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The role of workplace accommodations in the employment of people with disabilities

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Abstract

We explore the role of workplace accommodations in reducing employment barriers and improving the employment of people with disabilities. We do so using data from the 2015 Survey of Disability and Employment on people with disabilities who applied for vocational rehabilitation services in three states. The results show that at least one third of nonworking people with disabilities reported employment barriers that could be addressed by workplace accommodations, such as lack of transportation and an inaccessible workplace. We also find that receiving certain types of workplace accommodations, such as help with transportation, flexible work schedules, or a personal care attendant, is positively correlated with being employed at the time of the survey. Finally, people who are in poor health or have physical disabilities were more likely to perceive workplace inaccessibility as a barrier but less likely to have received accommodations in their current or most recent job. This suggests that people with these characteristics may be good candidates to target for greater access to workplace accommodations.

Keywords: Employment, Disability, Labor force participation, Workplace accommodations

JEL Classification: I1, J2, J32

1 Introduction

Workplace accommodations, such as flexible work schedules or modified job duties, have the potential to play a major role in the ability of many people with disabilities to participate in the workforce. The Americans with Disabilities Act (ADA) mandates that employers provide reasonable accommodations to people with disabilities, yet only slightly more than one quarter of newly disabled older workers report receiving an employer accommodation that would help them stay at work after the onset of their disability (Hill et al. 2016). In this paper, we use data from a recent survey of vocational rehabilitation (VR) agency applicants (2015 Survey of Disability and Employment or SDE) to (1) establish that people with disabilities who are not working often report employment barriers that could be addressed by accommodations, such as lack of transportation and an inaccessible workplace, (2) explore the role of workplace accommodations in helping increase employment for people with disabilities, and (3) better understand the characteristics of those who may benefit from greater availability of accommodations. The SDE provides a unique opportunity to examine these relationships

because the data include detailed information on employment barriers faced by people with disabilities, the availability of workplace accommodations in the current or most recent job, and extensive individual characteristics about the survey respondents.

Our analysis involves three main components. First, we provide descriptive evidence that nonworking people with disabilities who have applied for VR services often report employment barriers that can be addressed by workplace accommodations, such as lack of transportation or an inaccessible workplace. Next, we use a regression analysis to examine the relationship between workplace accommodations in the current or most recent job and the current employment status of people with disabilities in order to show that the provision of workplace accommodations may help increase employment. Finally, we use descriptive statistics to examine the individual characteristics of people with disabilities who do not receive workplace accommodations and of those who face barriers that could be addressed by workplace accommodations in order to shed light on the population of people who may benefit from making workplace accommodations more widely available.

The results of our analyses show that at least one third of nonworking people with disabilities report employment barriers that could be addressed by workplace accommodations, such as an inaccessible workplace and lack of transportation. The receipt of workplace accommodations, such as help with transportation, a flexible work schedule, or a personal care attendant, at the current or most recent job is positively correlated with being employed at the time of the survey, which suggests that providing these accommodations may be effective in helping people with disabilities work. Finally, those who are in poor health or have a physical disability only are overrepresented among those who do not receive workplace accommodations in their current or most recent job; furthermore, those who are in poor health, have lower levels of educational attainment, or have physical disabilities are more likely to perceive lack of accessibility as a barrier. These findings suggest that individuals with these characteristics may be good candidates to target for expanding the availability of workplace accommodations.

Because the SDE sample consists of people with disabilities who applied for VR services in only three states, these findings cannot be generalized to people with disabilities nationally; nonetheless, this sample provides valuable insight into a group of people who have demonstrated an interest and ability to work by applying for VR. This is a particularly valuable group to examine because they are more likely to work if the employment barriers they report are identified and addressed. Understanding the characteristics of people with disabilities who do not currently have access to workplace accommodations may help VR agencies identify those who could potentially benefit from this type of assistance.

2 Background

The employment rate of working-age people with disabilities is substantially lower than the employment rate among individuals without disabilities. For example, Kraus (2015) reports that among civilians age 18 to 64 in 2014, the employment rate is 34.4% for people with disabilities versus 75.4% for people without disabilities. Among people with disabilities, some groups have greater success in the labor market than others. National data from the 2009–2011 American Community Survey (ACS) and other surveys document that employment rates differ by race, education, and disability type. The rates are higher for whites relative to most other races, for those with higher levels of educational attainment, and for those with hearing disabilities (Houtenville et al. 2013). Some of the

employment differences across demographic groups mirror well-documented disparities in the general population, which may, in turn, reflect long-term trends in social norms, educational and economic opportunities, and discrimination (Sevak et al. 2015).

The relationship between health, disability, and employment is not just a function of individual characteristics but also a function of features of the workplace and physical environment. In particular, growing evidence suggests that workplace factors affect employment outcomes for people with disabilities (Kristman et al. 2016). Research has shown that receipt of workplace accommodations is associated with better employment outcomes (Burkhauser et al. 1995; Chow 2012; Cook et al. 2015). Among VR applicants with psychiatric disabilities, accommodations such as flexible schedules and modified work duties were positively correlated with continued employment (Sevak and Khan 2017). Among workers nearing retirement age with a new onset of disability, receipt of accommodations is associated with delayed labor force exit over a 2-year period, though not over a longer period (Hill et al. 2016).

Nonetheless, receipt of accommodations is not consistent among people with disabilities (Allaire et al. 2003; Balser 2007; Burkhauser and Daly 1996; Campolieti 2004) despite the mandates of the ADA. Among people with disabilities nearing retirement age, slightly more than one-quarter report receiving employer-provided accommodations that helped them stay at work, and the most predictive factors of receiving workplace accommodations appear to be such employee characteristics as education, race, and having assertive personality traits (Hill et al. 2016). Recent work by Clay and Alston (2016) finds racial differences in the receipt of assistive technology, which could be a factor in employment differences among people with disabilities.

