Employment of People with Disabilities Following the ADA

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Studies finding a negative effect of the Americans with Disabilities Act (ADA) on the employment of people with disabilities have used the work disability measure, which has several potential problems in measuring employment trends. Using Survey of Income and Program Participation (SIPP) data that permit alternative measures of disability, this study finds decreased employment among those reporting work disabilities in the first few years after the ADA was passed but increased employment when using a more probably appropriate measure of ADA coverage (functional and activity limitations that do not prevent work). State-by-state variation in labor market tightness is used to find that people with disabilities may have especially procyclical employment, but the contrary results in overall employment trends remain after accounting for labor market tightness. Given the problems in measuring who is covered by the ADA, there is reason to be cautious of both positive and negative findings.

A major purpose of the 1990 Americans with Disabilities Act (ADA) was to increase the social and economic integration of people with disabilities into mainstream society by providing civil rights protections designed to eliminate discrimination based on disability. Title I of the ADA focuses on employment, requiring not only that qualified people with disabilities receive the same access to jobs as people without disabilities but also that employers make "reasonable accommodations" to increase workplace accessibility for job applicants and employees with disabilities.

Has the ADA affected the employment of people with disabilities? Answering this question is not a straightforward matter. One basic issue is determining who is covered by the ADA: Unlike Title VII, which protects

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Industrial Relations, Vol. 42, No. 1, (January 2003). Published by Blackwell Publishing, Inc., 350 Main Street, Malden, MA 02148, USA, and 108 Cowley Road, Oxford, OX4 1JF, UK.

all people from discrimination on the basis of race, sex, religion, and national origin, the ADA's protections are limited to those who can establish that they have a "physical or mental impairment that substantially limits one or more . . . major life activities" or have a record of such an impairment or are regarded as having such an impairment. Over the past decade, courts have wrestled with the issue of who is entitled to ADA coverage, generally interpreting the act's definition in ways that restrict the number of people who are covered (Burgdorf 1997; Mayerson 1997; Lee 2003).

Given that the ADA's definition of disability is evolving in the courts, it is not surprising that no representative dataset has a disability measure that tracks the employment of people covered by the ADA.[1] The longest-running series uses the "work disability" measure based on a reported "health condition limiting the kind or amount of work" one can do. According to this measure, there is an apparent decrease in employment of people with disabilities following the ADA (Acemoglu and Angrist 2001; Deleire 2000). This measure, however, applies only to perceived limitations in working, whereas many ADA plaintiffs claim limitations in other major life activities. If the ADA does lessen discriminatory behavior, it is the latter group that should be most helped, since their health conditions do not limit their ability to work. In addition, the work disability measure has been subject to criticisms related to changes in how it is answered over time (Kirchner 1996; Schwochau and Blanck 2000).

Two other important issues in assessing the post-ADA employment of people with disabilities are disability income and business cycles. Those who are placed on Social Security Disability Income (SSDI) or Supplemental Security Income (SSI) face strong disincentives for returning to work. The number of SSDI beneficiaries has increased substantially in the 1990s, so any assessment of employment trends needs to take account of the potential role of SSDI (Rupp and Stapleton 1998; Bound and Waidmann 2000). Given the work disincentives in the disability income programs, any positive or negative effects of the ADA are most likely to be seen among those who do not receive disability income (although the effects of the ADA may be entangled with disability income if the ADA changes employment opportunities in a way that expands or contracts the disability income rolls). With regard to business cycles, people with disabilities may, like other groups that historically have been disadvantaged in the labor market, have especially procyclical employment. Workers with disabilities may be more likely than

[1] The Bureau of Labor Statistics (BLS) is currently developing a disability measure for the monthly Current Population Survey pursuant to Presidential Executive Order 13078 in 1998.

other workers to lose their jobs and be unable to find new jobs during a recession and be especially helped by a boom in which employers are searching hard to find workers. If this occurs, it needs to be taken into account in analyzing post-ADA trends, given that passage of the ADA in 1990 was followed closely by the 1991–1992 recession, which was then followed by a strong period of job growth and low unemployment rates.

This article reviews existing evidence and presents new evidence on employment trends of people with disabilities since the ADA was passed using Survey of Income and Program Participation (SIPP) data that allow comparisons among alternative measures of who is covered by the ADA. The next section discusses prior research and issues in studying disability and employment, and the third section describes the dataset used in this article. The fourth section summarizes trends in alternative disability measures over the first few years after the ADA's passage, with particular attention to changes in the work disability measure and its relation to other measures. The fifth section compares employment trends among people with disabilities using 14 disability measures, and the sixth section analyzes the role of labor market tightness using state-by-state variation in unemployment rates over time. The summary and conclusions follow.

Prior Research and Issues in Studying Disability and Employment

People with disabilities clearly have low employment rates, no matter what measure of disability is used [e.g., the work disability measure in Acemoglu and Angrist (2001), Burkhauser, Daly, and Houtenville (2001), and DeLeire (2000) or measures of specific impairments and broader activity limitations in Trupin et al. (1997), Hale, Hayghe, and McNeil (1998), and McNeil (2000)]. Negative effects of disability on employment have been found not just in cross-sectional estimates but also in longitudinal estimates before and after disability onset (e.g., Burkhauser and Daly 1996; Krueger and Kruse 1995). Low employment rates are due in part to high reservation wages associated with many disabilities, particularly resulting from disability income and extra demands on time and energy. The low employment rates are also partly due to low market wages that may reflect both reduced productivity and employer discrimination, the latter providing the motivation for the legal protections built into Title I of the ADA.

The ADA's protections are similar to those in Title VII of the Civil Rights Act, prohibiting discrimination in hiring, firing, and other employment decisions. Since inaccessible workplaces and schedules can pose special difficulties for many people with disabilities, the ADA also requires employers

to make reasonable accommodations to the workplace so that a qualified person with a disability can perform the job. Almost all (94.5 percent) employers in a 1998 survey reported having made some type of accommodation for employees with disabilities.[2] While the ADA's prohibition of employer discrimination might be expected to increase employment of people with disabilities (as Title VII appears to have done for blacks; Donohue and Heckman 1991), it has been argued that the law could decrease employers' willingness to hire people with disabilities due to raised average hiring costs (from the expense associated with some employer accommodations) and firing costs (since terminated employees may file lawsuits) (Acemoglu and Angrist 2001).[3]

Study of the ADA's impact is hampered by several difficulties, the first of which is determining who is covered. As noted earlier, the ADA only protects those who have a "physical or mental impairment that substantially limits one or more . . . major life activities" or have a record of or are regarded as having such an impairment. By requiring that the impairment limit a major life activity, the definition rejects the old "medical" view of disability as a medical abnormality located within the individual and reflects more of a "sociopolitical" view that disability is an interaction between an individual and the environment in which major life activities take place (Hahn 1985, 1987). The heterogeneity of personal impairments, abilities, and environments in which major life activities are performed and the question of whether limitations are "substantial" or not leave room for considerable ambiguity over who has a disability for purposes of the ADA (for employers, employees, and job applicants as well as for researchers). Complicating an assessment of trends is the fact that disability, to a greater extent than other demographic characteristics, is a fairly fluid category: Not only can physical and mental abilities change (e.g., from degenerative conditions, injuries causing new impairments, or medical cures or recoveries), but environments and life circumstances can change in ways that affect

[2] Based on tabulations by William Erickson, Cornell University. The basic results are presented in SHRM/Cornell (1999) and Bruyere (2000). The most common employee accommodation, done by 82 percent of firms, was "made existing facilities accessible to employees with disabilities." In addition, 95 percent of firms have made changes to their recruitment and preemployment screening processes, the most common ones being "change questions asked in interview" (80 percent) and "made interview locations accessible to people with disabilities" (79 percent) (SHRM/Cornell 1999).

[3] A countervailing effect may come from increased hiring of people with disabilities as a way of avoiding potential lawsuits from rejected applicants. However, firing costs and accommodation costs are likely to outweigh this, so Acemoglu and Angrist predict a net negative effect on employment of people with disabilities. The average and distribution of accommodation costs is not known: Studies of accommodations find that most do not have a dollar value attached either because they cost nothing or have a value that is not easily assigned (such as for changes in recruitment procedures) (Blanck 1998).

whether an impairment is viewed as substantially limiting a major life activity. The rapid growth of productivity-enhancing computer technologies, for example, could lead some wheelchair users today to say that they do not have a health condition that limits their major life activity of working, whereas in 1970 they would have said that they had a work disability due to a lack of good employment opportunities.

The most common measure used in studying the economic effects of disability is the work disability measure, based on a self-report of whether one has a health condition that prevents work or limits the kind or amount of work one can do. Such a measure has been used in the National Health Interview Survey (NHIS) since 1957 and in the Current Population Survey (CPS) March supplements since 1981. On average, about 8 percent of the working-age population reports a work disability each year (Burkhauser, Daly, and Houtenville 2001). Using this measure from the Survey of Income and Program Participation (SIPP), DeLeire (2000) finds a decrease in employment of people reporting work disabilities in 1990, which he attributes to the ADA because it was passed and signed in July 1990. Using this measure from the CPS, Acemoglu and Angrist (2001) find that the average weeks worked by people reporting work disabilities dropped between 1992 and 1993, which they attribute to the ADA because it took effect in July 1992 (but unlike DeLeire, they find no decline in 1990 when the ADA was passed). In contrast to these results, Beagle and Stock (forthcoming) analyze the 1970, 1980, 1990 Censuses and find that the adoption of state-level disability discrimination laws were not associated with changes in the employment levels of people reporting work disabilities. The most recent evidence from the CPS shows that the employment rate of those reporting a work disability declined in the 1990s (Burkhauser, Houtenville, and Wittenberg forthcoming).

