The Disability Employment Puzzle: A Field Experiment on Employer Hiring Behavior

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Abstract

People with disabilities have low employment and wage levels, and some studies suggest employer discrimination as a possible factor. Following the method of Bertrand and Mullainathan (2003), new evidence is presented from a field experiment that sent applications for 6,016 advertised accounting positions from well-qualified fictional applicants, with one-third of cover letters indicating the applicant had a spinal cord injury, one-third indicating the presence of Asperger's Syndrome, and one-third indicating no disability. These disabilities were chosen because they do not limit productivity in accounting, helping to rule out productivity-based explanations for any differences in employer responses. The fictional applicants with disabilities received 26% fewer callbacks than those not indicating a disability. The gap was concentrated among applicants with more experience, and among private companies with fewer than 15 employees. While private companies with fewer than 15 employees are not covered by the ADA, comparable state statutes cover about half of them, and the disability gap in employer interest remained large among the small employers covered by state statutes. These findings support the idea that disability discrimination continues to present barriers to the employment prospects of people with disabilities.

Introduction

People with disabilities continue to experience a low employment rate almost 25 years after the Americans with Disabilities Act (ADA) was passed. This disparity presents a puzzle and challenge to scholars and policy-makers. Among working-age people, only 33% of those with disabilities were employed in 2012, compared to 74% of those without disabilities (RRTC 2013). Their relative employment has not improved since the ADA was passed in 1990 (Stapleton and Burkhauser 2003). Among labor force participants, their unemployment rate (14.7% in 2013) is twice that of people without disabilities (7.2%), indicating that their low employment is not simply due to lack of interest in finding a job.[1] In addition, a wide range of studies find that people with disabilities have lower pay levels if they are employed (Baldwin & Johnson, 2006), and face a variety of disparities in job training, security, and other important employment outcomes (reviewed in Schur, Kruse, and Blanck 2013).

Several non-discriminatory factors may contribute to these disparities, including lower education and skill levels that would lead to lower market wages for people with disabilities, along with the work disincentives from disability income and higher employment-related costs (e.g., for transportation) that lead to higher reservation wages and lower employment levels. Employer discrimination may also play a role, as suggested by statistical evidence that pay rates are lower among people with more stigmatized disabilities (Baldwin and Johnson 2006), psychological experiments on the attitudes of employers and co-workers (Ren, Paetzold and Colella 2008), and survey evidence from employers (Domzal et al. 2008, Dixon et al 2003, Bruyere 2000). Non-

[1] http://www.bls.gov/news.release/pdf/disabl.pdf, accessed 12-9-14

experimental field evidence, however, is subject to selection and other biases, and the psychological laboratory experiments may not generalize to real-world settings.

This study presents the first field experiment on disability and hiring in the United States, eliminating selection biases while generating evidence in a real-world setting. The design is similar to that of Bertrand and Mullainathan (2003) in their study of race and gender differences. This experimental design helps to eliminate not only selection biases but also many other non-discriminatory factors that may lead to differences in outcomes between people with and without disabilities (e.g., job mismatch). In this experiment, 6,016 job applications were filed for advertised accounting positions using fictional resumes and cover letters, split evenly among applications that did not refer to a disability, ones that mentioned that the applicant has a spinal cord injury (SCI), and ones that mentioned that the applicant has Asperger's Syndrome. These disabilities were chosen because they should not limit productivity in an accounting position. The resumes displayed high qualifications for the applicants, and were randomly split between those representing novice applicants (just out of college) and experienced applicants (with CPA certification and 6 years of work experience). To preview the key findings, job applicants with either type of disability received fewer expressions of employer interest than did applicants without disabilities, with particularly low interest in the disability applications where the applicant was experienced (rather than a novice) and the employer was small (fewer than 15 employees).

Following a review of the literature in the next section, the method and data are presented in section 3, followed by the results in section 4. Section 5 contains a discussion and limitations, with conclusions in section 6.

Literature and Prior Evidence

All data sources show that people with disabilities have low employment rates both in the United States and internationally (e.g., Stapleton and Burkhauser 2003, OECD 2010, Kaye 2011, RRTC 2013, Schur et al. 2013). Their low employment rates are a major contributor to their low income levels and high poverty rates relative to people without disabilities (OECD 2010, WHO/World Bank 2011).

From an economic perspective, low employment can be viewed as the result of supply-side or demand-side factors in the labor market. On the supply side, reservation wages may be high among people with disabilities due to availability of disability income. A number of studies have shown that the work disincentives associated with disability income affect the employment decisions of many people with disabilities, helping to account for their stagnant employment over the past three decades (e.g., Mashaw 1996, Bound and Burkhauser 1999, Chen and der Klaauw 2006, French and Song, 2009, and Maestas, Mullen and Strand 2013). Reservation wages are also high for some people with disabilities due to extra costs of working—e.g., the costs of modified transportation or adaptive technologies needed for employment (Berkowitz et al. 1998)—and to therapy schedules or other medical concerns that raise the time and energy costs of employment, particularly for standard work schedules (Schur 2003).

On the demand side, market wages may be lower for people with disabilities in part because they tend to have lower levels of education (Schur et al. 2013). Their wages remain lower after controlling for education, however, which may be due to otherwise-unobserved limitations in skills and abilities. A need for accommodations may cause some employers to offer lower wages to people with disabilities to offset accommodation costs (Gunderson and Hyatt 1996). Since employers under the ADA are required to absorb the costs of reasonable accommodations (not paying less to accommodated workers), some studies have blamed the ADA's accommodations

mandate for a decline in employment of people with disabilities (Acemoglu and Angrist 2001, DeLeire 2000). Subsequent studies, however, found no decline at this time when other measures and techniques were used (Beegle and Stock 2003, Houtenville and Burkhauser 2004, Hotchkiss 2003, 2004, Kruse and Schur 2003) and that any ADA-related decline in employment was temporary (Jolls and Prescott 2004). Additional research has found that while a majority of employers report that not knowing the cost of accommodations is a challenge in hiring people with disabilities (Domzal et al. 2008), most accommodations cost less than $500 while many do not have a monetary cost (Dixon et al. 2003, Schartz et al. 2006, Solovieva et al. 2011). Research also finds that employer-reported benefits of accommodations (e.g., improved employee retention, productivity, and morale) generally outweigh the costs (Schartz et al. 2006, Solovieva et al. 2011).[2]

Employer discrimination is another important potential demand-side factor. There are three economic models of discrimination. The first is Becker's model based on taste for discrimination. Stigma and prejudice against people with disabilities has been well-documented (see overviews in Yuker 1988, Nowicki and Sandiesen 2002, Muzzatti 2008, Scior 2011, Thompson 2011, Westerholm et al. 2006a, 2006b). Some support for this model in the context of disability comes from studies finding lower wages for people whose disabilities have lower social acceptability rankings after controlling for productive characteristics (Baldwin and Johnson 2006). There is also support from psychological studies showing that stereotypical attitudes of supervisors and co-workers can affect the workplace experiences of employees with disabilities (Colella 1996, 2001, Colella et al. 1998, Marti and Blanck 2000, Run, Paetzold, and Colella 2008). For example, subjects had more negative views about the future employment prospects and job growth of individuals with disabilities (Colella, DeNisi, & Varma, 1998), and a meta-analysis of experiments

[2] Research also finds that accommodations increase expected job tenure and reduce the speed of application for SSDI following the onset of a work-limiting disability (Burkhauser et al. 1995, Burkhauser 1999).

revealed negative effects of disability on performance expectations and hiring decisions (Ren, Paetzold, and Colella 2008).