In order to better understand why some people who could benefit from workplace accommodations do not receive them, it is useful to consider the process by which workplace accommodations are provided to employees. One path is that an employer observes that a worker has a disability and offers accommodations; workers who would benefit from the accommodations would accept while those who would not benefit from the accommodations would decline. In this framework, workers with unobservable disabilities who need accommodations or those whose employers do not offer accommodations would not receive them and likely leave their job due to an inaccessible workplace. A second path of receiving accommodations is that the worker asks the employer for accommodations and the employer complies. In this case, only workers who need accommodations in order to stay in the workplace would request them and those that do not need accommodations will not. However, in this framework, workers who need but do not ask for accommodations or those whose employers do not comply with their request will not receive accommodations and likely leave their job due to the workplace no being accessible. In both of these scenarios, increasing workplace accommodations (either by encouraging workers to ask for accommodations, encouraging employers provide accommodations, or providing accommodations directly to workers through programs such as VR) would increase employment for people with disabilities.

Our work adds to the existing literature in several ways. First, we are able to provide empirical evidence that nonworking people with disabilities often cite employment barriers that could be addressed by accommodations and that workplace accommodations are positively correlated with employment. Second, unlike the authors of much of the existing literature, we examine the provision of a broad set of workplace accommodations

that range from allowing a flexible schedule to providing a personal attendant or transportation assistance. Third, we use a sample that spans working-age individuals with a range of disabilities who have demonstrated a particular interest in employment by applying for VR services. VR agencies, which are funded by a match of state and federal funds from the Rehabilitation Services Administration in the US Department of Education, are responsible for helping people with significant disabilities achieve their employment goals. Application to VR is voluntary, and even though the services that VR agencies can provide are dictated by the Rehabilitation Act of 1973 and its amendments, each VR client and his or her counselor develop an individualized plan for employment that spells out the services needed for that client to meet his or her employment goal.

The SDE sample of people with disabilities who have demonstrated an interest in working is a particularly valuable group to examine because they are more likely to become employed if the barriers they report are addressed. Our finding that many nonworking people with disabilities report employment barriers that can be addressed by workplace accommodations suggests that expanding the availability of accommodations may be a promising method of increasing the employment of people with disabilities. Understanding the characteristics of the individuals who report barriers that could be overcome through accommodations and those who do not currently receive them may help VR agencies identify those who could most benefit from receiving accommodations.

3 Data

We base the analyses in this paper on data from the SDE, which contains information on the employment history and workplace and social supports for people who applied for VR services between August 15, 2014, and December 15, 2014. The survey was administered by computer-assisted telephone interviews between November 2014 and May 2015 to working-age VR applicants (25 to 60 years old) in three states (Mississippi, New Jersey, and Ohio). Because participation in the survey was voluntary, estimates from the survey could be biased if responding sample members differ from the state's VR population as a whole. The survey's response rate of 60% meets the 60% minimum standard of many journals,[1] and a nonresponse bias analysis conducted by survey staff illustrated that the weighted final sample did not differ from the VR applicant population along key covariates. We limited our analyses to individuals with nonmissing data for all the variables in the regression analyses (including questions about workplace accommodations, which are asked only of those ever employed), for a final sample size of 2282.[2] We adjusted all analyses in the paper using sampling weights that account for differential nonresponse by characteristics such as age, gender, race, and type of disability.

The SDE offers many advantages for this analysis compared to other data sets commonly used to examine the employment of people with disabilities, such as the American Community Survey (ACS), the Health and Retirement Study (HRS), or the National Beneficiary Survey (NBS). The SDE asks detailed questions about workplace characteristics and employment barriers that the ACS does not ask. The HRS focuses on older workers, while the SDE includes workers of all ages. Unlike the NBS, the SDE sample is limited to people with disabilities who have signaled an interest in employment by applying for VR and who are not necessarily receiving federal disability benefits. In contrast, the NBS is limited to those receiving federal disability benefits, and they are less likely to have recent employment experience.

In Table 1, we compare the descriptive statistics of the weighted SDE sample to the national population of individuals who exit from VR agencies (as measured by the 2014 Rehabilitation Services Administration case service reports known as the RSA-911) and the national population of individuals with and without disabilities in the ACS. We find that the sample of people with disabilities in the SDE is similar in some respects to the national population of people with disabilities and the national VR population, but there are also some differences. For example, the employment rate is 34% among SDE respondents and the national population of people with disabilities, but only 17% for the national VR population. In contrast, the share of people with less than a high school degree is similar for SDE respondents and the national VR population (15 and 17%, respectively), but much larger in the national population of people with disabilities (23%). The SDE has a larger share of individuals with multiple disabilities and smaller shares of individuals with sensory or psychiatric disabilities alone than the national population of people with disabilities or the VR population; however, this may primarily reflect differences in how this information was collected across sources. The SDE asked respondents an open-ended question about their health condition or disability and placed no limits on how many conditions were recorded. The RSA-911 reports up to two impairments (the primary and secondary impairments as coded by the VR counselor who screened the applicant), and the ACS has a series of six disability questions that a number of studies have found to underreport disability. In light of these differences, it is difficult to generalize the findings for the SDE sample to the national population of people with disabilities or people who apply for VR services.

Table 1 Individual characteristics of people with and without disabilities

Characteristic	People without disabilities (ACS)	People with disabilities (ACS)	People with disabilities applying for VR services (RSA-911)	People with disabilities applying for VR services (SDE)
	(1)	(2)	(3)	(4)
Employment rate	76.9	34.5	17.1	34.4
Race				
White only	75.6	74.0	68.7	59.4
Black only	11.3	16.3	27.0	33.3
Asian only	5.9	2.3	1.3	
Other/mixed	7.2	7.4	2.9	7.3
Education				
Less than HS	10.8	22.7	17.4	14.6
HS	26.0	34.0	43.1	41.0
Some college/AA degree	30.7	30.4	30.2	32.8
Bachelors or more	32.5	12.9	9.3	11.7
Disability type				
Physical disability only	–	30.2	15.8	37.1
Sensory disability only	–	19.9	12.5	7.3
Psychiatric disability only	–	20.3	41.7	10.7
Multiple disability	–	25.4	30.0	40.7
No disability/other	–	4.28	0.0	0.0

Source: Sevak et al. (2015) for columns 1 and 2; author's tabulations of 2014 RSA-911 for column 3; and the Survey of Disability and Employment for column 4. Note: Disability measures differ across data sources and are not perfectly comparable

Nonetheless, the SDE sample provides useful insight into a large group of people with disabilities who live in three large states who have a demonstrated an interest in employment.