Three potential difficulties with using the work disability measure to study employment trends relative to the ADA have been identified by Kirchner (1996) and Schwochau and Blanck (2000), each of which concerns changes in the composition of the work disability population. First, they note that the measure itself may be affected by the success of the ADA in making workplaces more accessible: "For if people with disabilities have better access to work and more of them actually hold jobs, especially *good* jobs, they would no longer answer that they are limited in or unable to work 'due to their condition/disability' " (Kirchner 1996:83). If this occurs, the people who identify themselves as having a work disability may become increasingly concentrated among those with more severe disabilities and employment problems, creating the appearance of lower employment among this population even if the ADA has been generally successful in

increasing the employment of people with disabilities (through making workplaces more accessible).

A second potential problem noted by these authors is that a substantial portion of those reporting a work disability may not be covered by the ADA. Many who report work disabilities may have severe disabilities that make them unable to work at all, even with accommodations. This removes them from coverage by Title I of the ADA because it only protects those who are qualified for jobs. Similarly, the work disability population may include those with impairments that do not *substantially* limit a major life activity, who are also not covered by the ADA. Changes in the number who fall into these groups can affect employment rates among the work disability population without reflecting effects of the ADA. Just as the work disability measure may be overinclusive, it also may be underinclusive of others who are protected by the ADA due to impairments that substantially limit major life activities other than work.[4]

A third potential limitation of the work disability measure concerns the willingness to self-report a disability, particularly given the historical stigma attached to disability (e.g., U.S. Commission on Civil Rights 1983; Blanck and Millender 2000). This stigma, or the simple desire not to be considered to be in poor health, may cause an undercount of work disability in surveys. Comparisons over time may be affected as the undercount changes over time: Passage of the ADA may have led more to be willing to identify themselves as having a disability either because it became more socially acceptable to have a disability in general or because the general emphasis on employment of people with disabilities led people with serious impairments to be more likely to say that are limited in the kind or amount of work they can do (whereas prior to the ADA they may not have considered employment as an option).

There is a fourth potential limitation of the work disability measure concerning how subjective reports of work disability are related to employment (Currie and Madrian 1999). Among people with the same medical conditions, functional limitations, and other characteristics, those who are not employed may be more likely to say that they have a work disability as a way of justifying their lack of employment (referred to as the "justification hypothesis" because people justify their lack of employment by citing a disability) (Baker, Stabile, and Deri 2001). As people obtain employment, they may be less likely to cite a work disability even if their abilities stay

[4] This is supported by the fact that many plaintiffs sue employers claiming nonwork disabilities, in part because establishing a work disability in a lawsuit is very difficult (although it is possible that they would still report having a work disability on a survey).

constant; conversely, a tight labor market may lead job losers to be more likely to say that they have a work disability to justify their lack of employment. This could lead to a worsening in the measured employment rate of people reporting work disabilities even as labor markets tighten and more people with disabilities (measured broadly) are obtaining jobs. Confounding effects between employment status and reports of disability are particularly likely for subjective measures such as the work disability question, although Baker, Stabile, and Deri (2001) found that even objective health problems are more likely to be overreported by nonemployed than by employed individuals.

Changes in the composition of the work disability population are clearly possible given the increase in the proportion of working-age people reporting a work disability over the period the ADA was enacted (from 7.2 percent in 1988–1989 to 8.3 percent in the 1994–1997 period in the CPS and from 10.1 percent in 1989 to 11.3 percent in 1993 in the SIPP) (Burkhauser, Daly, and Houtenville 2001; DeLeire 2000).[5] DeLeire (1997) discounts compositional changes by noting that there was little change in the distribution of impairments among those reporting a work disability, whereas one might expect increased reporting of less visible impairments after the ADA.[6] Acemoglu and Angrist (2001) examine whether such compositional changes can account for the 1992–1993 decline in the disability employment rate (over the time the ADA became effective) by using a constant matched sample that reports a work disability for 2 years. They show that average weeks worked fell between 1992 and 1993 for those reporting a work disability in both March 1993 and March 1994. While this employment decline may be taken to reflect the effects of the ADA, it also reflects the onset of disability during 1992 for a portion of the sample, for whom average weeks worked would decline (as a result of the disability, not the ADA) from 1992 to 1993. The latter interpretation is supported by the finding that the average weeks worked in the previous year falls for every matched sample over the 1981–1999 period, with magnitudes similar to the 1992–1993 drop.[7] Therefore, it remains very possible that composition changes play a role in the measured employment changes of people reporting work disabilities over the time the ADA was passed and implemented.

[5] This change may reflect the adoption of computer-aided interviewing between 1993 and 1994 rather than reflecting changes in the work disability population, as described by Acemoglu and Angrist (1998) and Burkhauser, Daly, and Houtenville (2000).

[6] There was, however, a relative decrease in the most easily detected impairments (missing limbs, paralysis, blindness, and deafness), suggesting a compositional change.

[7] Based on computations by the authors and Andrew Houtenville, Cornell University.

Two other issues in assessing employment of people with disabilities are disability income and business cycles. Public disability income clearly plays an important role in labor market outcomes of workers with disabilities (e.g., Mashaw et al. 1996; Rupp and Stapleton 1998; Bound and Burkhauser 1999). People who are classified as permanently unable to work due to a disability can be eligible for SSDI or SSI, which entitles them to cash benefits and health insurance coverage by Medicare or Medicaid. Very few participants in these programs return to work, in part because of the disincentives from the loss of disability income and health insurance.[8] DeLeire (2000) notes that disability income is unlikely to account for his estimated 1990–1991 drop in employment given that disability income recipiency did not change substantially over this period and that employment drops occurred among groups that are less likely to participate in SSI and SSDI (young and high-skilled workers). Acemoglu and Angrist (2001) address the role of public disability income in several ways, concluding that it cannot account for the 1992–1993 employment drop among workers aged 21 to 39 years, although it may help account for the drop among men aged 40 to 58 years. In contrast, Bound and Waidmann (2000:1) present evidence that "suggests that the expansion of [disability income]. . . during the 1990s played a central role in accounting for the decline in the employment of the disabled during this decade."[9]

Finally, business cycles may have particularly strong effects on workers with disabilities. They may be the first to be laid off in a recession and the last to be hired when conditions improve, so their employment is especially procyclical. If this is true, the 1991–1992 recession could help account for the relative employment drop of people with disabilities following passage of the ADA. DeLeire (1997) discounts this possibility with estimates from the Panel Survey of Income Dynamics indicating similar employment changes between workers with and without disabilities over the 1980–1981 recession.[10] While the 1991–1992 recession may have led to a disproportionate drop in the

[8] Some of these disincentives were reduced by the 1999 Ticket to Work and Work Incentives Improvement Act.

[9] In addition, Autor and Duggan (2001) find that the expansion of public disability income in the 1990s lowered the overall unemployment rate by two-thirds of a percentage point because low-skilled people were more likely to gain disability income and take themselves out of the labor market.

[10] These results may have been affected by changes in disability income policy in the early 1980s because medical eligibility criteria were greatly tightened and there was greater use of continuing disability reviews that removed people from coverage. This could have led many people with disabilities to obtain employment, in contrast to the early 1990s, when there was no such tightening of criteria (Rupp and Stapleton 1998). In addition, many states tightened eligibility for workers' compensation in the early 1990s, which may have led many workers who were injured on the job to apply for SSDI income, claiming an inability to work in order to qualify (Spieler and Burton 1998).

employment of people reporting work disabilities, their relative employment has not improved in the strong labor markets since then, so other factors are likely at work (such as the ADA or the expansion of disability income).

In sum, three major issues in studying employment trends of people with disabilities are

1. Changes in the composition of those reporting a disability, particularly as they relate to who is covered by the ADA
2. The role of disability income
3. The relative effects of business cycles on workers with and without disabilities

These issues are addressed in the new evidence presented here, to which we now turn.

Data and Method

The data come from the SIPP, which is a representative survey of American households. Households are reinterviewed every 4 months for 2 to 3 years, with attempts to follow and interview those who move out of a household. The work disability question is asked for all household members aged 15 years and older in the initial interview and then reasked in special work disability topical modules (used by DeLeire 2000) and in broader disability modules that ask a variety of questions about functional and activity limitations. This study uses the broader disability modules because they allow comparisons between work disability and other measures of disability. As will be discussed, these other measures may provide better measures of ADA coverage and may be less subject to compositional changes. The broader disability modules were conducted in October to December of 1990, 1991, 1993, and 1994. It would be useful to examine additional years since the ADA was passed in order to assess whether the ADA is having stronger or weaker effects over time, perhaps affected by changing costs and enforcement over time. The disability module also was conducted in 1997 and 1999, but the placement of the work disability question was changed, which led to a lower prevalence and greatly weakens comparisons with the 1990–1994 data. This study focuses on the consistent 1990–1994 data that span the implementation of the ADA (the period in which Acemoglu and Angrist find relative declines in employment) and cites some results from the 1997 and 1999 data as further evidence of the importance of valid and reliable disability measures in examining employment trends.