A second model is statistical discrimination, where group averages are assigned to individuals based on imperfect information about individual characteristics. Employers may believe, rightly or wrongly, that people with disabilities are less productive on average and may make individual employment decisions based on this belief. The uncertainty that many employers have about the future performance of people with disabilities and the potential costs of accommodations make statistical discrimination more likely.

The third model of discrimination is based on employer power or monopsony, in which employers pay certain groups less due to their limited job mobility. People with disabilities may, for example, face higher costs in switching jobs due to transportation problems or difficulties attaining accommodations with a new employer, which would allow their current employers to underpay them without substantial risk of turnover.

While there is no direct evidence on the statistical and employer power models of discrimination in the context of disability, a study conducted in France in 1989 provides evidence that may reflect either the prejudice or statistical discrimination models. In this study a representative sample of employers were sent job applications that varied by whether the (fictitious) applicant reported paraplegia, and was highly or modestly qualified for the position (Ravaud et al. 1992). The positions were all compatible with having paraplegia. The highly qualified, able-bodied applicants were 1.78 times more likely than those with paraplegia to receive positive responses from the employers, while the equivalent ratio was 3.2 among moderately-qualified applicants.

Recent evidence analyzing wage differences controlling for job demands also supports the idea that discrimination plays a role. An examination of job demands interacting with sensory limitations indicates that about one-third of the disability pay gap among males, and one-tenth of the disability pay gap among females, is potentially attributable to discrimination (Baldwin and Choe 2013). In another study, a selection-corrected decomposition of the pay gap associated with long-lasting physical disabilities found that about 10% of the observed pay gap for men, and 20% of the pay gap for women is potentially attributable to discrimination (Baldwin and Choe 2014).

The statistical evidence on discrimination is complemented by survey evidence from employers indicating that one-third (32%) said that "discomfort and unfamiliarity" are challenges in hiring people with disabilities (Domzal et al. 2008: 13); almost half (47%) said that co-worker attitudes are a reason employers do not hire people with disabilities (Kaye et al. 2011); one-fifth (20%) said that the greatest barrier to people with disabilities is discrimination, prejudice, or employer reluctance to hire them (Dixon et al 2003); and about one-fifth (22%) said that attitudes and stereotypes are a barrier to employment of people with disabilities in their own firms (Bruyere 2000). These figures are likely understated due to "social desirability" bias and the frequent discrepancy found between the attitudes employers express toward people with disabilities on surveys and their actual hiring practices (Wilgosh and Skaret 1987). Interviews with corporate executives also indicate that "most employers hold stereotypical beliefs not consistent with research evidence" (Lengnick-Hall et al. 2008: 55).

Apart from direct discrimination, people with disabilities may face indirect discrimination through inhospitable corporate cultures. The policies, procedures, and workplace norms in a company may be built on assumptions about the "normal" employee (Robert and Harlan 2006, Schur, Kruse, and Blanck 2005). A company with a bureaucratic culture, for instance, may be less

welcoming to people with disabilities by presenting strict regulations and procedures that can pit the fairness of treatment for all employees against personalized consideration for employees with disabilities and others with individualized needs (Stone and Colella 1996). In this environment, accommodations for employees with disabilities are more likely to be considered "special treatment" that may generate co-worker jealousy and resentment. As a result, employees with disabilities may respond by concealing their disability, or overwork themselves to diminish stereotypes of incompetence (Sandler & Blanck 2005; Stone & Colella 1996). Support for the importance of corporate culture comes from a study of nearly 30,000 workers which found that "workers with disabilities fare better in companies viewed as fair and responsive to the needs of all employees, in part because workplace accommodations are less likely to be viewed as special treatment, while employees with disabilities are likely to fare worse in unresponsive and more rigid organizations" (Schur et al. 2009).

Education may help to reduce the employment and earnings gaps. One study found the wage returns to education were larger for males who experience disability onset after reaching adulthood than for men without disabilities, although a pay gap remained between college-educated men with and without disabilities (Hollenbeck and Kimmel 2008). Another study found that a college degree was associated with faster earnings recovery following onset of a spinal cord injury (SCI) (Krueger and Kruse 1995). These results suggest that higher levels of qualifications may help to overcome skill deficits associated with disability, and reduce employer reluctance to hire people with disabilities.

Social cognition theory addresses how employers make sense of others and themselves, shedding light on the way direct and indirect bias can operate in the workplace. Cognitive theory finds that the *frequency* (strength) with which employers negatively associate the disabled as being

unable to control their urges is a principal driver behind marginalizing them (Colella, McKay, Daniels, and Signal, 2012). According to the minority group model, "ableism" creates barriers, resulting in social and economic marginalization for the impaired (Block et al. 2002). People with disabilities are thus seen as having inherent substantial functional limitations (Block et al. 2002). Studies have examined how employers cognitively categorize people with disabilities in environments where they are perceived as unfit. According to the stereotype-fit model, observers possess two stereotypes—those of targets based on their group membership, and those based on the ideal incumbent for a particular job. The stereotypes could be associated with the emotions of admiration, pity, envy, and contempt. Each of these emotions is based on varying perceptions of warmth and competence that produce behavioral norms against targets (Cuddy et al., 2007). For example, employers may view certain types of disabilities differently, discriminating against one more so than the other (Dovidio, Gaertner, Kawakami, & Hodson 2002). People with paraplegia may be categorized as having high warmth and low competence, whereas people with Asperger's Syndrome may be classified as having low warmth and low competence, leading to different stereotypes and different treatment (e.g., paternalism vs. unfriendliness).

There are several mechanisms through which employer attitudes can affect the hiring and workplace experiences of people with disabilities. While some studies suggest that discrimination may play a role, little of the evidence is based on field experiments that control for selection along with other potential biases. It is the purpose of this study to produce experimental evidence that provides a stronger test of employer behavior in employment decisions.

Method

This study is based on evaluating employer responses to fictional job applicants for actual job openings, using methods similar to those of Bertrand and Mullainathan (2003).[3] While they tested for race discrimination by manipulating the names at the top of otherwise-identical resumes, this study tests for disability discrimination by manipulating information on disability in the cover letter. Another difference is that their fictitious resumes were sent in response to job openings in a broad range of industries, while our resumes were designed for, and sent in response only to, job openings for accounting positions. Applications were restricted to accounting positions in order to ensure that the two disabilities being examined—SCI and Asperger's Syndrome—would not inherently limit productivity in the applied-for position.

An SCI results from damage to spinal cord nerves that impairs functioning and sensation below the level of the injury. The injury may be in the back, resulting in paraplegia that restricts lower body use, or in the neck, resulting in quadriplegia that may also restrict use of hands and arms. Almost all people with SCI use a wheelchair (Stover et al. 1995). The employment rate falls sharply among people who experience an SCI, and earnings and weekly hours are generally lower among those who have post-injury employment (Stover et al. 1995, Krueger and Kruse 1995, Berkowitz et al. 1998). A key factor for the purpose of this study, however, is that an SCI does not limit productivity in all jobs, given that employed computer users with SCI's have similar hourly and weekly earnings as computer users without SCI's (Krueger and Kruse 1995).

