

FIRST FIRED, LAST HIRED, AND LOWER PAID: RE-EMPLOYMENT OUTCOMES AMONG DISPLACED WORKERS WITH DISABILITIES, 2007–2021

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ABSTRACT

People with disabilities continue to face significant barriers in the labor market. They are also more likely to experience job displacement, involuntary job loss typically resulting from broader exogenous forces (e.g., automation, economic downturns) that make workers no longer needed. What happens to displaced workers with disabilities? Do they find new jobs, and if they do, what jobs are they? We study re-employment outcomes among displaced workers with disabilities using data from the 2010, 2012, 2014, 2018, 2020, and 2022 waves of the Current Population Survey Displaced Worker Supplement. We find that in addition to higher rates of displacement, workers with disabilities took longer to be re-employed than workers without disabilities with a decreased hazard for re-employment of about 30%. For those who found new jobs, earnings losses upon re-employment were 18% greater for people with disabilities when compared to those without disabilities. Although the relationship between disability and time to re-employment did not vary significantly over time, earnings differences between people with and without disabilities were smaller during the pandemic.

INTRODUCTION

People with disabilities experience a variety of barriers to employment. With an annual labor force participation rate of only 23% in 2023, most people with disabilities are not in the labor market (BLS, 2024). Those who are in the labor market experience higher rates of unemployment and job displacement (Maroto & Pettinicchio, 2024; Mitra & Kruse, 2016), along with occupational segregation and lower earnings (Maroto & Pettinicchio, 2014; Pettinicchio & Maroto, 2021). For people with disabilities, low employment rates and precarious labor market situations combine to increase economic insecurity and poverty, especially for individuals with cognitive, independent living, and multiple disabilities (Maroto et al., 2019). The high rates of unemployment and labor market instability over the course of the COVID-19 pandemic further highlighted these challenges (Maroto et al., 2021).

Among these labor market situations, we focus on the consequences of job displacement – involuntary job loss among workers due to a plant or company closing, insufficient work, or a shift being abolished. Workers with disabilities are more likely to experience job displacement overall and even more so in periods of shock or major structural change (Maroto & Pettinicchio, 2024; Mitra & Kruse, 2016). Drawing from the broad research illustrating how class, gender, and racial minority groups differently experience being let go and re-employed (e.g., Couch & Fairlie, 2010; Yu & Sun, 2019) – the “first fired, last hired” phenomenon (Kruse & Schur, 2003) – we study re-employment outcomes and the consequences for earnings among people with disabilities.

Although involuntary job loss has become a common life course event, it remains a devastating experience for workers (Brand, 2015; DiPrete, 2002; DiPrete & McManus, 2000; Gangl, 2004, 2006; Shuey & Willson, 2017). Short-term effects include the loss of wages, lowered physical and mental well-being, and family strain (Black et al., 2015; Sullivan & von Wachter, 2009). Unemployment spells can also have long-lasting, scarring effects on workers’ labor market opportunities and future wages – effects that often persist many years after initial unemployment and that are not equally distributed throughout the population (Brand, 2006; Ruhm, 1991; Stevens, 1997). This means that even when considering shifting expectations around job loss and re-employment due to, for example, events like COVID-19, displacement will more likely negatively affect economically vulnerable groups like people with disabilities.

Despite growing research on the relationships between disability and employment, less is known about re-employment outcomes among displaced workers with disabilities. Do people with disabilities take longer than other workers to find new employment postdisplacement? Is disability associated with earnings upon re-employment? And, how might the economic impacts of job loss vary over time for people with disabilities? To answer these questions, we examine both time to re-employment and re-employment wages among displaced

workers using 2010–2022 data from the Current Population Survey (CPS) Displaced Worker Supplement (DWS).

Our findings show that displaced workers with disabilities took longer to be re-employed than those without disabilities and they experienced additional earnings losses of approximately 18% upon re-employment. We extend this work to examine factors associated with re-employment among those who were displaced during two key periods – the Great Recession and the COVID-19 pandemic – and we address explanations of both labor market disadvantage and financial uncertainty. Earnings outcome among re-employed people with disabilities appeared less problematic during the pandemic compared to the Great Recession, pointing to more positive structural arrangements during the pandemic that could potentially have longer term beneficial effects for workers with disabilities.

BACKGROUND

Displacement and Re-employment Outcomes

Displacement is a distinct cause of unemployment that involves involuntary job loss often due to external factors, such as economic downturns, automation, and job outsourcing. Like unemployment, the scarring effects of displacement are many, making it a distinct cause of labor market outcomes (Brand, 2015). They include further delays in being re-employed, increased reliance on social assistance, family strain, reduced life expectancy, and negative mental health and well-being outcomes (Black et al., 2015; Farber, 2011, 2017; Young, 2012). Displacement is not merely a temporary setback; it has been specifically associated with longer periods of unemployment, downward shifts in job quality, and earnings losses (DiPrete, 2002; Mouw & Kalleberg, 2010; Shuey & Willson, 2017).

The effects of job displacement on subsequent job quality and earnings are well-documented. Using the Wisconsin Longitudinal Study (WLS), Brand (2006) found that most displaced workers experienced substantial earnings losses (10–25%), which could persist for more than five years following displacement. Noting that unemployment as a result of displacement is responsible for a major portion of earnings losses, Krolkowski (2017) points to employment downshifts as a main cause of lower wages and evidenced by the loss of occupation-specific skills following displacement. He notes that displaced workers still experience earnings penalties 20 years later. However, some studies indicate that the longer the time since displacement, the smaller the long-term losses are, indicating that eventually, displaced workers can catch up although it may take years to do so (Stevens, 1997).

