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Disability Statistics User Guide Series

# **A Guide to Disability Statistics from the Current Population Survey - Annual Social and Economic Supplement (March CPS)**

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## **Introduction**

The mission of the Cornell StatsRRTC is to bridge the divide between the sources of disability data and the users of disability statistics. One product of this effort is a set of *User Guides* to national survey data that collect information on the disability population. The purpose of each *User Guide* is to provide:

- an easily accessible guide to the disability information available in the nationally representative survey;
- a description of the unique features of the survey;
- a set of estimates on persons with disabilities from the survey, including estimates on the size of the population, the prevalence rate, the employment rate and measures of economic well-being;
- a set of estimates that highlight the unique features of the survey; and
- a description of how estimates from the survey compare to other national surveys that are used to describe the population with disabilities.

This *User Guide* addresses disability-related data available in the Current Population Survey- Annual Social and Economic Supplement (March CPS), also known as the March Supplement, Income Supplement, and Annual Demographic Survey.

The CPS program is one of the longest running nationally representative surveys in the United States, if not the world. The CPS began as an effort to measure labor market conditions, as a response to the lack of data during the Great Depression of the 1930s. By 1945, the CPS surveyed 25,000 households using a complex probability sampling design—a new concept at the time. The CPS continued to grow and evolve, and by 2005 the CPS sample reached 99,000 households. What was a brief monthly survey to collect unemployment status has grown into an extensive survey program using computer-assisted interview techniques, containing multiple supplements collecting data on a variety of social topics (e.g., income, poverty, health insurance coverage, school enrollment, and voting behavior).<sup>1</sup>

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<sup>1</sup>A history of the CPS is available at the Census Bureau/Bureau of Labor Statistics web site, <http://www.bls.census.gov/cps/bhistory.htm>.

The strength of the CPS is its ability to generate time trends. Electronic public-release data files are available from as far back as 1962. CPS data is used extensively by government agencies, researchers, policy makers, and journalists to evaluate employment, government programs, and the economic well-being and behavior of individuals, families and households. CPS-based statistics are used by government policymakers as indicators of the state of the U.S. economy and for planning and evaluating government programs. CPS-based statistics are often cited in the media.

Over most of its history the March CPS has attempted to capture household income from all sources, including government programs targeted on working-age people with disabilities (e.g., Social Security Disability Insurance, Supplemental Security Income, state workers compensation programs). A work limitation question was added to the March CPS in 1981 as a screener question in an effort to better capture disability-related income. More recently, the Bureau of Labor Statistics (BLS) has committed to more systematically capturing the population with disabilities, and is developing a set of seven disability-related items to add to the CPS program.<sup>2</sup>

The use of a work limitation question to capture the working-age population with disabilities in the March CPS has been the subject of considerable debate, which we will discuss below. Before doing so, it is important to discuss both how disability is conceptualized and how this concept has been operationalized in survey questions. This will allow us to more easily compare March CPS-based statistics on the working-age population with disabilities to those from other data sources covered in our *User Guide* Series.

## **Conceptual Model of Disability**

One purpose of the *User Guide* Series is to describe the information on disability available in the various national surveys; as a result we need an operational definition of disability. Unlike age and gender, which are for the most part readily identifiable individual attributes, disability is usually defined as a complex interaction between a person's health condition and the social and physical environment.

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<sup>2</sup> The BLS will not be adding new questions to the CPS-Annual Social and Economic Supplement, but will be to the monthly surveys conducted in the first and fifth interview months. We discuss the complex structure of the CPS program below.

The two major conceptual models of disability are the World Health Organization's International Classification of Functioning, Disability and Health (ICF; WHO, 2001) and the disability model developed by Saad Nagi (1965, 1976). Both models recognize disability as a dynamic process that involves the interaction of a person's health condition and personal characteristics with the physical and social environments. Changes to any one of these factors over time can have an impact on a person's ability to function and participate in activities. A detailed description and comparison of these models is available in Jette and Badley (2000).

We use ICF concepts to create operational definitions of disability. The concepts used include *impairment*, *activity limitation*, *participation restriction*, and *disability* (see World Health Organization, 2001). A prerequisite to each of these concepts is the presence of a health condition. Examples of health conditions are listed in the International Classification of Diseases, Tenth Edition (World Health Organization, 2006) and they encompass diseases, injuries, health disorders, and other health-related conditions. An *impairment* is defined as a significant deviation or loss in body function or structure. For example, the loss of a limb or a vision loss may be classified as an impairment. In some surveys, impairments are defined as long-lasting health conditions that limit a person's ability to see or hear, limit a person's basic physical movement, or limit a person's mental capabilities.