Asperger's Syndrome falls within the Autism Spectrum Disorder (ASD) and is defined as an impairment in social interaction (Gillberg, 1991). According to the Diagnostic and Statistical Manual of Mental Disorders (fifth edition) (DSM-V), Asperger's impairs social, professional, and other leisure activities (APA, 2012). Difficulties in developing peer relationships are likely to

[3] All study procedures were approved in advance by the Rutgers IRB.

become more apparent in adulthood. It is during this time that particular idiosyncratic interests become obvious. Individuals with Asperger's disorder may have difficulties with compassion, and lack social and emotional reciprocity (Mahwood & Howlin, 2010). A review of six studies found that the proportion of "more able adults within the autism spectrum" who were employed ranged from 5% to 44% (Howlin, 2000). Studies also find that people with Asperger's possess heightened abilities in mathematics (Howlin & Mahwood, 1996), so that people with this disorder should not be limited in particular work settings. Professions where they work alone seem to be ideal (e.g., finance). In finance, accountants find themselves focused on spreadsheets more often than on interacting with clients. Their bulk of time is often spent working independently while compiling and calculating numbers. Accounting as a profession can therefore be particularly suitable for many people with Asperger's.

To test the effect of qualifications on the relative demand for applicants with disabilities, this study constructed two resume templates—one for a novice applicant just out of college, and the other for an experienced applicant who is a certified CPA and with six years of experience following college graduation. The resumes were evaluated by agency recruiters and hiring managers who work in financial services to ensure they appeared legitimate, and included specific skills needed for accountant positions. The resumes were designed to make both the novice and experienced candidates appear very qualified to maximize the likelihood that employers would be interested in hiring them.

The study design created six cells of interest, representing the permutations of disability status portrayed in the cover letter (no disability, SCI, or Asperger's syndrome) and experience level (novice or experienced). The cover letters and resumes are included in Appendix A. Twelve male names were used in the applications—six were always associated with novice resumes and

six were always associated with experienced resumes, and disability status was randomly rotated through each of the names (to eliminate any bias associated with names). Disability status was revealed in the cover letter in the context of the applicant's volunteer work. Cover letters for all applicants (including those without a disability) mentioned the applicant's volunteer work for a disability organization (the fictitious "New Jersey Paraplegia Foundation" or the "Life Development Institute's Aspergers Syndrome Program"), noting that such work had helped build the applicant's ability to "work effectively with others in a supervisory capacity." The letters from the applicants with disabilities added the wording "As an individual with [a spinal cord injury/Asperger's Syndrome], I am committed to providing my time and energy to those similar to myself." To increase the likelihood that the disability status would be noticed, these letters went on to say "Please be advised that my disability does not interfere with my ability to perform the skills needed in a finance environment. I would be happy to answer any questions that you may have concerning this matter."[4]

The study team used Indeed.com, an online advertising job portal, to randomly submit the application materials. The website aggregates job solicitations from job boards, newspaper advertisements, and company career websites throughout the Internet. The applications were submitted to 6,016 job openings for accounting positions; each employer received only one set of application materials. Job openings that did not allow cover letters to be submitted were excluded. Email addresses were constructed for each of the twelve applicant names through Google's "Gmail" service, and pre-paid telephones were purchased for each name in order to record voice messages, so that employers could respond to the applications either by email or telephone.

[4] The 1989 study in France used a similar approach by identifying disability in the cover letter, using the sentence "As the result of an accident in 1982, I am confined to a wheelchair" (Ravaud et al. 1992). Given that job applicants are not required to reveal a disability, and most would not do so in an application, we chose to use the context of volunteer work for a disability organization as a plausible rationale for revealing the disability.

Applications were submitted between the months of June 2013 and August 2013, and employers were given up to four months to respond.

For purposes of analysis, employer responses were divided into three categories: 1) those expressing desire for an interview; 2) those expressing another form of active employer interest (asking the applicant for further documents or credentials, inviting the applicant to apply for another position in the company, checking that the applicant is aware that the job is in another state, or requesting the applicant to also apply through the company website); and 3) those not expressing any interest (including no response and explicit rejections).

Employer characteristics were coded using information on RefUSA, plus the Manta.com website or company websites when RefUSA information was not available. The coded characteristics include state of operation, number of employees, whether the employer is either closely-held, publicly-traded or a government agency, the number of establishments inside and outside of the state, and industry (NAICS code). Federal contractor status is currently being coded, which will be added to the analysis in a subsequent draft.

The methods used are likely to provide a conservative test of the effects of disability on employer hiring interest, principally because the information on disability status in the cover letter may not be noticed in the decision-making process. Furthermore, many applications are processed by computers that search for relevant training and experience, which could result in it not passing the first round of evaluation (though the resumes were designed to reflect highly-qualified applicants). Even among applications read by human beings, the cover letter may not be read. To the extent that disability status is not incorporated in the decision process, the disability gaps estimated here are likely to represent lower bounds for the true gaps.

Results

The applications indicating a disability were less likely to receive any expressions of employer interest, as shown in Table 1. The disability applications received expressions of interest from 4.87% of employers compared to 6.58% for the non-disability applications (columns 1 and 2). The 1.71 percentage point gap represents a 26% lower chance of employer interest for the applicants with disabilities, and the null hypothesis of a zero gap is strongly rejected at the 99% level. There is also a gap using the more restrictive measure of a callback for an interview (0.28, representing an 11% lower callback rate, in column 7), but it is not large enough to reject a zero effect.

Perhaps surprisingly, employers were especially unlikely to express interest in the more experienced applicants with disabilities. The 2.57 percentage point gap represents a 34% lower chance of employer interest for experienced applicants with disabilities compared to those without disabilities, which is three times the size of the 0.86 point gap between novice applicants with and without disabilities. This goes against the idea that increased training and qualifications will help to erase the disadvantages faced by people with disabilities.

The specific type of disability made little difference in relative employer interest. The disability gaps are 1.78 percentage points for people with SCI's, and 1.64 points for people with Asperger's Syndrome, both strong enough to reject a zero effect at the 95% level. For both disability types the lower employer interest is concentrated among the more experienced applicants.

Employer characteristics. Table 2 provides breakdowns by employment size, ownership, single- or multi-establishment, and broad industry. There it can be seen that the disability gap in

any employer interest (cols. 1-4) is largest among the smallest private-sector employers (fewer than 15 employees), and this result carries over to the more restrictive measure of a callback for an interview (cols. 5-8). Private-sector employers with fewer than 15 employees are not covered by the ADA, although many are subject to state disability discrimination laws (as will be explored).

A breakdown by ownership shows that the disability gap is concentrated among closely-held employers (-2.3 points), while the gap is smaller among government employers (-1.3 points, although the sample is small and a zero gap cannot be rejected). Publicly-held employers were slightly more likely to express interest in the applicants with disabilities compared to those without disabilities (0.9 points, although a zero gap cannot be rejected). In addition, the disability gap is largest among single-establishment employers, and a zero effect can be rejected for both any employer interest and the more restrictive measure of a callback for interview. The disability gap does not, however, vary in a noteworthy way by industry.