In Table 2, we provide additional characteristics of the SDE sample in terms of demographic characteristics, employment history and characteristics, and the workplace accommodations received in a current or most recent job.

3.1 Demographic characteristics

About half of the survey sample individuals reside in Ohio; the other half are almost equally distributed between Mississippi and New Jersey. The sample is evenly split by gender; the average age of respondents is 43, and 64% are low income, with an annual family income below $25,000. Approximately one third of the sample are black, 7% are in the "other" category (which includes Asians, Pacific Islanders, Native Americans, and multiple-race categories), and the remainder are white. Fifteen percent of the sample individuals have less than a high school education, 41% have a high school diploma only, 33% have some college, and 12% have a bachelor's degree or higher. We conduct some of our analyses by disability subgroup, given that Houtenville et al. (2014) documented large employment differences by disability type. Smart (2008) suggests the following four categories of disability that are based on symptoms and manifestations, not cause or source: physical, intellectual, cognitive, and psychiatric. We separated out sensory disabilities from physical disabilities because those who report sensory disabilities tend to have the highest employment rates (Houtenville et al. 2014). Based on these five categories (plus another category for having multiple disabilities), 41% of the sample have multiple disabilities, 37% have a physical disability only, 11% have a psychiatric disability only, and 7% have a sensory disability only. The remaining disability types (intellectual disability only, cognitive disability only, and other disability types) account for less than 3% of the sample. Only 5% of the sample has had their disability since birth and 14% had their disability onset in the past 2 years; the average number of years since disability onset is 16. We focus on just those with recent disability onset for some of our analyses because their employment outcomes may benefit more from workplace accommodations than those who have had their disability for many years.

3.2 Employment history and characteristics

Although our analysis sample is limited to people with disabilities with a work history and an interest in employment, there is variation in the current employment status of the sample, with 34% currently working. Whereas only 22% of the sample worked only before the onset of their disability, another 51% worked both before and after the onset of their disability and 23% worked only after the onset of their disability.[3] As expected, the population of interest places a high value on working. When asked how important it is to them to work, 52% of the sample responded extremely important; 2% responded not at all important. Most people in the sample perceive themselves as demonstrating high executive function: 87% say they are reliable workers, 79% say they persevere until they complete a job, and only 20% say they have trouble focusing on work.

3.3 Workplace accommodations

The SDE asked respondents about receipt of a number of workplace accommodations at the current or most recent job. The list of accommodations was adopted from the Social

Table 2 Descriptive statistics of SDE sample

Characteristics	Mean	Standard deviation
	N = 2282	
Demographic characteristics		
State		
Mississippi	23.2	42.2
New Jersey	24.9	43.3
Ohio	51.8	50.0
Gender		
Male	50.1	50.0
Female	49.9	50.0
Age (mean)	43.0	10.1
Married	20.7	40.6
Family income		
Less than $25,000	63.6	48.1
$25,000 to $49,999	17.4	37.9
$50,000 to $99,999	8.6	28.0
More than $100,000	2.6	16.0
Missing	7.7	26.7
Race		
White only	59.4	49.1
Black only	33.3	47.1
Other	7.3	26.0
Hispanic	5.3	22.4
Education		
Less than high school	14.6	35.3
High school	41.0	49.2
Some college/associate's degree	32.8	47.0
Bachelor's degree or higher	11.7	32.1
Disability type		
Physical disability only	37.1	48.3
Sensory disability only	7.3	26.0
Intellectual disability only	0.8	8.8
Cognitive disability only	2.7	16.2
Psychiatric disability only	10.7	30.9
Other disability only	0.7	8.1
Several disabilities	40.7	49.1
Self-rated health		
Excellent	7.6	26.5
Very good	18.0	38.5
Good	32.5	46.8
Fair	31.1	46.3
Poor	10.7	31.0
Years since onset of disability	15.7	13.5
Recent (within 2 years) onset of disability	14.3	35.0
Birth onset of disability	4.7	21.2

Table 2 Descriptive statistics of SDE sample *(Continued)*

Characteristics	Mean	Standard deviation
	N = 2282	
Employment and work-related characteristics		
Currently employed	34.4	47.5
Work history		
Never worked	0.0	0.0
Worked only before onset	22.4	41.7
Worked only after onset	22.9	42.0
Worked both before and after onset	50.5	50.0
Missing	4.3	20.3
Importance placed on employment		
Extremely	51.9	50.0
Very	32.9	47.0
Somewhat	12.8	33.4
Not at all	2.3	14.9
Missing	0.2	4.4
Executive functioning		
Is a reliable worker	87.1	33.5
Perseveres until task is done	78.9	40.8
Is easily distracted	19.9	39.9
Accommodation received in current or last job		
Flexible schedule	49.8	50.0
Job coach/training	41.0	49.2
Arranged assistance from coworkers	32.2	46.7
Modified job duties	27.9	44.9
Help with transportation	19.3	39.5
Special equipment or modified work space	16.8	37.4
Counseling on work benefit	14.6	35.3
Counseling/therapy	13.6	34.3
Personal care/assistant	9.3	29.1
Help with child/family care	4.9	21.5

Source: Authors' tabulations of the Survey of Disability and Employment

Security Administration's NBS. Respondents were told to report "yes," "no," and "not applicable" for each of the accommodations separately. Because there is no way to know with certainty whether a respondent who did not think he or she needed a particular accommodation selected "not applicable" or "no," we combine these two responses into "no" and remain agnostic about whether they did not need or needed but did not receive the accommodation. The most common accommodations were a flexible schedule (50%), a job coach or training (41%), arranged assistance from co-workers (32%), and modified job duties (28%). The least common accommodations were a personal care attendant or personal assistant (9%) and help with child or family care (5%).

