LABOR FORCE PARTICIPATION AND DISABILITY: DID HOME-BASED WORK FACILITATE LABOR FORCE PARTICIPATION IN THE DAWN OF THE AMERICANS WITH DISABILITIES ACT?

by

JENNIFER TENNANT

A dissertation submitted to the Graduate Faculty in Economics in partial fulfillment
of the requirements for the degree of Doctor of Philosophy,
The City University of New York

2006

This manuscript has been read and accepted for the Graduate Faculty in Economics in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy

Linda Edwards

Date

Chair of Examining Committee

Thom Thurston

Date

Executive Officer

Elizabeth Field-Hendrey

Michael Grossman
Supervision Committee

THE CITY UNIVERSITY OF NEW YORK

Abstract

LABOR FORCE PARTICIPATION AND DISABILITY: DID HOME-BASED WORK FACILITATE LABOR FORCE PARTICIPATION IN THE DAWN OF THE AMERICANS WITH DISABILITIES ACT?

by

Jennifer Tennant

Advisor: Provost Linda Edwards

The Americans with Disabilities Act (ADA) was enacted to decrease the discrimination against people with disabilities and to help them participate in all aspects of life. Title I of the ADA focuses on employment and requires that employers take steps to accommodate disabled employees. If a disability hinders the employee's ability to complete necessary job tasks, the ADA states that the employer must try to make "reasonable accommodations" to allow the employee to work effectively. Employers can accommodate workers at the onsite workplace or by allowing them to work from home.

This dissertation focuses on how the option of home-based work affected the labor force participation of the disabled during the dawn of the ADA. Was the employment landscape for the disabled more favorable after the passage of the ADA?

Did the "reasonable accommodation" mandate of the ADA and technology improvements make home based work a more viable option for the disabled? In sum, did home-based work facilitate labor force participation of the disabled?

This paper is divided into four sections. The introductory section outlines the ADA, how home-based work may fit in its mission, and discusses the literature of labor force participation and disability status. Section II is descriptive and summarizes the Integrated Public Use Microdata Series (IPUMS) data to compare the disabled and the non-disabled in and out of the workforce and by worksite choice. This section also shows the change in these characteristics between 1990 and 2000 to see if the ADA may have had an effect. Section III outlines the economic theory behind labor force participation and disability status and is modeled after "Home-Based Work and Women's Labor Force Decisions" by Linda Edwards and Elizabeth Field-Hendrey. The presence of a disability alters the fixed cost of working, but in various degrees depending if one is an onsite worker, a home-based worker, self-employed or an employee. Section IV creates an econometric model that fits this labor force participation problem and shows logit estimates of the models and marginal effects for 1990 and 2000. Finally, I summarize my findings.

Acknowledgements

An undertaking as large as a dissertation is truly a collaborative process. I would like to begin by thanking my advisors, Linda Edwards, Elizabeth Field-Hendrey and Michael Grossman, for all of their guidance. Specifically, I want to thank Linda Edwards for introducing me to the subject of home-based work and getting me to think about the big issues, Betsy Field-Hendrey for all of her help in honing the econometric model and Mike Grossman for allowing me to be part of the NBER and for all of his intellectual generosity these past four years.

I would also like to thank Yochanan Shachmurove and the rest of the Graduate Center Economics seminar for all of their helpful comments. Their input made the dissertation much stronger. Also, many thanks go to Ruth O'Brien for her willingness to read my dissertation and her wonderful insights.

I am indebted to Marinella Moscheni and Chris Nagorski of the NBER for all their help and kindness during these past four years.

Finally, I need to thank the person without whom all of this would be meaningless. This dissertation is dedicated to my beautiful wife Bran, my lodestar, for all of her love and support. You are a blessing.

Table of Contents

List of Tables

List of Figures

SECTION I: INTRODUCTION

There are only two known photographs of Franklin Delano Roosevelt in his wheelchair.[1] During the time of his presidency, the common view in the medical profession was that disabled people could not be rehabilitated. Not surprisingly, "(a)ware of the stigma attached to physical disability, Franklin D. Roosevelt went to great lengths to hide his own [disability] so as not to shake the public's faith in his ability to lead the nation[2]" (O'Brien, 21)[3].

The world has changed drastically since then. People living with disabilities have become more integrated into society and discrimination against them has decreased. The disability rights movement led to the Rehabilitation Act of 1973, but the act only applied to those in the public sector. The Americans with Disabilities Act (ADA) followed – it was signed into law on July 26, 1990 and became effective two years later. The ADA expanded coverage, providing protection for those in both the private and the public sectors. Title I of the ADA addressed the employment situation of people with disabilities.

The ADA was enacted to mitigate the discrimination against people with disabilities and to help them participate in all aspects of life, including the workforce. Title I of the ADA[4] requires that employers take steps to accommodate disabled

---

[1] http://www.fact-archive.com/encyclopedia/FDR

[2] Hugh Gallagher, *FDR's Splendid Deception* (New York: Dodd Mead, 1985).

[3] Any time there is a footnote in a quotation, it comes from the original text, and was written by that author. I have the full citations in the reference section at the end of the article.

[4] I have used Kristen Ludgate's insightful law review article, "Telecommuting and the Americans with Disabilities Act: Is Working at Home a Reasonable Accommodation?" 81 Minn. L. Rev. 1309 (1997), as a jumping off point when outlining the legal history of the "reasonableness" of home-based work as an accommodation for disabled workers under the ADA in Part I of this section. I am indebted to Ms. Ludgate for the overarching structure, factual content and legal analysis of this part.

employees. If a disability impedes the ability of an employee to complete necessary job tasks, the ADA states that the employer must try to make changes or accommodations that would allow the employee to work effectively. There is still a tremendous lack of clarity among employers regarding both the scope of their responsibilities under this statute and the definitions of a "reasonable accommodation." Employers can accommodate workers at the onsite workplace or by allowing them to work from home. Working at home goes against the traditional constructs of work, so it brings particular challenges to the development of a complete body of law that covers workers.

This dissertation is divided into four sections. The introductory section outlines the ADA and explains how home-based work may fit in its mission. It summarizes my research questions and then chronicles the difficulties in the ADA's implementation; reviews the literature of labor force participation and the disability status; defines the various measures of disability given by the Integrated Public Use Microdata Series of the Census (IPUMS); and discusses the importance of the definition of disability. Section II is descriptive and summarizes the IPUMS data to compare the disabled and the non-disabled by sex and workstate. This section also examines the change in these characteristics between 1990 and 2000 to see if the ADA may have had an effect. Section III outlines the economic theory behind labor force participation and disability status and is based on the model developed in "Home-Based Work and Women's Labor Force Decisions" by Linda Edwards and Elizabeth Field-Hendrey (2002). The presence of a disability alters the fixed cost of working, but the degree of change depends on whether one is an onsite worker, a

home-based worker, self-employed or an employee. Section IV creates an econometric model that fits this labor force participation problem and presents multinomial logit estimates of the models and marginal effects for 1990 and 2000. Finally, I summarize my findings.

Research Questions

This dissertation will focus on how the option of home-based work affected the labor force participation of the disabled during the dawn of the Americans with Disabilities Act. Was the employment landscape for the disabled more favorable in 2000 than in 1990, after the passage of the ADA? Did the "reasonable accommodation" mandate of the ADA combined with technology improvements make home-based work a more viable option for the disabled? In sum, did home-based work facilitate labor force participation of the disabled?

Part I: The ADA and Working From Home

The ADA was enacted in order to reduce discrimination against people with disabilities and to bring these individuals into mainstream society. Title I of the ADA deals with employment discrimination, which is a key factor that contributes to economic hardship in the disabled community.

The ADA protects "qualified individuals" with a disability. Title I of the ADA defines a qualified individual as an employee who "[either] with or without reasonable accommodation . . . can perform the essential functions of the employment position that such individual holds or desires" (42 U.S.C. § 12111(8)). An individual's qualification is inextricably bound with the concept of reasonable

accommodation.

The Employer's Responsibility to Accommodate

The ADA is distinct from other civil rights laws because it not only requires those with disabilities to be treated equally, but also adds the requirement that an employer must take real steps to accommodate these workers. The idea of the law is better than the practice, as neither it nor the Equal Employment Opportunity Commission (EEOC) provide rules outlining any specific accommodation. In fact, the waters of the ADA get muddier still when we realize that the statute gives no explicit definition for "reasonable accommodation," but only lists possible required changes.

The EEOC rules are also vague. The EEOC demands that both employees and employers take part in a process to figure out an "appropriate" reasonable accommodation for their specific case. An accommodation would be "appropriate" if it takes into account the specific job requirements as well as the limitations and skills of the employee. An accommodation is not considered reasonable if an employer has to change the "essential functions or components" of the position. Also, in order to reasonably accommodate a disabled employee, an employer does not have to offer the employee a job that has requirements beyond the employee's skill level.

Acceptable “reasonable accommodations” include creating accessible workplaces, modifying work schedules, and altering responsibilities and examinations.

An Employer's Loophole -- Undue Hardship

There is a circumstance that exempts employers from the responsibility of accommodation. If an employer can show that the accommodation would inflict "undue hardship" on its livelihood, it may not have to accommodate the employee's request. The statute of the ADA defines an undue burden as something that causes "significant difficulty or expense." The question becomes: how do we measure "significant"? Neither the ADA statute nor the EEOC have created any specific guidelines that differentiate a reasonable accommodation from an undue hardship.

In order to determine whether or not there is undue hardship, the courts have needed to do fact-specific analyses of the costs and potential difficulties associated with the potential accommodation. This uncertainty leads to an increase in the number of court cases. Nevertheless, the EEOC believes that additional litigation is a small price to pay for the fact-specific approach. It contends that this approach, "is essential if qualified individuals of varying abilities are to receive equal opportunities to compete for an infinitely diverse range of jobs" (EEOC, 29 C.F.R. app. § 1630). Just having an undue hardship doesn't let an employer off the hook completely, however – if a specific accommodation is too burdensome, the employer must try to accommodate in a different, less costly way.

Different Burdens of Proof for Employees and Employers

Continuing the trend, there are no specific guidelines in the ADA statute or the EEOC rules for the appropriation of the burden of proof in accommodation discrimination cases. What does the employer need to prove and what does the

employee need to prove? Even though there are no definitive guidelines, courts have created a framework in which to determine reasonable accommodation. The employee must show two things – one, that he or she is indeed disabled, and two, that with reasonable accommodation, the employee can complete the "essential functions" of the job. He or she has to prove things related to identity and skills. The employer has to prove facts about the job and the burden of accommodation. Specifically, the employer must show that the essential functions of the job are in fact essential, and that accommodating the worker would create an undue burden on the firm.

Working at Home as a More Viable Option

The vast majority of employees commute in the morning to a workspace that is separate from their home. However, strides in technology have allowed telecommuting to be a more viable option. Telecommuting became much more prevalent in the 1990s and continues to thrive. The birth of the Internet and email have made home-based work a more viable option. In fact, according to a Current Population Survey supplement, in 1997, more than 3.6 million wage and salary workers were paid for work done at home.

The benefits of working from home for workers include increased flexibility and control, a reduction in time spent getting to work, and lower transportation costs. Working from home also has benefits for employers, including "savings on office overhead, lower employee absenteeism, increased productivity, improved employee morale, and higher employee retention" (Ludgate, 1322-3). Despite all the benefits of working from home, there are a number of barriers that limit its expansion. For

example, working at home is not a suitable option for jobs where face-to-face contact with the public or clients is necessary. For instance, a waiter could not feasibly work from home. Even in jobs that don't require "face time", working at home leads to management challenges, including performance monitoring and communication delays. However, the latter of these issues is declining as the power, speed and prevalence of e-mail increase.

Even if telecommuting is appropriate for a specific job, it might not be suitable for every worker. Some people need constant supervision and cannot work independently in an effective way. Others may have the ability to work effectively at home, but prefer to work in the collegial atmosphere of an office. Some people believe that there are economies of scale in an office space – that the exchange of ideas lead to greater productivity because a problem can be figured out more quickly with more minds.

The Vande Zande *Presumption Against Working From Home – Is it Necessary to be Onsite?*

Vande Zande v. Wisconsin Department of Administration is a Seventh Circuit case that addressed whether working from home is a reasonable accommodation under the ADA. It looked at a number of "excessive absenteeism" cases as a foundation from which to build. These cases evaluated whether serial absenteeism due to a disability is something that an employer must accommodate. The courts:

> "have held that disabled employees are not qualified for a position if they cannot maintain predictable attendance at work. Typically, these courts support this conclusion by noting the disruption caused to an entity's operations when an employee is not reliably present … These declarations

> have formed the basis for a presumption, followed in some telecommuting cases, that because physical presence at work is an essential function of employment, telecommuting is almost by definition an inappropriate accommodation." (Ludgate, 1324-5).

Vande Zande stands for the proposition that working at home is almost never appropriate.

The presiding judge, Richard Posner, stated in his decision, "it would take a very extraordinary case for the employee to be able to create a triable issue of the employer's failure to allow the employee to work at home" (*Vande Zande*, 545). The court based this statement on the belief that most jobs take group effort, and having one of the team members away from the office would substantially lower the productivity of the group. In order to support this presumption, the court pointed to excessive absenteeism cases that held that in most cases an employer doesn't have to allow an employee to work from home.

Other courts followed *Vande Zande*'s lead and presumed that working at home should only be appropriate in unusual cases[5]. The outcomes of these cases were premised on the assumption that consistent attendance is a fundamental job requirement. Even though some courts after *Vande Zande* took a fact-based approach and didn't accept a blanket prohibition on home-based work, their decisions were framed by an assumption that working at home is not an appropriate accommodation.

[5] Mason v. Avaya Communications, Inc., 357 F.3d 1114 at 1118 (10th Cir. 2004); Kvorjak v. Maine, 259 F.3d 4 (1st Cir. 2001); Waggoner v. Olin Corp., 169 F.3d 481, 483 (7th Cir. 1999); Hypes v. First Commerce Corp., 134 F.3d 721 (5th Cir. 1998); Smith v. Ameritech, 129 F.3d 857 (6th Cir. 1997); Whilock v. Delta Air Lines, Inc. 86 F.3d 1171 (11th Cir. 1996)

Is the Presumption Against Home-Based Work Based on the Wrong Framework?

The presumption laid out in *Vande Zande* in evaluating the reasonableness of working at home lies on unstable ground. Judge Posner and the Seventh Circuit relied on excessive absenteeism cases when they said that physical presence was an essential function of the vast majority of jobs. Consequently, they virtually eliminated the possibility of working from home as a reasonable accommodation. Under this calculus, the home-based work option suffers from a wholesale prohibition. Thus, courts, in following the *Vande Zande* reasoning, have not needed to engage in fact-specific analysis.