Is employment size, ownership status, or single-establishment status the key driver in the differences found in Table 2? These three variables are highly correlated, since small employers are more likely than large employers to be closely-held and single-establishment firms. The relative importance of these variables is tested in probit regressions in Table 3, using "any employer interest" as the dependent variable. Table 3 presents the results of interactions between disability status and employer characteristics, using the employer characteristics and applicant name dummies as controls to adjust for any differences not captured by randomization. In regressions on the full sample (column 1), it can be seen that the disability gap remains largest among small firms, and publicly-held firms are more likely than closely-held firms to express interest in applicants with disabilities. To probe the results, a regression using only closely-held firms (col. 2) shows the largest disability gap among small firms (although the coefficients remain

negative for the other size categories). A regression using only publicly-held firms (col. 3) shows small negative effects for the smallest and largest firm sizes but positive effects for the middle two size categories (although none are strong enough to reject a zero effect). A control for multi-establishment status could not be included in the column 1 regression due to the high correlation with employment size, but columns 4 and 5 break out the sample between single-establishment (col. 4) and multi-establishment firms (col. 5). There it can be seen that the largest disability gaps are among single-establishment firms with fewer than 15 employees, and those with 100-499 employees.

Experience Level and Disability Type. As shown in Table 1, employer interest is lowest among experienced applicants, but the gaps are similar by type of disability. Tables 4 and 5 explore these results by relating them to employer characteristics. The results of Table 4 are summed very simply: the only disability gaps large enough to reject zero effects are among experienced applicants applying to small, closely-held, and single-establishment employers.

Comparing by disability type, the gaps in employer interest are generally concentrated among small private-sector employers for both SCI and Asperger's Syndrome, as shown in Table 5. There is an interesting exception, however, in that the largest gap in employer interest for people with Asperger's Syndrome is among employers with 500 or more employees (3.6 points, or 68% lower chance of employer interest), although the gap in employer callbacks is largest among small employers (2.9 points, or 56% lower chance of callback).

These results are explored in Table 6 with probit regressions using employer characteristics and applicant names as controls. Columns 1, 2, 5, and 6 confirm that disability gaps are concentrated among experienced applicants applying to small private-sector employers, with no strong disability gaps for novice applicants. Columns 3 and 7 show that small private-sector

employers were the least likely to express interest in applicants with SCI, and were also the least likely to ask for an interview with applicants with Asperger's Syndrome, although the largest private sector employers (with 500 or more employees) were the least likely to express any type of interest in applicants with Asperger's Syndrome. Applicants with Asperger's Syndrome were likely to do relatively well when applying to a publicly-held company (column 4).

State Disability Discrimination Laws. The results so far indicate that disability gaps in employer interest are concentrated among small private-sector employers, who have fewer than 15 employees and are therefore not covered by the ADA. Does coverage by a state disability discrimination law (DDL) make a difference? As shown in Table 7, 48 states and the District of Columbia have a DDL in place that applies to private employers, with variation in the minimum size threshold for employer coverage. Also, the DDLs in 44 states require employers to make reasonable accommodations for workers with disabilities. Table 7 also reports that among the 5,910 employers with necessary employment information, our sample contains 4,950 (83.8%) subject to a state DDL requiring reasonable accommodations, 240 (4.1%) subject to a state DDL not requiring accommodations, and the remaining 720 (12.2%) not subject to a state DDL. Focusing on the 1,331 small employers that are not subject to the ADA, 658 (49.4%) are subject to a state DDL requiring accommodations, only 5 (0.4%) are subject to a state DDL not requiring reasonable accommodations, and the remaining 668 (50.2%) are not subject to a state DDL.

We incorporate this state law information into regressions in Table 8, starting with the full sample that includes employers covered by the ADA (given that workers may be able to use state law along with the ADA to press any discrimination claims). Column 1 shows that the interaction effect of state DDL coverage with disability status on any employer interest is slightly negative, but not strong enough to reject a zero effect. In column 2, the disability interaction with DDL's

not requiring accommodations is slightly positive, and the interaction with DDL's requiring accommodations is slightly negative, but neither are strong enough to reject a zero effect.

The estimate of most interest is in column 3, which is restricted to small employers who are not covered by the ADA. There it can be seen that the disability interaction with state DDL coverage is slightly negative, but again not strong enough to reject a zero effect.

The results are slightly different when predicting a callback for an interview. Column 4 shows that the interaction effect of disability and a state DDL is positive and strong enough to reject a zero effect at the 95% level, with a magnitude (.028) that is almost large enough to counteract the negative main effect of disability (-.035). This pattern is replicated in column 5 for state DDL's requiring accommodations. When focusing on small firms in column 6, the effect of state DDL coverage interacted with disability is positive (in contrast to the column 3 estimate predicting any employer interest) but not strong enough to reject a zero effect.

Since the estimated effects of disability status are concentrated among the experienced applicants, further regressions (not reported, but available) restricted to experienced applicants were performed, which produced similar patterns.

Discussion

Applicants with disabilities—both those with SCI and those with Asperger's Syndrome—received fewer expressions of employer interest than applicants without disabilities. Since the resumes indicated highly qualified applicants and the applications were identical in every way except for disability status, this strongly indicates that disability status affects the hiring process.

The disability gap was concentrated among experienced applicants. One possible explanation is that employers paid closer attention to applications indicating strong experience, since these applicants would receive higher pay, and employers may expect or envision longer-

term commitments. In this case the employers may have been more likely to read the cover letters of the experienced applicants and consequently be aware of the disability status; the much smaller disability gap among novice applicants may simply reflect employers being less likely to be aware of the disability.

It is also possible, however, that employers were equally aware of the disability status of novice and experienced applicants, and disability played a stronger role in employer decisions on experienced applicants. Employers may have viewed experienced applicants with disabilities as "riskier" due to concerns over potential absences, productivity, and health problems; such employer concerns could also exist for novice applicants, but be magnified for experienced applicants due to higher pay along with greater job responsibilities and job tenure expectations. More generally, this result casts doubt on the idea that higher qualifications can help erase the disadvantages of disability (in contrast to the findings of Hollenbeck and Kimmel, 2008, on the stronger effects of education on earnings for men with disabilities).

The finding that small employers (with fewer than 15 employees) are less likely than larger employers to express interest in applicants with disabilities raises interesting questions about disability accommodations and anti-discrimination laws. Given that small employers are not subject to the ADA, this result initially suggests that small employers are engaging in discrimination while the ADA is constraining discriminatory behavior of medium and large employers. The story is complicated, however, by the consideration of state anti-discrimination laws, since there is little difference in employer responses between small employers that are and are not covered by state DDL's. This may be explained by a lack of knowledge of state laws among small employers (most of which do not have HR departments), while the federal ADA is much better known.

Another possible reason for small employers' lower interest in applicants with disabilities is concern over accommodation costs. Survey evidence indicates that small employers are slightly more likely than medium or large employers to cite actual accommodation costs (although not uncertainty over accommodation costs) as a challenge in employing people with disabilities (Domzal et al. 2008: 13). It is unlikely, however, that concern over accommodation costs is an important factor in our results. Employers would have to make similar accommodations for novice and experienced employees (e.g., installing a wheelchair ramp for people with SCI). If accommodation costs were an important factor, lower interest in novice as well as experienced applicants with disabilities would have been evident. In addition, there was not a strong difference between small employers in states with DDL's requiring accommodations and those in states without such laws. Among all employers, coverage by a state DDL (which may be used by plaintiffs in combination with the ADA) was actually linked to higher callbacks for applicants with disabilities, casting further doubt on employer accommodations as a key factor in the findings. To the extent that accommodation costs nonetheless play a role in employer decisions, small employers may be less likely to be aware of available resources on how to make disability accommodations.[5]

Several other results deserve discussion. First, it is interesting that the disability gap is concentrated among closely-held companies, and does not appear to exist among publicly-held companies. This may reflect heightened visibility of publicly-held companies that makes them more sensitive to allegations of discrimination and outside pressure, leading them to adopt more sophisticated HR systems that decrease the likelihood of discrimination. This may also partly reflect federal contractor status for many of the publicly-held companies, which subjects them to

[5] The federal government sponsors an information clearinghouse through the Job Accommodations Network at askjan.org.

federal government guidelines on hiring people with disabilities. Federal contractor status is being added to the dataset and will be analyzed in the next version of this paper.

