

Calibrating the Impact of the ADA's Employment Provisions

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I. INTRODUCTION

In a March 2002 speech, Justice Sandra Day O'Connor commented to members of the Corporate Counsel Institute that the Supreme Court's 2001-2002 term may be "remembered as the disabilities act term,"¹ that is, as the Americans with Disabilities Act (ADA) term.² O'Connor's view, as reflected in a decision she had just written in *Toyota Motor Manufacturing, Kentucky, Inc. v. Williams*,³ was that the ADA is "an example of what happens when . . . the sponsors are so eager to get something passed that what passes hasn't been as carefully written as a group of law professors might put together."⁴

As it was, the "disabilities act term" produced an array of decisions reviewing the ADA's definition of disability,⁵ direct threat defense provisions,⁶ and reasonable accommodations requirements.⁷ With each decision, the Court rejected what critics call "liberal readings of the law's employment provisions."⁸

While the Court and legal commentators have grappled over the doctrinal scope of the ADA, there has been a parallel debate in the social sciences on how to calibrate the real-world impact of the ADA's

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¹ Charles Lane, *O'Connor Criticizes Disabilities Law as Too Vague*, WASH. POST, Mar. 15, 2002, at A2.

² Americans with Disabilities Act, 42 U.S.C. §§ 12101-12213 (2000).

³ *Toyota Motor Mfg., v. Williams*, 534 U.S. 184 (2002).

⁴ Lane, *supra* note 1, at A2. Cf. Steny H. Hoyer, *Not Exactly What We Intended, Justice O'Connor*, WASH. POST, Jan. 20, 2002, at B1 (criticizing O'Connor's opinion in *Toyota* as inconsistent with congressional intent regarding the ADA).

⁵ See *Toyota*, 534 U.S. at 184-85.

⁶ See *Chevron U.S.A., Inc. v. Echazabal*, 122 S. Ct. 2045 (2002).

⁷ See *US Airways, Inc. v. Barnett*, 535 U.S. 391 (2002).

⁸ See Walter K. Olson, *Supreme Court Rescues ADA from its Zealots*, WALL ST. J., June 18, 2002, at A16.

employment provisions. The central question of the debate is how to assess the law's impact on the employment prospects and economic independence of individuals with disabilities.

So far, the research attempting to determine the law's effects has produced inconclusive results. Some studies report that the employment levels of individuals with work disabilities, but not necessarily with conditions covered by the ADA, declined in the early 1990s.⁹ These studies conclude that the law has failed to achieve its goals and is, in fact, the likely cause of the employment declines.

Other research finds improvements in employment levels since the ADA was passed, but again, this may have occurred among a select group that does not represent all those who are covered by the ADA.¹⁰ The studies in the latter group define "disability" outside the context of a self-reported work limitation, instead focusing on individuals' reported functional limitations in daily life activities. The findings from these studies suggest that those likely to be considered disabled under the ADA—individuals with severe functional limitations who are not prevented from working—improved their relative employment levels in the early 1990s.¹¹

A primary difference between the research streams on the ADA's effects on labor-force participation is how the authors define and measure the concept of disability. In fact, how researchers identify individuals with disabilities is fundamental to whether their findings are informative as to the causal impact of the ADA.¹²

The answer to the question of whether the ADA has affected employment rates requires analysis of the *legally defined* group the ADA is meant to protect, the "ADA-qualified disabled." However, no research conducted to date isolates this group. Prior studies all use measures of disability that deviate from the ADA's definition of disability. As is evident after the Court's "disabilities act term," the Court has clarified the definition of what it means to have a disability under the ADA. Clearly, the Court's narrow interpretation of the ADA and the shifting definition of disability make it even harder for researchers to develop reliable and valid measures of the law's effectiveness.

In this Article, we explore the calibration of the ADA's impact on the employment prospects of qualified persons covered by the law. In Part II, we describe the predominant economic models of labor market behavior and discrimination and discuss how those models have been used to develop predictions regarding the impact of the ADA's employment provisions. We also review studies that purport to provide support for the prediction that the ADA causes declines in employment levels. In Part III, we discuss reasons why existing research does not allow for conclusions that the ADA has caused declines or increases in employment levels, focusing on definitions and measures of disability used in that research. In Part IV, we identify problematic issues in the development of models that assess the ADA's effects and caution policy makers regarding the limitations of that research.

II. ECONOMIC THEORY'S PREDICTIONS REGARDING THE ADA'S EFFECTS

Without the ADA or other protective legislation, economic theory posits that the wages and employment of individuals with disabilities will depend on firms' demand for labor and individuals' willingness to supply their labor to firms. Firms will hire disabled individuals, with or without

⁹ For a review, see Richard V. Burkhauser et al., *A User's Guide to Current Statistics on the Employment of People with Disabilities*, in *THE DECLINE IN EMPLOYMENT OF PEOPLE WITH DISABILITIES: A POLICY PUZZLE* (David C. Stapleton & Richard V. Burkhauser eds., forthcoming 2003); David Stapleton et al., *Have Changes in Job Requirements Reduced the Number of Workers with Disabilities?*, in *THE DECLINE IN EMPLOYMENT OF PEOPLE WITH DISABILITIES*, *supra*.

¹⁰ See generally STEPHEN H. KAYE, *IMPROVED EMPLOYMENT OPPORTUNITIES FOR PEOPLE WITH DISABILITIES* (Nat' Inst. of Disability and Rehabilitation Research, forthcoming 2003); Douglas Kruse & Lisa Schur, *Employment of People with Disabilities Following the ADA*, 42 *INDUS. REL.* 31 (2003).

¹¹ See Kruse & Schur, *supra* note 10, at 50-51.

¹² The ADA does not guarantee employment to individuals with disabilities. Furthermore, it does not protect all individuals with disabilities from discrimination, and it does not provide all individuals with disabilities a right to reasonable workplace accommodations. See Susan Schwochau & Peter Blanck, *The Economics of the Americans with Disabilities Act, Part III: Does the ADA Disable the Disabled?*, 21 *BERKELEY J. EMP. & LAB. L.* 271, 299 (2000).

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accommodations, only to the extent that doing so is profitable.¹³ Disabled individuals will seek work for pay (i.e., enter the labor market) only when doing so yields benefits that are greater than the costs of working.

There are a number of potential reasons why disabled individuals in a non-ADA environment will be less likely to be employed and, if employed, will receive lower wages than nondisabled workers. First, individuals with disabilities may not be as productive as those without disabilities. This difference may be due to premarket decisions not to invest in training and education, to workplace barriers that curtail productivity, to a lack of work experience, or to a host of other reasons tied to particular disabilities. If disabled individuals are not equally productive, then they will receive lower wages, if they are hired at all. Lower wages in turn will lessen the likelihood that they remain in the labor market or that they even enter that market to seek employment.¹⁴

Second, to the extent that an individual with a disability can be equally productive once workplace barriers have been removed, the elimination of those barriers will cost the individual in the form of lower wages. In other words, the individual, more than the employer, will pay for her own accommodation. If the cost of the accommodation to the individual is too large, she is unlikely to enter the labor market.

Finally, discrimination against those with disabilities can be expected to lead to lower wages. Employer discrimination can reduce both the number of job offers and the wages of jobs that are offered, which will decrease the value of job searches and may lead to individuals deciding not to enter the labor market.

A. ECONOMIC MODELS OF EMPLOYMENT DISCRIMINATION

A fundamental purpose of the ADA is to reduce irrational discrimination against those qualified individuals with disabilities and those perceived to have disabilities, and thereby enhance those individuals' employment opportunities. Whether the ADA has been successful is a question of whether discrimination has been reduced and whether the employment opportunities and wages of those it covers have improved. To date, the focus has been on the latter question, although recent efforts have been directed to the former.¹⁵

Employment discrimination may occur prior to or after an individual's entry into the labor market. Individuals with disabilities face premarket discrimination, or discrimination occurring before entry into the labor market, in education and training opportunities.¹⁶ Postmarket discrimination, occurring after entry into the labor market, causes qualified individuals with disabilities to receive lower wages and have fewer occupational choices. Postmarket discrimination by employers, customers, or co-workers that significantly reduces wages received or occupational choices can be expected to influence premarket decisions. For example, individuals with disabilities may be less likely to invest in education, as the returns to such an investment can be expected to be smaller than would exist without the effects of postmarket discrimination.

¹³ See Thomas H. Barnard, *Disabling America: Costing Out the Americans with Disabilities Act*, 2 CORNELL J.L. & PUB. POL'Y 41, 58 (1992).

¹⁴ For instance, this is true for those for whom the expected wage is sufficiently low that the costs of labor-market participation exceed its benefits, or for those with impairments so severe that they cannot work.

¹⁵ For an example of work on the former question, see Thomas DeLeire, *Changes in Wage Discrimination Against People with Disabilities: 1984–1993*, 36 J. HUM. RES. 144 (2001).

¹⁶ For a review, see Peter Blanck et al., *Applicability of the ADA to "Ticket to Work" Employment Networks*, 20 BEHAV. SCI. & L. 621 (2002) (discussing discrimination faced by individuals with disabilities in job-training programs). See also Richard A. Posthuma et al., *Beyond Employment Interview Validity: A Comprehensive Narrative Review of Recent Research and Trends over Time*, 55 PERSONNEL PSYCHOL. 1, 25-27 (2002) (reviewing research on the impact of disabilities on job interviews and hiring processes). Note that these studies would be regarded as research on postmarket activity, as an individual is considered to have entered the labor market the minute she looks for work.

Becker has shown that one form of postmarket discrimination originates when employers display a “taste for discrimination.”¹⁷ If individuals in “majority” and “minority” groups are in fact equally productive, tastes for discrimination manifest themselves in the fact that employers *perceive* the cost of hiring those in the minority group to be greater than that of those in the majority group.¹⁸ To hire from the minority group, the employer must deduct from a minority individual’s wage the added cost (the “distaste”) of hiring that person.¹⁹ Wages of the minority group, therefore, are lower than those of the majority, despite comparable productivity.

Becker’s model predicts that in perfectly competitive markets, tastes for discrimination are minimized in the long run.²⁰ As long as one firm exists with no discriminatory policy, market wages of the minority group should eventually become equal to those of the majority group. This prediction relies on profit-maximizing behavior by some employers, which leads them to capitalize on the lower market wage of the minority group and only hire individuals in that group. Because the nondiscriminating employers’ costs are lower, discriminatory employers are driven from the market and the wages of those in the majority and minority groups will equalize.

The statistical model of discrimination relies on employer decisionmaking in the context of imperfect information.²¹ When an employer seeks to hire a worker, the employer does not have complete information regarding that individual’s future productivity. The employer either expends resources obtaining information about the candidate prior to her hire from the pool of candidates (incurring the costs of doing so) or observes productivity thereafter. As a result, employers tend to identify “cheap” indicators of productivity prior to hire so they can predict future performance. These indicators can include perceptions of certain groups of employees developed through past experiences or other sources of information.

