

# Disability Saliency and Discrimination in Hiring

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## I. Introduction

Individuals with disabilities face considerable economic challenges. In 2013, only 34.0% of individuals aged 18 to 64 with disabilities were employed, compared to 74.2% for those without disabilities. Employment varies significantly by disability type, ranging from 15.2% for self-care disabilities to 50.2% for hearing disabilities (Houtenville, Brucker, and Lauer, 2014). Conditional on working, there are still gaps in wages even when controlling for how disabilities affect job requirements (e.g., Kruse et al., forthcoming).

Disability discrimination laws are one approach to closing these gaps by removing

discriminatory employment barriers and increasing employer accommodations. The most notable US law is Title I of the *Americans with Disabilities Act of 1990* (ADA), which became effective July 1992. The ADA made discrimination in hiring, terminations, promotions, and wages based on disability illegal. The ADA also required employers to provide reasonable accommodations. The ADA primarily considers individuals to have a disability if they have, are perceived to have, or have a history of a condition that “substantially limits one or more major life activities.”

In 1999, the Supreme Court narrowed the definition of disability under the ADA in the “Sutton Trilogy”<sup>1</sup> and again in 2002 in *Toyota v. Williams*<sup>2</sup>. First, these cases increased the already high burden of proof for plaintiffs to prove that their condition “substantially limits.” Second, individuals with “mitigating measures”<sup>3</sup> were no longer deemed disabled under the ADA, if these measures made their condition no longer “substantially limit.”

<sup>1</sup> *Sutton v. United Airlines* (119 S. Ct. 2139 (1999)), *Murphy v. United Parcel Service, Inc.* (119 S. Ct. 2133 (1999)), and *Albertson's, Inc. v. Kirkingburg* (119 S. Ct. 2162 (1999)), all decided on June 22, 1999.

<sup>2</sup> *Toyota Motor Mfg., KY., Inc. v. Williams* (534 U.S. 184 (2002)), decided January 8, 2002.

<sup>3</sup> E.g., medication, accommodations, assistive technology, learned behavioral modifications

The *ADA Amendments Act of 2008* (ADAAA), effective January 1, 2009, undid these Supreme Court cases and further expanded the definition of disability under the ADA. To summarize the changes<sup>4</sup>, the ADAAA first made the “substantially limits” requirement less strict. Second, it deemed conditions that were episodic, in remission, or handled by “mitigating measures” to be considered as if they were in their active, unmitigated, state. These changes led to the coverage of conditions such as epilepsy, bipolar disorder, depression, and conditions that required mitigating measures.

While disability discrimination laws seek to boost employment of individuals with disabilities, economic theory suggests that they may have adverse effects on hiring. Disability discrimination laws make it riskier for employers to fire workers with disabilities, as they could face legal action if the firing is perceived as discriminatory. This increased firing cost means increased cost to hire individuals with disabilities. Uniquely for disability discrimination laws, there is also the added cost of reasonable accommodations which imposes additional hiring costs (Acemoglu and Angrist, 2001). While hiring discrimination is illegal under the ADA, it is difficult to detect, prove, or enforce, which

could cause the hiring disincentives to dominate.

Moreover, the impacts of discrimination law on hiring across different types of disabling conditions are theoretically heterogeneous. For conditions readily observable to potential employers, these employers may continue to, or even increase, discrimination against individuals with disabilities to avoid downstream costs in accommodations and firing. For difficult-to-observe conditions, however, employers may not be able to discriminate, and given accommodation requirements, individuals with these conditions may be more likely to pursue job opportunities once covered by discrimination law.

The empirical evidence of the effects of disability discrimination laws on the labor market outcomes of individuals with disabilities is mixed. Some studies suggest that laws have a negative effect (e.g., DeLeire, 2000; Acemoglu and Angrist, 2001), others show no effect (e.g., Beegle and Stock, 2003; Hotchkiss, 2004), and some find a positive effect (e.g., Kruse and Schur, 2003; Button, forthcoming).

However, these studies generally look at employment on the whole instead of the separate labor market margins of hiring and

<sup>4</sup> See Button, Armour, and Hollands (2018) for a full discussion of all the legal changes.

separation. Furthermore, they generally do not estimate effects separately by types of health conditions but rather combine work-limited individuals or the functionally impaired into a single treatment group. This is important as these groups have distinct labor market experiences and are affected differently by discrimination laws.

To address these issues, we expand the traditional “work-limited” measure by introducing a set of new, specific-condition-based metrics, based on which conditions an individual identifies as being the source of their work-limitation. We estimate heterogeneous effects of discrimination laws separately for physical and mental conditions, and by whether the condition is salient to the employer. The salience distinction is of importance because it relates to hiring, which is the primary outcome of our analysis.