A second interesting finding regards government employers, where there does not appear to be an overall disability gap in their responses to job applicants (there is a gap when looking just at experienced applicants, although this is based on a small sample so should be regarded with much caution). Government is often held out as a "model employer," but these results do not provide a firm conclusion as to whether government employers are fulfilling this role.

Finally, while the disability gap in employer responses is concentrated among small employers, it should be noted that large employers also tend to be less likely to express interest in job applicants with disabilities than in those without disabilities. Most of these differences are not strong enough to reject a zero effect, with one noteworthy difference: large private employers (with 500 or more employees) were less likely to express interest in applicants with Asperger's Syndrome than in applicants without disabilities. To the extent that discrimination accounts for the results presented here, this points to the potential role of discrimination in large as well as small firms.

Limitations. There are several limitations to these findings. We do not know how many employers read the cover letters and were aware of the disability status of the applicant. To the extent that employers did not read the cover letters, this will decrease the estimated effects of disability, so the estimated gaps may be seen as lower bound estimates. The only way to ensure that disability is clearly established is to have a face-to-face meeting where the disability is obviously visible or directly expressed, or to make it prominent on the resume, although this may attract suspicion since it would not make sense to highlight a disability on most applications. In addition, the sample design was restricted to well-qualified male applicants for accounting

positions. While this design provides a strong test of the role of disability in these circumstances, the results may not be fully generalizable to other groups, including women, people with other types of disabilities, people without college degrees, and those applying for other types of jobs (e.g., blue collar occupations).

Conclusion

These results show that employers express less interest in job applicants with disabilities than in otherwise-similar job applicants without disabilities, even for positions where the disability would not affect the ability to do the job. This points to employer bias in hiring as an important piece of the puzzle helping to explain the low employment rate of people with disabilities. It would be valuable to extend this research to other disability groups, particularly because unlike the profiles constructed here, most people with disabilities do not have college degrees, and they are overrepresented in service and blue-collar jobs. Further research should also assess the degree to which social information processing takes place in employment. Specifically, when employers are confronted with disability, what are the steps in their reaction, and the relationships among their beliefs, attitudes, and hiring behaviors? Such research can help us understand the barriers faced by people with disabilities and the policies that may increase their employment opportunities.

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Appendix

RESUME FOR EXPERIENCED CANDIDATE
CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

OBJECTIVE:
Seeking a position in the Accounting field.

EDUCATIONAL QUALIFICATIONS:

- **Bachelor of Science** in **Accounting** from the **Rutgers University**, New Brunswick, NJ: September 2003—May 2007
  - Certified Public Accountant (CPA) certified

EXPERIENCE:
GENE LLC, New York, NY
05/2010 – Present
Accounting Manager
Presently preparing monthly, quarterly and annually audited consolidated financial statements for a public healthcare company with net revenues of $500 million.

- Substantially reduced significant audit adjustments through better financial controls.
- Participated in the successful conversion to the G.T.E. hospital-based general ledger system without any interruption of accounting operations.
- Completed three years of delayed reporting for pension plans and kept it and other employee benefit plans current for more than 5,000 employees.
- Developed a system to track primary and fully diluted earnings per share calculations including common stock equivalents.
- Revised the 10K format in compliance with segment reporting requirements and other recent GAAP pronouncements.

Stone Design, New York, NY
01/2010 – 04/2010
Accounting Manager
Performed public accounting for small businesses, professionals and non-profit organizations with emphasis on financial statements, taxes and audits.

- Opened the way for a 35% growth in services and revenues.
- Provided improved controls for internal operations.
- Upgraded the ten most important clients' financial reports to the latest GAAP pronouncements.

Lance Industries, New York, NY

07/2007 – 12/2009
Junior Accountant
Performed audits for large publicly held corporations and medium-sized privately owned companies in manufacturing and retail industries. Audited pension and profit sharing plans. During this period, fulfilled professional experience that led to CPA certification in New York.

- Managed small- to medium-sized audits during the second year.
- Managed physical inventory counts for more than 25 clients.
- Improved productivity by eliminating an average of two weeks field time during audits.
- Designed and implemented a department performance evaluation system to replace a non-functioning one.
- Trained four college graduates in principles of auditing that became permanent staff.
- Charted internal control systems for non-utility subsidiaries that pointed out system weaknesses and reduced loss risks.

COMPUTER SKILLS:
Microsoft Word, Excel, Access, PowerPoint, and Outlook Express.

AFFILIATIONS:

- Volunteer for the Life Development Institute's Asperger Syndrome program
- Member of the New York Society of Certified Public Accountants
- Member for the Income Tax Support Initiative
- Member of the Accounting Honors Employment Program

RESUME FOR NOVICE CANDIDATE

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

OBJECTIVE:
Seeking a position in the Accounting field.

EDUCATIONAL QUALIFICATIONS:

- **Bachelor of Science** in **Accounting** from the **Rutgers University**, New Brunswick, NJ: September 2008—May 2012
    - Currently pursuing my Certified Public Accountant (CPA) certification
    - Overall GPA **4.0**/4.0; Major GPA **4.0**/4.0
    - Course work includes Auditing, Tax, Economics, Computer Science, and Public Speaking
    - Dean's List: Fall 2008; Spring 2009; Fall 2009; Spring 2010; Fall 2011; Spring 2011; Fall 2011; Spring 2012

CAREER PROFILE:

- Detail-oriented, efficient and organized with extensive experience in accounting systems.
- Possess strong analytical and problem solving skills, with the ability to make objective decisions.
- Excellent written and verbal communication skills.
- Resourceful in the completion of projects, effective at multi-tasking.

EXPERIENCE:
GENE Construction, New York, NY **06/2012 - Present**
Accounting Assistant

- Perform accounts payable functions for construction expenses.
- Manage vendor accounts, generating weekly on-demand checks.
- Manage financial departments with responsibility for Budgets, Forecasting, Payroll, Accounts Payable and Receivable.
- Create budgets and forecasts for the management group.
- Ensure compliance with accounting deadlines.
- Prepare company accounts and tax returns for audit.
- Coordinate monthly payroll functions for 200+ employees.
- Liaise with bankers, insurers and solicitors regarding financial transactions.

Stone Design, New York, NY **01/2010 – 05/2012**
Accounting Intern

- Managed accounts payable, accounts receivable, and payroll departments.
- Generated budgets and forecasts on a quarterly basis and presented data to the management team.
- Reported on variances in quarterly costing reports.
- Prepared annual company accounts and reports.
- Administered online banking functions.
- Managed payroll function for 140 employees.
- Monitored and recorded company expenses.

Lance Industries, New York, NY **09/2008 – 12/2009**
Administrative Assistant

- Performed general office duties and administrative tasks.
- Prepared weekly confidential sales reports for presentation to management.
- Managed the internal and external mail functions.
- Provided telephone support.
- Scheduled client appointments and maintained up-to-date confidential client files.