Scholars agree that displacement is no longer a rare, episodic occurrence tied to exogenous shocks like the Great Recession or COVID-19 pandemic. Rather, displacement has become a more common occurrence since the 1990s as employers often turn to labor first as a way to decrease costs and increase profits (Brand, 2006). As displacement becomes more frequent, it also means that

workers may experience involuntary job loss more than once, prolonging negative effects on re-employment and earnings (Stevens, 1997), and making it an important topic when considering the future of work.

Variable Consequences of Displacement

There is considerable variation in how workers experience displacement, re-employment, and earnings losses (Brand, 2015). Part of the variation has to do with macro factors like local employment structures, organizations, and firms – that is, where workers are located in the labor market. Major labor market restructuring, for example, in manufacturing and service sectors, affects some workers more than others (Spalter-Roth & Deitch, 1999), and workers in more precarious employment situations (Kalleberg, 2011) are more likely to experience displacement with prolonged negative effects upon re-employment. For instance, Daymont (2001) found that most of the earnings decline for displaced workers occurred within firms, not from being displaced from one firm and being re-employed in another. This suggests that workers may already face cuts to hours and pay before they are let go.

Workers in jobs with greater stability and protection are less likely to experience displacement. For instance, there is evidence that unions have positive effects on job security and earnings, including for workers with disabilities (Ameri et al., 2019; Pettinicchio & Maroto, 2021). For sectors or groups of displaced workers that are highly unionized, subsequent union status is an important predictor of recovery prospects (Stevens, 1997). This suggests that being in a union may provide some protection not only against displacement but also the negative effects of displacement on earnings and wages upon re-employment.

Individual-level supply-side factors like human capital, status, and positionality of workers can also affect displacement and re-employment. People with higher education fare better in terms of job quality after being displaced (Lippmann & Rosenthal, 2008). Focusing on displacement and the rise of contingent labor using data from the National Longitudinal Survey of Youth, Koeber and Wright (2002) found that specific groups of displaced workers, such as those who are young, female, located in rural areas, have young children, and have been in their previous job for a long time, were at risk of becoming downwardly mobile. They suggest that many displaced workers are forced to take on contingent or alternative work arrangements temporarily as they transition back to full-time employment.

As displacement became more characteristic of a flexible economy looking for cheaper and more adaptable workers, it has disproportionately affected some workers more than others. The resulting increase in more precarious jobs means that displaced workers are less likely to find jobs with comparable status to their previous ones, leading to a downward movement in the occupational structure (Lippmann & Rosenthal, 2008). While it may be, as Daymont (2001) found, that the earnings of displaced workers increase at a slightly faster rate than their nondisplaced counterparts, not all displaced workers can catch-up. If they do find

jobs, they are more likely to be in lower status occupations with less security and fewer protections.

Because low status occupations are disproportionately held by marginalized workers including women, people of color, immigrant workers, and people with disabilities, these groups are also more likely to experience job displacement at greater rates (Fairlie & Kletzer, 1998; Maroto & Pettinicchio, 2024; Mitra & Kruse, 2016; Spalter-Roth & Deitch, 1999). In the case of disability, studies across numerous disciplines have shown varying employment and unemployment outcomes in relation to disability status and disability type (Blanck et al., 2023; Jolly & Wagner, 2023; Pettinicchio et al., 2022; Schur et al., 2017). These disparities are often exacerbated during tough economic times (Kaye, 2010; Maroto & Pettinicchio 2014). During the Great Recession, for example, unemployment spells were about 20% longer for people with disabilities than those without disabilities (Fogg et al., 2010). Job losses for workers with disabilities were also greater in the goods producing sectors during the recession (Livermore & Honeycutt, 2015).

More recently, the coronavirus disease 2019 (COVID-19) US public health emergency and pandemic made these existing trends in displacement and re-employment more acute. Employment declines during the pandemic were larger in lower paying occupations and industries. Hispanic and nonwhite workers were more likely to experience job losses, and gaps in job displacement probabilities between Black and white workers widened during the pandemic (Cortes & Forsythe, 2023). Employment gaps by disability increased during the pandemic; Black women with disabilities experienced some of the highest rates of job loss (Schur et al., 2023). The pandemic directly changed the nature of work for many people with disabilities, increasing economic insecurity, anxiety, and stress (Brooks & von Schrader, 2023; Maroto et al., 2021; Pettinicchio & Maroto, 2024). Additionally, the pandemic disproportionately affected low-wage workers and those without a college degree, leading to a significant gap in employment and earnings between socioeconomic groups (Alon, 2023). Job displacement during COVID-19 could lead to substantial losses in earnings for affected workers, lasting for decades to come (von Wachter, 2020).

Specifically focusing on disability and displacement, Maroto and Pettinicchio (2024) confirmed Mitra and Kruse's (2016) research showing people with disabilities consistently experience higher displacement rates than people without disabilities. They found that 10% of workers with cognitive, physical, or independent living-related (IDL) disabilities experienced displacement during the pandemic, which were the highest levels of displacement. Although displacement declined throughout the decade in the wake of recovery from the Great Recession, the period following the start of the COVID-19 pandemic saw additional increases.

Examining change from the 2008 recession through the pandemic, our study addresses what this means for re-employment and earnings outcomes among people with disabilities. Although the literature demonstrates large and continuing disparities in experiences of job displacement for people with disabilities, less is known about how re-employed people with disabilities fare in

their new jobs. Importantly, we also add context to this discussion by examining these outcomes across three distinct periods of labor market stability and instability.