Further, the court failed to explain how these excessive absenteeism cases were relevant in the telecommuting framework. In a typical excessive absenteeism case, "adequate job performance and physical presence at work are interrelated, either because the plaintiff's job cannot be performed off premises or because the plaintiff is unable to work with any regularity" (Ludgate, 1332). This assumption is different in the typical telecommuting case. In this area, the employees argue that physical presence is not a factor in performance. A fact-based approach must ensue to see if the employee actually can work productively at home. If we rely on the presumption that presence is essential then the fact-based approach of the specific case is a moot point. While employers definitely need high quality performance from their employees, it is not at all clear that employers need their physical presence to engender it.

Is Working from Home Feasible?

The *Vande Zande* court also grounded its assumption against home-based work on the supposition that working at home significantly lowers productivity because of the inherent lack of supervision. A fact-based analysis is needed to determine the suitability of a specific person and a specific job to telecommuting. As detailed above, courts have generally underestimated the plausibility of working from home, by declining to analyze beyond the blanket prohibition of home-based work.

Technology has grown with leaps and bounds in the past decade. Now fax machines, email and conference calls are common features of life. This new environment allows people to meet deadlines and share ideas with their coworkers, regardless of their physical location. In the *Vande Zande* decision, Judge Posner recognized that the premise against working from home would weaken as technology advances, but underestimated the technological framework already in existence.

> "*Vande Zande* was argued in 1994 and decided in January 1995, when companies like CompuServe and AOL were just starting to provide Internet access to large numbers of in-home users and Amazon.com began selling books online. Less than a year before *Vande Zande* was published, Vice President Al Gore first coined the phrase "information superhighway" in a speech outlining the administration's support of the fledgling Internet and its commitment to revolutionary growth in an information technology industry" (Valenza, 2).

Now, ten years later, technology has evolved and the feasibility of home-based work can no longer be denied.

The ADA's Reliance on the Case-by-Case Approach

The case-by case approach in determining whether or not an accommodation is reasonable is not only correct, but also the approach mandated by the ADA. The ADA requires that courts must complete a fact-based analysis that takes into account the interests of both the employee and the employer. The presumption against working-from-home premised on physical presence as an essential function goes against the requirement of a fact-based investigation of reasonableness. This presumption also disqualifies plaintiffs who need to work from home. They are in a catch-22 situation since physical presence is required to be qualified for a certain job and Title I of the ADA protects only "qualified individuals." Therefore, the presumption precludes the give and take of employer and employee in determining a reasonable accommodation. The "presence is essential" presumption allows the employer to refuse to examine the feasibility of setting up a telecommuting arrangement with the employee. Evan Kemp, a former commissioner of the EEOC, gave this frank explanation of disputes regarding reasonable accommodation: "[I]f [an employer] wants disabled people, the accommodations really don't become a burden. If they don't, they always do" (1990 U.S.C.C.A.N. at 315-316, quoted in Valenza).

The presumption against home based work belies the purpose of the ADA, which is to help bring disabled workers into the ranks of the employed. A work-from-home arrangement might be the only viable option for a person who cannot leave home on a regular basis. Excluding a whole category of accommodation from thoughtful deliberation seems to go against the tenets of the ADA. In fact, the EEOC

code expressly states that the point of a fact-based framework is to expand the range of employment opportunities for disabled workers.

Part II: Labor Force Participation and Disability Status: Has the ADA been effective?

Evidence of the effectiveness of the ADA's goals has been mixed at best. Studies suggest that rates of employment for people with disabilities have been getting worse rather than better since the ADA took effect. This seems to be counterintuitive, especially given the goals of the ADA.

Regardless of the definition of disability, individuals with disabilities have lower employment rates than the non-disabled population. "Negative effects of disability on employment have been found not just in cross-sectional estimates but also in longitudinal estimates before and after disability onset" (Kruse and Schur 2003, 33). Factors that contribute to this are high reservation wages and low market wages that reflect decreased productivity and discrimination. Kruse and Schur also noted that those with disabilities have traditionally had procyclical employment -- they are the first fired and last hired, and are helped by periods of economic expansion.

If people with disabilities are out of the labor force in great numbers, will the ADA increase employment? Or, will the law have the opposite effect and decrease employment because of heightened hiring and firing costs that come with the law?

Much research has been done that suggests that the second effect is the predominant outcome. (Acemoglu and Angrist 2001; DeLeire 1997, 2000).

Expanding the scope of the coverage will increase the number of people employers have to accommodate. It will also increase the firing costs of people with disabilities because there will inevitably be more lawsuits. The competitive model predicts that if the definition of disability is expanded, the employment of people with disabilities will decline further.

Acemoglu and Angrist used the 1988-1997 waves of the March CPS to look at how number of weeks worked changed for people with a work disability over this period. They found a decrease in the number of weeks worked after 1993, what they call the "post-ADA" wave. Their regression type and their data are different from mine -- Acemoglu and Angrist's dependent variable is "weeks worked" and mine is "workstate," a polychotomous variable. This could have led to a difference in our results.

Further, their last year of data is from 1997, 3 years before mine, which could make a difference as well. It takes time for both employers and the disabled to truly understand the meaning of the ADA. Since it didn't become effective until July of 1992, 1993 and 1994 may have been too soon to see any changes. This may have swayed the "post-ADA" results. My "post-ADA" data come from 2000, 8 years after the statute became effective. This is enough time for people to become acclimated to the change in policy.

Finally, Acemoglu and Angrist used the CPS data, while I used the IPUMS data. Both of these data sources are compiled by the Census, but they have their differences. One of the differences lies in their definition of a work disability. In the

IPUMS data, a respondent is considered to have a work disability if she says yes to the following question:

"Does this person have a physical, mental, or other health condition that has lasted for 6 or more months and which -

a. Limits the kind or amount of work this person can do at a job?

b. Prevents this person from working at a job?"[6]

The CPS definition of disability is broader. There are seven questions asked, and a "yes" to any one of the seven identifies the person as someone with a work disability. The seven questions are[7]:

> D1. Identified by the supplement question – Does anyone in this household have a health problem or disability which prevents them from working or which limits the kind or amount of work they can do?
>
> D2. Identified by the supplement question – Is there anyone in this household who ever retired or left a job for health reasons?
>
> D3. Identified by the basic questionnaire as currently not in the labor force because of a disability.
>
> D4. Identified by the supplement as a person who did not work at all in the previous year because of illness or disability.
>
> D5. Under 65 years old and covered by Medicare in the previous year.
>
> D6. Under 65 years old and received Supplemental Security Income (SSI) in previous year.
>
> D7. Received VA disability income in previous year.

The IPUMS data specifies that the person needs to have been limited for 6 months or more to be considered to have a work disability. This is a much more stringent standard than the CPS data. The CPS data, therefore, would identify more people as disabled than the IPUMS data.

---

[6] http://www.ipums.org/usa/voliii/inst1990.html#18

[7] http://www.census.gov/hhes/www/disability/disabcps.html

DeLeire also used a different data set than the IPUMS, the Survey of Income and Program Participation (SIPP), and looked at men aged 18-65. The age range that DeLeire used is much more expansive than mine and may confuse retirement and schooling decisions with labor force participation decisions. Also, the fact that DeLeire only looks at men makes his results distinct from mine, since men and women have different decision-making processes when considering choice of workstate.

Another issue that may influence the negative outcome of this and similar studies is an unintended consequence of using a work disability measure. An unintended consequence of the ADA is that, if it is effective in its goals to help integrate people with disabilities into the workplace, fewer people will identify themselves as being limited or unable to work. People who formerly identified as having a work disability would be working and, thus, no longer would consider themselves to have a work disability. This result would be misleading--it would appear that the work participation *of those currently disabled* had decreased. This change in disability status would lead to a kind of adverse selection bias where only those who can't work would be considered disabled. This scenario might lead to the false conclusion that the ADA had either no or a negative effect on the employment rates of people with disabilities (Schwochau and Blanck, 71).

Part III: What a Difference a Definition Makes[8]

The definition of disability according to the ADA mirrors the elusive middle exemplified in Goldilocks and Three Bears – in order to be covered by the law, a disabled person cannot be "too disabled" or "not disabled enough" but must be disabled in the "just right" degree. In order to receive protection by Title I of the ADA, a person has to be "substantially" limited in a "major life activity", but they also have to be able to work. Those who are "too disabled" don't get coverage, probably because the enormous costs of accommodating the severely disabled could create enormous costs for employers. Additionally, those who are "not disabled enough" also don't receive coverage, again most likely because of cost concerns. The drafters of the ADA most likely didn't want the non disabled to take advantage of a law that was designed for the truly disabled. Regardless, the definition is narrow and exceedingly vague. What is a "major life activity"? And, what is a "substantial" limitation in those activities?

Who gets to decide the true meaning of these definitions? The EEOC? The courts? The disabled themselves? The ADA has been difficult to implement, in part, because of the competing interpretations by and the ensuing power struggle between all of these players.

[8] A variation of this phrase was used in Susan Schwochau and Peter Blanck's "Does the ADA Disable the Disabled? – More Comments"

The Definition of Disability According to the EEOC – Broadly Drawn Guidelines

The EEOC takes the definition of disability from the ADA statute itself. To be considered as a person with a disability under the ADA, at least one of three criteria must be met:

(A) a physical or mental impairment that substantially limits one or moreof the major life activities of such individual

(B) a record of such an impairment; or

(C) being regarded as having such an impairment.[9]

The EEOC's definition of the term "major life activities" is very broad. It states, "Commission regulations define the term 'major life activities' to mean 'functions such as caring for oneself, performing manual tasks, walking, seeing, hearing, speaking, breathing, learning, and working.'" 29 C.F.R. § 1630.2(i).

The Courts Strike Back

The EEOC has broadly interpreted the definition of disability and the federal courts, as well as the Supreme Court, have fought back by narrowing it significantly. As Ruth O'Brien outlines in *Crippled Justice,* "[D]espite the ADA's passage, few people with disabilities have found relief from employment discrimination. Before the Supreme Court ruled on disability rights under Title I, the lower federal courts decided on 94 percent of all litigation in the employers' favor[10] " (O'Brien, 14).

---

[9] 42 U.S.C. § 12102(2)

[10] Ruth Colker, "The ADA: A Windfall for Defendants" *Harvard Civil Rights – Civil Liberties Law Review* 34 (1999): 99-163. The American Bar Association conducted a study of 700 Title I cases

Further, in June of 1999, the Supreme Court ruled on the first 3 Title I cases,[11] which "drastically narrowed the scope of the definition of disability" (Wilkinson and Frieden, 77).

> "The Supreme Court's interpretation denies 'protection for persons with substantially limiting impairments that, when corrected, render them fully able and employable.'[12] Hockenberry said that 'by this definition the fact that I use a wheelchair to mitigate my paraplegia suggests that I am not disabled.'[13] Chai Feldblum, a law professor, explained, this definition creates, 'the absurd result of a person being disabled enough to be fired from a job, but not disabled enough to challenge the firing.'[14]" (O'Brien, 16).

Justice John Paul Stevens opines about this bizarre result in his dissent to *Sutton*.

> "The three prongs of the statute, rather, are most plausibly read together not to inquire into whether a person is currently 'functionally' limited in a major life activity, but only into the existence of an impairment – present or past – that substantially limits, or did so limit, the individual before amelioration. This reading avoids the counterintuitive conclusion that the ADA's safeguards vanish when individuals make themselves more employable by ascertaining ways to overcome their physical or mental limitations" (*Sutton,* 499).

Wilkinson and Frieden observe "[T]he problems courts and employers are having [is] reconciling the competing values the ADA embodies – the struggle among different conceptions of disability, a civil rights mandate balanced with cost

---

between 1992 and 1997 in which employers won 92 percent. Quoted from Michael Doyle, "Disability Law Keeping Courts Busy," *Sacramento Bee,* November 26, 1998.

[11] See *Sutton v. United Air Lines; Murphy v United Parcel Service; and Albertson's v. Kirkingburg*

[12] *Sutton v. United Air Lines,* 510

[13] John Hockenberry, "Disability Games," *New York Times*, June 29, 1999.

considerations [and] misperceptions regarding the mandate of the ADA (affirmative actions vs. nondiscrimination)." (69). These factors have sometimes obscured the original intent of the ADA and made it a very difficult law to implement.

Self-identification of Disability

If the respondent is the one who gets to decide if he or she is disabled, there will be measurement issues as well as societal influences. That is, self-reporting could result in either an overstatement or understatement of true disability. It could overstate the number of the truly disabled if those without disabilities "identified" as disabled to get workplace accommodations or to justify being out of the labor force. O'Brien (2001) focuses on the possibility of understatement: "Many disabled people … try not to be identified as disabled … Harlan Hahn also observed that disabled people 'are understandably reluctant to focus on that aspect of their identity that is most negatively stigmatized by the rest of society and to mobilize politically around it.'" (O'Brien, 11; Hahn, 310). Furthermore, "A person using medication to control his or her epilepsy may respond negatively to any question about whether he or she has a mental or physical condition that limits his or her ability to do, or makes difficult, any particular task" (Schwochau and Blanck, 71). Thus, it is difficult to identify all of those who are disabled, muting the apparent effect of any legislation focused on increasing employment opportunities of the disabled.

Technological improvements may also decrease the self-reporting of work limitations. "There is a strong tie between the goals of the ADA and the development

[14] Linda Greenhouse, "High Court Limits Who Is Protected by Disability Law," *New York Times,* June 23, 1999.

and provision of AT [Assistive Technology] goods and services. The ADA seeks to remove the physical barriers that hinder the inclusion of persons with disabilities in employment and other social contexts. … For many persons with mild and severe disabilities, AT plays a fundamental role in support of this mandate" (Berven and Blanck, 330). If, because of technological improvements, a person does not feel that he or she is limited, then definitions of disability that are based on limitations or difficulties will not be considered applicable. As Schwochau and Blanck argue, this is good from a social and policy perspective, but not good if we want to measure the effects of the ADA.

In the research in this dissertation, the indication of disability is based on self identification. The IPUMS data of the Census allow the respondent to identify herself as having a number of different disabilities. The 1990 and 2000 waves of the Census outlined three consistent categories of disabilities-- disabilities limiting work, disabilities limiting mobility and personal care limitations. Someone who has a work disability may or may not have one of these other two types of disabilities, or vice versa. All types of disabilities are not the same. Labor force participation rates and workstate choice may differ by disability type. Because of this, I created seven mutually exclusive categories of disability – solely work disability, work and mobility disability, work disability and personal care limitation, work, mobility and personal care limitation, solely mobility disability, mobility disability and personal care limitation and solely personal care limitation.

Intuitively, we may think that those with work disabilities and mobility disabilities would be best helped by reasonable accommodation and the home-based

work option. Those who have personal care limitations may not be able to work because of their disability, regardless of accommodation. Those with disabilities limiting work certainly might benefit from the accommodation of home-based work, as the case of *Vande Zande* illustrates. Home-based work could be the only feasible option for those with mobility disabilities, so this group is important to investigate as well. I have separated these disability types into two categories – "work disability without mobility limitation" and "work disability with mobility limitation." The former group is comprised of those respondents with "solely work disability" or "work disability and personal care limitation." The latter group contains those with "work disability and mobility disability" or "work, mobility and personal care limitation." I focus on those two broad disability categories when looking at summary statistics and when doing regression analysis.