Statistical discrimination occurs when employers use these *perceptions* of the average individual in a group, such as the group of disabled persons, to predict the productivity of all individuals from that group.²² If the indicator used (the presence of a disability) is an accurate predictor of performance, its use will lead to efficient decisions. When the indicators are inaccurate, costly mistakes are made. In this model, the differential treatment of equally productive individuals can persist because employers who act consistently with their perceptions or underlying biases can elicit responses from applicants and employees that confirm those perceptions.²³ Market forces alone are unlikely to eliminate this form of discrimination.²⁴

The theories of postmarket behavior and statistical discrimination illustrate how employer tastes and perceptions cause some individuals to be treated differently than others. Under Becker’s theory,

¹⁷ GARY BECKER, *THE ECONOMICS OF DISCRIMINATION* 39-40 (1971).

¹⁸ *Id.* See also Michelle A. Travis, *Perceived Disabilities, Social Cognition, and “Innocent Mistakes,”* 55 VAND. L. REV. 481, 485-86, 496 (2002) (discussing employers’ fears and misconceptions about employees with disabilities in terms of social cognition biases and processes).

¹⁹ BECKER, *supra* note 17, at 40-42.

²⁰ *Id.* at 43-45.

²¹ See Marjorie L. Baldwin, *Can the ADA Achieve Its Employment Goals?* 549 ANNALS AM. ACAD. POL. & SOC. SCI. 37, 46-47 (1997).

²² See Dennis J. Aigner & Glen G. Cain, *Statistical Theories of Discrimination in Labor Markets*, 30 INDUS. & LAB. REL. REV. 175 (1977); Travis, *supra* note 18, at 485-86 (discussing that employers’ negative views about disabilities are so strong that sometimes they incorrectly label otherwise qualified workers with nondisabling impairments—e.g., diabetes—as disabled and unable to do the job in question).

²³ Schwochau & Blanck, *supra* note 12, at 278-79. The classic example of the manner in which statistical discrimination can lead to its perpetuation is the employer who refuses to train female workers because he expects them to quit to raise families. Female employees of that employer, seeing they do not receive the same training as male employees, quit, and thereby provide support for the employer’s perception of female employees’ propensity to leave. *See id.* at 279 n.34.

²⁴ See, e.g., Travis, *supra* note 18, at 552-53 (arguing that misperceptions about disabled employees may remain stable in a competitive market).

employer tastes for discrimination lead to differential treatment;²⁵ under theories of statistical discrimination, the perceptions regarding average group characteristics or stereotypes are applied to all individuals within the group, with the result that equally productive individuals may be treated differently.

B. THEORIES OF DISCRIMINATION AND THE ADA

Apart from the law's requirement that a firm make accommodations for qualified disabled workers,²⁶ the ADA tracks the economic definition of discrimination, which focuses on the differential treatment of those who are equally productive. Under the ADA, qualified individuals with disabilities are to be treated the same as nondisabled individuals with respect to pay and employment decisions.²⁷ The ADA defines these qualified individuals as people who are either currently disabled, have a history of disability, or are regarded as being disabled.²⁸ Individuals within the second and third prongs of this definition are most likely to be perfect substitutes for nondisabled employees, as they have no actual impairment that would affect their productivity. These individuals are the victims of inaccurate stereotypes (which should be diminished by the ADA's prescribed case-by-case analysis of qualified individuals).²⁹

The requirement that employers make accommodations for qualified workers appears to be a departure from standard definitions of economic discrimination.³⁰ In the absence of discrimination, individuals who are equally productive should receive the same compensation (wages, benefits, and other rewards). The ADA's definition of discrimination does not take into account employer expenditures directed at making some, but not all, workers more productive than they would be in the employer's "pre-accommodation" work environment.³¹

The ADA's accommodation requirement mandates that an employer provide benefits to, or take steps in response to, the needs of particular individuals so they are able to perform essential job functions.³² During the "disabilities act term," in *US Airways v. Barnett*, the Court delineated the mandate of the ADA's accommodation requirement:

[The ADA] seeks to diminish or to eliminate the stereotypical thought processes, the thoughtless actions, and the hostile reactions that far too often bar those with disabilities from participating fully in the Nation's life, including the workplace. These objectives demand unprejudiced thought and reasonable responsive reaction on the part of employers and fellow workers alike. They will sometimes require affirmative conduct to promote entry of disabled people into the workforce. They do not, however, demand action beyond the realm of the reasonable.³³

²⁵ Unlike theories of statistical discrimination, Becker's theory does not contain information problems. Individuals are assumed to be equally productive, and all employers may accurately perceive this, but some employers have a distaste for hiring the minority due to simple prejudice (a dislike for dealing with minorities).

²⁶ See 42 U.S.C. § 12112(b)(5)(A) (2000).

²⁷ See 42 U.S.C. § 12112(a).

²⁸ See 42 U.S.C. § 12102(2).

²⁹ See 29 C.F.R. § 1630, app. (2000).

³⁰ See Robert L. Burgdorf, Jr., "Substantially Limited" Protection from Disability Discrimination: The Special Treatment Model and Misconstructions of the Definition of Disability, 42 VILL. L. REV. 409 (1997); Walter Y. Oi, *Disability and a Workfare-Welfare Dilemma*, in DISABILITY AND WORK: INCENTIVES, RIGHTS, AND OPPORTUNITIES 31 (Carolyn L. Weaver ed., 1991); Sue A. Krennek, Note, *Beyond Reasonable Accommodation*, 72 TEX. L. REV. 1969 (1994). See also 42 U.S.C. § 12112(b)(5) (setting forth the ADA's accommodation requirement).

³¹ Indeed, the technology used to produce a product or provide a service is generally taken as given in those models, as is the capital necessary to operate a facility. Becker's assumption of equal productivity implicitly holds technology constant—an individual hired randomly from either the majority or minority group would be equally productive within the firm.

³² See generally Christine Jolls, *Accommodation Mandates*, 53 STAN. L. REV. 223, 231 (2000) (defining accommodation mandates); Mark Kelman, *Market Discrimination and Groups*, 53 STAN. L. REV. 833, 840 (2001) (distinguishing between prohibitions on simple discrimination and accommodation).

³³ 535 U.S. at 401 (citations omitted). In this opinion, the Court considered the reasonableness of job reassignments, and held that an accommodation that conflicts with an employer's well-established seniority rules is ordinarily unreasonable.

The Court concludes that “[t]he simple fact that an accommodation would provide a ‘preference’—in the sense that it would permit the worker with a disability to violate a rule that others must obey—cannot, *in and of itself*, automatically show that the accommodation is not ‘reasonable.’”³⁴

Thus, the ADA imposes on employers a potential additional cost of hiring or retaining a disabled individual. The ADA’s definition of discrimination, which identifies a failure to pay the same wage and a failure to make reasonable accommodations, therefore seems to depart from the standard economic models of discrimination.³⁵ Not only are individuals with disabilities entitled to the same compensation as others who are equally qualified, they have, by virtue of the ADA, a claim to resources that others are perceived not to have. That employers incur expenses to allow qualified individuals to be productive on the job represents a focal point of economists’ criticisms of the ADA³⁶ and is a central element of public policy debates about the law’s employment protections.

C. PREDICTIONS OF THE ADA’S EFFECTS

Standard economic models predict that without the ADA, employers will hire disabled individuals to the extent that the costs of doing so are smaller than the benefits, that is, when the individual’s productivity yields benefits to the employer that are greater than the costs of hiring and retaining that individual. Accommodations will be provided if the same rule applies—the cost of the accommodation to the employer must be less than the benefit of providing it, and therefore accommodation will be provided when it is profitable to do so. This is more likely to occur where the individual pays for at least part of the accommodation in the form of a lower wage.³⁷

One key to assessing the predicted effects of the ADA is to understand that, unless discrimination is at work, employers will always seek to hire the most productive and “cheapest” disabled individuals (i.e., those requiring the fewest or the least costly accommodations). Thus, all else being equal, those who remain unemployed are predicted to be individuals who are less productive, or more costly to employ.³⁸ This prediction relies on the assumption that employers have reasonably accurate information about potential worker productivity and the costs and benefits of accommodations.

As the pre-ADA environment is viewed as efficient (or moving toward efficiency as market competition eliminates discriminatory employers), the ADA’s “equal pay” and reasonable accommodation requirements are predicted to lead to inefficiencies and to the imposition of costs on all affected. Each requirement is predicted to have deleterious effects on disabled and nondisabled individuals, on firms, and on the economy.³⁹

The ADA’s equal-pay requirement is predicted to force employers to pay individuals with disabilities more than they otherwise would. Under the ADA, those who would be hired at a lower wage, whether due to accommodation costs or discrimination, must be paid what the employer pays nondisabled individuals. The resultant payment increase leads to the loss of employment for some disabled

³⁴ *Id.* at 398.

³⁵ *But see* Christine Jolls, *Antidiscrimination and Accommodation*, 115 HARV. L. REV. 642, 645 (2001) (arguing that antidiscrimination and accommodation are “overlapping rather than fundamentally distinct categories”).

³⁶ For an example of such criticisms, see Oi, *supra* note 30.

³⁷ *Cf.* Morley Gunderson & Douglas Hyatt, *Do Injured Workers Pay for Reasonable Accommodation?*, 50 INDUS. & LAB. REL. REV. 92 (1996). This study finds that injured Canadian workers who did not return to their pre-injury employers suffered wage reductions when they received workplace accommodations at their new employers, indicating that they were bearing some of the cost of accommodations. Those who returned to their pre-injury employers, however, did not suffer wage reductions, possibly indicating that the employer savings in turnover and training costs outweighed the accommodation costs.

³⁸ Of course, this is a theoretical simplification, as other factors such as the cost of health insurance or government benefits affect labor force participation.

³⁹ *See, e.g.*, Mark A. Schuman, *The Wheelchair Ramp to Serfdom: The Americans with Disabilities Act, Liberty, and Markets*, 10 ST. JOHN’S J. LEGAL COMMENT. 495, 509-10 (1995); Carolyn L. Weaver, *Incentives Versus Controls in Federal Disability Policy*, in *DISABILITY AND WORK*, *supra* note 30, at 3, 13.

individuals, as fewer such persons are demanded at the higher wage.⁴⁰ Although higher wages would attract more disabled individuals to the labor market, many new entrants will remain unemployed because fewer persons are demanded.

Furthermore, because the ADA does not allow firms to pick and choose to whom accommodations will be provided, the law's accommodation mandate is predicted to force firms to pay more than what an individual is "worth" to the firm.⁴¹ In short, the ADA's accommodation requirement is expected to force employers to provide accommodations they otherwise would not have provided—those that are not profitable—and the ADA's equal-pay requirement prevents the added expense from being transferred to the employee through a lower wage.⁴²

Jolls departs from the standard models in examining the effects of accommodation mandates under different enforcement scenarios.⁴³ Using a model that builds on the work of Summers,⁴⁴ Jolls demonstrates that whether qualified ADA-disabled individuals realize employment losses depends on whether restrictions on wage and employment differentials are binding on employers.

