)	34.26	34.45	38.00 ***	79.79	77.25***	79.53 *
Unemployed (%)	9.36	18.42***	8.23 *	3.92	12.46***	3.29 ***
<b>Occupational category</b>						
Management, business, science, and arts (%)	31.20	36.07***	35.50 ***	41.50	46.28***	42.83 ***
Service (%)	22.06	17.24***	18.89 ***	16.30	13.13***	15.91 **
Sales and office (%)	23.29	21.87	21.35 **	20.97	19.55***	19.00 ***
Natural resources, construction, and maintenance (%)	9.36	10.50	8.17 *	9.34	9.08*	9.37
Production, transportation, and material moving (%)	14.10	14.32	16.62 ***	11.89	11.96	12.89 ***

Notes: Statistically significant difference relative to 2019:Q1 at \* p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01.

which appears in line with the pre-COVID-19 trend. In [Appendix B](#), we confirm that the use of Q1 2020 as a reference quarter would yield anomalous results relative to other specifications and show that our findings are robust to a broad range of reference quarters immediately preceding the COVID-19 pandemic.

We first present key demographic statistics for the disabled and non-disabled populations before (Q1 2019, our reference quarter), during (Q2 2020), and after (Q2 2022) the COVID-19 recession. We use t-tests to determine whether there were significant differences in the number and composition of people reporting disabilities across time.

To analyze employment trends in the quarters surrounding the COVID-19 recession, we first plot the percent difference relative to Q1 2019 in the employment-to-population ratio from Q1 2018 to Q1 2022, separately by disability status group. We next estimate the percent change in the employment-to-population ratio for PWD relative to those without disabilities by month, using the following specification:

$$\ln(EPOP_{td}) = \alpha + \pi D + \sum_q \gamma_q Q_t + \sum_q \beta_q (Q_t \times D) + \delta' X_{td} + \epsilon_{td} \quad (1)$$

The dependent variable  $EPOP_{td}$  is the employment-to-population ratio in month t for disability status group d. We take its natural log since the logarithm approximates percent changes and therefore accounts for the very different employment levels across the disabled and nondisabled groups.  $Q_t$  is a series of indicator variables for quarters across the study period (omitting the reference quarter Q1 2019). D is an indicator variable taking the value 1 when the monthly employment-to-population ratio observation is for disabled workers and 0 when it is for non-disabled workers.  $X_{td}$  is the set of group-specific, time-varying demographic covariates described above. The terms  $Q_t \times D$  are interactions between each quarter and disability status group. The coefficients of interest are the  $\beta_q$  coefficients, which measure the percent difference in the employment-to-population ratio relative to Q1 2019 for PWD relative to those without. All models are estimated using ordinary least squares, and we make use of heteroskedastic-robust standard errors and the sampling weights provided by the CPS. We also use Equation (1) to estimate relative changes in disability employment in essential/non-essential, frontline/non-frontline, and teleworkable/non-teleworkable occupations. In these specifications, the numerator of the dependent variable is the number of PWD employed in essential, non-essential, frontline, non-frontline, teleworkable, or non-teleworkable occupations, and the denominator is the same as before.

## Results

### Sample statistics

We first explore the possibility of shifts in the composition of the disabled sample before, during, and after the COVID-19 recession. Panel A of [Table 1](#) shows that the proportion of PWD dropped from 7.58% in Q1 2019 to 7.20% in Q2 2020 before increasing to 8.12% in Q2 2022. This decline corresponds to the disruption in the CPS's typical sampling procedures at the start of the pandemic.<sup>23</sup>

Panel B of [Table 1](#) also shows that, from Q1 2019 to Q2 2022, there was an increase in the number of working-age PWD identified by the CPS of over one million persons. In contrast, non-disabled people had a statistically identical number of

