

The Economics of the Americans with Disabilities Act, Part III: Does the ADA Disable the Disabled?[†]

Susan Schwochau^{††} and Peter David Blanck^{†††}

I. INTRODUCTION

The headline reads “Dubious Aid for the Disabled,” and the attached story speaks of evidence that the Americans with Disabilities Act (“ADA”)¹ has led to reductions, rather than the anticipated increases, in the employment of individuals with disabilities.² Can the results be believed? Some evidence suggests yes. The National Institute on Disability and Rehabilitation Research recently reported, for example, that the ADA has not led to an improvement of employment conditions to disabled persons generally.³ The findings from the latest National Organization on Disability/Louis Harris poll suggest that the percentage of disabled individuals who are employed has declined since its surveys in 1994 and 1986.⁴ Numerous others have noted that the law is not yielding the outcomes expected by its drafters.⁵

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^{††} Judicial clerk, U.S. Court of Appeals for the Fifth Circuit; Ph.D., 1986, University of Illinois; J.D., 1999, University of Iowa.

^{†††} Professor of Law, of Preventive Medicine, and of Psychology, University of Iowa; Director, Law, Health Policy and Disability Center; Ph.D., 1982, Harvard University; J.D., 1986, Stanford University Law School. Author to whom correspondence should be addressed.

1. 42 U.S.C. §§ 12101-12213 (1994).

2. Peter Coy, *Dubious Aid for the Disabled*, BUS. WK., Nov. 9, 1998, at 30. This, and other headlines, see, e.g., *Good Intentions, Bad Results*, INVESTOR’S BUS. DAILY, Oct. 28, 1998, at A7; Carol Lochhead, *Washington Insight: How Law to Help Disabled Now Works Against Them*, S.F. CHRON., Jan. 3, 1999, at 7 (editorial), were attached to reports and editorials in the popular press describing results of a recent empirical study of the effects of the ADA, DARON ACEMOGLU & JOSHUA ANGRIST, CONSEQUENCES OF EMPLOYMENT PROTECTION? THE CASE OF THE AMERICANS WITH DISABILITIES ACT (National Bureau of Econ. Research Working Paper No. 6670, 1998), that appears to show that the Americans with Disabilities Act has led to an overall reduction in the employment of individuals with disabilities. This study is a focus of *infra* Part IV.

3. H. STEPHEN KAYE, IS THE STATUS OF PEOPLE WITH DISABILITIES IMPROVING? 1 (Disability Stat. Center, Disability Stat. Abstract No. 21, 1998).

4. Findings from the 1998 National Organization on Disability/Harris Survey of Americans with Disabilities indicate that 29% percent of individuals with disabilities surveyed in 1998 were employed. This figure compares with 31% employed in 1994, and with 34% employed in 1986. For a summary of the findings of the most recent survey, along with comparisons to the results of prior surveys, see NATIONAL ORGANIZATION ON DISABILITY/HARRIS SURVEY OF AMERICANS WITH DISABILITIES, (visited Feb. 20, 2000) <<http://www.nod.org/presssurvey.html>> [hereinafter NOD/HARRIS SURVEY].

5. See, e.g., Marjorie L. Baldwin, *Can the ADA Achieve its Employment Goals?*, 549 ANNALS 37, 52 (1997).

Approaching its ten-year anniversary, the ADA's track record in improving employment opportunities for individuals with disabilities appears dismal. The labor force participation of disabled individuals is far below that of persons without disabilities. Information from the Current Population Survey ("CPS") suggests that in 1998, only 30.4% of those with a work disability between the ages of 16 and 64 were in the labor force, while 82.3% of nondisabled 16 to 64 years olds were either employed or actively seeking work for pay.⁶ Only 26.6% of individuals with work disabilities were employed, compared to 78.4% of nondisabled individuals. Of disabled individuals who were employed, 63.9% held full-time jobs. For nondisabled employed persons, the comparable figure is 81.5%. Earnings information is similarly unbalanced: in 1997, the mean earnings of individuals with work disabilities holding full-time year round jobs were \$29,513, whereas the mean earnings of nondisabled individuals in such jobs were \$37,961. Finally, it remains the case that the disabled have far lower levels of education than individuals without disabilities. Nearly 31% of those with work disabilities had not completed high school, although only 17.5% of nondisabled individuals had not done so. Although 23.8% of individuals without disabilities had more than 16 years of education, only 10.5% of individuals with disabilities attained that level of education.

This is not to say that all the available information paints such a dismal picture. Some evidence indicates that the employment of those with severe disabilities has been increasing. In 1991-1992, information from the Survey of Income and Program Participation ("SIPP") suggested that 23.2% of individuals between 21 and 64 with severe disabilities were employed.⁷ Comparable figures from 1994-1995 indicate that this rate has increased to 26.1%.⁸ A series of studies

(concluding that the ADA is "least likely to help those workers with disabilities who are most disadvantaged in the labor market"); Walter Y. Oi, *Employment and Benefits for People with Diverse Disabilities*, in DISABILITY, WORK AND CASH BENEFITS 103, 103 (Jerry L. Mashaw et al. eds., 1996) [hereinafter DISABILITY, WORK & CASH BENEFITS] (stating that the ADA has not produced the anticipated growth in employment rates of the disabled); Lisa J. Stansky, *Opening Doors*, 82 A.B.A. J. 66 (Mar. 1996) (noting lack of consensus regarding whether ADA was meeting its goals); Sue A. Krennek, Note, *Beyond Reasonable Accommodation*, 72 TEX. L. REV. 1969, 1970 (1994) (describing the ADA as a "compromise that is failing"); Scott A. Moss & Daniel A. Malin, Note, *Public Funding for Disability Accommodations: A Rational Solution to Rational Discrimination and the Disabilities of the ADA*, 33 HARV. C.R.-C.L. L. REV. 197, 198 (1998) ("[T]he ADA has not been as effective as hoped in increasing employment among persons with disabilities."); Steven A. Holmes, *In 4 Years, Disabilities Act Hasn't Improved Jobs Rate*, N.Y. TIMES, Oct. 23, 1994, at A18.

6. Individuals are considered to be in the labor force if they are employed, or are not employed, but are actively seeking work for pay. See CURRENT POPULATION SURVEY (1998), available at <<http://www.census.gov/hhes/www/disable/disabcps.html>>.

7. JOHN M. MCNEIL, U.S. DEP'T OF COM. CURRENT POPULATION REP. NO. P70-33, AMERICANS WITH DISABILITIES: 1991-92, 62, table 24 (1993) [hereinafter MCNEIL, 1991-92 SIPP STUDY].

8. JOHN M. MCNEIL, U.S. DEP'T OF COM. CURRENT POPULATION REP. NO. P70-61, AMERICANS WITH DISABILITIES: 1994-95, at 7, table 2 (1997) [hereinafter MCNEIL, 1994-95 SIPP STUDY]. See also Kaye, *supra* note 3, at 1-2 (reporting that among people aged 21-64 with severe functional limitations, a smaller group of individuals compared to those with severe disabilities, employment increased from 27.6% in 1991-1992 to 32.2% in 1994-1995). SIPP data also show a slight increase in employment of individuals with disabilities (a broader definition than those based on work disabilities, see *infra* notes 178-180 and accompanying text) between 1991-1992 and 1994-1995. During the earlier period, 52% of individuals with disabilities were employed. McNeil, 1991-92 SIPP STUDY, *supra* note 7, at 62. By 1994-1995, 52.4% of individuals with disabilities were employed. McNeil, 1994-95 SIPP STUDY, *supra* note 8,

of individuals with mental retardation suggests that individuals have been moving into competitive employment settings since the ADA was enacted.⁹ Some evidence also suggests that disabled individuals' level of education has been increasing over time.¹⁰

However, it is the case that overall findings are, at best, mixed. Reports of successes frequently coincide with news suggesting that for the majority of those covered by the law, few improvements have been realized.¹¹ The "positive" results, moreover, generally do not come from studies that employ national data sets to test multivariate models of individuals' employment status, wages, satisfaction, or other outcomes of interest. Thus, while informative, they may be criticized for a lack of generalizability and for not sufficiently taking into account other explanations for the phenomena under study. In short, we have findings and statistics, but little evidence to suggest they reflect the effects of the ADA as opposed to other factors.

Studies that use national datasets to empirically examine the effects of the ADA on the employment and wages of the disabled are being conducted, with the possibility that evidence provided will allow for stronger and more definitive conclusions regarding the nature of the law's influences. The authors of two such studies¹² present evidence that suggests that, compared to employment of persons without disabilities, the employment of individuals with work disabilities has declined since the early 1990s.¹³ These findings would appear unremarkable in light of other statistics showing the same pattern of declines. However, these studies attribute the decline in employment rates among disabled individuals to the ADA in general, and to the law's mandate that employers accommodate disabled workers in particular.

Does this mean that the ADA poses a barrier to employment of the precise persons the law was intended to benefit? Both studies will no doubt fuel the debate between advocates and critics of the ADA, and will bring to the fore the question of

at 7 tbl. 2.

9. See PETER DAVID BLANCK, *THE AMERICANS WITH DISABILITIES ACT AND THE EMERGING WORKFORCE: EMPLOYMENT OF PEOPLE WITH MENTAL RETARDATION* 97-98 (1998) [hereinafter *EMERGING WORKFORCE*] (presenting statistics showing that 44% of the sample moved into more integrated employment settings over the 1990-1996 period, with 7.8% moving into competitive settings); Peter David Blanck, *Assessing Five Years of Employment Integration and Economic Opportunity under the Americans with Disabilities Act*, 19 *Mental & Physical Disability L. Rep.* 384, 386 (1995) [hereinafter *Integration and Opportunity*]; see also Peter David Blanck, *The Emerging Work Force: Empirical Study of the Americans with Disabilities Act*, 16 *J. CORP. L.* 693 (1991).

10. See 1998 NOD/HARRIS SURVEY, *supra* note 4 (reporting that in 1986, 39% of disabled individuals responded they had not completed high school, and in 1998, 20% of disabled individuals gave that response).

11. See, e.g., BLANCK, *EMERGING WORKFORCE*, *supra* note 9, at 98 (reporting that 47% of study participants showed no change in their employment status between 1990 and 1996); Blanck, *Integration and Opportunity*, *supra* note 9, at 388 (reporting that the majority of employed individuals with mental retardation remained in nonintegrated employment settings over the 1990-1994 period). Both studies report evidence suggesting that small percentages of the sample also experienced "regressions" in employment, moving from integrated to nonintegrated settings. See, e.g., BLANCK, *EMERGING WORKFORCE*, *supra* note 9, at 98, 126 (suggesting 4% (39 of 973) made this move between 1990 and 1996).

12. ACEMOGLU & ANGRIST, *supra* note 2; Thomas DeLeire, *The Wage and Employment Effects of the Americans with Disabilities Act* (Dec. 1997) (unpublished manuscript, on file with authors).

13. The results of both studies are described in detail in *infra* Part IV. A.

whether the ADA is in fact a well-intentioned, but bad, law. Because the conclusions of studies using sophisticated statistical techniques to examine national samples generated through random sampling techniques are likely to be given substantial weight in debates over the ADA, it becomes important to assess the degree to which the empirical evidence supports, and allows, those conclusions. In this Article, we assess the extent to which recent empirical research yields results that suggest that the ADA is the explanation behind apparent declines over time in the employment of disabled individuals.

The recent studies approach the questions of the ADA's effects from an economics perspective. To put that research in its appropriate context, in Part II we briefly describe the predominant economic models of discrimination and how the ADA's provisions may be tied to those models' forms of discriminatory behavior. Part III is dedicated to descriptions of standard economic models of supply and demand which have been the basis of empirical tests of the ADA's effects. It lays out the predictions made regarding the ADA's effects, focusing on those regarding influences of two provisions in the law: (1) the requirement that employers not discriminate on the basis of disability in compensation decisions, and (2) the requirement that employers make reasonable workplace accommodations for their qualified disabled employees. Part IV describes two recent empirical studies of the ADA's effects, and analyzes the extent to which alternative explanations for their findings have been eliminated. We conclude that plausible alternative explanations have not been eliminated, suggesting that attribution of results to the ADA is premature. We also lay out a number of questions and issues that extant research leaves unaddressed, in part to encourage researchers to continue to develop and test models that will enable a more complete assessment of the ADA's influences on individuals with and without disabilities.

II.

TITLE I AND THEORIES OF DISCRIMINATION

Title I is fundamentally an attempt to address problems related to the lower probabilities of employment and lower wages of disabled individuals.¹⁴ Differences between disabled and nondisabled persons in these outcomes may be seen as reflecting numerous possible forces. They may exist because the two groups of individuals are not equally productive. Disabled and nondisabled individuals may come to the labor market with different skills and abilities, and through their years of working, accumulate varied levels of human capital. The gaps may exist because

14. Cf. Jerry L. Mashaw, *Against First Principles*, 31 SAN DIEGO L. REV. 211, 226-28 (1994) (linking the ADA to costs associated with disabled individuals being out of the labor force); Michael Ashley Stein, *Employing People with Disabilities: Some Cautionary Thoughts for a Second Generation Civil Rights Statute*, in *EMPLOYMENT, DISABILITY, AND THE AMERICANS WITH DISABILITIES ACT: ISSUES IN LAW AND PUBLIC POLICY* (Peter David Blanck ed., forthcoming 2000) (manuscript at 1, on file with authors); Scott Burris & Kathryn Moss, *A Road Map for ADA Title I Research*, in *EMPLOYMENT, DISABILITY, AND THE AMERICANS WITH DISABILITIES ACT: ISSUES IN LAW AND PUBLIC POLICY*, (manuscript at 4-6, on file with authors) (describing the variety of goals that the ADA may be construed to address, from improving the lot of individuals with disabilities to eliminating discrimination in employment).

of other differences in individuals' characteristics, such as the value they place on work, and the extent to which their time is better spent on other activities. Each of these reasons may be said to reflect the proper functioning of the labor market—those who wish to devote less time to work and those who are less productive receive less pay.

The gaps, however, also may exist because of a form of market failure—for instance, discriminatory behavior on the part of others. Thus, one individual's access to jobs, or ability to realize equivalent returns from an hour's work, may be restricted simply because that individual possesses some characteristic that is not indicative of her true value to the labor market.¹⁵ In enacting the ADA, Congress focused on this explanation for the differentials in employment and wages between disabled and nondisabled individuals.¹⁶

A. Theories of Discrimination

In discussing discrimination, it is useful to distinguish between discriminatory behavior that occurs prior to an individual's entry into the labor market and discrimination faced after such entry. Individuals with disabilities may face pre-market discrimination in education, for example, with the result that those individuals receive less, or inferior, education than individuals without disabilities. Post-market discrimination occurs after entry into the labor market, and may cause individuals with disabilities to receive lower wages and face fewer occupational choices despite having equivalent amounts of human capital as do individuals without disabilities. Post-market discrimination may influence individuals' decisions prior to entry into the labor market. For example, if discrimination by employers significantly reduces the probability that individuals with disabilities will obtain employment, such individuals may choose not to invest in substantial amounts of education since the return on this investment is expected to be

15. See Kenneth J. Arrow, *The Theory of Discrimination*, in DISCRIMINATION IN LABOR MARKETS 3 (Orley Ashenfelter & Albert Rees eds., 1973) ("The notion of discrimination involves the . . . concept that personal characteristics of the worker unrelated to productivity are also valued on the market.").

16. For descriptions of evidence of prejudice against individuals with disabilities to which Congress had access prior to enacting the ADA, see Robert L. Burgdorf Jr., *The Americans with Disabilities Act: Analysis and Implications of a Second-Generation Civil Rights Statute*, 26 HARV. C.R.-C.L. L. REV. 413, 416-21, 426 (1991); William G. Johnson, *The Rehabilitation Act and Discrimination Against Handicapped Workers: Does the Cure Fit the Disease?*, in DISABILITY AND THE LABOR MARKET: ECONOMIC PROBLEMS, POLICIES, AND PROGRAMS 242 (Monroe Berkowitz & M. Anne Hill eds., 1986) [hereinafter DISABILITY & THE LABOR MARKET]; Michael Ashley Stein, *From Crippled to Disabled: The Legal Empowerment of Americans with Disabilities*, 43 EMORY L.J. 245, 245-49 (1994) (reviewing JOSEPH P. SHAPIRO, NO PITY: PEOPLE WITH DISABILITIES FORGING A NEW CIVIL RIGHTS MOVEMENT (1993)). For more recent studies providing evidence that prejudice against individuals with disabilities factors into employment, see Marjorie L. Baldwin & William G. Johnson, *Dispelling the Myths About Work Disability*, in NEW APPROACHES TO DISABILITY IN THE WORKPLACE 39, 53-55 (Terry Thomason et al. eds., 1998); Marjorie Baldwin & William G. Johnson, *Labor Market Discrimination Against Men With Disabilities*, 29 J. HUM. RESOURCES 1 (1994); Wallace Hendricks et al., *Long-Term Disabilities and College Education*, 36 INDUS. REL. 46 (1997); Marjorie L. Baldwin, *Estimating the Potential Benefits of the ADA on the Wages and Employment of Persons with Disabilities* (Feb. 23, 1998) (unpublished manuscript, on file with authors).

minimal.¹⁷

Economists have set forth three major theories of post-market discrimination. In Gary Becker's classic work, discrimination is modeled in terms of the various entities that may display "tastes for discrimination"—employers, employees, and customers.¹⁸ In each model, individuals in the "majority" and the "minority" groups are assumed to be perfect substitutes for one another (i.e., they are equally productive). Because of tastes for discrimination, employers *perceive* that the cost of hiring those in the minority group is greater than the cost of hiring those in the majority group.¹⁹ To hire an individual from the minority group, the employer must deduct from that individual's wages the added cost associated with the "distaste" of including that person in the workforce.²⁰ As a result, the wages received by those in the minority group will be less than the wages of the majority, despite individuals being equally productive.