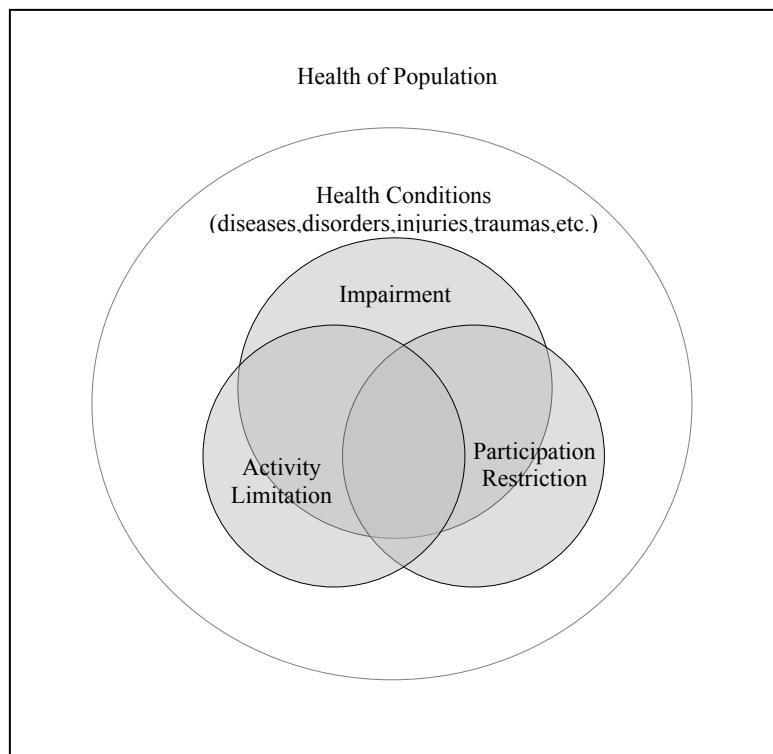
An *activity limitation* is defined as a difficulty an individual may have in executing activities. For example, a person who experiences difficulty dressing, bathing, or performing other activities of daily living due to a health condition may be classified as having an activity limitation. In some surveys, activity limitations are identified based upon a standard set of activities of daily living questions (ADLs).

A *participation restriction* is defined as a problem that an individual may experience in involvement in life situations. For example, a working-age person with a health condition may have difficulty participating in employment as a result of the physical environment (e.g., lack of reasonable employer accommodations) and/or the social environment (e.g., discrimination). In some surveys, participation restrictions are identified by questions that ask whether the person has a long-lasting health condition that limits his or her ability to work, or whether a health condition affects his or her ability to go outside the home to go shopping, to church, or to the doctor's office.

In the ICF, the term *disability* describes the presence of an impairment, an activity limitation and/or a participation restriction. While these concepts may seem to follow a progression—that is, an impairment leading to an activity limitation leading to a participation restriction—this is not necessarily the case. Figure 1 provides a useful summary of ICF concepts. It is possible that a person may have a participation restriction without an activity limitation or impairment. For example, a person diagnosed as HIV positive may not have an evident impairment or activity limitation, but may not be able to find employment due to discrimination resulting from his or her health condition. Similarly, a person with a history of mental illness, but who no longer has a loss in capacity or activity limitation, may also be unable to find employment due to discrimination resulting from his health condition.

Figure 1 illustrates that while there is an overlap across these concepts, it is possible that one of them can occur without a relation to the others. The universe of the ICF definition of a disability begins with a health condition. Disability encompasses all conditions that fall into the categories of impairment, activity limitation, *and/or* participation restrictions; i.e., the union of these three categories.

**Figure 1. Conceptual Model of Disability Using ICF Concepts**



## **Operational Issues**

Translating the ICF concepts into operational definitions in surveys and mapping existing survey questions to ICF concepts are not straightforward tasks. In the *User Guide Series*, we were forced to use our best judgment in classifying survey questions into one of the three specific ICF categories since well-defined rules for doing so are not available in the ICF. In some cases, the classification is straightforward. In others, for example, the survey questions may be interpreted as both an activity limitation and a participation restriction. Our approach in such cases was to make clear and consistent judgments that would allow us to make comparisons of various measures of disability across data sources within the ICF framework.

## **Background, Survey Methods, and Data Collection**

The CPS program is a complex series of monthly surveys and supplements conducted by the Bureau of the Census on behalf of the Bureau of Labor Statistics. The main components of the CPS program are (1) the Basic Monthly Survey, which provides monthly statistics on labor markets, and (2) the Annual Social and Economic Supplement (March CPS) fielded in March, which contains the work limitation question. There are numerous supplemental surveys to the Basic Monthly CPS that delve deeper into a range of topics:

- Annual Social and Economic Supplement (a.k.a., Annual Demographic Survey, March Supplement, Income Supplement)
- Contingent Workers and Alternative Employment
- Displaced Workers
- Job Tenure and Occupational Mobility
- Race and Ethnicity
- Tobacco Use
- Voting and Registration
- School Enrollment
- Work Experience

- Food Security
- Work Schedules
- Computer Ownership
- Fertility and Marital History
- Fertility and Birth Expectations

These supplements may occur annually, every two years, sporadically, or sometimes only once. They are fielded in various months.