Where only the ADA's equal-pay requirement is binding, disabled individuals are predicted to suffer relative employment losses and flat or increased relative wages. Where neither restriction is binding, relative wages are predicted to fall, and relative employment will rise, fall, or remain unchanged if the value of the accommodations exceeds, is less than, or is equal to their cost, respectively. Where both restrictions are binding, Jolls predicts that the relative wage of qualified disabled individuals will rise or stay the same and that the relative employment of those individuals will rise, in part because nondisabled individuals shoulder some of the costs of the accommodation mandate.⁴⁵

D. EMPIRICAL TESTS

DeLeire⁴⁶ and Acemoglu and Angrist⁴⁷ are among researchers using economic theory to derive and test empirically predictions regarding the ADA's effects on the employment of individuals with disabilities. DeLeire employs the Survey of Income and Program Participation (SIPP) data from 1986 to 1993 for men aged eighteen to sixty-four to examine whether the ADA has affected the likelihood of employment and wages of disabled individuals.⁴⁸ Acemoglu and Angrist use Current Population Survey (CPS) data from 1988 to 1997 for men and women aged twenty-one to fifty-eight to test a model that extends the standard economic model by incorporating concepts of hiring and firing costs.⁴⁹

Both sets of studies report findings that the authors contend support their predictions. DeLeire summarizes his findings as indicating that the ADA has led to a 7.2% decrease in the probability of employment of disabled individuals, but no change in relative wages.⁵⁰ He attributes this result to the costs to employers of complying with the ADA's accommodation requirement. Acemoglu and Angrist conclude that the ADA has had substantial disemployment effects on disabled men in the twenty-one to fifty-eight age cohort and on disabled women under the age of forty.⁵¹ They too attribute these findings to the accommodation costs of the ADA.

⁴⁰ Daron Acemoglu & Joshua D. Angrist, *Consequences of Employment Protection? The Case of the Americans with Disabilities Act*, 109 J. POL. ECON. 915, 920, 923 (2001).

⁴¹ See, e.g., Weaver, *supra* note 39, at 9, 11.

⁴² See Sherwin Rosen, *Disability Accommodation and the Labor Market*, in *DISABILITY AND WORK*, *supra* note 30, at 26.

⁴³ See Jolls, *supra* note 32, at 242-61.

⁴⁴ Lawrence H. Summers, *Some Simple Economics of Mandated Benefits*, 79 AM. ECON. REV. 177 (1989).

⁴⁵ Jolls, *supra* note 32, at 249-50, 274.

⁴⁶ Thomas DeLeire, *The Wage and Employment Effects of the Americans with Disabilities Act*, 35 J. HUM. RES. 693 (2000).

⁴⁷ Acemoglu & Angrist, *supra* note 40.

⁴⁸ DeLeire, *supra* note 46, at 698.

⁴⁹ Acemoglu & Angrist, *supra* note 40.

⁵⁰ DeLeire, *supra* note 46, at 705.

⁵¹ Acemoglu & Angrist, *supra* note 40, at 948-49.

Although both sets of studies show decreases in the employment of disabled people, they differ in the timing of when these decreases occurred. DeLeire finds a significant drop in 1990, which he attributes to the passage of the ADA.⁵² Acemoglu and Angrist find no significant drops in 1990. Instead, they discover such a drop in 1992, which they attribute to the ADA because its Title I employment provisions were implemented that year.⁵³ While it is debatable whether the relevant date for any changes in employer behavior should be the date of the ADA's passage or the Title I implementation date two years later, the disparate findings between the studies raise the question of whether the ADA is playing a role in these results or whether other idiosyncrasies of the models and datasets are at work.⁵⁴

Both sets of studies include consideration of the effects of federal disability receipts. DeLeire assesses changes in the level of benefits available, in eligibility, and in denial rates.⁵⁵ Reviewing data on these variables, he concludes that federal benefits are not likely to explain his results. DeLeire also considers the possible effects of the 1990–1991 recession. Using Panel Study of Income Dynamics (PSID) data, he investigates whether pre-1990 recessions led to widening gaps between employment rates of individuals with and without disabilities. Because those rates did not significantly widen in prior recessions, DeLeire concludes that the widening rates he finds after January 1991 are not due to the downturn in the economy in late 1990 and early 1991.⁵⁶

Acemoglu and Angrist include variables capturing receipt of federal disability benefits and find that their basic results are not greatly changed, so they conclude that receipt of federal benefits does not provide an explanation.⁵⁷ Having eliminated this alternative, Acemoglu and Angrist, like DeLeire, conclude that the ADA has negatively affected the employment of disabled individuals.

In sum, while Title I of the ADA, like previous antidiscrimination legislation, seeks to eliminate differential treatment of those who are equally productive, the ADA's requirement that employers make reasonable accommodations for employees with disabilities is a departure from prior legislation (although in more limited ways section 504 of the Rehabilitation Act of 1973 had a similar mandate). Standard economic models predict that the costs of accommodation will decrease the hiring and wages of people with disabilities. Seemingly bearing this out, two studies have reported evidence that the employment of people reporting work disabilities has decreased following passage of the ADA. We turn to a number of problems in researching the employment of people with disabilities, and describe other studies with more favorable results.

III. THE IMPACT OF THE ADA ON EMPLOYMENT

Can the results of the prior empirical tests be taken as proof that the ADA has failed to accomplish its goals? Based on the research to date, we conclude that the answer to that question is no. One major reason for our conclusion is related to the definition and measure of disability employed in prior studies. We will review a number of thorny problems in measuring disability, along with results based on alternative measures that reach different conclusions than the studies discussed above.

A. DISABLED INDIVIDUALS VERSUS DISABLED INDIVIDUALS PROTECTED BY THE ADA

The definition of disability and the identification of those in that protected category are critical to research addressing the labor market behavior of disabled individuals. If the purpose of the research is to examine the labor demand and supply of those with disabilities relative to those without disabilities, use of a measure that asks individuals whether they are “disabled” or whether they have a disability that prevents or limits the work they can perform may be sufficient. However, this approach, taken without

⁵² DeLeire, *supra* note 46, at 694-95.

⁵³ Acemoglu & Angrist, *supra* note 40, at 929-33.

⁵⁴ See generally Kruse & Schur, *supra* note 10, at 33-39.

⁵⁵ DeLeire, *supra* note 46, at 708-09.

⁵⁶ Thomas DeLeire, The Wage and Employment Effects of the Americans with Disabilities Act 44 (1997) (unpublished manuscript, on file with the Stanford Law & Policy Review).

⁵⁷ Acemoglu & Angrist, *supra* note 40, at 935-37.

regard to the ADA's language, will not yield valid conclusions if the goal is to assess the effects of the law.⁵⁸

Thus, even if researchers are correct in concluding that the relative employment of people with work disabilities fell dramatically in the 1990s, this finding has little relevance to the question of whether the ADA has been effective since it was enacted.⁵⁹ This is because only modest consideration has been given to whether the individuals captured by the selected measure of disability are in fact ADA-qualified individuals. The greater the discrepancy between the group that the ADA protects and the group that researchers identify as disabled (and that researchers compare to the group identified as nondisabled), the less that can be said about the ADA's causal effects.

As previously mentioned, those covered by ADA Title I are people who have an impairment that substantially limits a major daily life activity and who are "qualified" (i.e., they can perform essential job functions with or without accommodation).⁶⁰ As such, the ADA does not provide employment protections to all persons with physical or mental limitations. The law divides individuals with impairments into three groups: individuals with substantial limitations who are qualified, individuals with substantial limitations who are not qualified, and individuals with impairments that do not substantially limit a major life activity.⁶¹ The law provides protection only to those in the first group.⁶²

Researchers often do not distinguish between these groups. Instead, most divide samples into "disabled" and "nondisabled" categories. If the SIPP is used, the division is accomplished through the use of a standard survey question that asks respondents whether they have a physical, mental, or other health condition that limits the kind or amount of work that they can do.⁶³ This question is the SIPP item used to tabulate broad indicators of labor force participation by individuals with self-reported work-limiting impairments.⁶⁴ If the CPS is used, the item used to divide the sample into disabled and nondisabled groups asks whether individuals "have a health problem or disability which prevents [them] from working or which limits the kind and the amount of work [they] can do."⁶⁵

In general, both items define disability more narrowly than the ADA because they focus on impairments that limit work activity, rather than any major life activity. During its "disabilities act term," the Court questioned, but did not decide, whether working is even a major life activity for purposes of the law.⁶⁶

Additionally, individuals who are not "qualified" for purposes of the ADA may be included within the category of individuals identified as disabled in the CPS and SIPP.⁶⁷ Some researchers include as "disabled" those persons whose impairments prevent them from working at all (even, presumably, if accommodations were attempted). The CPS explicitly puts into the disabled category those who are

⁵⁸ On these points, see Thomas W. Hale, *The Lack of a Disability Measure in Today's Current Population Survey*, 124 MONTHLY LAB. REV. 38, 38-40 (2001); Susan Schwochau & Peter Blanck, *Does the ADA Disable the Disabled?—More Comments*, 42 INDUS. REL. 67 (2003); Schwochau & Blanck, *supra* note 12.

⁵⁹ Cf. Burkhauser et al., *supra* note 9.

⁶⁰ See generally PETER BLANCK, *THE AMERICANS WITH DISABILITIES ACT AND THE EMERGING WORKFORCE: EMPLOYMENT OF PEOPLE WITH MENTAL RETARDATION* (1998); *EMPLOYMENT, DISABILITY, AND THE AMERICANS WITH DISABILITIES ACT: ISSUES IN LAW, PUBLIC POLICY, AND RESEARCH* (Peter Blanck ed., 2000). The ADA also covers qualified individuals who do not presently have impairments, but have a record of past substantial impairments or are perceived to have such impairments. 42 U.S.C. § 12102(2) (2000).

⁶¹ See 42 U.S.C. § 12102(2); 42 U.S.C. § 12111(8).

⁶² See generally Michel Lee, *Searching for Patterns and Anomalies in the ADA Employment Constellation: Who Is a Qualified Individual with a Disability and What Accommodations Are Courts Really Demanding?*, 13 LAB. LAW. 149 (1997).

⁶³ DeLeire, *supra* note 46, at 698.

⁶⁴ John M. McNeil, *AMERICANS WITH DISABILITIES: 1991-92* (U.S. Bureau of the Census, Current Population Reports No. P70-33, 1993), at 11-13.

⁶⁵ Acemoglu & Angrist, *supra* note 40, at 925.

⁶⁶ See *Toyota Motor Mfg., Ky., v. Williams*, 534 U.S. 184, 200 (2002).

⁶⁷ To see this, compare 42 U.S.C. § 12111(8) (2000) with the discussions of the CPS's and SIPP's definitions of disability in the sources listed in *supra* notes 63-65.

prevented from working, although these are not ADA-qualified individuals. Moreover, information from the SIPP data for 1997 indicates that more than half (57.5%) of individuals between the ages of sixteen and sixty-four with work disabilities report being prevented from working.⁶⁸ Studies that rely on comparisons of the disabled and the nondisabled that include within the group of disabled individuals those who cannot work at all understandably will be more likely to produce results that suggest that disabled individuals are relatively less likely to be employed.⁶⁹

Hale describes the problems associated with use of the CPS and SIPP data sets for examinations of the employment of individuals with disabilities. He suggests that the CPS in particular cannot be relied on to distinguish those with disabilities from those without them.⁷⁰ Kaye also discusses these problems and proposes alternate measures of the employment rate, labor force participation, and unemployment. He notes that the reported decline in the employment rates of persons with disabilities after passage of the ADA is mitigated when one uses these alternative definitions.⁷¹ Further research on employment using alternative measures of disability is the focus of the next section.