One prediction derived from Becker's model is that in perfectly competitive markets, tastes for discrimination will disappear in the long run.²¹ This prediction relies on the rational behavior of employers indifferent as to the individuals hired: those employers would capitalize on the lower market wage of the minority group, and hire only individuals in that group. Because the nondiscriminating employer's costs would be lower, discriminatory employers would eventually be driven out of the market and one uniform wage would result.

If employees were the group with the tastes for discrimination (and not employers), a wage differential would still arise in such a scenario.²² Discriminatory employees would demand a wage premium to compensate them for the costs of working beside individuals from the minority group. If members of the majority had to be hired to fill the employer's demand for labor (because the number of qualified individuals in the minority group was insufficient to fully staff the employer's operations), the employer would have to increase the pay of the

17. See, e.g., Melvin W. Reder, *Comment*, in *DISCRIMINATION IN LABOR MARKETS*, *supra* note 15, at 34, 35-38 (noting that lower wage rates may cause fewer people within the group discriminated against to enter the labor force at all); Cass R. Sunstein, *Why Markets Don't Stop Discrimination*, in *REASSESSING CIVIL RIGHTS* 23, 29-30 (Ellen Frankel Paul et al. eds., 1991) (noting the connection between discrimination in the labor market and individuals' decisions to invest in their human capital, given the likely lower return to such investments in the face of discrimination); see also *infra* note 75 and accompanying text.

18. GARY S. BECKER, *THE ECONOMICS OF DISCRIMINATION* 14-17 (2d ed. 1971).

19. See *id.* at 39-45. Under Becker's model, the cost to a discriminatory employer of hiring an individual from the minority group would be the wage plus an amount reflected in a "discrimination coefficient"—the cost associated with doing something that is perceived to be unpleasant.

20. The deduction must occur in order for individuals in the majority and minority groups to appear "equal" to the employer. Without the deduction, the employer with tastes for discrimination would hire only those individuals perceived to cost less—i.e., those in the majority group. That tastes for discrimination result in a "cost" of hiring that is greater than the market wage is one formulation of the general discrimination model. Alternatively, the employer may be seen as perceiving the productivity of those in the minority group to be less than the productivity of those in the majority group, and paying members of each group in accordance with their perceived productivity levels. Yet another formulation is presented in terms of shifting supply curves. See, e.g., John J. Donohue III, *Is Title VII Efficient?*, 134 U. PA. L. REV. 1411, 1415-20 (1986).

21. See BECKER, *supra* note 18, at 43-45.

22. See *id.* at 55-61.

discriminating employees. Those in the minority group would again receive a comparatively lower wage. One way around this added cost would be for the firm to segregate its employees to minimize contact between those in the majority and minority groups.²³

Finally, if customers were the group with the tastes for discrimination, wage differentials would again arise as customers refused to be served by individuals from the minority group.²⁴ Consider a sales position. If customers avoided a disabled salesperson in favor of the salesperson without visible disabilities, the revenue generated by the latter would be greater than by the former. As a result, with pay tied to marginal revenue product (or the amount of revenues generated by the worker), the nondisabled worker would receive greater pay than the disabled worker. Thus, a wage differential would result. The employer could respond by moving all disabled workers to jobs with no customer interaction. If these workers are “crowded” into those jobs, pay would be pushed lower as a result of the increased supply of labor, resulting in a form of occupational segregation.

A second major theory of post-market discrimination focuses on the market power of employers.²⁵ Firms that represent the sole demander of labor in a market (the pure monopsonist) have the ability to pay their workers less than firms in perfectly competitive labor markets.²⁶ If an employer with monopsony power is able to distinguish between subgroups of workers, and if those subgroups differ in their willingness to supply labor with a given increase in the wage rate,²⁷ the rational employer can be shown to pay those workers with more inelastic supply curves less than others. An inelastic supply curve suggests that a given wage change does not change substantially the number of individuals willing to work at the new wage. This would be the case, for example, if those individuals were less mobile than others (geographically or occupationally).²⁸ Under this model,

23. See Arrow, *supra* note 15, at 17-18.

24. See BECKER, *supra* note 18, at 75-77.

25. See JANICE FANNING MADDEN, *THE ECONOMICS OF SEX DISCRIMINATION* (1973).

26. In the extreme case, the pure monopsonist faces the entire market supply curve. With an upward sloping curve, the marginal cost of hiring an additional worker is greater than the wage paid to that individual. Part of the cost of hiring the worker is the increase in pay that must be given to all currently employed persons, who are assumed to be equal in terms of productivity to the last person hired. For example, if the employer currently having ten employees who each earn \$10 per hour wants to hire an eleventh worker, the upward sloping supply curve suggests the employer will have to pay that eleventh worker more than \$10 per hour. Say the amount is \$11. Now, the employer has one employee paid \$1 more than other workers, each of whom is identical in every respect to the new worker. To keep each of her employees earning \$10 from quitting, she must pay all \$11. Thus, the added cost of hiring the last worker is substantially greater than \$11 (in the example, it would be \$21). How is this a form of power to the employer? The amount of labor demanded will be determined by the marginal cost of hiring workers, while the supply curve will determine the wage actually paid to those workers. The result of monopsony power is that employers will hire fewer workers, and pay those workers less than the marginal cost of employing them. In the extreme case, as the only demander of labor, workers will have little ability to increase their pay to equal the marginal cost (the condition presumed to exist in perfectly competitive markets). See RONALD G. EHRENBURG & ROBERT S. SMITH, *MODERN LABOR ECONOMICS: THEORY AND PUBLIC POLICY* 77-79 (4th ed. 1991).

27. That labor can be easily separated into groups and that those groups have different elasticities of supply are two preconditions for discrimination to occur under this model. MADDEN, *supra* note 25, at 71.

28. See *id.* at 74. A firm may increase its monopsony power over its disabled employees with the voluntary

employers are acting rationally, and in fact can increase their profit margins, by distinguishing between subgroups of workers.²⁹ Unlike Becker's model, one prediction that the monopsonist model allows is that the greater profit margins associated with the "discriminating" behavior would work to drive nondiscriminators out of the market.³⁰

A third model of discrimination relies on notions of employer decision-making in the context of imperfect information. When an employer seeks to hire a worker, the employer does not have full information regarding the individual's future productivity. Such information, moreover, is costly to obtain. Either the employer must spend resources on obtaining better information regarding the candidates prior to hiring any of them, or hire from the pool of candidates, incurring the costs of doing so, and observe productivity thereafter. As a result, it is in the employer's interest to identify relatively cheap "indicators" of productivity (e.g., the number of years of education) that may be used to predict future performance prior to hire. These indicators may be identified through perceptions of past experiences with employees (e.g., workers having a college degree have tended to have higher productivity than those with less than four years of post high school education) or through other sources of information. Statistical discrimination³¹ results when employers use an indicator such as a disability to make predictions about one individual's performance—that is, perceptions of the average disabled employee are used to make predictions about one individual's performance. In short, it is the use of stereotypes.

Three conditions are required for statistical discrimination to occur: (1) the employer must be able to readily identify an individual as belonging to one group or another; (2) she must incur some cost before being able to gain "full" information regarding an individual's productivity; and (3) she must have some idea or preconception of the distribution of productivity within each group of workers.³² Note that if the employer is correct in her perceptions, then, on average, the hiring decisions she makes will be beneficial in that her costs will be minimized.³³ If those perceptions are inaccurate, however, then costly mistakes will

provision of accommodations and a reduction in the wage rate to recover the cost of accommodation. *See* Johnson, *supra* note 16, at 248. The combination would make the worker more productive at the firm and simultaneously tie that individual to that firm to the extent that mobility would mean the possibility of a yet lower wage. *See id.*

29. MADDEN, *supra* note 25, at 87. The profit margins are maintained over time by, for example, segregating the two groups occupationally.

30. By separating workers into groups according to the elasticity of supply, employers with monopsony power are able to pay those with more inelastic supply curves less than others without incurring the usual costs of such behavior (i.e., seeing lesser-paid workers less quit for better opportunities). Because of this, the employer's overall labor costs will be less than those of its competitors facing perfectly competitive labor markets and will, in theory, drive those competitors with higher costs out of the market.

31. *See* Edwin S. Phelps, *The Statistical Theory of Racism and Sexism*, 62 AM. ECON. REV. 659 (1972); *see also* Dennis J. Aigner & Glen G. Cain, *Statistical Theories of Discrimination in Labor Markets*, 30 INDUS. & LAB. REL. REV. 175 (1977) (refining Phelps' arguments); Arrow, *supra* note 15, at 23-32 (describing statistical discrimination theories).

32. Arrow, *supra* note 15, at 24-25.

33. For this reason, this form of employer behavior is sometimes referred to as "rational discrimination." *See* RICHARD A. EPSTEIN, *FORBIDDEN GROUNDS: THE CASE AGAINST EMPLOYMENT DISCRIMINATION LAWS* 59 (1992). This

be made. A notable feature of statistical discrimination is that it can endure over time, because the practice can lead to a cycle that enhances the probability that the characterizations will be seen as accurate.³⁴

With this background in the predominant theories of discrimination, we can turn to an analysis of Title I of the ADA to assess which theories it appears to reflect.

B. Title I of the ADA

The ADA's general purpose is to eliminate discrimination against qualified individuals with disabilities.³⁵ Several of Congress's findings suggest that the law was designed with the elimination of prejudice in mind. Individuals with disabilities were found to face unequal treatment in part due to "stereotypic assumptions not truly indicative of the individual ability of such individuals to participate in, and contribute to, society[.]"³⁶ "Unnecessary discrimination and prejudice" were found to "den[y] people with disabilities the opportunity to compete on an equal basis"³⁷ These findings appear consistent with Becker's tastes for discrimination models and with statistical discrimination models.³⁸

phenomenon is predicted to lead, at least in some circumstances, to efficient outcomes. See Richard A. Posner, *The Efficiency and the Efficacy of Title VII*, 136 U. PA. L. REV. 513, 516 (1987). As Donohue points out, however, to argue that decision making based on averages is rational or efficient for one firm does not imply that such behavior is good for society as a whole. In particular, individuals' labor supply decisions (e.g. their investments in human capital) may be distorted as a result of employers' reliance on averages. John J. Donohue III, *Further Thoughts on Employment Discrimination Legislation: A Reply to Judge Posner*, 136 U. PA. L. REV. 523, 532-33 (1987). Shelly Lundberg and Richard Startz incorporate the relationship between human capital investments and statistical discrimination in a model they use to show that laws forbidding statistical discrimination may be expected to lead to increases in allocative efficiency under some circumstances. Shelly J. Lundberg & Richard Startz, *Private Discrimination and Social Intervention in Competitive Labor Markets*, 73 AM. ECON. REV. 340 (1983); see also Stewart Schwab, *Is Statistical Discrimination Efficient?* 76 AM. ECON. REV. 228 (1986) (presenting models showing circumstances under which statistical discrimination can be expected to be inefficient from society's standpoint). But see John J. Donohue III & James J. Heckman, *Symposium: The Law and Economics of Racial Discrimination in Employment: Re-Evaluating Federal Civil Rights Policy*, 79 GEO. L.J. 1713, 1725-26 (1991) (describing limitations on the effects hypothesized by Lundberg and Startz).

34. The classic example of the self-fulfilling nature of statistical discrimination regards the perception that women have an increased probability of quitting. Gender becomes the indicator used. Because of the perception regarding quit probabilities, employers hiring women may be expected to provide them less firm-specific training because there is a shorter expected period over which to recoup that investment in the worker's human capital. Women, however, seeing their male colleagues being given more training, may be expected to have an increased probability of quitting because there is less attachment to the firm. By virtue of not being given the training, the women are equally productive at other firms and so the cost of quitting is smaller. Every woman who quits because of the lack of training reinforces the employer's perceptions regarding quitting probabilities of women.

35. See 42 U.S.C. § 12101(b)(1) (1994) ("It is the purpose of this chapter to provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities.").

36. *Id.* at § 12101(a)(7).

37. *Id.* at § 12101(a)(9).

38. The Report of the House Committee on Education and Labor provided:

The Act is premised on the obligation of employers to consider people with disabilities as individuals and to avoid prejudging what an applicant or employee can or cannot do on the basis of that individual's appearance or any other easily identifiable characteristic, or on a preconceived and often erroneous judgment about an individual's capabilities based on the "labeling" of that person as having a particular kind of disability.

Prejudice would translate to tastes for discrimination.³⁹ The use of stereotypes is indicative of statistical discrimination, with Congress implicitly assuming that the stereotypes are incorrect when applied to large numbers of disabled individuals.⁴⁰

The notion of incorrect perceptions (due to bias or lack of “updated” information) also underlies the ADA’s three-pronged definition of disability.⁴¹ For purposes of the ADA, a disability includes a “physical or mental impairment that substantially limits one or more of the major life activities” of an individual,⁴² having a “record of such an impairment,”⁴³ or “being regarded as having such an impairment.”⁴⁴ The last two prongs, in particular, do not incorporate notions of current actual limitations on any major life activity. Instead, they are included in the definition of disability to protect those who had a disability in the past,⁴⁵ and those who are regarded as having a disability despite not experiencing functional limitations.⁴⁶ Thus, cancer survivors experiencing discrimination could argue coverage under the second prong of the definition; and individuals with physical disfigurements could argue coverage under the third prong. Note that those who fall within the third prong of the ADA’s definition and who experience discrimination may be closest to the members of the minority group in Becker’s models: these individuals may be perfect substitutes for nondisabled individuals but nonetheless be treated differently.⁴⁷

Concerns over the productivity of disabled individuals is reflected in Title I’s rule regarding discrimination: “No covered entity shall discriminate against a qualified individual with a disability because of the disability of such

H.R. REP. NO. 101-485, pt. 2, at 58 (1990), *reprinted in* 1990 U.S.C.C.A.N. at 303, 334; *see also* Equal Opportunity for Individuals With Disabilities, 56 Fed. Reg. 8578, 8582 (1991) (codified at 29 C.F.R. pt. 1630 (1996) (proposed Feb. 28, 1991) (noting that the ADA prohibits “using cheap discriminatory information like an individual’s disability.”).

39. BECKER, *supra* note 18, at 17.

40. *See* Kirkingburg v. Albertson’s Inc., 143 F.3d 1228, 1231 (9th Cir. 1998) (“The ADA contemplates that a person with a disability will be evaluated on the basis of his individual capabilities, not on the basis of society’s biases or an employer’s preconceptions.”); Siefken v. Village of Arlington Heights, 65 F.3d 664, 666 (7th Cir. 1995) (“Congress perceived that employers were basing employment decisions on unfounded stereotypes.”).

41. *See* Peter David Blanck & Mollie Weighner Marti, *Attitudes, Behavior and the Employment Provisions of the Americans with Disabilities Act*, 42 VILL. L. REV. 345, 352-58 (1997) (discussing two prongs of the ADA’s definition of disability in relation to biases against individuals with disabilities); *see also* Peter David Blanck, *The Economics of the Employment Provisions of the Americans with Disabilities Act: Part I—Workplace Accommodations*, 46 DEPAUL L. REV. 877, 885 (1997) (linking the ADA’s three-prong definition to prior legislative efforts to more directly tie wages to productivity) [hereinafter *Economics of the Employment Provisions*].

42. 42 U.S.C. § 12102(2)(A) (1994).

43. *Id.* at § 12102(2)(B).

44. *Id.* at § 12102(2)(C).

45. *See* H.R. REP. NO. 101-485, pt. 3, at 29, *reprinted in* 1990 U.S.C.C.A.N. at 445, 452.

46. *See id.*, pt. 2, at 30, *reprinted in* 1990 U.S.C.C.A.N. 303, 311 (noting that discrimination often results from “false presumptions, generalizations, misperceptions, patronizing attitudes, ignorance, irrational fears, and pernicious mythologies.”).

47. *See* Vande Zande v. Wisconsin Dep’t of Admin., 44 F.3d 538, 541 (7th Cir. 1995) (noting that individuals regarded as having an impairment are “analogous to capable workers discriminated against because of their skin color or some other vocationally irrelevant characteristic” and thus are more aptly “compared to victims of racial and other invidious discrimination”); *see also* Blanck & Marti, *supra* note 41, at 353-54 & n.39.

individual”⁴⁸ It is clear that Title I was not written to eliminate discrimination against all disabled individuals.⁴⁹ In order to be protected by the ADA, a disabled individual must be “qualified.” The definition of a “qualified individual with a disability” includes individuals with a disability “who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires.”⁵⁰

Leaving aside for the moment the ADA’s requirement that a firm make reasonable accommodations for its disabled workers,⁵¹ the law appears to track Becker’s definition of discrimination: the differential treatment of those who are equally productive.⁵² True, the law speaks in terms of whether the disabled worker is “qualified” rather than in terms of “equal marginal revenue product.” It is nonetheless the case that the ADA attempts to address the fact that assumptions regarding perfect substitutability cannot be made in every instance. The ADA’s emphasis on a case-by-case analysis of whether disabled individuals are qualified for the job they seek⁵³ is also consistent with an attempt to restrict the use of stereotypes.