### **Coverage: Universe and Sample Design**

The sample of the CPS program is designed to generate reliable monthly statistics for each state and the District of Columbia. Over the years, the sample design has changed to improve reliability and contain cost.

*Sample Design.* The sample is a multistage stratified sample of households in the U.S. to represent the civilian, non-institutional population. A multistage stratified process is used to draw the sample and ensure even coverage across the United States. The process proceeds as follows: (1) the Decennial Census is used to divide the United States into primary sampling units (PSUs). In 2003, the year we highlight below, the United States is divided into 2,007 PSUs based on the 1990 Census. A PSU is a metropolitan area, a large county, or a group of small counties. PSUs do not cross state boundaries. (2) Groups of PSUs are created (i.e., the PSUs are assigned to strata) based on 1990 Census and other information, such that PSUs with similar labor force, economic, and social characteristics are grouped together. In 2003, 792 strata were created. (3) One PSU is selected from each stratum. Selection is not random; rather the probability of selection for each PSU in the stratum is proportional to its population size and is done in a way to ensure each state is represented. (4) A sample of housing units (structures) is drawn from each of the selected PSUs. The list of housing structures is based on a variety of sources including a registry of building permits for new construction. (Note that housing structures are being sampled not people. This has implications later in our analysis.) The selection of housing units within a selected PSU process ensures that each housing unit in the

population has one chance of selection and that all housing units in a state have the same chance of selection. (For more detailed information on the sample design, go to [www.census.gov/prod/2002pubs/tp63rv.pdf](http://www.census.gov/prod/2002pubs/tp63rv.pdf).)

*Non-Institutional Group Quarters.* The CPS also selects group quarters which contained housing units in which residents shared common facilities or received formal or authorized care or custody. These are housing units such as residential group homes, not nursing homes.

*Rotation Scheme.* The CPS program uses a complex rotation system to refresh the sample. Each housing unit is interviewed a total of eight times—a housing unit is interviewed for four consecutive months and then dropped out of the sample for the next eight months and is brought back in the following four months. The first and fifth interviews are called the incoming rotations. The fourth and eighth interviews are called the outgoing rotation. Each month a new sub-sample (or panel) is brought to replace the sub-sample that had its eighth interview.

Figure 2 depicts the rotation scheme for a hypothetical 15 month period and 17 panels (Panels A-Q). The first row shows that housing units in Panel A had their first interview in March of Year 1, were out of the sample from July through February, were brought back into the sample in March of Year 2 and had their last surveys in June of Year 2. The first column shows that: March of Year 1 is the first interview for Panel A, the last interview for Panel P, a month off for Panels E through L, a return to the survey for Panel M, and the outgoing rotations for Panels D and P. The second column also shows that: Panel P is no longer being interviewed or scheduled to be interviewed and a new panel, Panel Q, takes its place. In March of Year 1 and March of Year 2, half of the housing units are surveyed, thus there is the ability to match up housing units, as we do in the analysis below.

Figure 2. Rotation: Assignment of the Eight Month in the Sample for 17 Hypothetical Panels (A-Q)

Panel	Month in Sample															
	Year 1												Year 2			
	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	Jun.
A	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	-	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
B	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	-	-	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
C	3 <sup>rd</sup>	4 <sup>th</sup>	-	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>		
D	4 <sup>th</sup>	-	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>			
E	-	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>				
F	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>					
G	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>						
H	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>							
I	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>								
J	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>									
K	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>										
L	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>											
M	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>												
N	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>													
O	7 <sup>th</sup>	8 <sup>th</sup>														
P	8 <sup>th</sup>															
Q		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	-	-	-	-	-	-	-	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	

*Adjusting of Sample Design.* Sample weights are provided to adjust point estimates—population size, proportions, means, medians, etc.—for the complex sample design. Separate weights are provided for the basic monthly survey, the ASES, and the outgoing rotations, which have additional earnings-related questions. However, these sample weights are not sufficient to adjust variance-related estimates—standard error, coefficient of variation, etc. It is necessary to incorporate design factors. See Houtenville (2000) and Census Bureau (2002) for details on how to adjust variance-related estimates information.

*Matched Sample.* Since the CPS tracks the same housing unit over a 16-month period, it is possible to create a longitudinal file for that housing unit. It is common for researchers to match housing units from March-to-March to obtain longitudinal information for two ASESs. Short panel data sets of this type, matching individuals across March files of the CPS, have been used to study a wide range of economic questions.

