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Does Protecting Older Workers from Discrimination Make It Harder to Get Hired?

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Abstract

We study the effects of disability discrimination laws on hiring of older workers. These laws do not specifically define older disabled workers as a protected class. But the incidence of disabilities rises steeply with age, so older workers may be disproportionately affected by disability discrimination laws. Moreover, the perception that a worker is likely to have a disability in the near future should also rise steeply with age, and that perception may affect older workers adversely.

We estimate the effects of disability discrimination laws on hiring of disabled workers, focusing some attention on hiring of nondisabled older workers. We use state variation in disability discrimination protections, which can strengthen the coverage of these laws by using a broader definition of disability than the Americans with Disabilities Act (ADA) or applying to smaller firms, or can entail higher costs via larger damages.

The preliminary evidence supports the following conclusions. First, state disability discrimination laws that use the broader definition of disability appear to raise rather than reduce hiring of nondisabled older workers. Second, stronger state disability protections reduce hiring of, at least, younger disabled workers. Most importantly, we find no evidence of adverse effects of disability discrimination laws on older workers – either from weaker tests we use to study the disabled, or more-compelling difference-in-differences tests we can use to study the nondisabled. The latter evidence points to positive effects on hiring of older workers, as does complementary evidence on stronger state protections against age discrimination.

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I. Introduction

In coming decades the share of the population aged 65 and older will rise sharply – from 17 percent of those aged 20 and older in 2000, to 28 percent in 2050 (projected) – and will approach equality with the share aged 45-64 by the middle of the century (Neumark, 2008). This aging of the population will pose fundamental public policy challenges. Most significantly, the low employment rate of seniors implies slowing labor force growth relative to population and a rising dependency ratio. This creates an imperative to increase the employment of older workers – lowering dependency ratios, raising tax revenues, and decreasing public expenditures on health insurance, retirement benefits, and income support.

Supply-side policy to encourage longer work lives – such as the 1983 Social Security reforms that reduced benefits at the early retirement age of 62 and raised the full retirement age (FRA) at which full benefits are available – can potentially help. However, such policy reforms to increase the employment of older workers may be frustrated by discrimination against older workers. Discrimination against older workers in hiring is a particularly important issue, since serious progress in extending work lives of older individuals is likely going to have to come from employment in new part-time or shorter-term "partial retirement" or "bridge jobs," rather than from continued employment of workers in their long-term career jobs (e.g., Cahill et al., 2006; Johnson et al., 2009), in part because some older workers will need to make transitions to jobs that are less physically taxing.

The natural response to the potential for hiring (and more general) discrimination against older workers is to strengthen laws against age discrimination. Earlier research on the effects of age discrimination laws on employment of older workers found that when age discrimination laws were passed, they increased employment of protected workers (Neumark and Stock, 1999; Adams, 2004). More recently, Neumark and Song (2013) found that stronger state-level age discrimination protections enhanced the impact of the 1983 Social Security reforms; for older individuals for whom early retirement benefits fell and the FRA increased, stronger state protections were associated with delayed benefit claiming and increases in employment.

However, the effects of age discrimination laws on hiring of older workers are not as clear. First, there is evidence of continuing age discrimination, especially with regard to hiring (Bendick et al., 1996, 1999; Lahey, 2008a). Second, there is reason to think that age discrimination laws may be ineffective at combating hiring discrimination, and scholars speculate that these laws could even make matters worse. Because in hiring cases it is difficult to identify a class of affected workers, and economic damages are smaller than in termination cases, age discrimination laws may not be effective in combating hiring discrimination. Moreover, if age discrimination laws mainly raise the costs of terminating older workers – an age discrimination protection that likely is effective (Neumark and Stock, 1999) – they could end up deterring hiring (Bloch, 1994; Lahey, 2008b; Posner, 1995). The evidence is mixed. Lahey (2008b) argues that there is some evidence that stronger state age discrimination laws deter hiring. Neumark and Song (2013) find evidence – although it is weak – that stronger state age discrimination protections boosted hiring of older workers affected by increases in the FRA. Neumark and Button (2014) find that stronger state age discrimination protections were associated with less hiring of older workers during and after the Great Recession, which they suggest could reflect uncertainty about future demand facing firms coupled with higher termination costs that stronger age discrimination protections can impose.

In this paper, we turn our attention to disability discrimination laws, exploring whether these laws are ultimately likely to be a help or a hindrance in achieving the goal of significant lengthening of the work lives of older individuals, via their effect on hiring. Although disability discrimination laws do not specifically define older disabled workers as a protected class, the incidence of disabilities that can limit work and hence trigger protection by disability discrimination laws rises steeply with age, especially past age 50 or so (see Rowe and Kahn, 1997, and Figure 1 below). This is recognized in the Americans with Disabilities Act (ADA), which notes that the number of disabled "is increasing as the population as a whole is growing older." The implication is that older workers may be disproportionately affected by disability discrimination laws. Moreover, the perception that a potential worker has a disability or is likely to have one in the near future should also rise steeply with age, and that perception – for reasons argued in this paper – may be particularly likely to affect older workers adversely.

Scholars have argued that disability discrimination laws may do more to protect older workers than disability discrimination laws. In discussing the Americans with Disabilities Act (ADA), Sterns and Miklos (1995) suggest that "Many of the ailments associated with older adulthood are now classified as disabilities. Arthritis and back ailments are examples… ADA provides equal protection to workers of all ages and … will benefit older workers without directly protecting them at a certain age" (1995, pp. 251-2). One consequence of the overlap between age and disability is that many aggrieved older workers may have the option of pursuing discrimination claims under either the Age Discrimination in Employment Act (ADEA) or the ADA. Claims filed under the ADA may be more successful because, unlike the ADEA, the ADA does not include an exception for bona fide occupational qualifications (BFOQs).[1] (Under the ADEA, BFOQ exceptions arise when age is strongly associated with other factors that pose legitimate business or safety concerns.) Because the ADA does not have a BFOQ exception, it may offer greater protection to older workers suffering from some of the milder adverse consequences of aging that, under the ADEA, might be grounds for discharge or failure to hire (Posner, 1995). That is, age discrimination laws, in contrast to disability discrimination laws, do not rule out factors associated with age – such as physical impairments – as grounds for discrimination, under a "business necessity" defense (Starkman, 1992). Further, the age-related disability might still be judged as amenable to "reasonable accommodation" by employers in the language of the ADA or state disability laws, which usually require "reasonable accommodation" of the worker, making it much harder to justify an apparently discriminatory practice on the basis of business necessity (Gardner and Campanella, 1991). Moreover, because of the relationship between age and disability, as the population ages, more of those individuals protected by the ADEA are also likely to come under the protection of the ADA.

But this can cut two ways. Specifically, the concern that antidiscrimination laws may deter hiring of older workers is potentially more powerful with respect to disability discrimination laws than age discrimination laws, for two reasons – one having to do with the relationship between aging and disability, and one having to do with the nature of disability discrimination laws. First, as noted above,

[1] See Stock and Beegle (2004) for similar arguments.

disability discrimination laws have important features that may make them more powerful than age discrimination laws at both protecting workers from discrimination. But these features may also raise the cost of employing an older worker who is disabled or who might become disabled, perhaps most notably because of the requirement for reasonable accommodation of disabilities. As such, disability discrimination laws can pose higher potential costs to employers than do age discrimination laws – with both more grounds for a discrimination claim resulting from a termination decision, and direct costs from having to accommodate an older worker with a disability or who develops a disability.

Second, disability discrimination protections could affect hiring of *nondisabled* older workers because employers know that older workers have a higher likelihood of developing a physical impairment by virtue of their age. Indeed consistent with this conjecture, research on age stereotypes notes that experimental subjects were more likely to reject the request of an older worker for a transfer to a physically-demanding job (Rosen and Jerdee, 1976), and that there were negative stereotypes about older workers' mental health (Hummert, 1990; Goebel, 1984).

We would not expect employers to be very responsive to the possibility that a younger worker will become disabled, because the probability is low (although it could be magnified by the prospect of longer tenure compared to older workers). However, this probability is considerably higher for older workers, and hence in studying whether disability discrimination laws deter hiring or older workers, it is particularly interesting to look at hiring of nondisabled older workers.

Like age discrimination laws, disability discrimination laws vary across states, perhaps in ways that are more significant than variation in age discrimination laws. The research strategy we use in this paper exploits this state variation in disability discrimination laws, and how it is associated with hiring of older workers. While past research used much earlier variation in state disability discrimination laws (e.g., Beegle and Stock, 2003) or variation induced by the implementation of the Americans with Disabilities Act or the ADA (e.g., Acemoglu and Angrist, 2001), our paper is the first to study the effects of contemporaneous variation in state disability discrimination laws.

The sample period covered by the main dataset we use – the Health and Retirement Study (HRS)

– covers a period with virtually no variation in state disability discrimination laws. Hence, we are constrained to study cross-state hiring variation. Moreover, because – as we have argued – disability discrimination laws can affect both the disabled and the nondisabled, we cannot use effects on protected versus unprotected groups to provide a second level of differencing that might control for some sources of variation that confound cross-state differences between outcomes (hiring rates, in our case). Despite our limited ability to test the effects of disability discrimination laws in as compelling a fashion as is more-commonly used to study the effects of state variation in laws, we believe our paper broaches an important question regarding discrimination laws and older workers, and provides, at a minimum, some interesting first evidence.

II. Related Research

Existing research on the effects of disability discrimination laws on labor market outcomes consider different questions from those we study.[2] Studies by Acemoglu and Angrist (2001) and Deleire (2000) suggest that the ADA reduced employment among disabled individuals. This could stem from the firing costs associated with wrongful termination suits or from the costs of accommodating disabled workers, along with difficulties in reducing discrimination in hiring. Both studies identify the effects of the ADA from time-series changes in the employment of the disabled (relative to the nondisabled). With this identification strategy, however, different trends in the employment rates of these groups can incorrectly be attributed to the effects of the ADA, and effects on the nondisabled could contaminate the results. As in other areas of policy research, it is preferable – when possible – to examine subnational variation in laws, using developments in the states that do not pass laws as controls for the states that do. Beegle and Stock (2003) also point out that when the ADA was enacted, all but two states had laws barring discrimination against the disabled, although there was heterogeneity in these laws. This raises questions about what is identified from time-series changes in employment of the disabled and nondisabled around the passage of the ADA. On the other hand, Acemoglu and Angrist (2001) do report some confirming cross-state variation, in that the declines in employment of the disabled were larger in

[2] See the review in Jones (2008).

states with more ADA-related discrimination charges.