4 Empirical methods

As noted, our analysis involves three main components. First, we examine the employment barriers faced by nonworking people with disabilities to determine whether the

employment barriers among those who are not employed could be addressed by workplace accommodations. Next, we conduct a regression analysis to examine the relationship between the receipt of workplace accommodations and employment status at the time of the survey. Finally, we explore observable differences in individual characteristics among people with disabilities who receive and do not receive workplace accommodations, as well as the characteristics of those who report specific employment barriers that could be addressed by workplace accommodations.

The first component of the analysis presents the percentage of nonworking people with disabilities who perceived a variety of factors as employment barriers—for the overall sample, by disability subgroup, and for those whose disability onset was within the last 2 years. The survey presented to respondents a list of individual, work-related, and societal barriers that people sometimes list for not working and asked whether each barrier pertained to him or her. The individual barriers include a physical or mental condition that prevents the respondent from working, lack of skills, no reliable transportation, waiting to complete school or a training program, family or friends do not think that the respondent can work, and the respondent's responsibility for caring for someone else. The work-related barriers include the inability to find a job, earlier attempts at work that proved discouraging, employers' failure to provide a chance to work, and workplaces that are not accessible to people with their condition. The societal barrier includes the possible loss of benefits (such as workers' compensation, Temporary Assistance to Needy Families, Medicaid). We explore whether the commonly perceived barriers to gaining employment are those that could be addressed through workplace accommodations, such as an inaccessible workplace or lack of transportation. Given that all survey respondents demonstrated an interest in working by applying for VR services, respondents who selected these as barriers have a greater likelihood of working if provided accommodations.

For the second component of the analysis, we explore whether workplace accommodations is positively correlated with employment and therefore a potential solution to some of the commonly reported employment barriers. To do this, we estimate linear probability models predicting current employment (E) for the entire sample, by disability subgroup, and for those who had recent disability onset. The independent variables are the individual characteristics (X_j) and receipt of workplace accommodations in the person's current or most recent job (Y_k):

$$E_i = \alpha_{0i} + \sum_{j=1}^{J} \beta_{ji} X_{ji} + \sum_{k=1}^{K} \delta_{ki} Y_{ki}$$

The individual characteristics (X_j) are gender, race/ethnicity, education, disability type, age, marital status, self-rated health, years since onset, birth onset, and executive function (that is, whether the person perceives himself or herself to be a reliable worker, able to persevere until a task is completed, and not easily distracted). The 10 workplace accommodations (Y_k) are flexible schedule, job coach or on-the-job training, arrangement for co-workers or others to assist, modified job duties, help with transportation, special equipment or modified work space, benefits counseling, counseling or therapy, personal care attendant or personal assistance, and help with child or family care. The coefficients on each of these individual characteristics and workplace accommodations provide an estimate for the relationship between each factor and the

probability of being employed at the time of the survey. We are particularly interested in the relationship between the receipt of different types of workplace accommodation and employment.

For the third component of the analysis, we compare the individual characteristics of people with disabilities who receive workplace accommodations at their current or most recent job with the characteristics of those who do not receive them. We also compare the individual characteristics of nonworking individuals who report specific employment barriers that can be addressed by workplace accommodations (inaccessible workplace or lack of transportation) to the characteristics of nonworking individuals with disabilities who did not report these barriers. These comparisons will provide insight into the characteristics of workers who are most likely to benefit from expanded access to workplace accommodations given that they did not receive them at their most recent job or that they cited barriers that can be addressed by accommodations. Due to data limitations, we are unable to identify whether those without workplace accommodations do not receive them because they do not need them. However, this initial analysis gives a baseline measure of which people with disabilities might be possible candidates to target for the provision of workplace accommodations.

5 Results

We begin by presenting the rates of reported employment barriers faced by nonworking people with disabilities—overall, by disability subgroup, and for those with recent disability onset (Table 3). This analysis provides evidence on the extent to which people with disabilities reported employment barriers that could be addressed by expanding the availability of workplace accommodations. The most commonly reported employment barrier is that the person's condition prevents him or her from working, with about two thirds of nonworking people with disabilities reporting their condition as an employment barrier. There is variation by disability subgroup, ranging from 29% of those with a sensory disability only to 74% of those with a physical disability only. Other frequently mentioned barriers are inability to find a job (59%), being discouraged from previous attempts at working (48%), employers will not give them a chance (44%), and lack of skills (42%).

Some frequently reported barriers such as workplace accessibility and lack of transportation may be better addressed by employer accommodations or public supports. An inaccessible workplace is mentioned as an employment barrier by approximately one third of nonworking people with disabilities. This is the same for people whose disability onset was within the past 2 years. Those with a physical disability only or multiple disabilities reported at the highest rates that the workplace was not accessible (37 and 34%, respectively); those with a psychiatric disability only or a sensory disabilities only reported at the lowest rates (21 and 27%, respectively) that the workplace was not accessible. Lack of transportation was a perceived barrier for roughly 30% of nonworking respondents, and 36% of nonworking respondents with sensory disabilities. The estimates for both of these barriers reveal that they are relatively commonly perceived employment barriers among nonworking people with disabilities, and at least one third of nonworking respondents in the sample would be more likely to become employed if they were provided with accommodations. The average number of employment barriers reported was four, which means that providing these accommodations would ideally be provided alongside other supports to address all of the employment barriers faced by people with disabilities.