Two potential problems in panel data are those of attrition and time-in-sample bias, which could affect estimates both of prevalence and of employment trends. The disability modules used here were conducted in waves 3, 6, and 9 of the 1990–1993 panels, ranging between 8 and 32 months after the initial interview.[11] One problem concerns the measurement of work disability following the first interview: While those with previous negative responses had the standard work disability question asked anew in each reinterview, those with a previous positive response had the question, "We have recorded that . . . [name's] health or condition limits the kind or amount of work . . . [name] can do. Is that correct?" While respondents had an opportunity to say that they were no longer limited in their work, the question wording may have led people to respond "yes" to a greater extent than if they were asked the question anew. Probably, at least in part for this reason, there is an upward trend in measured work disability prevalence over the course of a panel. Apart from this problem, the results could be affected by differential attrition of respondents or by altered responses based on having heard and answered the questions previously. This analysis accounts for any first-order effects of these problems by including as control variables the number of times the household has been interviewed (the SIPP wave number) alone and interacted with the disability measures.[12] In addition, special attention is paid to the 1991–1993 comparisons for which any such effects should wash out, since they are based on identical waves of independent samples (and are of particular interest since they span the implementation of the ADA).

These data are used to explore trends over the 1990–1994 period in alternative disability measures, employment of those under the different measures, and the role of labor market tightness. Employment data are drawn from the full-panel datasets that record number of weeks worked as an employee in each month across the panel.[13] The principal employment measure used here is the proportion of weeks worked as an employee in the 3-month period surrounding the interview month.[14] Following Acemoglu

[11] This analysis uses the disability modules in waves 3 and 6 of the 1990 panel, wave 3 of the 1991 panel, waves 6 and 9 of the 1992 panel, and waves 3 and 6 of the 1993 panel.

[12] A number of other techniques also were tested to account for differences in measures and results across waves, but the basic results were not substantially affected.

[13] The measure used here excludes weeks worked only in self-employment in order to focus on ADA-covered employment.

[14] Alternative measures tested were the proportion of weeks worked in a 4-month period and a 6-month period with similar results. The measure is a proportion, rather than absolute number of weeks worked, since some months are recorded with 5 weeks and others are recorded with 4 weeks (and the 3-month measure produced 12 available weeks for some respondents and 13 for others).

and Angrist (2001) and DeLeire (2000), relative employment trends are assessed with a difference-in-differences approach by regressing the employment measure on year and demographic dummy variables, the disability measure, and the disability measure interacted with year dummy variables. For a measure of labor market tightness, the state-level unemployment rate from the Bureau of Labor Statistics (BLS) was matched to respondent records.[15] Two types of analyses are done to explore labor market tightness: one using the full sample that regresses the employment rate on the state unemployment rate and its interaction with a disability measure and a second that uses individual-level panel data to explore monthly changes in employment among those reporting the same disability status at the beginning and end of a 13-month period (helping control for composition changes). All analyses are restricted to those who were aged 21 to 58 years at the interview date and are weighted to reflect population parameters.[16]

To explore how employment trends may differ among alternative disability definitions, 14 disability measures are constructed representing permutations along three dimensions: activity limitations, receipt of disability income, and reported ability to work. Concerning the first dimension, the work disability measure is supplemented by two measures based on other types of limitations in order to more fully capture those who may be covered by the ADA's broad definition. SIPP respondents were asked to report on any difficulty with a variety of functional activities (seeing, hearing, speaking, lifting, climbing stairs, and walking) and activities of daily living (ADLs, which include activities such as dressing, preparing meals, and eating). For those reported to have difficulty with any activity, the survey asked whether they were able to do that activity at all (for the functional activities) or needed help in doing the activity (for the ADLs). Those who responded "yes" to these additional questions are most likely to fit the ADA definition of being *substantially* limited in a major life activity (or of being so regarded) and are here referred to as having *severe functional/ADL limitations.* The relationships between these two measures—having any or just severe functional/ADL limitations—and the work disability measure are examined in order to explore possible compositional changes in the population reporting a work disability.

The second dimension in creating disability measures concerns coverage by disability income, which provides several disincentives for employment.

[15] The SIPP collapses nine of the smaller states into three categories to protect confidentiality; for these states, the average unemployment rate was calculated and weighted by each state's total labor force.

[16] Analyses were weighted by the topical module population weights, which reflect survey sampling probabilities, using Stata's "pweight" option. Unweighted estimates produced similar results.

Following Acemoglu and Angrist (2001), those who receive disability income are excluded, creating three measures reflecting those who meet the criteria for the preceding three disability measures but do not receive disability income.[17]

The third dimension used in creating disability measures is whether people report being able to work. Title I of the ADA protects only those people with disabilities who are qualified for employment positions, so those who are truly unable to work are not covered. A self-assessment of whether one is able to work obviously may be misinformed, since people who say they are unable to work may not be aware of available technologies and accommodations. Nonetheless, it may be well-informed, and in any event, the statement that one cannot work clearly reflects a psychological stance that basically has ruled out looking for work. Since workers who say they are able to work are much more likely to be protected by Title I of the ADA, the reported ability to work is interacted with the first three disability measures (work disability, any functional/ADL limitation, and severe functional/ADL limitation) to create three measures reflecting those who have these conditions but report the ability to work.

The second and third dimensions are clearly related, since disability income is available only to those unable to engage in substantial gainful activity (SGA). Nonetheless, they do not overlap perfectly, since some people are unable to work but are not disability income recipients, and others are recipients but are employed, earning less than SGA levels. It is of particular interest to examine those people with disabilities who do not receive disability income and say that they are able to work. Such people could be seen as "available to work" (McNeil 2000), so the ADA should help them the most. Therefore, three additional disability measures are based on those who (1) do not receive public disability income, (2) say that they are not prevented from working, and (3) report a work disability, any functional/ADL limitation, or severe functional/ADL limitation.

Finally, two additional measures are constructed that include those who report functional/ADL limitations but do not report a work disability. These people are of interest given Kirchner's (1996) observation that more accessible workplaces may cause a decline in the number with impairments who say that their health condition limits the work they can do.

[17] SIPP provides imperfect measures of who receives SSI and SSDI. For this study, SSI recipients are defined as those who report SSI income over the 3-month period centered on the interview month and who report a work disability (to exclude parents coded with SSI income that is provided to children). SSDI recipients are defined as those who report a work disability and the receipt of Social Security income over the 3-month period centered on the interview month.

The fourteen disability measures examined here can be summarized in this grid:

	Work Disability	Any Functional/ ADL Limitations	Severe Functional/ ADL Limitations
Have condition at all	1	2	3
Do not receive disability income	4	5	6
Health condition does not prevent work	7	8	9
Health condition does not prevent work, and no disability income	10	11	12
No work disability		13	14

There are few clear expectations as to how results will differ across these measures. Both those with work disabilities and those with any or severe functional/ADL limitations could have increased employment after the ADA due to less discriminatory behavior by employers or could have decreased employment due to employer concerns over accommodations or lawsuits. Any positive or negative effects most likely are to be observed among those with severe functional/ADL limitations, particularly those who say that they are not prevented from working because they are most likely to be covered by Title I of the ADA due to being substantially limited in a major life activity but also qualified for an employment position. Measure 9 therefore may represent the best measure of ADA coverage. People with severe limitations may see the most positive effects of the ADA if there is less discriminatory behavior or if employers obtain public relations benefits from hiring people with visible severe disabilities (such as those who are blind or in wheelchairs). This group could, however, also see the most negative effects if accommodation costs play a large role, since they are the most likely to need workplace accommodations for their conditions. Since those who need accommodations are likely to report work disabilities, we expect the most positive employment effects among those who say they have functional/ADL limitations but do not have work disabilities (measures 13 and 14).

Expectations are clearer regarding disability income and the reported ability to work: Given the work disincentives associated with disability income and the obviously higher likelihood of work among those who say that they are not prevented from working, we expect more positive employment trends among measures 4 to 12 than among measures 1 to 3. It may be misleading to exclude those who say that they are prevented from

working (in measures 7 to 12) if their reason for reporting that a health condition prevents work is that employers refuse to hire them—these people may in fact be qualified for jobs but cannot obtain them due to employers' ADA-related concerns over accommodations and lawsuits. Kaye (2001:35), however, provides some validation of this measure using National Health Interview Survey data, finding that "working-age adults reporting inability to work experience far greater levels of functional limitation, and are in much worse health, than people with disabilities who are able to work."[18] This indicates that self-reported inability to work very likely does generally reflect a lack of being qualified for employment, so members of this group are unlikely to be covered by the ADA and plausibly should be excluded in analyzing its effects.

In measuring the effects of a law or policy, a researcher ideally will have a valid and reliable measure of who is covered. In the case of the ADA, there is room for considerable uncertainty over who is covered not only for researchers but also for employers, employees, and job applicants. Courts have provided some guidance, generally in rulings that restrict the population entitled to coverage (Lee 2003), but assessing coverage remains a difficult judgment call in very many cases. Those who are clearly substantially limited (e.g., by an inability to walk, see, or hear) are most likely to be judged by employers to be covered, again suggesting that the effects of the ADA are most likely to show up among those with severe functional/ADL limitations. To the extent that employers, employees, and job applicants have more accurate assessments of ADA coverage than provided by the measures used here (which is undoubtedly the case), measurement error will cause this study's estimates to understate the (positive or negative) effects of the ADA.

Trends in Disability Measures

Trends of disability prevalence using alternative measures are presented in Tables 1 and 2. The percentage reporting a work disability in the disability modules increased from 10.1 percent in 1990 to 12.1 percent in 1994. While this increase partly reflects the fact that the 1994 interviews were done later in the panels (probably biasing upward the estimated prevalence due to the question wording, as noted earlier), there is an upward jump between 1991 and 1993 when independent samples were interviewed at the

[18] In addition, Kaye's validation of the inability to work measure includes the finding that the growth in reports of inability to work over the 1990s is strongly linked to measures showing worsened health and increases in functional limitations and need for help with ADLs.