Beegle and Stock (2003) estimate the effects of disability discrimination laws using subnational variation in state laws barring discrimination against the disabled passed at different times between 1970 and 1990 (prior to the ADA). They do not find that these laws reduce employment of the disabled (nor do they find positive employment effects). They also seek to identify the incremental effect of "reasonable accommodation" provisions in state laws and find none. Kruse and Schur (2003) present additional evidence raising doubts about the conclusions from the time-series approach, showing that the answer differs depending on how disability is defined (as well as exploring some other issues regarding differential trends in employment of the disabled and nondisabled). And Hotchkiss (2004) argues that the apparent decline in employment of the disabled does not reflect lower demand – due to increased barriers – but rather a decline in labor force participation among the disabled, mainly from (self) reclassification of nonparticipants as disabled.

Jolls and Prescott (2005) explored these issues further, exploiting the variation in state regimes when the ADA was passed to identify the "reasonable accommodation" and firing cost effects of the ADA. For example, because of state variation, the ADA added the reasonable accommodation provision in some states but not others. Their conclusions are a bit more mixed, finding that the reasonable accommodation provision does reduce employment, but only in the short term.[3] Thus, for the longer-term effects that are more relevant, their conclusions are similar to those of Beegle and Stock in suggesting that there is little evidence of adverse employment effects of the ADA.

The study by Stock and Beegle (2004) is most closely related to ours. This paper extends the analysis of the literature discussed above to the nondisabled, arguing – echoing the discussion in the Introduction – that older workers who are not disabled may receive greater protection from age discrimination when there are disability discrimination laws. Moreover, they test for interactions between

[3] They suggest that the effects of the reasonable accommodation provision may fade over time because of an increased flow of disabled workers into the workplace as attitudes change, declining costs of accommodation due to technological change and judicial refinements of the ADA's requirements, and more enforcement regarding discrimination in hiring based on accommodation costs some time after the law was passed.

age and disability discrimination laws. They find a positive interactive effect on employment of nondisabled workers aged 40-64, but a net effect of disability discrimination laws that is very small and statistically insignificant.

There are limitations of this existing evidence in terms of the questions on which we focus. First, the research on disability laws does not focus on those aged 65 and older,[4] even though this is the group that is of some interest in terms of extending work lives, and is a group for which disability rates are quite high (see Figure 1, discussed below). Thus, the existing research may speak more to the consequences of disability-related discrimination laws for those with "traditional" disabilities rather than to disabilities that are more the result of aging. Second, the past research studied implementation of state discrimination protections prior to the federal ADA, or implementation of the ADA, rather than the more recent period when there is a federal law but some state laws are stronger. Third, past research did not consider the types of variation in these laws that the proposed research will consider, although some of it addresses earlier heterogeneity in state disability discrimination laws. Fourth, only one of the past studies considers a key issue we study – which is how these laws affect nondisabled older workers. And fifth, the existing research does not address hiring per se, which we have suggested is important because of the role it can play in extending work lives of older workers, and because it is the outcome that may be most likely to be *deterred* – albeit as an unintended consequence – by disability discrimination protections.

III. Disability (and Age) Discrimination Laws

To study the effects of disability discrimination laws, we first needed to code up these laws. To do this, we followed the procedure developed in Neumark and Song (2013) to code state age discrimination laws. This required extensive background research on state statutes and their histories, culled from legal databases including LexisNexis, Westlaw, and Hein Online, as well as many other sources. The first step in assembling information on state disability discrimination laws was to identify the appropriate state statute, which can be complicated because the disability discrimination law can be listed under various sections of state law (a fair employment act, a separate disability discrimination act,

[4] Beegle and Stock (2003) use an age cutoff of 64, and Jolls and Prescott (2005) use a cutoff of 58.

etc.). After the appropriate statute was identified, we traced the history of the statute using the legal databases, to look for changes over time. In some cases we had to look beyond the statutes to information from state agencies or other sources.

Because it is complicated to read and interpret the law correctly based solely on statutes, we cross-checked our understanding of the statute with other legal references or treatises and additional sources of information on state laws.[5] The other sources were also useful because of a further challenge in reading statutes. In particular, one section may define what a discriminatory act is, while other provisions may be delegated to the Civil Rights Commission, or the remedies may be listed under a different section of the statute.

To minimize inaccuracies, once all the necessary information was obtained from these sources, we attempted to compare and validate this with information from other sources. If information obtained from different sources coincided, we were confident that the information was correct. In cases of what should be unambiguous information – in particular the employment level at or above which the law applies – we use the information from the statute regardless. However, in cases of information that can be more easily misinterpreted from the statute, when we found discrepancies we turned to state agencies or other sources for corroborating information.

Disability Discrimination Laws

There are three major ways in which state disability discrimination laws can be stronger than the federal ADA. Two of these increase the number of individuals who can be considered disabled under state law: the definition of disability, and the minimum firm size for disability discrimination laws to apply. The third is more possible compensation for plaintiffs, through larger or no caps on compensatory and punitive damages, relative to the capped damages available under the ADA.

The minimum firm size for the ADA to apply is 15. We create an indicator variable equal to one

[5] These included Beegle and Stock (2003), Buckley and Green (2011, 2009, 2008, 2006, 2002, 1997), Colker and Milani (2002), DRI (2011), Green (1992), Long (2004), Perry (2011), and a 50-state survey of discrimination laws at http://www.navexglobal.com/sites/default/files/uploads/lb_Descrimination-50States.pdf (viewed September 22, 2014).

if the firm size minimum is lower than the ADA, and zero otherwise. When the firm size minimum is lower, more workers (and employers) are covered.

Defining disability is of course more complicated than defining other protected groups, like age, race, and sex, and the definition of disability differs across states. Most states adopt the same definition as the ADA, either explicitly or by adopting the same case law. Under the ADA, an individual can be deemed disabled by satisfying one of three criteria:

1. Has a physical or mental impairment that substantially limits one or more major life activities;[6]
2. Has a record of such an impairment;
3. Is regarded as having such an impairment.

Given that the definition of physical and mental impairment is quite broad, the "substantially limits" requirement can probably be thought of as the main criterion restricting the definition of who is and who is not disabled under the ADA and similar state laws. Moreover, the "substantially limits" phrase has been interpreted by the courts as quite restrictive. The U.S. Supreme Court, in the "Sutton Trilogy" of cases (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)]), deemed individuals to be not disabled if mitigating measures, such as glasses or medication, made the limiting features of the disability dormant. A U.S. Court of Appeals, 4th Circuit, decision also restricted episodic conditions, such as epilepsy, from being considered a disability in EEOC v. Sara Lee Corp., 237 F.3d 349 (4th Cir., 2001).[7]

Some states use a weaker criterion in this regard than the "substantially limits" requirement of the

[6] Major life activities that have to be substantially limited were not defined in the ADA, but were defined by the EEOC as: "(i) Caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, sitting, reaching, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, interacting with others, and working; and (ii) the operation of a major bodily function…" (29 C.F.R. 1630.2 (i) and (ii)). A list similar to this was included in the ADA Amendments Act (ADAAA), discussed in the next footnote.

[7] These decisions were reversed by the ADAAA, effective in 2009, which is beyond our sample period. Under the ADAAA, states where the ADA's definition of disability prevailed became more like those states using a medical impairment definition, discussed next. In principle we could use data pre- and post-2009 for identifying information on this dimension of variation in disability discrimination laws, but the confounding effects of the Great Recession make this unlikely to be informative.

ADA under criterion 1. In two states this is done by the statutes substituting "materially limits" (MN) or just "limits" (CA) for "substantially limits," with legal interpretations or statutes being explicit that this is a less stringent standard. Several states (CT, IL, NJ, NY, and WA) adopt an even laxer definition, considering any individual to be disabled if their impairment is medically diagnosed, regardless of whether the impairment substantially limits one or more major life activities. Long (2004) argues, as seems quite reasonable, that these medical definitions broaden coverage relative to the ADA. To capture this variation, we create a dichotomous variable called "broader definition," which equals one for states with the medical definition of disability, and zero otherwise.[8]

Damages are likely to play a major role in the strength of discrimination laws. Evidence in Neumark and Song (2013), on age discrimination, supports this conclusion. The ADA caps the sum of compensatory and punitive damages per claimant based on firm size, as follows:

1. 15-100 employees: $50,000;
2. 101-200 employees: $100,000;
3. 201-500 employees: $200,000;
4. 500 plus employees: $300,000.

Few states follow this exact schedule (AR, DE, and MD from 2007 onward, and TX, WI from 2009 onward). Nineteen states allow larger potential damages, either through higher caps (AK, ME, NV, NC) or, more commonly, through no caps at all on both compensatory and punitive damages (AZ, CA, CT, DC, HI, IL, MA, MO, NJ, OH if through private action; OR , RI, VT, and WV). We create a dichotomous variable called "larger damages," which equals one for the 18 states where potential damages exceed those under the ADA, and zero otherwise. There are 23 states with uncapped compensatory damages, but no punitive damages under state law, and we do not include these states in the larger damages category because compensatory damages require proof of intent to discriminate of

[8] We also considered including California and Minnesota in the broader definition category with the medical definition states, but ultimately decided not to because the definition in these states seems much closer to the ADA definition. The results were similar.

damages,[9] so punitive damages are likely more relevant.[10]

The first three columns of Table 1 display the information on state disability discrimination laws, based on the preceding discussion. We display our classifications of states, as well as the additional variation along dimensions we do not incorporate into our coding. Note that in some cases there is no law, in which case we code the state as not having the stronger provision.

Age Discrimination Laws

For reasons explained below, some of our analyses incorporate information on two features of state age discrimination laws – larger damages, and the firm-size cutoff – in some of our analyses. This information (from Neumark and Song, 2013) is listed in the last two columns of Table 1. As the table shows, firm-size minimums are similar for disability and age discrimination laws, but there are nine states that have a different minimum (AL, AR, DE, GA, KY, IN, LA, NE, and SD).

With regard to damages, we again focus on whether compensatory or punitive damages are allowed, which they are not under federal age discrimination law (the ADEA).[11] Some states require proof of intent to discriminate in order for compensatory or punitive damages to be awarded, whereas others require "willful" violation. Because the federal law allows additional liquidated, nonpunitive damages (double back pay and benefits) when there is "willful" violation, the question of whether the state requires intent or willful violation may seem to be potentially relevant in deciding whether a state law offers greater protection. However, willful violation is a much stricter standard than intent (Moberly, 1994). Moreover, compensatory or punitive damages are almost certainly greater than liquidated damages, and they can be much greater. As a consequence, a state law that provides compensatory or punitive damages, whether or not this requires proof of intent or willful violation, clearly entails stronger remedies than the federal law, so our classification captures whether either is allowed.

[9] An example might be medical bills if an employee was terminated unjustly, and dropped from a health insurance plan.

[10] We are doing ongoing research to better understand all the nuances of damages under the ADA and state disability laws – and competing interpretations of them – and as a consequence our classification of states may change or expand in future versions of this paper.

[11] See United States Equal Employment Opportunity Commission (2002). In addition, O'Meara (1989) states that damages for pain and suffering are occasionally permitted in ADEA in federal court when they arise out of state claims, although pain and suffering are not allowed under the ADEA (pp. 334-5).