Table 3 Reported employment barriers for those not currently working, overall, and by disability subgroup

Characteristics		Means by subgroup				
	All	(1) Physical only	(2) Sensory only	(3) Psychiatric only	(4) Multiple disabilities	(5) Recent disability onset
	N = 1267	*N* = 514	*N* = 46	*N* = 139	*N* = 518	*N* = 339
Condition prevents working	66.9	74.0	29.3	58.3	69.1	73.5
Cannot find job	58.6	51.4	56.3	72.6	62.3	49.4
Discouraged from previous attempt	48.0	39.6	37.6	61.2	53.9	37.3
Employers will not give them a chance	43.9	35.9	36.1	48.3	50.7	29.5
Lack of skills	42.0	35.8	20.9	45.3	48.9	29.5
Workplace not accessible	32.6	37.4	27.0	20.5	33.5	32.5
Lack of reliable transportation	29.4	25.6	36.4	30.0	32.6	21.1
In school/training	24.6	23.1	16.1	24.8	26.9	22.3
Did not want to lose SSDI/Medicaid	23.1	23.3	12.2	22.6	24.0	12.0
Family does not think they can work	22.6	21.9	8.9	18.5	25.5	15.1
Caregiving	13.7	12.5	18.2	13.0	13.7	7.8

Source: Authors' tabulations of the Survey of Disability and Employment
SSDI Social Security Disability Insurance

Next, we present the results of a regression analysis of the relationship between current employment and individual characteristics and the receipt of workplace accommodations at the current or most recent job (Table 4). Many of the coefficients reflect the expected relationship between individual characteristics and being currently employed; individuals who have a bachelor's degree or higher are more likely to be currently employed than those with a high school degree, and people who are in poor health are less likely to be employed than those who are in good health. These relationships generally hold across disability subgroups. The workplace accommodations that are positively correlated with current employment are having a flexible schedule, receiving help with transportation, and having a personal care attendant or personal assistant. The magnitude of these relationships ranged from 7 to 9 percentage points. Having a flexible schedule and help with transportation were statistically significant for both those with a physical disability only and those with several disabilities; having a personal care attendant or personal assistant was statistically significant only for those with multiple disabilities. No statistically significant relationship was seen for those with sensory or psychiatric disabilities only, but this may be due to the smaller sample sizes for these disability subgroups. Those with a disability onset within the past 2 years reported higher employment if they received a flexible schedule or modified job duties.

Finally, to examine potential inequities in need or receipt of accommodations, we compare the individual characteristics of those who receive workplace accommodation and those who do not receive workplace accommodations (Table 5) and those who report specific employment barriers that can be addressed by workplace accommodations and those who do not report these barriers (Table 6).

Table 4 Regression results of employment on workplace accommodations, overall, and by disability subgroup

Characteristics	All	Dependent variable: currently employed				
		(1) Physical only	(2) Sensory only	(3) Psychiatric only	(4) Multiple disabilities	(5) Recent disability onset
	N = 2282	*N* = 894	*N* = 236	*N* = 190	*N* = 873	*N* = 339
Accommodations received in current or most recent job						
Flexible schedule	0.078***	0.151***	0.042	− 0.069	0.056*	0.208***
	[0.02]	[0.03]	[0.07]	[0.07]	[0.03]	[0.05]
Job coach/training	− 0.037*	− 0.000	− 0.105	− 0.014	− 0.042	− 0.087
	[0.02]	[0.03]	[0.07]	[0.08]	[0.03]	[0.06]
Arranged assistance from coworkers	− 0.000	0.037	− 0.004	0.014	− 0.026	− 0.024
	[0.02]	[0.04]	[0.08]	[0.10]	[0.04]	[0.06]
Modified job duties	0.032	− 0.036	− 0.065	0.074	0.081**	0.155**
	[0.03]	[0.04]	[0.10]	[0.10]	[0.04]	[0.07]
Help with transportation	0.089***	0.094**	0.108	− 0.129	0.103**	− 0.013
	[0.03]	[0.05]	[0.09]	[0.12]	[0.04]	[0.09]
Special equipment or modified work space	− 0.005	0.003	0.079	− 0.071	− 0.001	− 0.025
	[0.03]	[0.05]	[0.13]	[0.10]	[0.05]	[0.08]
Counseling on work benefit	0.016	− 0.012	0.083	− 0.101	0.014	− 0.035
	[0.03]	[0.05]	[0.11]	[0.12]	[0.05]	[0.10]
Counseling/therapy	0.001	− 0.041	− 0.054	0.198	0.018	0.038
	[0.03]	[0.05]	[0.09]	[0.17]	[0.05]	[0.10]
Personal care/ assistant	0.070*	− 0.011	0.072	0.230	0.101*	0.091
	[0.04]	[0.06]	[0.15]	[0.15]	[0.06]	[0.11]
Help with child/family care	− 0.081*	− 0.016	− 0.275	− 0.134	− 0.076	0.142
	[0.05]	[0.08]	[0.19]	[0.22]	[0.07]	[0.16]
Gender						
Male	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Female	0.019	0.103***	− 0.036	− 0.047	− 0.032	0.112**
	[0.02]	[0.03]	[0.07]	[0.07]	[0.03]	[0.05]
Race						
White only	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Black only	− 0.034	0.003	− 0.089	− 0.151*	− 0.039	0.033
	[0.02]	[0.03]	[0.08]	[0.08]	[0.04]	[0.06]
Other	0.028	− 0.026	0.053	− 0.013	0.046	− 0.061
	[0.04]	[0.07]	[0.11]	[0.20]	[0.05]	[0.10]
Hispanic	0.043	0.016	− 0.154	0.309**	0.069	− 0.051
	[0.04]	[0.06]	[0.16]	[0.16]	[0.07]	[0.11]
Education						
Less than high school	− 0.037	− 0.091**	0.183*	− 0.204	− 0.029	− 0.031
	[0.03]	[0.05]	[0.11]	[0.15]	[0.04]	[0.08]
High school	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted

Table 4 Regression results of employment on workplace accommodations, overall, and by disability subgroup *(Continued)*