We find that the effect of the recent ADA expansion in discrimination protections had no effect, on average, on hiring for the entire work-limited population. However, when we break this population down into subgroups based on condition saliency, we find different results. We find large positive increases in hiring for individuals with non-salient physical conditions, with salient physical conditions and mental conditions experiencing no change in hiring.

## II. Data

To measure both labor market outcomes and the types of disabling health condition, we use Survey of Income and Program Participation (SIPP) panels. The SIPP is a representative survey of American households, re-interviewing these households every four months for between two and four years. In addition to the core set of questions about employment, income, and program participation, every interview contains targeted sets of questions referred to as “topical modules.” We use both the “Work Disability” and “Functional Limitations and Disability – Adults” topical modules for our classifications of disabled subgroups. We use individuals of either gender of age 21 to 61 and draw on the 1996, 2001, 2004, and 2008 SIPP panels.

### *A. Creating Hiring Transitions*

The four-month frequency of SIPP interviews contains questions on each month since the prior interview, providing person-month data on employment status. We exploit this longitudinal nature of the SIPP to construct person-month hiring data, following the procedure outlined in Neumark, Song, and Button (2017). If individuals report having a job for at least one week during the reference month and own their own business, we define

them to be self-employed. If they report having no job, we define them to be not working. If they make a transition from self-employed or not working in the previous month (time t-1) to employed in the current month (time t), then we code them as hired. We focus on the sample not employed at period t-1, and estimate models for whether these respondents were hired as of period t.

### *B. Disability Measures*

The most common measure of disability - the “work disability” or “work-limited” measure based on a reported “physical or mental health condition limiting the kind or amount of work” one can do – has been the nearly exclusive measure of disability used in economic analyses of the labor market effects of the ADA. However, this measure suffers from multiple drawbacks. First, it is clearly not the legislative definition of disability under the ADA. Second, it groups together a highly heterogeneous population. Third, it applies to only perceived limitations in working, whereas many ADA plaintiffs specifically allege discrimination based on a condition that limits other major life activities but not work capacity.

To address these issues, we expand on the traditional “work-limited” measure by introducing a set of new, specific-condition-based metrics, based on which conditions an individual identifies as being the source of their work-limitation. If respondents answer yes to the work-limitation question asked in the Work Disability History Topical Module, they are then asked, “Which of these conditions cause your work limitation?” and are provided a list of approximately 30 common work-limiting conditions<sup>5</sup>.

We supplement these measures of work-limiting health conditions with the corresponding Adult Functional Impairment Topical Module, which asks all individuals whether they use a wheelchair, walker, or cane, as well as whether they have one of four mental conditions: mental retardation, developmental disability, learning disability, or some other mental condition.

We group these conditions into one of four categories: 1) Salient Physical Condition (e.g., missing limbs, blindness, uses a mobility device) ( $PHY_i^S$ ); 2) Non-Salient Physical Condition (e.g., diabetes, high blood pressure, MS, arthritis) ( $PHY_i$ ); 3) Mental Retardation or Developmental Disability ( $MRDD_i$ ); and 4) Other Mental Disorders (e.g., alcohol/drug

<sup>5</sup> See Button, Armour, and Hollands (2018) for a list of these conditions across our SIPP panels.

abuse, learning disability, mental or emotional conditions) ( $MEN_i$ .)

### III. Methodology

We estimate the heterogeneous impact of the ADAAA on hiring rates by disability type with the following linear regression equation:

$$(1)Y_{ist} = \beta_1(PHY_i^S * ADAAA_t) + \beta_2(PHY_i * ADAAA_t) + \beta_3(MRDD_i * ADAAA_t) + \beta_4(MEN_i * ADAAA_t) + \beta_5PHY_i^S + \beta_6PHY_i + \beta_7MRDD_i + \beta_8MEN_i + X_i\beta_9 + T_{at}\beta_{10} + \theta_{st}\beta_{11} + \delta_{ds}\beta_{12} + Z_{dst}\beta_{13} + \varepsilon_{ist},$$

where  $Y_{ist}$  is the hired indicator;  $i$  indexes individuals,  $s$  indexes states,  $d$  indexes disability category, and  $t$  indexes time. Our four disability categories are included on their own and are also interacted with a post-ADAAA indicator<sup>6</sup>.  $X_i$  is a vector of individual socio-economic characteristics<sup>7</sup>;  $\theta_{st}$  are state-by-time fixed effects;  $\delta_{ds}$  are disabled-by-state fixed effects;  $T_{at}$  are disability status-specific linear time trends;  $Z_{dst}$  are control variables that vary by disability status, state, and time (see Button, Armour, and Hollands, 2018); and  $\varepsilon$  is the error term. The coefficients of interest are  $\beta_1$  to  $\beta_4$ , which capture the effect of the ADAAA on individuals in each disability

category, relative to those without disabilities. We weight our regressions using population weights, and we cluster our standard errors at the state level.