TABLE 1

TRENDS IN ALTERNATIVE MEASURES OF DISABILITY

	1990 (1)	1991 (2)	1993 (3)	1994 (4)	Change 1990–1994 (5)	Change 1991–1993[a] (6)
No work disability or functional/ADL limitations	84.1%	84.1%	83.6%	83.5%	–0.6%**	–0.6%**
Work disability	10.1%	10.4%	10.9%	12.1%	2.0%***	0.5%**
And						
Health condition prevents working	3.8%	4.0%	4.6%	4.7%	0.8%***	0.6%***
Health condition does not prevent working	6.3%	6.4%	6.3%	7.4%	1.1%***	–0.1%
Covered by SSI/SSDI	2.0%	2.0%	2.7%	2.5%	0.5%***	0.8%***
Not covered by SSI/SSDI	8.1%	8.5%	8.2%	9.6%	1.5%***	–0.3%
Not prevented from working or covered by SSI/SSDI	5.9%	6.1%	5.8%	6.9%	1.0%***	–0.3%*
Any functional/ADL limitations	12.8%	12.6%	13.3%	12.6%	–0.2%	0.7%***
And						
With work disability	7.1%	7.1%	7.8%	8.2%	1.2%***	0.6%***
No work disability	5.8%	5.4%	5.5%	4.4%	–1.4%***	0.1%
Health condition prevents working	3.2%	3.4%	3.9%	3.9%	0.7%***	0.5%***
Health condition does not prevent working	9.6%	9.2%	9.4%	8.7%	–0.9%***	0.3%
Covered by SSI/SSDI	1.7%	1.7%	2.4%	2.1%	0.4%***	0.7%***
Not covered by SSI/SSDI	11.1%	10.9%	10.9%	10.5%	–0.7%***	0.1%
Not prevented from working or covered by SSI/SSDI	9.4%	8.9%	9.0%	8.3%	–1.1%***	0.1%
Severe functional/ADL limitations	4.7%	4.5%	5.1%	4.8%	0.2%	0.6%***
And						
With work disability	3.6%	3.4%	4.1%	4.0%	0.5%***	0.7%***
No work disability	1.1%	1.1%	0.9%	0.8%	–0.3%***	–0.2%***
Health condition prevents working	2.2%	2.2%	2.6%	2.5%	0.4%***	0.4%***
Health condition does not prevent working	2.5%	2.3%	2.4%	2.3%	–0.2%	0.2%*
Covered by SSI/SSDI	1.2%	1.2%	1.7%	1.5%	0.2%**	0.5%***
Not covered by SSI/SSDI	3.4%	3.3%	3.4%	3.4%	0.0%	0.1%
Not prevented from working or covered by SSI/SSDI	2.3%	2.1%	2.2%	2.1%	–0.3%**	0.0%
n	28,991	46,673	50,566	48,623		

NOTE: Figures represent percentage of total working-age population falling into each category. Data are weighted using disability supplement weights. ADL = activity of daily living. Change is significant at $*p < 0.10$; $**p < 0.05$; $***p < 0.01$.

[a]The 1991 and 1993 samples come from the same waves of their respective panels, so the 1991–1993 comparisons are not tainted by time-in-sample or attrition bias.

TABLE 2

TRENDS IN SPECIFIC FUNCTIONAL/ADL LIMITATIONS

	Overall Prevalence					
	1990 (1)	1991 (2)	1993 (3)	1994 (4)	Change 1990–1994 (5)	Change 1991–1993[a] (6)
Overall working-age population	100.0%	100.0%	100.0%	100.0%		
Work disability	10.1%	10.4%	10.9%	12.1%	2.0%***	0.5%**
Any functional/ADL limitations	12.8%	12.6%	13.3%	12.6%	–0.2%**	0.7%***
Severe functional/ADL limitations	4.7%	4.5%	5.1%	4.8%	0.2%	0.6%***
Difficulty in functional activities						
Seeing	3.0%	2.8%	3.1%	2.3%	–0.7%***	0.3%***
Unable to see	0.3%	0.3%	0.3%	0.3%	0.0%	0.0%
Hearing	3.1%	3.1%	3.3%	2.6%	–0.5%***	0.1%
Unable to hear	0.2%	0.2%	0.2%	0.2%	0.0%	0.1%**
Speaking understandably	0.8%	0.8%	0.9%	0.6%	–0.2%**	0.0%
Unable to speak understandably	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%
Lifting/carrying 10 lbs.	4.2%	4.4%	4.7%	4.6%	0.4%**	0.3%**
Unable to lift/carry 10 lbs.	1.8%	1.7%	1.9%	1.7%	–0.1%	0.2%**
Climbing stairs w/out resting	4.4%	4.3%	4.8%	4.7%	0.3%*	0.5%***
Unable to climb stairs w/out resting	1.8%	1.8%	2.1%	2.0%	0.2%*	0.3%***
Walking one-fourth mile	4.2%	4.2%	4.8%	4.9%	0.6%***	0.6%***
Unable to walk one-fourth mile	1.8%	1.7%	2.0%	1.9%	0.1%	0.3%***
Activities of daily living (ADLs)						
Difficulty getting around outside home	1.4%	1.5%	1.8%	1.7%	0.3%***	0.3%***
Need help	1.1%	1.1%	1.2%	1.2%	0.1%	0.1%
Difficulty with any ADLs within home[b]	3.3%	3.1%	4.0%	3.9%	0.7%***	0.9%***
Need help with any	2.1%	2.0%	2.2%	2.1%	0.0%	0.2%**
Mobility aids: Use of wheelchair for > 6 mos.	0.3%	0.2%	0.2%	0.3%	0.1%*	0.0%
Use of cane, crutches, or walker for > 6 mos.	0.7%	0.7%	0.9%	0.8%	0.1%	0.2%***
Mental or emotional conditions: Any	3.2%	3.2%	3.6%	3.8%	0.6%***	0.4%***
Learning disability such as dyslexia	1.4%	1.4%	1.3%	1.3%	–0.1%	–0.1%
Mental retardation	0.7%	0.6%	0.6%	0.6%	–0.1%	0.0%
Developmental disability (e.g., autism)	0.2%	0.2%	0.2%	0.2%	0.0%	0.1%**
Any other	1.8%	1.8%	2.1%	2.4%	0.6%***	0.4%***

TABLE 2 CONTINUED

	Prevalence among those who report work disability					
	1990 (7)	1991 (8)	1993 (9)	1994 (10)	Change 1990–1994 (11)	Change 1991–1993[a] (12)
Overall working-age population						
Work disability	100.0%	100.0%	100.0%	100.0%		
Any functional/ADL limitations	69.8%	68.5%	71.2%	67.9%	–2.0%*	2.8%***
Severe functional/ADL limitations	35.3%	32.7%	37.9%	33.4%	–2.0%	5.2%***
Difficulty in functional activities						
Seeing	14.6%	13.5%	14.9%	12.0%	–2.6%***	1.3%*
Unable to see	2.6%	2.1%	2.1%	2.0%	–0.6%*	–0.1%
Hearing	11.2%	10.4%	10.5%	9.0%	–2.2%***	0.1%
Unable to hear	1.2%	0.9%	1.3%	1.0%	–0.2%	0.4%*
Speaking understandably	5.7%	5.5%	6.2%	4.6%	–1.1%**	0.7%
Unable to speak understandably	0.5%	0.6%	0.8%	0.6%	0.1%	0.2%
Lifting/carrying 10 lbs.	30.6%	31.6%	33.2%	30.6%	0.0%	1.6%
Unable to lift/carry 10 lbs.	14.7%	13.4%	15.4%	12.0%	–2.6%***	2.0%***
Climbing stairs w/out resting	31.8%	30.1%	33.8%	31.3%	–0.5%	3.7%***
Unable to climb stairs w/out resting	14.5%	13.9%	16.5%	14.6%	0.1%	2.7%***
Walking one-fourth mile	31.3%	30.3%	34.8%	32.8%	1.5%	4.5%***
Unable to walk one-fourth mile	14.6%	13.1%	16.0%	13.9%	–0.7%	2.9%***
Activities of daily living (ADLs)						
Difficulty getting around outside home	12.5%	12.4%	15.0%	13.4%	0.9%	2.6%***
Need help	9.5%	8.7%	10.1%	9.1%	–0.4%	1.4%**
Difficulty with any ADLs within home[b]	24.8%	23.8%	31.0%	27.9%	3.1%***	7.2%***
Need help with any	16.7%	15.2%	17.9%	15.9%	–0.7%	2.8%***
Mobility aids: Use of wheelchair for > 6 mos.	2.4%	1.8%	2.1%	2.6%	0.3%	0.4%
Use of cane, crutches, or walker for > 6 mos.	6.3%	5.5%	7.2%	6.2%	–0.1%	1.7%***
Mental or emotional conditions: Any	20.7%	19.4%	23.1%	21.7%	1.0%	3.7%***
Learning disability such as dyslexia	7.6%	6.8%	6.5%	6.1%	–1.5%**	–0.3%
Mental retardation	5.6%	4.7%	5.6%	4.8%	–0.8%	0.8%*
Developmental disability (e.g., autism)	1.5%	1.1%	1.8%	1.6%	0.0%	0.8%***
Any other	13.0%	12.1%	15.1%	14.5%	1.5%*	3.0%***

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

[a]The 1991 and 1993 samples come from the same waves of their respective panels, so the 1991–1993 comparisons are not tainted by time-in-sample or attrition bias.

[b]ADLs within the home include getting around inside the home, getting in and out of a bed or chair, taking a bath or shower, dressing, eating, using the toilet, using the telephone, keeping track of money and bills, preparing meals, and doing housework.

same point in the panels. This 0.5 percentage point increase is close to the 0.6 point increase reported between March 1993 and 1994 in the CPS by Burkhauser, Daly and Houtenville (2001) and to the 0.7 point increase reported by DeLeire between mid-1992 and mid-1993.[19] The increase in reports of work disability prior to the ADA indicate that this increase is unlikely to be solely due to the ADA (Burkhauser, Daly, and Houtenville 2001).