COMPUTER SKILLS:
Microsoft Word, Excel, Access, PowerPoint, and Outlook Express.

AFFILIATIONS:

- Volunteer for the Life Development Institute's Asperger Syndrome program
- Member for the Income Tax Support Initiative
- Member of the Accounting Honors Employment Program

COVER LETTER FOR EXPERT CANDIDATE WITH PARAPLEGIA

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

To Whom It May Concern:

I am responding to the advertised position in your finance department. I am a licensed public accountant with a B.S. in Accounting from Rutgers University. Presently, I am working as an Accounting Manager at GENE LLC where I prepare monthly, quarterly and annually audited financial statements for a public healthcare company with net revenues of $500 million.

In addition to my professional experience at GENE LLC, I volunteer for the New Jersey Paraplegia Foundation, where I organize conferences for people to meet, share stories and help one another. As an individual with a spinal cord injury, I am committed to providing my time and energy to those similar to myself. I believe that my volunteer experience has allowed me to learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my ability to perform the skills needed in a finance environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

CANDIDATES NAME HERE

COVER LETTER FOR NOVICE CANDIDATE WITH PARAPLEGIA

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

To Whom It May Concern:

I am responding to the advertised position in your finance department. I am a graduate from Rutgers University with a B.S. in Accounting. Presently, I am an Accounting Assistant at GENE Construction where I perform accounts payable functions for construction expenses.

In addition to my experience at GENE Construction, I volunteer for the Income Tax Support Initiative. I also volunteer for the New Jersey Paraplegia Association, where I organize events for people to meet, share stories and help one another. As an individual with a spinal cord injury, I am committed to providing my time and energy to those similar to myself. I believe that my volunteer experiences have allowed me to learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my ability to perform the skills needed in a finance environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

CANDIDATES NAME HERE

COVER LETTER FOR EXPERT CANDIDATE WITH ASPERGER'S

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

To Whom It May Concern:

I am responding to the advertised position in your finance department. I am a licensed public accountant with a B.S. in Accounting from Rutgers University. Presently, I am an Accounting Manager at GENE LLC where I prepare monthly, quarterly and annually audited financial statements for a public healthcare company with net revenues of $500 million.

In addition to my professional experience at GENE LLC, I volunteer for the Life Development Institute's Asperger Syndrome program where I participate in enhancing the quality of life for individuals with AS. As an individual diagnosed with AS, I am committed to providing my time and energy to those similar to myself. Further, I feel that my volunteer experience has helped me learn how to effectively work with others in a supervisory capacity.

Please be advised that my disability does not interfere with my capability to perform the skills needed in a finance environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

CANDIDATES NAME HERE

COVER LETTER FOR NOVICE CANDIDATE WITH ASPERGER'S

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

To Whom It May Concern:

I am responding to the advertised accountant position in your finance department. I am a Rutgers University graduate with a B.S. in Accounting. Presently, I am an Accountant Assistant at GENE Construction where I manage vendor accounts, and monthly payroll functions.

Alongside my professional experience at GENE Construction, I volunteer for the Income Tax Assistance Program. I also volunteer for the Life Development Institute's Asperger Syndrome program where I participate in enhancing the quality of life for individuals with AS. As an individual diagnosed with AS, I am committed to providing my time and energy to those similar to myself. Further, I believe that these experiences have helped me learn how to work effectively with others in a supervisory capacity.

Please be advised that my disability does not interfere in any way with my ability to perform the skills needed in a finance environment. I would be happy to answer any questions that you may have concerning this matter.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

CANDIDATES NAME HERE

COVER LETTER FOR NOVICE CANDIDATE WITH NO DISABILITY

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

To Whom It May Concern:

I am responding to the advertised accountant position in your finance department. I am a Rutgers University graduate with a B.S. in Accounting. Presently, I am an Accountant Assistant at GENE Construction where I manage vendor accounts, and monthly payroll functions.

Alongside my professional experience at GENE Construction, I volunteer for the Income Tax Assistance Program. I also volunteer for the Life Development Institute's Asperger Syndrome program where I participate in enhancing the quality of life for individuals with AS. I believe that these experiences have helped me learn how to work effectively with others in a supervisory capacity.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

CANDIDATES NAME HERE

COVER LETTER FOR EXPERT CANDIDATE WITH NO DISABILITY

CANDIDATES NAME HERE
ADDRESS,
HERE
TELEPHONE HERE
EMAIL HERE

To Whom It May Concern:

I am responding to the advertised position in your finance department. I am a licensed public accountant with a B.S. in Accounting from Rutgers University. Presently, I am an Accounting Manager at GENE LLC where I prepare monthly, quarterly and annually audited financial statements for a public healthcare company with net revenues of $500 million.

In addition to my professional experience at GENE LLC, I volunteer for the Life Development Institute's Asperger Syndrome program where I participate in enhancing the quality of life for individuals with AS. I believe that these experiences have helped me learn how to work effectively with others in a supervisory capacity.

I look forward to hearing from you so that we can discuss my qualifications in more detail.

Sincerely,

CANDIDATES NAME HERE

Table 1: Employer Responses to Resumes by Disability Status

	Any employer interest					Callback for interview					Sample size	
	No disability	Disability	Gap	(p-value)		No disability	Disability	Gap	(p-value)		No disability	Disability
	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)		(9)	(10)
Any disability vs. no disability												
Overall	6.58%	4.87%	-1.71	(0.006)	***	2.53%	2.25%	-0.28	(0.483)		2052	3964
Novice resumes	5.56%	4.70%	-0.86	(0.310)		1.56%	1.97%	0.41	(0.423)		1026	1977
Experienced resumes	7.60%	5.03%	-2.57	(0.005)	***	3.51%	2.52%	-0.99	(0.121)		1026	1987
SCI vs. no disability												
Overall	6.58%	4.80%	-1.78	(0.015)	**	2.53%	2.13%	-0.40	(0.393)		2052	2019
Novice resumes	5.56%	4.97%	-0.59	(0.555)		1.56%	1.99%	0.43	(0.464)		1026	1006
Experienced resumes	7.60%	4.64%	-2.96	(0.005)	***	3.51%	2.27%	-1.24	(0.095)	*	1026	1013
Asperger's vs. no disability												
Overall	6.58%	4.94%	-1.64	(0.026)	**	2.53%	2.37%	-0.16	(0.730)		2052	1945
Novice resumes	5.56%	4.43%	-1.13	(0.248)		1.56%	1.96%	0.40	(0.499)		1026	971
Experienced resumes	7.60%	5.44%	-2.16	(0.051)	*	3.51%	2.77%	-0.74	(0.346)		1026	974