**Table 2**  
 Logged employment outcome: Coefficients for disability × Quarter interactions, by occupational category.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Employed	Essential	Non-Ess.	Teleworkable	Non-Tele.	Frontline	Non-Front.
Disabled	−0.640*** (0.208)	−0.756*** (0.225)	−0.374 (0.284)	−1.233*** (0.282)	−0.217 (0.277)	−0.344 (0.262)	−0.900*** (0.256)
Disabled X Q1 2020	0.0302 (0.0196)	−0.00919 (0.0218)	0.123*** (0.0319)	0.0554** (0.0240)	0.00440 (0.0294)	−0.0326 (0.0313)	0.0886*** (0.0232)
Disabled X Q2 2020	−0.00226 (0.0724)	−0.0346 (0.0649)	0.0684 (0.102)	0.0562 (0.0617)	−0.0419 (0.111)	−0.0799 (0.0904)	0.0742 (0.0716)
Disabled X Q3 2020	−0.0437 (0.0510)	−0.0448 (0.0514)	−0.0469 (0.0652)	0.0145 (0.0519)	−0.0733 (0.0703)	−0.0853 (0.0631)	−0.00192 (0.0530)
Disabled X Q4 2020	−0.00244 (0.0254)	−0.00215 (0.0309)	−0.0121 (0.0427)	0.0255 (0.0480)	−0.0183 (0.0380)	−0.0213 (0.0441)	0.0196 (0.0412)
Disabled X Q1 2021	−0.00237 (0.0413)	−0.0251 (0.0403)	0.0486 (0.0608)	0.0632 (0.0510)	−0.0362 (0.0584)	−0.0561 (0.0520)	0.0524 (0.0498)
Disabled X Q2 2021	0.00570 (0.0326)	−0.0112 (0.0343)	0.0456 (0.0486)	0.0789** (0.0345)	−0.0322 (0.0480)	−0.0396 (0.0444)	0.0512 (0.0330)
Disabled X Q3 2021	0.0545 (0.0497)	0.0699 (0.0509)	0.0180 (0.0603)	0.130** (0.0559)	0.00392 (0.0609)	0.0239 (0.0532)	0.0821 (0.0548)
Disabled X Q4 2021	0.0933** (0.0380)	0.0885** (0.0378)	0.103* (0.0556)	0.181*** (0.0408)	0.0399 (0.0570)	0.0201 (0.0534)	0.161*** (0.0436)
Disabled X Q1 2022	0.0969** (0.0400)	0.106** (0.0495)	0.0743 (0.0524)	0.215*** (0.0467)	0.0212 (0.0532)	−0.00696 (0.0676)	0.190*** (0.0441)
Disabled X Q2 2022	0.124*** (0.0278)	0.141*** (0.0300)	0.0787 (0.0512)	0.186*** (0.0383)	0.0736** (0.0365)	0.0750** (0.0365)	0.169*** (0.0355)
Constant	−1.331** (0.660)	−1.116 (0.785)	−3.886*** (0.880)	−1.653 (1.181)	−2.433*** (0.793)	−2.290*** (0.794)	−1.874* (0.954)
Observations	240	240	240	240	240	240	240

Notes: \*p < 0.10, \*\*p < 0.05, \*\*\*p < 0.01 Standard errors in parentheses. Interaction coefficients are relative to Q1 2019. Models include demographic controls for age, gender, race, and education attainment of Bachelor's degree and are weighted by working age (18–64) population size, as calculated from CPS data. Essential jobs are based on Department of Homeland Security's "Identifying Critical Infrastructure During COVID-19" guidelines. Our definition of teleworkable jobs comes from Dingel and Neiman (2020). Frontline jobs are those that are essential and not teleworkable.