SECTION II: THE CHANGE IN THE EMPLOYMENT LANDSCAPE FOR THE DISABLED DURING THE DAWN OF THE AMERICANS WITH DISABILITIES ACT

Part I: How many people are disabled? Are they working, and if so, where?

Using descriptive statistics, we can start to answer the questions posed in Section I. Was the world a more favorable place for those with disabilities in 2000 than in 1990? Were people with disabilities more likely to be working in 2000 than in 1990? If they were working, were they working at home or onsite? Did the option

of home-based work facilitate their labor force participation? Was the option of home-based work more feasible for those with both work and mobility disabilities, or was it equally enticing for those with work disabilities without mobility limitations?

Table 1 outlines the employment landscape for people with disabilities in 1990 and 2000. It shows the number and percentage of people with disabilities in various workstates and the changes in this environment during this decade. The Americans with Disabilities Act only covers employees. Those who are self employed are not covered under the auspices of the ADA. All of the non-ADA changes of the 1990s affected the self-employed disabled in the same way as the disabled who were employees. Therefore, the self employed can be used as a comparison group to see what effect the Americans with Disabilities Act had on the employment status of the disabled.

1990

In 1990, there were 5,521,148 people who described themselves as having a disability, accounting for 8.1 percent of the population. More than half (3,204,010) of the disabled were onsite workers – approximately 50% as onsite employees and 8.4% as the onsite self-employed. Only 81,877 disabled people worked at home – 0.5% as employees and 1% in a self-employment. More than 40% of the disabled in 1990 were out of the labor force. This dearth of home-based workers could be the consequence of the lack of telecommuting resources and computing power at this time.

The work disability measure was a core feature of disability status. Approximately 90% of the disabled who were out of the labor force had a disability that limited work. Approximately 78% of disabled home-based employees had a work disability, compared with 82% of the disabled home-based workers who were self-employed. Those who worked onsite were the least likely to identify as having a work disability, with only 59% of disabled onsite employees and 29% of the disabled onsite self-employed identifying as such.

Persons with disabilities made up a large proportion of the out of the labor force population, with 25.2% identifying as disabled. Those who were working in 1990 were less likely to identify as having any sort of disability -- 5.2% of onsite employees, 8.4% of the onsite self-employed, 6% of home-based employees and 5.2% of the home-based self-employed.

2000

In 2000, 7,515,761 people identified as being disabled, a 36.1% increase from 1990. The percentage of the population identifying as having a disability increased as well, rising to 11.3 percent. This is a bit higher than the figures in CPS, which showed "a significant 1 percentage point difference between the averages prior to and including 1991 … and later" (Hotchkiss, 13). The increase in the number of disabled individuals may have been caused by an overreporting of disability, which stemmed from the passage of the legislation. The difference in the scale of the increase suggested by the two datasets could come from the varying definitions of disability used, as discussed earlier.

According to the IPUMS data, between 1990 and 2000, both the employment status and worksite location of the disabled had undergone important changes. A greater number and percentage of the disabled were onsite employees and home-based employees and fewer were out of the labor force. The number of the disabled who were self-employed onsite or at home increased, but the percentage fell or stayed the same. In 2000, 76.8% of the disabled were onsite employees, 4.8% were self-employed onsite, 0.8% were home-based employees, 1.1% were self-employed at home and the remaining 16.5% of the disabled were out of the labor force.

As in 1990, those with disabilities that limited work made up a large majority of the disabled, regardless of workstate choice or labor force participation in 2000. Those who had a disability that limited work with or without other types of disabilities accounted for approximately 85 percent of the disabled who were out of the labor force. Approximately 95% of home-based workers with a disability – regardless of self-employment status – had a disability that limited work. Interestingly, onsite disabled workers were the most likely to have a work-limiting disability, with approximately 97 percent of disabled onsite workers – both employees and the self-employed-- reporting disabilities that limited work.

There were 144,078 home-based workers and 6,134,703 onsite workers who identified as disabled in 2000. People with disabilities comprised 9.1% of home-based employees, and 8.3% of the self-employed who worked at home. Those with disabilities made up 10.4% of onsite employees and 10.5% of the self-employed who worked onsite. 1,236,980 persons with disabilities were out of the labor force in 2000, which accounted for 20.1% of those not in the labor force.

Gender differences

Like their nondisabled counterparts, workstate choice of disabled men and women differs by gender. Table 2 outlines these differences and their changes between 1990 and 2000. There were more disabled women working at home than disabled men, and there were more disabled men working onsite than disabled women. This mirrors the workstate choices of men and women, regardless of disability status. In 1990, women with a work disability were much more likely than men with a work disability to be out of the labor force. In 2000, however, 800,000 fewer work-disabled women were out of the labor force – falling to a level below that of men with a work disability.

Table 2 shows us something interesting about gender differences and workstate choice. In both 1990 and 2000, less than 20 percent of women who were out of the labor force had a disability that limited work, although the percentage fell during the 1990s. Many women who are not in the labor force are doing so for family or childrearing reasons. The situation is different for men. In 1990, 57.4% of men who were out of the labor force had a disability that limited work, while in 2000 that percentage had fallen to 21.3%. This leads one to believe that people with disabilities were better accommodated in 2000 than in 1990.

Change from 1990 to 2000

The number of people identifying as disabled rose almost 40 percent during this decade, but the number of the disabled who were employees increased by an even

greater amount. Home-based employees increased in numbers by 140 percent from 1990 to 2000, and those who were onsite employees increased by 110 percent. The number of home-based self-employed persons with disabilities increased as well, but in a more muted fashion. Persons with disabilities were less likely to be part of the onsite self-employed in 2000 than in 1990.

There was a drive for those with disabilities to go to work, regardless of worksite or self-employment status. Almost 3 million more disabled people worked in 2000 than in 1990 and almost 1 million fewer identified as being of out of the labor force during that time. There was also an increase in the number of disabled people in the workforce who identified as having a disability that limited work. It seems like two things were happening during this period – disabled people who were out of the labor force in 1990 became employed either onsite or at home in 2000 and those who didn't identify themselves as disabled in 1990 did so in 2000. The ADA may have had an influence on both of these factors.

Part II: How are the Disabled and Non-Disabled Different?

The ADA was enacted in part with the assumption that people with disabilities live in a more challenging world than those without disabilities. Current Population Survey (CPS) data show that the disabled make less money, are less likely to be employed and are less educated than their non-disabled peers. In 2000, depending on the age group, the CPS data showed that 57 – 68% of those with a work disability were out of the labor force, with this likelihood increasing as the respondent got older (CPS 2000).

Using the IPUMS data, I address the differences in terms of educational status, family income, wages, weeks worked and marital status. Is disability the main dividing line, or are the differences also strong (or stronger) by sex, or workstate choice? Did these divides lessen between 1990 and 2000?

Tables 5 – 9 show a variety of summary statistics for the disabled and non-disabled. These tables show statistics that are similar to some of the "truisms" of working life – men make more money than women, women are more likely to choose home-based work than men, men work longer hours than women, those who choose home-based work have a higher family income than those who work onsite, and the disabled are worse off financially than their non-disabled counterparts.

Tables 5-9 show that regardless of workstate, the disabled have lower educational attainment, income from earnings and family total income than the non-disabled. They also work fewer hours and fewer weeks than their non-disabled peers. Also, within the disabled community, the sex and workstate differences seen in their non-disabled counterparts still hold. Disabled men have higher earnings from income, higher hourly wage and work longer hours than disabled women. Disability is not the great equalizer.

The differences among workstates persist as well despite disability status. Those persons with disabilities who choose to work at home have on average greater educational attainment and total family income than those who work onsite or are out of the labor force. Those persons with disabilities who choose to work onsite work more hours per week and weeks per year and earn more from income than their

home-based and out of the labor force peers. Those persons who are out of the labor force have the dreariest reality, with the lowest educational attainment and total family income.

Part III: How did the summary statistics for the disabled change between 1990 and 2000?

There were many positive changes for the disabled between 1990 and 2000, especially for those who were home-based employees. Except for those who were self employed on site, both income from earnings and total family income rose between 1990 and 2000, with the greatest increase occurring among the home-based employees. The disabled were less likely to be under-employed, with an increase in both hours worked per week and weeks worked per year. The change in the educational attainment variable was mixed – those who were working at home showed increased years of education, but the years of education for those who worked on site decreased.

The gap between the disabled and the non-disabled lessened during the 1990s. The data show that the disabled are entering the workforce both as onsite and as home-based workers and that their income had increased. They also show that many more people identified as disabled in 2000 than in 1990. Did the onsite and home-based workplace become much more accommodating and a more viable option for the disabled, or did people feel more comfortable in 2000 identifying themselves as disabled because of the apparent protections of the ADA? A theoretical model in

Section III and an econometric model in Section IV will attempt to further address these issues.

SECTION III: THE THEORETICAL BASIS FOR HOME-BASED WORK[15]

Part I: The Edwards/Field-Hendrey Model

The theory behind my home-based work mdel is based on "Home -Based Work and Women's Labor Force Decisions" by Linda Edwards and Elizabeth Field-Hendrey, which is based on previous work done by John Cogan on fixed costs and labor force decisions.

Edwards and Field-Hendrey outline two differences between onsite work and home-based work:

> First, the fixed costs associated with working (e.g. time costs associated with commuting, out-of-pocket commuting expenditures and clothing costs) are greatly reduced for home-based workers. Second, home-based workers may be able to engage in some joint production of income and household "commodities." (Edwards and Field-Hendrey, 2002, 174)

Edwards and Field-Hendrey's analysis focuses on the labor force participation of married women. Since married women often do the majority of the child-rearing and household maintenance, they have a different decision making process than men when considering whether or not to enter the labor force and for how many hours. Women have different reservation wages, that is the minimum wage level to induce a person into the market, and this reservation wage is dependent on many factors, including other income and presence of children in the family.

There are differences in the fixed costs of working onsite as opposed to working at home. In order to work at an onsite job, a person has to incur two different types of fixed costs – monetary and time costs. These costs may include buying work clothes, maintaining her car, buying gas, paying for parking, buying a bus pass and spending commuting time in the car or bus.

Fixed costs are not the only things that differ between these two workstates. There is also a different wage offer given to those who work at home as opposed to those who work onsite. If the wage offer were the same regardless of workstate, then the opportunity set for those who worked onsite would always fall inside the opportunity set of the home-based (because of the lower fixed costs associated with working at home). Therefore, a person who had no preference between working at home or working onsite would always choose to work at home because she would be on a higher indifference curve.

But, our data in Section II showed us that the vast majority of people in the labor force work onsite. Therefore, the income that a person gets from wages must be higher for those who work onsite relative to those who work at home. In fact, this difference was shown in Tables 5- 9 in Section II. Some of the reasons for this lower wage offer were outlined in Section I in "Working at Home as a More Viable Option." Monitoring difficulties, the lack of synergies of workers in the same space, the unsuitability of certain jobs for home-based work, and the belief that home-based workers are less productive than their onsite counterparts are all reasons why there is

[15] Section III is based on "Home-Based Work and Women's Labor Force Decisions" by Linda Edwards and Elizabeth Field-Hendrey. Figure 1, the first part of Figure 2 and the theory come directly from this article.

a lower demand by employers for home-based workers. This leads to a lower wage offer for home-based workers relative to onsite workers.

However, the wage is not the only good that a worker gets if she chooses to work from home. Edwards and Field-Hendrey allow for joint production of work and household "commodities" in the home-based work context. They assume that there is "some level of household production (such as child or elder care) per hour when one is doing home-based work" (176). Their model is illustrated in Figure 1. It is outlined as follows: N is unearned income, L* is total time available, FCM are the fixed monetary costs of working at an onsite workplace (commuting costs, for example), FCT are the fixed time costs that are incurred when working on site (commuting time, for example), W_h and W_o are the wage offers for home-based and onsite work, respectively, and H is the monetary value of household production per hour of home-based work. They assume that $W_h < W_o$ and that FCM and FCT are zero when working at home. Also, for simplicity, H is considered to be zero when a person is out of the labor force.

The budget constraint is ABCD. If a person ends up at point B, she is out of the labor force. If she ends up on the line segment BC, she is a home-based worker and if she is on the line segment CD, she works onsite.

Fixed costs play an important role when choosing workstates. We can see this in Figure 1. As the monetary and time costs of working onsite rise, the line segment CD moves down and to the left. This means that a person will be less likely to be an onsite worker, choosing instead to be a home-based worker or out of the labor force. The importance of the value of joint production of household commodities, H, on

workstate choice, is also shown in Figure 1. A higher value of H will increase the probability that a person enters the labor force as a home-based worker. An increase in H has the same effect as a higher value of W_h. The change in the predicted probabilities of being in a particular workstate when these theoretical variables change is shown in part 1 of Figure 2.

Since the option of home-based work reduces many of the costs of working, Edwards and Field-Hendrey state that "the presence of the home-based work option leads some women who would have chosen to be out of the labor force to enter as a home-based worker" (176).

Part II: How the disabled are similar to married women

The theoretical basis for the disabled is similar to that of married women. The disabled, too, have greater costs of working than their non-disabled counterparts. There is a deterrent effect of disability on the probability of working – those with disabilities are more likely than their non-disabled counterparts to be out of the labor force. Lack of accommodation might be a factor leading to this reduced level of employment.

Transportation, mobility and accommodation issues affect the disabled more than the non-disabled. Therefore, the fixed costs of working onsite may greatly influence persons with disabilities when deciding if and where to work.

Just like the married women in Edwards and Field-Hendrey's model, persons with disabilities can jointly produce "household commodities" when working at home. A household commodity for a disabled person could be having a doctor's or

therapy appointment, or taking care of oneself when symptoms flare up. Home-based work could provide the flexibility and lower costs of work that could induce those with disabilities to enter the labor force. This is the reason why the Edwards/Field Hendrey model fits when looking at the labor force participation choice of persons with disabilities.

Part III: The Effect of the ADA on Worksite Decision

The Americans with Disabilities Act affected the employment situation both directly and indirectly. Title I mandated that employers must reasonably accommodate their workers either in the onsite workplace or by allowing them to work at home. The onsite workplace changed as a result of this legislation – wheelchair ramps were built, new entrance exams were created, and flexible schedules were allowed. The home-based worksite did not change because of the ADA, however – it just was suggested as a more viable accommodation option. The actual home-based worksites looked the same as they did in 1990. The home-based worksite had always been an accommodating option for the disabled. Both before and after the ADA, those with disabilities could perform household commodities, H, while working at home. Working at home also eliminated the fixed monetary and time costs associated with working onsite, FCM and FCT, respectively.

The passage of the ADA made the onsite workplace more accommodating, although it was still not as accommodating as the home-based worksite. Figure 1 shows this change. Title I of the ADA addresses the treatment and accommodation of persons with disabilities in the workplace. Title II of the ADA addresses public

transportation issues, such as accessible buses, trains and stations. One of the effects of Title II on those with disabilities is that it lowers the fixed time and monetary costs of transportation to an onsite workplace. The disabled who want to work onsite now have more transit options, and therefore their total transit bill would decrease, in both time and monetary terms. Figure 1 shows this change. Those who choose to work onsite still incur fixed time and monetary costs to working – they still must get to work and that costs time and money – but FCT and FCM have decreased to FCT_1 and FCM_1, respectively.