Did the increase occur among people who said they were prevented from working or were limited but nonetheless able to work? While the prevalence of both groups increased over the 1990–1994 period, only the percentage saying that they could not work increased from 1991 to 1993 (from 4.0 to 4.6 percent).[20] The increase in the percentage covered by public disability income was slightly larger (2.0 to 2.7 percent), so it includes some growth in disability income recipients who say that they can work.[21] The percentage who say that they are able to work and do not receive disability income may have increased from 1990 to 1994 but appears to have declined slightly in the tighter 1991–1993 comparison done at similar points in the panels.

Unlike the work disability measure, the measures of any functional/ADL limitations and severe limitations do not show an increase over the 1990–1994 period, although they increase between 1991 and 1993. In both groups there were decreases in the percentages saying that they did not have a work disability.

The overall increase in the work disability measure over the 1991–1993 period is connected to the overall increase in reports of functional/ADL limitations, but there also were greater reports of functional/ADL limitations among those with work disabilities, suggesting compositional changes in this population.[22] As shown in Table 2, which takes a close look at specific functional/ADL limitations, there were increases over this period in the overall percentages reporting a number of the specific limitations, particularly climbing stairs, walking, and doing ADLs within the home

[19] Burkhauser, Daly, and Houtenville (2001) and Acemoglu and Angrist (2001) note that the CPS switched to a CATI design between 1993 and 1994, weights were switched from those based on the 1980 Census to those based on the 1990 Census, and several questions in the survey were changed, which could have affected measurement of people with work disabilities. This increase goes against the idea that increased workplace accommodations due to the ADA led many people to no longer report being work-limited (Kirchner 1996).

[20] The general increase in reported inability to work is consistent with data from Kaye (2001).

[21] Stapleton et al. (1998:74) find that the 1988–1992 increase in disability income awards was principally due to "the recession of 1990–1991; new and intensified efforts by states and localities to shift the burden of welfare spending onto the federal government; and expansion in the 'supply' of benefits" (the latter from a variety of programmatic changes in rules, reviews, and outreach efforts).

[22] While the increased prevalence of these limitations points to compositional changes, it is also possible for compositional changes to occur without any change in prevalence of the conditions examined here.

(cols. 5–6). The increased likelihood of functional/ADL limitations accounts for about two-thirds of the overall 0.5 percentage point rise in work disability from 1991 to 1993, whereas the increased likelihood of reporting a work disability among those with functional/ADL limitations accounts for about one-third of the rise.[23]

Within the work disability population, there were significant increases in the percentages citing any and severe functional/ADL limitations over the 1991–1993 period. There were particularly strong increases in the percentages citing mobility limitations (difficulty climbing stairs or walking one-fourth mile), difficulty with ADLs in the home, and any mental or emotional conditions (col. 12). This clearly suggests compositional changes in the work disability population in the direction of more severe limitations. This could reflect objectively more severe conditions and/or an increased willingness to cite such conditions to justify reports of work disability as the ADA was being implemented.

Changes in the work disability measure over the implementation period of the ADA indicate that the composition of this population appears to have been changing, possibly in ways related to the likelihood of employment. This supports comparing employment trends among alternative disability measures.

Employment Trends

Relative employment trends of people with disabilities are examined with the 14 disability measures described earlier. A summary of the disability coefficients is presented in Table 3 (with descriptive statistics in Table 4). The coefficient on the disability base effect reflects the employment rate of people with disabilities relative to those without disabilities in 1990 (right after the ADA was signed and well before it was implemented in 1992), and the disability-year interactions represent any changes in the employment gap relative to 1990.

Using the work disability measure (col. 1), the employment gap appears to have widened after 1990. There was a noteworthy decline in employment of people reporting work disabilities in 1993, with the gap increasing by 0.022 from 1991 to 1993. The direction and magnitude are very much in

[23] Assuming no change in the work disability percentage among those with functional/ADL limitations, the work disability rate would have risen 0.40 percent due to the increased percentage of those with such limitations, while assuming no change in the overall number citing functional/ADL limitations, the work disability rate would have risen 0.20 percent due to the increased percentage of those with functional/ADL limitations saying that they have a work disability.

TABLE 3

EMPLOYMENT TRENDS USING ALTERNATIVE DISABILITY MEASURES

				No SSI/SSDI		
	Work Disability (1)	Any Func./ADL Limitations (2)	Severe Func./ADL Limitations (3)	Work Disability (4)	Any Func./ADL Limitations (5)	Severe Func./ADL Limitations (6)
Disability base effect	−0.299	−0.189	−0.372	−0.222	−0.128	−0.28
	(22.13)	(15.06)	(19.75)	(14.51)	(5.59)	(11.97)
Disability * year interactions						
1991	−0.007	−0.021	−0.029	−0.021	−0.028	−0.047
	(0.51)	(1.62)	(1.49)	(1.32)	(2.04)	(1.97)
1993	−0.029	−0.015	−0.014	−0.021	−0.002	−0.003
	(2.21)	(1.24)	(0.77)	(1.41)	(0.12)	(0.15)
1994	−0.031	−0.033	−0.029	−0.027	−0.018	−0.016
	(1.80)	(2.02)	(1.20)	(1.37)	(1.01)	(0.54)
n	163,210	157,853	151,771	159,226	154,420	149,333
Difference in coefficients:						
1991 and 1993	−0.022	0.006	0.015	0.000	0.026	0.044
	(2.13)	(0.58)	(1.04)	(0.00)	(2.52)	(2.42)
1991 and 1994 coefficients	−0.024	−0.012	0.000	−0.006	0.010	0.031
	(1.90)	(1.01)	(0.00)	(0.81)	(0.74)	(1.35)

	Health Condition Does Not Prevent Working			Health Condition Does Not prevent Working, and No SSI/SSDI			No Work Disability	
	Work Disability (7)	Any Func./ADL Limitations (8)	Severe Func./ADL Limitations (9)	Work Disability (10)	Any Func./ADL Limitations (11)	Severe Func./ADL Limitations (12)	Any Func./ADL Limitations (13)	Severe Func./ADL Limitations (14)
Disability base effect	−0.105	−0.053	−0.132	−0.083	−0.043	−0.119	−0.026	−0.186
	(6.19)	(3.81)	(4.81)	(4.82)	(3.07)	(4.26)	(1.49)	(4.53)
Disability * year interactions								
1991	−0.014	−0.014	−0.023	−0.021	−0.017	−0.034	−0.007	−0.006
	(0.78)	(0.97)	(0.79)	(1.19)	(1.21)	(1.16)	(0.40)	(0.15)
1993	−0.006	0.015	0.036	−0.006	0.015	0.035	0.044	0.132
	(0.34)	(1.10)	(1.35)	(0.35)	(1.12)	(1.27)	(2.68)	(3.29)
1994	−0.029	0.006	0.031	−0.025	0.009	0.036	0.057	0.12
	(1.35)	(0.32)	(0.87)	(1.12)	(0.51)	(0.98)	(2.48)	(2.16)
n	156,340	152,066	147,891	155,626	151,517	147,575	145,630	145,630
Difference in coefficients:								
1991 and 1993	0.008	0.029	0.059	0.015	0.032	0.069	0.051	0.138
	(0.62)	(2.64)	(2.78)	(1.14)	(2.95)	(3.13)	(3.73)	(4.31)
1991 and 1994 coefficients	−0.015	0.020	0.054	−0.004	0.026	0.070	0.064	0.126
	(1.00)	(1.41)	(2.03)	(0.22)	(1.88)	(2.55)	(3.54)	(3.06)

NOTE: Dependent variable: Percent of weeks worked, as an employee, in 3-month period. All regressions include people with and without disabilities. Column headings indicate the disability measure used. *T*-statistics in parentheses. All regressions include year, gender, age, race, marital status, and education dummies, and a variable representing the SIPP wave number alone and interacted with the disability measure. Descriptive statistics in Table 4. To better reflect comparisons to the able-bodied population, regressions 2–3, 5–6, and 8–14 exclude those who report work disabilities but none of the functional/ADL limitations, regressions 7–12 exclude those reporting an inability to work, and regressions 4–6 and 10–12 exclude those receiving disability income.