The addition of language requiring that employers make reasonable accommodations for disabled workers appears to represent a departure from standard economic theories of discrimination⁵⁴ and from standard definitions of economic discrimination. Those theories do not take explicit account of employer expenditures directed at making at least some workers more productive than they would be in the employer’s “pre-accommodation” work environment. 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.

In defining discrimination in terms of a failure to make accommodations, the

48. 42 U.S.C. § 12112(a) (1994).

49. This is also reflected in the ADA’s exclusion of individuals engaging in the use of illegal drugs from the definition of a “qualified individual with a disability.” *Id.* at § 12114(a).

50. *Id.* at § 12111(8).

51. The requirement comes in the Act’s definition of discrimination, which includes “not making reasonable accommodations to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee . . .”, 42 U.S.C. § 12112(b)(5)(A), or “denying employment opportunities to a job applicant or employee who is an otherwise qualified individual with a disability, if such denial is based on the need of such covered entity to make reasonable accommodation to the physical or mental impairments of the employee or applicant.” *Id.* at § 12112(b)(5)(B).

52. Aspects of the ADA’s definition of discrimination also seek to prevent manifestations of discrimination that are described in the economic models. For example, employers are prohibited from “limiting, segregating, or classifying a job applicant or employee in a way that adversely affects the opportunities or status of such applicant or employee because of the disability.” *Id.* at § 12112(b)(1).

53. 29 C.F.R. pt. 1630, App. (providing that whether an individual is qualified and what accommodations are necessary are determinations that must be made on a case-by-case basis).

54. See *infra* Part IV. C. (suggesting links between reasonable accommodation provisions and statistical discrimination).

ADA also departs from the standard economic definition of discrimination. “Economic discrimination” typically refers to individuals with equal productivity not being rewarded with equal pay.⁵⁵ The implicit assumption underlying this definition is that pay (or wage) should reflect the entire “marginal cost” of employing the individual. Under the ADA, however, a potential added cost of hiring a disabled individual comes in the form of an accommodation expenditure necessary to enable that person to perform the essential functions of the job. Thus, the ADA’s definition of discrimination, which identifies both a failure to pay the same wage and a failure to make accommodations, departs significantly from the concept of economic discrimination. This departure, and the requirement that employers incur expenses specifically to allow individuals to be productive on the job, represent the focal points of economists’ criticisms of the ADA.⁵⁶

Before describing the economic models used to make predictions about the ADA’s effects and the Act’s potential for eliminating employment discrimination against disabled individuals, it is useful to present several alternative scenarios⁵⁷ and outline what the ADA requires of employers facing two hypothetical job applicants, one defined as disabled under the ADA and one not.⁵⁸

Scenario 1: The applicants are identical in terms of education and experience, and each holds all necessary licenses and other prerequisites for the position. The disabled individual can perform all (essential and nonessential) job functions without accommodation. The employer under these circumstances is free to choose the nondisabled applicant, as long as in doing so the choice is not based on the other applicant’s disability.⁵⁹

Scenario 2: The nondisabled applicant has more education and experience than the disabled individual, who can perform all (essential and nonessential) job functions without accommodation. Here, the employer is again free to choose the nondisabled

55. See, e.g., Aigner & Cain, *supra* note 31, at 177-78 (defining economic discrimination); Weaver, *supra* note 84, at 5 (same).

56. See *infra* Part III.

57. Although the scenarios are constructed around two job applicants, they can be easily couched in terms of two current employees being considered for a promotion, or in terms of one current employee who is disabled and one external, nondisabled, job candidate who are being considered for one job (essentially a decision as to whether the disabled individual should be retained). See also Blanck, *supra* note 41, at 893-96 (discussing the ADA’s requirements in terms of three hypotheticals).

58. By setting forth these scenarios with disability defined for purposes of the ADA, we do not suggest that the determination of whether an individual is disabled under the law’s definition is an easy task. See EEOC *Offers Guidance on Defining “Disability” Under ADA*, DISABILITY COMPLIANCE BULL., Mar. 30, 1995, at 1 (lamenting that “judges, attorneys, employers, employees—even EEOC investigators—are still grappling with the basic question: Who is disabled under the ADA?”). For a collection of articles examining issues related to the ADA’s definition, see Symposium, *Defining the Parameters of Coverage Under the Americans with Disabilities Act: Who Is ‘An Individual with a Disability?’*, 42 VILL. L. REV. 327 (1997).

59. If the disabled individual under these circumstances required accommodations, the employer would still be able to hire the nondisabled applicant, as long as the disability or the accommodation was not a factor in the decision making. See S. REP. NO. 101-116, at 26; H.R. REP. NO. 101-485, pt. 2, at 56, *reprinted in* 1990 U.S.C.C.A.N. at 303, 338 (“Thus, under this legislation an employer is still free to select applicants for reasons unrelated to the existence or consequence of a disability.”).

applicant.⁶⁰

Scenario 3: The disabled applicant has more education and experience than the nondisabled individual, and does not require accommodation to perform the essential job functions. Under this set of facts, an employer hiring the nondisabled individual would be violating the ADA if the decision was based on the person's disability.⁶¹

Scenario 4: The disabled applicant has more education and experience than the nondisabled individual, and requires that accommodations be made in order to perform the essential job functions. Here, a firm violates the ADA if it refuses to make reasonable accommodations (unless they impose an "undue hardship"),⁶² or if it refuses to hire the disabled applicant because of the need to make accommodations.⁶³

Although they do not incorporate standard economic terms of marginal revenue product and marginal cost, these four scenarios will serve to highlight aspects of economic models used to predict the effects of ADA Title I.

III.

ECONOMIC MODELS OF THE EFFECTS OF THE ADA

A. Basic Labor Market Models

Models of discrimination build on basic models of the functioning of labor markets. Within those models, individuals are matched with jobs as a result of their decisions and those of employers. While it is not necessary for the purposes of this Article to describe in detail models of labor supply (individual decisions) and labor demand (employer decisions), a brief description of the elements of each will help in placing models of the effects of the ADA into context and will assist in examining results of empirical studies.⁶⁴ Both labor supply and labor demand models have been developed through deductive reasoning. Beginning with a set of assumptions regarding individuals and firms, predictions are made about how both sets of actors will react to changes in their environment.⁶⁵ It serves to keep in mind

60. Note that the employer would also be free to hire the more qualified nondisabled individual if the disabled individual required accommodations in order to perform the essential functions of the job. *See* 29 C.F.R. pt. 1630, App. § 1630.4 (1996) ("Part 1630 is not intended to limit the ability of covered entities to choose and maintain a qualified workforce."); *Malabarba v. Chicago Tribune Co.*, 149 F.3d 690, 700 (7th Cir. 1998) ("[T]he ADA does not mandate a policy of affirmative action in favor of individuals with disabilities, in the sense of requiring that disabled persons be given priority hiring . . . over those who are not disabled") (citing *Daugherty v. City of El Paso*, 56 F.3d 695, 700 (5th Cir. 1995)).

61. The employer would also violate the ADA if the disabled individual was able to perform all job functions (essential and nonessential).

62. 42 U.S.C. § 12112(b)(5)(A) (1994). "Undue hardship" is defined in § 12111(10)(A) as "an action requiring significant difficulty or expense . . ."

63. *Id.* at § 12112(b)(5)(B).

64. *See infra* Part IV. A. (presenting and examining results).

65. Basic assumptions include that individuals maximize utility and that firms maximize profits. *See* EHRENBURG & SMITH, *supra* note 26, at 4. Further assumptions include that both individuals and firms have perfect

that none of the models is intended to be a complete, or completely accurate, description of reality.⁶⁶

1. Labor Supply Issues

An individual's decision to look for employment reflects his or her consideration of the value of time spent in work and in non-work activities. How much available time the individual devotes to either activity depends on such factors as the value of an hour spent at work (usually taken as the wage rate⁶⁷), the value to the individual of that same hour in non-work activities (e.g., household maintenance, child care, personal care, leisure, and so on), and sources of wealth that are not dependent on working for pay.⁶⁸ An individual will devote a positive number of hours to working for pay only when the benefits of doing so (in terms of the wage rate, and the value of work as an activity) outweigh the costs (e.g., what is given up by spending time at work rather than in other activities, the direct costs associated with going to work, such as transportation costs, clothing, child care, and so on). The supply of labor to a particular market can be depicted as all those individuals who are willing to work in that market at given wage rates.

These elements may be used to highlight some of the reasons behind the decisions of disabled individuals to participate in the labor force. For example, several factors may cause a disabled person to decide not to work at all.⁶⁹ First, if the wage rate obtainable in the market is low, an individual may determine that the costs of working outweigh the benefits of doing so.⁷⁰ Second, with a fixed number of hours in a day, a disabled individual may find that there are fewer hours than can be dedicated to work, given the number of hours that must be devoted to personal care and other basic tasks.⁷¹ Third, sources of wealth not tied to work, such as disability payments or Medicaid health insurance benefits, may reduce incentives to

information and are rational actors facing perfectly competitive labor and product markets. *Id.* at 61.

66. *See id.* at 5.

67. Although most models use the concept of wages, this is largely for simplicity. The concept can be broadened to reflect overall compensation (including fringe benefits), but doing so adds complexity if only because most fringe benefits are available only after working a certain number of hours.

68. *See* EHRENBURG & SMITH, *supra* note 26, at 179-84; Oi, *supra* note 5, at 107-08.

69. Between 1990 and 1994, approximately 52% of 18-64 year olds "limited in activity due to chronic health conditions or impairments" were in the labor force (either employed or actively seeking work for pay). KAYE, *supra* note 3, at 1. This means the balance, or 48%, were out of the labor force entirely.

70. *See* 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 that suggests that 80% of working-age disabled individuals pointed to low paying jobs as a reason for their not being employed full-time).

71. *See* Walter Y. Oi, *Disability and a Workfare-Welfare Dilemma*, in DISABILITY AND WORK: INCENTIVES, RIGHTS, AND OPPORTUNITIES 31, 38 (Carolyn L. Weaver ed., 1991) [hereinafter DISABILITY & WORK] (stating that "disability steals time" and describing connections between functional limitations and uses of time); Oi, *supra* note 5, at 108-09 (describing reasons why individuals with disabilities may devote fewer hours to the labor market than individuals without disabilities); Sherwin Rosen, *Disability Accommodation and the Labor Market*, in DISABILITY & WORK, *supra*, at 18, 24-25 (describing factors leading to decisions not to work on the part of disabled individuals).

work, particularly if work hours operate to reduce eligibility for those sources of wealth.⁷² On the other hand, in addition to other benefits associated with working, the provision of comprehensive health care related benefits may make work relatively more attractive.⁷³

The value of an hour spent in work activities depends on the stock of skills and abilities the individual brings to the labor market, i.e., their human capital. Individuals make investments in their own human capital principally by obtaining education or training that (hopefully) makes them more productive. Again, decisions to make such investments depend on a comparison of costs and benefits. Costs include the direct costs of education (tuition, books), opportunity costs associated with devoting time to education rather than working for pay, and psychic costs.⁷⁴ The principal benefit is the increase in pay that can be achieved over the course of one's working life.

Some reasons why disabled individuals may decide not to acquire additional education or training may be gleaned from the basic model. Differences between nondisabled and disabled persons in areas such as life expectancies (length of one's working life), expected market wage,⁷⁵ the length of time needed to complete an educational or training program, and difficulties associated with acquiring skills and abilities⁷⁶ may lead to differences in decisions regarding degree to which each group will make investments in their own human capital.⁷⁷ When an individual becomes disabled also will influence his or her decisions regarding human capital investment.⁷⁸

72. See, e.g., Baldwin & Johnson, *supra* note 16, at 50 (commenting on disincentive effects of disability benefit payments); Burke, *supra* note 70, at 281 (noting that "loss of public welfare and health benefits is a strong disincentive to employment"); Jonathan S. Leonard, *Labor Supply Incentives and Disincentives for Disabled Persons*, in *DISABILITY & THE LABOR MARKET*, *supra* note 16, at 64, 67-93 (reviewing studies of the effects of Social Security Disability Insurance on labor supply decisions); Jerry L. Mashaw & Virginia Reno, *Social Security Disability Insurance: A Policy Review*, in *NEW APPROACHES TO DISABILITY IN THE WORKPLACE*, *supra* note 16, at 245, 251-52, 257 (noting that while disability benefit payments are not, by themselves, likely to represent a strong deterrent to work, the loss of Medicare or Medicaid, which are linked to benefit eligibility, poses a significant deterrent). For a description of the Social Security Disability Insurance program, see Carolyn L. Weaver, *Social Security Disability Policy in the 1980s and Beyond*, in *DISABILITY & THE LABOR MARKET*, *supra* note 16, at 29.

73. See Robert B. Friedland & Alison Evans, *People with Disabilities: Access to Health Care and Related Benefits*, in *DISABILITY, WORK & CASH BENEFITS*, *supra* note 5, at 357, 363 (noting that need for health coverage may influence labor force participation and employment decisions).

74. See EHRENBERG & SMITH, *supra* note 26, at 299-309.

75. If wages are low due to discrimination, post-market discrimination will influence decisions as to whether to acquire human capital. See also *supra* note 17 and accompanying text.

76. Most of these difficulties, such as efforts required to acquire and use educational materials that allow disabled individuals to have the same access to information as nondisabled persons, would fall into the category of psychic costs.

77. See also Oi, *supra* note 5, at 117-18 (describing incentives to obtain training).

78. Young persons with disabilities may be expected to make fewer investments in their human capital than young persons without disabilities for reasons given in the text. It is the case, however, that most disabled individuals become disabled after working a number of years; in other words, after they have made other decisions such as whether or not to go to college. Cf. Marjorie L. Baldwin & William G. Johnson, *Labor Market Discrimination Against Women with Disabilities*, 34 INDUS. REL. 555, 566 (1995) (noting that differences in educational level between working disabled and nondisabled women are unlikely to be the result of impairments because the vast majority (85%) of women with disabilities completed their schooling prior to the onset of their impairment). Baldwin and Johnson

2. Labor Demand Issues

Within standard economic models, firms combine labor and capital in ways dependent upon the relative prices of the inputs to production (i.e., the price of labor and the price of capital), the demand for the product or service, and the technology available.⁷⁹ In theory, a change in any one of these factors triggers responses that move the firm toward a new equilibrium. Thus, an increase in the price of labor may be predicted to lead to a reduction in the amount of labor demanded, and in the long run, a change in the amount of capital used by the firm. Similarly, a change in technology (e.g., the invention of a more efficient machine) may be expected to yield changes in both the amounts of labor and capital demanded.

The simplest of these models assumes that all labor and all capital is identical, that is, each and every unit of labor offered is the same, and each and every unit of available capital is the same.⁸⁰ These models also assume that all parties (individuals and firms) have perfect information and are perfectly mobile. They generally yield the expectation that a firm chooses the most profitable and efficient means of production, given the state of technology, demand for the product, and relative cost of capital and labor.⁸¹ If capital and customer buying behavior is fixed, the amount of labor demanded is a function of its costs, with the expectation that a firm will stop demanding additional labor at the point at which the marginal revenue product of the last unit of labor (the added revenue brought to the firm given what is produced) equals its marginal cost (the added cost associated with that unit).⁸² The demand for labor in a particular market is the number of workers (or units of labor) all the firms in the market would demand at given wage rates.

3. Effects of ADA Title I

Because the ADA focuses on decisions made by firms, most of the models

attribute the difference in educational levels to the higher prevalence of disabilities among those with lower education and incomes. *Id.*; see also ROBERT L. BENNEFIELD, U.S. DEP'T OF COMMERCE CURRENT POPULATION REP. NO. P-23/160, LABOR FORCE STATUS AND OTHER CHARACTERISTICS OF PERSONS WITH A WORK DISABILITY: 1981-1988 (1989).

79. See EHRENBERG & SMITH, *supra* note 26, at 61-75, 97-105.

80. *Id.* at 61-62.

81. In particular, the availability of technology determines all the ways labor and capital may be combined to produce a certain amount of output, the demand for the product determines the level of the output that should be produced, and the costs of labor and capital determine what specific combination of the two inputs to production should be employed to minimize costs. See *id.* at 97-105; see also Heidi M. Berven & Peter David 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, 11-13 (1998) (discussing technological innovations in assistive devices for disabled persons since the passage of the ADA).

82. In theoretical models, firms would know the marginal revenue product of employees. This assumption is relaxed in models of statistical discrimination. In the basic models, if the market is functioning properly, the marginal cost is equal to the wage rate. In Becker's discrimination model, see *supra* notes 18-21 and accompanying text, the marginal cost would also include the discrimination coefficient.

developed to assess its effects deal primarily with predicting the law's effects on labor demand.⁸³ In general, employers will hire an individual only if the marginal benefits of doing so at least equal the marginal costs. This is true for both disabled and nondisabled individuals. Employers will incur additional hiring costs (those associated with medical insurance, life insurance, and pensions, for instance) only if the benefits of so doing outweigh the costs incurred in hiring. If, for example, employers find that providing fringe benefits makes the attracting and retaining of employees cheaper and productivity greater, then they will supply fringe benefits.⁸⁴

Similarly, in the absence of the ADA (or any other comparable legislation), the standard models suggest that if an employer's providing a disabled individual with particular tools or a particular work setting yields net profits, the employer would make these accommodations.⁸⁵ As in the case of fringe benefits, however, disabled individuals provided with such accommodations should expect their wages to be reduced to the extent of the costs of accommodating them.⁸⁶ If no such reduction occurs, the net gain to the employer of hiring the disabled individual who needs accommodation will clearly be less than the net gain of hiring an individual needing no such accommodation, and the employer will maximize profits by hiring the nondisabled individual.⁸⁷ Under such a conceptualization of the employer's decision making, the chronic unemployment of the disabled is due in part to the fact that they cost more, causing employers to prefer nondisabled individuals.⁸⁸

83. This is not to say that all scholars decline to discuss the effects on labor supply issues, but only that labor demand issues represent the primary focus. See, e.g., Rosen, *supra* note 71, which examines both issues in his discussion of reasonable accommodation.