There is another change for disabled onsite workers because of the implementation of the ADA. Title I requires that employers "reasonably accommodate" their workers. One such accommodation could be a flexible schedule in order to go to regular doctor's appointments. Therefore, after the onset of the ADA, onsite disabled workers are allowed to do some joint production of commodities, O, while at work. This benefit gets added to the onsite wage in Figure 1. The ADA also may have increased H to H_1 since the atmosphere had changed to encourage the accommodation of employees with disabilities. I assume that $O<H$ since the construct of onsite work will almost always more constrained than the home-based option.

The Americans with Disabilities Act seemed to give the onsite workplace some of the benefits traditionally saved for those who worked at home, while strengthening the benefits of working from home. In Figure 1, those who are at point B are out of the labor force. Those who are on the line segment BC' are home-based workers and those who are on the line segment C'D' are onsite workers. In Figure 1,

C'D' increased more than BC', so it would seem that the disabled would be drawn in greater numbers to onsite work rather than home-based work, although both could increase. This is consistent with the numbers we found in Table 1.

SECTION 4: THE ECONOMETRIC MODEL

Part I: Data[16]

The data used in this dissertation are from the Integrated Public Use Microdata Series (IPUMS) of the Census for the years 1990 and 2000. The sample used is the 5% sample of housing units, and includes all people aged 25-55 who did not live in group quarters, were not in school or in the military. This sample also does not include the unemployed – it only includes those who are either employed or out of the labor force. I did not include the unemployed because there was no way of knowing an unemployed person's preferred worksite – home-based or onsite.[17]

Home-based work status is taken from the "transportation to work" question of the survey, question 23a. It asked, "How did this person usually get to work LAST WEEK?" If the respondent's answer was "worked at home," then he or she is considered a home-based worker in this study. People who work at home occasionally are not considered home-based workers for the purpose of this study

[16] A description of the IPUMS and the sampling procedure can be found at http://www.ipums.umn.edu/usa/intro.html. Discussion about the sample and the designation of home-based workers can be found in "Home-Based Work and Women's Labor Force Decisions" by Linda N. Edwards and Elizabeth Field-Hendrey. The only difference between my sample and that of Edwards and Field-Hendrey is that my sample includes both men and women. The age and sampling procedures are identical.

[17] This is the same reason why Edwards and Field-Hendrey didn't include the unemployed in their analysis.

since their motivations for working at home may differ with those who have chosen it as their primary worksite. Also, the sample only includes those aged 25-55 to separate the worksite decision from the school or retirement decision.

Since there are many more onsite workers than home-based workers, I used a special weighting to get approximately equal samples, identical to the one that Edwards and Field-Hendrey used. All of the people who are home-based workers were taken from the 5% IPUMS sample, but only a 4% subsample was taken for onsite workers and those out of the labor force. This leads to a 0.2% sample of the population who were onsite workers and those out of the labor force.

Part II: The Econometric Model

The econometric model was designed to answer the following question: Which workstate were those with disabilities likely to choose and did this choice change between 1990 and 2000?

To answer this question, I used a multinomial logistic regression model (mlogit) and the IPUMS data for 1990 and 2000. The mlogit regression is used because the dependent variable is a polychotomous variable. The dependent variable, workstate, has only 5 choices – out of the labor force, onsite employee, onsite self-employed work, home-based employee and home-based self-employed worker. The logit coefficient measures the change in the logarithm of the odds ratio, which is $(Prob_{Y=1})/(1-Prob_{Y=1})$.

The logit model is outlined as follows:

$$y_i^* = \beta_1 + \beta_2 x_{2i} + \ldots + \beta_k x_{ki} + u_i$$

y_i^* is unobservable, but $y_i = 0$ if $y_i^* < 0$ and $y_i = 1$ if $y_i^* \geq 0$

The cumulative distribution function (CDF) of u_i is given by:

$$F(u_i) = e^{ui} / (1 + e^{ui})$$

$$P(y_i = 1) = P(y_i^* \geq 0) = P(u_i \geq -\beta_1 - \beta_2 x_{2i} - \ldots - \beta_k x_{ki})$$

$$= F(\beta_1 + \beta_2 x_{2i} + \ldots + \beta_k x_{ki})$$

$$= \frac{e^{\beta 1 + \beta 2 x 2 i + \ldots + \beta k x k i}}{1 + e^{\beta 1 + \beta 2 x 2 i + \ldots + \beta k x k i}}$$

$$P(y_i = 0) = 1 - \frac{e^{\beta 1 + \beta 2 x 2 i + \ldots + \beta k x k i}}{1 + e^{\beta 1 + \beta 2 x 2 i + \ldots + \beta k x k i}}$$

$$= \frac{1}{1 + e^{\beta 1 + \beta 2 x 2 i + \ldots + \beta k x k i}} \qquad 18$$

After calculating the mlogit coefficients, I will determine the marginal effects – that is, the change in the predicted probabilities of being in each category connected to changes in the explanatory variables. Marginal effects look at a one unit change in the explanatory variables when the variables are continuous, and the change from 0 to 1 in

dichotomous variables. Using the command "mfx compute", Stata calculates the effect of changing the dummy variable from 0 to 1 with all the other variables set to their means.

In the logit model, the marginal effects are defined as:

$$\frac{\partial P(y_i = 1)}{\partial x_{ji}}$$

I will focus my attention on the marginal effects related to disability type to answer questions like: What is the change in the predicted probability of being an onsite employee when a person has a work disability compared with not having a work disability? What is the change in the predicted probability of being a home-based employee when a person has both a work and a mobility disability?

The regressions were sorted by sex because of the large differences in workstate choice between the genders. The logit regressions were weighted with the home-based vs. onsite weighting described above. The independent variables of the regression are proxy measures for the theoretical variables in Section III -- w, H, FCM and FCT. The independent variables used were age, age squared, education level, education level squared, age multiplied by education level, married, white, black, Hispanic, presence of people over 65 in the household, presence of children in the household in the following age categories – under one, one to two, three to five, six to twelve, and thirteen to seventeen, urban status and two disability measures – work disability and work and mobility disability. Work disability includes two mutually exclusive categories – "solely work disability" and "work disability and

[18] http://irving.vassar.edu/faculty/wl/Econ210/LPMf02.pdf#search='logit%20model'

personal care limitation." Work and mobility disability includes two mutually exclusive categories – "work and mobility disability" and "work, mobility and personal care limitation." These two different types of disabilities could theoretically be helped by the reasonable accommodation of home-based work. Thesetwo disability measures are separated because they are significantly different from one another. A test for equality was performed on the null hypothesis that the two disability measures, work disability without mobility limitation and work disability and mobility limitation, were the same. This null hypothesis was rejected at the 1% level.

It is logical that these two disability measures would be distinct. Those with work disabilities and mobility disabilities are the groups that one would expect would be the most helped by reasonable accommodation, but these groups have different needs. A person with a mobility disability might only be able to be feasibly accommodated in the home-based workplace, while someone with a work disability might only need a flexible schedule onsite or at home. Those with both a work and a mobility disability are, in essence, "more disabled" than those people with just a work disability. As we saw in Table 1, both those with work disabilities without mobility limitations and those with both work and mobility disabilities were less likely to be out of the labor force in 2000 than 1990. However, those with work disabilities and mobility disabilities were more likely to remain out of the labor force than their counterparts without mobility disabilities. Another difference between the two disability groups is in regard to the home-based employee workstate. In 2000, more than five times more people with both work and mobility disabilities worked as a

home-based employee than in 1990. More people with work disabilities without mobility disabilities also worked as home-based employees in 2000, but the increase was more muted. These two factors illustrate the difference between these two measures of disability.

The independent variables were chosen because they correlate to the theoretical variables in Section III. Age, age squared, education level, education level squared, age multiplied by education level, married, white, black and Hispanic all go into the calculation of w and N. Education, for example, is highly correlated to income and wages. The presence of people over 65 in the household, presence of children in the household, urban status and the two disability measures determine FCT, FCM and H. For example, a person with a work and mobility disability would need more time to get to work onsite (FCT), might need to provide for more expensive accommodating transportation to get to work (FCM), and would be able to go to doctor's appointments if she worked at home (H).

How Can We Separate the Effect of the ADA from Other Effects?

The presence of the Americans with Disabilities Act was not the only change that happened in the 1990s, but also included welfare reform and changes in technology.

However, there is a way that we can separate the effect of the Americans with Disabilities Act from the other changes in the employment landscape for the disabled during the 1990s. The protections of the ADA only apply to employees – those who choose or are forced to choose to work for themselves do not get the protection of

reasonable accommodation. We can look at how the marginal effects of the home-based and onsite employees changed relative to the self-employed workers to see the impact of this legislation on the labor force participation of the disabled.

Part III: Were the Disabled More or Less Likely to Be Working after the Onset of the ADA?

Tables 10 and 11 show the logit coefficient and marginal effects associated with different definitions of disability in 1990 and 2000. The tables show the probability of being in different workstates change by definition of disability and by sex. The results differ by gender and by definition of disability. As would be expected, possibly for societal reasons, the labor supply of men is more inelastic than the labor supply of women. Men will be less likely to be deterred from working, regardless of disability status. Another important outcome is the fact that those with both work and mobility disabilities – the people who in general are harder to accommodate – are less likely to be working onsite than their disabled counterparts who do not have a mobility disability. Both of these issues shine through in the results below.

Onsite employees

In 1990, having a disability drastically decreased the probability of working as an onsite employee. The disability limiting work category decreased the probability by 37.8 percentage points for women and 10.9 percentage points for men. This translated into a 49.9 percent and 12.5 percent decline, respectively, in the base

probability of being an onsite employee. The effect of having a work and a mobility disability were even stronger, decreasing the probability of being an onsite employee by 64 percentage points for women and 50.5 percentage points for men, which converts into a 84.4 percent and 58 percent decline, respectively, in the base probability of being in that workstate. In 2000, these effects changed in a remarkable way. In 2000, women with a work disability were only 0.1 percentage points less likely to be an onsite employee and men with work disabilities were 2.2 percentage points less likely to be participating in onsite work. This corresponds to a 0.1 percent and 2.5 percent decline, respectively, in the base probability of being in that workstate. The changes are even larger when looking at those who have work and mobility disabilities. In 2000, women with both a work and a mobility disability were only 5.5 percentage points less likely to be an onsite employee and men with these disabilities were only 6.1 percentage points less likely to be an onsite employee, or a 6.5 percent and 7.1 percent decline, respectively, in the base probability

Home-based employees

In 1990, having a work disability slightly increased the base probability of a woman being a home-based employee by 12.5 percent and had no impact on a man's probability of being a home-based employee. For those with both work and mobility disabilities, the probability of being a home-based employee fell slightly – 0.3 percentage points for women and 0.1 percentage points for men. When looking at the change in the base probability, these decreases were a bit larger – 37.5 percent and 25 percent, respectively, but they are much smaller than the declines for onsite

employees. This shows the accommodating nature of home-based work and its applicability to persons with disabilities. In 2000, these figures stayed virtually the same for those with work disabilities, and changed marginally for those with both work and mobility disabilities – for the better for women and slightly worse for men.

The self-employed

In 1990, the probability of a woman being a self-employed home-based worker increased by 0.2 percentage points if she had a disability that limited work. This accounted for a 12.5 percent increase in the base probability that she would be self employed onsite. The probability for men was slightly different – a work disability lowered the probability of home-based self employment by 0.1 percentage points, or a 10 percent decline in the base probability. The numbers were more negative for those with both a work and a mobility disability – women were 0.8 percentage points and men were 0.7 percentage points less likely to pursue home-based self employment when they identified as having both a work and mobility disability. This accounted for a 50 percent and 70 percent decline, respectively, in the base probability that they were self employed at home.

Those who were self employed onsite were more negatively affected by disability than their home-based analogues. Women were 1 percentage point and men were 6.4 percentage points less likely to be self employed onsite if they had a work disability. As would be expected, the effect of both a work and a mobility disability were more negative, with women 3.4 percentage points less likely and men 9.1 percentage points less likely to be onsite self employed workers.

In 2000, the situation had improved. Regardless of sex, both types of disabilities had either a small negative effect or positive effect on the probability of being an onsite or home-based self employed worker.

The differences in differences between employees and the self employed underscore interesting results. In the onsite realm, employees were more greatly affected by the changes between 1990 and 2000 than the self employed, often dramatically so. This effect was independent of sex or disability type. These effects were especially prevalent for the onsite employees who identified as having both work and mobility disabilities, lending credence to the supposition that people with this type of disability could be best helped by the ADA.

For home-based workers, the difference between employees and the self employed was more muted. Only female employees with work disabilities without mobility limitations were more affected by the changes than their self-employed analogues, and this difference is slight. The other three categories of employees – men with work disabilities without mobility limitations and both men and women with work and mobility disabilities – were marginally less affected by the changes than their self-employed counterparts. These differences are very interesting, and may show that the ADA had a positive influence on the employment situation of those with disabilities, giving them more options to work.

There are two things that are apparent in Table 11. First, home-based work seems to have been a good option for the disabled in both 1990 and 2000. Second, it was much easier to be a disabled onsite employee in 2000 than in 1990. The regression analysis doesn't make it seem like it was much easier to be a disabled

home-based employee in 2000 than in 1990, although the data show that there was an increase in the number of persons with disabilities who chose that workstate in 2000.

Conclusion

Persons with disabilities lived in a much brighter world in 2000 than in 1990. Both the Americans with Disabilities Act and increases in technology seem to have had a large hand in the positive change in the employment landscape for those with disabilities. Since the ADA was enacted in part to bring these individuals into mainstream society, this is good news for the effectiveness of this legislation.

According to the IPUMS data, in 2000, persons with disabilities were more likely to be working and less likely to be out of the labor force than in 1990. Those with disabilities entered the onsite workplace in droves, but also were accommodated by working from home.

The data and models in Sections II – IV lead us to believe that the ADA had more of an effect for people whose primary worksite is out of the home than for those whose primary worksite is at home. This may be because the post-ADA onsite workplace had some of the flexibility of home-based work while keeping the structure of onsite work. It may be because of the perceived and real limitations of home-based work, as well as courts' reluctance to consider home-based work a reasonable accommodation because of the *Vande Zande* holding.

The vast majority of those who entered the workplace went to onsite jobs, but home-based work provided an important place as well. Home-based work does seem to be a viable, yet underutilized choice for those with disabilities. As the digital age

continues to thrive, there is greater and greater place for home-based work opportunities. The onsite world of work may always be dominant, but the "reasonableness" of working from home increases with every technological advance. "Qualified individuals" with a disability must be "reasonably accommodated" under the auspices of the ADA. However, the *Vande Zande* holding, which is based on "excessive absenteeism" cases, virtually eliminates the possibilitythat home -based work could be a "reasonable accommodation." This presumption was faulty in 1995, but it is certainly flawed now. Lifting the *Vande Zande* presumption could increase the employment opportunities of those with disabilities, aligning with the original intent of the ADA.