But because, in general, researchers are interested in following the people in a housing unit rather than the housing unit, it is critical to take account of the fact that there may be changes in the people who occupy the house over this period and account for that in the analysis.

To assure that we are following the same people, in our analysis below, we match on the housing unit identifier and then match individuals based on age, race, and sex. Duplicate observations are then matched on education level. One limitation of this type of analysis is that it will systematically exclude people who move out of the housing units where they lived in March of the first year and people who move into those housing units by the following March. Furthermore, the March 1984 and March 1985 CPS data, as well as the March 1994 and March 1995 CPS data, cannot be merged because revisions in the household identifiers implemented to protect the confidentiality of survey respondents between these years prevent matching. For details on matching CPS files, see Madrian and Lefgren (2000), and Feng (2004).

#### *Collection Mode*

The collection mode may influence the quality of the information it collects, especially with respect to accurately capturing the population with disabilities. For instance, the use of telephone surveys may limit the ability of people with hearing impairments to participate. While a Census Bureau employee initially conducts a face-to-face interview with the head of the household with the assistance of a computer—Computer Assisted Personal Interview (CAPI), the interview is conducted via the telephone over the next seven months. In those interviews, a Census Bureau employee talks with the head of the household over the telephone with the assistance of a computer—Computer Assisted Telephone Interview (CAPI). Information on other household members is obtained from the head of household, i.e., via proxy response.

#### *Accessing of Data and Statistics*

The Census Bureau disseminates CPS data and statistics in two ways: (1) public-use data files (i.e., raw data) and (2) pre-generated descriptive statistics on a variety of topics.

*Public-Use Data Files.* Public versions of CPS data files are readily available. These files contain individual records for each household, family and each family member. Of course, these data are not truly raw data, directly from the survey respondents. Many useful summary variables (e.g., the monthly labor force recode) are provided, as well as imputations for missing values based on a HotDeck method. In addition, certain information has been modified to maintain confidentiality and limit the identifiability of respondents. For instance, income values

from each source are top-coded (see Burkhauser, Butler, Feng and Houtenville, 2004; Feng, Burkhauser and Butler, 2006).

There are several ways to access these data files: (1) download complete files from a BLS and Census Bureau supported web site (<http://www.bls.census.gov/ferretftp.htm>); (2) extract sub-files (and even do some preliminary calculations) using Census Bureau's web-based data extraction software, called DataFerrett (<http://dataferrett.census.gov/>); and (3) access through many colleges and universities, where it is available through the Inter-University Consortium for Political and Social Research (ICPSR).

*Descriptive Statistics.* There are two sources of pre-generated March CPS statistics related to disability. The StatsRRTC-supported web site, [www.disabilitystatistics.org](http://www.disabilitystatistics.org), which contains state-level estimates and time trends (1980-current) of the prevalence rate, employment rate, poverty rate, and median household income. The Census Bureau web site, <http://www.census.gov/hhes/www/disability/disabcps.html>, which contains annual estimates from 1995–current regarding prevalence, educational attainment, employment, unemployment, and earnings.

### **Definition of Disability and Other Variables**

A description of the survey questions and how we used these questions to define disability, demographics, economic well-being, and employment is shown in Tables 1a – 1d.

*Disability.* Table 1a shows that the March CPS has a work limitation question: “(Do you/Does anyone in this household) have a health problem or disability which prevents (you/them) from working or which limits the kind or amount of work (you/they) can do? If yes to ..., who is that? (Anyone else?).” Similar work limitation questions appear in the American Community Survey (ACS), National Health Interview Survey (NHIS), and the Survey of Income and Program Participation (SIPP). The March CPS work limitation question has been used extensively in the economics literatures to capture the working-age population with disabilities and compare its employment and economic well-being with the working-age population without disabilities. See Bound and Waidmann (1992), Burkhauser, Haveman, and Wolfe (1993), Acemoglu and Angrist (2001), Burkhauser, Daly, and Houtenville (2001), Bound and Waidmann (2002), Burkhauser,

Daly, Houtenville and Nargis (2002), Autor and Duggan (2003), Daly and Burkhauser (2003), Hotchkiss (2003), Hotchkiss (2004), Houtenville and Burkhauser (2005), Jolls and Prescott (2005) Burkhauser, Houtenville and Rovba (2006a), Burkhauser, Houtenville and Rovba (2006b).