84. See Carolyn L. Weaver, *Incentives versus Controls in Federal Disability Policy*, in *DISABILITY & WORK*, *supra* note 71, at 3, 8. Individuals provided with such non-wage forms of compensation can expect their wages to be reduced as a result. See Randall Eberts & Joe Stone, *Wages, Fringe Benefits, and Working Conditions*, 52 S. ECON. J. 274 (1985). Thus, only individuals who prefer compensation packages with the employer's particular mix of fringe benefits and wages will be attracted to the job. To the extent that persons in the labor market prefer fringe benefits, a larger number of applicants may be expected if compensation includes attractive fringes than if compensation does not include such benefits. This may reduce the employer's costs of attracting and selecting employees and may also lead to productivity increases as employers are able to choose only the most productive applicants out of the larger pool. Other benefits associated with the provision of fringe benefits include longer tenures. See Olivia S. Mitchell, *Fringe Benefits and Labor Mobility*, 17 J. HUM. RES. 286 (1982).

85. See Oi, *supra* note 5, at 111; Rosen, *supra* note 71, at 26; Weaver, *supra* note 84, at 8; ACEMOGLU & ANGRIST, *supra* note 2, at 6; DeLeire, *supra* note 12, at 16-17.

86. Employers are expected to hire the last worker with that worker's marginal cost being equal to her marginal revenue product. Accommodations provided to a disabled worker represent a marginal cost that is in addition to the wage. In order for the equality to hold, therefore, the wage must fall by the cost of the accommodation.

87. Cf. John J. Donohue III, *Employment Discrimination Law in Perspective: Three Concepts of Equality*, 92 MICH. L. REV. 2583, 2609 (1994) ("[G]iven a choice between two equally productive workers, one requiring the expenditure of significant sums in order to accommodate him and one requiring no such expenditures, the profit-maximizing firm would prefer the worker who is less costly to hire."). Donohue's choice conforms roughly to the first scenario described above, see *supra* note 59 and accompanying text, if one assumes that the list of prerequisites used by an employer accurately (i.e. without error) predicts productivity for every applicant.

88. Employers may be prevented from fully deducting costs of accommodation from the wage rate. The Fair Labor Standard Act's minimum wage provisions provide a floor below which wages cannot fall. Thus, if the market wage is already at or near the minimum wage, accommodations cannot be fully reflected in a reduction in pay. Rather than bear the costs of accommodating disabled workers, employers will prefer nondisabled individuals. It is for these reasons that disabled individuals with low skill levels are often seen as having their employment opportunities

The above description does not account for any possible differences in productivity between the disabled and the nondisabled.⁸⁹ Within most models, an individual's disability is expected to reduce productivity on a particular job, or to restrict the individual's ability to be productive in a variety of jobs.⁹⁰ Because profits may only be realized if pay given to employees is less than or equal to what the sale of their output yields, the pay of disabled workers will be less than that given to nondisabled workers if, even without needing accommodation, individuals with disabilities are less productive. Thus, disabled persons' wages are less than the wages of nondisabled individuals for two primary reasons: (1) lower productivity and (2) increased marginal costs due to accommodation. Disabled individuals for whom the lower pay does not justify participation in the labor market will drop out of that market, or never enter it.

Note that these principles yield the conclusion that the ADA is not necessary. Employers do, without the ADA, what is economically rational and efficient. Disabled individuals are hired, with or without accommodations, to the extent that doing so is profitable.⁹¹ They are matched to jobs throughout the economy in ways that maximize both firm profits and individual utility. It is useful to revisit the scenarios described earlier for illumination on this point.

Employers facing scenario 1⁹² make, on average, hiring decisions without considering individuals' disabilities. Those facing scenario 3⁹³ hire, without the ADA, those persons with disabilities who can perform essential and nonessential job functions, and those whose abilities (due to greater human capital investments) outweigh the costs associated with the employee being unable to perform nonessential functions.⁹⁴ Employers facing scenario 4⁹⁵, on the other hand, hire only those persons with disabilities whose accommodations pose very small costs,

restricted by the minimum wage. See, e.g., Weaver, *supra* note 84, at 15.

89. Though often discussed together, productivity and profitability must be distinguished. Profitability of course depends on both benefits and costs—it is a measure of the net benefit associated with action. Productivity is generally concerned with only the “benefits” or gain associated with action, and the rate at which those gains can be produced. Thus, a particular employee may be very productive, producing 10 widgets an hour more than the next employee, and still not be profitable if sale of the total number of widgets produced yields only a small fraction of the individual's hourly wage. As a result, statements such as “If disabled workers are less productive than nondisabled workers (in that they require job accommodations that are costly) . . .,” DeLeire, *supra* note 12, at 26, must be carefully interpreted.

90. See Weaver, *supra* note 84, at 16; see also DeLeire, *supra* note 12, at 15 (“[W]hen a worker becomes disabled, his marginal productivity on the job will decrease.”).

91. See, e.g., Thomas H. Barnard, *Disabling America: Costing Out the Americans With Disabilities Act*, 2 CORNELL J.L. & PUB. POL'Y 41 (1992), in which need for the ADA is described as follows:

Clearly, except in some unusual circumstances, an employer will not benefit from accommodating a person who is disabled, who poses a threat of injury to himself or others or who cannot perform all the job functions. The ADA would not be necessary if these scenarios were beneficial to employers as they automatically act in ways that promote their self interests.

Id. at 58.

92. See *supra* note 59 and accompanying text.

93. See *supra* note 61 and accompanying text.

94. Individuals with disabilities hired despite not being able to perform nonessential job functions would also receive a lower wage as compared to an individual with equivalent human capital who was able to perform all job functions.

95. See *supra* note 62-63 and accompanying text.

or whose wages can be reduced to offset whatever costs are incurred. It follows that individuals with disabilities who remain without jobs are those whose disabilities are so severe as to prevent all work regardless of wage considerations, those for whom accommodations are sufficiently costly that the wage must be reduced below statutory minima,⁹⁶ and those for whom accommodations reduce the wage rate to a level below the individual's reservation wage.⁹⁷ To the extent that some employers engage in the "irrational" discrimination underlying Becker's theories, they will be driven from the market in the long run as their costs exceed those of their competitors.⁹⁸ The possibility of statistical discrimination typically is not addressed explicitly, suggesting that in the main, employers using disability as an indicator of productivity are assumed to be making correct, and therefore efficient, decisions.

With this picture of employer behavior as a starting point, predictions of the effects of the ADA are developed by focusing on what the law forces employers to do differently.⁹⁹ Viewing the pre-ADA environment as efficient overall, it should be no surprise that the ADA is predicted to lead to inefficiencies and generally to the imposition of costs on all, or virtually all,¹⁰⁰ affected. Economists often focus on the effects of two of the ADA's provisions: the "equal pay" requirement, and the reasonable accommodation requirement. Each is predicted to have deleterious effects on disabled and nondisabled individuals, on firms and on the economy.¹⁰¹

The provision of the ADA that prohibits employers from discriminating against qualified individuals with disabilities with regard to compensation and other benefits of employment¹⁰² is viewed as forcing employers to pay more for the

96. See *supra* note 88.

97. An individual's reservation wage is that wage below which the person would prefer to dedicate hours to non-market activities rather than to market activities.

98. See *supra* note 19 and accompanying text.

99. The enactment of any piece of employment legislation imposing new obligations on employers may be expected to result in cost increases in a variety of areas. See Barnard, *supra* note 91, at 44-45 (providing a list of expected cost increases likely to be realized by "responsible employers"). For example, the ADA's provisions no doubt caused at least some employers to train supervisors and other personnel in the ADA's requirements, and to modify existing personnel manuals to incorporate the ADA's prohibitions. In addition, the ADA, in requiring employers to ensure that applications and other selection tools do not discriminate against individuals with disabilities, 42 U.S.C. § 12112(b)(6)-(7), likely caused employers to revise those selection tools accordingly. Note, however, that the latter types of revisions were made necessary only for those employers who had not previously undertaken steps to ensure that selection tools did not adversely affect the employment opportunities of disabled individuals.

100. Some groups have been identified as net gainers. These include lawyers, Thomas H. Barnard, *The Americans with Disabilities Act: Nightmare for Employers and Dream for Lawyers?* 64 ST. JOHN'S L. REV. 229, 229, 252 (1990) (predicting substantial litigation over the ADA's imprecise terms), and complementary workers such as medical personnel, therapists, and aides. See Rosen, *supra* note 71, at 27.

101. See Mark A. Schuman, *The Wheelchair Ramp to Serfdom: The Americans with Disabilities Act, Liberty, and Markets*, 10 ST. JOHN'S J. LEGAL COMMENT, 495, 509-510 (1995) (describing the "destructive effect" of the ADA in terms of "lost opportunities, companies which do not grow, products and services which are never offered, and jobs which are never created"); Weaver, *supra* note 84, at 13 ("By increasing the cost of hiring disabled people, the reasonable accommodation and equal pay requirements, in isolation, will discourage the employment of the disabled."); *id.* at 17 ("Let us hope that the burdens imposed by the ADA on American businesses do not undermine the achievement of sustained [economic] growth.").

102. 42 U.S.C. § 12112(a) (1994) ("No covered entity shall discriminate against a qualified individual with a disability because of the disability of such individual in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of

labor of such individuals than they otherwise would. There are several elements to this point. First, to the extent that two individuals, one disabled and one not disabled, are in fact equally productive, the imposition of a requirement that the employer pay each the same wage for the same work is an attempt to reduce discrimination of the type described by Becker.¹⁰³ Second, although such a requirement may hasten the exit of discriminating employers from the market,¹⁰⁴ one may also predict that forcing an employer to pay more for labor perceived to be less beneficial will lead to a reduction in the employment of those individuals in the short run, as demand declines in the face of increasing wages.¹⁰⁵ This effect of the “equal pay” provision is not, however, the focal point of most discussions.

Instead, modelers tend to emphasize the case in which a disabled individual is less productive than a nondisabled person. The ADA’s language may support this assumed difference in productivity. Because a qualified individual with a disability is defined as a person who is able to do the “essential functions” of the job (with or without accommodation),¹⁰⁶ one may argue that disabled individuals who are able to perform only the “essential functions” are by definition less productive than persons able to perform all job functions.¹⁰⁷ Given the assumed difference in productivity, the “equal pay” provision is seen as forcing employers to pay disabled persons more than they are “worth” to the firm. The increase in pay is predicted to yield the loss of employment of at least some disabled individuals, as fewer such persons are demanded at the higher wage.¹⁰⁸ Higher wages also would attract more disabled individuals to the labor market. However, because fewer persons are demanded, these new entrants will be unemployed.

The ADA’s requirement that employers pay disabled and nondisabled individuals the same compensation for the same work also has been argued to harm disabled persons in their attempts to compete in the labor market. Epstein, who advocates allowing labor markets to operate entirely free of governmental restraint,

employment.”).

103. See *supra* notes 16-21 and accompanying text; see also Blanck, *supra* note 41, at 886.

104. See Donohue, *supra* note 20, at 1426-27; see also Donohue, *supra* note 33. But see Posner, *supra* note 33 (challenging Donohue’s analysis).

105. Donohue, *supra* note 20, at 1423. Although the ADA also prohibits discrimination in hiring, 42 U.S.C. § 12112(a), it is much more difficult for applicants to challenge a refusal to hire than it is for employees to challenge the payment of lower wages. See Michael Fix & Raymond J. Struyk, *An Overview of Auditing for Discrimination*, in CLEAR AND CONVINCING EVIDENCE: MEASUREMENT OF DISCRIMINATION IN AMERICA 1, 13-14 (Michael Fix & Raymond J. Struyk eds., 1992); Michael J. Yelnosky, *Filling an Enforcement Void: Using Testers to Uncover and Remedy Discrimination in Hiring for Lower-Skilled, Entry-Level Jobs*, 26 U. MICH. J.L. REFORM 403, 412 (1993). This could cause employers to reduce hiring because of differences in the probability of detection of the illegal activity. Cf. Donohue, *supra* note 20, at 1426 n.36 (describing the same possibility under Title VII).

106. 42 U.S.C. § 12111(8) (1994) (“The term ‘qualified individual with a disability’ means an individual with a disability who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires.”).

107. See, e.g., Weaver, *supra* note 84, at 6-7 (noting that the ADA’s coverage includes individuals “who, in an economic sense, are not as productive or do not make the same contribution to the profitability of the firm as other people with the same qualifications. (These are the people who can perform only the essential functions of the job and who do so only with accommodation.)”).

108. See, e.g., ACEMOGLU & ANGRIST, *supra* note 2, at 8.

also notes that laws such as the ADA, the Fair Labor Standards Act, and OSHA restrict a disabled person's ability to underbid their nondisabled competition by forbidding negotiation between the individual and the firm as to the conditions of employment.¹⁰⁹ Instead, disabled individuals should be free to, for example, "waiv[e] their right to health and life insurance" and thereby "improve their prospects of getting a job without having to call into play the coercive power of the state."¹¹⁰ A variant of this argument focuses on the inability of disabled individuals to negotiate a reduction in their wage to compensate for the increase in their "firing costs,"¹¹¹ or the costs realized by the employer when with probability p , a disabled individual sues to challenge the employer's decision to fire the worker.¹¹²

The ADA's requirement that firms make "reasonable accommodations" for their disabled employees and applicants is predicted to harm not only firms, but also disabled and nondisabled individuals. Individuals with disabilities are assumed to require some form of accommodation,¹¹³ or to impose some cost beyond the wage.¹¹⁴ Because the ADA does not allow firms to tailor the accommodations to the expected marginal benefits of hiring a disabled worker,¹¹⁵ the expenditures are predicted again to force firms to pay more than an individual is "worth" to the firm.¹¹⁶ Moreover, because of the equal pay requirement, there is no opportunity for

109. See EPSTEIN, *supra* note 33, at 484-85; see also *id.* at 494 ("Like everyone else, the disabled should be allowed to sell their labor at whatever price, and on whatever terms, they see fit."). Of course, the disabled person, like any other individual, has the opportunity to underbid their competition by becoming an independent contractor, an economic entity not covered by most employment legislation.

110. *Id.* at 493.

111. ACEMOGLU & ANGRIST, *supra* note 2, at 8.

112. See *id.* at 6 (defining firing costs as a function of the probability that an individual will sue and of the expected damages and lawyer fees).

113. In other words, the average individual with a disability hired under the ADA is assumed to require accommodations in order to perform the essential functions of the job. This assumption is in part due to the fact that without the ADA, employers are assumed to employ those individuals whose needs for accommodation are outweighed by the benefits they provide the firm. This group of individuals would include those who require no direct expenditures on changes to the work environment. The ADA's provisions require that employers go beyond the pre-ADA level of hiring and provide accommodations to those individuals who would have received fewer accommodations without the law.

114. See EPSTEIN, *supra* note 33, at 486 ("Even if no one is at fault for X's disability, having to deal with X, given that disability, is costlier than having to deal with Y, who lacks that disability.").

115. The primary statutory limit on accommodations expenditures is the upper bound imposed by the "undue hardship" provision of the ADA. 42 U.S.C. § 12111(10) (1994). Under that provision, factors to be considered in determining whether an accommodation imposes an undue hardship include the "nature and cost of the accommodation;" "the overall financial resources of the facility or facilities involved in the provision of the reasonable accommodation; the number of persons employed at such facility; the effect on expenses and resources, or the impact otherwise of such accommodation upon the operation of the facility;" "the overall financial resources of the covered entity, the overall size of the business of a covered entity with respect to the number of its employees; the number, type, and location of its facilities;" and "the type of operation or operations of the covered entity, including the composition, structure, and functions of the workforce of such entity; the geographic separateness, administrative, or fiscal relationship of the facility or facilities in question to the covered entity." 42 U.S.C. § 12111(10)(B). Economists' criticism of the ADA's reasonable accommodation requirement rests in part on the fact that this list does not include consideration of the expected benefit, in terms of increases to productivity, of any expenditure made. See, e.g., Weaver, *supra* note 84, at 9; Richard V. Burkhauser, *Morality on the Cheap: The Americans with Disability Act*, REG. 47, 49 (Summer 1990).