Table 1: Number and percentage of people with disabilities, age 25-55, by work status, self employment status and disability type, 1990, 2000

	1990		2000	
	Number	Percentage**	Number	Percentage**
Total				
Any disability	5,521,148	8.1%	7,515,761	11.3%
Work disability without mobility limitation	2,960,878	4.3%	4,608,084	6.9%
Solely work disability	2,819,630	4.1%	4,528,877	6.8%
Work dis. and personal care lim.	141,248	0.2%	79,207	0.1%
Work disability and mobility limitation	889,264	1.3%	2,514,958	3.8%
Work dis. and mobility dis.	489,236	0.7%	2,305,709	3.5%
Work dis., mobility dis., and pers. care lim.	400,028	0.6%	209,249	0.3%
Home-based employee				
Any disability	26,693	6.0%	63,704	9.1%
Work disability without mobility limitation	17,807	4.0%	42,972	6.1%
Solely work disability	17,099	3.8%	42,174	6.0%
Work dis. and personal care lim.	708	0.2%	798	0.1%
Work disability and mobility limitation	3,135	0.7%	16,810	2.4%
Work dis. and mobility dis.	1,913	0.4%	14,275	2.0%
Work dis., mobility dis., and pers. care lim.	1,222	0.3%	2,535	0.4%
Home-based self-employed				
Any disability	55,184	5.2%	80,374	8.3%
Work disability without mobility limitation	41,203	3.9%	56,229	5.8%
Solely work disability	40,441	3.8%	54,945	5.7%
Work dis. and personal care lim.	762	0.1%	1,284	0.1%
Work disability and mobility limitation	4,314	0.4%	19,731	2.1%
Work dis. and mobility dis.	2,990	0.3%	17,191	1.8%
Work dis., mobility dis., and pers. care lim.	1,324	0.1%	2,540	0.3%
Onsite employee				
Any disability	2,737,924	5.2%	5,772,462	10.4%
Work disability without mobility limitation	1,487,148	2.8%	3,740,698	6.8%
Solely work disability	1,443,182	2.7%	3,693,550	6.7%
Work dis. and personal care lim.	43,966	0.1%	47,148	0.1%
Work disability and mobility limitation	138,969	0.3%	1,848,219	3.3%
Work dis. and mobility dis.	86,683	0.2%	1,737,237	3.1%
Work dis., mobility dis., and pers. care lim.	52,286	0.1%	110,982	0.2%
Onsite self-employed				
Any disability	466,086	8.4%	362,241	10.5%
Work disability without mobility limitation	130,116	2.4%	229,106	6.6%
Solely work disability	126,638	2.3%	222,066	6.4%
Work dis. and personal care lim.	3,478	0.1%	7,040	0.2%
Work disability and mobility limitation	6,112	0.1%	120,622	3.4%
Work dis. and mobility dis.	4,416	0.1%	112,058	3.2%
Work dis., mobility dis., and pers. care lim.	1,696	0.0%	8,564	0.2%
Out of the Labor Force				
Any disability	2,235,261	25.2%	1,236,980	20.1%
Work disability without mobility limitation	1,284,604	14.4%	539,079	8.8%
Solely work disability	1,192,270	13.4%	516,142	8.4%
Work dis. and personal care lim.	92,334	1.0%	22,937	0.4%
Work disability and mobility limitation	736,734	8.3%	509,576	8.3%
Work dis. and mobility dis.	393,234	4.4%	424,948	6.9%
Work dis., mobility dis., and pers. care lim.	343,500	3.9%	84,628	1.4%

** This shows which percentage of the given workstate has certain disabilities. For example, in 1990, 25.2% of those out of the labor force had some sort of disability

*** "Any disability" also includes "solely mobility disability", "solely personal care limitation" and "mobility disability and personal care limitation"

Table 2: Number and percentage of those with a work disability, by disability type, sex and worksite, 1990, 2000

	HB emp.		HB selfemp		Onsite emp.		Onsite selfemp.		OLF	
Women	Number	Pct*	Number	Pct	Number	Pct	Number	Pct	Number	Pct
1990	13,653	5.3%	27,931	4.6%	697,938	2.9%	46,400	3.6%	1,370,221	17.7%
2000	33,186	8.6%	41,446	7.3%	2,462,258	9.5%	97,023	9.0%	472,286	13.7%
Men										
1990	7,290	3.9%	17,586	3.8%	928,180	3.3%	89,827	2.1%	651,117	57.4%
2000	26,596	8.4%	34,514	8.6%	3,126,658	10.7%	252,705	10.6%	576,369	21.3%

*The percentage columns show which percentage of a certain workstate identified as having various types of disabilities. For example, 5.3 percent of women who were home-based employees in 1990 had a work disability. A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"

Table 3: Workstate status of persons with work disabilities, 1990 and 2000 (in percent)

Workstate	Pct of disabled in workstate in 1990	Pct of disabled in workstate in 2000
Home-based employee	0.5%	0.8%
Home-based self-employed	1.2%	1.1%
Onsite employee	42.2%	78.5%
Onsite self-employed	3.5%	4.9%
Out of the Labor Force	52.6%	14.7%

** A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"

Table 4: Variable Definitions in the IPUMS data

Variable	*Definition*
WRKDIS	Respondent has solely a work disability or a work disability and personal care limitation
WRKDISMOB	Respondent has a work and mobility disability, or a work, mobility and personal care limitation
AGE	Age
MARRIED	Married
WHITE	White, Non-Hispanic
BLACK	Black, Non-Hispanic
HISP	Hispanic
EDUC1	Years of education
EDU2	Years of education squared
AGEEDU	Age * Education
CHILDU1	Presence of children under 1 in the household
CHILD12	Presence of children aged 1 -2 years in the household
CHILD35	Presence of children aged 3-5 years in the household
CHILD612	Presence of children aged 6-12 years in the household
CHILD1317	Presence of children aged 13-17 years in the household
P65PLUS	Presence of people over 65 in the household
INCEARN	Income earned from wages or a person's own business or farm for the previous year
FTOTINC	The primary family's total pre-tax money income from all sources for the previous year
OTHERINC	FTOTINC - INCEARN
WKSWORK1	The number of weeks that the respondent worked for profit, pay, or as an unpaid family worker during the previous year
UHRSWORK	The number of hours per week that the respondent usually worked, if the person worked during the previous year

Table 5: Means for home-based employees, by disability status, sex and year

Total

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	42.42	0.245	39.24	0.051	41.24	0.147	40.46	0.042
Race								
White	0.86	0.011	0.87	0.002	0.77	0.008	0.86	0.002
Black	0.06	0.008	0.04	0.001	0.08	0.005	0.05	0.001
Hispanic	0.06	0.007	0.06	0.001	0.12	0.006	0.07	0.001
Marital status and children								
Married	0.62	0.015	0.72	0.003	0.63	0.009	0.74	0.002
Number of children	0.91	0.035	1.24	0.008	1.12	0.025	1.19	0.007
Number of children under 5	0.13	0.012	0.31	0.004	0.20	0.009	0.29	0.003
Presence of children under 1	0.66	0.014	0.51	0.003	0.57	0.009	0.52	0.003
Presence of children aged 1-2	0.69	0.014	0.56	0.003	0.60	0.009	0.57	0.003
Presence of children aged 3-5	0.71	0.014	0.65	0.003	0.66	0.008	0.63	0.003
Presence of children aged 6-12	0.84	0.011	0.75	0.003	0.82	0.007	0.76	0.002
Presence of children aged 13-17	0.81	0.012	0.66	0.003	0.74	0.008	0.66	0.003
Years of education	12.77	0.094	13.43	0.018	13.42	0.059	14.47	0.013
Presence of people over 65	0.09	0.009	0.05	0.001	0.07	0.005	0.05	0.001
Hours and weeks worked								
Hours worked per week	35.44	0.557	39.14	0.109	39.86	0.295	40.78	0.079
Weeks worked per year	41.12	0.457	45.96	0.077	45.68	0.228	47.41	0.056
Income and Wages								
Hourly wage	$21.01	$3.08	$18.81	$0.32	$20.45	$0.63	$25.06	$0.30
Income from earnings	$20,383.58	$791.59	$32,871.53	$232.26	$35,958.80	$829.08	$48,639.02	$295.82
Family total income	$57,607.98	$1,633.21	$79,394.94	$450.00	$73,184.77	$1,388.66	$96,460.73	$470.78

Women

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	42.59	0.300	39.21	0.071	41.30	0.194	40.05	0.056
Race								
White	0.84	0.014	0.83	0.003	0.76	0.011	0.84	0.003
Black	0.06	0.009	0.04	0.002	0.09	0.007	0.05	0.002
Hispanic	0.07	0.010	0.08	0.002	0.14	0.009	0.08	0.002
Marital status and children								
Married	0.63	0.018	0.75	0.004	0.63	0.012	0.75	0.003
Number of children	0.92	0.042	1.28	0.010	1.21	0.035	1.29	0.009
Number of children under 5	0.11	0.014	0.32	0.005	0.20	0.012	0.32	0.005
Presence of children under 1	0.64	0.018	0.51	0.004	0.54	0.012	0.49	0.004
Presence of children aged 1-2	0.68	0.018	0.58	0.004	0.57	0.012	0.54	0.004
Presence of children aged 3-5	0.71	0.017	0.63	0.004	0.63	0.012	0.60	0.004
Presence of children aged 6-12	0.85	0.013	0.76	0.004	0.80	0.010	0.75	0.003
Presence of children aged 13-17	0.81	0.015	0.65	0.004	0.73	0.011	0.63	0.003
Years of Education	12.68	0.117	13.25	0.025	13.33	0.076	14.21	0.018
Presence of people over 65	0.09	0.011	0.05	0.002	0.08	0.007	0.06	0.002
Hours and weeks worked								
Hours worked per week	32.51	0.726	33.53	0.145	36.39	0.399	35.99	0.110
Weeks worked per year	40.80	0.569	43.67	0.115	44.19	0.339	45.88	0.086
Income and Wages								
Hourly wage	$19.03	$3.70	$15.33	$0.51	$17.79	$0.68	$20.39	$0.31
Income from earnings	$15,065.74	$644.02	$19,105.53	$197.06	$26,390.65	$812.79	$32,775.37	$283.56
Family total income	$57,736.52	$2,026.97	$83,640.93	$664.62	$73,587.41	$1,913.00	$94,905.06	$660.79

Men

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	42.09	0.422	39.28	0.071	41.15	0.224	40.97	0.063
Race								
White	0.88	0.018	0.91	0.003	0.77	0.012	0.87	0.003
Black	0.06	0.014	0.03	0.002	0.08	0.008	0.04	0.001
Hispanic	0.03	0.009	0.04	0.002	0.10	0.009	0.06	0.002
Marital status and children								
Married	0.61	0.025	0.68	0.005	0.62	0.013	0.72	0.004
Number of children	0.89	0.065	1.17	0.012	1.00	0.035	1.07	0.010
Number of children under 5	0.15	0.022	0.31	0.006	0.19	0.013	0.26	0.005
Presence of children under 1	0.68	0.024	0.50	0.005	0.60	0.013	0.56	0.004
Presence of children aged 1-2	0.71	0.023	0.53	0.005	0.65	0.013	0.61	0.004
Presence of children aged 3-5	0.72	0.023	0.67	0.005	0.69	0.013	0.65	0.004
Presence of children aged 6-12	0.82	0.019	0.73	0.004	0.84	0.010	0.78	0.003
Presence of children aged 13-17	0.82	0.019	0.69	0.005	0.75	0.012	0.70	0.004
Years of education	12.95	0.159	13.68	0.028	13.53	0.091	14.79	0.019
Presence of people over 65	0.08	0.014	0.04	0.002	0.06	0.006	0.04	0.002
Hours and weeks worked								
Hours worked per week	40.95	0.780	47.04	0.131	44.19	0.408	46.63	0.095
Weeks worked per year	41.75	0.772	49.19	0.085	47.55	0.281	49.28	0.063
Income and Wages								
Hourly wage	$24.71	$5.52	$23.72	$0.25	$23.77	$1.12	$30.80	$0.56
Income from earnings	$30,343.48	$1,825.97	$52,258.28	$414.21	$47,897.91	$1,510.98	$68,019.27	$519.18
Family total income	$57,367.23	$2,760.35	$73,415.26	$540.85	$72,682.36	$2,011.51	$98,361.25	$665.04

** Disabled is defined as those with a work disability.
A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"
* For income variables, the index is 2000 = 100

Table 6: Means for the home-based self employed, by disability status, sex and year

Total

	1990				*2000*			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	42.66	0.162	39.39	0.033	42.29	0.123	41.58	0.035
Race								
White	0.92	0.006	0.92	0.001	0.84	0.006	0.91	0.001
Black	0.04	0.004	0.02	0.001	0.08	0.005	0.04	0.001
Hispanic	0.02	0.003	0.03	0.001	0.07	0.004	0.04	0.001
Marital status and children								
Married	0.71	0.009	0.78	0.002	0.65	0.008	0.76	0.002
Number of children	1.11	0.026	1.28	0.005	1.20	0.022	1.30	0.006
Number of children under 5	0.16	0.009	0.28	0.002	0.20	0.008	0.28	0.003
Presence of children under 1	0.57	0.010	0.49	0.002	0.54	0.008	0.48	0.002
Presence of children aged 1-2	0.61	0.010	0.56	0.002	0.58	0.008	0.54	0.002
Presence of children aged 3-5	0.66	0.010	0.64	0.002	0.64	0.008	0.61	0.002
Presence of children aged 6-12	0.81	0.008	0.78	0.002	0.80	0.006	0.77	0.002
Presence of children aged 13-17	0.77	0.008	0.66	0.002	0.75	0.007	0.68	0.002
Years of education	13.21	0.054	13.91	0.009	13.49	0.042	14.20	0.010
Presence of people over 65	0.04	0.004	0.05	0.001	0.06	0.004	0.04	0.001
Hours and weeks worked								
Hours worked per week	38.07	0.375	40.92	0.070	41.23	0.283	40.77	0.078
Weeks worked per year	42.37	0.282	45.68	0.048	45.63	0.190	46.28	0.049
Income and Wages								
Hourly wage	$17.42	$1.40	$20.58	$0.88	$18.40	$0.56	$21.62	$0.43
Income from earnings	$19,314.53	$640.04	$28,756.68	$161.94	$29,330.08	$731.63	$33,089.30	$235.26
Family total income	$55,552.45	$986.99	$70,877.23	$239.82	$63,991.62	$1,135.06	$79,901.09	$367.75