Some researchers and policy advocates dismiss these results as fundamentally flawed, arguing that the set of individuals with self-reported work limitations captured in the March CPS represent neither the actual population with disabilities (Hale, 2001) nor its employment trends (Kaye, 2002; Kirchner, 1996).<sup>3</sup> While concerns about the accuracy and consistency of self-reported work limitations questions are not new (see for example, Bound 1991; Chirikos and Nestel, 1984; Chirikos, 1995; Bazolii, 1985; and Parsons 1980, 1982; Bound and Burkhauser, 1999, provide a detailed review of this literature), they currently are at the center of the debate about what, if anything, should be done to reverse the downward trend in employment among men and women with disabilities observed in the March CPS.<sup>4</sup>

One concern with the March CPS work limitation question is that it does not contain a reference period; therefore persons with very short-term work limitations may respond affirmatively. To address this issue, Burkhauser, Daly, Houtenville and Nargis (2002) and others since then, use the ability to match a portion of the March CPS sample from March-to-March to define a two-period work limitation—people who report a work limitation in March of consecutive years.<sup>5</sup> This measure better captures the longer-term and presumably more seriously impaired population with disabilities.

*Demographics.* Our analysis below utilizes questions on age, sex, race, and ethnic origin. Table 1b shows that a person's sex is identified with the request, "Enter appropriate sex." Age is solicited with a series of questions that reflect a computer assisted design: "[w]hat is (name's/your) date of birth? [Probe] As of last week, that would make (name/you)

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<sup>3</sup> Other critics include Kruse and Schur (2000) and McNeil (2000).

<sup>4</sup> The importance of this issue is apparent in a research summary by Hale (2001) in the *Monthly Labor Review*. Hale argues that because the CPS is not designed to measure a specific definition of disability, the burden of proof of its reasonableness is on those who use it. He then writes, "To proceed as though the data are valid measures of disabilities turns a data issue into a policy issue."

<sup>5</sup> See Houtenville and Burkhauser (2005) and Burkhauser, Houtenville and Rovba (2006a, 2006b).

((age/approximately age/less than 1/over 98) years/year) old. Is that correct? [Probe] Even though you don't know (name's/your) exact birth date, what is your best guess as to how old (you/he/she) (were/was) on (your/his/her) last birthday?" Hispanic origin is determined with question: "[w]hat is (name's/your) origin or descent? [Show flashcard.] German, Italian, Irish, French, Polish, Russian, English, Scottish, Mexican American, Chicano, Mexican, Puerto Rican, Cuban, Central/South American, Other Hispanic, Afro-American, Dutch, Swedish, Hungarian, Another Group, Don't Know." In our analysis, we code "Mexican American, Chicano, Mexican, Puerto Rican, Cuban, Central/South American, Other Hispanic" as Hispanic. Race is asked with a series of questions: "What is (name's/your) race? [Probe] (Are/Is) you/he/she) White, Black, American Indian, Aleut or Eskimo, Asian or Pacific Islander or something else?"

Educational attainment is obtained with the question: "What is the highest level of school [person] has completed or the highest degree [person] has received?" If response indicates "less than 1st grade, 1st, 2nd, 3rd or 4th grade, 5th or 6th grade, 7th or 8th grade, 9th grade, 10th grade, 11th grade, 12th grade or no diploma, we code them as "less than high school." If response indicates high school graduate (high school diploma or equivalent), we code them as "high school." If respondents indicate some college but no degree, associate's degree in college-occupational/vocational, or associate's degree in college-academic, we code them as "some college." If respondents indicate one of the following: bachelor's degree (e.g., BA, BS, AB), master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA), professional school degree (e.g.: MD, DDS, DVM, LLB, JD), or doctorate degree (e.g., PhD, EdD), we code them as "bachelor's or more."

*Employment Measures.* There are numerous employment measures available from the CPS program. Table 1c shows that current employment is determined by the question, "last week, did [person] do any work for either pay or profit?" in the Basic Monthly Survey. In the ASES, employment in the previous calendar year is collected using two questions: (1) "During [the previous calendar year] in how many weeks did [person] work even for a few hours? Include paid vacation and sick leave as work." (2) "In the weeks that [person] worked [the previous calendar year], how many hours did [person] usually work per week?" We used these two questions to create variables reflecting employment in the previous year. If a person worked at least 52 hours of work during the previous calendar year, we coded him or her as "Employed"

Sometime in Previous Year,” which was determined by multiplying usual hours per week by the number of weeks worked in past 12 months. If a person worked at least 50 weeks during the previous calendar year and at least 35 hours per week, we coded him or her “Employed Full-time Year Round,” which was determined by multiplying usual hours per week by the number of weeks worked in past 12 months, determined by condition that weeks worked is greater than or equal to 50 and usual hours per week is greater than or equal to 35 hours.

*Income and Poverty.* The collection of information on the income and poverty of American households is one of the core purposes of the March CPS. Table 1d lists the 23 possible sources of income the March CPS collects on each person in a household: (1) labor earnings, (2) self-employment income (3) farm income, (4) public assistance and welfare, (5) unemployment compensation, (6) worker’s compensation, (7) veteran’s benefits, (8) SSI program, (9) Social Security Old Age, Survivors and Disability program, (10) educational assistance, (11) dividends, (12) interest income, (13) rental income, (14) alimony, (15) child support, (16,17) two sources of private retirement income, (18,19) two sources of private disability income, (20, 21) two sources of private survivor’s income, (22) financial assistance from outside the household, and (23) any other income. Capital gains or capital losses, taxes and the value of non-cash benefits (such as food stamps and housing subsidies) are not considered in this measure of income. Annual household income is the sum of each household member’s income.