B. WORK-RELATED DISABILITY VERSUS FUNCTIONAL LIMITATIONS

Use of measures of functional limitations instead of, or in addition to, measures of work disabilities has been shown to lead to results that differ substantially from the results of studies relying solely on work disability items to divide samples.⁷² Individuals reporting functional limitations and individuals reporting work disabilities are not always the same. In 1997, 10.5% of individuals between the ages of twenty-one and sixty-four reported a work disability, while 7.7% reported some other type of limitation, but no work disability.⁷³

Of those reporting a work disability, only one-third (34.1%) were employed. By comparison, almost three-quarters (72.6%) of those without a work disability, but with some other disabling limitation, were employed.⁷⁴ Unless individuals in this latter group would not be considered to have a substantial limitation under the ADA, the difference in the figures raises the possibility that individuals who have substantial limitations on major life activities other than working were miscategorized as being nondisabled in studies relying solely on work-related disability measures.⁷⁵

Kruse and Schur demonstrate the usefulness of focusing not only on individuals reporting work disabilities, but also individuals reporting functional limitations with respect to daily life activities.⁷⁶ Qualified ADA individuals are substantially limited in a major life activity. According to the EEOC regulations, major life activities include common everyday life functions, such as “caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.”⁷⁷

⁶⁸ This calculation comes from statistics presented in JOHN M. MCNEIL, AMERICANS WITH DISABILITIES: 1997, 11-13, available at <http://www.census.gov/prod/2001pubs/p70-73.pdf>.

⁶⁹ See generally Jerry L. Mashaw & Virginia P. Reno, *Overview*, in DISABILITY, WORK AND CASH BENEFITS 1 (Jerry L. Mashaw et al. eds., 1996). Changes over time in the proportion of individuals within the disabled category who are unable to work also have implications for empirical results. If the “prevented from working” subgroup of disabled individuals increases in size over the period of interest relative to the “not prevented from working” subgroup, the change could be reflected in findings of significant differences between disabled individuals and those not disabled. See *infra* notes 82-83 and accompanying text (discussing evidence of changes over time in the composition of the group generally defined as “disabled”).

⁷⁰ Hale, *supra* note 58, at 38.

⁷¹ Kaye, *supra* note 10 (manuscript at 14-15, on file with Stanford Law & Policy Review).

⁷² For example, a person with paraplegia who uses a wheelchair clearly has a functional limitation (i.e., the inability to walk), but may not report having a work limitation if he or she has a job where walking is irrelevant.

⁷³ These percentages were calculated using data from McNeil, *supra* note 68, at 15-16.

⁷⁴ The percentages in this and the prior sentence were calculated using data from *id.*

⁷⁵ See Kruse & Schur, *supra* note 10, at 39-45.

⁷⁶ See *id.*

⁷⁷ 29 C.F.R. § 1630.2(i) (2000). But see *infra* note 110 and accompanying text.

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Substantial limitations of these activities are criteria for ADA coverage, although such limitations would not necessarily constitute a requirement for coverage under other federal or state disability schemes.⁷⁸

What happens when researchers use disability measures built on these broader functional limitations? Kruse and Schur use data from the SIPP to define various groups based on measures of work disability; functional and daily activity limitations; receipt of disability income; and reported ability to work.⁷⁹ The functional and daily activity limitations include difficulties in physical functions (such as seeing, hearing, walking, speaking, climbing stairs, and lifting and carrying) or in performing common daily activities (such as eating, taking a bath, and getting around inside or outside the home).⁸⁰

The group of individuals reporting any such limitations would be overinclusive as a measure of ADA coverage, since some of those individuals would not be substantially limited in a major life activity. For instance, an impaired person would not be considered “disabled” under the ADA if the person mitigated the impact of her impairment with an assistive device.⁸¹ The group defined by Kruse and Schur as those who have severe functional and daily activity limitations (i.e., who are likely to be substantially limited in a major life activity), but who report the ability to work, is probably the group that best captures and isolates ADA-qualified individuals.

Examining their groups over time, Kruse and Schur find evidence that supports a compositional change among those reporting work disabilities.⁸² There is a substantial increase in reports of severe functional and daily activity limitations, a decrease in reports of being able to work, and an increase in the number of disability income recipients.⁸³ There is a good possibility, therefore, that the decline in employment among people reporting work disabilities in the early 1990s reflects compositional changes in this population, rather than the implementation of the ADA.

Kruse and Schur report employment trends in the early 1990s that differ dramatically among the disability measures.⁸⁴ Consistent with prior studies, their results show a relative employment decline for people reporting work disabilities between 1991 and 1993—that is, as the ADA was implemented.⁸⁵ In contrast, there were nonsignificant relative employment increases among people reporting any functional and daily activity limitations and among people reporting work limitations but an ability to work.⁸⁶

⁷⁸ One example of a federal scheme that does not require a showing of functional disability to qualify for coverage is the Social Security program. Note that most disability models would classify difficulties with activities such as walking, seeing, and hearing as functional limitations that would qualify as a disability only if they substantially limited a major life activity such as working, education, family life, or recreation. See generally Barbara Altman, *Disability Definitions, Models, Classification Schemes, and Applications*, in HANDBOOK OF DISABILITY STUDIES 97 (Gary L. Albrecht et al. eds., 2001).

⁷⁹ Kruse & Schur, *supra* note 10, at 39-44.

⁸⁰ *Id.* at 41.

⁸¹ *Cf. Sutton v. United Air Lines*, 527 U.S. 471 (1999). In this decision, the Court ruled that when mitigating measures, such as assistive devices, allow a person with an impairment to function without substantial limitations, that person does not have an ADA-covered disability.

⁸² Acemoglu & Angrist, *supra* note 40, discount compositional change by using a constant sample reporting work disabilities over the ADA-implementation period, but their employment and disability measures are not based on the same time period, and many in their sample did not have disabilities over the full period in which employment is measured. Due to this timing disjuncture, their results reflect employment declines among many people with newly acquired disabilities (but not employment increases among those recovering from disability), creating a strong bias toward finding declining employment over this period. This flaw is discussed in Kruse & Schur, *supra* note 10, at 37.

⁸³ The increase in disability income reciprocity is related to changes in SSDI program rules in the early 1990s. The modifications relaxed the eligibility criteria and use of continuing disability reviews, while a corresponding tightening of eligibility for workers' compensation in many states may have increased applications to SSDI. See generally GROWTH IN DISABILITY BENEFITS: EXPLANATIONS AND POLICY IMPLICATIONS (Kalman Rupp & David Stapleton eds., 1998); Emily A. Spieler & John F. Burton, Jr., *Compensation for Disabled Workers: Workers' Compensation*, in NEW APPROACHES TO DISABILITY IN THE WORKPLACE 205 (Terry Thomason et al. eds., 1998).

⁸⁴ Kruse & Schur, *supra* note 10, at 50-51.

⁸⁵ *Id.*

⁸⁶ *Id.*

Moreover, Kruse and Schur find that relative employment levels improve significantly among several of the other measures—in particular, there is a strong significant increase among individuals who are included in the best measure of the ADA-qualified, those with severe functional and daily activity limitations that do not prevent work.⁸⁷ These findings raise strong cautions about prior conclusions from evidence based only on the work disability measure. The work disability measure includes many people who are not covered by Title I of the ADA, and excludes many who are covered. The different results using measures that better reflect ADA coverage (accounting for limitations in major life activities other than work, and for the likelihood that one is ADA-qualified and available for employment), indicate that the ADA's actual effects may be positive instead of negative.

Importantly, the divergent patterns that Kruse and Schur find continue through the 1990s. Although there is no growth in employment when one examines all who report a work disability, there is significant improvement among those who report an ability to work.⁸⁸ Although reports of inability to work may be influenced by the social and economic environment—by such factors as the size of the welfare payments, the unemployment rate, and the perception of the public toward people with disabilities—Kaye presents evidence validating the reports of inability to work by showing that these individuals have poorer health on average and greater need for assistance with daily life activities.⁸⁹ In addition, the increase in reports of the inability to work in the 1990s is linked to an increase in reports of serious medical conditions and functional limitations.⁹⁰

In sum, prior conclusions about the relative employment of “disabled” individuals are largely dependent on the type of disability measure used.⁹¹ While all of the measures of disability have limitations, measures of functional limitations appear to more closely match criteria for ADA coverage than do other measures. Since there is no perfect measure, there is a strong case for comparing results among multiple measures of disability.

C. THE ADA AND SELF-REPORTED DISABILITY

The ADA may have effects on the probability that individuals report a disability, contributing to the compositional changes discussed in the previous section. As noted, Kruse and Schur report evidence that there has been a change over time in the number of individuals self-reporting work disabilities.⁹² Historically, the stigma attached to disability has caused general underreporting of disability, particularly given that public policies toward people with disabilities have been based on a paternalistic model that creates a “social construction” portraying people with disabilities as second-class citizens.⁹³

The rise of the disability rights movement and the passage of the ADA lessened such stigma and increased individuals' willingness to acknowledge disabilities, both to themselves and others. This may be especially true for those with the most stigmatized disabilities, such as mental impairments, that are associated with the lowest employment rates. Such increased acknowledgment of disability could have the effect of lowering the measured employment rate.⁹⁴

⁸⁷ *Id.*

⁸⁸ Kaye, *supra* note 10; see also NAT'L ORG. OF DISABILITY & HARRIS INTERACTIVE, 2000 N.O.D./HARRIS SURVEY OF AMERICANS WITH DISABILITIES 35 (2000).

⁸⁹ Kaye, *supra* note 10, at 29-38.

⁹⁰ *Id.* at 36-38.

⁹¹ See also SUSAN STODDARD ET AL., CHARTBOOK ON WORK AND DISABILITY IN THE UNITED STATES (1998), available at <http://www.infouse.com/disabilitydata/workdisability.html>; Steven Stern, *Measuring the Effect of Disability on Labor Force Participation*, 24 J. HUM. RES. 361 (1989).

⁹² Kruse & Schur, *supra* note 10, at 46-47.

⁹³ Anne Schneider & Helen Ingram, *Social Construction of Target Populations: Implications for Politics and Policy*, 87 AM. POL. SCI. REV. 334 (1993).

⁹⁴ See BLANCK, *supra* note 60, at 21–22 (1998) (discussing the stigma that people with mental disabilities face in employment settings); Peter Blanck, *Civil War Pensions and Disability*, 62 OHIO ST. L.J. 155, 185-88 (2001) (discussing the stigma attached to mental disabilities in the operation of the Civil War pension scheme).

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This reduction in social stigma is not the only way that the ADA may affect self-reports. Difficult measurement issues stem from the ADA's focus on physical or mental conditions that limit activities: if an individual perceives herself not to be limited, she will not respond affirmatively to questions about "limitations" or "difficulties." To the extent that the ADA removes both attitudinal and environmental barriers, it is likely that fewer people with impairments will report being substantially limited. This is undoubtedly a good thing from a policy and social perspective; it is not such a good thing if one is interested in measuring the effects of the ADA.

Reports of work disability should lessen over time if employers and advances in technology make workplaces more accessible, so that individuals' impairments are less likely to restrict the work they are able to do.⁹⁵ This effect is pronounced for those with less severe disabilities who are more easily accommodated, resulting in a higher concentration of people with severe disabilities in the population reporting a work disability.⁹⁶ Technological innovations and the movement to achieve independence also may contribute to the decrease in the number of individuals identifying limitations in other major life activities.⁹⁷

Reports of work disability may decline further over time, as individuals with impairments obtain jobs. Employment status also affects the reporting of objective health measures, and is likely to affect reporting of subjective measures such as a self-reported work disability.⁹⁸ People who are not employed may be more likely to report that they have a work disability as a way of justifying their lack of employment. Those who obtain jobs, in contrast, may be less likely to report a work disability; in fact, the availability of a job may mean, under the ADA, that their ability to work is, as a legal matter, not substantially limited, even if their impairments remain.