* p<.10 ** p<.05 *** p<.01

Table 2: Employer Responses by Employer Characteristics

	Any employer interest					Callback for interview					Sample size	
	No disability (1)	Disability (2)	Gap (3)	(p-value) (4)		No disability (5)	Disability (6)	Gap (7)	(p-value) (8)		No disability (9)	Disability (10)
Employment size, private sector												
Employment<15	8.5%	5.0%	-0.035	(0.013)	**	5.2%	1.8%	-0.034	(0.001)	***	426	906
Employment 15-99	6.7%	5.2%	-0.015	(0.231)		1.6%	3.0%	0.013	(0.107)		553	979
Employment 100-499	6.5%	5.0%	-0.015	(0.254)		2.8%	2.6%	-0.003	(0.782)		461	935
Employment 500+	5.3%	4.1%	-0.012	(0.307)		1.4%	1.6%	0.002	(0.749)		510	945
Ownership												
Closely held	7.1%	4.8%	-0.023	(0.001)	***	2.9%	2.3%	-0.006	(0.186)		1,649	3,194
Publicly held	4.0%	4.9%	0.009	(0.529)		1.1%	1.8%	0.007	(0.409)		350	657
Government	7.5%	6.3%	-0.013	(0.755)		0.0%	3.6%	0.036	(0.164)		53	112
Single- or multi-establishment												
Single est.	8.1%	4.0%	-0.041	(0.000)	***	3.8%	2.1%	-0.017	(0.027)	**	630	1,256
Multi-est.	6.1%	5.4%	-0.007	(0.383)		2.1%	2.3%	0.002	(0.623)		1,300	2,450
Industry												
Ag etc	7.9%	5.0%	-0.029	(0.276)		4.8%	1.8%	-0.029	(0.118)		126	219
Mfg	5.4%	3.9%	-0.015	(0.409)		2.5%	1.7%	-0.008	(0.521)		204	359
Trade	6.4%	4.6%	-0.018	(0.259)		1.3%	2.7%	0.014	(0.190)		298	547
Fin./ins.	6.1%	5.6%	-0.006	(0.802)		1.8%	2.5%	0.006	(0.656)		163	323
Prof. svcs.	7.5%	5.2%	-0.023	(0.122)		3.3%	2.7%	-0.007	(0.510)		389	754
Health care	5.3%	4.4%	-0.009	(0.596)		1.6%	1.5%	-0.002	(0.869)		245	475
Other	6.8%	4.9%	-0.019	(0.111)		3.0%	2.1%	-0.008	(0.285)		574	1,175

* p<.10 ** p<.05 *** p<.01

Table 3: Regressions Predicting Employer Response

Based on probit regressions with "any employer interest" as dependent variable. Figures represent changes in probability.

	All firms		Closely-held		Publicly-held	Single-est.		Multi-est.
	(1)		(2)		(3)	(4)		(5)
Disability interactions with:								
Private sector, employment<15	-0.024	**	-0.024	**	-0.006	-0.024	*	-0.018
	(0.011)		(0.012)		(0.049)	(0.013)		(0.017)
Private sector, employment 15-99	-0.012		-0.014		0.067	-0.008		-0.010
	(0.011)		(0.012)		(0.058)	(0.016)		(0.015)
Private sector, employment 100-499	-0.015		-0.019		0.026	-0.026	*	0.007
	(0.012)		(0.013)		(0.030)	(0.015)		(0.017)
Private sector, employment 500+	-0.018		-0.010		-0.006	0.003		-0.017
	(0.013)		(0.016)		(0.020)	(0.030)		(0.014)
Closely held company (omitted)								
Publicly held company	0.039	*						
	(0.022)							
Government	-0.010							
	(0.032)							
SCI	-0.002		-0.004		0.005	-0.015		0.008
	(0.007)		(0.008)		(0.016)	(0.011)		(0.010)
P-value for test of disability interactions:								
Joint test of all employment size categories	0.125		0.171		0.691	0.226		0.571
Employment<15 size category	0.027	**	0.042	**	0.898	0.068	*	0.286
Joint test of all except smallest size category	0.319		0.351		0.530	0.392		0.572
Observations	6,016		4,844		1,005	1,887		3,750

* p<.10 ** p<.05 *** p<.01 (Std. errors in parentheses)

SCI = spinal cord injury

All regressions include controls for applicant names (11 dummies), spinal cord injury, employment size, publicly held, government, and industry (7 dummies)

Table 4: Employer Responses by Employer Characteristics and Applicant Experience

	Any employer interest					Callback for interview					Sample size	
	No disability	Disability	Gap	(p-value)		No disability	Disability	Gap	(p-value)		No disability	Disability
	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)		(9)	(10)
Novice applicants												
Employment size, private sector												
Employment<15	4.1%	4.9%	0.008	(0.653)		2.0%	1.4%	-0.006	(0.553)		197	431
Employment 15-99	6.5%	4.8%	-0.017	(0.320)		1.1%	2.4%	0.012	(0.247)		261	461
Employment 100-499	6.9%	4.9%	-0.020	(0.282)		2.6%	2.1%	-0.005	(0.708)		231	466
Employment 500+	5.1%	4.1%	-0.010	(0.517)		0.7%	1.8%	0.010	(0.241)		275	513
Ownership												
Closely held	6.0%	4.6%	-0.015	(0.125)		1.7%	1.8%	0.001	(0.834)		813	1,574
Publicly held	4.0%	4.8%	0.008	(0.693)		1.1%	2.1%	0.009	(0.443)		174	334
Government	2.6%	7.4%	0.048	(0.300)		0.0%	4.4%	0.044	(0.183)		39	68
Single- or multi-establishment												
Single est.	5.1%	3.9%	-0.012	(0.424)		2.0%	2.0%	0.000	(0.989)		295	586
Multi-est.	6.1%	5.2%	-0.009	(0.416)		1.4%	1.9%	0.005	(0.383)		661	1,259
Experienced applicants												
Employment size, private sector												
Employment<15	12.2%	5.1%	-0.072	(0.001)	***	7.9%	2.1%	-0.058	(0.000)	***	229	475
Employment 15-99	6.8%	5.6%	-0.013	(0.473)		2.1%	3.5%	0.014	(0.252)		292	518
Employment 100-499	6.1%	5.1%	-0.010	(0.595)		3.0%	3.0%	-0.001	(0.966)		230	469
Employment 500+	5.5%	4.2%	-0.014	(0.424)		2.1%	1.4%	-0.007	(0.474)		235	432
Ownership												
Closely held	8.1%	5.1%	-0.031	(0.003)	***	4.1%	2.7%	-0.014	(0.070)	*	836	1,620
Publicly held	4.0%	5.0%	0.010	(0.619)		1.1%	1.5%	0.004	(0.709)		176	323
Government	21.4%	4.5%	-0.169	(0.050)	**	0.0%	2.3%	0.023	(0.569)		14	44
Single- or multi-establishment												
Single est.	10.7%	4.0%	-0.067	(0.000)	***	5.4%	2.1%	-0.033	(0.005)	***	335	670
Multi-est.	6.1%	5.6%	-0.005	(0.677)		2.8%	2.8%	0.000	(0.954)		639	1,191