116. See EPSTEIN, *supra* note 33, at 487; Weaver, *supra* note 84, at 9, 11; Burkhauser, *supra* note 115, at 49.

the additional expense to be accounted for in the form of reduced wages.¹¹⁷

If it is assumed that employers find compliance more beneficial than noncompliance,¹¹⁸ the added labor costs associated with accommodating disabled employees will result in lower relative demand for disabled workers,¹¹⁹ and lower demand for all workers.¹²⁰ Overall, negative effects on the employment of disabled individuals are predicted to be greater as the costs of accommodation increase. The reduction in demand for and employment of nondisabled workers is predicted to lead to a reduction in their wages.¹²¹ To the extent that firms make accommodations that do not yield net gains in profitability, the dollars spent in accommodations could be spent in areas having greater returns. Therefore the expenditures represent a cost to society in the form of misspent resources.¹²² If employers compensate for the increase in labor costs by raising product prices, customers bear the ultimate burden.¹²³

Rosen adds to this examination of the effects of the ADA's reasonable accommodation requirement an analysis of the requirement's influences on individuals' labor supply decisions.¹²⁴ In increasing productivity and removing the obligation to personally pay for accommodations, Rosen argues that the ADA's accommodation requirement should increase the number of disabled individuals

Some writers go even farther, claiming that an "employer gets no benefit from disability accommodations, they merely serve a useful public purpose (the employment of disabled persons)" Barnard, *supra* note 91, at 60. In addition to the failure to tie the concept of "reasonable accommodation" to the marginal benefits obtainable from accommodating a disabled employee, critics also fault the ADA for imposing accommodation costs on both "economic discriminators and nondiscriminators." Weaver, *supra* note 84, at 8.

117. See Rosen, *supra* note 71, at 26; ACEMOGLU & ANGRIST, *supra* note 2, at 8. The equal pay requirement can also be expected to effect the demand for individuals the employer would have voluntarily accommodated without the ADA. The requirement prevents the employer from reducing these individuals' wages to compensate for any costs associated with accommodations.

118. Whether compliance occurs may itself be modeled as a cost-benefit decision, where the probability of compliance is a function of the costs and benefits of doing so, the probability of detection of noncompliance, the costs of noncompliance, and the benefits of noncompliance. Some scholars seem to assume that the tendency of employers will be toward noncompliance, arguing that the ADA will have beneficial effects on the employment of disabled individuals only if it is "aggressively enforced." See Weaver, *supra* note 84, at 13.

119. See DeLeire, *supra* note 12, at 22 (predicting that the effect of the ADA is to reduce demand for disabled labor relative to demand for nondisabled labor).

120. The equal pay and reasonable accommodation requirements of the ADA increase the costs of labor for individuals with disabilities. Hiring and firing costs would also add to the costs of employing those individuals. See John J. Donohue III & Peter Siegelman, *The Changing Nature of Employment Discrimination Litigation*, 43 STAN. L. REV. 983, 1023-25 (1991) (describing the effects on employer behavior of hiring and firing costs associated with individuals covered under antidiscrimination laws); ACEMOGLU & ANGRIST, *supra* note 2, at 9 (predicting that hiring costs of the ADA, or the costs imposed by individuals not hired claiming violation of the law, may increase employment of disabled individuals, but firing and accommodation costs would have the opposite effect). These increases in costs make individuals with disabilities, all else equal, more expensive relative to individuals without disabilities. Although one could expect that employers would tend to substitute the relatively cheaper form of labor (nondisabled persons), the ADA prohibits employers from using these cost increases as a reason for not hiring disabled individuals. The rise in labor costs could therefore have the effect of reducing demand for all labor.

121. See Oi, *supra* note 71, at 40; Rosen, *supra* note 71, at 26.

122. See Weaver, *supra* note 84, at 14.

123. See Oi, *supra* note 71, at 40; Weaver, *supra* note 84, at 15.

124. See Rosen, *supra* note 71, at 25-27.

who choose to seek employment at any wage.¹²⁵ However, that increase in supply of labor could very well have the effect of further reducing the wages of nondisabled individuals, who will drop out of the labor market as a result.¹²⁶

In summary, the dominant economic models predict that if all else is equal, employment of both disabled and nondisabled individuals will decline as a result of the ADA's implementation. This effect is due to the increased wages that must be paid to disabled workers, and to the increased costs associated with mandated accommodations. This is not to suggest that employment of some subgroups within the disabled population will not increase in employment,¹²⁷ only that the numbers of individuals without jobs will be greater than the number gaining (or retaining) them.

These are each valid predictions of the ADA's effects. They derive from standard economic theories that have been the basis for myriad analyses of labor market phenomena. The predictions are just that, however, until empirically supported. The next Part examines whether such empirical support now exists.

IV.

EMPIRICAL TESTS OF THE ADA'S EFFECTS ON EMPLOYMENT

Given the relative newness of the law, empirical studies of the effects of ADA Title I are understandably few in number. In this Part, we review two studies of the ADA's effects that have received attention: one conducted by Daron Acemoglu and Joshua Angrist, and another by Thomas DeLeire.¹²⁸

DeLeire employs seven panels of SIPP data for men ages 18-64 to test which of two models is supported by those data.¹²⁹ The first model is one developed using the standard theories of supply and demand described above. The predictions derived from that model were that the ADA would lead to reduced employment and increased wages of disabled individuals,¹³⁰ with disemployment effects greatest for workers who were less skilled, less educated, and younger.¹³¹ The latter prediction is based on arguments relating to the characteristics of disabled individuals who would receive accommodations without the ADA. In essence, because an employer

125. *Id.* at 25. This is not to say that these individuals will become employed, only that they are expected to enter the labor force to seek work. The effects of the ADA's reasonable accommodation provision on employers will dictate whether jobs will be available for disabled (or nondisabled) individuals to fill.

126. *Id.* at 27.

127. The individuals most likely employed will be those with greater amounts of human capital, whose marginal revenue product exceeds the new (higher) wage under the ADA, and who require few if any accommodations, or who require accommodations that have spillover benefits to the firm (through increases in productivity of nondisabled individuals, increased accessibility of customers). See Weaver, *supra* note 84, at 11-12.

128. ACEMOGLU & ANGRIST, *supra* note 2; DeLeire, *supra* note 12.

129. The seven panels were for 1986, 1987, 1988, 1990, 1991, 1992, and 1993. The 1993 panel lasted until May 1995, so the data span the 1986-1995 period. DeLeire, *supra* note 12, at 27. Data from the Panel Study of Income Dynamics (PSID) over the 1968-1994 period is also used to test the robustness of results. *Id.*

130. The increased relative pay is attributed to the ADA's "equal pay" requirement; the reduction in relative employment is attributed to both the equal pay and reasonable accommodation requirements. *Id.* at 22.

131. *Id.* at 23.

would provide accommodations voluntarily only if the benefits of doing so outweighed the costs, individuals who would produce the greatest marginal benefit for the employer per accommodation dollar would be the individuals most likely to be employed and provided accommodations. Greater returns to an accommodation expenditure are realized by accommodating more highly skilled, experienced workers with disabilities who require only inexpensive modifications of the work environment.¹³² Thus, DeLeire's prediction amounts to an expectation that the ADA's mandates will have the greatest marginal effects on those who would not be voluntarily accommodated.¹³³ The second model purportedly tested is one based on Becker's theory of discrimination.¹³⁴

Acemoglu and Angrist use CPS data for men and women ages 21-58 for the 1988 to 1997 period¹³⁵ to test a model that is based on standard economic theories that incorporate concepts of hiring and firing costs. Within that model, the ADA imposes not only accommodation costs per disabled employee, but also hiring and firing costs associated with disabled applicants and employees.¹³⁶ Hiring costs come about as firms reject disabled applicants, who with some probability challenge those decisions in court.¹³⁷ Firing costs are comparably defined and apply to firms' decision to layoff or terminate disabled workers.¹³⁸ Because firms can avoid hiring costs by employing disabled individuals, Acemoglu and Angrist's model allows the prediction that the ADA may lead to increases in employment levels.¹³⁹ However, because firing costs and accommodation costs are likely to be larger,¹⁴⁰ the law is predicted to have the overall result of reducing employment.¹⁴¹

132. *Id.* at 17.

133. A similar expectation underlies Acemoglu and Angrist's statement that because employers would make accommodations voluntarily if the costs (C) of doing so outweighed the resultant increase in marginal productivity of disabled workers (B), "[t]he fact that government regulation [in the form of the ADA] is required suggests typically that C>B." ACEMOGLU & ANGRIST, *supra* note 2, at 6.

134. See DeLeire, *supra* note 12, at 24-26. We say "purportedly" because DeLeire appears to reject this model as a plausible explanation of disabled individuals' labor market outcomes for theoretical reasons, arguing that it is incorrect to view disabled and nondisabled workers as perfect substitutes for one another both in terms of productivity and profitability. *Id.* at 26.

135. ACEMOGLU & ANGRIST, *supra* note 2, at 9.

136. *Id.* at 6.

137. *Id.*

138. *Id.* Acemoglu and Angrist also recognize that the firing costs associated with nondisabled employees may have increased as a result of the ADA, as those workers attempt to use the law to protect their jobs. Similarly, hiring costs for nondisabled applicants may be increased if those applicants sue, falsely claiming to be disabled. *Id.*

139. *Id.* at 7-8.

140. Acemoglu and Angrist provide estimates of both the litigation and accommodation costs associated with the ADA, *id.* at 4, and employ those figures to estimate the increase in costs associated with employing disabled workers. *Id.* at 14. They produce a rough estimate of this increase (10%) based on an average accommodation cost of \$930 per worker and average litigation costs of \$210,000 per case (which is based on a 60% plaintiff win rate). Recent evidence suggests that plaintiffs in ADA cases prevail in a substantially lower percentage of cases. See *Study Finds Employers Win Most ADA Title I Judicial and Administrative Complaints*, 22 MENTAL & PHYSICAL DISABILITY L. REP. 403, 404 (1998) (reporting that plaintiffs win in only 8% of cases in which a final decision was reached, and that administrative resolutions were in the employee's favor in only 14% of cases). These figures would suggest both hiring and firing costs associated with the ADA are smaller than may have been expected.

141. ACEMOGLU & ANGRIST, *supra* note 2, at 8.

The “equal pay” provision is expected to increase wages for disabled employees, creating involuntary unemployment.¹⁴²

Perhaps not surprisingly, both studies report findings that they argue support the models’ general predictions.¹⁴³ DeLeire summarizes his findings as indicating that the ADA has led to an eight percent decrease in the relative employment of disabled individuals, and to a three percent increase in relative wages.¹⁴⁴ In part because effects were found to be larger for those individuals who had mental disabilities, were younger, and had less education, DeLeire concludes that the ADA’s influences are the result of forcing firms to provide more accommodation than they voluntarily would.¹⁴⁵ Acemoglu and Angrist conclude that the ADA has had substantial disemployment effects on disabled men aged 21-58, and on disabled women under the age of 40.¹⁴⁶ They too attribute this finding to the accommodation costs of the ADA.¹⁴⁷

A. Behind the Numbers and Conclusions

With two empirical studies attributing findings of lower employment among disabled individuals to the ADA in large national samples, are we to conclude that the law has failed in achieving its goals? For a number of reasons, we believe the answer to this question is no.

1. Taking the Results at Face Value

Because the ADA is federal legislation affecting all private employers with more than fifteen employees, there are a limited number of experimental designs that may be used to determine the law’s effects. The alternative chosen in the two studies examined here is to define a post-ADA period and compare weeks worked, the probability of employment, and wages of disabled and nondisabled individuals in pre- and post-ADA periods.¹⁴⁸ The definition of the post-ADA period is via an indicator of time—all observations after the chosen time fall into the post-ADA period. DeLeire defines the “post-ADA” period as beginning after January 1991.¹⁴⁹

142. Acemoglu and Angrist also state a prediction that “in practice” firing costs and accommodation costs will lead to reductions in wages of disabled workers. This outcome could occur if wages were allowed to fall to compensate the employer for the increase in costs associated with employing a disabled individual. However, as the authors note, such a decrease would appear to be precluded by the ADA. *Id.*

143. One exception to this is Acemoglu and Angrist’s conclusion that the ADA has had “little effect on the relative wages of disabled workers.” ACEMOGLU & ANGRIST, *supra* note 2, at 12.

144. DeLeire, *supra* note 12, at 41-42.

145. *Id.* at 42-43.

146. ACEMOGLU & ANGRIST, *supra* note 2, at 11-12. The authors report a 10-15% decline in weeks worked by disabled workers. *Id.* at 14.

147. *Id.* at 18.

148. See ACEMOGLU & ANGRIST, *supra* note 2, at 9 (defining nondisabled individuals as the control group); DeLeire, *supra* note 12, at 32.

149. DeLeire, *supra* note 12, at 33 n.9. DeLeire gives no reason for his decision not to use the ADA’s effective date as the means of dividing the pre- and post-ADA periods. It would appear to have been possible to use the effective

Acemoglu and Angrist view years after the ADA's July 26, 1992 effective date as "post-ADA" years.¹⁵⁰ The method of comparing outcomes of disabled and nondisabled individuals across the two periods puts a premium on eliminating completing explanations for the results, as all forces operating to influence employment and compensation in the post-ADA period would be captured in the variables of interest.¹⁵¹

The results are telling. The most basic interpretation of two findings emphasized by the authors are:

Over the January 1991 to May 1995 period, disabled individuals' average probability of employment in the prior 4 months¹⁵² was 10.9% lower than their average probability of employment over the 1986 to December 1990 period, and was 7.8% lower than nondisabled individuals' average probability of employment in the prior 4 months over the January 1991 to May 1995 period.¹⁵³

On average, disabled men between the ages of 21 and 39 worked fewer weeks in 1993, 1994, 1995 and 1996 than nondisabled men between the ages of 21 and 39 of the same age and race. There were no differences in the average number of weeks worked between disabled and nondisabled young men in 1991 or 1992.¹⁵⁴

Other results reported by Acemoglu and Angrist suggest that older (ages 40-58) men worked fewer weeks than nondisabled men beginning in 1993.¹⁵⁵ For younger women, differences in weeks worked between those in the disabled category and those not in that category appeared first in 1992. For older women, differences emerged in both 1991 and 1992, but not in 1993 or 1994.¹⁵⁶ Again, because results merely show non-causal relationships, the authors must, if they are to attribute those relationships to the ADA, eliminate other possible explanations.

Among the alternative explanations examined are the receipt of federal disability payments, the 1990-1991 recession, and a change over time in the number of individuals reporting themselves as disabled.¹⁵⁷ In both studies the authors consider the effects of federal disability receipts. DeLeire does so through a consideration of possible changes in the level of benefits available, in eligibility,

date, given that he possessed data for up to at least some months into 1995. Using this definition of the post-ADA period would also have avoided at least some of the influence of the 1990-1991 recession.

150. ACEMOGLU & ANGRIST, *supra* note 2, at 11.

151. For example, the fact that employment declines in a particular year may be due to the business cycle, changes in wealth, changes in disability status, changes in the distribution of available jobs, and myriad other forces. These alternative explanations would have to be eliminated before any remaining effects could be attributed to the ADA.

152. See DeLeire, *supra* note 12, at 33 n.9 (presenting definition of employment variable as tapping employment in the "current period"). The "current period" in the SIPP survey refers typically to the 4-month period preceding the survey. See Wilfred Masumura & Paul Ryscavage, U.S. DEP'T OF COM. CURRENT POPULATION REPORT NO. P70-40, DYNAMICS OF ECONOMIC WELL-BEING: LABOR FORCE AND INCOME, 1990-1992, at 3 (describing intervals at which individuals are surveyed); *id.* at app. A (describing SIPP survey generally).

153. DeLeire, *supra* note 12, at 32, tbls. 7 & 8a. These results are from models that included only indicators for disability, the post-ADA period, and disability in the post-ADA period.

154. ACEMOGLU & ANGRIST, *supra* note 2, at 11 & tbl. II.

155. *Id.* at tbl. II. By 1996, there was no difference between the disabled and nondisabled men aged 40-58. *Id.*

156. *Id.* Results for older women again show statistically significant differences in 1995 and 1996. *Id.*

157. The last of these is discussed at *infra* notes 193-202 and accompanying text.

and in denial rates.¹⁵⁸ Reviewing data on these variables, he concludes that federal benefits are not likely to explain his results.¹⁵⁹ Acemoglu and Angrist include variables capturing receipt of federal disability benefits in their models to test whether these benefits explain the findings. Because overall results allow for the same conclusions regarding fewer weeks worked by disabled individuals, the authors conclude that receipt of federal benefits does not provide an explanation.¹⁶⁰

DeLeire also considers the possible effects of the 1990-1991 recession. Using 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,¹⁶¹ DeLeire concludes that the widening rates he finds post-January 1991 are not due to the downturn in the economy in late 1990 and early 1991.¹⁶² Having eliminated these alternative explanations, the authors of both studies conclude that the ADA has negatively affected the employment of disabled individuals.

However, looking at *all* of the results the authors report, and taking the approach of attributing to the ADA influences in the post-ADA period, the ADA also appears to have had some positive effects on employment. For example, when the trend in employment over the 1987-1996 period is controlled for,¹⁶³ Acemoglu and Angrist's results suggest that, due to the ADA, the number of weeks worked by disabled women ages 40-58 *increased* relative to the weeks worked by nondisabled women over the 1993-1996 period.¹⁶⁴ DeLeire's findings suggest that disabled minorities saw an increase in their probability of employment, as did those with high school or college diplomas.¹⁶⁵ Individuals whose disabilities were the result of injury also fared better after the ADA was passed.¹⁶⁶

If each of these "positive" findings is attributed to the ADA, the above suggests that, like much of the prior evidence regarding outcomes of disabled individuals, the law has yielded mixed results—some negative, and some positive.