This raises the possibility that the tightening U.S. labor market in the late 1990s actually improved the employment situation for people with disabilities (using a broad measure of disability), but decreased the measured employment trend among those reporting work disabilities. This could have occurred if those who obtained jobs became less likely to report a work disability, while those who stayed nonemployed became more likely to report a work disability to justify their lack of employment in a strong market.

In short, if the ADA is effective in eliminating barriers that historically have thwarted attempts of individuals with disabilities to work, over time fewer individuals will identify themselves as limited in their ability to work, and those who do will have more severe disabilities.⁹⁹ However, even if the law were responsible for changes in individuals' views regarding whether they are limited in daily life activities and for the increased employment rates of these individuals, the individuals would not be treated as "ADA disabled" under our current measurement approaches. This would tend to increase the likelihood of obtaining results that suggest the ADA has had a negative—or no—effect on the employment of individuals with disabilities.¹⁰⁰

⁹⁵ See Kaye, *supra* note 10 (manuscript at 5, on file with Stanford Law & Policy Review).

⁹⁶ Corinne Kirchner, *Looking Under the Street Lamp: Inappropriate Uses of Measures Just Because They Are There*, 7 J. DISABILITY POL'Y STUD. 77 (1996).

⁹⁷ See Peter Blanck & Leonard A. Sandler, *ADA Title III and the Internet: Technology and Civil Rights*, 24 MENTAL & PHYSICAL DISABILITY L. REP. 855 (2000) (discussing trends in accessible technology for persons with disabilities).

⁹⁸ MICHAEL BAKER ET AL., WHAT DO SELF-REPORTED, OBJECTIVE MEASURES OF HEALTH MEASURE? (Nat'l Bureau of Econ. Research, Working Paper No. 8419, 2001); BRENT KREIDER & JOHN V. PEPPER, DISABILITY AND EMPLOYMENT: RE-EVALUATING THE EVIDENCE IN LIGHT OF REPORTING ERRORS (Ctr. for Ret. Research, Boston Coll., Working Paper No. 2002-01, 2002).

⁹⁹ Kirchner, *supra* note 96, at 82-85.

¹⁰⁰ BLANCK, *supra* note 60, at 143-44; Marjorie Baldwin, *Estimating the Potential Benefits of the ADA on the Wages and Employment of Persons with Disabilities*, in EMPLOYMENT, DISABILITY, AND THE AMERICANS WITH DISABILITIES ACT, *supra* note 60, at 258, 277 (suggesting that the potential gains from the ADA are much lower than proponents of the Act had hoped); Peter Blanck, *The Economics of the Employment Provisions of the Americans with Disabilities Act: Part I—Workplace Accommodations*, 46 DEPAUL L. REV. 877, 911 (1997).

D. OTHER ISSUES IN MEASURING DISABILITY

The study of individuals with disabilities encounters numerous complications that do not exist in the study of individuals of different genders or races. Disabled individuals have limitations that differ in nature, severity, and age of onset. An individual's ability to work may vary over time with the episodic nature of particular impairments.¹⁰¹ Conditions may worsen with time or fluctuate between severe and manageable.

The Court has declared that many work-related impairments require an “individualized assessment.”¹⁰² Because symptoms vary widely, assumptions regarding disability status cannot be made solely from impairments that individuals report or perceive they have.¹⁰³ Even creating a measure that is based on “objective” accommodation criteria—for instance, the need and costs for particular assistive devices (e.g., TTY telecomm devices, voice-recognition software) or for getting another person's assistance to accomplish a work task—may not yield consistent answers.¹⁰⁴

Further complicating matters is the fact that the ADA's definition of disability is subject to varied interpretations by courts, policy makers, employers, and persons with disabilities themselves. Critics of the ADA claim that there are ambiguities within the law's provisions, identifying difficulties associated with determining who falls into the ADA's definition of disabled.¹⁰⁵ Among the first questions to be answered is, “What is a major life activity under the ADA?” The answer to this question is not obvious, and an answer today may be in need of revision tomorrow. The same is true for what constitutes a substantial limitation on a major life activity.

Decisions coming in the Court's “disabilities act term,” as well as other recent opinions, have produced some clarifications. In 2002 in *Toyota Motor Manufacturing*,¹⁰⁶ the Court determined that an individual is substantially limited in performing manual tasks for purposes of the ADA only if the impairment prevents or severely limits that individual from activities that are central to daily life. In 1999 in *Sutton v. United Air Lines*,¹⁰⁷ the Court decided that factors that mitigate an individual's impairment, such as prosthetic devices, blood pressure medication, or even adaptive self-correcting techniques, are to be considered in defining whether that person's impairment is substantially limiting for purposes of the ADA.

These decisions are expected to end conflicts among lower courts, which have rendered inconsistent opinions. At the same time, by restricting the number of individuals covered by the ADA, the Court's decisions are likely to reduce the ADA's impact. It is unclear what impact these decisions will have on empirical assessment of the ADA—it is possible that they will decrease the number of people reporting a disability, creating a population with more severe disabilities and a lower employment rate.

Another issue that complicates measurement of disability status concerns the incentive to report a disability to qualify under Social Security's disability income programs. Individuals may exaggerate their health problems as they apply for or receive disability benefits. Recent evidence indicates that this may

¹⁰¹ Memorandum from Robert Silverstein, “Issues Raised on Statistics on the Employment of People with Disabilities,” to Peter Blanck (Sept. 18, 2002) (on file with first author).

¹⁰² *Chevron U.S.A., Inc. v. Echazabal*, 122 S. Ct. 2045, 2053 (2002).

¹⁰³ *See Toyota Motor Mfg., Ky., Inc. v. Williams*, 534 U.S. 198 (2002).

¹⁰⁴ Heidi M. Berven & Peter Blanck, *The Economics of the Americans with Disabilities Act: Part II—Patents and Innovations in Assistive Technology*, 12 NOTRE DAME J.L. ETHICS & PUB. POL'Y 9, 18-19 (1998).

¹⁰⁵ *See, e.g., Barnard, supra* note 13, at 48-51.

¹⁰⁶ 534 U.S. at 187.

¹⁰⁷ 527 U.S. 471 (1999).

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not be a substantial problem, given findings that survey-reported health characteristics are similar to data recorded by the Social Security Administration in making award decisions.¹⁰⁸

The task facing those attempting to identify an accurate and reliable measure of disability is, for these and other reasons, extremely difficult.¹⁰⁹ As noted in Kruse and Hale's description of the efforts to find a reliable and accurate measure of disability,¹¹⁰ merely asking individuals whether they have a physical or mental condition that substantially limits a major life activity may not reliably identify those covered by the ADA. Moreover, under *Toyota*, even diagnosis by a physician of an impairment or condition is not enough by itself to confirm a disability for purposes of analysis under the ADA.¹¹¹

The prior research testing a functional-limitation definition of disability does more than demonstrate what a difference a measure can make; it also highlights the potential benefits of using multiple measures of disability.¹¹² The use of measures of functional limitations in addition to measures that capture limitations on an individual's ability to work enables further investigation into the reasons why results appear to differ depending upon the measure employed.

Incorporation of both sorts of measures would allow analysis of the large numbers of individuals reporting work disabilities but no other functional limitations. These individuals have arguably the worst success rate in ADA litigation, as they are likely to be forced to simultaneously argue that they are substantially limited in their ability to work in a range of jobs, but are nonetheless qualified to do the job in question (perhaps with accommodation). This dilemma was faced by the plaintiff in the *Toyota* case.¹¹³ Finally, additional attention needs to be paid to the effect of the ADA and other environmental conditions on the likelihood that an individual reports herself as disabled, no matter what type of definition is used.

IV. IMPLICATIONS AND FUTURE RESEARCH

If unacceptably large numbers of qualified individuals with disabilities are without jobs, will a law such as the ADA (or even an amended ADA) bring about enhanced employment? Or, will such a law make employment more difficult for all individuals with disabilities to find and to keep? Do we need a law like the ADA, or should we, as some have urged, rely on market forces to sort those with disabilities into jobs?¹¹⁴

Criticism of the ADA is not restricted to those who see the law as unnecessary. Some fault the ADA's definition of disability as unduly restrictive and advocate that those with any limitation on a major life activity be covered rather than only those with substantial limitations.¹¹⁵ We could amend the ADA (though this is perhaps not politically feasible) to protect a larger (but unknown) percentage of qualified individuals with disabilities. Will such amendment or case law interpretation broadening the ADA's coverage worsen the existing employment problem?

¹⁰⁸ See HUGO BENITEZ-SILVA ET AL., HOW LARGE IS THE BIAS IN SELF-REPORTED DISABILITY? (Nat'l Bureau of Econ. Research, Working Paper No. 7526, 2000). See also Blanck et al., *supra* note 16, at 627-34 (discussing the relation of the definitions of disability under the ADA and under Social Security benefit programs). In *Cleveland v. Policy Management Systems Corp.*, 526 U.S. 795 (1999), the Court contrasted the goals of the ADA and SSA programs; it found that the differences in the goals reflect the fact that the SSA receives millions of claims for disability benefits each year, and further found that the determination of ADA reasonable accommodation turns on workplace-specific matters.

¹⁰⁹ See generally Burkhauser et al., *supra* note 9.

¹¹⁰ Douglas Kruse & Thomas Hale, *Disability and Employment: Symposium Introduction*, 42 INDUS. REL. 1 (2003).

¹¹¹ 534 U.S. at 198.

¹¹² See Kruse & Schur, *supra* note 10, at 50-51.

¹¹³ 534 U.S. at 627.

¹¹⁴ See, e.g., RICHARD A. EPSTEIN, FORBIDDEN GROUNDS: THE CASE AGAINST EMPLOYMENT DISCRIMINATION LAWS (1992).

¹¹⁵ See, e.g., Barbara A. Lee, *A Decade of the Americans with Disabilities Act: Judicial Outcomes and Unresolved Problems*, 42 INDUS. REL. 11 (2003). See also NAT'L COUNCIL ON DISABILITY, *CHEVRON V. ECHAZABAL: THE ADA'S "DIRECT THREAT TO SELF" DEFENSE* (Nat'l Council on Disability Policy Brief Series: Righting the ADA, No. 9, 2003) (discussing a disability-employment discrimination claim under the California Fair Employment and Housing Act (FEHA) and noting that the FEHA rejects the ADA and Rehabilitation Act definition of disability as a "substantial limitation" on a major life activity, as interpreted by the U.S. Supreme Court), at <http://www.ncd.gov/newsroom/publications/directthreat.html>.

The standard economic model suggests that the answer to that question is “yes.” Broadening ADA coverage will increase legal challenges and the success rate of ADA litigants (particularly those who will be able to pass the “disabled” threshold), and this would increase employers’ “hiring subsidies” and “firing costs” associated with ADA litigation.¹¹⁶ Expanding the definition of disability will likewise increase the number of individuals to whom employers will have accommodation obligations. Where firing and accommodation costs are greater than the hiring subsidies, the net effect is to increase the costs of employing disabled workers, and accordingly reduce the employment of such individuals.¹¹⁷ Thus, application of the standard economic model leads to the prediction that the employment of individuals with disabilities will decline further if the ADA’s definition of disability is broadened.