Women

	1990				*2000*			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	41.89	0.211	38.98	0.044	41.97	0.167	40.77	0.046
Race								
White	0.89	0.008	0.91	0.002	0.82	0.009	0.90	0.002
Black	0.05	0.006	0.03	0.001	0.10	0.007	0.05	0.001
Hispanic	0.03	0.005	0.03	0.001	0.07	0.006	0.05	0.001
Marital status and children								
Married	0.70	0.012	0.84	0.002	0.66	0.010	0.79	0.002
Number of children	1.16	0.032	1.54	0.007	1.32	0.030	1.45	0.008
Number of children under 5	0.18	0.012	0.38	0.004	0.21	0.011	0.33	0.004
Presence of children under 1	0.55	0.013	0.41	0.003	0.50	0.011	0.43	0.003
Presence of children aged 1-2	0.59	0.013	0.51	0.003	0.55	0.011	0.50	0.003
Presence of children aged 3-5	0.64	0.013	0.60	0.003	0.61	0.011	0.58	0.003
Presence of children aged 6-12	0.78	0.011	0.74	0.002	0.80	0.009	0.75	0.003
Presence of children aged 13-17	0.75	0.011	0.59	0.003	0.73	0.010	0.63	0.003
Years of Education	13.21	0.064	13.60	0.013	13.43	0.056	14.13	0.014
Presence of people over 65	0.04	0.005	0.03	0.001	0.06	0.005	0.04	0.001
Hours and weeks worked								
Hours worked per week	34.24	0.461	35.82	0.094	38.07	0.394	36.33	0.104
Weeks worked per year	40.98	0.373	43.50	0.072	44.71	0.272	44.99	0.070
Income and Wages								
Hourly wage	$13.58	$1.30	$14.63	$0.59	$14.72	$0.65	$17.65	$0.63
Income from earnings	$12,909.32	$588.23	$15,748.07	$131.90	$20,166.22	$677.20	$21,601.31	$205.18
Family total income	$57,069.32	$1,260.76	$69,746.47	$326.18	$63,295.75	$1,472.96	$79,501.01	$463.68

Men

	1990				***2000***			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	43.89	0.245	39.94	0.047	42.67	0.181	42.73	0.051
Race								
White	0.96	0.007	0.92	0.002	0.86	0.008	0.91	0.002
Black	0.01	0.004	0.01	0.001	0.06	0.006	0.03	0.001
Hispanic	0.01	0.003	0.02	0.001	0.06	0.006	0.03	0.001
Marital status and children								
Married	0.72	0.015	0.69	0.002	0.64	0.012	0.72	0.003
Number of children	1.04	0.043	0.93	0.007	1.06	0.032	1.10	0.009
Number of children under 5	0.14	0.013	0.15	0.003	0.18	0.011	0.21	0.004
Presence of children under 1	0.62	0.016	0.60	0.003	0.59	0.012	0.56	0.003
Presence of children aged 1-2	0.65	0.015	0.64	0.003	0.63	0.011	0.60	0.003
Presence of children aged 3-5	0.68	0.015	0.70	0.003	0.67	0.011	0.65	0.003
Presence of children aged 6-12	0.84	0.011	0.84	0.002	0.81	0.009	0.79	0.003
Presence of children aged 13-17	0.80	0.013	0.75	0.003	0.78	0.010	0.75	0.003
Years of education	13.19	0.093	14.31	0.015	13.58	0.064	14.30	0.017
Presence of people over 65	0.04	0.006	0.08	0.002	0.07	0.006	0.05	0.001
Hours and weeks worked								
Hours worked per week	44.15	0.584	47.57	0.092	45.01	0.388	47.09	0.107
Weeks worked per year	44.58	0.414	48.53	0.055	46.75	0.258	48.12	0.064
Income and Wages								
Hourly wage	$23.53	$2.96	$28.35	$1.87	$22.81	$0.93	$27.27	$0.51
Income from earnings	$29,487.43	$1,297.60	$45,735.49	$302.66	$40,334.24	$1,344.66	$49,466.18	$464.30
Family total income	$53,143.33	$1,586.83	$72,353.10	$352.70	$64,827.24	$1,764.19	$80,471.41	$598.86

** Disabled is defined as those with a work disability.
A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"
* For income variables, the index is 2000 = 100

Table 7: Means for onsite employees, by disability status, sex and year

Total

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	38.36	0.147	38.36	0.025	39.39	0.077	39.43	0.025
Race								
White	0.85	0.006	0.82	0.001	0.67	0.005	0.79	0.001
Black	0.09	0.005	0.09	0.001	0.16	0.004	0.10	0.001
Hispanic	0.04	0.003	0.07	0.001	0.17	0.004	0.10	0.001
Marital status and children								
Married	0.64	0.008	0.70	0.001	0.58	0.005	0.66	0.001
Number of children	1.29	0.023	1.11	0.003	1.09	0.012	1.08	0.004
Number of children under 5	0.48	0.015	0.23	0.002	0.20	0.005	0.22	0.002
Presence of children under 1	0.51	0.009	0.53	0.001	0.57	0.005	0.55	0.001
Presence of children aged 1-2	0.73	0.008	0.59	0.001	0.61	0.005	0.59	0.001
Presence of children aged 3-5	0.75	0.007	0.63	0.001	0.66	0.005	0.64	0.001
Presence of children aged 6-12	0.85	0.006	0.76	0.001	0.81	0.004	0.78	0.001
Presence of children aged 13-17	0.66	0.008	0.72	0.001	0.74	0.004	0.72	0.001
Years of education	12.94	0.049	13.35	0.008	12.68	0.028	13.75	0.007
Presence of people over 65	0.05	0.004	0.08	0.001	0.07	0.002	0.05	0.001
Hours and weeks worked								
Hours worked per week	35.96	0.206	40.97	0.030	41.20	0.103	41.94	0.030
Weeks worked per year	45.94	0.202	47.87	0.030	47.40	0.097	48.44	0.027
Income and Wages								
Hourly wage	$18.20	$1.26	$19.66	$0.13	$17.21	$0.20	$20.06	$0.10
Income from earnings	$27,130.30	$365.05	$38,196.38	$85.27	$32,187.93	$305.92	$40,038.47	$121.44
Family total income	$51,331.63	$606.46	$72,302.90	$135.85	$57,306.15	$462.49	$71,418.98	$184.95

Women

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	40.06	0.216	38.24	0.040	39.80	0.115	39.67	0.035
Race								
White	0.82	0.010	0.78	0.002	0.65	0.007	0.78	0.002
Black	0.12	0.009	0.12	0.002	0.20	0.006	0.11	0.001
Hispanic	0.03	0.005	0.06	0.001	0.14	0.005	0.09	0.001
Marital status and children								
Married	0.50	0.013	0.64	0.002	0.54	0.007	0.63	0.002
Number of children	0.85	0.027	1.09	0.005	1.14	0.018	1.08	0.005
Number of children under 5	0.08	0.009	0.18	0.002	0.16	0.006	0.18	0.002
Presence of children under 1	0.64	0.013	0.54	0.002	0.53	0.007	0.53	0.002
Presence of children aged 1-2	0.66	0.012	0.59	0.002	0.57	0.007	0.57	0.002
Presence of children aged 3-5	0.69	0.012	0.63	0.002	0.62	0.007	0.62	0.002
Presence of children aged 6-12	0.82	0.010	0.78	0.002	0.79	0.006	0.78	0.002
Presence of children aged 13-17	0.83	0.010	0.73	0.002	0.74	0.006	0.73	0.002
Years of Education	12.86	0.074	13.43	0.011	12.93	0.039	13.89	0.010
Presence of people over 65	0.06	0.006	0.04	0.001	0.07	0.004	0.05	0.001
Hours and weeks worked								
Hours worked per week	35.77	0.317	37.95	0.046	38.55	0.144	38.87	0.044
Weeks worked per year	43.08	0.356	46.54	0.047	46.37	0.160	47.44	0.042
Income and Wages								
Hourly wage	$17.24	$2.90	$15.33	$0.13	$15.21	$0.27	$17.12	$0.11
Income from earnings	$20,764.44	$423.12	$26,416.73	$86.72	$25,656.05	$354.82	$30,720.29	$125.56
Family total income	$51,005.60	$941.55	$64,667.92	$200.06	$56,989.81	$689.06	$70,673.02	$265.98

Men	***1990***				***2000***			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	37.09	0.194	38.45	0.035	39.07	0.103	39.22	0.033
Race								
White	0.87	0.008	0.85	0.001	0.69	0.006	0.80	0.002
Black	0.07	0.006	0.06	0.001	0.13	0.004	0.08	0.001
Hispanic	0.04	0.005	0.07	0.001	0.20	0.005	0.11	0.001
Marital status and children								
Married	0.75	0.010	0.75	0.001	0.60	0.006	0.68	0.002
Number of children	1.62	0.032	1.12	0.005	1.04	0.017	1.07	0.005
Number of children under 5	0.78	0.022	0.26	0.002	0.22	0.007	0.25	0.002
Presence of children under 1	0.41	0.011	0.52	0.002	0.61	0.006	0.56	0.002
Presence of children aged 1-2	0.78	0.009	0.59	0.002	0.64	0.006	0.61	0.002
Presence of children aged 3-5	0.79	0.009	0.64	0.002	0.69	0.006	0.66	0.002
Presence of children aged 6-12	0.87	0.007	0.73	0.002	0.82	0.005	0.78	0.002
Presence of children aged 13-17	0.53	0.012	0.71	0.002	0.74	0.006	0.71	0.002
Years of education	12.99	0.064	13.27	0.010	12.47	0.040	13.64	0.012
Presence of people over 65	0.05	0.005	0.11	0.001	0.07	0.003	0.05	0.001
Hours and weeks worked								
Hours worked per week	36.09	0.270	43.59	0.040	43.28	0.138	44.68	0.039
Weeks worked per year	48.09	0.217	49.03	0.040	48.21	0.118	49.33	0.032
Income and Wages								
Hourly wage	$18.93	$0.39	$23.40	$0.21	$18.79	$0.29	$22.67	$0.16
Income from earnings	$31,917.06	$534.35	$48,403.15	$128.68	$37,331.81	$459.73	$48,342.22	$194.41
Family total income	$51,576.76	$792.57	$78,918.43	$181.42	$57,555.27	$623.70	$72,083.74	$257.20

** Disabled is defined as those with a work disability.
A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"
* For income variables, the index is 2000 = 100

Table 8: Means for the onsite self employed, by disability status, sex and year

Total

	1990				*2000*			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	41.75	0.442	40.80	0.071	41.79	0.299	41.62	0.089
Race								
White	0.88	0.020	0.86	0.003	0.74	0.017	0.85	0.004
Black	0.07	0.016	0.03	0.002	0.09	0.011	0.05	0.002
Hispanic	0.03	0.010	0.08	0.003	0.17	0.014	0.09	0.003
Marital status and children								
Married	0.75	0.025	0.81	0.004	0.65	0.018	0.71	0.005
Number of children	1.16	0.076	1.38	0.011	1.17	0.057	1.15	0.014
Number of children under 5	0.18	0.028	0.23	0.004	0.20	0.020	0.21	0.006
Presence of children under 1	0.51	0.009	0.48	0.005	0.56	0.019	0.52	0.006
Presence of children aged 1-2	0.73	0.008	0.57	0.004	0.59	0.019	0.56	0.006
Presence of children aged 3-5	0.75	0.007	0.64	0.004	0.68	0.018	0.62	0.006
Presence of children aged 6-12	0.85	0.006	0.84	0.003	0.81	0.015	0.78	0.005
Presence of children aged 13-17	0.66	0.008	0.71	0.004	0.77	0.016	0.73	0.005
Years of education	12.93	0.174	12.97	0.028	12.42	0.130	13.70	0.035
Presence of people over 65	0.03	0.011	0.10	0.003	0.07	0.01	0.05	0.003
Hours and weeks worked								
Hours worked per week	40.76	0.940	43.35	0.115	42.67	0.648	44.05	0.184
Weeks worked per year	44.31	0.704	48.58	0.070	46.34	0.424	47.60	0.113
Income and Wages								
Hourly wage	$36.89	$12.20	$24.64	$0.61	$23.90	$2.77	$26.21	$0.60
Income from earnings	$37,212.67	$2,915.30	$46,873.26	$428.48	$34,791.26	$1,412.63	$49,389.55	$813.14
Family total income	$65,911.82	$3,729.78	$81,308.15	$591.70	$59,056.75	$2,135.49	$81,621.46	$1,030.05

Women

	1990				*2000*			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	41.61	0.742	40.61	0.149	42.18	0.604	41.70	0.162
Race								
White	0.85	0.039	0.84	0.007	0.71	0.034	0.81	0.009
Black	0.11	0.036	0.05	0.005	0.10	0.023	0.05	0.005
Hispanic	0.02	0.013	0.06	0.005	0.16	0.025	0.10	0.006
Marital status and children								
Married	0.68	0.049	0.73	0.009	0.63	0.036	0.68	0.010
Number of children	0.86	0.111	1.06	0.021	1.04	0.091	1.04	0.024
Number of children under 5	0.13	0.039	0.16	0.007	0.20	0.042	0.17	0.010
Presence of children under 1	0.65	0.049	0.55	0.009	0.60	0.036	0.55	0.010
Presence of children aged 1-2	0.66	0.049	0.60	0.009	0.60	0.036	0.58	0.010
Presence of children aged 3-5	0.72	0.046	0.64	0.009	0.70	0.032	0.64	0.010
Presence of children aged 6-12	0.84	0.038	0.78	0.008	0.80	0.029	0.78	0.009
Presence of children aged 13-17	0.82	0.038	0.76	0.008	0.78	0.032	0.75	0.009
Years of Education	13.13	0.239	13.66	0.052	12.49	0.276	13.75	0.062
Presence of people over 65	0.04	0.022	0.03	0.003	0.11	0.024	0.06	0.005
Hours and weeks worked								
Hours worked per week	35.73	1.532	39.23	0.307	36.07	1.394	36.99	0.353
Weeks worked per year	42.29	1.373	46.59	0.201	44.60	1.022	46.11	0.237
Income and Wages								
Hourly wage	$47.33	$32.73	$21.39	$1.52	$28.25	$8.57	$21.33	$0.99
Income from earnings	$22,915.35	$3,973.95	$30,548.42	$739.68	$25,139.37	$2,236.88	$30,710.42	$929.41
Family total income	$58,293.72	$5,592.99	$85,309.23	$1,518.80	$61,496.85	$4,692.62	$79,814.88	$1,787.17