IV. Labor Market Data

Health and Retirement Study (HRS) Data

The part of our analysis that focuses exclusively on older workers uses the Health and Retirement Study (HRS), a large, longitudinal dataset that covers older individuals biennially starting in 1992. We use data from nine waves from 1992 through 2008, avoiding the period of the Great Recession by ending the sample in 2008.[12] The initial HRS cohorts were born from 1931 to 1941, but other cohorts have been added to the study, so that currently the oldest cohort in the HRS was born in 1924 and the youngest cohort was born in 1955.[13] In addition, although the sampling frame for the HRS depends on birth year, spouses of the respondents are also included, with birth years that range from 1890 to 1983. We restrict our data (for almost all of our analyses) to those who are 53 to 69 years of age, and avoided spouses outside these age ranges who can be highly nonrepresentative of their ages.[14] We study men only to avoid complications from the very different labor force participation patterns of men and women in the covered cohorts. The HRS oversamples Hispanic, blacks, and residents of Florida, and since much of our analysis can be viewed as descriptive, we therefore use sampling weights to strive for representativeness.

The dependent variable of interest is hiring. To measure this, we exploit the longitudinal nature of the HRS data to try to detect hiring as accurately as possible. In particular, we use more information than simply employment status and other information about the job at each HRS interview, and instead try to tease more information on hiring out of the HRS by using responses to interview questions that provide information on labor market transitions between the interviews, which we refer to as "inter-wave" information. Specifically, employment transitions from self-employed or not working to employed are

[12] Although we use data only through what are intended to be 2008 interviews, some interviews occur in earlier 2009. In a future draft we may extend the analysis further, in light of evidence in Neumark and Button (2014) that the effects of state *age* discrimination laws may have differed during and after, as compared to before, the Great Recession.

[13] The Study of Asset and Health Dynamics among the Oldest Old (AHEAD) cohort, born before 1924, was first interviewed in 1993. The Children of Depression (CODA) cohort, born between 1924 and 1930, and the War Baby (WB) cohort, born between 1942 and 1947, were first interviewed in 1998. The youngest Early Baby Boomer (EBB) cohort, born between 1948 and 1955, was first interviewed in 2004.

[14] We impose the minimum age restriction of 53 because members of the HRS initial cohort were between age 51and 61 when they were first interviewed in 1992. We can only observe their hiring outcomes starting with the second wave, which is two years later.

coded as hires, as are transitions from employed at wave t-2 to working for a different employer at wave t (HRS waves are two years apart). Respondents who make transitions from nonemployment at wave t-2 to self-employed or nonemployment at wave t are coded as hires if they report working for a wage or salary between waves. Otherwise respondents are coded as nonhires. In some cases – but not all – we made our best determination as to whether there was an inter-wave hire even when the information available is not completely decisive. Specifically, the questions on work between waves were not asked for respondents who went from self-employed to not employed or self-employed, if they do not know when they stopped the initial self-employed job; we assumed these individuals were not hired between waves. Also, many observations are missing the inter-wave information and classified as "inapplicable or partial interview" in the codebook. For cases with missing data and transitions from wave t-2 to t between disabled, retired, and not in the labor force (based on the RAND HRS labor force status code), we assumed no hire occurred. The control variables we include are described in the notes to the tables and figures discussed below.

Although we have coded hiring for every observation for which it is possible, in this draft we restrict attention to those initially nonemployed (in period t-2), asking if they were hired as of period t. We do this because a job-to-job transition captures new hiring but can also capture adverse outcomes at the previous job, whereas we can assume that nonemployed workers who become employed were definitely looking to get hired. In addition, the outcome of remaining in a job can reflect either positive features of the job or difficulties in finding a new job. For both reasons, we think that the estimated effects of disability discrimination laws on hiring of the previously nonemployed provides the cleanest test of whether these laws boost or deter hiring. In future drafts, though, we will look at transitions into new jobs for a broader sample.

Survey of Income and Program Participation (SIPP) Data

We also use SIPP data so that we can look at a larger age range – including but not limited to the age range covered by the HRS – in part to exploit differences between younger and older workers to learn more about the potential effects of disability discrimination laws, as explained in the next section. For

this draft we use the 2004 SIPP (with interviews covering the period February 2004 through January 2008). The SIPP divides respondents into four rotation groups, each interviewed in a different month. The reference period for the survey is the four calendar months preceding the interview month. Thus, the interviews in the 2004 SIPP cover the period October 2003 through December 2008. The disability variable in the SIPP is asked only for individuals who are 69 years or younger. Thus, we restrict the sample to 15 to 69 years of age.

We exploit the longitudinal nature of the data to construct person-month hiring data. We implement a similar method as we do with HRS where our hiring measure is mainly based on respondents' employment status and the information on whether a worker reported changing employer and when they began working for the new employer. Although respondents report their employment status at both a weekly and monthly frequency, the information on when they began working for the new employer is only available at the monthly level. Thus, our hiring measure is at the monthly level. Paralleling our decision regarding the HRS, we did not use the most recent SIPP 2008 panel to avoid the Great Recession. We also restrict our sample to males, for reasons described earlier, and use sampling weights since the SIPP oversamples from high poverty areas.

To be more specific, to measure hiring we use the monthly employment status data to categorize respondents as employed, self-employed, or not working. If respondents report having a job for at least one week during the reference month, we record them as employed. If they 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 at t-1 to employed at t (which here denotes a monthly frequency), we code them as hired. If they are employed at t-1 and employed at t and report that they started their job at t, then we code them as hired at t. As for the HRS analysis, in this draft we focus on the sample not employed at

period t-1, and estimate models for whether these respondents were hired as of period t.[15]

The SIPP interviews respondents every four months and reports about their previous four months. A well-known limitation of the SIPP is a strong tendency for individuals to report the same value within a four-month interview period. This is called seam bias, which exaggerates the changes across waves and smooths out the changes within each four-month reference period (Ham et al., 2011). To address this seam bias, we include an indicator for being on a seam between two interview waves. Other control variables we include are described in the notes to the tables and figures discussed below.

Disability Definitions

In this draft we focus on self-reported, work-impairing disabilities. In the HRS, the disability definition is based on the question "Do you have any impairment or health problem that limits the kind or amount of paid work you can do?" In the SIPP, the disability definition is based on the question "[Do you] have a physical, mental, or other health condition that limits the kind or amount of work [you] can do?" These questions are, fortuitously, very similar. In future drafts we will also examine alternative definitions of disability that are possible using the HRS data, as in Neumark and Song (2012).

V. Empirical Analysis

We study the effects of disability discrimination laws on hiring in a number of ways. For the most part, we rely on cross-state variation in the strength of state disability discrimination laws to try to assess how stronger laws affect hiring, because there are virtually no changes in these laws during the periods we study. We do, nonetheless, present a quite rich analysis that reveals differences in hiring rates by single-year age cells, for both the nondisabled and the disabled, in states with stronger and weaker disability discrimination laws along each of the dimensions discussed earlier and categorized in Table 1.

To try to get more compelling identification for some of our analyses, we also estimate difference-in-differences models. In particular, one of the key questions we study is the effect of disability discrimination protections on the hiring of nondisabled older workers, who we speculated could

[15] There is other information that could in principle be used to identify hiring, in particular the unique job identification number across waves. However, we do not use this information due to reported inconsistency in implementation (Stinson, 2003).

be adversely affected because of expectations of a reasonable probability that such workers will develop a disability and become protected by disability discrimination laws. Given that there is a rather sharp rise in disability rates (as measured in the SIPP – see Figure 1 discussed below) at or soon after age 50, we construct difference-in-differences estimates for the effects of disability discrimination laws on hiring of nondisabled workers over and under cutoffs near 50. The idea is that differences in hiring rates for those who are nondisabled and younger than age 50 (or similar thresholds) capture state differences arising from factors unrelated to state disability discrimination laws and hence can control for these factors, so that differences associated with these laws for those who are nondisabled and older than age 50 relative to those who are nondisabled and younger than age 50 are more likely to reflect the actual effects of these laws. Of course this is not completely clean because even younger nondisabled workers could, in principle, be affected by disability discrimination laws. And it would not make any sense to implement this strategy for the disabled because hiring of the disabled of all ages could be affected by disability discrimination laws.

Descriptive Statistics

Figure 1 shows self-reported disability rates by age in the HRS and SIPP data. In the HRS data, which cover a narrow age range, these rates rise largely monotonically with age, from around 15 percent near age 55 to 25 percent at age 65-70.[16] In the SIPP data, the larger age range reveals more nonlinearity in this relationship. The disability rates in the range covered by the HRS are quite similar (although a bit higher at the oldest ages), but the figure reveals quite low and stable disability rates through age 40, in the 6-8 percent range, a slight steepening during the 40s, and then fairly sharp increases beginning in the 50s.[17] This age pattern is the basis for the difference-in-differences approach described above.

Tables 2 and 3 report descriptive statistics – means and standard errors of means – for the variables used in our analysis, beginning with the computed hiring rate and then the controls. For the SIPP, we report these for both the full sample and those aged 53-69, which provides a better comparison

[16] In the following analyses we restrict the HRS sample to be no older than 69, to line up with the oldest age for which the disability question is asked in the SIPP. In this figure, though, we show disability rates through age 80.

[17] The slight dip after age 60 may be related to the relationship between whether one works and how one answers this question.

for the ages common to the SIPP and the HRS for which we also have the disability question.

Comparing the tables shows that the measured hiring rate is much higher in the HRS, presumably because of the biannual frequency used for the HRS as opposed to the monthly frequency used for the SIPP. The descriptive statistics for the control variables are fairly comparable in the two datasets.

Hiring Rates by Age and Disability Discrimination Laws

We next present a set of figures (Figures 2-7) that provide information on hiring rates by age. Figures 2-4 cover the HRS, and Figures 5-7 cover the SIPP. In each set of three figures we show two graphs, one for the nondisabled, and one for the disabled. Each of these graphs displays the hiring rates, for single-year age cells, for states with a stronger disability discrimination law provision and states without that stronger provision (or no laws). The three figures for each data set present results, respectively, based on the broader definition of disability, larger damages, and a lower minimum firm-size cutoff for the law to apply.

The estimates displayed in the graphs come from a regression for the hiring outcome on the controls listed in the notes to the figures, a set of dummies for every age group, and a full set of interactions between these age dummy variables and a dummy variable for the stronger disability discrimination protection under consideration. The models are estimated as probits, and we then compute the predicted hiring probability at each age, for each set of states (with and without the stronger provision), setting the other controls at their sample means. Thus, these figures show the difference in hiring rates by age for otherwise identical workers, based on whether that worker resides in a state with the stronger disability discrimination protection or not.

Figure 2 displays results for the HRS data, focusing on the distinction between states with or without the broader definition of disability than the ADA. For the nondisabled, in the left-hand graph, it appears that hiring rates are for the most part lower in states that use the broader definition. For ages 58 to 69 the hiring rate in these states is always below or about equal to the hiring rate in the states that do not use the broader definition. This is consistent with the conjecture that stronger disability discrimination laws can deter hiring of older nondisabled workers. For the disabled, in the right-hand graph, the evidence looks similar, suggesting that stronger protections for disabled older workers can

lower their hiring rate.