* p<.10 ** p<.05 *** p<.01

Table 5: Employer Responses by Employer Characteristics and Disability Type

	Any employer interest					Callback for interview					Sample size	
	No disability	Disability	Gap	(p-value)		No disability	Disability	Gap	(p-value)		No disability	Disability
	(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)		(9)	(10)
Disability=SCI												
Employment size, private sector												
Employment<15	8.5%	3.2%	-0.052	(0.001)	***	5.2%	1.3%	-0.039	(0.001)	***	426	466
Employment 15-99	6.7%	5.3%	-0.014	(0.328)		1.6%	2.8%	0.012	(0.185)		553	495
Employment 100-499	6.5%	4.3%	-0.022	(0.142)		2.8%	2.3%	-0.005	(0.597)		461	483
Employment 500+	5.3%	6.4%	0.012	(0.441)		1.4%	2.3%	0.009	(0.281)		510	481
Ownership												
Closely held	7.1%	4.7%	-0.024	(0.004)	***	2.9%	2.1%	-0.008	(0.156)		1,649	1,639
Publicly held	4.0%	5.2%	0.012	(0.472)		1.1%	2.1%	0.010	(0.312)		350	330
Government	7.5%	6.0%	-0.015	(0.755)		0.0%	2.0%	0.020	(0.301)		53	50
Single- or multi-establishment												
Single est.	8.1%	3.5%	-0.046	(0.000)	***	3.8%	1.8%	-0.020	(0.029)	**	630	663
Multi-est.	6.1%	5.7%	-0.004	(0.688)		2.1%	2.4%	0.004	(0.535)		1,300	1,228
Disability=Asperger's												
Employment size, private sector												
Employment<15	8.5%	6.8%	-0.016	(0.365)		5.2%	2.3%	-0.029	(0.024)	**	426	440
Employment 15-99	6.7%	5.2%	-0.015	(0.301)		1.6%	3.1%	0.015	(0.116)		553	484
Employment 100-499	6.5%	5.8%	-0.008	(0.634)		2.8%	2.9%	0.001	(0.959)		461	452
Employment 500+	5.3%	1.7%	-0.036	(0.003)	***	1.4%	0.9%	-0.005	(0.451)		510	464
Ownership												
Closely held	7.1%	5.0%	-0.021	(0.011)	**	2.9%	2.4%	-0.005	(0.414)		1,649	1,555
Publicly held	4.0%	4.6%	0.006	(0.706)		1.1%	1.5%	0.004	(0.661)		350	327
Government	7.5%	6.5%	-0.011	(0.818)		0.0%	4.8%	0.048	(0.105)		53	62
Single- or multi-establishment												
Single est.	8.1%	4.6%	-0.035	(0.011)	**	3.8%	2.4%	-0.014	(0.145)		630	593
Multi-est.	6.1%	5.1%	-0.010	(0.273)		2.1%	2.2%	0.001	(0.818)		1,300	1,222

* p<.10 ** p<.05 *** p<.01

SCI = spinal cord injury

Table 6: Predicting Employer Response by Disability Type and Experience Level

Based on probit regressions with "any employer interest" or "callback for interview" as dependent variable. Figures represent changes in probability.

Dep. Var.:	Any employer interest				Callback for interview			
	Experience level		Disability type^		Experience level		Disability type^	
	Novice	Experienced	SCI	Asperger's	Novice	Experienced	SCI	Asperger's
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Disability interactions with:								
Private sector, employment<15	0.010	-0.038 ***	-0.039 ***	-0.012	-0.004	-0.022 ***	-0.017 ***	-0.012 **
	(0.021)	(0.013)	(0.012)	(0.013)	(0.010)	(0.007)	(0.005)	(0.006)
Private sector, employment 15-99	-0.014	-0.009	-0.011	-0.015	0.019	0.019	0.015	0.017 *
	(0.016)	(0.015)	(0.013)	(0.012)	(0.014)	(0.014)	(0.010)	(0.010)
Private sector, employment 100-499	-0.019	-0.010	-0.021	-0.014	-0.002	0.000	-0.006	0.000
	(0.015)	(0.018)	(0.013)	(0.014)	(0.009)	(0.012)	(0.007)	(0.008)
Private sector, employment 500+	-0.019	-0.018	0.004	-0.047 ***	0.018	-0.008	0.007	-0.008
	(0.017)	(0.019)	(0.016)	(0.014)	(0.017)	(0.013)	(0.011)	(0.010)
Closely held company (omitted)								
Publicly held company	0.033	0.044	0.027	0.065 **	0.005	0.019	0.012	0.013
	(0.029)	(0.031)	(0.024)	(0.029)	(0.016)	(0.024)	(0.015)	(0.016)
Government	0.069	-0.047 *	-0.013	-0.011	^^	^^	^^	^^
	(0.069)	(0.026)	(0.037)	(0.035)				
SCI	0.005	-0.008			-0.001	-0.005		
	(0.010)	(0.010)			(0.005)	(0.007)		
P-value for test of disability interactions:								
Joint test of all employment size categories	0.529	0.048 **	0.007 **	0.009 **				
Employment<15 size category	0.651	0.003 ***	0.001 ***	0.337				
Joint test of all except smallest size category	0.448	0.727	0.353	0.005 ***				
Observations	3,003	3,013	4,071	3,997	2,897	2,955	3,969	3,883

* p<.10 ** p<.05 *** p<.01 (Std. errors in parentheses)

^ Regressions by disability type include applicants without disabilities as control group.

^^ Too few callbacks by government employers to estimate probit effects.

SCI = spinal cord injury

All regressions include controls for applicant names (11 dummies), employment size, publicly held, government, and industry (7 dummies)

Table 7: State Disability Discrimination Laws

		Accommodations not required	Accommodations required
DDL covers only public employers		AL, MS	
DDL covers private employers with			
	1+ employees	DC, IL, SD	AK, CO, HI, ME, MI, MN, MT, ND, NJ, VA, VT, WI
	2 or more employees		WY
	3 or more employees		CT
	4 or more employees		IA, KS, NM, NY, OH, PA, RI
	5 or more employees		CA, ID
	6 or more employees		MA, MO, NH, OR
	8 or more employees	TN	WA
	9 or more employees		AR
	12 or more employees		WV
	15 or more employees	GA, NV, FL	AZ, DE, IN, KY, MD, NC, NE, OK, SC, TX, UT
	20 or more employees		LA
Number of job applications to employers:		All employers	Small employers (not covered by ADA)
	Not covered by state DDL	720	668
	Covered by state DDL not requiring accoms.	240	5
	Covered by state DDL requiring accoms.	4950	658

DDL = disability discrimination law

Table 8: Employer Responses and State Disability Discrimination Laws

Based on probit regressions with "any employer interest" or "callback for interview" as dependent variable. Figures represent changes in probability.

Dep. Var.:	Any employer interest			Callback for interview		
	All firms	All firms	Small firms (not covered by ADA)	All firms	All firms	Small firms (not covered by ADA)
	(1)	(2)	(3)	(4)	(5)	(6)
State DDL coverage	0.013		0.025	-0.002		0.011
	(0.015)		(0.018)	(0.009)		(0.009)
State DDL coverage not requiring accoms.		-0.009	^		-0.008	^
		(0.031)			(0.016)	
State DDL coverage requiring accoms.		0.013	^		-0.002	^
		(0.015)			(0.009)	
Disability	-0.010	-0.010	-0.021	-0.035 **	-0.035 **	-0.036 ***
	(0.018)	(0.018)	(0.018)	(0.014)	(0.014)	(0.014)
Disability interactions with:						
State DDL coverage	-0.006		-0.021	0.028 **		0.009
	(0.018)		(0.022)	(0.011)		(0.014)
State DDL coverage not requiring accoms.		0.006	^		0.074	^
		(0.040)			(0.050)	
State DDL coverage requiring accoms.		-0.007	^		0.029 **	^
		(0.018)			(0.012)	
Observations	5,914	5,914	1,332	5,914	5,914	1,332

* p<.10 ** p<.05 *** p<.01 (Std. errors in parentheses)

SCI = spinal cord injury; DDL = disability discrimination law

All regressions include controls for applicant names (11 dummies), employment size, publicly held, government, and industry (7 dummies)

^ State DDLs could not be broken out by accommodation requirements for small firms due to insufficient observations (n=5 for DDLs not requiring accommodations).