Characteristics	All	Dependent variable: currently employed				
		(1) Physical only	(2) Sensory only	(3) Psychiatric only	(4) Multiple disabilities	(5) Recent disability onset
	N = 2282	*N* = 894	*N* = 236	*N* = 190	*N* = 873	*N* = 339
Some college or associate's degree	0.005	− 0.030	0.054	0.041	0.005	− 0.045
	[0.02]	[0.04]	[0.07]	[0.09]	[0.04]	[0.06]
Bachelor's degree or higher	0.159***	0.124**	0.211**	0.148	0.190***	0.044
	[0.03]	[0.06]	[0.10]	[0.09]	[0.05]	[0.08]
Disability type						
Physical only	Omitted					Omitted
Sensory only	0.295***					0.390***
	[0.04]					[0.10]
Intellectual only	0.186*					
	[0.11]					
Cognitive only	− 0.024					− 0.078
	[0.06]					[0.21]
Psychiatric only	0.015					0.285***
	[0.03]					[0.10]
Other only	0.055					0.606*
	[0.12]					[0.32]
Several disabilities	0.005					− 0.018
	[0.02]					[0.07]
Age (mean)	0.000	0.001	− 0.002	0.003	− 0.001	0.003
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Married	0.084***	0.126***	− 0.180*	0.121	0.064	0.158***
	[0.02]	[0.04]	[0.11]	[0.07]	[0.04]	[0.06]
Self-rated health						
Excellent	0.034	0.087	− 0.093	0.006	0.022	0.002
	[0.04]	[0.07]	[0.11]	[0.11]	[0.07]	[0.10]
Very good	0.069**	0.123***	0.039	− 0.045	0.065	0.019
	[0.03]	[0.05]	[0.08]	[0.08]	[0.05]	[0.07]
Good	Omitted	Omitted	Omitted	Omitted	Omitted	Omitted
Fair	− 0.063**	− 0.043	− 0.057	0.154	− 0.076**	− 0.041
	[0.02]	[0.04]	[0.10]	[0.15]	[0.04]	[0.07]
Poor	− 0.183***	− 0.143***	− 0.281	− 0.800**	− 0.167***	− 0.278***
	[0.03]	[0.05]	[0.22]	[0.37]	[0.05]	[0.09]
Years since onset	− 0.001	− 0.002	− 0.001	− 0.003	0.002	− 0.036
	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.05]
Birth onset	0.056	0.222**	− 0.150	− 0.143	0.067	
	[0.05]	[0.09]	[0.37]	[0.13]	[0.07]	
Executive functioning						
Is a reliable worker	0.058*	0.012	0.190**	0.260	0.047	0.094
	[0.03]	[0.06]	[0.10]	[0.16]	[0.04]	[0.10]

Table 4 Regression results of employment on workplace accommodations, overall, and by disability subgroup *(Continued)*

Characteristics	All	Dependent variable: currently employed				
		(1) Physical only	(2) Sensory only	(3) Psychiatric only	(4) Multiple disabilities	(5) Recent disability onset
	N = 2282	*N* = 894	*N* = 236	*N* = 190	*N* = 873	*N* = 339
Perseveres until task is done	0.020	0.036	0.132	0.002	− 0.002	0.053
	[0.03]	[0.04]	[0.09]	[0.13]	[0.04]	[0.07]
Is easily distracted	0.020	0.009	0.015	0.057	0.015	− 0.068
	[0.03]	[0.05]	[0.08]	[0.14]	[0.04]	[0.08]

Source: Survey of Disability and Employment. Note: The dependent variable for all regressions is an indicator for being currently employed. Standard errors are in square brackets
*Statistically significant at the 0.10 level; **statistically significant at the 0.05 level; ***statistically significant at the 0.01 level

We find that only 26% of those who did not receive accommodations at their current or most recent job are currently employed compared to 37% of those who did receive accommodations. Furthermore, those who did not receive accommodations are more likely to be in poor health and have a physical disability compared to those who did receive accommodations. Finally, 3.2% of those who did not receive workplace accommodations have had their disability since birth compared to 5.2% of those who did receive accommodations. This is also reflected in the fewer number of years since onset for those who did not receive accommodations compared to those who do. We also examine whether individual characteristics vary based on the type of workplace accommodation received (Appendix Table 7). There is some slight variation; for example, those who have a flexible schedule are more likely to have a bachelor's degree or higher than those who receive help with transportation, have a personal care attendant or personal assistant, or receive help with child or family care. These latter groups are not only more likely to have less than a high school degree but also more likely to perceive themselves as being in excellent health.

We also find a number of significant differences in the characteristics of individuals who report specific employment barriers that could be addressed by accommodations—namely, an inaccessible workplace and lack of reliable transportation. A disproportionate share of workers reporting inaccessible workplaces as a barrier do not have a high school degree, have physical disabilities, have poor self-rated health, and report being easily distracted at work. Individuals that cite lack of transportation as a barrier are less likely to have physical disabilities alone but more likely to have multiple disabilities. They are also less likely to be married, have had more years pass since the onset of their disability, and to report being easily distracted at work.

6 Conclusions

The results have shown that the receipt of workplace accommodations plays a significant role in the employment of people with disabilities. At least one third of nonworking people with disabilities report barriers to their employment that could be addressed with accommodations, such as an inaccessible workplace or lack of transportation. Furthermore, receiving workplace accommodations such as a flexible work schedule, help with transportation, and a personal care attendant or personal assistant in the current or more recent job is positively correlated with current employment. Finally, our results reveal a

Table 5 Individual characteristics by receipt of workplace accommodations in current or last job