158. DeLeire, *supra* note 12, at 44-46.

159. *Id.* at 45-46.

160. ACEMOGLU & ANGRIST, *supra* note 2, at 13.

161. *But see* Edward H. Yelin & Patricia P. Katz, *Labor Force Trends of Persons with and without Disabilities*, MONTHLY LAB. REV., Oct. 1994, at 36, 38, tbl. 2 (suggesting that during the 1980's recession, individuals with disabilities saw substantially larger reductions in their labor force participation rates than individuals without disabilities).

162. Acemoglu and Angrist do not explore the possibility that the recession provides a partial explanation for at least their 1991 and 1992 findings.

163. The inclusion of a trend variable holds constant any consistent upward or downward trend in the number of weeks worked by disabled individuals. For older disabled women, the trend variable suggests a statistically significant downward trend. *See* ACEMOGLU & ANGRIST, *supra* note 2, at table II. Trend variables for other groups did not reach standard levels of statistical significance. *Id.*

164. *Id.* Comparable results for other groups suggest that the ADA had the effect of decreasing the number of weeks worked of disabled women ages 21-39, and of disabled men ages 40-58 (each relative to their nondisabled counterparts). For young men, the finding indicates no effect of the ADA, on average, over the 1993-1996 period. *Id.* While these results are consistent with previously described findings for younger women and older men, they differ from the result reported for younger men. *See supra* notes 113-114 and accompanying text.

165. DeLeire, *supra* note 12, at table 9a.

166. *Id.*

The next section will consider whether any of these effects may be attributed to the ADA.

2. Have the Reasonable Alternatives Been Eliminated?

To attribute the effects reported to the ADA, both studies' authors consider a number of possible alternative explanations for their results. What is not generally considered, however, are explanations that are tied to the characteristics of individuals with disabilities represented in the samples.

Critics of the ADA have spoken at length of the ambiguities within the law's provisions, identifying myriad difficulties associated with determining who falls into the ADA's definition of disabled.¹⁶⁷ What constitutes a disability is not always clear.¹⁶⁸ Individuals with disabilities vary in degree to which their impairments affect their abilities to do various tasks, and in the nature of the accommodations necessary to perform essential job functions. Thus, unlike Title VII, the argument goes, whether an individual is covered by the ADA is not unambiguous—disability is not as easily determined as gender, race, or national origin.¹⁶⁹ Also unlike the case with gender, race, or national origin, we cannot make assumptions regarding individuals with disabilities being as productive as those without disabilities.¹⁷⁰

In light of the ink devoted to describing the uncertainty associated with the definition of the disabled, and the variation that exists within the population of individuals with impairments that affect work, it is somewhat surprising to find empirical tests using the same types of measures as are used in studies focusing on the wages and employment of women versus men, and of whites versus blacks. Both DeLeire and Acemoglu and Angrist employ indicator variables for the presence of a disability—a single variable that measures whether an individual has a disability or not—as their primary measures of interest.¹⁷¹ This type of measure treats those with disabilities as a relatively homogenous group, particularly given that a number of other individual characteristics are left unmeasured.¹⁷²

167. See Barnard, *supra* note 91, at 48-46; Burke, *supra* note 70, at 272-74; Weaver, *supra* note 84, at 9-11; Ron A. Vassel, Note, *The Americans with Disabilities Act: The Cost, Uncertainty and Inefficiency*, 13 J.L. & COM. 397, 399-406 (1994). Critics are not alone in their concerns over the ADA's ambiguities. See, e.g., sources cited in *supra* note 57.

168. See, e.g., Oi, *supra* note 71, at 32 ("Disability is an elusive state that cannot be precisely defined or measured.").

169. See, e.g., Barnard, *supra* note 91, at 48; Weaver, *supra* note 84, at 16.

170. See, e.g., Jerry L. Mashaw, *In Search of the Disabled Under the Americans with Disabilities Act*, in DISABILITY & WORK, *supra* note 71, at 61, 63; Oi, *supra* note 5, at 103, 118; Rosen, *supra* note 71, at 21; Weaver, *supra* note 84, at 16.

171. Although DeLeire includes in some models indicators for the type of disability (mental disability, disability from illness), see DeLeire, *supra* note 12, at table 9a, conclusions regarding the employment effects of the ADA are from models without those indicators. *Id.* at tbls.7, 8a.

172. DeLeire includes in most of his models controls for education, race, broad indicators of the type of disability (e.g., physical or mental limitations), whether the disability was due to an injury, and indicators of how long individuals were disabled. In some models, occupation and industry indicators were also included. See *id.* at 33 & tbls. 9 to 10b, 17, A1-A7. The primary individual characteristics for which Acemoglu and Angrist controlled were age and

The use of an indicator variable is unfortunate in part because it prevents analysis of the effects of the ADA on various subgroups within the group of those with disabilities. Title I protects *qualified* individuals with disabilities. It does not provide coverage to all persons with physical or mental limitations, or even to all persons with “disabilities” as the ADA defines that term. The law divides individuals with impairments into three groups: individuals with impairments that do not substantially limit a major life activity, individuals with substantial limitations who are qualified (as the law defines that term), and individuals with substantial limitations who are not qualified. The law provides protection to those in the second group, but not to those in the first or third group.¹⁷³ Instead of recognizing in empirical work the fact that these three groups receive different treatment under the ADA, DeLeire and Acemoglu and Angrist treat them as equivalent.

The definition of disability used also deviates from that employed in the ADA. DeLeire divides his sample of individuals into the disabled and nondisabled through the use of a 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.¹⁷⁴ This is the standard SIPP-based item used in tabulating broad indicators of labor force participation of individuals with work-limiting impairments.¹⁷⁵ The item Acemoglu and Angrist use to categorize the disabled comes from the March CPS Income Supplement and 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.”¹⁷⁶

Both definitions are narrower than the ADA’s definition of disability in that they focus on impairments that limit working activity (rather than any major life activity), and fail to incorporate individuals with a record of a substantial limitation on a life activity, or those perceived to have a substantial limitation.¹⁷⁷ The

race. See Acemoglu & Angrist, *supra* note 7, at tbls. II to III.

173. The difficulties posed by the law’s requirement that individuals be substantially limited in a major life activity, but not so limited to be considered not qualified for the job they seek has frequently been described as a “Catch-22” inherent in the ADA. See Burgdorf, *supra* note 16, at 448; 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, 194 (1997); Steven S. Locke, *The Incredible Shrinking Protected Class: Redefining the Scope of Disability Under the Americans with Disabilities Act*, 68 U. COL. L. REV. 107, 127 (1997). This dilemma has also been faced by individuals bringing claims under section 504 of the Rehabilitation Act of 1973, 29 U.S.C. § 794(a) (1994). 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, 425 (1997).

174. See DeLeire, *supra* note 2, at 33 n.9.

175. See, e.g., McNEIL, 1991-92 SIPP STUDY, *supra* note 7, at 2 (describing measures of disability in the SIPP survey); *id.* at 12 (describing measure of work disability); see also Peter David Blanck & Glenn Pransky, *Workers with Disabilities*, in 14 STATE OF THE ART REVIEWS, OCCUPATIONAL MEDICINE 581, 582-3 (1999) (discussing legal and medical definitions of disabilities.); KAYE, *supra* note 3, at 1-2 (reporting measures of employment based on SIPP data).

176. ACEMOGLU & ANGRIST, *supra* note 2, at 9.

177. The SIPP survey does include items capturing limitations on seeing, hearing, speech, lifting, walking, and carrying. See McNEIL, 1991-92 SIPP STUDY, *supra* note 7, at 2, 68. Individuals that are considered as disabled for

potential difference between the ADA's "major life activity" definition and the SIPP's work-disability definition is reflected in items in the SIPP survey that focus on functional and other limitations. From 1991 to 1992, 52% of individuals ages 21 to 64 with a disability¹⁷⁸ were reported as employed, whereas only 42.5% of those with a work disability were employed.¹⁷⁹ Although individuals with work disabilities were included in the overall disability category, the difference in figures suggests at least some individuals answering they did not have a limitation on work activity also indicated they were limited in other areas. Comparable figures for 1994-1995 were 52.4% (disabled) and 43.3% (work disability).¹⁸⁰ Unless individuals reporting themselves as disabled, but not as having a work disability, are those that would be considered without a substantial limitation under the ADA, the difference in the figures raises the possibility that some individuals who have substantial limitations on major life activities other than working were mis-categorized as not disabled.¹⁸¹

Within the category of disabled individuals, the problem is not one of mis-categorization per se, but one of including individuals clearly not qualified under the ADA.¹⁸² DeLeire and Acemoglu and Angrist include in the category of disabled individuals those persons whose impairments prevent them from working at all. Individuals whose disabilities prevent them from working are considered not qualified, and therefore do not receive the protection of the ADA.¹⁸³ DeLeire has

purposes of the ADA because they have a record of a substantial limitation on a major life activity, or because they are perceived to have such a limitation, would be included in the nondisabled category in each of the studies examined here.

178. Individuals having a work disability were defined, for individuals 15 years old or older, as those persons who used canes, crutches, walkers, or wheelchairs for more than 6 months, who reported difficulty with sensory or physical activities, with activities of daily living (e.g., getting around in the house, getting in and out of bed, dressing, eating), with instrumental activities of daily living (e.g., going outside the home, using the telephone), who had specific conditions (e.g., dyslexia, mental retardation, autism, cerebral palsy, Alzheimer's disease), who had a work disability, or who had a physical, mental, or other health condition that limited the kind or amount of housework that could be done. *Id.* at 2.

179. *Id.* at 62-63 tbl. 24.

180. U.S. CENSUS BUREAU, AMERICANS WITH DISABILITIES: 1994-95, at tbl. 9 (visited Feb. 20, 2000), available at <<http://www.census.gov:80/hhes/www/disable/sipp/disable9495.html>>. Others have noted differences in the limitations of those reporting a work disability, with some persons reporting an impairment but no limitation on work. See, e.g., Marjorie L. Balwin et al., *Gender Differences in Wage Losses from Impairments*, 29 J. HUM. RESOURCES 865, 869 tbl. 2 (1994); Pamela Loprest et al., *Gender, Disabilities, and Employment in the Health and Retirement Survey*, 30 J. HUM. RESOURCES S293, S302 tbl. 4 (1995); Steven Stern, *Measuring the Effect of Disability on Labor Force Participation*, 24 J. HUM. RESOURCES 361, 366 tbl. 3, 368 tbl. 5 (1989).

181. For example, Stern reported that in 1978 data from the Survey of Disability and Work, 33% of those indicating they were deaf also reported not being limited in the amount or kind of work they can do. Stern, *supra* note 180, at 366, tbl. 3. Balwin and her colleagues, using the 1984 SIPP data, reported that 45% of men and 28.6% of women who could not hear also reported not being limited in work. Balwin et al., *supra* note 180, at 869 table 2. These individuals would most certainly be considered substantially limited in a major life activity.

182. The ADA defines a qualified individual with a disability as a person who is able to perform the essential functions of a job with or without reasonable accommodations. 42 U.S.C. § 12111(8) (1994).

183. See *Duckett v. Dunlop Tire Corp.*, 120 F.3d 1222, 1225 (11th Cir. 1997) (finding that an employee who concedes he is unable to return to work in any capacity is not qualified); *Weiler v. Household Finance Corp.*, 101 F.3d 519, 525 (7th Cir. 1996) (same); *McNemar v. The Disney Store, Inc.*, 91 F.3d 610, 618 (3d Cir. 1996) ("A person who is unable to work is not intended to be, and is not, covered by the ADA.").

available, but chooses not to use, an item within the SIPP survey that asks whether the individual is prevented from working because of the individual's health or condition.¹⁸⁴ Information from the SIPP data for 1991-1992 suggests that 42.1% of individuals ages 16 to 64 with work disabilities were prevented from working.¹⁸⁵

Acemoglu and Angrist's indicator of disability explicitly combines individuals whose impairments prevent them from working with those whose disabilities limit, but do not prevent work. As a primary source of information regarding the labor force participation status of individuals in the United States, the CPS contains information regarding reasons why individuals did not seek work. Thus, it would appear that information on whether individuals' disabilities or ill health caused them to be out of the labor force was available to Acemoglu and Angrist.¹⁸⁶ Because the studies rely on comparisons of the disabled and the nondisabled, inclusion in the category of the disabled individuals who cannot work at all would depress coefficients associated with disability¹⁸⁷ and make differences more likely to be found.¹⁸⁸

Although the inclusion of those unable to work in a single disabled category depresses the estimate of the average effect of having a work disability, it would not necessarily explain Acemoglu and Angrist's findings of differences between the disabled and nondisabled for years after 1992. To explain this pattern, changes in the proportion of individuals within the disabled category who were unable to work would have to have been realized. For example, if the "prevented from working" subgroup increased 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 the disabled and those not disabled. In both studies, it is recognized that, as a percentage of the population, the number of disabled

184. See McNEIL, 1991-92 SIPP STUDY, *supra* note 7, at 71 (presenting SIPP survey items).

185. *Id.* at 19, tbl. 2.

186. This information is not the ideal way to identify individuals whose disabilities prevent them from working, but may be an adequate proxy. Moreover, other superior alternatives may be available. Recent versions of the March CPS survey also contain information regarding whether individual's disabilities are severe. Individuals are classified as having a severe disability if they did not work in the survey week because of a long-term physical or mental illness that prevents performance of any kind of work, they did not work at all in previous year because of illness or disability, they are over age 65 and covered by Medicare, or they are under 65 and a recipient of Supplemental Security Income (SSI). See SUSAN STODDARD ET AL., CHARTBOOK ON WORK AND DISABILITY IN THE UNITED STATES 7 (1998) (visited Feb. 20, 2000), available at <<http://www.infouse.com/disabilitydata/workdisability.html>>. In the future, variables may be used in combination to identify the majority of those whose disabilities prevent them from working (e.g. those individuals with severe work disabilities who are unable to work, or who are not in the labor force). CPS data suggest that in 1996, 31.8% of individuals between the ages of 16 and 64 with work disabilities were in the labor force, and 27.8% were employed. Of those with severe disabilities, 11.5% were in the labor force, and 9.2% were employed. Of those with work disabilities, 63.9% were classified as having severe disabilities. CURRENT POPULATION SURVEY (1998) (visited Feb. 20, 2000), available at <<http://www.census.gov/hhes/www/disable/disabcps.html>>.

187. See Jerry L. Mashaw & Virginia P. Reno, *Overview*, in DISABILITY, WORK & CASH BENEFITS, *supra* note 5, at 1, 6 (noting that persons with disabilities are more likely than those without disabilities to be out of the labor force entirely).

188. Alternatively, those unable to work could be included in the sample and a variable identifying their ability to work added to the model. In this way, differences between those unable to work and those able to work could be assessed.

individuals increased over the time periods under investigation.¹⁸⁹ What researchers do not consider, however, is evidence suggesting that the percentage of those with work disabilities who are unable to work also increased over the period of interest.¹⁹⁰ The increase in the percentage of those unable to work has been greatest for individuals between the ages of 18 and 44,¹⁹¹ though a general trend upward is discernible for older workers.¹⁹²

Where researchers do consider changes within the disabled population, it is generally to eliminate the possibility that the results reflect changes in the degree to which individuals report themselves to be disabled. This concern reflects the possibility that individuals had a greater tendency to report themselves as disabled after passage of the ADA to gain the benefits of the law,¹⁹³ or because disability “became more socially acceptable.”¹⁹⁴ In each study, the authors attempted to address this concern by estimating models for individuals reporting the same disability status in both pre- and post-ADA periods.¹⁹⁵ DeLeire does not report results of this analysis, stating in a footnote that results “do not differ substantially from those reported in the table.”¹⁹⁶ Acemoglu and Angrist do report their findings. The authors’ results differ significantly from previously reported results.

The first difference is revealed in results that seek to replicate previous findings. Whereas use of a multi-year dataset suggested significant disemployment effects for young men, this result is not repeated when data for a one-year period are used.¹⁹⁷ The second difference appears when observations are restricted to those for which individuals reported the same disability status in both years.¹⁹⁸ Here, results suggest statistically significant differences in the number of weeks worked only for the subsample of men aged 40-58.¹⁹⁹ There are no significant differences

189. ACEMOGLU & ANGRIST, *supra* note 2, at 10 & table 1; DeLeire, *supra* note 12, at 28 & tbl. 3.

190. See H. STEPHEN KAYE ET AL., TRENDS IN DISABILITY RATES IN THE UNITED STATES, 1970-1994, at 4, fig.3 & 5-6 (Disability Stat. Center, Disability Stat. Abstract No. 17, 1996); see also MCNEIL, 1994-95 SIPP STUDY, *supra* note 8 (reporting that in 1994-95, 42.4% of SIPP respondents ages 21-64 reporting a work disability were prevented from working because of that disability). Data from the CPS also suggest that the percentage of those with work disabilities whose disabilities are severe has been increasing. In 1994, 61.6% of those with work disabilities had disabilities classified as severe. By 1998, that figure increased to 65.8%. The definition of a severe disabilities is in part defined on the basis of individuals’ ability to work at all. See *supra* note 186.

191. KAYE ET AL., *supra* note 190, at 6. The percentage of young adults unable to work increased from 2.9% in 1990 to 3.7% in 1994. *Id.*

192. *Id.* at 4, fig 3. The figure suggests that for older workers (those ages 45-64), the percent of those unable to work increased from just over 10% in 1990 to approximately 11% in 1993 and 1994.