Figure 3 and 4 present similar analyses, but for larger damages (Figure 3) and a lower firm-size cutoff (Figure 4). In these figures there is much less clear evidence of a systematic relationship between stronger state laws and hiring of older workers. In the states with larger damages, the hiring rate of the nondisabled is generally lower for those in their 60s, but the difference appears small. And for the disabled there is no clear indication. For the lower firm-size cutoff, in Figure 4, the evidence of lower hiring of the nondisabled in states where the cutoff is lower is a bit more distinct, but not consistent across all older ages, and for the disabled there is no clear pattern.

Table 4 provides more succinct summary information from these figures, in the columns labeled "HRS." In particular, for different age ranges we report – based on the estimates that underlie Figures 2-4 – the average difference in hiring rates between states with and without the stronger provision, the percentage of those estimates that are positive, and the p-value for the joint test that the estimated differences in that age range are equal to zero.

For example, recall that Figure 2 indicated that hiring rates for the nondisabled were lower in states using the broader definition of disability. This is reflected most strongly in the information reported in the fifth row and first column of the table, for the 62-69 age range. Here we see that, on average, the difference in the estimated hiring rates was −0.023; as the figure shows, hiring rates at these ages are lower for states using the broader definition, hence the negative sign. The majority of the estimates are negative (37.5 percent are positive), as the figure also shows. And finally – something we cannot see in the figure – the hiring rate differences over this age range are not statistically significant; the p-value from the joint test that the differences in this age range are all zero is 0.694.

The remaining information in columns (1) and (2) reports similar information for the disabled, and for slightly different age ranges that can be better aligned with the SIPP data. Overall, while the point estimates are consistent with the broader definition of disability lowering hiring rates for older disabled and nondisabled workers (the age ranges that encompass the 60s), the differences are not statistically

significant.[18]

The information in columns (5)-(6) and (9)-(10) summarizes the graphs for the other two provisions of state disability discrimination laws. We saw that those graphs gave weaker indications of differences in hiring rates at older ages associated with stronger state disability discrimination laws, and that is reflected in these columns. None of the estimated differentials for the age ranges considered in this table are jointly significant. For the lower firm-size cutoff though, the estimates are quite consistently in the direction of this particular stronger provision lowering hiring of both nondisabled and disabled older workers.

Figures 5-7 present results for the SIPP data. These data cover fewer years,[19] but have the advantage of covering a broader age range. Figure 5 focuses on the distinction between states with or without the broader definition of disability than the ADA. Curiously, for the same age ranges covered by the HRS, the evidence is different, as there is no indication that hiring rates for the nondisabled are lower in states that use the broader definition, and for the disabled there is no apparent difference at any age older than 40. This is reflected in the bottom rows of columns (3) and (4) of Table 4, where we see that the signs of the average differences in hiring rates are smaller than those for the same age ranges in columns (1) and (2), and generally of the opposite sign.

In contrast, in the SIPP data there is more evidence of a systematic difference for younger ages, where the hiring for the nondisabled tends to be lower in the states that use the broader definition of disability. This is reflected in the top rows of columns (3) and (4) of Table 4, where the average estimated differences in hiring rates between states that use the broader definition and those that do not are negative for ages 20-29, 30-39, and 40-49 – and in all cases the estimates are statistically significant. For the younger ages in the SIPP (through age 39), we also find significantly lower hiring rates for the disabled in the states with this stronger provision. Finally, the differences in hiring rates for older disabled workers are very small, although some of these sets of coefficients are statistically significant.

[18] Moreover, these joint tests for the age ranges reported in Table 4 do not appear to mask any consistent evidence of significant effects one way or the other for other age ranges (such as smaller ranges within those reported in the table). There is only a smattering of significant coefficient estimates on the age × law interactions at isolated single-year ages.

[19] In a future draft we intend to add SIPP data from additional years covered by our HRS data.

Figure 6, studying larger damages in the SIPP data, looks somewhat similar to Figure 5, although the evidence of lower hiring for the nondisabled in states with stronger laws is weaker (see also column (7) of Table 4, and Figure 7, which looks at the lower firm-size minimum, is similar.

To summarize to this point, there is some evidence from the HRS that stronger disability discrimination protections reduce hiring of both nondisabled and disabled older workers, for broader definitions of disability, and less so for lower firm-size cutoffs. However, this evidence is not statistically strong. The point estimates for the disabled are consistent with stronger discrimination protections deterring their hiring, which we might expect as a direct implication of these protections reducing the cost of employing or of terminating a disabled worker. And the point estimates for the nondisabled are consistent with stronger protections also deterring hiring of nondisabled older workers, perhaps because employers regard it as relatively likely that these workers will become disabled and fall under these stronger disability discrimination protections.

The most consistent evidence we could find in the SIPP would be similar lower hiring rates of nondisabled and disabled older workers in states with stronger protections, and perhaps also lower hiring rates of disabled younger workers in states with stronger protections. In contrast, we would not expect lower hiring rates for nondisabled younger workers, because employers should regard them as relatively unlikely to become disabled.

However, the SIPP data do not yield this kind of evidence. They do not replicate lower hiring rates for nondisabled or disabled older workers in states with stronger protections, yet they indicate lower hiring rates for both disabled and nondisabled younger workers in these states (for the broader definition of disability). It is conceivable that stronger disability discrimination laws do more to deter hiring of disabled younger workers than to deter hiring of disabled older workers, because the younger worker may be more likely to stay with the employer a long time, and hence impose higher accommodation costs. But there is no clear reason that stronger protections should do more to deter hiring of younger nondisabled workers.

One possibility, then, is that this latter evidence reflects effects of unmeasured factors that influence hiring of younger nondisabled workers (which of course is most younger workers), which are

correlated with disability discrimination protections. This helps motivate the final type of analysis we do, which is the difference-in-differences estimation described above that estimates the effect of stronger disability discrimination protection on nondisabled workers from the relative effects of these protections on older versus younger nondisabled workers, effectively using the younger worker to control for other influences on hiring that are correlated with disability discrimination laws. Note that it only makes sense to do this for the nondisabled, since we would expect a direct effect of disability discrimination laws on younger disabled workers (and as noted above, they might even be stronger).

Difference-in-differences Estimates of the Effects of State Disability Discrimination Laws on Hiring of Older Workers

Thus, in Table 5 we report estimates from difference-in-differences specifications. These are based on linear probability models of hiring to avoid the complications from evaluating and reporting interaction coefficients from probit models. The models include the individual-level and other controls as before, with two differences. First, the models include fixed state effects. And second, rather than including interactions between all of the single-year age dummy variables and the indicator for a stronger state disability discrimination protection, a simple interaction between the latter indicator and a dummy variable for older workers is included – using alternatively thresholds of 50, 55, and 60. The state fixed effects subsume main effects of the disability discrimination law dummy variables, capturing differences among states in hiring rates of younger workers. The age × law interactions then capture the differential effects of features of state disability discrimination protections on older versus younger workers. Under the assumption that variation across states for younger workers does not reflect the effects of these protections, these age × law interactions capture the effects of the disability protections on older workers.

We use the SIPP data for this analysis because we need the younger workers as controls. We have an indication of what to expect from the earlier analysis of the SIPP data. Specifically, Figures 5-7 and Table 4 suggested that stronger disability discrimination protections were associated with lower hiring of nondisabled younger workers, but not older workers. Thus, when we look at effects on older workers relative to younger workers, we should find positive effects.

The difference-in-differences estimates are reported in Table 5. In columns (1)-(3) we introduce

each of our stronger features of state disability discrimination laws one at a time, and then in column (4) we introduce all three simultaneously. The estimates paint a rather clear picture. Regardless of what age threshold we use, state disability discrimination laws that use the broader definition of disability appear to raise, rather than to lower, hiring of nondisabled older workers. This is true in column (1) and in column (4), where we use a more demanding specification that estimates the effect of the broader definition, larger damages, and a lower firm-size cutoff simultaneously. And the estimates are fairly large, ranging from a 0.017 to a 0.029 higher hiring rate. In contrast, we find no effect of the other two provisions of state disability discrimination laws.

If this evidence implies that stronger disability discrimination protections increases hiring of nondisabled older workers, it is inconsistent with one of the conjectures with which we began – that such laws could deter hiring of such workers because employers fear they will become disabled and fall under these stronger protections. The evidence points in the opposite direction from this conjecture.

We do not have as strong a test of the effects of disability discrimination laws on the disabled, because the young cannot serve as a control group. But some of the evidence from the cross-sectional variation, summarized in Table 4, suggested that stronger state disability protections reduce hiring of, at least, younger disabled workers, and some of the point estimates suggested this was true for older disabled workers as well. So it is possible that these laws induce some substitution from younger disabled workers (and perhaps older disabled workers) toward older nondisabled workers. Perhaps the most significant and broader point, however, is that we find no strong evidence of adverse effects of disability discrimination laws on older workers – either from weaker tests we can use to study the disabled, or the more compelling difference-in-differences tests we can use to study the nondisabled.

Finally, one possible confounder is that age discrimination laws may affect outcomes for older and younger workers, and also be correlated with disability discrimination laws. (See Table 1.) To see whether this affects the conclusions from our difference-in-differences analysis, columns (5)-(8) of Table 5 add interactions between our older worker thresholds and the two indicators of stronger age discrimination laws that were significant in the results reported in Neumark and Song (2013) – larger

damages and a firm-size minimum of fewer than 10 employees.[20] These estimates reveal two things. First, the estimates for the effects of disability discrimination laws are very robust, still indicating positive effects on the hiring of nondisabled older workers.

Second, the estimated effects of the age discrimination provisions always point to positive effects on hiring of older nondisabled workers, with estimates that are always statistically significant using the age 55 threshold. We might view this as corroborating evidence that stronger discrimination protections that affect older workers – either directly as age discrimination protections or indirectly as disability discrimination protections – boost hiring of large groups of protected workers.

The one caveat is that, as noted above, we have less clear and less compelling evidence for older *disabled* workers. This evidence does not point strongly to lower hiring rates for them where disability discrimination protections are stronger, although we did find such evidence for younger disabled workers, so there is no basis for concluding that they are adversely affected. One reason for the difference between older and younger disabled workers could be that disabled older workers get additional protection from the age discrimination laws that also cover them. This could arise either because age discrimination laws are more effective, or because employers are more responsive to them, perhaps because they tend to cover larger groups of workers. Another could be that for younger disabled workers there is likely a longer projected period of tenure with the firm, so that accommodation costs loom larger.