DATA

We study re-employment outcomes among people with disabilities using data from the 2010, 2012, 2014, 2018, 2020, and 2022 waves of the CPS DWS (Flood et al., 2022). The CPS is a monthly labor force survey conducted by the US Census Bureau. The DWS comprises a sample of workers age 20 years and older who involuntarily lost or left their jobs due to a plant or company closing, insufficient work, or a shift ending in the three calendar years prior to the survey wave. Data from the 2010 wave incorporate workers displaced between 2007 and 2009 and data from the 2022 wave represent displacement from 2019–2021. Pooled data provide the ability to analyze experiences of displacement from 2007 through 2021.

We begin our analysis with the 2010 wave because this is when CPS revised their disability-related questions to provide better information about different types of potential limitations. Prior to 2010, disability-related data only reflect whether the respondent reported a work-limiting disability, not the broader functional limitations important for understanding multiple dimensions of disability (McMenamin & Hipple, 2014). The study period covers the aftermath of the 2008 Great Recession, followed by a period of relatively low unemployment, and the COVID-19 pandemic, allowing us to examine re-employment outcomes in varying political and economic contexts.

We focus on two data subsets for our analyses. First, we examine time to re-employment among a sample of workers who experienced displacement. Because only respondents who lost work because of plant or company closing, insufficient work, or a shift ending were asked a series of follow-up questions about their jobs, we restrict our sample to workers who were displaced for these reasons. Second, we examine earnings upon re-employment in a subset of workers who found new jobs within the three-year period and provided earnings information about these jobs. We also restrict analyses to workers in these groups and those who provided information about the previous jobs. Our sample sizes are $N = 17,131$ for the sample of displaced workers and $N = 9,951$ for the subset of workers who became re-employed.

Measures

We examine the relationship between disability and two outcome variables that form the basis for our estimation models. *Time to re-employment* refers to the number of weeks the person was unemployed between losing one job and beginning another within the three-year survey period. This variable is left censored for the approximately one-third of respondents who did not find a new job within the given time period. *Earnings upon re-employment* refers to the

respondent's reported approximate weekly earnings for their current job. Within the re-employment earnings models, we also control for *time to re-employment*.

Our primary predictor variable, *disability status*, indicates whether the respondent responded yes to one of six limitation questions included by the CPS to identify the population with disabilities (Livermore et al., 2011). These questions address the following types of disabilities: cognitive difficulties related to learning, remembering, concentrating, or making decisions; physical or ambulatory difficulties that limit a respondent in one or more basic physical activities; vision difficulties that indicate whether the respondent was blind or had serious difficulty seeing even with corrective lenses; hearing difficulties that indicate whether the respondent was deaf or had serious difficulty hearing; independent living difficulties, which indicate the presence of any condition that makes it difficult or impossible to perform basic activities outside the home alone; and self-care difficulties, which include personal needs, such as bathing and dressing.

We also include a series of demographic, education, and work-related control variables across all models. *Gender* is a categorical variable of male (the referent) or female. We indicate *race/ethnicity* with a categorical variable measured as non-Hispanic white (the referent), non-Hispanic Black, Hispanic, or non-Hispanic other.¹ We also control for *citizenship status*. We measure *age* in years and include a quadratic *age-squared term* to account for any nonlinear relationships. *Marital status* is a categorical variable that indicates whether the respondent was currently married (the referent), never married, or separated, divorced, or widowed, and *any children* indicates whether any children under age 18 were present in the respondent's household. We measure *educational attainment* with a categorical variable that indicates whether the respondent obtained a high school diploma or equivalent degree or less than that (the referent); attended some college without obtaining a degree; obtained an Associate's (two-year) degree; completed college with a bachelor's (four-year) degree; or obtained a master's, professional, or doctorate degree.

In addition to these covariates, we also control for specific characteristics of the respondent's lost job. *Job tenure* refers to the number of years the respondent worked at their lost job. We control for whether the respondent worked *part-time* or had variable hours at their lost job. *Weekly earnings* refer to the respondent's weekly earnings at their lost job.² We also control for *major occupation* with 7 categories and *major industry* with 10 categories, outlined in [Table 2.1](#).

Finally, we include a set of covariates linked to the respondent's conditions of job loss. *Displacement reasons* is a categorical variable with the following categories: insufficient work, plant or company closing, and position or shift abolished. We also include indicators for whether the respondent received *advanced notice of job loss* and *unemployment insurance*. To better account for changing economic and political environments, we include indicator variables for the respondent's *state of residence* and for *labor market health during job loss*. Labor market health is determined by year of job loss within the following three time periods: job loss between 2007 and 2012, representing a period of higher unemployment linked to the 2008 recession; job loss between 2013 and 2019,

Table 2.1. Descriptive Statistics, Pooled CPS DWS Data, 2010–2022 Waves.