Characteristics	Percentage by receipt of accommodation		
	No accommodation	Accommodation	Difference
	N = 523	*N* = 1759	
Currently employed	26.2	36.8	10.6***
Gender			
Male	52.5	49.4	− 3.2
Female	47.5	50.6	3.2
Hispanic	4.6	5.5	0.9
Education			
Less than high school	15.1	14.5	− 0.7
High school	41.0	40.9	− 0.1
Some college or associate's degree	32.5	32.9	0.4
Bachelor's degree or higher	11.3	11.7	0.4
Disability type			
Physical only	41.5	35.9	− 5.6***
Sensory only	9.0	6.8	− 2.2*
Intellectual only	0.0	1.0	1.0**
Cognitive only	2.2	2.8	0.7
Psychiatric only	9.7	11.0	1.3
Other only	0.1	0.8	0.7
Several disabilities	37.5	41.6	4.1*
Age (mean)	44.9	42.4	− 2.5***
Married	25.7	19.3	− 6.4***
Self-rated health			
Excellent	5.1	8.3	3.2**
Very good	14.9	19.0	4.1**
Good	34.8	31.8	− 2.9
Fair	31.2	31.1	0.0
Poor	14.1	9.8	− 4.3***
Years since onset	14.0	16.2	2.2***
Recent onset	15.6	13.9	− 1.8
Birth onset	3.2	5.2	2.0*
Executive functioning			
Is a reliable worker	85.5	87.5	2.0
Perseveres until task is done	79.6	78.7	− 1.0
Is easily distracted	16.2	20.9	4.7**

Source: Authors' tabulations of the Survey of Disability and Employment
*Statistically significant at the 0.10 level; **statistically significant at the 0.05 level; *** statistically significant at the 0.01 level

number of differences by demographic characteristics in perceived barriers and receipt of workplace accommodations. Those who did not receive workplace accommodations in their current or most recent job are more likely to be in poor health or have a physical disability only relative to those who did receive them. Those who perceive workplace accessibility as an employment barrier are more likely to have lower levels of educational attainment, be in poor health, and have physical disabilities than those that do not share

Table 6 Individual characteristics by employment barriers reported for those who are not working

Characteristics	Percentage by reported employment barrier					
	Inaccessible workplace is a barrier	Inaccessible workplace is not a barrier	Difference	Lack of transportation is a barrier	Lack of transportation is not a barrier	Difference
	N = 412	*N* = 855		*N* = 369	*N* = 898	
Gender						
Male	49.5	51.7	− 2.2	49.9	51.5	− 1.6
Female	50.5	48.3	2.2	50.1	48.5	1.6
Hispanic	4.6	5.1	− 0.5	3.8	5.4	− 1.6
Education						
Less than high school	19.5	13.9	5.6***	18.4	14.6	3.8*
High school	41.7	43.4	− 1.7	46.2	41.5	4.7
Some college or associate's degree	30.4	34.2	− 3.8	28.7	34.8	− 6.1**
Bachelor's degree or higher	8.3	8.5	− 0.1	6.8	9.1	− 2.3
Disability type						
Physical only	44.7	36.1	8.6***	33.9	40.9	− 7.1**
Sensory only	2.7	3.5	− 0.8	4.0	2.9	1.1
Intellectual only	0.5	0.6	− 0.2	0.0	0.8	− 0.8*
Cognitive only	0.9	3.5	− 2.6***	2.2	2.9	− 0.7
Psychiatric only	6.8	12.8	− 6.0***	11.1	10.7	0.3
Other only	0.0	1.1	− 1.1**	1.1	0.6	0.5
Several disabilities	44.4	42.5	1.9	47.8	41.2	6.7**
Age (mean)	44.1	41.9	2.2***	43.0	42.5	0.5
Married	19.3	17.5	1.8	14.8	19.5	− 4.7**
Self-rated health						
Excellent	6.5	7.4	− 0.9	7.1	7.1	0.0
Very good	10.1	15.8	− 5.8***	12.1	14.8	− 2.7
Good	26.9	33.6	− 6.6**	32.0	31.1	0.9
Fair	36.6	32.5	4.2	32.8	34.2	− 1.4
Poor	19.9	10.8	9.2***	16.0	12.8	3.1
Years since onset	15.9	15.2	0.6	17.5	14.6	3.0***
Recent onset	13.3	12.5	0.8	8.5	14.5	− 6.0***
Birth onset	4.8	4.0	0.8	5.6	3.7	1.9
Executive functioning						
Is a reliable worker	81.1	87.5	− 6.4***	82.8	86.5	− 3.8*
Perseveres until task is done	76.4	78.8	− 2.3	75.8	78.9	− 3.1
Is easily distracted	26.0	18.1	7.9***	26.8	18.1	8.7***

Source: Authors' tabulations of the Survey of Disability and Employment
*Statistically significant at the 0.10 level; **statistically significant at the 0.05 level; ***statistically significant at the 0.01 level

this perception. It is unclear whether these differences reflect underlying differences in need or employer willingness to provide accommodations or both.

The interpretation of our results is subject to some limitations. First, our results are specific to Mississippi, New Jersey, and Ohio. They may not be generalizable to

the population with disabilities in other states. Similarly, the SDE sample is limited to VR applicants, who may differ from the rest of the population of people with disabilities. Given that VR services aim to meet employment goals, VR applicants indicate at least some interest in employment through the act of applying for services. Interest and ability to work may be even higher in our sample because we imposed a restriction that individuals must have a work history to be included in the analyses. Third, because receipt of accommodations and exposure to employment barriers are not experienced at random, our findings should be interpreted as descriptive findings of correlations rather than as causal estimates. Finally, we are able to analyze differences in the characteristics observed only in the SDE survey data; in other words, other unobservable characteristics, such as severity of disability, work-related skills, and local labor market conditions, could conceivably influence the relationship between the receipt of workplace accommodations and employment, but we did not explore these characteristics.

Despite these limitations, our findings are encouraging because they suggest several important policy implications. Even though existing literature has thoroughly documented differences in employment rates by demographic characteristics and health conditions, the findings in this study point to specific factors that practitioners, policy makers, and employers can address. First, the fact that one third of nonworking people with disabilities perceive that an inaccessible workplace or lack of transportation is a barrier to their employment and that accommodations to address these barriers are positively correlated with employment suggests the need for additional efforts to provide people with disabilities with these types of supports. This includes supporting employers so they better understand how to accommodate workers who have disabilities. Although our findings cannot be generalized nationally to people with disabilities, this sample of individuals who have applied for VR services are highly motivated to work and very likely to benefit from policies and practices that improve access to workplace accommodations.