VI. Conclusions

We explore the effects of disability discrimination laws on hiring of older workers. These laws are, of course, supposed to help disabled workers find employment and remain employed, but there is a long-standing concern in the discrimination literature that antidiscrimination laws can have unintended, adverse effects on hiring by raising the cost of terminations and – in the specific case of disability discrimination laws – by raising the cost of employment because of the need to accommodate disabled workers. These unintended adverse effects could arise for disabled workers of any age, and indeed, could be stronger for younger disabled workers because of longer projected tenure with an employer. The new

[20] Note that the ADEA cutoff is 20, so the cutoff of 10 draws a distinction between states with a much lower cutoff than the ADEA and states with a closer cutoff. In future drafts we will align the treatment of the firm-size cutoffs for age and disability discrimination laws, and consider the sensitivity of the results to alternative classifications.

hypothesis we also explore in this paper – which has potentially larger implications for the challenge of extending work lives – is that disability discrimination laws can even deter hiring of *older* nondisabled workers, because the probability of developing a work-related disability is fairly high for older workers.

Existing evidence on whether stronger anti-discrimination laws inadvertently reduce hiring is fairly scant and not always consistent, and is limited to age discrimination laws. We argue, however, that studying disability discrimination laws is most likely to detect this effect if it occurs, because of the higher costs that disability discrimination laws can entail because of accommodation, and the weaker defenses available to employers.

We use state variation in disability discrimination protections, which can strengthen the coverage of these laws by using a broader definition of disability than the ADA or applying to smaller firms, or can entail higher costs of discrimination via larger damages.

The evidence is somewhat nuanced and not always consistent across datasets, but does appear to support some conclusions. First, state disability discrimination laws that use the broader definition of disability appear to raise hiring of nondisabled older workers, rather than lowering them, although we find no such effect of the other two provisions of state disability discrimination laws. This evidence comes from difference-in-differences specifications that compare differences across states with stronger and weaker disability discrimination protections – estimating the effects for older nondisabled workers (who have high probabilities of becoming disabled) relative to younger nondisabled workers (for whom these probabilities are low). This is inconsistent with the conjecture that such laws deter hiring of older, nondisabled workers because employers fear they will become disabled and fall under these stronger protections.

Evidence from cross-state variation in laws and hiring rates – which could be less likely to reflect causal effects – suggests that stronger state disability protections reduce hiring of at least younger disabled workers. The positive effect of these laws on hiring of nondisabled older workers could then reflect substitution of older nondisabled workers for younger disabled workers.

Across the two kinds of evidence, we find no statistical evidence of adverse effects of disability

discrimination laws on older workers – either from weaker tests we can use to study the disabled, or the more-compelling difference-in-differences tests we can use to study the nondisabled. Moreover, the latter evidence, which we view as most compelling, points to positive effects, as does complementary evidence on stronger state protections against age discrimination. Thus, the evidence we present in this paper suggests that stronger discrimination protections that affect older workers – either directly as age discrimination protections, or indirectly as disability discrimination protections – boost hiring of large groups of protected older workers.

In our view, these results may also have more general implications for thinking about antidiscrimination laws. We have argued that there are unusual features of disability discrimination laws that make the unintended consequence of deterring hiring – in this case, for older workers – more likely. In that sense, this paper can be interpreted as a particularly informative test of the proposition that discrimination laws may end up reducing hiring of protected groups. That is, one might think that if labor economists were *ever* going to find evidence that a discrimination protection deters hiring, it would be for disability discrimination laws. By the same token the fact that we do not find such evidence could be viewed as mitigating the concern that antidiscrimination laws have the unintended consequence of deterring hiring from the groups protected by these laws.

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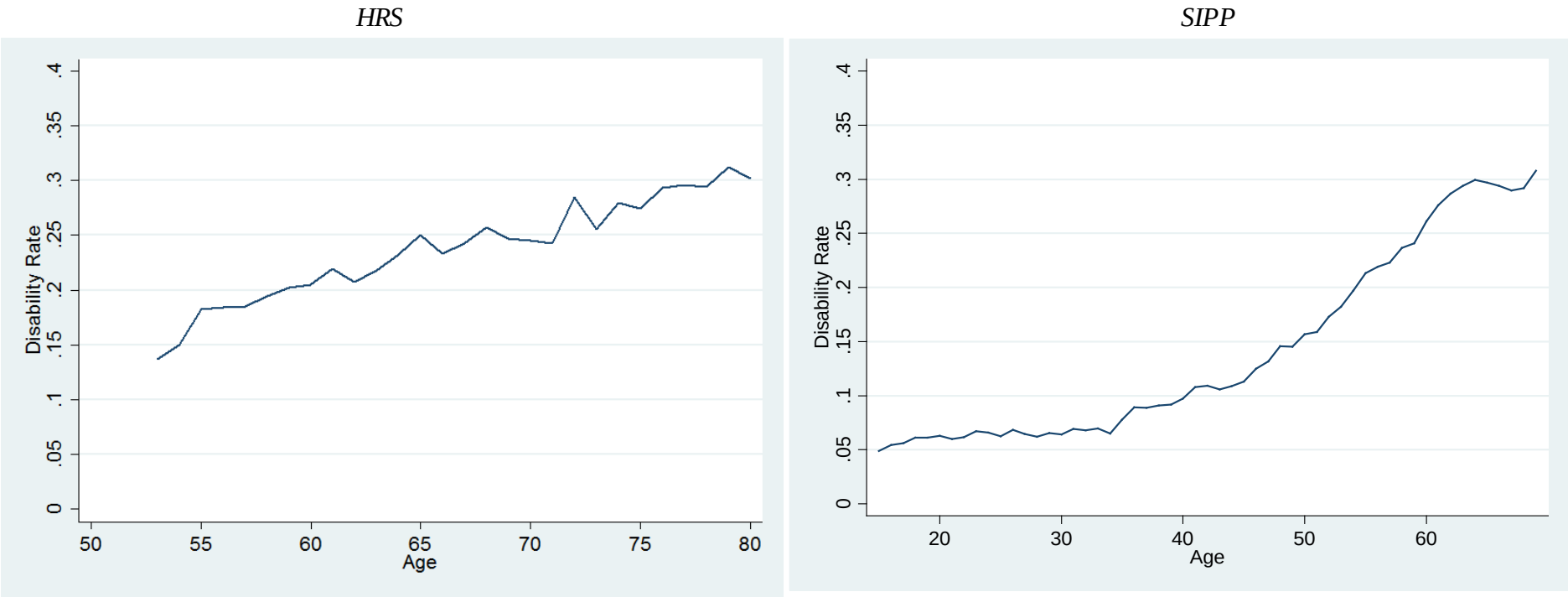
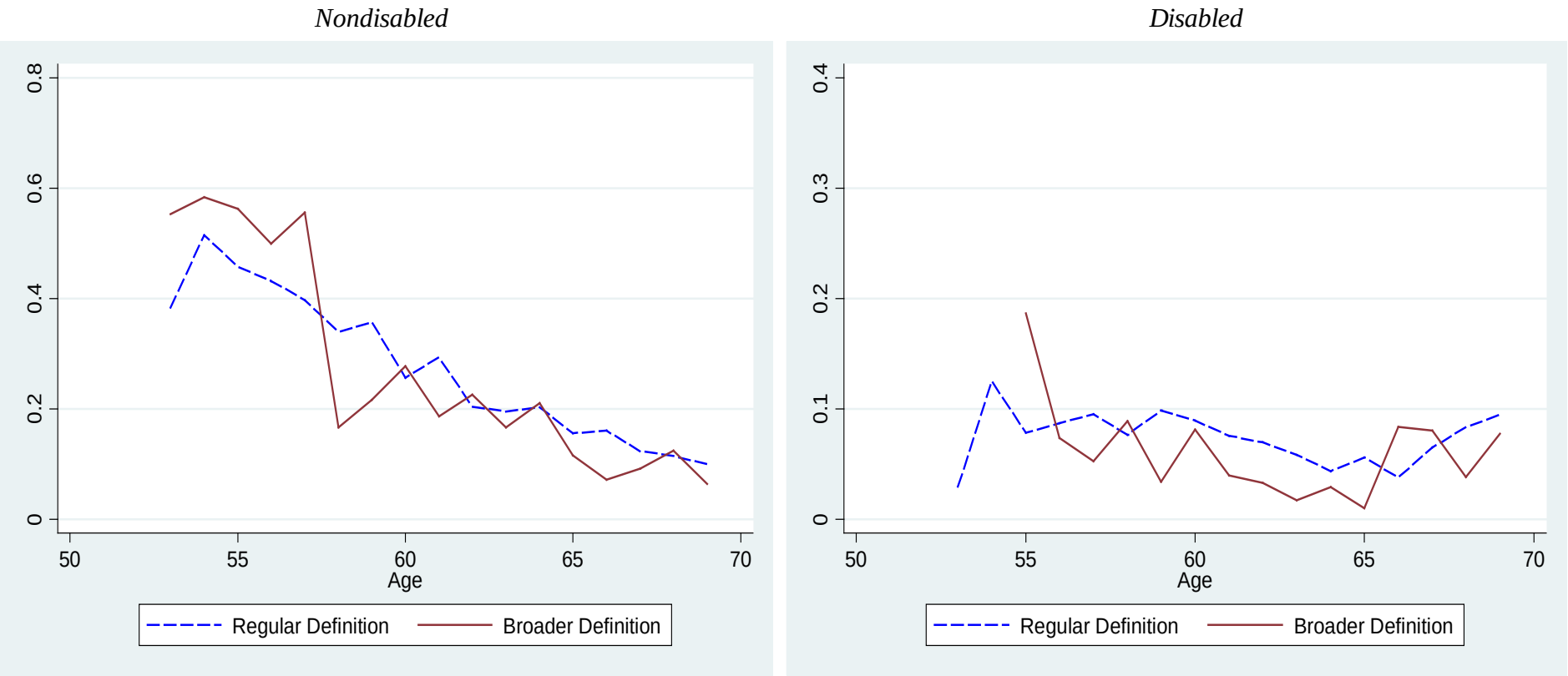
Figure 1: Disability by Age in HRS (Left) and SIPP (Right) Data



Notes: The disability rates are based on raw data, without adjustment. In the HRS, the disability definition is based on the question "Do you have any impairment or health problem that limits the kind or amount of paid work you can do?" In the SIPP, the disability definition is based on the question "[Do you] have a physical, mental, or other health condition that limits the kind or amount of work [you] can do? In the SIPP, this question is asked only for ones who are 69 years or younger.