	Displaced Workers		Re-employed Displaced Workers	
	Estimate	SE	Estimate	SE
<i>Outcomes</i>				
Re-employed (among displaced)	0.654	0.004		
Time to re-employment (among re-employed)			14.784	0.222
Earnings after re-employment (among re-employed)			842.645	7.787
<i>Disability</i>				
Any disability or limitation	0.073	0.002	0.048	0.002
<i>Covariates</i>				
Age	42.111	0.118	40.479	0.144
Female	0.431	0.004	0.418	0.006
<i>Race/ethnicity</i>				
Non-Hispanic white	0.631	0.004	0.647	0.006
Non-Hispanic black	0.125	0.003	0.111	0.004
Hispanic	0.174	0.004	0.170	0.005
Non-Hispanic other	0.070	0.002	0.072	0.003
Noncitizen	0.086	0.003	0.085	0.003
<i>Marital status</i>				
Currently married	0.511	0.004	0.524	0.006
Never married	0.308	0.004	0.311	0.006
Formerly married	0.181	0.003	0.165	0.004
Any children present	0.452	0.004	0.475	0.006
<i>Education</i>				
HS degree or less	0.376	0.004	0.327	0.005
Some college, no degree	0.209	0.004	0.201	0.005
Associate's degree	0.112	0.003	0.118	0.004
Bachelor's degree	0.216	0.004	0.250	0.005
Graduate or professional degree	0.087	0.003	0.103	0.004
<i>Previous job characteristics</i>				
Weekly earnings (mean dollars)	833.825	5.777	893.474	7.916
Job tenure (mean years)	4.959	0.054	4.614	0.066
Part-time or variable hours job	0.192	0.004	0.174	0.004
<i>Major occupation</i>				
Management, business, and financial	0.163	0.003	0.185	0.005
Professional and related	0.161	0.003	0.182	0.004
Service	0.143	0.003	0.139	0.004
Sales and related	0.108	0.003	0.105	0.004
Office and administrative support	0.138	0.003	0.125	0.004
Natural resource, construction, and maintenance	0.126	0.003	0.122	0.004
Production, transportation, and material moving	0.162	0.003	0.143	0.004
<i>Major industry</i>				
Agriculture and natural resources	0.020	0.001	0.018	0.002
Construction	0.105	0.003	0.103	0.004

Table 2.1. (Continued)

	Displaced Workers		Re-employed Displaced Workers	
	Estimate	SE	Estimate	SE
Manufacturing	0.159	0.003	0.148	0.004
Wholesale and retail trade	0.150	0.003	0.143	0.004
Transportation and utilities	0.042	0.002	0.041	0.002
Information and financial activities	0.099	0.003	0.101	0.004
Professional and business services	0.144	0.003	0.146	0.004
Educational and health services	0.130	0.003	0.142	0.004
Leisure and hospitality	0.100	0.003	0.104	0.004
Other services	0.039	0.002	0.038	0.002
Public administration	0.014	0.001	0.014	0.001
<i>Conditions of job loss</i>				
Reason displaced				
Insufficient work	0.298	0.004	0.308	0.005
Plant/company closing	0.420	0.004	0.395	0.006
Position/shift abolished	0.283	0.004	0.297	0.005
Advance notice of job loss	0.343	0.004	0.355	0.006
Unemployment insurance receipt	0.452	0.004	0.400	0.006
Job loss period				
2007–2012	0.518	0.004	0.472	0.006
2013–2019	0.387	0.004	0.423	0.006
2020–2021	0.095	0.003	0.105	0.004

Source: CPS DWS 2010–2022.

Notes: Estimates and standard errors provided for samples of displaced workers ($N = 17,131$) and re-employed workers with earnings ($N = 9,951$). Estimates provided as proportions, unless otherwise stated. All estimates are weighted using CPS-provided survey weights that account for survey design.

representing a period of relative labor market strength; and job loss between 2020 and 2021, coinciding with COVID-19.

Table 2.1 presents descriptive statistics for displaced and re-employed workers in the pooled datasets. Approximately 65% of displaced workers found new employment within three years of losing their jobs with an average time to re-employment of 15 weeks. Regarding disability, 7.3% of displaced workers reported a disability compared with 4.8% of re-employed workers, which indicates that disability is likely associated with a person's probability of re-employment.

METHODS

We use two sets of models. First, we model *time to re-employment* among displaced workers using a Cox proportional hazards model – a semi-parametric

method for determining the relationship of a survival distribution to covariates (Box-Steffensmeier & Jones, 2004). The Cox model does not calculate a baseline hazard for the model, but individual coefficients may be interpreted as increasing or decreasing the risk of re-employment. We also use the Efron method to deal with possible tied events. Within the Cox model, the hazard rate for the i th individual is described by Eq. (1).

$$h_i(t) = h_0(t)\exp(X_i\beta_i) \quad (1)$$

where: $h_0(t)$ is the baseline hazard function and $(X_i\beta_i)$ are the covariates and regression coefficients. We assume that the hazard rate for the Cox model is proportional. We tested this assumption using the Grambsch and Therneau (1994) global test and Harrell's (1986) test for individual covariates, both based on the Schoenfeld residuals.

Second, we use a static-score or conditional change score linear regression model to examine *current logged weekly earnings* among re-employed workers in relation to their logged weekly earnings at their lost job (Finkel, 1995). We log these variables to account for skewness and extreme values. As outlined in Eq. (2), conditional change score panel models use Y_{t-1} to help predict Y_t and to essentially model change in the outcome variable relative to its original values.

$$Y_t = \beta_0 + \beta_1 x_t + \beta_2 Y_{t-1} + \epsilon_t \quad (2)$$

In both sets of models, we test for whether the effects of disability vary over time by incorporating an interaction term between disability and job loss period.

FINDINGS

Time to Re-employment

Fig. 2.1 plots survival curves for displaced workers with and without disabilities for the pooled data waves. These survival curves plot a person's probability of survival, or in this model probability of continued unemployment, over time measured in weeks. In this context, survival indicates continued unemployment. That is, they are surviving periods of unemployment which we treat as a negative outcome.

Comparing curves for people with and without disabilities, both groups are similar early on, but situations begin to diverge after about 5 weeks when displaced workers without disabilities start to re-enter employment more quickly with fewer remaining unemployed. As a result, by six months (26 weeks), 46% of the displaced workers without disabilities remained unemployed compared with 60% of those with disabilities. After one year (52 weeks), 37% of workers without disabilities remained unemployed compared with 52% of those with disabilities. Few changes occur for both groups after this point. At two years (104 weeks), 34% of workers without disabilities were unemployed compared with 49% of those with disabilities.