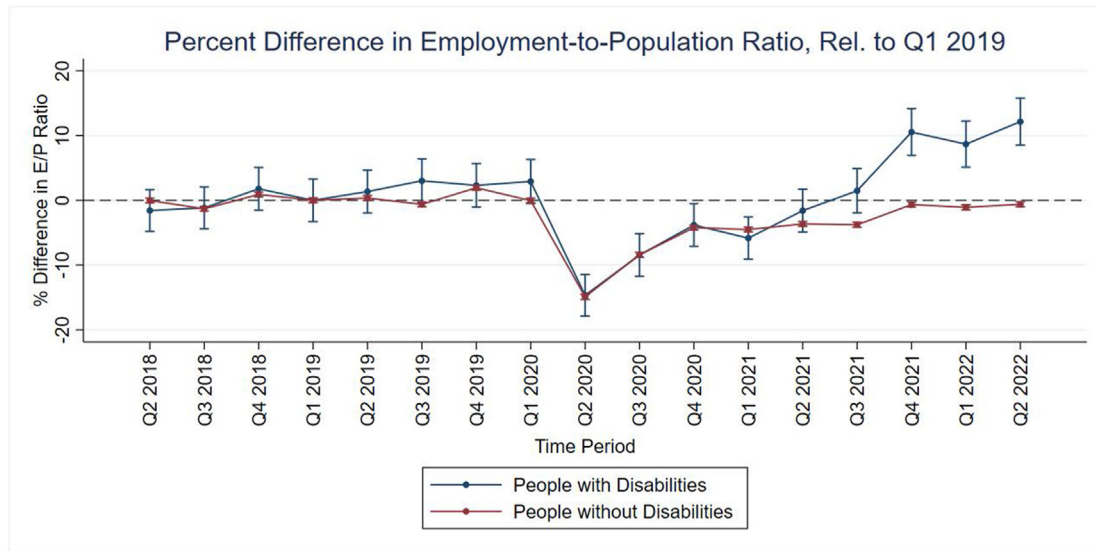
working-age adults in Q2 2022 as in Q1 2019. The increase in the number of disabled respondents is economically significant and might be attributable to either increasing disability rates during the pandemic or sampling bias. Panel B also shows shifts in the demographic composition of both the disabled and non-disabled samples, both of which became more educated and more Hispanic. The disabled sample also became younger. Nonetheless, these demographic shifts do not appear to be substantively large. We control for these demographic covariates in our subsequent analysis and include additional information demonstrating that these demographic compositional changes do not explain our subsequent findings in our limitations section.

We also present in Panel B of Table 1 information on employment outcomes for both the PWD and non-disabled sample. Both groups saw sharp drops in the percentage of persons employed-at-work in Q2 2020. However, while the non-disabled employed-at-work percentages were still 0.46% points below pre-recession levels in Q2 2022, PWD had achieved a 3.55% point increase relative to their pre-recession position. Labor force participation (those working or actively looking for work) remained constant for PWD during the recession while it dropped for non-disabled people. PWD also fared better during the recovery. By Q2 2022 the labor force participation of PWD had risen 3.74% points from its level in Q1 2019. In contrast, labor force participation for non-disabled people remained lower. In Appendix C, we show that disabled labor force participation has risen to the highest levels seen since the six-question disability sequence was added to the CPS in 2008. Unsurprisingly, both PWD and non-disabled people experienced significant increases in their unemployment rates in Q2 2020, with the rate nearly doubling for PWD and more than tripling for the non-disabled. However, both groups saw declines in unemployment rates relative to pre-COVID-19 rates by Q2 2022. Finally, we also observe similar occupational shifts for the two groups over the study period.

We next examine whether PWD had faster employment changes in percent terms than non-disabled people during and after the COVID-19 recession. Fig. 1 shows the unadjusted percent change in the quarterly employment-to-population ratio for PWD and non-disabled people, relative to Q1 2019. As the pandemic took hold in Q2 2020, the employment rate for both PWD and non-disabled people fell sharply, by over 10%. As employment began to recover in Q3 and Q4 2020, PWD and non-disabled employment recovered at the same pace. Then beginning in Q2 2021, the employment rate of PWD grew at a faster rate than that of non-disabled people. The employment rate of PWD recovered to its pre-recession level by Q2 2021 and has since surpassed that level by approximately 10%. In contrast, the employment rate of non-disabled people recovered to its pre-recession level two quarters later (in Q4 2021) where it has since remained.

We then examine these same trends within particular categories of employment, in order to better understand what parts of the economy have driven the faster pace of disabled employment growth. Fig. 2 displays trends for PWD and non-disabled people by employment type, showing that the faster relative employment growth experienced by PWD is concentrated in certain sectors of the economy. These figures show that the relative employment growth experienced by PWD was heavily concentrated in teleworkable, essential, and non-frontline occupations. The particularly strong employment growth in teleworkable occupations suggests that the expansion in telework that took place during the COVID-19 public health emergency may have had a positive impact on disability employment, raising the potential for long-term structural changes in the post-COVID-19 economy that may facilitate greater inclusion of PWD into the workforce.