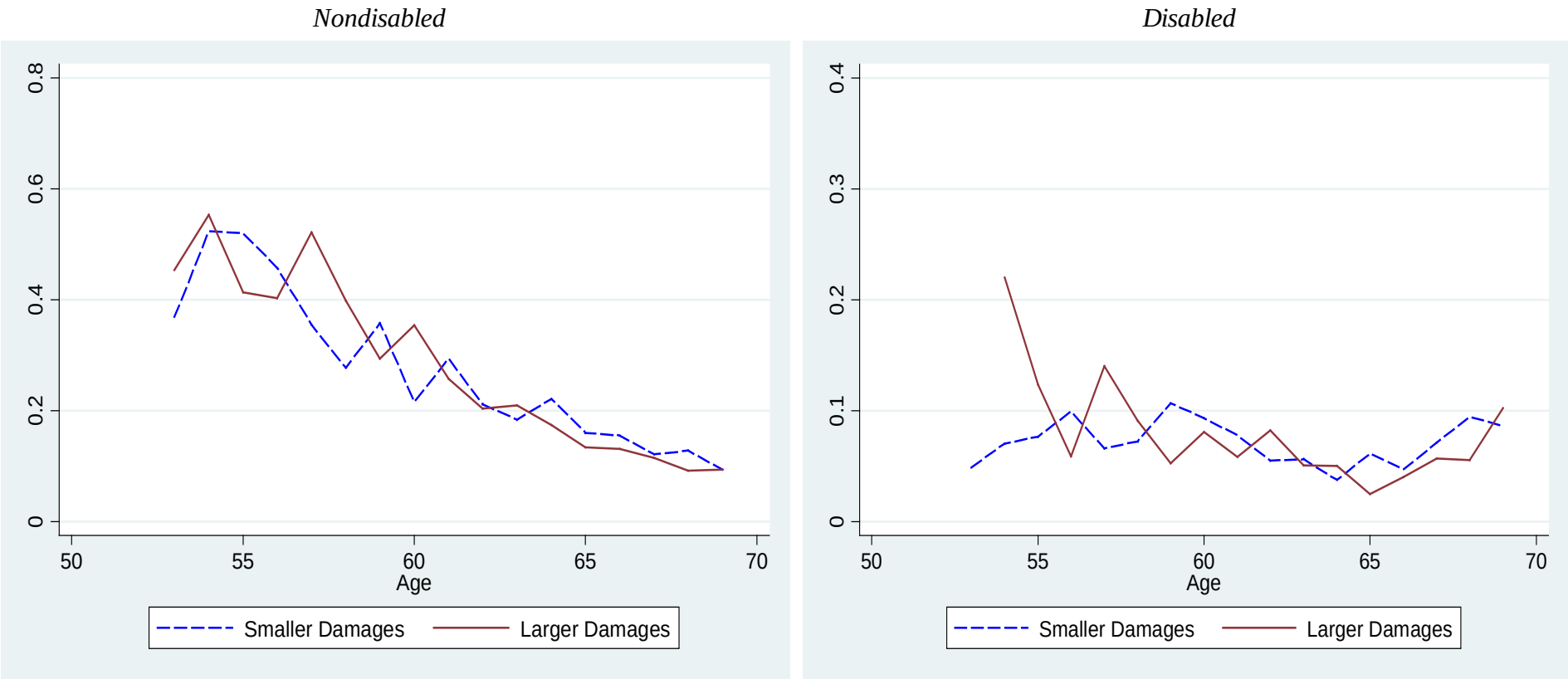
Figure 2: HRS Hiring Rates Using Inter-Wave Information, by Broader Definition of Disability under Disability Discrimination Laws, for Nondisabled (Left) and Disabled (Right)



Notes: We use 1992-2008 HRS data for this analysis. HRS restricted data with state identifiers are used. The sample period for this analysis is 1992 through 2008. We restrict the sample to males who are 52 to 69 use person-level HRS sampling weights. We use probit models to calculate the predicted hiring probability for each age group conditional on respondents being not working at t-1. The models are estimated separately for the nondisabled and the disabled. Each specification includes year fixed effects, single-year age dummy variables, and interactions between these age dummy variables and a dummy variable for the stronger disability discrimination protection indicated in the graph. The individual-level controls include urban-rural status, race, marital status, education level. Urban-rural status includes urban, suburban, or ex-urban residence; race includes white, black, and other; marital status includes married and married with spouse absent, partnered, separated/divorced/widowed, and never married; education includes less than high school, GED or high school graduate, some college, and college and above. The predicted probability of hiring at each age is evaluated at the sample means of the controls. See the text and Table 1 for discussion and classification of states by

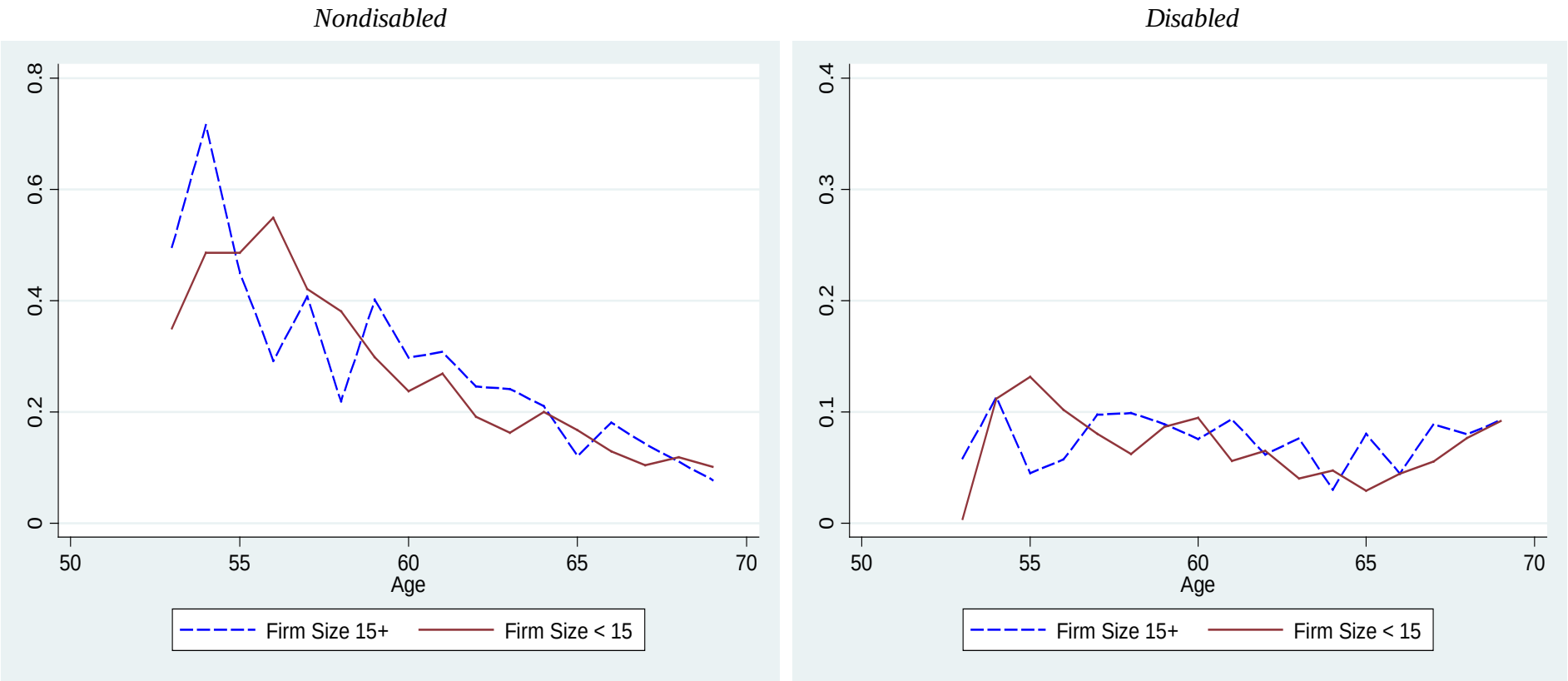
characteristics of disability discrimination laws. See the notes to Figure 1 for the definition of disability in the HRS.

Figure 3: HRS Hiring Rates Using Inter-Wave Information, by Damages under Disability Discrimination Laws, for Nondisabled (Left) and Disabled (Right)



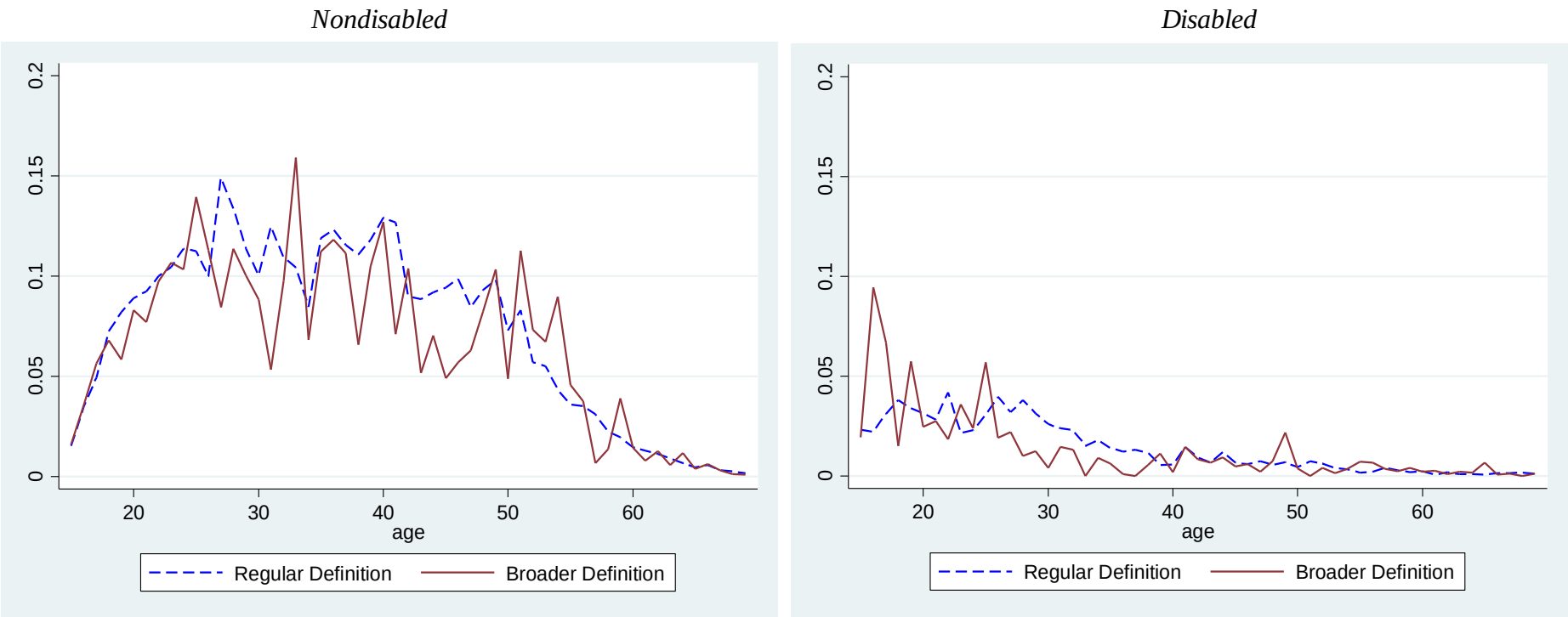
Note: See notes to Figure 2.