TABLE 1 – EFFECTS OF THE ADAAA ON HIRING

Panel A	Estimates	Mean Hiring Rate
ADAAA x Work-Limited	0.0008 (0.0021)	0.0133
N / R <sup>2</sup>	2,095,609 / 0.0230	
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Panel B		
ADAAA x ...		
Physical, Salient	0.0023 (0.0028)	0.0113
Phys., Non-Salient	0.0077*** (0.0024)	0.0125
Mental R./Dev. Dis.	0.0084 (0.0069)	0.0096
Other Mental	0.0023 (0.0032)	0.0159
N / R <sup>2</sup>	2,095,609 / 0.0452	

Source: Author calculations using data from the SIPP.

\*\*\* Significant at the 1 percent level.

\*\* Significant at the 5 percent level.

\* Significant at the 10 percent level.

### IV. Results

Table I presents the estimated effects of the ADAAA on hiring. In Panel A, we estimate the effects for the overall work-limited population, finding no impact. However, in Panel B, we separately estimate these effects by disability

<sup>6</sup> We also include interactions with the major Supreme Court cases (Bragdon, Toyota, and Sutton) to accurately account for underlying differences in hiring outcomes over time for these populations.

<sup>7</sup> For the SIPP this is indicator variables for each age in years, sex, level of education, marital status, and race (Black, Asian, White, other race), Hispanic ancestry, metro status, and being “on-seam”.

category, and we find large and highly statistically significant increases for individuals with non-salient physical conditions. Those with non-salient physical conditions have a hiring rate increase of 0.77%, which is substantial compared to the average hiring rate for the group over the entire sample (1.25%.) We find no effect for salient physical conditions or mental conditions.

## V. Conclusion

Disability discrimination laws are one approach used to try to improve economic outcomes for individuals with disabilities. However, discrimination continues to be persistent (e.g., Ameri et al., forthcoming), despite nearly 25 years of the ADA.

Our analysis of the impact of the 2009 ADAAA suggests that expansions in the scope of discrimination laws had no effect on hiring, on average, for the overall work-limited population. However, when we estimate effects separately by type of disabling health condition, we find a substantial improvement in hiring rates for individuals with physical, disabling conditions that were less salient to potential employers, with null effects on those with salient physical conditions or mental conditions. Disability discrimination laws are thus likely to have a limited impact on hiring for those with conditions readily observable by

potential employers, while the protection of these laws appears to encourage transitions to employment among those that employers may have intrinsic difficulty discriminating against.

Given the heterogeneity in the impact of these laws on the diverse disabled population, additional work is required to examine which features of these laws are most successful and for which subpopulations, both for hiring in particular, but also for separations and overall employment. Future research should also study the long-term effects of these laws on accommodations, earnings, employment, and disability program entry.

## REFERENCES

- Acemoglu, Daron, and Joshua D. Angrist.** 2001. "Consequences of Employment Protection? The Case of the Americans with Disabilities Act." *Journal of Political Economy* 109(5): 915-57.
- Ameri, Mason, Lisa Schur, Meera Adya, Scott Bentley, Patrick McKay, and Douglas Kruse.** Forthcoming. "The Disability Employment Puzzle: A Field Experiment on Employer Hiring Behavior." *Forthcoming in ILR Review*.
- Beegle, Kathleen and Wendy A. Stock.** 2003. "The Labor Market Effects of Disability Discrimination Laws." *Journal of Human Resources* 38(4): 806-59.

- Button, Patrick.** Forthcoming. "Expanding Disability Discrimination Protections for Individuals with Disabilities: Evidence from California." *Forthcoming in ILR Review*.
- Button, Patrick, Phillip Armour, and Simon Hollands.** 2018. "A Comprehensive Analysis of the Effects of US Disability Discrimination Laws on the Employment of the Disabled Population." Mimeo.
- DeLeire, Thomas.** 2000. "The Wage and Employment Effects of the Americans with Disabilities Act." *Journal of Human Resources* 35(4): 693-715.
- Houtenville, Andrew J., Debra L. Brucker, and Eric A. Lauer.** 2014. "Annual Disability Statistics Compendium: 2014." Durham, NH.
- Hotchkiss, Julie L.** 2004. "A Closer Look at the Employment Impacts of the Americans with Disabilities Act." *Journal of Human Resources* 39(4): 887-911.
- Kruse, Douglas, Lisa Schur, Sean Rogers, and Mason Ameri.** Forthcoming. "Why do Workers with Disabilities Earn Less? Occupational Job Requirements and Disability Discrimination." *Forthcoming in British Journal of Industrial Relations*.
- Kruse, Douglas and Lisa Schur.** 2003. "Employment of People with Disabilities Following the ADA." *Industrial Relations* 42(1): 31-66.
- Neumark, David, Joanne Song, and Patrick Button.** 2017. "Does Protecting Older Workers from Discrimination Make it Harder to Get Hired? Evidence from Disability Discrimination Laws." *Research on Aging* 39(1): 29-63.