Yet, just as with the question of whether the law as written and interpreted has caused the employment prospects of ADA-qualified individuals to decline, determining whether a broader definition of disability for purposes of the ADA will have the deleterious effects predicted by economic theory requires that we learn more about who reports having a disability and why those individuals are, or are not, employed. Information is needed about the labor market experiences of qualified individuals with disabilities to determine whether the ADA should be amended, repealed, or narrowly enforced.

Today, we cannot say whether ADA-qualified individuals continue to face barriers to employment, and, if so, why this may be the case. Is it due to the ADA’s accommodation mandate? Is it due to the failure to enforce the ADA’s restriction on wage and employment differentials,¹¹⁸ or to premarket decisions of individuals? Is it due to forces operating separately from the ADA, such as barriers to health insurance, or to economic disincentives in federal benefit entitlement programs?¹¹⁹ Without knowledge of the “why,” informed decisions regarding policy cannot be made.

In this section, we discuss a number of issues that are crucial to understanding the employment situation of people with disabilities. These include issues of measurement, technological advances, alternative work arrangements, social attitudes, other factors influencing labor supply decisions, and recent policy changes.

A. MEASUREMENT

Getting to the “why” requires that researchers grapple with issues surrounding the “who”—that is, issues concerning how “disability” is to be measured and what the characteristics are of individuals captured by the measure selected. We have identified some of the measurement issues above. In future analyses of the labor force participation or employment status of disabled individuals, it is crucial to examine measures of disability that go beyond the use of “Yes/No” indicators of group membership.¹²⁰ Such indicators treat those with disabilities as a homogenous group, even though there is a great range in types and severity of impairments and other personal characteristics that can affect labor market behavior and ADA coverage.

Oi describes several aspects of disability that are important in individuals’ labor supply decisions: severity, age at onset of disability, anticipated duration of disability, and the disability’s effect on expected length of life.¹²¹ Silverstein adds four factors: the macroeconomic status during the reporting period (e.g., whether the country is in a deep or mild recession, the beginning stages of recovery, or full

¹¹⁶ Acemoglu & Angrist, *supra* note 40, at 920-25.

¹¹⁷ *Id.*

¹¹⁸ *Cf.* Jolls, *supra* note 32, at 273-76 (hypothesizing a decrease in disabled individuals’ relative employment levels as binding restrictions on employment differentials are not likely to exist).

¹¹⁹ For a discussion of these forces and disincentives, see Peter Blanck & Helen Schartz, *Towards Researching a National Employment Policy for Persons with Disabilities*, in EMERGING WORKFORCE ISSUES: W.I.A., TICKET TO WORK, AND PARTNERSHIPS 1 (L. Robert McConnell ed., 2001).

¹²⁰ *Cf.* Frederick C. Collignon, *Is the ADA Successful? Indicators for Tracking Gains*, 549 ANNALS AM. ACAD. POL. & SOC. SCI. 129, 132-34 (1997) (describing methodological issues that arise when attempting to measure disability).

¹²¹ Oi, *supra* note 30, at 31-45. See also Richard Burkhauser & Mary Daly, *Employment and Economic Well-Being Following the Onset of a Disability*, in DISABILITY, WORK AND CASH BENEFITS, *supra* note 69, at 59.

employment); how other protected classes, such as minority groups, are faring during the same time period; the race and ethnicity of the population and differences among subgroups (e.g., disabled African-Americans); and the possibility that persons with hidden disabilities, such as those with epilepsy and mental illness, for various reasons may not self-report.¹²²

Although not all this information is contained in existing datasets, researchers must acknowledge the challenges that accompany the study of individuals with disabilities and, until new measures are devised and expanded datasets are assembled, marshal information that is available. The SIPP and CPS contain information that allow those prevented from working to be identified, while the SIPP, the National Health Interview Survey, and the National Comorbidity Survey ask individuals questions that provide the basis for measures of severity.¹²³

Research examining measures of severity and employment suggests that severity is, as may be expected, inversely related with the probability of working.¹²⁴ Measures of disability, limitations, and health each appear to explain variation in the phenomena being addressed.¹²⁵ Only through examining many aspects of individuals' disabilities may researchers assess whether the ADA has helped or hindered the efforts of those with disabilities to move into, and stay in, the workplace.

In addition to examining alternative measures of disability, researchers must incorporate measures of individual productivity, such as education, job training, and work experience. The lack of job training and work experience is among the principal reasons why disabled individuals have difficulty finding employment.¹²⁶

Other studies suggest that the probability of employment in some sectors and types of jobs declined to a greater degree than it did in others.¹²⁷ Changes in job availability partially explain declining employment levels of individuals with disabilities.¹²⁸ Stapleton, Houtenville, and Goodman explore the possibility that job requirements have changed over time in ways that make it less likely that disabled persons will be able to compete for positions.¹²⁹ This may be due to the lower average educational levels of people with disabilities,¹³⁰ the fact that less on-the-job training is provided by employers to employees with disabilities, and the increasing importance of education and technological skills in the workplace.

In sum, measurement of employment among people with disabilities must take into account the types and severity of disability, other personal characteristics such as race and education, the macroeconomic environment, and the types of occupations and industries in which jobs are being created.

B. TECHNOLOGY

The central importance of computers in the workplace has implications for the employment of people with disabilities.¹³¹ Computer technologies help compensate for the physical limitations inherent

¹²² Memorandum from Robert Silverstein to Peter Blanck, *supra* note 101.

¹²³ See Burkhauser et al., *supra* note 9 (manuscript at 31-32, Exhibit 1, on file with authors); Kruse & Schur, *supra* note 10, at 5-10; Schwochau & Blanck, *supra* note 12, at 295-300.

¹²⁴ See, e.g., Pamela Loprest et al., *Gender, Disabilities, and Employment in the Health and Retirement Survey*, 30 J. HUM. RESOURCES 293 (1995).

¹²⁵ See Michael Stein, *Labor Markets, Rationality, and Workers with Disabilities*, 21 BERKELEY J. EMP. & LAB. L. 314 (2000).

¹²⁶ Frederick C. Collignon, *The Role of Reasonable Accommodation in Employing Disabled Persons in Private Industry*, in *DISABILITY AND THE LABOR MARKET: ECONOMIC PROBLEMS, POLICIES, AND PROGRAMS* 196, 232 (Monroe Berkowitz & MaryAnne Hill eds., 1989).

¹²⁷ See, e.g., DeLeire, *supra* note 46, at 704 tbl.5.

¹²⁸ Edward Yelin & Miriam Cisternas, *The Contemporary Labor Market and the Employment Prospects of Persons with Disabilities*, in *DISABILITY, WORK AND CASH BENEFITS*, *supra* note 69, at 33.

¹²⁹ David Stapleton et al., *Have Changes in Job Requirements Reduced the Number of Workers with Disabilities?*, in *THE DECLINE IN EMPLOYMENT OF PEOPLE WITH DISABILITIES*, *supra* note 9 (manuscript on file with authors).

¹³⁰ See, e.g., Marjorie L. Baldwin & William G. Johnson, *Labor Market Discrimination Against Women with Disabilities*, 34 INDUS. REL. 555, 567-68 (1995).

¹³¹ For recent reviews and empirical study, see David Klein et al., *Opening Doors to Education: Iowa School Website Accessibility*, 20 BEHAV. SCI. & L. 27 (2003); Heather Ritchie & Peter Blanck, *The Promise of the Internet for Disability: A*

in some disabilities—for example, those without finger dexterity use voice-recognition software to run a computer, and those with severe speech impediments use special software to “speak” through the computer.¹³² However, it is important to note that computer technology can affect people with different disabilities in different ways. Apart from the way in which special computer technologies can provide accommodations for people with specific disabilities, computers in general play a role in increasing the productivity levels of many people with disabilities.

Computer skills can open up occupational options where disability is of little or no relevance (e.g., most wheelchair users operate computers in the same way as those who do not use wheelchairs), while a lack of computer skills can restrict occupational options for people with disabilities (e.g., people with sensory or mobility impairments cannot do many service and blue-collar jobs). Consistent with this idea, Krueger and Kruse have found that among people with spinal cord injuries (SCIs), those using computers prior to the SCI had more rapid returns to work.¹³³ Furthermore, among the employed, there was no earnings gap between computer users with and without SCIs, while nonusers with SCIs earned significantly less than nonusers without SCIs.¹³⁴ In other words, there is an earnings penalty associated with SCI only among nonusers of computers.

Despite the positive effects of computer use on the employment and earnings of people with SCIs, these individuals are still less likely than other workers to be computer users and receive computer training following the injury.¹³⁵ Recent evidence indicates that people with disabilities are generally less likely to be computer users. Data from the 1999 SIPP show that among full-time workers, almost half (46%) of those without disabilities use computers at work, compared to one third (35%) of those with disabilities.¹³⁶ An additional 43% of full-time employees with disabilities do not use computers at work but regularly use them elsewhere or say they could do so without difficulty, compared to 39% of those without disabilities.¹³⁷

Among working-age people with disabilities who are not employed, 16% report that they use computers regularly, and an additional 29% say they could do so without difficulty.¹³⁸ Therefore, nearly half of nonemployed people with disabilities report they are capable of computer use, indicating substantial potential for increased employment of people with disabilities given the importance of computer skills in the workplace.

The growth of information technologies also increases the prevalence and productivity of home-based work.¹³⁹ This is of special benefit to people with mobility impairments that make travel to a work site difficult. Existing data confirm that people with work disabilities are more likely than other workers

Study of Online Services and Accessibility of Centers for Independent Living Web Sites, 20 BEHAV. SCI. & L. 5 (2003); Kevin Schartz et al., *Employment of Persons with Disabilities in Information Technology Jobs: Literature Review for “IT Works”*, 20 BEHAV. SCI. & L. 637 (2002).

¹³² Cf. *Thornton v. McClatchy Newspapers, Inc.*, 292 F.3d 1045 (9th Cir. 2002) (finding that a newspaper employee’s inability to engage in the use of a computer and continuous keyboarding was not a substantial limitation on performing the major life activity of manual tasks).

¹³³ ALAN KRUEGER & DOUGLAS KRUSE, *LABOR MARKET EFFECTS OF SPINAL CORD INJURIES IN THE DAWN OF THE COMPUTER AGE 3* (Nat’l Bureau of Econ. Research, Working Paper No. 5302, 1995).

¹³⁴ *Id.*

¹³⁵ Douglas Kruse et al., *Computer Use, Computer Training, and Employment Outcomes Among People with Spinal Cord Injuries*, 21 SPINE 891, 892 (1996).

¹³⁶ LISA SCHUR & DOUGLAS KRUSE, *NON-STANDARD WORK ARRANGEMENTS AND DISABILITY INCOME*, REPORT TO THE DISABILITY RESEARCH INSTITUTE tbl.29 (2002).