Men

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	41.82	0.551	40.85	0.080	41.63	0.344	41.58	0.106
Race								
White	0.89	0.023	0.87	0.004	0.75	0.020	0.86	0.005
Black	0.04	0.015	0.02	0.001	0.09	0.013	0.04	0.003
Hispanic	0.04	0.013	0.09	0.003	0.17	0.017	0.08	0.004
Marital status and children								
Married	0.79	0.028	0.83	0.004	0.66	0.021	0.73	0.006
Number of children	1.32	0.098	1.48	0.013	1.21	0.070	1.20	0.019
Number of children under 5	0.21	0.037	0.25	0.005	0.20	0.022	0.23	0.007
Presence of children under 1	0.48	0.036	0.46	0.005	0.55	0.022	0.51	0.007
Presence of children aged 1-2	0.54	0.036	0.56	0.005	0.59	0.022	0.55	0.007
Presence of children aged 3-5	0.59	0.036	0.64	0.005	0.67	0.021	0.62	0.007
Presence of children aged 6-12	0.75	0.033	0.86	0.003	0.82	0.017	0.78	0.006
Presence of children aged 13-17	0.70	0.034	0.70	0.005	0.76	0.019	0.72	0.006
Years of education	12.82	0.233	12.76	0.033	12.39	0.145	13.68	0.042
Presence of people over 65	0.03	0.011	0.12	0.003	0.06	0.011	0.04	0.003
Hours and weeks worked								
Hours worked per week	43.35	1.145	44.61	0.114	45.21	0.679	47.23	0.200
Weeks worked per year	45.35	0.787	49.18	0.070	47.02	0.431	48.26	0.123
Income and Wages								
Hourly wage	$31.50	$7.54	$25.63	$0.65	$22.23	$1.94	$28.41	$0.75
Income from earnings	$44,597.91	$3,816.15	$51,848.82	$503.56	$38,497.00	$1,742.37	$57,782.74	$1,080.29
Family total income	$69,846.94	$4,842.16	$80,088.68	$616.91	$58,119.90	$2,339.30	$82,433.22	$1,258.43

** Disabled is defined as those with a work disability.
A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"
* For income variables, the index is 2000 = 100

Table 9: Means for those out of the labor force, by disability status, sex and year

Total

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	42.85	0.133	39.54	0.065	39.67	0.176	38.27	0.074
Race								
White	0.67	0.007	0.71	0.003	0.57	0.011	0.66	0.004
Black	0.21	0.007	0.13	0.002	0.18	0.008	0.15	0.003
Hispanic	0.09	0.004	0.11	0.002	0.30	0.010	0.21	0.004
Marital status and children								
Married	0.49	0.008	0.75	0.003	0.57	0.011	0.65	0.004
Number of children	0.89	0.019	1.53	0.010	1.17	0.031	1.26	0.012
Number of children under 5	0.09	0.006	0.41	0.005	0.22	0.013	0.31	0.006
Presence of children under 1	0.70	0.007	0.47	0.004	0.56	0.011	0.53	0.005
Presence of children aged 1-2	0.72	0.007	0.58	0.004	0.60	0.011	0.57	0.004
Presence of children aged 3-5	0.75	0.007	0.64	0.003	0.65	0.011	0.62	0.004
Presence of children aged 6-12	0.86	0.005	0.75	0.003	0.81	0.009	0.77	0.004
Presence of children aged 13-17	0.85	0.006	0.62	0.004	0.72	0.010	0.65	0.004
Years of education	10.42	0.058	11.60	0.024	11.47	0.083	12.47	0.030
Presence of people over 65	0.14	0.005	0.07	0.002	0.07	0.006	0.07	0.002
Hours and weeks worked								
Hours worked per week	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weeks worked per year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income and Wages								
Hourly wage	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income from earnings	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Family total income	$32,092.85	$495.33	$51,548.11	$394.21	$46,745.66	$1,009.92	$58,509.11	$548.51

Women

	1990				2000			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	43.00	0.161	39.56	0.070	40.15	0.260	38.21	0.097
Race								
White	0.67	0.009	0.72	0.004	0.58	0.016	0.68	0.006
Black	0.20	0.008	0.11	0.003	0.22	0.014	0.16	0.005
Hispanic	0.09	0.005	0.12	0.003	0.22	0.013	0.17	0.005
Marital status and children								
Married	0.50	0.009	0.78	0.003	0.51	0.016	0.65	0.006
Number of children	0.95	0.023	1.62	0.011	1.15	0.041	1.36	0.016
Number of children under 5	0.10	0.007	0.42	0.006	0.16	0.014	0.34	0.008
Presence of children under 1	0.68	0.009	0.44	0.004	0.55	0.016	0.49	0.006
Presence of children aged 1-2	0.70	0.008	0.55	0.004	0.57	0.016	0.52	0.006
Presence of children aged 3-5	0.73	0.008	0.62	0.004	0.64	0.016	0.58	0.006
Presence of children aged 6-12	0.85	0.006	0.75	0.003	0.81	0.013	0.75	0.005
Presence of children aged 13-17	0.84	0.007	0.60	0.004	0.73	0.015	0.61	0.006
Years of Education	10.46	0.071	11.72	0.026	12.02	0.104	12.78	0.036
Presence of people over 65	0.13	0.006	0.06	0.002	0.08	0.009	0.06	0.003
Hours and weeks worked								
Hours worked per week	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weeks worked per year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income and Wages								
Hourly wage	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income from earnings	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Family total income	$33,110.68	$650.97	$53,764.72	$439.66	$45,999.89	$1,528.38	$62,086.53	$764.57

Men

	1990				*2000*			
	Disabled		*Not Disabled*		*Disabled*		*Not Disabled*	
	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Age	42.54	0.233	39.39	0.194	39.28	0.239	38.35	0.112
Race								
White	0.66	0.013	0.65	0.010	0.57	0.015	0.64	0.007
Black	0.24	0.012	0.22	0.009	0.16	0.011	0.14	0.005
Hispanic	0.08	0.007	0.09	0.006	0.37	0.015	0.27	0.006
Marital status and children								
Married	0.47	0.013	0.52	0.010	0.63	0.014	0.64	0.007
Number of children	0.76	0.036	0.87	0.025	1.19	0.045	1.12	0.012
Number of children under 5	0.07	0.009	0.33	0.012	0.27	0.019	0.27	0.008
Presence of children under 1	0.74	0.012	0.66	0.009	0.57	0.015	0.57	0.007
Presence of children aged 1-2	0.76	0.012	0.81	0.008	0.62	0.014	0.62	0.007
Presence of children aged 3-5	0.78	0.011	0.83	0.008	0.66	0.014	0.67	0.007
Presence of children aged 6-12	0.89	0.008	0.78	0.007	0.81	0.012	0.80	0.006
Presence of children aged 13-17	0.88	0.009	0.76	0.008	0.71	0.014	0.70	0.006
Years of education	10.34	0.105	10.73	0.075	11.01	0.122	12.07	0.049
Presence of people over 65	0.18	0.01	0.15	0.007	0.07	0.007	0.08	0.004
Hours and weeks worked								
Hours worked per week	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Weeks worked per year	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income and Wages								
Hourly wage	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Income from earnings	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Family total income	$29,950.92	$694.81	$36,444.83	$610.44	$47,356.76	$1,344.52	$53,942.22	$775.73

** Disabled is defined as those with a work disability.
A work disability includes four mutually exclusive categories: "solely work disability", "work and mobility disability", "work disability and personal care limitation", and "work, mobility and personal care limitation"
* For income variables, the index is 2000 = 100

Table 10: Logit coefficients, age 25-55, by workstate status, sex and year

Women

	1990			2000		
	Coefficient	Z statistic	Significance	Coefficient	Z statistic	Significance
Onsite employee						
Work disability	-1.862	-43.33	***	-0.031	-0.58	
Work and mobility disability	-3.405	-37.36	***	-0.559	-9.31	***
Age	0.095	6.77	***	0.019	1.04	
Age squared	-0.001	-7.34	***	0.000	-0.03	
Years of education	0.051	2.10	**	-0.008	-0.4	
Years of education squared	0.012	18.43	***	0.007	11.69	***
Age * years of education	-0.002	-5.04	***	-0.001	-1.26	
Married	-0.520	-19.89	***	-0.066	-2.16	**
White, not Hispanic	0.328	6.25	***	0.241	5.42	***
Black, not Hispanic	0.206	3.38	***	-0.232	-4.15	***
Hispanic	-0.051	-0.83		-0.430	-9.61	***
Presence of children under 1	0.633	12.46	***	-0.464	-9.06	***
Presence of children 1-2 years	-0.339	-9.98	***	0.044	0.98	
Presence of children 3-5 years	-0.368	-12.13	***	0.095	2.4	**
Presence of children 6-12 years	0.113	4.09	***	0.216	6.28	***
Presence of children 13-17 years	0.842	26.45	***	0.621	16.65	***
Presence of person over 65	-0.065	-1.36		-0.111	-1.94	*
Other income	0.000	-39.81	***	0.000	-13.68	***
Onsite self-employed						
Work disability	-1.488	-13.20	***	-0.075	-0.7	
Work and mobility disability	-3.955	-9.38	***	-0.562	-4.01	***
Age	0.252	8.15	***	0.143	4.03	***
Age squared	-0.003	-8.99	***	-0.001	-3.03	***
Years of education	-0.148	-3.02	***	-0.116	-2.84	***
Years of education squared	0.017	13.96	***	0.010	8.67	***
Age * years of education	0.000	-0.07		0.000	0.25	
Married	-0.434	-7.96	***	-0.066	-1.11	
White, not Hispanic	0.055	0.57		-0.046	-0.56	
Black, not Hispanic	-0.778	-5.73	***	-1.219	-9.34	***
Hispanic	-0.365	-2.83	***	-0.375	-4.06	***
Presence of children under 1	0.649	7.22	***	-0.482	-4.51	***
Presence of children 1-2 years	-0.277	-3.76	***	0.032	0.35	
Presence of children 3-5 years	-0.284	-4.14	***	0.313	3.76	***
Presence of children 6-12 years	0.097	1.66	*	0.145	2.15	**
Presence of children 13-17 years	0.790	12.65	***	0.484	6.79	***
Presence of person over 65	-0.386	-3.48	***	-0.092	-0.86	
Other income	0.000	-9.61	***	0.000	-2.41	**
Home-based employee						
Work disability	-1.091	-21.31	***	0.026	0.45	
Work and mobility disability	-2.227	-21.12	***	-0.503	-7.06	***
Age	0.158	9.35	***	0.191	9.28	***
Age squared	-0.002	-9.63	***	-0.002	-6.41	***
Years of education	-0.062	-2.32	**	0.068	2.56	**
Years of education squared	0.014	19.13	***	0.009	13.03	***
Age * years of education	-0.002	-3.35	***	-0.003	-5.74	***
Married	-0.473	-14.72	***	0.164	4.77	***
White, not Hispanic	0.340	5.48	***	0.225	4.58	***
Black, not Hispanic	-0.657	-8.20	***	-0.977	-14.61	***
Hispanic	0.185	2.52	**	-0.543	-10.61	***
Presence of children under 1	0.657	10.93	***	-0.417	-7.16	***
Presence of children 1-2 years	-0.209	-5.10	***	0.172	3.44	***
Presence of children 3-5 years	-0.202	-5.48	***	0.211	4.85	***
Presence of children 6-12 years	0.005	0.16		0.088	2.31	**
Presence of children 13-17 years	0.227	5.94	***	0.037	0.89	
Presence of person over 65	0.087	1.58		0.040	0.65	
Other income	0.000	-0.95		0.000	3.1	***

Home-based self-employed						
Work disability	-1.062	-26.19	***	-0.079	-1.39	
Work and mobility disability	-2.353	-27.01	***	-0.736	-10.47	***
Age	0.140	9.43	***	0.106	5.42	***
Age squared	-0.002	-9.780	***	-0.001	-3.56	***
Years of education	0.113	3.790	***	-0.017	-0.69	
Years of education squared	0.008	9.750	***	0.007	10.41	***
Age * years of education	-0.001	-2.35	**	0.000	-0.25	
Married	0.120	4.20	***	0.342	10.3	***
White, not Hispanic	0.972	16.53	***	0.815	16.4	***
Black, not Hispanic	-0.412	-5.66	***	-0.477	-7.29	***
Hispanic	-0.021	-0.29		-0.808	-15.79	***
Presence of children under 1	0.053	0.96		-1.015	-16.76	***
Presence of children 1-2 years	-0.192	-5.38	***	0.235	4.76	***
Presence of children 3-5 years	0.015	0.47		0.409	9.64	***
Presence of children 6-12 years	0.130	4.50	***	0.252	6.82	***
Presence of children 13-17 years	0.312	9.29	***	0.172	4.26	***
Presence of person over 65	-0.317	-5.97	***	-0.221	-3.54	***
Other income	0.000	-24.12	***	0.000	-1.6	

Men

	1990			2000		
	Coefficient	Z statistic	Significance	Coefficient	Z statistic	Significance
Onsite employee						
Work disability	-3.515	-51.84	***	-0.393	-7.65	***
Work and mobility disability	-5.370	-35.20	***	-0.873	-15.90	***
Age	0.365	10.73	***	0.006	0.28	
Age squared	-0.004	-9.65	***	0.000	-1.12	
Years of education	0.091	1.70	*	-0.089	-4.06	***
Years of education squared	0.024	11.23		0.009	12.42	***
Age * years of education	-0.008	-7.99	***	0.001	1.66	*
Married	0.913	11.86	***	0.254	6.31	***
White, not Hispanic	1.243	8.17	***	0.350	6.89	***
Black, not Hispanic	-0.252	-1.47		-0.265	-4.00	***
Hispanic	0.871	4.75	***	-0.665	-13.44	***
Presence of children under 1	0.659	5.28	***	-0.039	-0.61	
Presence of children 1-2 years	-1.001	-11.98	***	-0.067	-1.21	
Presence of children 3-5 years	-1.092	-12.19	***	0.006	0.13	
Presence of children 6-12 years	1.191	12.57	***	-0.010	-0.22	
Presence of children 13-17 years	0.494	4.70	***	0.122	2.64	***
Presence of person over 65	-0.235	-2.80	***	-0.340	-5.41	***
Other income	0.000	-19.28	***	0.000	-1.46	
Onsite self-employed						
Work disability	-4.246	-40.53	***	-0.385	-5.14	***
Work and mobility disability	-6.370	-15.77	***	-0.762	-8.05	***
Age	0.513	13.83	***	0.131	4.54	***
Age squared	-0.006	-14.37	***	-0.002	-4.87	***
Years of education	-0.005	-0.10		-0.235	-8.04	***
Years of education squared	0.016	6.99	***	0.011	12.15	***
Age * years of education	-0.002	-2.19	**	0.003	4.06	***
Married	1.151	13.90	***	0.219	3.97	***
White, not Hispanic	1.195	7.10	***	0.461	6.39	***
Black, not Hispanic	-1.588	-7.76	***	-0.838	-7.78	***
Hispanic	0.921	4.61	***	-0.899	-11.94	***
Presence of children under 1	-0.429	-3.00	***	-0.199	-2.28	**
Presence of children 1-2 years	-0.487	-5.16	***	-0.141	-1.89	*
Presence of children 3-5 years	-0.829	-8.69	***	0.088	1.34	
Presence of children 6-12 years	2.483	24.24	***	0.023	0.39	
Presence of children 13-17 years	0.591	5.32	***	0.133	2.21	**
Presence of person over 65	-0.011	-0.12		-0.464	-4.91	***
Other income	0.000	-17.09	***	0.000	-0.47	