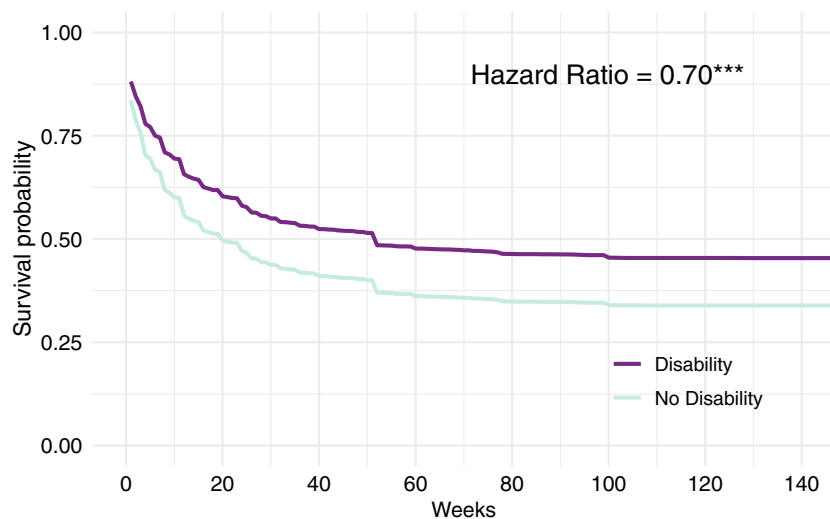


Fig. 2.1. Survival Curves Estimating Probability of Continued Unemployment by Disability Status. *Source:* CPS DWS, 2010–2020 waves, Displaced Workers, $N = 17,131$. *Notes:* Estimates and 95% confidence intervals provided for a sample of displaced respondents. *** denotes the significance level of $p < 0.001$.

The results of a larger Cox proportional hazards model with all covariates, presented in [Table 2.2](#), confirm these findings by disability. After accounting for demographics, lost job characteristics, and factors related to the conditions of job loss, displaced workers with disabilities took longer to find re-employment than workers without disabilities. Having any disability reduced the hazard of re-employment by 30% $((0.703 - 1) * 100)$. In other words, workers with disabilities had a hazard of re-employment that was 30% lower than that of workers without disabilities.

Earnings Upon Re-employment

Examining the relationship between disability and earnings upon re-employment, [Table 2.3](#) presents the results of linear regression models predicting logged earnings among re-employed workers. Upon re-employment, disability is associated with a 18.2% $((\exp(-0.201) - 1) * 100)$ decrease in weekly earnings between job loss and re-employment, on average. This estimate controls for demographics, characteristics of a previous job, and conditions of unemployment. Importantly, controlling for weekly earnings from a previous job means that these are additional losses for people with disabilities, who, on average, already earn less than other workers without disabilities.

Table 2.2. Results From Cox Proportional Hazard Model Results Predicting Time to Re-employment in Weeks Among Displaced Workers.

	Model 1		
	<i>b</i>	Exp(<i>b</i>)	SE
Any disability or limitation	−0.352***	0.703	(0.040)
Age	−0.014***	0.986	(0.001)
Age squared	−0.001***	0.999	(0.000)
Female	−0.090***	0.914	(0.022)
Race/ethnicity (Ref: Non-Hispanic white)			
Non-Hispanic Black	−0.269***	0.764	(0.037)
Hispanic	−0.045	0.956	(0.033)
Non-Hispanic other	−0.204***	0.816	(0.041)
Noncitizen	−0.044	0.957	(0.042)
Marital status (Ref: Currently married)			
Never married	−0.097***	0.907	(0.027)
Formerly married	−0.017	0.983	(0.027)
Any children present	0.016	1.016	(0.022)
Education (Ref: Less than a HS degree or less)			
Some college, no degree	0.142***	1.152	(0.027)
Associate’s degree	0.235***	1.265	(0.033)
Bachelor’s degree	0.266***	1.304	(0.031)
Graduate or professional degree	0.279***	1.322	(0.042)
Logged weekly earnings (lost job)	0.152***	1.164	(0.017)
Job tenure (lost job)	−0.009***	0.991	(0.002)
Part-time or variable hours (lost job)	−0.035	0.966	(0.030)
Reason displaced (Ref: Insufficient work)			
Plant/company closing	−0.180***	0.835	(0.024)
Position/shift abolished	−0.145***	0.865	(0.026)
Advance notice of job loss	0.041	1.042	(0.021)
Unemployment insurance receipt	−0.609***	0.544	(0.021)
Job loss period (Ref: 2007–2012)			
2013–2019	0.193***	1.213	(0.021)
2020–2021	0.150***	1.162	(0.039)

Source: CPS DWS 2010–2022, displaced workers, $N = 17,131$.

Notes: Results from CPH models predicting the time to re-employment among displaced workers. Continuous variables are mean centered. Models include fixed effects for state of residence, major occupation, and major industry. “*b*” refers to the hazard of re-employment. “Exp(*b*)” refers to the hazard ratio.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Variation Over Time

Finally, to understand whether and how these relationships might vary over time, we also incorporated a set of interaction models between disability and job loss period. These are presented in [Table 2.4](#).

Table 2.3. Results From Linear Regression Models Predicting Earnings Upon Re-employment for Re-employed Workers.