¹³⁷ *Id.*

¹³⁸ *Id.*

¹³⁹ See Sean T. Doherty et al., *The Economic and Social Impacts of Telework*, in *TELEWORK: THE NEW WORKPLACE OF THE 21ST CENTURY* (U.S. Dep’t of Labor ed., 2001), at 73. See also Heidi M. Berven & Peter Blanck, *Assistive Technology in the Workplace and the Americans with Disabilities Act*, in *EMPLOYMENT, DISABILITY, AND THE AMERICANS WITH DISABILITIES ACT*, *supra* note 60, at 329.

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to do paid work at home.¹⁴⁰ Research on technological and organizational barriers to home-based work, and on accommodations that increase the ease and productivity of telecommuting, will be valuable in assessing more completely future employment options for people with disabilities.

C. WORK ARRANGEMENTS

Apart from telecommuting and other home-based work, other types of nonstandard work arrangements play a role in enhancing employment opportunities for people with disabilities. Contingent work (i.e., temporary employment and independent contracting) and part-time employment are attractive for people with disabilities who have health problems that make standard full-time work difficult. Existing research shows that about 40% of workers with disabilities are in contingent or part-time jobs, which is twice the rate of workers without disabilities.¹⁴¹

Health problems are a major reason why people with disabilities are likely to work in nonstandard jobs.¹⁴² There are, however, drawbacks associated with such jobs. They pay less and provide fewer benefits than traditional full-time jobs, and workers with disabilities receive even lower pay and fewer benefits than nondisabled workers within these jobs. The result is that many workers with disabilities in nonstandard jobs are impoverished.¹⁴³

Unionization is another job characteristic that has received little attention in disability research. Unions play a crucial role in U.S. workplaces by negotiating terms and conditions of employment, providing a mechanism for worker voice, and helping protect employee rights. Unions work with employers in designing and implementing disability policies for employees and job applicants. Existing data show that workers with disabilities are as likely as other workers to be union members. However, there has been little exploration of the ways in which unions work with employers on disability policies and the extent to which these policies help workers with disabilities obtain jobs and remain employed.¹⁴⁴

It is an open question whether workers with disabilities fare better in unionized workplaces (e.g., because unions ensure that employers comply with civil rights laws like the ADA) or in nonunion workplaces (e.g., because seniority systems in union contracts make it more difficult to reassign workers with disabilities). Regarding seniority systems, in *US Airways, Inc. v. Barnett*,¹⁴⁵ the Supreme Court held that, absent special circumstances, employers are not required to make exceptions to seniority systems to accommodate workers with disabilities (even in the absence of a collective bargaining agreement) if the seniority system has been consistently applied. Following the *Barnett* decision, the empirical question is whether employers and unions will be less willing to make exceptions to collective bargaining agreements to accommodate workers with disabilities.

Other Supreme Court decisions impact the ability of workers with disabilities to use the ADA in disability discrimination lawsuits against employers in unionized settings. In *Wright v. Universal Maritime Service Corp.*, the Court ruled that general language in a collective bargaining agreement requiring all employment disputes to be settled by arbitration did not preclude an employee from suing

¹⁴⁰ Douglas Kruse, *Commentary*, in TELEWORK, *supra* note 139, at 98; Douglas Kruse & MaryAnne Hyland, *Telecommuting and Home-based Work: Differences by Disability Status* (1998) (unpublished manuscript, on file with the Stanford Law & Policy Review).

¹⁴¹ See Lisa Schur, *Barriers or Opportunities? The Causes of Contingent and Part-Time Work Among People with Disabilities*, 42 INDUS. REL. (forthcoming 2003) [hereinafter Schur (2003)]; Lisa Schur, *Dead-End Jobs or a Path to Economic Well-Being? The Consequences of Non-Standard Work for People with Disabilities*, 20 BEHAV. SCI. & L. 601 (2002) [hereinafter Schur (2002)]; Peter Blanck & Pat Steele, *The Emerging Role of the Staffing Industry in the Employment of People with Disabilities: A Case Report on Manpower, Inc.*, (1998) (unpublished manuscript, on file with the Stanford Law & Policy Review).

¹⁴² Peter Blanck et al., *The Emerging Workforce of Entrepreneurs with Disabilities: Preliminary Study of Entrepreneurship in Iowa*, 85 IOWA L. REV. 1583, 1597 (2000); Schur (2003), *supra* note 141, at 9.

¹⁴³ Schur (2002), *supra* note 141, at 610.

¹⁴⁴ *Id.* at 608.

¹⁴⁵ 535 U.S. 391 (2002).

the employer for violating the ADA.¹⁴⁶ In *Board of Trustees of the University of Alabama v. Garrett*, however, state employees, who are likely to be unionized, were not permitted to sue their employers for monetary damages under Title I of the ADA.¹⁴⁷ There is no empirical study of the implications of these cases for union policies and workplace outcomes, or for the role of unions in accommodating workers with disabilities.¹⁴⁸

Another factor regarding the definition of an ADA-qualified individual was introduced into the mix during the Court's "disabilities act term." In *Chevron U.S.A., Inc. v. Echazabal*, the Court upheld the validity of the Equal Employment Opportunity Commission's interpretative regulations of the ADA that included an employer defense to the hiring of qualified individuals who pose a direct safety threat to themselves in the workplace.¹⁴⁹ After *Chevron*, employers generally have greater latitude in deciding the degree of risk that an individual with a disability can and should accept in performing a particular job.¹⁵⁰

D. ATTITUDES

The continued existence of discriminatory attitudes is acknowledged by many employers: a 2003 employer survey found that 15% of employers said the greatest barrier to people with disabilities finding employment is employer reluctance to hire them, while another 5% cited discrimination or prejudice (and only 7% cited the need for workplace accommodations as the greatest barrier).¹⁵¹ Even when employers are driven by market and policy forces to behave in a nondiscriminatory way, negative animus from coworkers or customers reduces incentives for individuals with disabilities to enter the labor market.¹⁵² The long-term goal of the ADA is to eliminate such "tastes for discrimination." Yet previous studies have all held "tastes for discrimination" constant, and it is important to relax this assumption and develop a model of endogenous tastes such that we can see the role played by the ADA in shaping them.

Thus far, existing research has not examined the effects of the ADA on the incentive of disabled individuals to invest in human capital. Reasons why disabled individuals decide not to acquire additional education or training, and thereby remain less productive, are gleaned from the economic human capital model.¹⁵³ The expected value of investments in education and training is affected by such factors as life expectancy, the length of one's working life, the expected market wage, the length of time needed to complete an educational or training program, and the difficulties associated with acquiring skills.¹⁵⁴ Differences between nondisabled and disabled persons in these areas will lead to differences in decisions regarding the degree to which each group invests in their human capital. The point in life when an individual becomes disabled further influences decisions regarding human capital investment.¹⁵⁵

Investments in human capital additionally are a function of negative attitudes and stigma directed toward individuals with disabilities. Social and political forces historically and in contemporary society have contributed to negative attitudes toward individuals with disabilities.¹⁵⁶ As Becker notes:

¹⁴⁶ *Wright v. Universal Mar. Serv. Corp.*, 525 U.S. 70 (1998).

¹⁴⁷ *Bd. of Tr. v. Garrett*, 531 U.S. 356 (2001).

¹⁴⁸ Baldwin, *supra* note 21; Blanck, *supra* note 94; Craig Zwerling et al., *Workforce Participation by Persons with Disabilities: The National Health Interview Survey Disability Supplement, 1994 to 1995*, 44 J. OCCUPATIONAL & ENVTL. MED. 358 (2002).

¹⁴⁹ *Chevron U.S.A., Inc. v. Echazabal*, 122 S. Ct. 2045 (2002).

¹⁵⁰ See NAT'L COUNCIL ON DISABILITY, *supra* note 115.

¹⁵¹ K.A. DIXON ET AL., *RESTRICTED ACCESS: A SURVEY OF EMPLOYERS ABOUT PEOPLE WITH DISABILITIES AND LOWERING BARRIERS TO WORK* 13 (2003).

¹⁵² See generally Peter D. Blanck & Mollie W. Marti, *Attitudes, Behavior, and the Employment Provisions of the Americans with Disabilities Act*, 42 VILL. L. REV. 345 (1997); Blanck et al., *supra* note 142; Stein, *supra* note 125.

¹⁵³ The economic human capital model is put forward in, for example, GARY BECKER, *HUMAN CAPITAL* (1975).

¹⁵⁴ *Id.* at 85-94.

¹⁵⁵ Oi, *supra* note 30, at 31-45.

¹⁵⁶ Blanck, *supra* note 100, at 877; Peter Blanck & Michael Millender, *Before Civil Rights: Civil War Pensions and the Politics of Disability in America*, 52 ALA. L. REV. 1 (2000); Peter Blanck & Chen Song, "With Malice Toward None; With Charity Toward All": *Civil War Pensions for Native and Foreign-Born Union Army Veterans*, 11 TRANSNAT'L L. & CONTEMP. PROBS. 1 (2001).

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A novel theoretical development in recent years is the analysis of the consequences of stereotyped reasoning or statistical discrimination. This analysis suggests that the *beliefs* of employers, teachers, and other influential groups that minority members are less productive *can* be self-fulfilling, for these beliefs may cause minorities to underinvest in education, training, and work skills, such as punctuality. The underinvestment does make them less productive.¹⁵⁷

The ADA, through its accommodation and equal pay requirements, seeks to break this vicious cycle by narrowing the productivity gap between the disabled and the nondisabled. Additionally, the law may create investments in education and job training associated with greater future benefits.¹⁵⁸ Whether the ADA has triggered investment in education could be assessed by comparing years of schooling or job training before and after the law's enactment, particularly among younger people who can expect a greater return from education. But it may take study of the next generation of children with disabilities to determine the effects on employment of such changes in human capital decisions.

E. OTHER LABOR SUPPLY DECISIONS

Analysis of labor-supply decisions over time will help to isolate whether changes in nonwork sources of income explain the apparent decline in employment of subgroups of disabled persons. The provision of health care benefits makes work attractive, as suggested by recent policy changes to Medicaid law.¹⁵⁹ To the extent that disabled individuals place importance on access to health care in their decisions regarding labor force participation, changes in the private sector's provision of health care, in regulations regarding health care coverage, and in relevant federal programs are potential explanations for patterns of employment over time.

Sources of wealth not tied to employment, such as disability payments or Medicaid health insurance benefits, reduce incentives to work, particularly when attempts to work themselves reduce eligibility for such entitlements.¹⁶⁰ Significant barriers to employment remain in federal government programs. Prominent among these barriers have been economic disincentives reflected in the Social Security Disability Insurance (SSDI) and Supplemental Social Security (SSI) programs, manifested by a lack of health insurance among the working disabled.¹⁶¹

Specifically, full cash benefits under SSI and SSDI are only available to individuals who cannot engage in "substantial gainful activity."¹⁶² The monetary standard for substantial gainful activity clearly affects the labor market behavior of some recipients. This was shown when the monthly standard for SSDI was raised from \$500 to \$700 in July 1999, and there was a corresponding upward shift in the distribution of earnings among employed SSDI recipients.¹⁶³ The labor supply effects of disability income also have been illustrated by Stapleton and Tucker, who found that a number of employed SSI participants adjusted their earnings in response to changes in the income threshold in a work incentive program (although there were no changes in employment status among the majority of SSI recipients who

¹⁵⁷ GARY BECKER, ACCOUNTING FOR TASTES 142 (1996); cf. Robert Rosenthal, *Interpersonal Expectations: Some Antecedents and Some Consequences*, in INTERPERSONAL EXPECTATIONS: THEORY, RESEARCH, AND APPLICATIONS 3, 8-10 (Peter Blanck ed., 1993) (discussing biasing effects of interpersonal expectations).