Two other measures of economic well-being are included that use both related and unrelated members of the household as the income-sharing unit. The first measure is total household income, which does not adjust for household size. The second measure is household size-adjusted income. It assumes that the income needed to achieve a level of economic well-being is lower for those who live in the same household than it is to live in separate households. That is, by sharing housing and other resources, less income is needed to achieve a certain level of economic well-being. The measure is usually described by the following formula:

$$Household\ Adjusted\ Income = \frac{Household\ Income}{(Household\ Size)^e}$$

where  $e$  is a parameter with a value between 0 and 1 and represents the degree of sharing (i.e., economies of scale) within the household. When  $e$  equals 0, the measure assumes that income needed is independent of household size. For example, the measure assumes a household with 5

members needs the same income as a household with one member to achieve a certain level of economic well-being. When  $e$  equals 1, the measure assumes that there is no sharing of resources within the household. For example, the measure assumes that a household with 5 members needs 5 times the income as a household with one member to achieve the same level of economic well-being. While there is no universal agreement on the value of the  $e$  parameter, there is empirical evidence that shows that setting  $e=0.5$  makes a reasonable adjustment for the degree of sharing within the household (see Ruggles 1990 p. 77; and Citro and Michael, 1995). Citro and Michael (1995) provide a good description of household size-adjusted income and economic well-being measures.

We also provide poverty rates. The Census Bureau calculates the poverty rate based on family income rather than household income. There can be more than one family in a household. The poverty rate is derived from family income and family composition (regarding size, number of children, and number of older family members), along with standard poverty thresholds, to construct a poverty measure. For more details, see the Census Bureau website, [www.census.gov/hhes/poverty/povdef.html](http://www.census.gov/hhes/poverty/povdef.html).

The poverty measure is computed based upon the standards defined in Directive 14 from the Office of Management and Budget (OMB). These standards use poverty thresholds created in 1982 and index these thresholds to 1999 dollars using poverty factors based upon the Consumer Price Index (CPI-U). They use the family as the income sharing unit and family income is the sum of total income from each family member living in the household. The poverty threshold depends on the size of the family; the age of the householder (i.e., the person who owns or pays rent for the housing unit and who fills out the questionnaire for the household) for one member families and two member families; and the number of related children under the age of 18. Family income is compared to the relevant poverty threshold to determine the poverty status of families.

The poverty threshold for an unrelated household member is a function of his or her own total income. The poverty threshold is different for a member of a household who is unrelated to the householder compared to the poverty threshold for a one-member household. A poverty measure is not created for unrelated household members who are under the age of 15 because March CPS did not collect income information from persons under the age of 15.

Note that poverty statistics do not adjust for the additional expenses that are the result of a health condition or a disability (e.g., personal assistance, equipment, medications, etc.). They also do not adjust for in-kind benefits, such as health insurance, food stamps, housing, transportation, child-care, etc. Nor do they take into consideration tax credits such as the Earned Income Tax Credit or local, state or federal taxes paid. For these reasons, household income relative to the poverty line is only an approximation of actual disposable income available to households and is especially so for a household that contains a person with a disability.

### **Statistics from the March CPS**

In Tables 2, 3 and 4, we provide statistics for the population with and without disabilities as measured by the work limitation question in the cross-sectional sample of the CPS. Based on the March-to-March Matched CPS, we provide statistics for those with a work limitation in both Marches (longer-term work limitation), those with a work limitation in the second March only, those with a work limitation in the first March only, and those with a work limitation in neither. We limit our samples to civilians.

*Composition of the Populations with Disabilities.* Table 2 provides population estimates, disability prevalence estimates, and sample sizes for non-institutionalized civilians. The statistics are provided by age categories that are consistent with other *User Guides*. As a concept, work limitation is most relevant for the working-age population—here defined as ages 25-61. Those younger than 25 may still be in school and not expected to work while those ages 62 and older may already be retired. Among working-age civilian persons, 8.4 percent (12.1 million out of 144.7 million persons) report a work limitation in March 2004. Based on the matched sample, 5.3 percent report a work limitation in both, 3.0 percent report a work limitation in the second March only (March 2004), and 2.5 percent report a work limitation in the first March only (March 2003). Not surprisingly, work limitation is substantially higher for civilians ages 62-64 (18.9 percent), and lower for civilians ages 18-24 (3.0 percent).