	Model 1		
	Exp(<i>b</i>) - 1	<i>b</i>	SE
Intercept		6.357***	(0.080)
Any disability or limitation	-0.182	-0.201***	(0.047)
Logged weeks since job loss	-0.050	-0.052***	(0.010)
Age	0.000	0.000	(0.001)
Age squared	0.000	0.000***	(0.000)
Female	-0.102	-0.107***	(0.022)
Race/ethnicity (Ref: Non-Hispanic white)			
Non-Hispanic Black	-0.099	-0.104***	(0.031)
Hispanic	-0.077	-0.081*	(0.032)
Non-Hispanic other	-0.046	-0.047	(0.043)
Noncitizen	-0.063	-0.065	(0.034)
Marital status (Ref: Currently married)			
Never married	-0.021	-0.022	(0.025)
Formerly married	-0.053	-0.054*	(0.026)
Any children present	-0.011	-0.011	(0.020)
Education (Ref: Less than a HS degree or less)			
Some college, no degree	0.004	0.004	(0.024)
Associate's degree	0.093	0.089**	(0.031)
Bachelor's degree	0.204	0.185***	(0.028)
Graduate or professional degree	0.314	0.273***	(0.044)
Logged weekly earnings (lost job)	0.599	0.469***	(0.028)
Job tenure (lost job, years)	-0.004	-0.004*	(0.002)
Part-time or variable hours (lost job)	0.055	0.054	(0.034)
Reason displaced (Ref: Insufficient work)			
Plant/company closing	0.023	0.023	(0.021)
Position/shift abolished	0.002	0.002	(0.025)
Advance notice of job loss	0.011	0.011	(0.020)
Unemployment insurance receipt	-0.006	-0.006	(0.023)
Job loss period (Ref: 2007–2012)			
2013–2019	0.171	0.158***	(0.019)
2020–2021	0.348	0.299***	(0.032)
R squared	0.323		

Source: CPS DWS 2010–2022, re-employed displaced workers, $N = 9,951$.

Notes: Results from linear regression models predicting logged earnings upon re-employment among re-employed displaced workers. Continuous variables are mean centered. Models include fixed effects for state of residence, major occupation, and major industry.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Model 1, which estimated time to re-employment using a Cox proportional hazards model, shows that although the hazard of re-employment varied over time, differences by disability status did not vary significantly by period.

Table 2.4. Results From Models Interacting Disability With Survey-Wave Year.

	Model 1			Model 2		
	<i>b</i>	Exp(<i>b</i>)	SE	Exp(<i>b</i>) - 1	<i>b</i>	SE
Intercept					6.361***	(0.080)
Any disability or limitation	-0.293***	0.746	(0.055)	-0.218	-0.246***	(0.068)
Job loss period (Ref: 2007–2012)						
2013–2019	0.199***	1.221	(0.022)	0.169	0.156***	(0.020)
2020–2021	0.161***	1.175	(0.040)	0.330	0.285***	(0.034)
Interaction (Disability*Job loss period)						
Disability*2013–2019	-0.111	0.895	(0.084)	0.033	0.032	(0.105)
Disability*2020–2021	-0.158	0.854	(0.144)	0.249	0.222*	(0.099)

Source: CPS DWS 2010–2022, displaced workers, $N = 17,131$; re-employed workers, $N = 9,951$.

Notes: Results from two sets of interaction models predicting the time to re-employment among displaced workers (Model 1) and logged earnings upon re-employment (Model 2). Models include all controls from Tables 2.2 and 2.3.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$.

Disability was associated with a 25% lower hazard of re-employment for those who lost their jobs between 2007 and 2012, a 33% lower hazard for workers displaced from 2013 to 2019, and a 36% lower hazard of re-employment for those displaced between 2020 and 2021. However, the differences across time periods were not statistically significant.

Model 2 indicates that, based on the results of a linear regression model predicting re-employment earnings, the effects of disability varied over time. The estimates show that, when accounting for previous earnings, disability was associated with a 21.8% decrease in weekly earnings between job loss and re-employment during the Great Recession, a 19.2% decrease during the following period of relative labor market stability, and only a 2.4% decrease during the pandemic. This indicates that displaced workers with disabilities did not face as large of earnings penalties during the pandemic compared with previous periods. Although they took longer to find new employment than workers without disabilities in all periods, among those who found work during the pandemic, disability presented less of a barrier in this period when compared to earlier time periods, including the Great Recession.

CONCLUSION

Job loss is a traumatic event that comes with a variety of scarring effects. Yet, previous research shows that experiences of displacement are not evenly distributed. People with disabilities have traditionally experienced greater rates of displacement despite having less access to the labor market overall. Our study expands this research by focusing on time to re-employment after displacement

and changes in weekly earnings between the job a person was displaced from and their eventual new job.

We find that in addition to experiencing higher rates of displacement than other workers, displaced workers with disabilities took longer to find new jobs and many of these jobs paid less than their previous ones. They had a 30% lower hazard of re-employment and experienced an additional 18% earnings penalty upon re-employment, on average. Disparities in time to re-employment were fairly consistent over time with a small increase in more recent years. We show that the “first fired, last hired” phenomenon holds true for people with disabilities, regardless of the larger economic situation. However, changes in earnings for re-employed workers with disabilities did vary across time.

Earnings losses upon re-employment for workers with disabilities were greatest in the earlier years in our sample, marked by the Great Recession, and noticeably smaller during the pandemic. This finding suggests that disability not only presented less of a barrier to employment in more recent years, but it also indicates that disability did not as greatly affect earnings upon re-employment during pandemic times as it did during the Great Recession. This may perhaps be due to the provision of different types of accommodations offered by employers as a result of emergency responses to COVID-19, including telework or remote work and more flexible shifts and scheduling (Schur et al., 2020). However, as Brooks and von Schrader (2023) find, these kinds of accommodations available to people with disabilities also varied by type of occupation, as well as gender and race.