Figure 4: HRS Hiring Rates Using Inter-Wave Information, by Firm-Size Minimum under Disability Discrimination Laws, for Nondisabled (Left) and Disabled (Right)



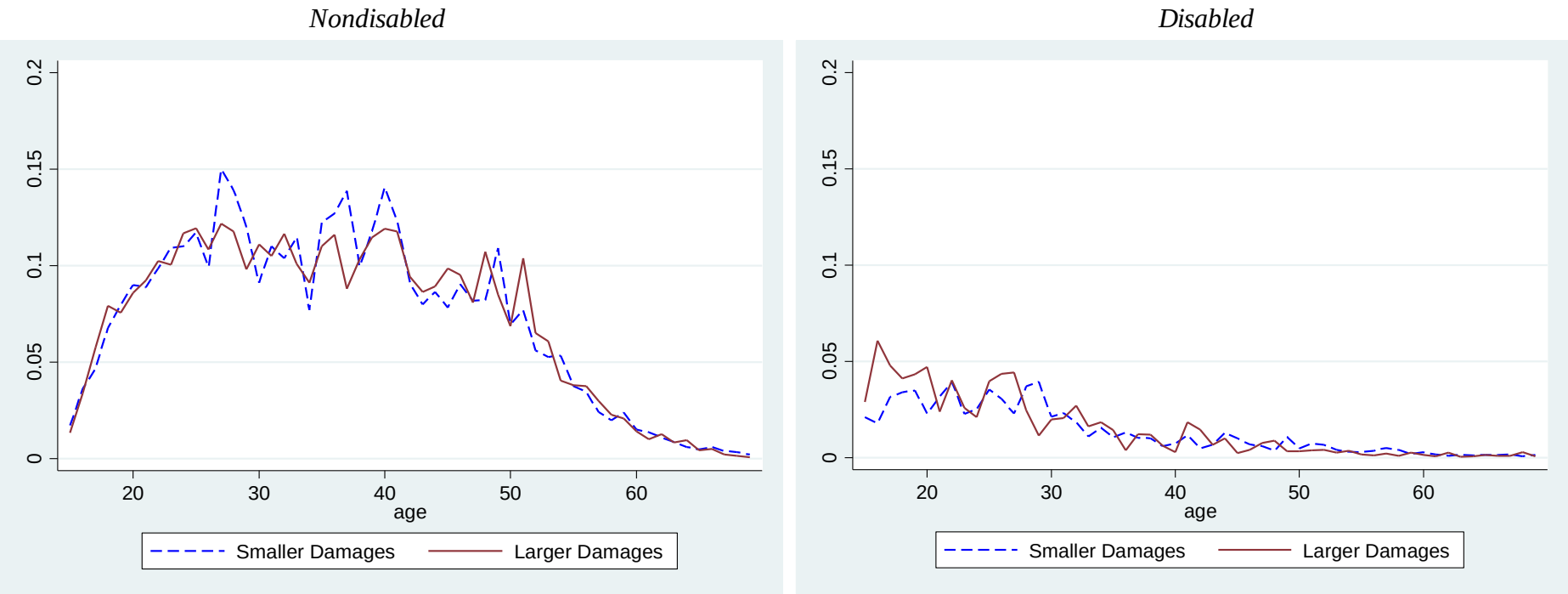
Note: See notes to Figure 2.

Figure 5: SIPP Hiring Rates, by Broader Definition of Disability under Disability Discrimination Laws, for Nondisabled (Left) and Disabled (Right)



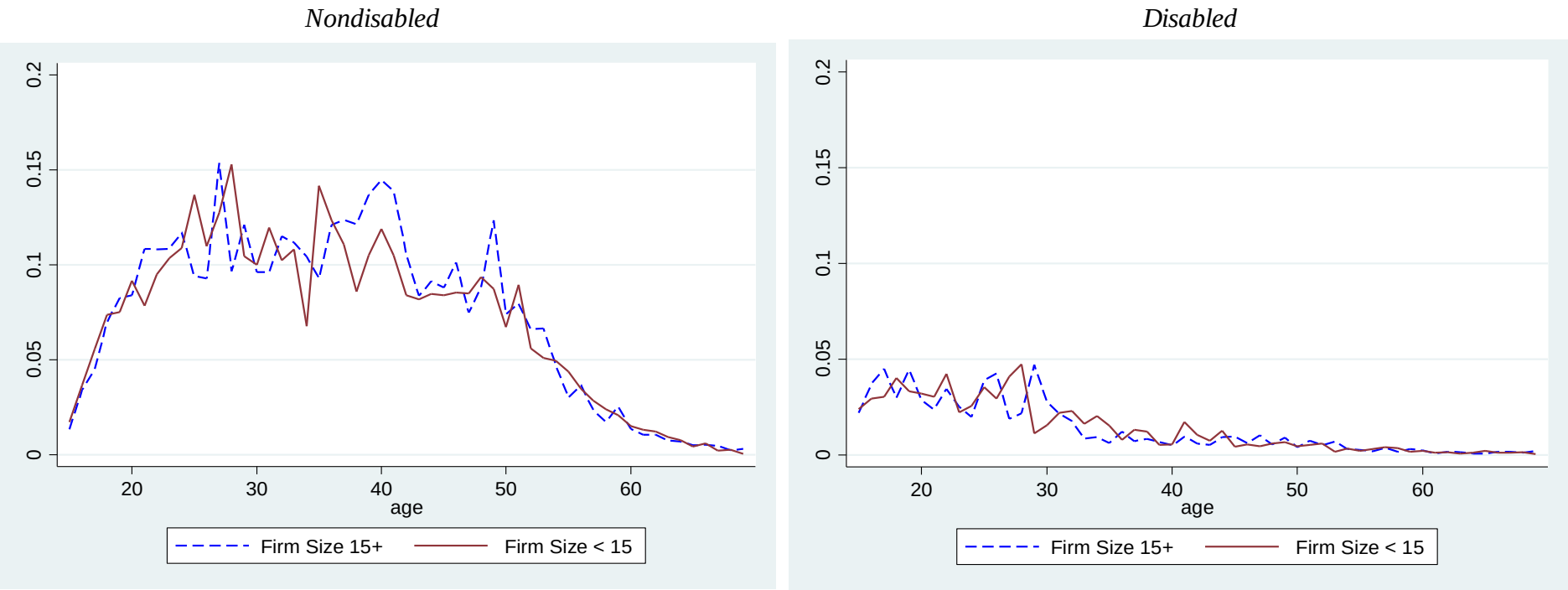
Notes: We use SIPP 2004 for this analysis, so the sample period for this analysis is October, 2003 through December, 2007. We use probit models to calculate the predicted hiring probability for each age group conditional on respondents being not working at t-1. The models are estimated separately for the nondisabled and the disabled. We restrict the sample to adult males who are 15 or older and use person-level SIPP sampling weights. Each specification includes year fixed effects, single-year age dummy variables, and interactions between these age dummy variables and a dummy variable for the stronger disability discrimination protection indicated in the graph. The individual level controls include education, marital status, SMSA status, and race. Education includes high school graduate, some college, college, and graduate school; marital status includes married, widowed, divorced; SMSA status includes metropolitan, non-metropolitan; race includes black, Asian, or other. All analyses include a dummy variable whether the hiring occurred during the last month of each wave to control for the seam bias. The predicted probability of hiring at each age is evaluated at the sample means of the controls. The disability definition is based on self-reported variable "[Do you] have a physical, mental, or other health condition that limits the kind or amount of work [you] can do?" This question is asked only for those 69 years or younger. See the text and Table 1 for discussion and classification of states by characteristics of disability discrimination laws. See the notes to Figure 1 for the definition of disability in the SIPP.

Figure 6: SIPP Hiring Rates, by Strong Damages under Disability Discrimination Laws, for Nondisabled (Left) and Disabled (Right)



Notes: See notes to Figure 5.

Figure 7: SIPP Hiring Rates, by Firm-Size Minimum under Disability Discrimination Laws, for Nondisabled (Left) and Disabled (Right)



Notes: See notes to Figure 5.

Table 1: State Disability and Age Discrimination laws, 2008

	Disability discrimination laws			Age discrimination laws	
State	Minimum firm size	Broader definition of disability	Larger damages than ADA	Minimum firm size	Larger damages than ADEA
Alabama	No law	No law	No law	20	No
Alaska	1	No	Yes	1	Yes
Arizona	15	No	Yes (uncapped)	15	No
Arkansas	9	No	No	No law	No law
California	5	No ("limits" only)	Yes (uncapped)	5	Yes
Colorado	1	No	No	1	No
Connecticut	3	Yes	Yes (uncapped)	3	No
Delaware	15	No	No	4	Yes
D.C.	1	No	Yes (uncapped)	1	Yes
Florida	15	No	No (punitive capped at $100k)	15	Yes
Georgia	15	No	No	1	No
Hawaii	1	No	Yes (uncapped)	1	Yes
Idaho	5	No	No (punitive capped at $10k)	5	Yes
Illinois	15	Yes	Yes (uncapped)	15	Yes
Indiana	15 (was 25 before July 25, 1994)	No	No	1	No
Iowa	4	No	No (no punitive)	4	Yes
Kansas	4	No	No	4	Yes
Kentucky	15	No	No (no punitive)	8	Yes
Louisiana	20	No	No (no punitive)	20	Yes
Maine	1	No	Yes	1	Yes
Maryland	15	No	No	15	Yes
Massachusetts	6	No	Yes (uncapped)	6	Yes
Michigan	1	No	No (no punitive)	1	Yes
Minnesota	1	No ("materially limits" only)	No (punitive capped at $25k)	1	Yes
Mississippi	No law	No law	No law	No law	No law
Missouri	6	No	Yes (uncapped)	6	Yes
Montana	1	No	No (no punitive)	1	Yes
Nebraska	15	No	No (no punitive)	20	No
Nevada	15	No	Yes	15	No
New Hampshire	6	No	No (no punitive)	6	Yes
New Jersey	1	Yes	Yes (uncapped)	1	Yes
New Mexico	4	No	No (no punitive)	4	Yes
New York	4	Yes	No (no punitive)	4	Yes
North Carolina	15	No	Yes	15	No
North Dakota	1	No	No	1	No
Ohio	4	No	Yes (uncapped)	4	Yes
Oklahoma	15	No	No (no punitive)	15	No
Oregon	1	No	Yes (uncapped)	1	Yes
Pennsylvania	4	No	No (no punitive)	4	No
Rhode Island	4	No	Yes (uncapped)	4	Yes
South Carolina	15	No	No	15	No
South Dakota	1	No	No (no punitive)	No law	No law
Tennessee	8	No	No (no punitive)	8	Yes
Texas	15	No	No	15	Yes
Utah	15	No	No (no punitive)	15	No
Vermont	1	No	Yes (uncapped)	1	Yes
Virginia	5	No	No	5	No
Washington	8	Yes (effective May 4, 2007)	No (no punitive)	8	Yes
West Virginia	12	No	Yes (uncapped)	12	No
Wisconsin	1	No	No	1	No
Wyoming	2	No	No	2	No

Notes: State laws are as of 2008. Age discrimination laws from Neumark and Song (2013).