TABLE 4

Descriptive Statistics for Regressions

	1990	1991	1993	1994
Work disability	0.101	0.104	0.109	0.121
Any functional/ADL limitation	0.128	0.126	0.133	0.126
Severe functional/ADL limitation	0.047	0.045	0.051	0.048
No SSI/SSDI and				
Work disability	0.081	0.085	0.082	0.096
Any functional/ADL limitation	0.111	0.109	0.109	0.105
Severe functional/ADL limitation	0.034	0.033	0.034	0.034
Health condition does not prevent working and				
Work disability	0.063	0.064	0.063	0.074
Any functional/ADL limitation	0.096	0.092	0.094	0.087
Severe functional/ADL limitation	0.025	0.023	0.024	0.023
No SSI/SSDI, health cndn. does not prevent working and				
Work disability	0.059	0.061	0.058	0.069
Any functional/ADL limitation	0.094	0.089	0.090	0.083
Severe functional/ADL limitation	0.023	0.021	0.022	0.021
No work disability and				
Any functional/ADL limitation	0.058	0.054	0.055	0.044
Severe functional/ADL limitation	0.011	0.011	0.009	0.008
Female	0.511	0.509	0.508	0.508
Age				
21–29	0.269	0.258	0.252	0.244
30–39	0.327	0.330	0.326	0.324
40–49	0.249	0.255	0.265	0.270
50–59	0.155	0.156	0.157	0.161
Race				
White	0.852	0.846	0.843	0.841
Black	0.114	0.115	0.116	0.118
Native American/Eskimo	0.005	0.007	0.007	0.007
Asian/Pacific Islander	0.029	0.032	0.034	0.033
Marital status				
Married	0.634	0.624	0.619	0.616
Widowed	0.016	0.016	0.013	0.013
Divorced/separated	0.130	0.136	0.137	0.138
Never married	0.220	0.224	0.231	0.232
Education				
No high school	0.079	0.075	0.067	0.066
Some high school, no degree	0.076	0.075	0.070	0.070
High school degree	0.386	0.382	0.378	0.379
1–3 years college	0.227	0.230	0.243	0.243
4 years college	0.130	0.133	0.139	0.139
More than 4 years college	0.102	0.105	0.104	0.104
Proportion of weeks worked, as employee, in 3 mos.*	0.700	0.691	0.693	0.702
(SD)	(0.437)	(0.442)	(0.441)	(0.437)
State unemployment rate (3-month average)*	6.098	7.106	6.601	5.608
(SD)	(1.03)	(1.33)	(1.45)	(1.26)
Minimum	2.2	2.9	2.6	2.6
Maximum	10.4	12.4	10.9	8.7
n	27,630	45,007	49,090	41,483

*The 3-month period for employment and unemployment measures is centered around the interview month.

line with the pattern found by Acemoglu and Angrist (2001) and DeLeire (2000) over this period using the work disability measure.[24] The disability measures based on any or severe functional/ADL limitations, in contrast, show a slight insignificant increase in employment between 1991 and 1993, although, like the work disability measure, they show lower relative employment of people with disabilities in each of the years after 1990.

A different pattern is shown when excluding those who receive disability income (cols. 4–6). Those who cite a work disability but do not receive disability income still have lower relative employment after 1990, although there is no longer an increase in the gap between 1991 and 1993 (indicating that the widening of the gap among those with work disabilities in column 1 is due to those who receive disability income). The patterns for those with any and severe functional/ADL limitations who do not receive disability income, in contrast, show significant increases in employment in 1993, narrowing the employment gaps by 2.6 and 4.4 percent. It is noteworthy, however, that the employment gaps after 1990 remain larger than the 1990 gaps for each of the three measures.

The relative employment trends for people with disabilities appear more favorable in columns 7 to 9, which exclude those who say that their health condition prevents working (presumably making them unqualified for ADA protection). Those who cite a work disability that limits but does not prevent work still have lower relative employment after 1990, although there may be a slight decrease in the gap between 1991 and 1993. Again, the patterns for those with any and severe functional/ADL limitations are more favorable, showing narrowing of the employment gaps by 2.9 and 5.9 percent between 1991 and 1993 and smaller employment gaps in 1994 than in 1990. The prevalence of people meeting these disability criteria changed very little between 1991 and 1993 (see Table 1), making it less likely that compositional shifts account for these improvements in the employment rates.

The potential influence of both disability income and reported inability to work is removed in columns 10 to 12 by examining employment patterns among people with disabilities who say that they are not prevented from working and do not receive public disability income (reflecting the portion of the disability population who may be considered "available to work"). Those citing a work disability again show relatively low employment rates

[24] Acemoglu and Angrist (2001) found relative declines ranging from −0.9 to −4.4 weeks worked from 1991 to 1993 among all but older women with work disabilities, which translate to percentage declines of 1.7 to 8.5 percent in weeks worked across the year. Older women with work disabilities had a relative increase of 1.9 percent, or 1.0 weeks worked. The results from DeLeire (2000) for men indicate a 1.4 to 3.1 percent relative decrease in the probability of being employed from 1991 to 1993. Breakdowns by gender for the current study are presented in the Appendix.

after 1990, although without the 1991–1993 drop. Those with any or severe functional/ADL limitations show higher relative employment rates in 1993 and 1994 compared with 1990, with significant increases between 1991 and 1993 that exceed the estimated increases in columns 5, 6, 8, and 9.

Given the noteworthy differences between the work disability and functional/ADL limitation results, columns 13 and 14 report the employment patterns of those reporting any or severe functional/ADL limitations but no work disability. They had very little change in employment from 1990 to 1991 but substantial and significant increases from 1991 to 1993, resulting in relative employment levels that were 5.7 and 12.0 percent higher in 1994 than in 1990. The employment rate of those with functional/ADL limitations but no work disability was only slightly below that of able-bodied people in 1990, whereas the employment rate of those with severe limitations was 18.6 percent lower in 1990, but this gap was reduced by more than half by 1993 and 1994. While this timing coincides with implementation of the ADA and many members of this group would be covered, this apparent improvement may not reflect the effects of the ADA on employment prospects. Given that this group grew smaller over this time (see Table 1), it is very possible that these results reflect a compositional change due to nonemployed people with functional/ADL limitations becoming more likely to say that they have a work disability (taking themselves out of this group and inflating the employment numbers for the remainder). Such shifts in the reporting of work disability, however, are irrelevant to the functional/ADL measures used in columns 5 and 6, 8 and 9, and 11 and 12, which show increased employment from 1991 to 1993.

These data point to opposite employment trends in the first few years after the ADA was passed, depending on the disability measure used. Across the 14 disability measures, only the simple work disability measure indicates an employment drop for people with disabilities over the 1991–1993 period when the ADA became effective. The point estimate of the employment gap is slightly wider in 1994 compared with 1990 for each of the measures based on work disability and for 4 of the 10 measures based on functional/ADL limitations but is significantly smaller for the two measures based on functional/ADL limitations without work disabilities.

Do these trends differ by age and sex? Results run separately for men and women are presented in Appendix Table A-1, where it can be seen that the fall in employment among those reporting work disabilities over the 1991–1993 period is similar among men and women (–0.021 and –0.025, respectively), whereas there were relative increases in employment among both men and women reporting any or severe functional/ADL limitations with an ability to work. Further results separating the samples by older and

younger men and women also indicate similar patterns among these groups. When excluding disability income recipients (as in col. 4 of Table 3), there is an employment decline only for younger men and older women reporting work disabilities [while Acemoglu and Angrist (2001) found declines for younger men and women but not for older men]. The disability measures based on functional/ADL limitations almost uniformly show improved employment rates among each of the four demographic groups.

Do these trends differ by specific type of impairment or activity limitation? Following the ADA's passage, employers may have been especially eager to hire people with high-visibility disabilities—such as people in wheelchairs—as a way of generating goodwill among customers and employees by showcasing a commitment to the goals of the ADA. Employers also may have been less willing to hire people who have disabilities that can require costly accommodations (such as blind people or wheelchair users) or that create uncertainty about performance expectations (such as mental impairments). When each of the functional and ADL limitations in Table 2 is used as a disability measure in regressions similar to those in Table 3, the results are mostly similar across the different types of limitations, with no significant widening or narrowing of employment gaps. When those who report an inability to work are removed from the disability measures (as in cols. 7–9 of Table 3), there are measured improvements in employment rates between 1991 and 1993 among almost all the functional/ADL limitation groups (not reported but available), with the strongest improvements among those reporting mobility impairments (difficulty walking one-fourth mile, lifting, climbing stairs, and getting around inside the home).

What are the trends in federal government employment of people with disabilities over this time? The Rehabilitation Act of 1973 established ADA-like protections for employees of the federal government and its contractors, so the ADA caused no substantial change in their legal obligations, and any employment effect of the ADA should not show up in this group. Federal contractors cannot be identified with the SIPP data, so the regressions were run separately for weeks worked as a federal government employee and as any other kind of employee. The results (not reported) show that relative employment of people with disabilities in the federal government increased very slightly and nonsignificantly between 1991 and 1993 for each of the 14 disability measures, whereas the results for all other employees are very similar to those in Table 3. This comparison must be treated cautiously both because the equality of coefficients between federal government and all other employees cannot be rejected and because the federal government is not an ideal control group (since its employment is subject to many economic and political influences). With such caveats, this

evidence that relative employment trends were basically flat in the federal government is consistent with the idea that the ADA was having some effect on employment of people with disabilities in the private sector and state and local governments (whether that effect was negative, as indicated by measure 1, or positive, as indicated by several other measures).[25]

These data paint a mixed picture of employment trends among people with disabilities in the first few years after the ADA was passed, with worsened employment among all those reporting work disabilities but improved employment among those reporting functional/ADL limitations but an ability to work. The disability supplement was repeated in 1997 and 1999 with one important difference: The work disability and inability to work questions were asked in the core survey following questions about employment status rather than in the disability supplement following questions about functional and ADL limitations. Perhaps not surprisingly given this change, the reports of work disability fell significantly from 10.9 percent in 1993 and 12.1 percent in 1994 (see Table 1) to 9.5 percent in 1997 and 8.9 percent in 1999. In contrast to this 2-point drop, CPS data show reports of work disability to have increased slightly from 1993 to 1999 (Burkhauser, Daly, and Houtenville 2001). This strongly indicates that answers to the SIPP work disability question were affected by the placement of the question. Estimates using the 1997 and 1999 SIPP data show a dramatic decline in measured percentage of weeks worked among people reporting work disabilities in these 2 years relative to the 1990–1994 results. While this may reflect some employment decline among those reporting work disability using a consistent measure (Burkhauser, Daly, and Houtenville 2001), it is also apparent that the changed question placement made a big difference in the estimated prevalence and employment rate, presumably because the stigma of reporting a work disability (particularly among employed people) was lower after they had just revealed functional/ADL limitations in the 1990–1994 supplements. Given that the changed question placement makes such a large difference in the prevalence and effect magnitudes, we present only the 1990–1994 results from consistent disability supplements. Estimates using the 1997 and 1999 data (available on request) nonetheless show the same general pattern of results, with negative employment trends among those reporting work disabilities but positive trends among those reporting functional/ADL limitations who are not prevented from working. The very different

[25] Many state and local governments were supposed to be newly covered by the ADA's Title I, so it should have affected their employment decisions in the early 1990s, but the Supreme Court recently ruled in the February 2001 *Garrett* decision that states are not bound by Title I. As with all the estimates presented here, the results may reflect compositional changes rather than direct effects of the ADA on employment levels.

prevalence and effect sizes stemming from the changed placement of the work disability question reinforce a central point of this study: Estimates of disability employment trends are sensitive to the wording and context of the disability measure, often confounding the measures with employment status.