Table 2 quantifies these patterns by presenting regression coefficients from estimation of Equation (1) by linear regression, which allows us to control for demographic covariates. Each

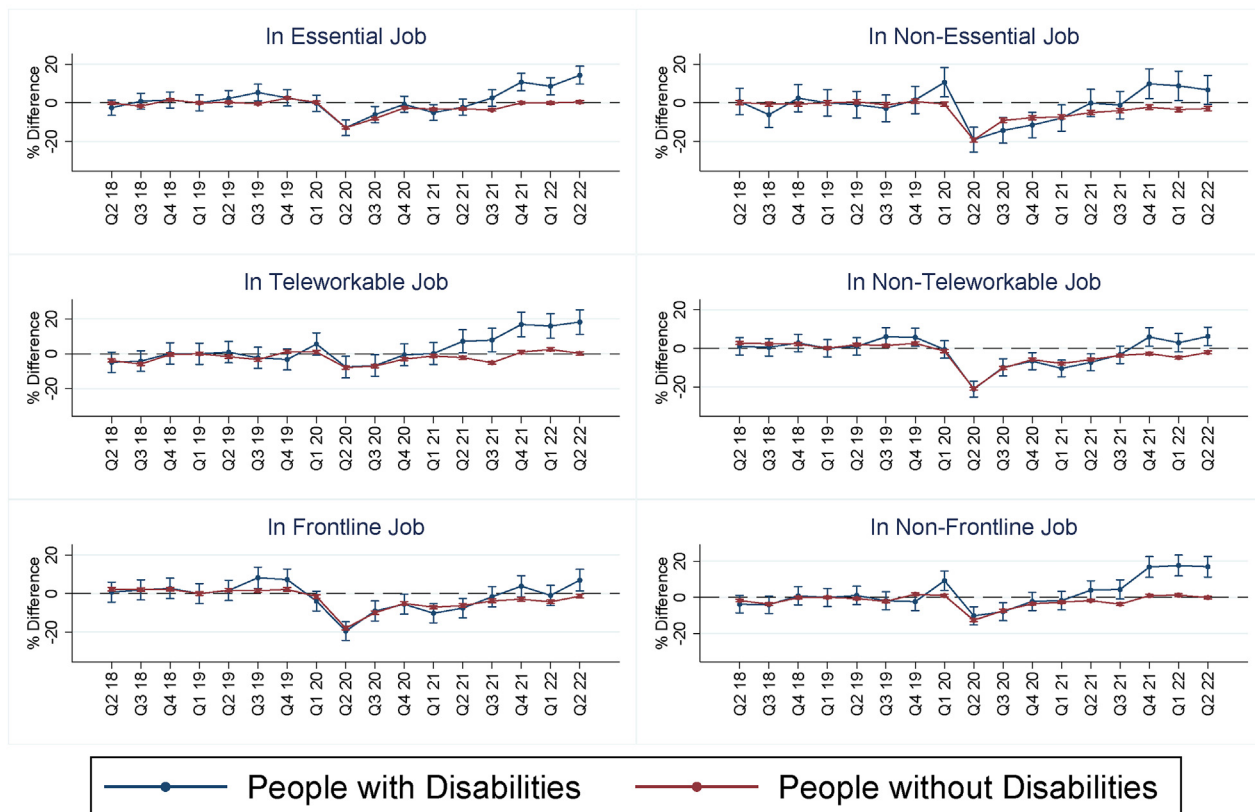


**Fig. 1.** Notes: Authors' calculations from Current Population Survey (CPS) microdata. Confidence intervals constructed using standard error of percent change, per U.S. Census Bureau guidance.

column represents a different model where the dependent variable in column 1 is the overall employment-to-population ratio and the dependent variables in the subsequent columns are the employment-to-population ratios for each employment type (e.g., essential, teleworkable, frontline). The coefficients of interest are

from the interaction of quarter-year with an indicator for disability status. The estimates in column 1 confirm the overall patterns in Fig. 1: There was no statistically significant difference between the employment rate for PWD and non-disabled persons (relative to the reference quarter of Q1 2019) for any of the quarters during

### Percent Difference in Employment-to-Population Ratio by Disability Status, Rel. to Q1 2019



**Fig. 2.** Notes: Authors' calculations from Current Population Survey (CPS) microdata. Confidence intervals constructed using standard error of percent change, per U.S. Census Bureau guidance.

2020. While short of statistical significance, relative employment growth for PWD increased in Q2 and Q3 of 2021. By Q4 2021, Q1 2022, and Q2 2022, the disabled employment-to-population ratio was significantly greater than that for non-disabled people at a  $p < 0.05$  level. The coefficient for the interaction term for Q2 2022 indicates that PWD experienced approximately 12.4% more growth from Q1 2019 to Q2 2022 than non-disabled people during the same period.