Second, our findings provide some suggestions for groups of people with disabilities who VR agencies may want to target for providing workplace accommodations, such as workers who report being in poor health or have a physical disability only. These two groups have demonstrated an ability to work but were less likely to have received accommodations in their current or most recent job and more likely to report an inaccessible workplace as an employment barrier. This suggests that these two groups may be more likely to work if they were provided appropriate accommodations. However, before targeting these groups, more research is needed to confirm that they do not receive workplace accommodations because they are being overlooked or denied access rather than because they do not need them.

Endnotes

[1]See http://jamanetwork.com/journals/jama/pages/instructions-for-authors#GeneralInformationfor the Journal of the American Medical Association's standards for sufficient response rates.

[2]A total of 522 observations, 19% of the original sample, are lost due to missing data.

[3]Sixteen percent of those who worked only after disability onset have had their disability since birth, and another 63% had their disability onset before age 18.

Appendix

Table 7 Individual characteristics by disaggregated workplace accommodations in current or most recent job

Independent variables	Flexible schedule	Job coach/ training	Arranged assistance from coworkers	Modified job duties	Help with transportation	Special equipment or modified work space	Counseling on work benefit	Counseling/ therapy	Personal care/assistant	Help with child/ family care
Currently employed	39.7	33.6	37.1	38.3	41.8	39.4	38.5	35.7	41.0	30.1
Gender										
Male	47.2	49.6	52.1	47.8	59.3	45.8	55.8	48.8	58.1	45.9
Female	52.8	50.4	47.9	52.2	40.7	54.2	44.2	51.2	41.9	54.1
Race										
White	59.8	57.5	55.8	52.6	57.1	51.6	51.8	54.4	44.4	52.3
Black	33.3	34.7	36.1	39.3	35.8	41.7	41.1	37.2	48.0	43.5
Other/mixed	6.8	7.7	8.1	8.1	7.1	6.6	7.1	8.4	7.6	4.2
Hispanic	5.0	5.5	5.8	6.1	5.8	4.1	5.8	5.1	7.7	6.5
Education										
Less than high school	14.6	14.2	16.7	18.6	22.1	18.8	19.3	16.1	27.1	26.5
High school	39.9	44.8	42.9	46.5	52.4	43.8	43.6	44.5	52.1	40.0
Some college or associate's degree	33.0	31.9	31.6	27.4	21.8	27.5	29.4	28.9	16.7	28.9
Bachelor's degree or higher	12.5	9.1	8.7	7.5	3.7	9.9	7.8	10.6	4.1	4.6
Disability type										
Physical only	35.7	34.3	37.0	40.5	29.6	35.2	32.8	26.3	36.5	31.6
Sensory only	6.8	6.0	6.3	4.3	6.0	9.6	5.9	3.1	6.4	5.1
Intellectual only	0.7	1.4	1.0	1.4	2.8	0.9	2.0	1.3	1.3	0.0
Cognitive only	2.8	2.9	3.1	2.8	2.8	3.2	2.7	4.1	3.1	7.3
Psychiatric only	12.0	11.0	10.5	8.5	12.1	7.3	10.0	14.3	8.0	7.2
Other disabilities	0.8	0.9	0.6	1.2	0.8	0.6	1.0	1.5	1.7	2.2

Table 7 Individual characteristics by disaggregated workplace accommodations in current or most recent job *(Continued)*

Independent variables	Flexible schedule	Job coach/ training	Arranged assistance from coworkers	Modified job duties	Help with transportation	Special equipment or modified work space	Counseling on work benefit	Counseling/ therapy	Personal care/assistant	Help with child/ family care
Several disabilities	41.1	43.5	41.5	41.3	46.0	43.2	45.6	49.4	43.1	46.7
Age	42.3	41.7	42.1	42.3	40.3	42.7	42.6	42.4	42.2	38.2
Married	18.6	17.4	19.2	17.1	14.9	20.5	13.9	11.3	11.4	12.9
Self-rated health										
Excellent	8.1	9.0	10.2	8.0	13.9	11.2	11.4	9.3	18.1	10.6
Very good	18.9	18.7	18.3	19.1	19.5	17.5	19.6	15.8	15.4	15.7
Good	32.2	30.6	31.3	28.4	30.0	28.5	27.1	29.5	30.3	31.2
Fair	32.3	31.1	31.5	35.2	28.8	32.2	33.2	36.0	29.2	33.4
Poor	8.5	10.6	8.7	9.4	7.8	10.6	8.7	9.4	6.9	9.1
Years since disability onset	16.2	16.9	16.8	17.5	19.1	17.9	18.6	17.3	19.2	16.4
Recent onset	13.9	12.1	13.5	12.5	8.8	14.0	9.7	9.5	10.2	8.8
Birth onset	5.2	5.6	6.0	5.3	8.1	5.5	7.4	5.3	7.8	4.1
Self-rated executive functioning										
Is a reliable worker	88.9	86.8	87.2	86.1	84.3	86.1	84.3	82.6	81.5	75.8
Perseveres until task is done	80.5	77.5	80.4	79.4	75.7	81.2	76.5	74.2	75.5	74.5
Not easily distracted	20.3	21.7	21.3	21.6	24.7	21.6	21.1	25.7	21.9	24.7

Source: Survey of Disability and Employment

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Availability of data and materials
Additional results and copies of the computer programs used to generate the results presented in the paper are available from Priyanka Anand at panand4@gmu.edu. Researchers who wish to access the data, which are proprietary, can contact John O'Neill at Kessler Foundation at joneill@kesslerfoundation.org.

Competing interest
The IZA Journal of Labor Policy is committed to the IZA Guiding Principles of Research Integrity. The authors declare that they have observed these principles.

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