Role of Labor Market Tightness

Like other groups with labor market disadvantages, people with disabilities may face especially poor employment prospects when unemployment rates are high and be especially helped by tightening labor markets that cause employers to try hard to attract new employees. The 1990s offer a useful time to explore this, given the recession in the early 1990s and the remarkably strong economic growth and decreasing unemployment levels since that time.

The role of labor market tightness is explored in two ways. First, the year dummies in the employment regressions are replaced with the respondent's state unemployment rate and a general time trend, both of which are interacted with the disability measure. State fixed effects are included, so the coefficient on the unemployment rate interaction indicates whether the employment of people with disabilities is especially low when the state's unemployment rate is high. The coefficient on the disability-trend interaction indicates whether employment of people with disabilities generally increased or decreased after controlling for state labor market tightness. Second, a panel sample is constructed based on those who were in disability modules 12 months apart (1990–1991 for the 1990 panel and 1993–1994 for the 1992 and 1993 panels) and reported the same disability status in both modules. Each individual's monthly employment rate is matched to the state unemployment rate in that month, and the data are first-differenced so that the changes in employment between months can be regressed on the changes in the state unemployment rate alone and interacted with the disability measure. While a negative coefficient on the state unemployment rate is naturally expected, the disability interaction should indicate whether the employment of people with disabilities is more or less affected by changes in labor market tightness.

The results in Table 5 point toward special difficulties of people with disabilities when unemployment rates are high. The state unemployment rate coefficient is strongly negative in all specifications, as expected, whereas the coefficient on the disability interaction term is also negative across all the disability measures. The negative effect of high unemployment rates appears especially large for people with severe functional/ADL limitations:

TABLE 5

ROLE OF LABOR MARKET TIGHTNESS

				No SSI/SSDI		
	Work Disability (1)	Any Func./ADL Limitations (2)	Severe Func./ADL Limitations (3)	Work Disability (4)	Any Func./ADL Limitations (5)	Severe Func./ADL Limitations (6)
Full sample*						
Disability measure	−0.264	−0.123	−0.356	−0.174	−0.056	−0.220
	(11.03)	(5.62)	(10.56)	(6.43)	(2.37)	(5.18)
State unemp. rate	−0.009	−0.008	−0.010	−0.009	−0.009	−0.010
	(5.98)	(5.54)	(6.55)	(6.26)	(5.89)	(6.57)
State unemp. rate	−0.005	−0.009	−0.002	−0.007	−0.011	−0.009
* disability measure	(1.82)	(3.37)	(0.55)	(2.22)	(3.59)	(1.75)
Time trend * disability	−0.01	−0.005	−0.003	−0.005	0.001	0.004
	(3.24)	(1.68)	(0.55)	(1.40)	(0.22)	(0.74)
n	163,210	157,853	151,771	159,226	154,420	149,333
Panel sample†						
Disability measure	−0.0001	−0.0013	−0.0009	−0.0012	−0.0017	−0.0025
	(0.23)	(2.11)	(0.88)	(1.63)	(2.26)	(1.56)
Change in state	−0.0026	−0.0025	−0.0026	−0.0026	−0.0025	−0.0026
unemp. rate	(6.25)	(5.88)	(6.44)	(6.44)	(5.83)	(6.39)
Change in state	−0.0010	−0.0009	0.0002	−0.0026	−0.0030	−0.0011
unemp. rate * disability	(0.82)	(0.65)	(0.09)	(1.63)	(1.88)	(0.31)
n	833,971	753,866	766,953	804,374	734,743	755,432
No. of disab. observations	75,133	64,563	21,154	43,996	45,440	9,633

	Health Condition Does Not Prevent Working			Health Condition Does Not Prevent Working and No SSI/SSDI			No Work Disability	
	Work Disability (7)	Any Func./ADL Limitations (8)	Severe Func./ADL Limitations (9)	Work Disability (10)	Any Func./ADL Limitations (11)	Severe Func./ADL Limitations (12)	Any Func./ADL Limitations (13)	Severe Func./ADL Limitations (14)
Full sample*								
Disability measure	−0.091	−0.010	−0.078	−0.072	−0.002	−0.069	0.028	−0.082
	(3.12)	(0.53)	(1.56)	(2.44)	(0.08)	(1.35)	(0.92)	(1.08)
State unemp. rate	−0.010	−0.009	−0.010	−0.010	−0.009	−0.010	−0.009	−0.010
	(6.47)	(6.11)	(6.52)	(6.55)	(6.16)	(6.52)	(6.11)	(6.40)
State unemp. rate	−0.001	−0.006	−0.008	−0.001	−0.006	−0.008	−0.009	−0.013
* disability measure	(0.28)	(1.98)	(1.23)	(0.29)	(1.99)	(1.21)	(2.27)	(1.39)
Time trend * disability	−0.003	0.005	0.015	−0.001	0.006	0.017	0.017	0.045
	(0.78)	(1.47)	(2.12)	(0.33)	(1.76)	(2.38)	(3.81)	(4.34)
n	156,340	152,066	147,891	155,626	151,517	147,575	145,630	145,630
Panel sample†								
Disability measure	0.0002	−0.0010	−0.0014	0.0000	−0.0013	−0.0004	−0.0006	0.0000
	(0.19)	(1.20)	(0.64)	(0.01)	(1.46)	(0.56)	(1.05)	(0.00)
Change in state	−0.0026	−0.0025	−0.0026	−0.0026	−0.0025	−0.0018	−0.0017	−0.0018
unemp. rate	(6.42)	(5.81)	(6.38)	(6.42)	(5.80)	(5.54)	(4.93)	(5.58)
Change in state	−0.0024	−0.0026	0.0004	−0.0031	−0.0036	0.0013	0.0006	0.0016
unemp. rate * disability	(1.37)	(1.42)	(0.09)	(1.68)	(1.87)	(0.77)	(0.52)	(0.93)
n	796,097	723,004	750,790	793,645	720,974	1,174,766	1,119,843	1,193,117
No. of disab. observations	37,259	33,701	4,991	34,807	31,671	42,627	87,807	38,532

NOTE: Dependent variable in full sample: Proportion of weeks worked, as an employee, in 3-month period. Dependent variable in panel sample: Change in proportion of weeks worked, as an employee, between month t and $t-1$ (maximum 12 observations per person). All regressions include people with and without disabilities. Column headings indicate the disability measure used. T-statistics in parentheses. See Table 4 for descriptive statistics. To better reflect comparisons to the able-bodied population, regressions 2–3, 5–6, and 8–14 exclude those who report work disabilities but none of the functional/ADL limitations, regressions 7–12 exclude those reporting an inability to work, and regressions 4–6 and 10–12 exclude those receiving disability income.

*Full sample regressions include age, sex, race, and education dummies, a general time trend, state dummy variables, and a variable representing the SIPP wave alone and interacted with the disability measure.

†Panel sample regressions are based on person-month observations for the l-year period between disability supplements, only for those reporting the same disability status in both supplements (waves 3 and 6 of 1990 panel, 6 and 9 of 1992 panel, and 3 and 6 of 1993 panel). Panel dummy variables are included.

The employment rate in general is 1.0 percent lower for each 1 point increase in the unemployment rate but is 1.8 percent lower for those with severe limitations who say that they can work (cols. 9 and 12) and 2.3 percent lower for those with severe limitations who do not cite a work disability (col. 14). While all the disability–unemployment rate interactions are negative, the significance levels vary, with six estimates significantly different from zero at the 95 percent confidence level.

What are the general employment trends after accounting for labor market tightness? Consistent with the results from Table 3, there is a significant negative trend among all those reporting a work disability (based on the time trend * disability coefficient in col. 1), whereas there are positive trends among those who have any or severe functional/ADL limitations and report the ability to work or no work disability at all (cols. 8–14). Therefore, while labor market tightness may have some differential effects on people with and without disabilities, it does not appear to affect estimates of the overall employment trends for the different measures.

Results from the full sample may be infected by compositional changes—for example, the likelihood of reporting a disability may be affected by labor market conditions. The panel sample controls for compositional changes by tracking monthly changes among workers who report the same disability status 12 months apart. These results, summarized at the bottom of Table 5, tell a similar but weaker story on the differential effects of labor market tightness (indicating that compositional changes are likely affecting the estimates at the top of Table 5). Nine of the 14 interactions between disability and unemployment rate changes have negative coefficients, indicating greater sensitivity of people with disabilities to unemployment rate changes, but none of the interaction coefficients is significantly different from zero.

Therefore, some of the results point toward greater sensitivity of the employment of people with disabilities to changes in labor market tightness. It appears unlikely, however, that such differential effects account for the overall employment trends of people with disabilities in the first few years after the ADA was passed, since the work disability measure still shows a negative trend and other measures show positive trends after accounting for labor market tightness.