We next explore differences in employment trends by employment type for PWD and non-disabled people. Columns 2 and 3 present estimates for relative employment growth in essential and non-essential occupations, respectively. In column 2, we see that there is no statistically significant difference between the employment trends of PWD and non-disabled people in essential occupations through Q3 2021. But in Q4 2021 through Q2 2022, we see evidence of faster growth in essential employment for PWD, exceeding that of non-disabled people by approximately 14.1% (from Q1 2019 to Q2 2022). In column 3, we find little evidence of differential growth in non-essential occupations for PWD compared to non-disabled people.

We also examine differences in employment between PWD and non-disabled people by whether an occupational category is amenable to telework. Columns 4 and 5 present estimates for relative employment growth in teleworkable and non-teleworkable occupations, respectively. In column 4, we see that PWD saw much faster employment growth in teleworkable professions than non-disabled people did, beginning in Q2 2021 and increasing through Q2 2022, by which time the employment of PWD had outpaced that of non-disabled people by approximately 18.6%. In contrast, column 5 shows more modest greater employment growth of approximately 7.4% in non-teleworkable occupations, manifesting only in the most recent quarter (Q2 2022). Lastly, columns 6 and 7 present the coefficients for frontline and non-frontline employment, respectively. Column 6 shows a similarly modest recent difference in the rate of growth in frontline employment of approximately 7.5% (again, present only in Q2 2022) while column 7 shows that PWD saw significantly more employment growth in non-frontline positions than did non-disabled people in the last three quarters of our study period, Q4 2021 through Q2 2022, with employment of PWD growing approximately 16.9% more from Q1 2019 to Q2 2022 than employment of non-disabled people.

Our findings show that employment growth for PWD began to outpace that of non-disabled people in percentage terms in Q4 2021, Q1 2022 and Q2 2022. These trends emerged even earlier for teleworkable professions where employment growth of PWD exceeded that of non-disabled people as early as Q3 2021. Faster employment growth for PWD were concentrated in essential, teleworkable, and non-frontline jobs. These shifts appear to be driven by rising labor force participation of PWD rather than changes in the unemployment rate (see [Figures C2 and F2 in Appendices C and F](#), respectively). If this trend is sustained, it suggests the possibility of returning to the pre-COVID-19 steady increases in disability employment. It may also indicate that the shift towards remote work may present opportunities for a long-awaited improvement in disability employment outcomes post-COVID-19.

## Discussion

### Limitations

Prior work has found that the 6-question sequence used by the CPS fails to classify as disabled some groups of people with disabilities who are enrolled in income support programs and not in the labor force, biasing up the measured rate of employment

among PWD.<sup>24</sup> However, this issue would not affect our analysis of changes in employment during the COVID-19 public health emergency as long as the question bias remains constant over the study period.

For individuals who first entered the CPS during COVID-19, the CPS has no information about their pre-COVID-19 employment status, making it impossible for us to evaluate if they became unemployed due to COVID-19 or if their prior employment was in an industry of interest for a specific analysis. It is only possible to observe pre-COVID-19 employment status for those who were in their 5th through 8th month in the sample between March 2020 and February 2021. To address this, we used a common population denominator across occupational sectors. However, this did not allow us to distinguish between improved employment outcomes for jobseekers within a particular occupational category as compared to shifts between occupational categories.

In March 2020, the CPS suspended in-person interviewing due to the risks posed by COVID-19. Though in-person interviews resumed months later, response rates for the CPS have declined over the course of the pandemic.<sup>23</sup> This raises the possibility that the disabled population identified by the CPS after COVID-19 may be systematically different than that identified during COVID-19. To address this, we made use of demographic controls via multivariate regression, as reflected above. We report the specification with demographic controls as our primary analysis and report the results of the unadjusted specification in [Appendix A](#), in which our main findings persist. We also conduct regressions using demographic characteristics as the dependent variable with the same specification as our primary analyses (see [Appendix D](#)). The compositional shifts in demographics that we do identify are not large enough or timed at points likely to explain our main findings.

We do find that the percentage of PWD in the sample during the first year of the pandemic fell by 5% compared to Q1 2019 (see [Figures D1 and D2 in Appendix D](#)). While some of the drop in 2020 may be attributable to excess COVID-19 mortality among people with disabilities, the declines are too large to be attributable to this alone (particularly taking into account that many such deaths took place in congregate settings outside the CPS sampling frame). It is more likely that the drop reflects a temporary sampling bias due to the disruption of the CPS's typical interviewing procedures.