¹⁵⁸ See Jolls, *supra* note 32, at 280. In addition, laws designed to increase access to equal education, such as the Individuals with Disabilities in Education Act (IDEA), can be expected to increase investments in human capital among people with disabilities. 20 U.S.C. § 1400 (2000).

¹⁵⁹ See, e.g., Robert B. Friedland & Alison Evans, *People with Disabilities: Access to Health Care and Related Benefits*, in DISABILITY, WORK AND CASH BENEFITS, *supra* note 69, at 357.

¹⁶⁰ Schartz et al., *supra* note 131. See also Thomas F. Burke, *On the Rights Track: The Americans with Disabilities Act, in COMPARATIVE DISADVANTAGES?: SOCIAL REGULATIONS AND THE GLOBAL ECONOMY* 242, 281 (Pietro S. Nivola ed., 1997) (citing evidence suggesting that 80% of working-age disabled individuals pointed to low-paying jobs as a reason for their not being employed full-time).

¹⁶¹ Blanck et al., *supra* note 142, at 1639-40.

¹⁶² Blanck et al., *supra* note 16, at 625-27 (discussing Social Security monetary benefit scheme).

¹⁶³ Schur (2003), *supra* note 141, at 17.

were not employed).¹⁶⁴

Kaye notes that the reported decline in the employment rates of persons with disabilities after passage of the ADA is mitigated when one considers the effect of the early 1990s economic recession and the coinciding rise in working-age adults applying for and receiving federal disability benefits such as SSDI and SSI.¹⁶⁵ Burkhauser et al. note substantial increases in SSDI and SSI program participation, particularly for men during the 1990s.¹⁶⁶ Since the early 1990s, there has been an increase in SSI payments to young persons and to those with mental disabilities.¹⁶⁷

The importance of disability income in employment trends for people reporting work disabilities is also shown by evidence from Bound and Waidmann that “suggest that changes in the availability of [disability income] . . . were central for explaining the growth in the fraction of disabled men and women on [disability income] and out of work.”¹⁶⁸

Autor and Duggan likewise find that the increase in disability income played a strong role in U.S. labor markets in the 1990s, lowering the unemployment rate by as much as two-thirds of a percentage point, as new recipients stopped looking for work and withdrew from the labor market.¹⁶⁹ Krueger and Meyer discuss this and other evidence regarding the effects of social insurance programs, finding that Workers’ Compensation and Unemployment Insurance have strong effects on time spent out of work, while SSDI appears to have smaller effects that are not as well-established.¹⁷⁰

In sum, disability income and access to health care coverage are important factors in the labor supply decisions of people with disabilities, and need to be taken into account in any research examining disability and employment.

F. POLICY CHANGES

Recent national policy initiatives are aimed at diminishing barriers to work for disabled persons who want to work and are capable of working.¹⁷¹ The Ticket to Work and Work Incentives Improvement Act (TWWIIA) of 1999 expands the availability of health care coverage for individuals with disabilities.¹⁷² States may allow disabled people with specified incomes over the poverty level to “buy into” Medicaid health insurance programs if they are otherwise eligible for SSI. Medicaid premiums then are determined on a sliding scale. TWWIIA also extends Medicare coverage for people returning to work from SSDI, thus attempting to stimulate beneficiaries to return to work (e.g., after being injured on the job) without risking the loss of health insurance coverage.¹⁷³

¹⁶⁴ David C. Stapleton & Adam F. Tucker, *Will Expanding Health Care Coverage for People with Disabilities Increase Their Employment and Earnings? Evidence from an Analysis of the SSI Work Incentive Program*, in *THE ECONOMICS OF DISABILITY* (David Salever et al. eds., 2000), at 133.

¹⁶⁵ See generally Kaye, *supra* note 10.

¹⁶⁶ Burkhauser et al., *supra* note 9.

¹⁶⁷ Martynas A. Ycas, *The Issue Unresolved: Innovating and Adapting Disability Programs for the Third Era of Social Security*, 58 *SOC. SEC. BULL.* at 48, 50 (1995).

¹⁶⁸ JOHN BOUND & TIMOTHY WAIDMANN, *ACCOUNTING FOR RECENT DECLINES IN EMPLOYMENT RATES AMONG THE WORKING-AGE DISABLED 15* (Nat’l Bureau of Econ. Research, Working Paper No. 7975, 2000).

¹⁶⁹ DAVID H. AUTOR & MARK G. DUGGAN, *THE RISE IN DISABILITY RECIPIENCY AND THE DECLINE IN UNEMPLOYMENT* (Nat’l Bureau of Econ. Research, Working Paper No. 8336, 2001).

¹⁷⁰ ALAN B. KRUEGER & BRUCE D. MEYER, *LABOR SUPPLY EFFECTS OF SOCIAL INSURANCE* (Nat’l Bureau of Econ. Research, Working Paper No. 9014, 2002).

¹⁷¹ See generally Schartz et al., *supra* note 131; Alan Jensen & Robert Silverstein, *Improvements to the SSDI and SSI Work Incentives and Expanded Availability of Health Care Services to Workers with Disabilities Under the Ticket to Work and Work Incentives Improvement Act of 1999*, 2 *POL’Y BRIEF* 1 (2000); memorandum from Robert Silverstein to Peter Blanck, *supra* note 101.

¹⁷² Ticket to Work and Work Incentives Improvement Act of 1999, Pub. L. No. 106-170, 113 Stat. 1860 (codified as amended in scattered sections of 42 U.S.C.).

¹⁷³ Blanck et al., *supra* note 16 (discussing the TWWIIA scheme).

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In addition to offering expanded health insurance options, TWWIA and the Workforce Investment Act (WIA) of 1998¹⁷⁴ eliminate other work disincentives that have historically limited employment options for disabled persons (such as deferral of medical reviews for those who return to work, expedited reinstatement of benefits for those who cannot continue to be employed, increased access to information on work incentives, and demonstration projects on the role of earnings offsets in disability benefits). WIA establishes "one stop" employment and job training centers to provide accessible services to individuals with differing disabilities.

Examination of the impact of TWWIA and WIA in conjunction with the ADA will better inform policymakers as to the extent to which qualified individuals are entering the labor market or actively seeking work for pay. The incorporation into analyses of those actively seeking work for pay will allow assessment of whether these policy changes influence the number of individuals choosing federal assistance over work.¹⁷⁵

V. CONCLUSION

Researchers calibrating the impact of the ADA's employment provisions face numerous challenges. Three are particularly prominent:

(1) It is important to use operational definitions or measures of disability that do not deviate substantially from the ADA's definition of disability and of ADA-qualified individuals.

(2) One must take into account the fact that within the group of ADA-qualified individuals, the effects of impairments are not homogenous, and disability status varies with jobs, the use of mitigating measures, and the degree to which accommodations are required or provided.

(3) One must also recognize that persons with mild impairments self-report themselves as "disabled," yet are not covered by the ADA's provisions, while many persons with severe functional limitations may not perceive themselves to be disabled for purposes of the ADA or otherwise.

In the absence of analyses addressing these issues, existing research provides little basis on which policymakers can make informed decisions regarding how the ADA has impacted ADA-qualified individuals. Moreover, to make such informed decisions, policymakers must concern themselves not only with the validity of existing and future studies, but also with the limitations of the theoretical models on which those studies are based.¹⁷⁶

Economic theory's predictions regarding the effects of the ADA on ADA-qualified individuals' employment and wages are based on the view that the market operates to transfer at least some of the employer's costs onto disabled individuals (i.e., through lower employment or wage levels). However, those models fail to consider that a disabled person who chooses not to enter the labor market receives a form of transfer payment from taxpayers.

The question is whether, from a social perspective, it is more efficient for employers to incur the accommodation cost, so that the disabled individual can work for pay, or for taxpayers to support this individual. The answer depends on the wage rate, the accommodation cost, the size of the transfer payment, and the value of output produced by the individual. A rational policymaker will support the enforcement of employer accommodation when the total social benefit (the reduction in transfer payment plus the increase in output) exceeds the total social cost (the wage rate plus the accommodation cost).¹⁷⁷

¹⁷⁴ Workforce Investment Act of 1998, Pub. L. No. 105-220, 112 Stat. 936 (codified as amended in scattered sections of 29 U.S.C.).

¹⁷⁵ Equal Employment Opportunity for Individuals with Disabilities, 56 Fed. Reg. 8578 (Feb. 28, 1991) (to be codified at 29 C.F.R. § 1630).

¹⁷⁶ For discussion of these models and their limitations, see Collignon, *supra* note 126, at 205-11.

¹⁷⁷ Amy Wax, *Disability, Reciprocity, and "Real Efficiency": A Unified Approach*, 45 WM. & MARY L. REV. (forthcoming 2003).

In addition, macroeconomic incentives in federal and state tax policy for the provision of workplace accommodations to enhance the employment of qualified disabled individuals need to be addressed.¹⁷⁸ Tax policy is a crucial yet understudied strategy for facilitating workplace accommodations. Tax credits, deductions, and other treatments currently influence employer behavior in connection with the costs they incur in the conduct of their activities.

At federal and state levels, tax policy encourages the accommodation of workers with disabilities. Section 190 of the Federal Tax Code provides a deduction for costs associated with making facilities accessible and usable by a person with a disability.¹⁷⁹ In 1990, Congress approved the Disabled Access Credit, which establishes a 50% credit for the first \$10,000 (over a \$250 threshold) of expenses incurred each year by a small business to comply with the ADA.¹⁸⁰ Relevant eligible access expenditures include removing communication or physical barriers for an employee with a disability, providing qualified interpreters and readers, and modifying assistive technology. Despite this activity, there are no studies to date assessing whether tax policies are effective, from employer or employee perspectives, in accomplishing their intended purposes.¹⁸¹

This Article identifies some of the changes in the economy and some of the economic, social, and policy incentives and disincentives that help explain employment trends among people with disabilities (both those who are covered by the ADA and those who are not). We are just beginning to explore the question of whether individuals who report a work disability or functional limitation continue to experience lower employment levels since the ADA was passed. We need to assess who those individuals are, and why they are or are not employed, before informed decisions about the calibration of the ADA can be made.

¹⁷⁸ Schartz et al., *supra* note 131, at 649-50 (discussing tax policy to enhance the employment of persons with disabilities).

¹⁷⁹ I.R.C. § 190 (2000). The deduction may not exceed \$15,000 for any taxable year. *Id.* § 190(c).

¹⁸⁰ *Id.* § 44. A small business is eligible for the credit if its revenues did not exceed \$1 million for the preceding taxable year and does not employ more than thirty full-time employees. *Id.* § 44(b).

¹⁸¹ *See, e.g.*, GENERAL ACCOUNTING OFFICE, INCENTIVES TO EMPLOY WORKERS WITH DISABILITIES RECEIVE LIMITED USE AND HAVE AN UNCERTAIN IMPACT (GAO Highlights, Report on GAO-03-39, 2002), at <http://www.gao.gov> (detailing a GAO study that finds that a small percentage of businesses use tax credits available to encourage the hiring, retention, and accommodation of workers with disabilities, and that information on the effectiveness of tax incentives is sparse and inconclusive).