193. DeLeire, *supra* note 12, at 47.

194. ACEMOGLU & ANGRIST, *supra* note 2, at 12.

195. Note that the definition of pre- and post-ADA periods differs between studies. See *supra* notes 131-32 and accompanying text.

196. DeLeire, *supra* note 12, at 48 n.13.

197. ACEMOGLU & ANGRIST, *supra* note 2, at tbl. A1. The difference cannot be said to be simply the result of a small sample for the one year period. The number of observations was 19,271, which is admittedly smaller than 193,317, *id.* at tbl. II, but by no means small.

198. This yielded comparisons between individuals who reported themselves disabled in both survey periods to individuals who reported themselves as not disabled in both periods. *Id.* at 12.

199. Depending on the model specification and the sample restriction, older men who reported themselves as disabled in both periods were found to work between 2.65 and 3.58 fewer weeks than men who reported themselves not

in weeks worked for young men, young women, or older women.²⁰⁰ One is left with the possibility that prior results reflect in part that individuals who are disabled for a period of less than a year work fewer weeks in that year than those who are not disabled.²⁰¹ Although questions remain as to why in prior results differences emerged after 1993 for young men and women, it is with less ease that the pattern may be attributed to the ADA's equal pay and accommodation provisions.²⁰²

Such changes in findings underscore the problems associated with not considering the characteristics with respect to which individuals classifying themselves as disabled differ, and how those characteristics may translate into differences in employment patterns. Given evidence that characteristics of the disabled—such as whether they report themselves to be disabled in two consecutive periods—are associated with differences in findings, the attribution to the ADA of results not taking those characteristics into account is highly suspect.

There are other reasons to believe that attribution of disemployment results to the ADA is premature. One possible explanation for the results of both papers is that disabled individuals experienced during the post-1990 period a continuation of a downward trend in employment that began at an earlier time.²⁰³ DeLeire, for

disabled in both periods. *Id.* at tbl. A1.

200. The authors, in describing the results of their analysis, do not make this point. Instead, they focus on the magnitudes of reported coefficients, and thus do not address standard errors. As a result, they conclude that there is no evidence of the composition effect over which they are concerned. *Id.* at 12. This may be. What results do suggest, however, is that restricting the sample to those who report the same disability status over one year period (from March 1993 to March 1994), has the effect of eliminating statistically significant differences between the disabled and nondisabled. The increases in the standard errors may be due to a number of factors, such as reductions in sample sizes (e.g., the sample for younger women drops from 21,372 observations to 14,467), and a relatively small proportion of disabled individuals in the remaining sample. It is also possible that the increases reflect the existence of subgroups with widely differing employment experiences within the remaining sample of individuals reporting a disability in both survey periods.

201. Individuals eliminated due to the match of disability status would include persons who reported themselves disabled/not disabled in 1993 and not disabled/disabled in 1994. Persons not disabled in 1994 (but disabled in 1993) would include individuals having temporary disabilities and individuals whose disabilities lasted longer than one year, but ceased to be substantial limitations on work after 1993. See Richard V. Burkhauser & Mary C. Daly, *Employment and Economic Well-Being Following the Onset of a Disability*, in *DISABILITY, WORK & CASH BENEFITS*, *supra* note 5, at 59, 61-62 (noting that restricting sample of individuals to those reporting a work-limiting disability in two consecutive years eliminates those with short-term disabilities). It is quite possible that the ADA's mandate that employers provide accommodations had an effect on the latter group. In particular, with the possibility that barriers would be reduced or eliminated, individuals may no longer consider themselves to be limited in their ability to work. Information on 1995 disability status would be needed to determine whether those reporting themselves disabled in 1994 (but not in 1993) are permanently disabled (e.g. due to injury), or are temporarily disabled.

202. Individuals whose disabilities are temporary are not typically covered under the ADA. See *Hamilton v. Southwestern Bell Telephone Co.*, 136 F.3d 1047, 1051 (5th Cir. 1998); *Halperin v. Abacus Tech. Corp.*, 128 F.3d 191, 199 (4th Cir. 1997); *Sanders v. Arneson Prods., Inc.*, 91 F.3d 1351, 1354 (9th Cir. 1996); 29 C.F.R. pt. 1630, app. § 1630.2(j) (“[T]emporary, non-chronic impairments of short duration, with little or no long term or permanent impact, are usually not disabilities.”).

203. See Walter Olson, *Comment on Burke*, in *COMPARATIVE DISADVANTAGES: SOCIAL REGULATIONS AND THE GLOBAL ECONOMY* 298, 302 (Pietro S. Nivola ed., 1997)?, *supra* note 70, at 298, 302 (“[T]he reported decline in disabled people's job participation after the ADA's passage simply continued an unhappy trend that had been going on for years in defiance of legislation aimed at expanding employment of them.”); *id.* at 301 (noting that declining labor force participation of individuals with disabilities began in the mid-1970s). One possible explanation for this trend is that the disabled workers are disproportionately affected by certain general shifts in the economy. Since most disabled

example, presents a figure based on one his models that reflects a downward trend in relative employment that appears to have begun prior to the ADA's enactment.²⁰⁴ Acemoglu and Angrist control for a disability-specific trend—the possibility that over the entire period examined, weeks worked or wage rates for disabled individuals exhibited an increasing or decreasing trend. When the trend variable is included, many of the negative coefficients are no longer statistically significant.²⁰⁵ The overall results suggest that once trends over time are controlled for, differences in weeks worked in specific years between disabled and nondisabled individuals existed only for young men and young women.²⁰⁶ The fact that the meaning of results changes with the inclusion of an additional variable suggests that those results may not be attributable to the ADA.

B. Questions and Issues Unresolved

As is the case with much empirical research, the particular patterns in the results reported by both DeLeire and by Acemoglu and Angrist raise myriad questions. The preceding examination of reported results highlights the fact that changes in models and analyses yielded changes in the meaning of those findings. However, no clear pattern emerges. It cannot be said that overall results reflect a continuation of a trend, for evidence suggests that young disabled men and women worked fewer weeks in 1993 and 1994 than men and women who were not disabled even when trends are controlled for. It similarly cannot be said that controlling for the same disability status over two survey periods explains the results, for evidence still indicates that men over 40 worked fewer weeks. Although some evidence suggests that among disabled persons under age 44, the proportion of those unable to work has been increasing over time, this is also unlikely to explain the complete pattern of findings. As a result, we have two

people become disabled after they enter the workforce, it is possible that disabled employees are disproportionately concentrated in physical labor intensive occupations where the risk of physical injury is relatively high. *See supra* note 78. If this is true then the disabled community is likely to be disproportionately affected as the economy shifts towards the service sector with or without the protections of the ADA.

204. DeLeire, *supra* note 12, at fig.3. That figure plots estimated coefficients for interaction terms between disability and cohort for each year between 1986 and 1995. DeLeire does not examine reasons for this particular trend, or test whether the rate of decline is greater in years included in his post-ADA period.

205. Whereas findings are substantially similar for young men (only the coefficient for 1994 is no longer significantly different from zero), the findings for young women, older men (those between 40 and 58 years of age), and older women do change. ACEMOGLU & ANGRIST, *supra* note 2, at tbl. II. With the trend variable included, differences (as indicated by individual year interaction terms) between young disabled and nondisabled women disappear in 1995 and 1996, differences between disabled and nondisabled older men disappear for 1993, 1994, and 1995, and differences between disabled and nondisabled older women disappear for 1991, 1992, 1995 and 1996. *Id.* Thus, for the two groups of persons between 40 and 58, all previously found negative effects disappear. In some cases, coefficients also change sign.

206. Acemoglu and Angrist point to another set of results, in which individual year terms are replaced with a variable capturing average differences over the 1993 to 1996 period, to support initial findings of reductions in weeks worked by older men. *Id.* at 12. Those results suggest that on average over the 1993-1996 period, disabled older men worked significantly fewer weeks than nondisabled older men. *Id.* at 12 & tbl. II. However, results from that analysis also suggest that on average over the 1993-1996 period, there were no differences in weeks worked by disabled and nondisabled young men.

studies that indicate that disabled individuals' probability of employment and weeks worked have been declining over time, but few answers explaining why.

It is unlikely that one factor, or force, or phenomenon, explains the pattern of results. It may well be that a combination of incentives and disincentives, and of changes in the economy explains why employment of the disabled seems to be declining. To identify possible explanations, and to isolate whether, and the extent to which, the ADA is a contributing factor, several issues need to be addressed in future empirical research.

For example, there remains a need for examination of issues related to the possible effects of the ADA and other changes in the economic, legal, and regulatory environment on individuals' decisions to participate in the labor force. Although investigating the probability of employment or hours (or weeks) worked provides some information regarding labor supply determinations, an examination of the probability that an individual was in the labor market (employed or actively seeking work for pay) would better inform us as to the ADA's effects on individuals' decisions.²⁰⁷ To the extent that the ADA increases wages of disabled workers and works to eliminate discrimination in the labor market, economic theory would predict that the law should increase the incentives of disabled individuals to devote hours to the labor market, assuming all else is equal. For similar reasons, disabled persons, particularly younger individuals, should have greater incentives to invest in their human capital. The incorporation into analyses of those actively seeking work for pay would allow for an assessment of whether the ADA has influenced the number of individuals choosing federal assistance over work.²⁰⁸

Analysis of labor supply decisions over time would help to isolate whether changes in non-work sources of income explain the apparent decline in employment of subgroups of disabled persons. For example, since the early 1990s, there has been an increase in SSI payments to young persons and to those with mental disabilities.²⁰⁹ To the extent that individuals with disabilities place particular 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 could also be considered as explanations for patterns in results. Finally, the effects of changes in

207. This is because employment and time worked each depend on a joint decision of individuals and employers.

208. One of the expected benefits of the ADA was a reduction in individuals' dependence on SSI or SSDI. See Equal Opportunity for Individuals With Disabilities, 56 Fed. Reg. 8578, 8579 (1991) (estimating savings in support payments of \$222 million). Of course, courts accepting judicial estoppel arguments when assessing whether an individual is covered by the ADA would be negating any potential positive effects the law may have in this area. See Mathew Diller, *Dissonant Disability Policies: The Tensions Between the Americans with Disabilities Act and Federal Disability Benefit Programs*, 76 TEX. L. REV. 1003 (1998); Jeffrey Kozlar, Note, *Judicial Estoppel and the Americans with Disabilities Act: Should Courts Defer to the EEOC?*, 50 RUTGERS L. REV. 2259 (1998).

209. See Martynas A. Ycas, *The Issue Unresolved: Innovating and Adapting Disability Programs for the Third Era of Social Security*, SOC. SEC. BULL. at 48, 50 (Spring 1995). These trends may provide partial explanation for DeLeire's findings regarding larger disemployment effects for younger cohorts and for individuals with mental disabilities. See DeLeire, *supra* note 12, at 42.

the nature of jobs available in the economy may partially explain the phenomenon and should be assessed.²¹⁰

One fundamental difference between the principles underlying the ADA and those providing the basis of economic models used to test the law's effects lies in assumptions made regarding the role of discrimination as an explanation for the employment patterns of individuals with disabilities.²¹¹ Discriminatory tastes or assumptions, to the extent they play a role, would be factors used instead of, or in addition to, the usual considerations of productivity. As a result, it becomes important to incorporate into models measures of individuals' productivity, such as education and work experience. These factors will influence the extent to which individuals with disabilities are covered under the law.²¹² DeLeire's results suggest that disabled individuals with greater levels of education had a greater probability of employment after 1990 than persons without a high school degree.²¹³ His findings suggesting that young cohorts saw greater declines in their probability of employment since 1991 may in part reflect the fact that the young have less working experience, a factor not included in his models.²¹⁴ The lack of working experience has been described as among the principal reasons disabled individuals have difficulty finding employment.²¹⁵ Some research has reported that disabled individuals in the samples employed had more working experience on average, but also more years of missed experience.²¹⁶ Finally, examinations of the probability of employment need to take into account the sizeable portion of the disabled population whose impairments make work impossible, even if accommodations were to be provided.²¹⁷ The ADA does not cover these individuals, and indeed, it is

210. See EDWARD H. YELIN, *DISABILITY AND THE DISPLACED WORKER* (1992) (linking growth in work disability to changes in demand for specific types of labor); Edward Yelin & Miriam Cisternas, *The Contemporary Labor Market and the Employment Prospects of Persons with Disabilities*, in *DISABILITY, WORK & CASH BENEFITS*, *supra* note 5, at 33 (same).

211. The emphasis on discrimination as a possible explanation is illustrated in Acemoglu and Angrist's work by their decision to exclude from most all empirical models variables capturing education and other such contributors to productivity.

212. 29 C.F.R. pt. 1630, App. § 1630.2(m) (1996) ("The first step [in assessing whether an individual is qualified] is to determine if the individual satisfies the prerequisites for the position, such as possessing the appropriate educational background, employment experience, skills, licenses, etc."). See also Burris & Moss, *supra* note 14 (manuscript at 7) ("[R]esearch on the socio-economic benefits of the [ADA] must distinguish between people with disabilities who are in a position to benefit directly from the law—people who are qualified to do the job with or without accommodation—and those who are not.").

213. DeLeire, *supra* note 12, at tbl. 9a.

214. SIPP data appear to allow for construction of several measures of working experience: experience with the current employer, general working experience in other firms, and missed experience, or the years an individual was of labor force age but not in school or employed. See Baldwin & Johnson, *supra* note 78, at 567.

215. See Frederick C. Collignon, *The Role of Reasonable Accommodation in Employing Disabled Persons in Private Industry*, in *DISABILITY & THE LABOR MARKET*, *supra* note 16, at 196, 232.

216. See Baldwin & Johnson, *supra* note 16, at 6-7 & tbl. 2; Baldwin & Johnson, *supra* note 78, at 567-8 & tbl. 3.

217. A number of prior examinations of the employment status of disabled persons have removed from their samples individuals who have received SSI or SSDI for several periods, given that those programs reduce individuals' incentives to work by virtue of taxing work-related income. See, e.g., Marjorie L. Baldwin et al., *Gender Differences in Wage Losses from Impairments*, 29 J. HUM. RESOURCES 865, 867 n. 3 (1994); Baldwin & Johnson, *supra* note 78, at

difficult to argue that the law could influence their labor market activities.²¹⁸

In any analysis of either the labor force participation or employment status of disabled individuals, it is crucial that measures of disability go beyond the use of a single “yes/no” indicator.²¹⁹ Oi describes how four aspects of disability are likely to be important in individuals’ labor supply decisions: (i) severity, (ii) age at onset of disability, (iii) anticipated duration of disability, and (iv) the disability’s effect on expected length of life.²²⁰ Although information about each of these aspects is not likely to be contained in existing datasets, surveys have asked individuals questions that can provide the basis for a measure of severity.²²¹ Prior research examining measures of severity and employment suggests that severity is, as may be expected, inversely related with the probability of working.²²² We have seen in prior research that measures of disability, limitations, and health each appear to explain variation in the phenomena being addressed.²²³ Only through controlling for many aspects of individuals’ disabilities can we assess the extent to which the ADA has helped or hindered the efforts of those with disabilities to move into, and to stay in, the workplace.

Furthermore, a number of studies have examined employment of disabled persons using information from years prior to the ADA’s effective date.²²⁴ Future studies may tailor empirical models to maximize comparability with earlier research and thereby allow for assessment of changes between pre-ADA and post-ADA periods. This approach would allow identification of changes in factors previously found to influence employment of individuals with disabilities. For

563 n.17; Baldwin, *supra* note 16, at 4. Although long-term receipt of SSI would be correlated with an inability to work, it is not a perfect indicator. See Mashaw & Reno, *supra* note 187, at 3-4 (noting that receipt of SSI or SSDI does not necessarily suggest that individuals cannot work at all); L. Scott Muller et al., *Labor-Force Participation and Earnings of SSI Disability Recipients: A Pooled Cross-Sectional Times Series Approach to the Behavior of Individuals*, 59 SOC. SEC. BULL. 22 (1996) (analyzing determinants of labor force participation and earnings of individuals who had received SSI benefits). Moreover, because the ADA is, in part, an attempt to encourage individuals receiving SSI or SSDI to move to employment situations, it may be sufficient to indicate such receipt through a variable instead. Inability to work may be directly measured in SIPP data through use of an item asking respondents whether they are prevented from working. McNEIL, 1991-92 SIPP STUDY, *supra* note 7, at 71.

218. See Burris & Moss, *supra* note 14 (manuscript at 6) (“[Title I] does nothing, at least directly, for people with disabilities who are unable or unwilling to enter the work force.”); cf. Samuel Issacharoff, *Contractual Liberties in Discriminatory Markets*, 70 TEX. L. REV. 1219, 1252 (1992) (reviewing RICHARD A. EPSTEIN, *FORBIDDEN GROUNDS* (1992), and critiquing Epstein’s argument that the ADA will impose substantial costs on those unable to work).

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

220. Oi, *supra* note 5, at 112-16.

221. The SIPP is one example. In the topical module that contains items regarding functional limitations, respondents indicate first whether the individual has difficulty with a sensory or physical functional activity, and if so, whether he or she can perform the activity at all. McNEIL, 1991-92 SIPP STUDY, *supra* note 7, at 2.