Home-based employee						
Work disability	-3.468	-40.11	***	-0.324	-5.38	***
Work and mobility disability	-4.746	-24.23	***	-1.138	-14.76	***
Age	0.736	19.82	***	0.145	5.92	***
Age squared	-0.009	-20.86	***	-0.002	-5.09	***
Years of education	0.031	0.50		-0.015	-0.47	
Years of education squared	0.021	9.08	***	0.013	14.73	***
Age * years of education	-0.004	-3.49	***	-0.001	-0.92	
Married	0.302	3.75	***	0.223	4.96	***
White, not Hispanic	1.445	8.67	***	0.528	8.89	***
Black, not Hispanic	-0.948	-4.89	***	-0.784	-9.39	***
Hispanic	0.349	1.73	*	-1.024	-16.68	***
Presence of children under 1	0.847	6.68	***	-0.015	-0.22	
Presence of children 1-2 years	-1.461	-16.80	***	0.019	0.31	
Presence of children 3-5 years	-0.617	-6.62	***	0.029	0.53	
Presence of children 6-12 years	1.041	10.58	***	-0.022	-0.45	
Presence of children 13-17 years	0.221	2.04	**	0.004	0.07	
Presence of person over 65	-1.570	-15.57	***	-0.511	-6.96	***
Other income	0.000	-24.08	***	0.000	2.77	***
Home-based self-employed						
Work disability	-3.436	-45.33	***	-0.371	-6.37	***
Work and mobility disability	-5.611	-29.48	***	-1.120	-15.43	***
Age	0.671	18.93	***	0.186	7.74	***
Age squared	-0.008	-19.44	***	-0.002	-7.05	***
Years of education	0.478	7.75	***	-0.136	-5.09	***
Years of education squared	0.009	3.87	***	0.011	14.04	***
Age * years of education	-0.005	-4.56	***	0.002	3.25	***
Married	0.594	7.53	***	0.071	1.62	
White, not Hispanic	0.541	3.52	***	0.792	13.21	***
Black, not Hispanic	-2.604	-14.30	***	-0.867	-10.31	***
Hispanic	-1.163	-6.07	***	-1.484	-23.29	***
Presence of children under 1	0.840	6.65	***	-0.072	-1.03	
Presence of children 1-2 years	-1.121	-13.04	***	-0.047	-0.77	
Presence of children 3-5 years	-0.896	-9.79	***	0.064	1.17	
Presence of children 6-12 years	1.725	17.86	***	0.024	0.48	
Presence of children 13-17 years	0.471	4.42	***	0.032	0.63	
Presence of person over 65	-0.566	-6.55	***	-0.491	-6.95	***
Other income	0.000	-23.74	***	0.000	4.49	***

Comparison group is "Out of the Labor Force"
*** Significant at the 1% level
** Significant at the 5% level
* Significant at the 10% level
Work disability includes two mutually exclusive categories: "Solely work disability" and "Work disability and personal care limitation"
Work and mobility disability includes two mutually exclusive categories: "Work and mobility disability" and "Work, mobility and personal care limitation."

Table 11: Marginal effects of disability type, age 25-55, by workstate, sex and year*

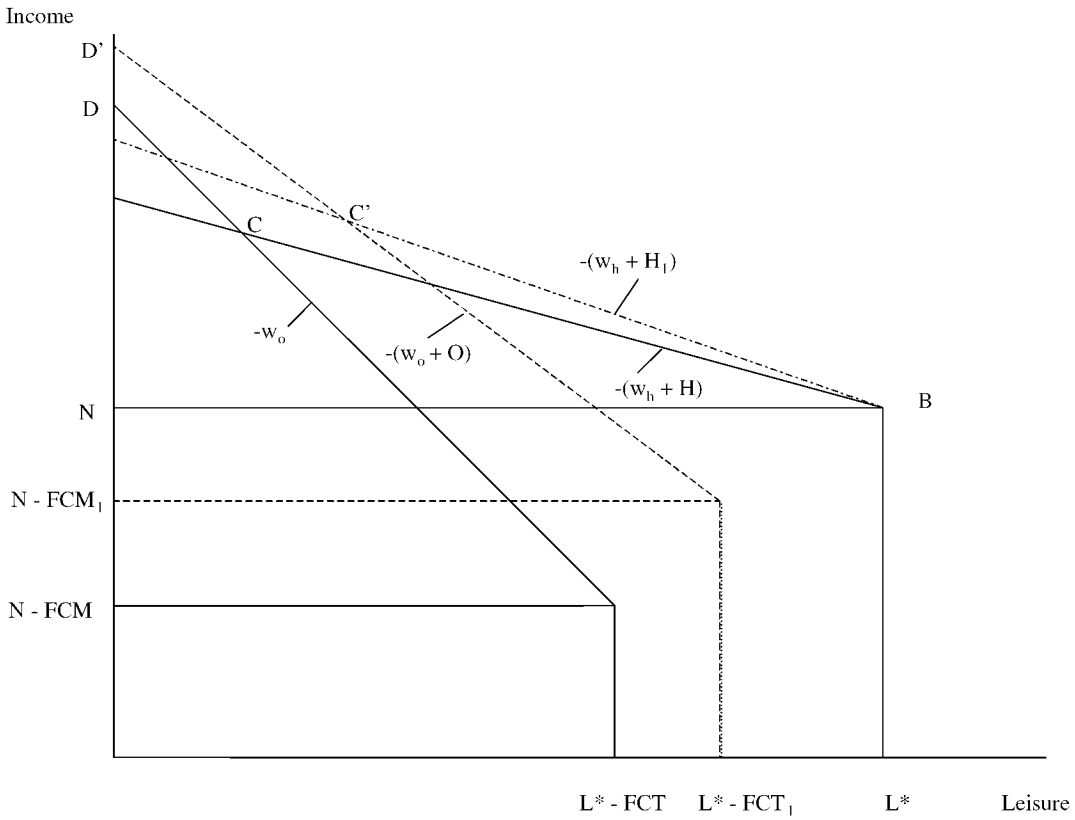
	Women		*Men*	
	1990	2000	1990	2000
Work disability**				
Onsite employee	-0.378	-0.001	-0.109	-0.022
	-49.9%	**-0.1%**	**-12.5%**	**-2.5%**
Onsite self-employed	-0.010	-0.001	-0.064	-0.001
	-27.0%	**-3.1%**	**-60.4%**	**-1.6%**
Home-based employee	0.001	0.001	0.000	0.000
	12.5%	**9.1%**	**0.0%**	**0.0%**
Home-based self-employed	0.002	-0.001	-0.001	0.000
	12.5%	**-1.6%**	**-10.0%**	**0.0%**
Work and mobility disability**				
Onsite employee	-0.640	-0.055	-0.505	-0.061
	-84.4%	**-6.5%**	**-58.0%**	**-7.1%**
Onsite self-employed	-0.034	-0.002	-0.091	0.002
	-91.9%	**-6.3%**	**-85.8%**	**3.1%**
Home-based employee	-0.003	0.000	-0.001	-0.002
	-37.5%	**0.0%**	**-25.0%**	**-25.0%**
Home-based self-employed	-0.008	-0.003	-0.007	-0.003
	-50.0%	**-20.0%**	**-70.0%**	**-33.3%**

* Marginal effects shows the effects of disability status on the probability of being in each workstate. For example, in 1990, a woman with a disability limiting work (that is, wrkdis=1 instead of wrkdis=0) had a 37.8 percentage points less probability of being an onsite employee. The numbers in bold are the marginal effects calculated as a proportion of the base probability of being in the particular workstate.

** Work disability includes two mutually exclusive categories: "Solely work disability" and "Work disability and personal care limitation"
Work and mobility disability includes two mutually exclusive categories: "Work and mobility disability" and "Work, mobility and personal care limitation."

*** All of the corresponding logit coefficients are significant at the 1% level for men. For women, they are all significant at the 1% level, except for onsite employees and the onsite and home-based self employed who identified as having a work disability with no mobility disability in 2000.

Figure 1: Diagrammatic Model of Labor Supply by Worksite, Before and After the ADA*



* Solid lines = pre-ADA
Dashed lines = post-ADA

Figure 2: Predicted Changes in Probability of Being in a Particular Workstate Before and After the Americans with Disabilities Act

Before the ADA

Increase in:	Home-based work	Onsite work	Out of the Labor Force
w_h	+	-	-
w_o	-	+	-
FCM or FCT	+	-	+
H	+	-	-

After the ADA

Increase in:	Home-based work	Onsite work	Out of the Labor Force
w_h	+	-	-
w_o	-	+	-
FCM or FCT	+	-	+
H	+	-	-
O	-	+	-

References:

Acemoglu, Daron and Joshua D. Angrist. 2000. "Consequences of Employment Protection? The Case of the Americans with Disabilities Act," *Journal of Political Economy* 109(5): 915-957.

Albertson's, Inc. v. Kirkingburg 527 U.S. 555 (1999)

The Americans with Disabilities Act of 1990. 42 U.S.C. § 12102(2)

Baldwin, Marjorie L. 2000. "Estimating the Potential Benefits of the ADA on the Wages and Employment of Persons with Disabilities" In *Employment, Disability, and the Americans with Disabilities Act: Issues in Law, Public Policy, and Research.* Edited by Peter David Blanck. Evanston, IL: Northwestern University Press.

Berven, Heidi M. and Peter David Blanck. 2000. "Assistive Technology in the Workplace and the Americans with Disabilities Act." In *Employment, Disability, and the Americans with Disabilities Act: Issues in Law, Public Policy, and Research.* Edited by Peter David Blanck. Evanston, IL: Northwestern University Press.

Blanck, Peter David. 1997. "The Economics of the Employment Provisions of the Americans with Disabilities Act, Part 1, Workplace Accommodations," 46 *DePaul Law Review* 877.

Blanck, Peter David. 2000. "Economics of the Employment Provisions of the ADA." In *Employment, Disability, and the Americans with Disabilities Act: Issues in Law, Public Policy, and Research.* Edited by Peter David Blanck. Evanston, IL: Northwestern University Press.

Burkhauser, Richard V. and Mary C. Daly. 1996. "The Potential Impact of the Americans with Disabilities Act on the Employment of People with Disabilities," In *Implementing the Americans with Disabilities Act*, edited by Jane West. Cambridge, MA: Blackwell Publishers.

Code of Federal Regulations. Title 29, Volume 4, § 1630.2(i). U.S. Government Printing Office.

Colker, Ruth. 1999. "The ADA: A Windfall for Defendants" *Harvard Civil Rights – Civil Liberties Law Review* 34 : 99-163.

Current Population Survey. 2000. http://www.census.gov/hhes/www/disability/cps/cps200.html

DeLeire, Thomas. 1997. "Wage and Employment Effects of the Americans with Disabilities Act", *Journal of Human Resources*, 35(4): 693-715.

DeLeire, Thomas. 2000. "The Unintended Consequences of the Americans with Disabilities Act," *Regulation 23(1)*: 21-24.

Edwards, Linda N. and Elizabeth Field-Hendrey. 2002. "Home-Based Work and Women's Labor Force Decisions", *Journal of Labor Economics,* 20(1): 170-200.

Gallagher, Hugh. 1985. *FDR's Splendid Deception*. New York, NY: Dodd Mead.

Greenhouse, Linda. 1999. "High Court Limits Who Is Protected by Disability Law," *New York Times,* June 23, 1999.

Hahn, Harlan. 1985. "Introduction: Disability Policy and the Problem of Discrimination," *American Behavioral Scientist* 28 : 310.

Hockenberry, John. 1999. "Disability Games," *New York Times*, June 29, 1999.

Hotchkiss, Julie. 2003. *The Labor Market Experience of Workers with Disabilities: The ADA and Beyond.* Kalamazoo, MI: W.E. Upjohn Institute.

Hypes v. First Commerce Corp. 134 F.3d 721 (5th Cir. 1998)

Jolls, Christine. 2000. "Accommodation Mandates and Anti-Discrimination Law," UC Berkeley Law-Economics Research Paper no. 2000-9.

Krueger, Alan and Douglas Kruse. 1995. "Labor Market Effects of Spinal Cord Injuries in the Dawn of the Computer Age," NBER Working Paper 5302. Cambridge, MA.

Kruse, Douglas and Lisa Schur. 2003. "Employment of People with Disabilities Following the ADA," *Industrial Relations*, 42(1): 31-66.

Kvorjak v. Maine. 259 F.3d 4 (1st Cir. 2001)

Ludgate, Kristen. 1997. "Telecommuting and the Americans with Disabilities Act: Is Working at Home a Reasonable Accommodation?" 81 *Minn. L. Rev.* 1309.

Mariani, Matthew. 2000. "Telecommuters," *Occupational Outlook Quarterly*, Fall.

Mason v. Avaya Communications, Inc. 357 F.3d 1114 (10th Cir. 2004)

Murphy v. United Parcel Service. 527 U.S. 516 (1999)

Neumark, David & Elizabeth Powers. 1998. "Welfare for the Elderly: The Effects of SSI on Pre-Retirement Labor Supply," Working Paper 6805, NBER Working Paper Series

O'Brien, Ruth. 2001. *Crippled Justice: The History of Modern Disability Policy in the Workplace* Chicago, IL: The University of Chicago Press.

Probit, Logit, Tobit and Linear Probability Models. http://irving.vassar.edu/faculty/wl/Econ210/LPMf02.pdf#search='logit%20model'

Schwochau, Susan and Peter Blanck. 2000. "The Economics of the Americans with Disabilities Act: Part III: Does the ADA Disabled the Disabled?" *Berkeley Journal of Employment and Labor Law*, 21: 271-313.

Schwochau, Susan and Peter Blanck. 2003. "Does the ADA Disable the Disabled? -- More Comments." *Industrial Relations,* 42(1): 67-77

Smith v. Ameritech. 129 F.3d 857 (6th Cir. 1997).

Stapleton, David and Richard Burkhauser. 2003. *The Decline in Employment of People with Disabilities: A Policy Puzzle.* Kalamazoo, MI: W.E. Upjohn Institute.

Sutton v. United Air Lines. 527 U.S. 471, 119 S.Ct 2139, U.S. Colo., 1999, Jun 22, 1999

The U.S. Equal Employment Opportunity Commission, "Section 902:Definition of the Term Disability"

Valenza, Michael A. 2004. "Telework and the ADA: Is Working at Home Finally a Reasonable Accommodation?" 5 *U.C. Davis Bus. L.J.* 2.

Vande Zande v. Wisconsin Department of Administration. 44 F.3d 538 (7th Cir. 1995).

Waggoner v. Olin Corp. 169 F.3d 481, 483 (7th Cir. 1999).

Whilock v. Delta Air Lines, Inc. 86 F.3d 1171 (11th Cir. 1996).

Wilkinson, Wendy and Lex Frieden. 2000. "Glass-Ceiling Issues in Employment of People with Disabilities." In *Employment, Disability, and the Americans with Disabilities Act: Issues in Law, Public Policy, and Research.* Edited by Peter David Blanck. Evanston, IL: Northwestern University Press.

Zwerling, Craig et al. 2002. "Workforce Participation by People with Disabilities: the National Health Interview Survey Disability Supplement, 1994-95" *Journal of Occupational and Environmental Medicine* 44: 358-64.