Table 3 provides shared distributions across age, sex, race, and education within each disability group. Table 3 focuses on comparisons within categories in a single column. Within the population with work limitations, those ages 55-64 represent the greatest portion, 21.8 percent, as compared to 12 percent for the population without work limitations. Slightly more

than half of those with work limitations are women (52.5 percent). More than three quarters (78.0 percent) of those with work limitations are white. About a third (30.3 percent) of those with work limitations have less than a high school degree or equivalent, compared to 17.5 percent of those without work limitations.

*Employment.* Table 4 shows three employment measures for the working-age population (ages 25 to 61) by work limitation type, disaggregated by sex, race, ethnicity, and educational level. Of those without work limitations, 81.4 percent report being employed in the reference period (prior week) compared to 19.6 percent of those with work limitations. The full-time/full-year employment rate of those with work limitations is 9.4 percent, compared to 65.3 percent for those without work limitations. The difference between these two groups is also evident when looking at our other employment measure “working sometime in the previous year” (86.2 percent of those without work limitations vs. 27.9 percent of those with work limitations).

As expected, employment disparities are even greater for those with longer-term work limitations: 13.0 percent employed in the prior week, 16.0 percent employed sometime in the previous year, and 3.5 percent working full-time year-round.

Turning to the demographic sub-groups, men with work limitations were more likely to work than women with work limitations. But relative to those without work limitations, men are relatively less likely to work. The relative current employment rate of men with work limitations was 23.3 percent (i.e., 20.6 percent / 88.4 percent multiplied by 100), even less than the relative rate of 25.0 percent for women with work limitations. Among racial sub-groups, Asians with work limitations had the highest employment rates in absolute and relative terms. Across educational levels, those with more education fared better in the labor market, in absolute and relative terms and regardless of the employment measure.

*Economic Well-Being.* Table 5 provides statistics based on three measures of economic well-being—the poverty rate, median household income, and median household size-adjusted income—for the working-age population (ages 25 to 61) by work limitation type, further disaggregated by sex, race, ethnicity and educational level. Of those with work limitations, 28.8 percent lived in families with incomes below the poverty line, compared to 8.0 percent of those without work limitations. This difference is evident in the other two measures as well. The

median household income of those with work limitations was \$27,995, compared to \$61,999 for those without work limitations. The median household size-adjusted income of those with work limitations was \$17,967, compared to \$36,770 for those without work limitations.

As with employment, the economic well-being of those with longer-term work limitations was even lower. Using the matched sample, the poverty rate of those with longer-term work limitations was 30.2 percent; the median household income was \$25,048; and the median household size-adjusted income was \$16,085. As for comparisons across demographic characteristics, the patterns in economic well-being closely mirror the patterns seen in employment status.

### **Comparisons with Other Data Sources**

The March CPS is one of several nationally representative data sources that provide estimates of the number, prevalence, employment, and economic well-being of people with disabilities and related conditions. This section compares the March CPS work limitation-based estimates with estimates from other nationally representative surveys: the 2003 American Community Survey (ACS), 2000 Census, the 2002 National Health Interview Survey (NHIS), the 1994 National Health Interview Survey-Disability Supplement, the 2003 Panel Study of Income Dynamics (PSID), and the 2002 Survey of Income and Program Participation (SIPP). The year associated with each dataset represents the actual year that the survey was administered. We use the 2004 March CPS for comparison because, while work limitation information is collected in March (with no explicit reference period), income and employment information is collected for the 2003 calendar year. Details on the methods used to collect information on persons with disabilities in each of these surveys may be found in the corresponding Cornell StatsRRTC *User Guide*.

Different surveys use different methods to collect information on persons with disabilities, and these differences lead to differences in the resulting estimates. Tables 6, 7, 8, and 9 use ICF terms to describe the population with disabilities that are created from the various questions used in these data sets. (The exact language for each of the questions used in these data sets that are aggregated under these ICF headings is available in the corresponding *User Guides*.) Each comparison table defines disability as the presence of a participation restriction, an activity limitation, or an impairment. Some data sources are limited to identifying a disability based on a

participation restriction as can be seen by looking across the columns that identify the ICF disability concepts. A “NA” entry indicates that no information is available in that survey for that ICF concept. In such cases, overall disability is based only on the information available in the survey. For example, the March CPS only contains information on a work limitation (a.k.a. employment disability). The definition of disability in the March CPS is therefore based solely on whether the person has a work limitation. In Figure 1, this definition captures a portion of persons who fall within the participation restriction circle. The authors of the *User Guides* for each of the data sets listed in these tables made similar decisions about where to place information from the questions on disability contained in their data set.

The comparisons are made across the working-age population, because most of the nationally representative surveys focus on the working-age population. In addition, among the subset of surveys that identify children with disabilities, there are relatively large differences in the methods used to define and identify disability, and it is difficult to make meaningful comparisons. Further research on methods used to identify children with disabilities is needed.