222. See Pamela Loprest et al., *Gender, Disabilities, and Employment in the Health and Retirement Survey*, 30 J. HUM. RESOURCES S293, S308 (1995). A particularly interesting finding in this research is that married women with severe disabilities had smaller reductions in their probabilities of working than either men or single women with severe disabilities.

223. See Stern, *supra* note 180, at 392 (concluding that, if available, measures of both health and limitations on work should be used because they appeared to independent effects on labor force participation).

224. See, e.g., Baldwin, *supra* note 16; Baldwin & Johnson, *supra* note 16; Baldwin & Johnson, *supra* note 78; Loprest et al., *supra* note 180.

example, research conducted using pre-ADA data suggests that—controlling for a number of “productivity” related variables such as education, experience, and the presence of functional limitations—the nature of individuals’ impairments was related to the probability of employment.²²⁵ This suggests employers, prior to the ADA, may have considered individuals’ impairments in addition to their productivity. If similar patterns are found for years after the ADA’s effective date, it would suggest that the law has had little to no effect on eliminating a potential form of discriminatory behavior.

By themselves, the sheer number of relevant, unaddressed questions and issues suggests that it is premature to attribute to the ADA the findings of the two studies reviewed here. There is a lot we do not know.²²⁶ Nonetheless, Acemoglu and Angrist’s and DeLeire’s work provides useful information regarding patterns of employment of disabled and nondisabled individuals over time that will no doubt encourage others to empirically test predictions regarding the ADA’s influences.

C. Some Issues Research Cannot Resolve

It may well be that future research will provide clearer indications that the ADA does not, on average, improve the ability of individuals with disabilities to become, and to remain, employed. It may well be that research will reveal that the primary impediments to employment of greater numbers of disabled individuals are the ADA’s requirements that employers make reasonable accommodations for disabled employees and that they provide compensation to those employees that does not reflect discrimination. In short, future studies may suggest that we must determine “what policy, if any, should replace the ADA.”²²⁷

Economic theory, because it allows us to focus on incentives and disincentives in the labor market, will undoubtedly assist in making that determination. We would caution, however, that to be of assistance in policy determinations, the viewpoints embedded within economic models must be acknowledged. These viewpoints may be argued to go beyond an emphasis on efficiency to perceptions of what efficiency means. The manner in which the ADA’s accommodation requirement has been treated in models developed to assess the law’s effects illustrates this point.

Within those models, the ADA’s accommodation requirement is seen as a marginal cost that is not, in general, outweighed by marginal benefits to the firm. This leads to market inefficiencies and welfare losses. The models generally assume that all capital is identical, that all nondisabled labor is identical, that all

225. See Baldwin, *supra* note 16, at 14-15 & tbl. 3.

226. See Burris & Moss, *supra* note 14, for a discussion of a variety of issues on which additional research is needed.

227. DeLeire, *supra* note 7, at 54, *cf.* Collignon, *supra* note 219, at 130 (“[I]f [the ADA] is not having the impact intended, we need to know as soon as realistically feasible so that the legislation or its implementation can be corrected or improved.”).

disabled labor is identical, that markets are perfectly competitive, and that actors in those markets have perfect information. Of course, in the real world, all labor and all capital is not identical, people do not have perfect information, and all markets do not operate efficiently in the absence of a law such as the ADA.²²⁸ However, even if variation and imperfect information are allowed within the labor and capital markets, it may still be argued that firms will do what is most efficient and most profitable *on average*, based on information regarding the qualities of the average unit of labor or capital, the degree of variability in each respective market, and the expected costs and benefits of acquiring more information.

For example, that firms spend hundreds of thousands of dollars on selecting a CEO, and that this expenditure far exceeds the costs associated with selecting clerical workers,²²⁹ in part reflects variation in the respective labor markets and the costs and benefits associated with gaining additional information about candidates for each type of position. The goal in each case is to select the most productive individual, given the costs. Whether this goal is met is, of course, a matter of speculation at the time of hire. But over time, employers will make changes in their hiring practices (if the benefit of the change exceeds its costs) so that on average, incorrect decisions will be reduced to tolerable levels.²³⁰

What does all this mean for the ADA's requirement that firms make reasonable accommodations for their disabled workers? It is the basis of arguments that employers make accommodations, even without the ADA, for those individuals with disabilities for whom doing so yields net benefits. But the question must be asked—why are even those accommodations necessary in the first instance?

Economic theory generally would predict that an employer structures the firm's work environment to enable workers, on average, to attain the desired level of productivity (again given the costs and benefits associated with alternative orderings and available technologies). If the majority of workers are viewed as unimpaired, the work environment can be expected to build on assumptions that workers have no limitations on their abilities to see, hear, walk, climb stairs, lift, carry, grasp door knobs, write, speak, and so on.²³¹ Because of employers' incentives to maximize profits, this environment becomes the baseline—the appropriate, efficient manner in which to order work and the work environment given the perceived characteristics of the average individual in the relevant labor

228. See Collignon, *supra* note 215, at 205; Donohue, *supra* note 87, at 2595-97.

229. One would not expect, for example, that a company would enter into a contract with a search firm, paying one-third of the individual's first year salary, in order for that firm to fill clerical positions.

230. To be more precise, employers will make changes that yield net benefits until the benefits associated with further reductions in the probability of incorrect decisions are smaller than the costs necessary to achieve those reductions.

231. See Burgdorf, *supra* note 173, at 530 (“[O]bstacles exist because, in fashioning their facilities and devising their practices, policies and procedures, public agencies, employers and businesses make assumptions about the characteristics of their workers, customers, clients and visitors. These assumptions are based upon a person with so-called ‘normal’ physical and mental abilities—the ‘ideal user.’”).

markets.²³² Accommodations therefore represent deviations from presumptively efficient status quo necessitated by the appearance in the candidate pool, or in the current workforce, of individuals with disabilities—individuals whose characteristics differ from those of the “model (able-bodied) worker” around whom the work environment was built.²³³

But this is one viewpoint. The assumption that the status quo is efficient in an absolute sense is certainly open to challenge, even on a workforce-wide basis.²³⁴ When one considers the possibility that the environment itself may unnecessarily contribute to making a functional limitation into a disability,²³⁵ the barriers are not unlike artificial requirements that job candidates have a high-school diploma.²³⁶ Even where aspects of the work environment may be shown to contribute directly to the bottom line—i.e., are profitable—it can be argued that the fact that accommodations must be made is often indicative of prior assumptions regarding individuals with disabilities. Such assumptions are not unlike those targeted in models of statistical discrimination.²³⁷ The firm chose to do X, or to use X, in constructing its work environment because X was the least costly alternative that would enable the average worker to be productive. The fact that an individual with a disability finds X to be a barrier could be argued to indicate that the firm did not consider it a realistic possibility that the individual would be a worker (an assumption),²³⁸ or that the firm did consider the possibility but rejected the option of adopting an alternate course due to the additional expense (an assumption, in effect, that the marginal gain in productivity levels realizable with the alternative

232. With the status quo seen as efficient and with employers expected to voluntarily accommodate those individuals who will provide net benefits to the firm, arguments regarding the inappropriateness of imposing on employers the costs associated with increasing employment opportunities of individuals with disabilities seem persuasive. *See, e.g., Rosen, supra* note 71, at 26-30.

233. *Cf. Burris & Moss, supra* note 14 (manuscript at 11) (“[T]he notion of reasonable accommodation, . . . carries . . . the notion that a workplace designed with the abled in mind makes sense and that changing that environment is a kindness.”); Krennek, *supra* note 5, at 1997 (“To the employer, the inaccessible office is the status quo; if he wants to hire a worker with a physical disability, he may have to incur economic costs associated with remodeling the office.”); Stein, *supra* note 14 (manuscript at 13) (“[E]xisting physical barriers are the norm to which emendation adds expense.”).

234. Blanck, *supra* note 41, at 905; Collignon, *supra* note 215, at 207-08; Pamela S. Karlan & George Rutherglen, *Disabilities, Discrimination, and Reasonable Accommodation*, 46 *DUKE L.J.* 1, 24 (1996) (“The ADA could—and undoubtedly did—cause employers to adopt some practices that efficiency should have caused them to adopt earlier.”).

235. A disability exists when a functional limitation influences one’s ability to engage in tasks, such as work, or perform socially defined roles. *See SAAD X. NAGI, DISABILITY AND REHABILITATION* 10-15 (1969).

236. *Cf. U.S. COMMISSION ON CIVIL RIGHTS, ACCOMMODATING THE SPECTRUM OF INDIVIDUAL ABILITIES* 102 (1983) (“Discrimination against handicapped people cannot be eliminated if programs, activities, and tasks are always structured in ways people with ‘normal’ physical and mental abilities customarily undertake them. Adjustments or modifications of opportunities to permit handicapped people to participate fully have been termed ‘reasonable accommodation.’”).

237. *See Krennek, supra* note 5, at 1997 (“At the employer’s level, . . . physical barriers lead to economically rational discrimination.”).

238. *Cf. Stein, supra* note 14 (manuscript at 4) (“[I]ncluding the disabled is not among the considered possibilities.”).

were insufficient to justify the added cost).²³⁹

Note that such assumptions have the self-fulfilling nature of other forms of statistical discrimination—because the firm chose X, the individual with a disability is unable to be as productive as she could have been had another choice been made. The effect of decisions to “do X” is to impose on individuals with disabilities for whom X is a barrier a set of choices that may operate to reinforce prior assumptions. One option is to not apply for, or not stay in, the job in question, reinforcing the perception that individuals with disabilities will not present themselves as possible workers. Another option for these individuals is to accept a lower wage because of their inability to be fully productive in the current environment. This reinforces the perception that individuals with disabilities are less productive. A final option is to seek accommodation (in effect, the removal of, or the lessening of the effects of, X). If the employer agrees to make the accommodation, a circumstance in no way guaranteed,²⁴⁰ the individual must, in the absence of a law such as the ADA, also accept a lower wage.²⁴¹ This in effect means she pays for the employer’s choice to do X in the first instance. If the employer refuses to make the accommodation, the individual is left with the two other choices.²⁴²

The ADA’s reasonable accommodation requirement can be seen as reflecting a congressional statement that assumptions regarding individuals with disabilities will henceforth be more costly.²⁴³ Thus, employers who consider only the average worker in structuring their work environments are required to make reasonable accommodations for the individuals for whom the average is inapplicable. On the other hand, nothing within the ADA prevents a firm from considering means of

239. We realize that in some instances, at the time the decision to do “X” was made, technology may not have been such as to provide a viable alternative that would enable a disabled individual to be productive. Once the technology exists, however, decisions on the part of firms could be framed as in the text. Moreover, in many settings, particularly those not based in production, technology would not necessarily apply to decisions regarding many of the rules adopted by firms.

240. Some evidence suggests that only about one in five individuals aged 51 to 61 working at the time of their impairment is accommodated by their employer. See Thomas N. Chirikos, *Employer Accommodation of Older Workers with Disabilities: Some Empirical Evidence and Policy Lessons*, in *EMPLOYMENT, DISABILITY, AND THE AMERICANS WITH DISABILITIES ACT: ISSUES IN LAW AND PUBLIC POLICY*, *supra* note 14 (manuscript at 29). Burkhauser provides statistics from the 1978 Survey of Disability and Work suggesting that only 30% of men who suffered a health condition serious enough to limit work were provided assistance by their employer so that they could remain on the job. Burkhauser, *supra* note 115, at 52.

241. But see Morley Gunderson & Douglas Hyatt, *Do Injured Workers Pay for Reasonable Accommodation?*, 50 *INDUS. & LAB. REL. REV.* 92, 100 (1996) (reporting evidence suggesting that injured Canadian workers who returned to their pre-injury employer and who received workplace accommodations did not suffer substantial wage reductions).

242. In addition, as Schwab has shown, under some circumstances statistical discrimination, even if efficient from the standpoint of a particular firm (i.e., the assumptions of the firm are correct, on average), can be deleterious to society. See Schwab, *supra* note 33, at 231-33. For example, Schwab predicts that “[s]tatistical discrimination is most likely to be inefficient when the disfavored group has relatively large numbers of unskilled workers, holding down the average ability of the group, while the skilled workers are more evenly dispersed between [favored and unfavored] groups.” *Id.* at 232.

243. Cf. Karlan & Rutherglen, *supra* note 234, at 39 (“The [reasonable accommodation] doctrine asks the employer to accommodate the job to the individual, rather than demanding that individuals accommodate themselves to the job or forgo it altogether.”).

structuring the work environment to allow a broader range of qualified individuals to be productive.²⁴⁴

Because the ADA forces employers to change their “baseline” through accommodations for their disabled workers, the law has also been described as forcing employers to treat individuals differently,²⁴⁵ or as imposing “constructed equality,” i.e. a demand on employers to *make* workers equal.²⁴⁶ This, too, is a viewpoint. Instead of viewing the obligation as one of making workers equal, or of treating individuals differently, employer accommodation of disabled individuals can be seen as an obligation to provide equal treatment. It would be a short-lived firm indeed that required its employees, while remaining subject to the employer’s direction and control, to supply their own desks, computers, cash registers, mold presses, stamping machines, blast furnaces, telephones, and the like, so that they could each meet the employer’s defined level of satisfactory performance on the job.²⁴⁷ These contributors to an individual’s productivity are normally provided by the employer,²⁴⁸ and can be seen as part of the overall “package” that an employee accepts when taking a job²⁴⁹ or as ways in which the firm “accommodates” its employees.²⁵⁰ That the ADA requires the employer to provide to disabled individuals the requisite tools to perform their jobs can be viewed, therefore, as nothing more than standard practice.

By highlighting differing viewpoints regarding the ADA’s accommodation requirement, we do not mean to suggest that one viewpoint is necessarily more appropriate than another. We seek only to underscore the fact that economic models developed to assess the effects of the ADA have a set of views imbedded in

244. The primary difference between employers choosing to structure the work environment to enable a broader pool of individuals to do available jobs and those choosing to accommodate exclusively in a “post-hoc” fashion may be one of perceptions—i.e., holding a view that promotes inclusion rather than one that has the result of exclusion. Cf. Blanck & Marti, *supra* note 41, at 378 (“[I]t appears that the degree to which many companies comply with the accommodation provisions of Title I has more to do with their corporate cultures and attitudes than with the actual demands of the law.”); Blanck, *Economics of the Employment Provisions*, *supra* note 41, at 903 (same).

The risk to undertaking a more inclusive approach lies in how those efforts will be perceived by courts if they are challenged as insufficient to allow a particular individual with a disability to do the essential functions of the job. If courts interpret the ADA as requiring in all instances that employers make some change to their existing workplaces in order to accommodate an individual with a disability, there would be a disincentive to undertake actions prior to being informed by an employee or applicant that an accommodation is needed.

245. See, e.g., Rosen, *supra* note 71, at 21 (“By forcing employers to pay for work site and other job accommodations that might allow workers with impairing conditions . . . to compete on equal terms, [the ADA] would require firms to treat unequal people equally, thus discriminating in favor of the disabled.”).

246. See Donohue, *supra* note 87, at 2586, 2609, 2612.

247. It would necessitate an equally large change from the status quo to allow a firm to require each of its prospective employees to produce a government voucher that could be used toward the purchase of these items.

248. Other contributors to productivity would include such things as air conditioning, heating, windows, lights and restrooms.

249. Cf. Harlan Hahn, *Equality and the Environment: The Interpretation of ‘Reasonable Accommodations’ in the Americans with Disabilities Act*, 17 J. REHAB. ADMIN. 101, 103 (1993) (providing a definition of reasonable accommodations “based on the concept of Equal Environmental Adaptation . . . [a standard] based on the benefits bequeathed to the nondisabled by conventional features of the present milieu . . .”).

250. See Burgdorf, *supra* note 173, at 530-32.

them, and that those views extend beyond a simple emphasis on efficiency.²⁵¹ An understanding of the views is necessary not only to put the empirical results into their appropriate context, but also to assess whether the models themselves are proper bases for public policy regarding individuals with disabilities.

V.

CONCLUSION

The only way to assess whether the ADA is, overall, a beneficial or harmful piece of legislation is through assessment of information regarding its influences.²⁵² To be useful to policy makers, that information must be derived from rigorous study of the behaviors of primary actors affected by the legislation. In the case of Title I of the ADA, these actors are disabled and nondisabled employees and firms. Researchers in different fields of study will approach questions regarding the ADA from distinct perspectives,²⁵³ and policy makers will gain a more complete picture of the ADA's influences if contributions to the pool of information represent a variety of approaches. Undoubtedly, within that pool, studies will exist that conclude that the ADA has had harmful effects, others which conclude that the law has had beneficial influences, and still others which present a mix. An additional benefit to assembling research from a number of fields is that the differing perspectives, assumptions, priorities and viewpoints reflected in that research can be brought to the fore as results are compared and attempts are made to reconcile apparently conflicting conclusions.

251. See Stein, *supra* note 14 (manuscript at 12), for other ways in which economic models may be based on assumptions inappropriate to policies designed to enhance employment opportunities of individuals with disabilities.

252. See NATIONAL COUNCIL ON DISABILITY, *ACHIEVING INDEPENDENCE: THE CHALLENGE FOR THE 21ST CENTURY—A DECADE OF PROGRESS IN DISABILITY POLICY SETTING AN AGENDA FOR THE FUTURE* 6 (1996) (calling for the collection, analysis, and reporting of data on individuals with disabilities).

253. See Burris & Moss, *supra* note 14 (manuscript at 4).