Our findings provide a broad overview of the consequences of displacement for workers with disabilities. However, more can be done to examine how these outcomes vary with the type of disability. People with cognitive, independent living, and multiple disabilities tend to experience some of the largest barriers to employment. Disentangling the relationship between disability type, displacement, and re-employment outcomes is an important next step to better understanding the consequences of displacement for people with disabilities.

When considering the future of work within a labor market defined by increasing precarity, it is important to understand how job displacement and experiences with re-employment vary across economic contexts. By examining displacement trends over time and covering two major exogenous shocks (i.e., the Great Recession and the COVID-19 pandemic), our findings offer some insight into broader structural, institutional, and policy contexts that can improve employment for people with disabilities. For instance, the implementation of more “universal accessibility” practices by employers and governments (for many but not all workers) during the COVID-19 pandemic, rather than reactive “reasonable accommodations,” points to how innovations can lead to further inclusion of people with different kinds of disabilities in the workplace.

NOTES

1. Due to the small sample sizes of other racial and ethnic categories, we combined these groups into a non-Hispanic other category. This category also includes individuals who identified with multiple racial groups.

2. Because we control for weekly earnings at the respondent's lost job, we measure earnings in nominal dollars. Model results were almost identical to supplemental analyses where we tested inflation adjusted earnings in 2022 dollars.

REFERENCES

- Alon, S. (2023). The measurement of precarious work and market conditions: Insights from the COVID-19 disruption on sample selection. *Work and Occupations*, 50(1), 22–59.
- Ameri, M., Ali, M., Schur, L., & Kruse, D. (2019). Disability in the unionized workplace. In S. Bruyere (Ed.), *Employment and disability: Issues, innovations, and opportunities*. Cornell University Press.
- Black, S. E., Devereux, P. J., & Salvanes, K. G. (2015). Losing heart? The effect of job displacement on health. *ILR Review*, 68(4), 833–861.
- Blanck, P., Hyseni, F., & Goodman, N. (2023). Economic inclusion and empowerment of people with disabilities. In M. H. Rioux, J. Viera, A. Buettgen, & E. Zubrow (Eds.), *Handbook of disability*. Springer.
- Box-Steffensmeier, J. M., & Jones, B. S. (2004). *Event history modeling: A guide for social scientists*. Cambridge University Press.
- Brand, J. E. (2006). The effects of job displacement on job quality: Findings from the Wisconsin longitudinal study. *Research in Social Stratification and Mobility*, 24(3), 275–298.
- Brand, J. E. (2015). The far-reaching impact of job loss and unemployment. *Annual Review of Sociology*, 41(1), 359–375.
- Brooks, J. D., & von Schrader, S. (2023). An accommodation for whom? Has the COVID-19 pandemic changed the landscape of flexible and remote work for workers with disabilities? *Employee Responsibilities and Rights Journal*, 1–23.
- Bureau of Labor Statistics (BLS). (2024). Persons with a disability: Labor force characteristics – 2023. <https://www.bls.gov/news.release/pdf/isable.pdf>
- Cortes, G. M., & Forsythe, E. (2023). Heterogeneous labor market impacts of the COVID-19 pandemic. *ILR Review*, 76(1), 30–55.
- Couch, K. A., & Fairlie, R. (2010). Last hired, first fired? Black-white unemployment and the business cycle. *Demography*, 47(1), 227–247.
- Daymont, T. N. (2001). Effects of job displacement on post-displacement earnings. *The Journal of Legal Economics*, 11(3), 39–52.
- DiPrete, T. A. (2002). Life course risks, mobility regimes, and mobility consequences: A comparison of Sweden, Germany, and the United States. *American Journal of Sociology*, 108, 267–309.
- DiPrete, T. A., & McManus, P. A. (2000). Family change, employment transitions, and the welfare state: Household income dynamics in the United States and West Germany. *American Sociological Review*, 65, 343–370.
- Fairlie, R. W. & Kletzer, L. G. (1998). Jobs lost, jobs regained: An analysis of black/white job displacement in the 1980s. *Industrial Relations*, 37, 460–477.
- Farber, H. S. (2011). *Job loss in the great recession: Historical perspective from the displaced workers survey, 1984–2010*. National Bureau of Economic Research Working Paper No 17040.
- Farber, H. S. (2017). Employment, hours, and earnings consequences of job loss: US evidence from the displaced workers survey. *Journal of Labor Economics*, 35(S1), S235–S272.
- Finkel, S. E. (1995). *Causal analysis with panel data*. SAGE.
- Flood, S., King, M., Rodgers, R., Ruggles, S., Warren, J. R., & Michael Westberry, M. (2022). *Integrated public use microdata series, current population survey: Version 10.0 [dataset]*. IPUMS. <https://doi.org/10.18128/D030.V10.0>
- Fogg, N. P., Harrington, P. E., & McMahon, B. T. (2010). The impact of the Great Recession upon the unemployment of Americans with disabilities. *Journal of Vocational Rehabilitation*, 33(3), 193–202.
- Gangl, M. (2004). Welfare states and the scar effects of unemployment: A comparative analysis of the United States and west Germany. *American Journal of Sociology*, 109, 1319–1364.
- Gangl, M. (2006). Scar effects of unemployment: An assessment of institutional complementarities. *American Sociological Review*, 71, 986–1013.