Beginning in Q2 2021, this was followed by an above-average rate of disability in our sample during the economic recovery in 2021 and 2022. In the initial months, the reversal may have been due to make-up disability questions being asked in subsequent waves of people who missed their 1st or 5th months in sample. However, since then the rising prevalence of Long COVID and other new sources of disability signal that the increase may reflect an actual increase in the number of PWD, suggesting that PWD's improved labor force participation is the result of an influx of new PWD with comparably mild impairments, more social and professional capital, and a greater attachment to the labor force. Though Long COVID's impact on employment trends is typically thought of in terms of reduced aggregate labor supply<sup>25</sup> when comparing employment trends of PWD and non-disabled people this may materialize in the form of an increase in disabled employment trends. Alternatively, prior work indicates that individuals' willingness to report their disability status may be influenced by workplace and social factors.<sup>26</sup> If employees became more willing to acknowledge a disability in order to obtain a telework arrangement or other reasonable accommodations they may have also become more willing to report their disability to the CPS.

## Discussion

In marked contrast to the recovery from the Great Recession, where PWD saw greater job loss and a slower recovery than their non-disabled counterparts,<sup>9,12</sup> PWD appear to have had similar employment losses compared to their non-disabled counterparts during the COVID-19 recession. However, during the recovery, PWD experienced considerably faster employment growth, reaching pre-recession levels before their non-disabled counterparts and then exceeding them.

Our paper is the first we are aware of to examine the employment trends of PWD in the COVID-19 economic recovery. The disabled employment-to-population ratio in Q2 2022 is significantly higher than it was three years earlier, despite COVID-19's considerable disruptions. This appears to be attributable to a significant increase in labor force participation for PWD. Our findings suggest that recovery from the COVID-19 recession has brought PWD into the labor force though it remains unclear to what extent this may have been influenced by an influx of newly disabled persons due to the pandemic.

Closer examination of the occupations where disabled employment growth has exceeded that of non-disabled suggests that these trends are not solely attributable to tight labor markets but may also be shaped by the structural shifts in the workforce brought about by COVID-19, in particular the shift towards telework. Despite the devastating impact COVID-19 has had on the disability community, it may open opportunities for making progress on one of disability policy's most difficult problems: the failure to integrate PWD into the workplace. The economic recovery appears to have encouraged PWD who had previously left (or never entered) the workforce to find employment. Moreover, the expansion in telework may have shifted the frontier of plausible employment opportunities for PWD, creating new occupational targets for vocational rehabilitation.

Though telework has long been recognized as a potential reasonable accommodation, the frequency with which it was made use of during the pandemic and gains in familiarity and comfort with telework technology during the post-COVID-19 era suggest that telework may be feasible under more circumstances than previously thought – potentially impacting employers' obligation to offer it to workers with disabilities when requested as a reasonable accommodation.<sup>27</sup> It remains unclear how permanent the shift towards telework will be. In order to sustain this progress, it is particularly important that employers retain flexibility for PWD as they develop return-to-work protocols. Civil rights enforcement bodies like the EEOC can encourage this flexibility by carefully monitoring employer behavior as return-to-work efforts proceed to ensure that workers have access to appropriate reasonable accommodations. We also note recent guidance from the federal government clarifying that persons with Long COVID may qualify for protections under disability rights law.<sup>28,29</sup>

## Conclusion

While PWD have suffered disproportionate harms from COVID-19, our findings suggest that the public health emergency has created unprecedented improvements in their labor market position. Future research should carefully monitor these trends with the goal of understanding their sustainability and the policies that may accelerate or attenuate them. Improving PWD's labor force participation is a longstanding goal of disability policymaking and advocacy. If PWD can benefit long term from COVID-19-induced shifts in employer practices, they may be able to achieve progress on one of the most elusive frontiers for disability inclusion: integration into the American workplace.

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## Disclaimer

The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health, NIDILRR, the federal government or any other funder.

## Conflicts of interest

Ari Ne'eman reports consulting income within the last twelve months from the Service Employees International Union, Inclusive CareSource and the Department of Health and Human Services Office of Civil Rights. The data presented here was not collected as part of his duties for any of these entities, including the Department of Health and Human Services, and the research, analysis, findings, and conclusions were not reviewed by them nor do they necessarily represent their views.

## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.dhjo.2022.101429>.

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