Table 2: HRS Descriptive Statistics

	Age 53 - 69	
	Nondisabled (1)	Disabled (2)
Dependent variable:		
Hired	0.208	0.065
	(0.012)	(0.008)
Individual-level controls:		
High school	0.343	0.395
	(0.013)	(0.016)
Some college	0.244	0.230
	(0.013)	(0.014)
College	0.280	0.126
	(0.013)	(0.011)
Partnered (Unmarried)	0.058	0.062
	(0.008)	(0.009)
Divorced	0.171	0.260
	(0.011)	(0.015)
Single	0.056	0.059
	(0.008)	(0.009)
Black	0.076	0.159
	(0.006)	(0.011)
Other race	0.027	0.061
	(0.005)	(0.008)
Suburban	0.181	0.197
	(0.010)	(0.012)
Ex-urban	0.342	0.433
	(0.014)	(0.016)
N	1,984	1,496

Notes: Standard errors of means are reported in parentheses. Person-level sampling weights are used.

Table 3: SIPP Descriptive Statistics

	Full sample (age 15 to 69)		Age 53 to 69	
	Non-disabled	Disabled	Non-disabled	Disabled
	(1)	(2)	(1)	(2)
Dependent variable:				
Hired	0.064	0.014	0.021	0.005
	(0.0007)	(0.0004)	(0.0007)	(0.0004)
Individual-level controls:				
High school	0.222	0.312	0.267	0.292
	(0.0011)	(0.0018)	(0.0023)	(0.0024)
Some college	0.248	0.304	0.324	0.323
	(0.0012)	(0.0018)	(0.0024)	(0.0025)
College	0.081	0.057	0.167	0.073
	(0.0007)	(0.0011)	(0.0019)	(0.0015)
Advanced degree	0.043	0.029	0.126	0.045
	(0.0005)	(0.0006)	(0.0017)	(0.0011)
Married	0.288	0.433	0.762	0.596
	(0.0012)	(0.0019)	(0.0023)	(0.0026)
Widow	0.013	0.031	0.042	0.053
	(0.0003)	(0.0007)	(0.0010)	(0.0012)
Divorced	0.066	0.207	0.130	0.247
	(0.0007)	(0.0016)	(0.0019)	(0.0023)
Black	0.156	0.196	0.091	0.163
	(0.0010)	(0.0016)	(0.0014)	(0.0020)
Asian	0.042	0.047	0.026	0.038
	(0.0005)	(0.0008)	(0.0008)	(0.0009)
Other race	0.042	0.018	0.030	0.021
	(0.0005)	(0.0005)	(0.0009)	(0.0008)
Metro	0.788	0.734	0.748	0.728
	(0.0011)	(0.0017)	(0.0022)	(0.0023)
Non-metro	0.038	0.033	0.044	0.034
	(0.0005)	(0.0007)	(0.0010)	(0.0009)
On seam	0.259	0.260	0.259	0.260
	(0.0012)	(0.0017)	(0.0022)	(0.0023)
N	207,453	102,046	53,864	52,528

Notes: Standard errors of means are reported in parentheses. In the SIPP, there is a large share reported as neither metro nor non-metro ("unidentified"). Person-level sampling weights are used.

Table 4: Estimation Results and Significance Tests for Disability Discrimination Law Provisions

		Broader definition of disability				Larger damages				Firm-size minimum < 15			
		HRS		SIPP		HRS		SIPP		HRS		SIPP	
		Nondisabled	Disabled	Nondisabled	Disabled	Nondisabled	Disabled	Nondisabled	Disabled	Nondisabled	Disabled	Nondisabled	Disabled
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Age 20-29	Avg. diff.	...	...	-0.009	-0.007	...	...	-0.006	0.001	...	...	0.002	0.002
	% pos.			30%	30%			50%	60%			40%	60%
	p-value			0.000	0.000			0.644	0.008			0.000	0.017
Age 30-39	Avg. diff.	...	...	-0.013	-0.010	...	...	-0.005	0.001	...	...	-0.005	0.003
	% pos.			10%	10%			40%	70%			40%	70%
	p-value			0.000	0.000			0.287	0.010			0.001	0.482
Age 40-49	Avg. diff.	...	...	-0.022	0.0002	...	...	0.001	-0.000	...	...	-0.013	0.001
	% pos.			20%	40%			60%	50%			20%	60%
	p-value			0.000	0.000			0.651	0.002			0.210	0.278
Age 50-61	Avg. diff.	...	...	0.006	0.00003	...	...	0.003	-0.002	...	...	0.000	-0.000
	% pos.			58.3%	41.7%			58.3%	16.7%			58.3%	58.3%
	p-value			0.000	0.000			0.612	0.235			0.074	0.332
Age 62-69	Avg. diff.	-0.023	-0.016	0.0001	0.0005	-0.015	-0.006	-0.000	0.000	-0.020	-0.013	-0.000	-0.000
	% pos.	37.5%	25%	50%	50%	25%	37.5%	25%	37.5%	41.2%	50%	62.5%	37.5%
	p-value	0.694	0.396	0.005	0.000	0.907	0.747	0.404	0.040	0.335	0.504	0.039	0.121
Age 40-52	Avg. diff.	…	…	-0.015	-0.001	...	...	0.004	-0.001	...	...	-0.011	0.000
	% pos.			30.8%	30.8%			61.5%	38.5%			23.1%	61.5%
	p-value			0.000	0.000			0.557	0.001			0.305	0.231
Age 53-61	Avg. diff.	0.019	-0.003	0.006	0.001	0.031	0.024	-0.000	-0.001	-0.012	0.000	0.001	-0.000
	% pos.	66.7%	28.6%	55.6%	55.6%	55.6%	50%	55.6%	22.2%	44.4%	33.3%	66.7%	55.6%
	p-value	0.539	0.509	0.000	0.000	0.472	0.288	0.806	0.342	0.240	0.318	0.186	0.222
Age 53-69	Avg. diff.	-0.001	-0.011	0.003	0.001	0.009	0.009	-0.000	-0.001	-0.016	-0.006	0.001	-0.000
	% pos.	52.9%	26.7%	52.9%	52.9%	41.2%	43.8%	41.2%	29.4%	41.2%	41.2%	64.7%	47.1%
	p-value	0.704	0.469	0.000	0.000	0.799	0.533	0.631	0.006	0.245	0.428	0.007	0.000

Notes: The estimates and tests in this table are based on the model estimates used to construct Figure 2-7. See notes to Figures 2 and 5 for details. For each age range, in each entry the table reports: (1) the average across the covered ages of the estimated differences in hiring rates between states with stronger and weaker disability discrimination laws; (2) the share of ages in the range for which the estimated hiring rate is higher with the stronger law; and (3) p-values for a joint (Wald) test of no difference for each age in the range between states with and without the stronger law.

Table 5: Difference-in-Differences Estimates of Effects of Stronger Disability Discrimination Laws on Hiring of Nondisabled Older Workers, SIPP Data

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Age ≥ 50 × broader definition of disability	0.029***	…	…	0.029***	0.027***	…	…	0.028***
	(0.006)			(0.006)	(0.007)			(0.007)
Age ≥ 50 × larger damages	…	0.001	…	-0.004	…	-0.002	…	-0.004
		(0.010)		(0.008)		(0.009)		(0.008)
Age ≥ 50 × firm size < 15	…	…	0.011	0.010	…	…	-0.008	-0.008
			(0.009)	(0.009)			(0.018)	(0.018)
Age ≥ 50 × age disc. larger damages	…	…	…	…	0.005	0.010	0.011	0.007
					(0.009)	(0.009)	(0.009)	(0.009)
Age ≥ 50 × age disc. firm size < 10	…	…	…	…	0.013*	0.014	0.020	0.020
					(0.007)	(0.010)	(0.018)	(0.018)
Age ≥ 55 × broader definition of disability	0.021***	…	…	0.020***	0.017***	…	…	0.018***
	(0.006)			(0.005)	(0.005)			(0.005)
Age ≥ 55 × larger damages	…	-0.002	…	-0.007	…	-0.006	…	-0.007
		(0.008)		(0.007)		(0.007)		(0.006)
Age ≥ 55 × firm size < 15	…	…	0.010	0.010	…	…	-0.010	-0.009
			(0.007)	(0.007)			(0.010)	(0.011)
Age ≥ 55 × age disc. larger damages	…	…	…	…	0.011*	0.015**	0.016**	0.014*
					(0.007)	(0.007)	(0.007)	(0.007)
Age ≥ 55 × age disc. firm size < 10	…	…	…	…	0.012**	0.013*	0.021**	0.021*
					(0.006)	(0.007)	(0.011)	(0.011)
Age ≥ 60 × broader definition of disability	0.017***	…	…	0.018**	0.016**	…	…	0.017**
	(0.005)			(0.007)	(0.007)			(0.007)
Age ≥ 60 × larger damages	…	-0.003	…	-0.006	…	-0.005	…	-0.006
		(0.007)		(0.007)		(0.007)		(0.007)
Age ≥ 60 × firm size < 15	…	…	0.005	0.005	…	…	-0.006	-0.005
			(0.006)	(0.007)			(0.007)	(0.008)
Age ≥ 60 × age disc. larger damages	…	…	…	…	0.004	0.008	0.008	0.006
					(0.006)	(0.006)	(0.006)	(0.006)
Age ≥ 60 × age disc. firm size < 10	…	…	…	…	0.006	0.007	0.011	0.011
					(0.005)	(0.007)	(0.007)	(0.007)
N	80,405	80,405	80,405	80,405	80,405	80,405	80,405	80,405

Notes: The linear probability model is used for estimation conditional on respondents begin not working at t-1. Standard errors reported in parentheses are clustered at the state level. ***, **, and * indicate that the estimates are statistically significant at the one-, five-, or ten-percent level. Each panel reports estimates of separate specification using the different specified age groups. The models are estimated separately for the nondisabled and the disabled. We use the 2004 SIPP panel for this analysis, so the sample period is October, 2003 through December, 2007. We restrict the sample to adult males who are 31 or older and use person-level SIPP sampling weights. Each specification includes state and year fixed effects, single-year age dummy variables, and the same individual-level controls described in the notes to Figure 5. All analyses include a dummy variable whether the hiring occurred during the last month of each wave to control for the seam bias. The main effects of the disability discrimination law dummy variables (and age discrimination law dummy variables in columns (5)-(8)) are subsumed in the state fixed effects, as there are no changes in the sample period. The disability definition is based on self-reported variable "[Do you] have a physical, mental, or other health condition that limits the kind or amount of work [you] can do?" This question is asked only for those 69 years or younger. See the text and Table 1 for discussion and classification of states by characteristics of disability (and age) discrimination laws.