Summary and Conclusions

The ADA was designed to increase employment rates of people with disabilities by prohibiting employment discrimination and increasing workplace accessibility. It has been criticized, however, for decreasing employment

rates by raising the costs of hiring and firing workers with disabilities due to the potential need for accommodations and the risk of lawsuits.

What have been the employment trends of people with disabilities since the ADA was passed? As discussed, one key problem in answering this question concerns the measurement of disability. Ideally, a researcher would have a clear and consistent measure of who is covered by the ADA, but no such measure exists. Studies that use the work disability measure appear to show a worsening of the employment situation of people with disabilities since the ADA was passed. While the work disability measure has several strengths, it has been criticized on a number of grounds for being over- or underinclusive of those covered by the ADA and for being particularly subject to compositional changes related to employment status.

This study assessed changes in the population reporting work disabilities by looking at the relationship over time among reported work disability, ability to work at all, and limitations in functional activities and ADLs. It then assessed post-ADA employment trends using alternative disability measures, with attention to the effects of disability income and labor market tightness. The main findings are

1. More people reported work disabilities following the implementation of the ADA in 1992. This reflects both an increase in reported functional/ADL limitations and a greater likelihood that those with such limitations reported a work disability.
2. Among those reporting work disabilities, there was an increase in the percentage reporting severe limitations and an inability to work.
3. Employment trends in the first few years after the ADA was passed differ by disability measure: Employment rates declined among those reporting work disabilities but improved among those reporting any or severe functional/ADL limitations who do not report a work disability.
4. Workers with disabilities appear to be especially sensitive to labor market tightness—they may in fact tend to be the "last hired, first fired"—but the differences are not strong for many of the disability measures, and accounting for labor market tightness does not change the estimated overall employment trends.

The fact that employment appears to have declined using the work disability measure but improved using other measures indicates that the definition of disability is very important in assessing employment trends. More attention to disability definitions and measures is clearly warranted, in

particular to better measure the ADA-covered population. As part of this, it would be valuable to examine the factors that lie behind self-reports of work disabilities and the likely ADA coverage of those reporting work disabilities. Disability income is clearly one important factor here: The early 1990s increase in reported work disability was linked to an increased likelihood of disability income recipiency, which was partly driven by the 1991–1992 recession and by SSDI/SSI programmatic changes that made it easier to obtain and keep receiving disability income. Apart from these factors, it remains possible that the ADA contributed to the growth of the disability programs—if employers were less likely to hire people with disabilities after the ADA was implemented, this may have led some nonemployed people with disabilities to classify themselves as unable to work and to seek public disability income. (Any such shift, however, appears insufficient to account for the improved employment rates of those citing functional/ADL limitations but an ability to work.) This highlights a need for further research on what leads people to say that they have a work-limiting or work-preventing disability in order to gain a better understanding of how labor market conditions, public policies, and employer accommodations may affect these self-reports and the employment prospects of people with impairments and activity restrictions.

These results do not permit a clear overall answer to the question of whether the ADA has helped or hurt the employment of people with disabilities, since both positive and negative signs can be found. Rather, the main conclusion is that there is reason to be cautious about findings of either positive or negative effects given the limitations of existing measures in reflecting who is covered by the ADA. The current efforts of the federal government to develop better measures of disability should provide a stronger basis for estimating disability employment trends and the effects of public policies.

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TABLE A-1

EMPLOYMENT TRENDS USING ALTERNATIVE DISABILITY MEASURES, BY GENDER

Disability Coefficients	Work Disability (1)	Any Func./ADL Limitations (2)	Severe Func./ADL Limitations (3)	No SSI/SSDI: Work Disability (4)	No SSI/SSDI: Any Func./ADL Limitations (5)	No SSI/SSDI: Severe Func./ADL Limitations (6)
Men						
Base effect	−0.306	−0.191	−0.417	−0.222	−0.120	−0.306
	(15.83)	(10.63)	(14.48)	(10.21)	(6.31)	(8.12)
Year interactions						
1991	0.000	−0.015	−0.033	−0.011	−0.019	−0.051
	(0.02)	(0.81)	(1.13)	(0.50)	(0.99)	(1.33)
1993	−0.021	−0.007	−0.019	−0.010	0.011	−0.017
	(1.12)	(0.39)	(0.67)	(0.45)	(0.58)	(0.46)
1994	−0.018	−0.011	−0.022	−0.017	0.008	−0.020
	(0.71)	(0.48)	(0.58)	(0.58)	(0.30)	(0.39)
1991–1993 diff.	−0.021	0.008	0.014	0.002	0.030	0.034
	(1.42)	(0.57)	(0.67)	(0.10)	(1.95)	(1.17)
1991–1994 diff.	−0.018	0.003	0.011	−0.005	0.027	0.031
	(0.98)	(0.17)	(0.40)	(0.24)	(1.35)	(0.84)
n	77,929	75,055	72,229	76,039	73,422	71,066
Women						
Base effect	−0.290	−0.189	−0.335	−0.217	−0.136	−0.255
	(15.46)	(10.92)	(13.49)	(10.19)	(7.36)	(8.59)
Year interactions						
1991	−0.014	−0.029	−0.033	−0.029	−0.039	−0.053
	(0.73)	(1.64)	(1.29)	(1.35)	(2.05)	(1.75)
1993	−0.039	−0.025	−0.017	−0.033	−0.015	−0.004
	(2.12)	(1.48)	(0.72)	(1.59)	(0.81)	(0.14)
1994	−0.047	−0.056	−0.043	−0.040	−0.043	−0.023
	(2.00)	(2.51)	(1.33)	(1.48)	(1.77)	(0.60)
1991–1993 diff.	−0.025	0.004	0.015	−0.004	0.024	0.049
	(1.76)	(0.33)	(0.83)	(0.22)	(1.71)	(2.22)
1991–1994 diff.	−0.033	−0.027	−0.010	−0.011	−0.004	0.030
	(1.94)	(1.64)	(0.44)	(0.56)	(0.22)	(1.06)
n	85,281	82,798	79,542	83,187	80,998	78,267

Disability Coefficients	Health Condition Does Not Prevent Working			Health Condition Does Not Prevent Working and No SSI/SSDI			No Work Disability	
	Work Disability (7)	Any Func./ADL Limitations (8)	Severe Func./ADL Limitations (9)	Work Disability (10)	Any Func./ADL Limitations (11)	Severe Func./ADL Limitations (12)	Any Func./ADL Limitations (13)	Severe Func./ADL Limitations (14)
Men								
Base effect	−0.122	−0.050	−0.169	−0.109	−0.044	−0.158	−0.005	−0.270
	(5.27)	(2.58)	(3.88)	(4.66)	(2.29)	(3.58)	(0.21)	(3.93)
Year interactions								
1991	0.005	0.005	−0.013	−0.001	0.001	−0.022	0.007	0.003
	(0.22)	(0.25)	(0.29)	(0.03)	(0.05)	(0.48)	(0.28)	(0.05)
1993	0.030	0.043	0.070	0.027	0.042	0.069	0.064	0.150
	(1.32)	(2.30)	(1.65)	(1.18)	(2.25)	(1.59)	(2.85)	(2.20)
1994	0.015	0.056	0.078	0.011	0.052	0.070	0.107	0.157
	(0.51)	(2.20)	(1.35)	(0.35)	(2.03)	(1.19)	(3.41)	(1.73)
1991–1993 diff.	0.025	0.038	0.083	0.028	0.041	0.091	0.057	0.146
	(1.37)	(2.47)	(2.46)	(1.52)	(2.65)	(2.58)	(3.01)	(2.77)
1991–1994 diff.	0.010	0.051	0.091	0.011	0.051	0.092	0.101	0.153
	(0.46)	(2.60)	(2.18)	(0.51)	(2.56)	(2.11)	(4.01)	(2.37)
n	75,020	72,604	70,603	74,700	72,365	70,452	69,693	69,693
Women								
Base effect	−0.084	−0.058	−0.100	−0.053	−0.044	−0.087	−0.049	−0.132
	(3.43)	(2.96)	(2.87)	(2.14)	(2.23)	(2.41)	(1.98)	(2.61)
Year interactions								
1991	−0.035	−0.035	−0.048	−0.044	−0.038	−0.059	−0.024	−0.027
	(1.37)	(1.74)	(1.32)	(1.71)	(1.88)	(1.60)	(0.95)	(0.53)
1993	−0.047	−0.014	−0.004	−0.044	−0.012	−0.004	0.022	0.100
	(1.94)	(0.72)	(0.11)	(1.80)	(0.63)	(0.13)	(0.95)	(2.07)
1994	−0.078	−0.042	−0.014	−0.064	−0.031	0.000	0.010	0.093
	(2.51)	(1.64)	(0.30)	(2.03)	(1.22)	(0.01)	(0.29)	(1.33)
1991–1993 diff.	−0.012	0.021	0.044	0.000	0.026	0.055	0.046	0.127
	(0.65)	(1.41)	(1.64)	(0.00)	(1.69)	(1.99)	(1.42)	(1.42)
1991–1994 diff.	−0.043	−0.007	0.034	−0.020	0.006	0.060	0.034	0.120
	(1.95)	(0.36)	(0.98)	(0.89)	(0.33)	(1.69)	(0.98)	(0.98)
n	81,320	79,462	77,288	80,926	79,152	77,123	75,937	75,937

NOTE: Dependent variable: Percent of weeks worked, as an employee, in 3-month period. All regressions include people with and without disabilities. Column headings indicate the disability measure used. *T*-statistics in parentheses. All regressions include year, age, race, marital status, and education dummies, and a variable representing the SIPP wave number alone and interacted with the disability measure.