- Grambsch, P. M., & Therneau, T. M. (1994). Proportional hazards tests and diagnostics based on weighted residuals. *Biometrika*, *81*(3), 515–526.
- Harrell, F. E. (1986). The PHGLM procedure. In *SUGI supplemental library user's guide*. SAS Institute.
- Jolly, N. A., & Wagner, K. L. (2023). Work-limiting disabilities and earnings volatility. *Labour Economics*, *81*, 102333.
- Kalleberg, A. (2011). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s–2000s*. Russell Sage Foundation.
- Kaye, H. (2010). The impact of the 2007–2009 recession on workers with disabilities. *Monthly Labor Review*, *133*, 19–20.
- Koeber, C., & Wright, D. W. (2002). Losing a job, gaining half of another: Full-time to part-time employment mobility of displaced workers. *Humanity & Society*, *26*(4), 312–335.
- Krolukowski, P. (2017). Job ladders and earnings of displaced workers. *American Economic Journal: Macroeconomics*, *9*(2), 1–31.
- Kruse, D., & Schur, L. (2003). Employment of people with disabilities following the ADA. *Industrial Relations*, *42*(1), 31–66. <https://doi.org/10.1111/1468-232X.00275>
- Lippmann, S., & Rosenthal, J. E. (2008). Do displaced workers lose occupational prestige? *Social Science Research*, *37*(2), 642–656.
- Livermore, G. A., & Honeycutt, T. C. (2015). Employment and economic well-being of people with and without disabilities before and after the great recession. *Journal of Disability Policy Studies*, *26*(2), 70–79.
- Livermore, G., Whalen, D., Prenovitz, S., Aggarwal, R., & Bardos, M. (2011). *Disability data in national surveys*. Mathematica Policy Research.
- Maroto, M., & Pettinicchio, D. (2014). Disability, structural inequality, and work: The influence of occupational segregation on earnings for people with different disabilities. *Research in Social Stratification and Mobility*, *38*, 76–92.
- Maroto, M., & Pettinicchio, D. (2024). From recession to pandemic: Displacement among workers with disabilities from 2007 through 2021. *Journal of Vocational Rehabilitation*, *61*(1), 25–37.
- Maroto, M., Pettinicchio, D., & Lukk, M. (2021). Working differently or not at all: COVID-19's effects on employment among people with disabilities and chronic health conditions. *Sociological Perspectives*, *64*(5), 876–897.
- Maroto, M., Pettinicchio, D., & Patterson, A. C. (2019). Hierarchies of categorical disadvantage: Economic insecurity at the intersection of disability, gender, and race. *Gender & Society*, *33*(1), 64–93.
- McMenamin, T. M., & Hipple, S. F. (2014). The development of questions on disability for the current population survey. *Monthly Labor Review*, *137*, 1.
- Mitra, S., & Kruse, D. (2016). Are workers with disabilities more likely to be displaced? *International Journal of Human Resource Management*, *27*(14), 1550–1579.
- Mouw, T., & Kalleberg, A. L. (2010). Occupations and the structure of wage inequality in the United States, 1980s to 2000s. *American Sociological Review*, *75*(3), 402–431.
- Pettinicchio, D., & Maroto, M. L. (2021). Combating inequality: The between-and within-group effects of unionization on earnings for people with different disabilities. *The Sociological Quarterly*, *62*(4), 763–787.
- Pettinicchio, D., & Maroto, M. (2024). Economic precarity and changing levels of anxiety and stress among Canadians with disabilities and chronic health conditions throughout the COVID-19 pandemic. *Canadian Review of Sociology*, *61*(2), 25–45.
- Pettinicchio, D., Maroto, M., & Brooks, J. D. (2022). The sociology of disability-based economic inequality. *Contemporary Sociology*, *51*(4), 249–270.
- Ruhm, C. J. (1991). Are workers permanently scarred by job displacements? *The American Economic Review*, *81*(1), 319–324.
- Schur, L. A., Ameri, M., & Kruse, D. (2020). Telework after COVID: A “silver lining” for workers with disabilities? *Journal of Occupational Rehabilitation*, *30*, 521–536.
- Schur, L., Han, K., Kim, A., Ameri, M., Adya, M., Blanck, P., & Kruse, D. (2017). Disability at work: A look back and forward. *Journal of Occupational Rehabilitation*, *27*(4), 482–497.

- Schur, L., van der Meulen Rodgers, Y., & Kruse, D. (2023). COVID-19 and employment losses for workers with disabilities: An intersectional approach. In J. E. Beatty, S. Hennekam, & M. Kulkarni (Eds.), *De Gruyter handbook of disability and management* (pp. 83–103). De Gruyter.
- Shuey, K. M., & Willson, A. E. (2017). Trajectories of work disability and economic insecurity approaching retirement. *The Journals of Gerontology: Series B*, *74*(7), 1200–1210.
- Spalter-Roth, R., & Deitch, C. (1999). “I don’t feel right sized; I feel out-of-work sized”: Gender, race, ethnicity, and the unequal costs of displacement. *Work and Occupations*, *26*(4), 446–482. <https://doi.org/10.1177/0730888499026004004>
- Stevens, A. H. (1997). Persistent effects of job displacement: The importance of multiple job losses. *Journal of Labor Economics*, *15*(1), 165–188.
- Sullivan, D., & von Wachter, T. (2009). Job displacement and mortality: An analysis using administrative data. *The Quarterly Journal of Economics*, *124*(3), 1265–1306.
- von Wachter, T. (2020). Lost generations: Long-term effects of the COVID-19 crisis on job losers and labour market entrants, and options for policy. *Fiscal Studies*, *41*(3), 549–590.
- Young, C. (2012). Losing a job: The nonpecuniary cost of unemployment in the United States. *Social Forces*, *91*(2), 609–634.
- Yu, W. H., & Sun, S. (2019). Race-ethnicity, class, and unemployment dynamics: Do macroeconomic shifts alter existing disadvantages? *Research in Social Stratification and Mobility*, *63*, 100422.