Differences in estimates may be related to changes in the population over time. Thus, it is important to pay special attention to the survey year when comparing estimates across the surveys. For example, the 2000 Decennial Census Long Form is taken in April 2000, and its income reference year is 1999. Changes in the population, the labor market and the economic environment between 2000 and 2003/2004 can affect population, prevalence, employment and economic well-being estimates.

### *Population and Prevalence Estimates*

Table 6 reveals differences across surveys in the size of the population with disabilities. The 2004 CPS identifies about 12 million working-age people with disabilities based on the work limitation question, which is the lowest estimate across the six surveys. In contrast, the 2002 SIPP identifies about 27 million working-age people with disabilities based on a series of 93 disability-related questions. The *User Guide* Series shows that, in general, data sets that ask more questions to identify a population with disabilities and that contain a broader disability conceptualization will capture a larger disability population. The single March CPS work limitation question misses a large part of the broader population with disabilities based on an ICF disability conceptualization. As mentioned earlier and as reflected in the tables, the ICF is the

union of impairment, activity limitation, and participation restriction, as opposed to the Nagi framework in which only those with participation restrictions would be considered to have a disability.

Column 3 of Table 6 shows that the population estimates are more closely aligned when looking specifically at employment disability (i.e., work limitation) for persons ages 25 to 61: 204 March CPS - 12,102,093 persons; 2003 ACS - 9,854,223 persons; 2002 NHIS - 13,725,000 persons, 2002 SIPP - 14,420,000 persons and 2003 PSID - 19,300,000 persons. Note that the PSID only surveys household heads and spouses. As is shown in Table 7, the 2004 March CPS employment disability prevalence rate estimate is 8.4 percent for those ages 25 to 61. Only the 2003 ACS had a lower employment disability prevalence rate—6.9 percent. All other employment disability prevalence estimates are higher (2002 NHIS - 9.9 percent; and 2002 SIPP - 10.1 percent; 2003 PSID - 13.5 percent). Nearly the same ordering holds for the age sub-populations.

#### *Employment Rate Estimates*

Table 8 provides statistics for three measures of employment: current employment (employment in the survey reference week), some attachment (52 hours or more annually), and full-time/full-year (at least 50 weeks annually with at least 35 hours per week). The current employment rate of people with disabilities ages 25 to 61 varied considerably across data sources, but there are some similarities. Not surprisingly, the 2004 CPS, with only its work limitation question, which is likely to identify a population with more severe disabilities, yielded the lowest current employment rate for people with disabilities, 19.6 percent. In contrast, the current employment rates of the 2003 ACS, Census 2000, 2002 NHIS, and 2002 SIPP ranged from 39.3 percent to 48.9 percent, reflecting populations with less severe disabilities.

However, focusing on people with employment disabilities, the current employment rates of the 2004 CPS and the 2003 ACS were similar—19.6 percent and 18.9 percent, respectively. The 2002 NHIS and 2002 SIPP were higher but similar to each other—29.8 percent and 27.7 percent, respectively. Similar patterns were seen in the other two measures of employment.

### *Economic Well-Being Estimates*

Table 9 provides statistics for three measures of economic well-being: poverty rate, median household income, and median household size-adjusted income. (Note: income estimates are not adjusted for inflation.) As is shown in Table 9, the poverty rate of people with disabilities ages 25 to 61 varies across data sources—the Census 2000 estimate (23.2 percent) falls at the upper end of the range. Similar to the patterns in the employment rate, the 2004 CPS provided the highest poverty rate for working-age people with disabilities, 28.8 percent. Looking at employment disability, the poverty rates of the 2004 CPS and the 2003 ACS were most similar—28.8 percent and 29.6 percent, respectively. The 2002 NHIS and 2002 SIPP were lower but similar to each other—26.5 percent and 26.0 percent, respectively. Similar patterns were seen in the other two measures of income.

### **Advantages of the March CPS**

It is clear from Tables 6-9 that the primary disadvantage of the CPS is that it is limited to one disability-related question—work limitation. One should use caution when using the CPS to address the level of disability and the outcomes for people with disabilities. However, the March CPS has some significant advantages over other data sources: consistently measured time trends and information derived from the matched sample.

In this section, we first use information from 1980-2005 CPS data and the matched samples for these years. The use of a two-period definition of disability provides a very different picture of the levels and at times the trends in the demographics, employment, and economic well-being of persons with a work limitation-based disability. We then compare our results with those from other data sets to show the robustness of our findings across data sets.

### **Unique Features of the March CPS**

The comparative advantage of March CPS data over other datasets is that it has continuously asked a nationally representative cross-section of the United States working-age population the same work limitation based-disability question since March 1980. Hence it is the only data set for which trends in the prevalence of a consistently defined population with

disabilities as well as the employment and economic well-being outcomes of this population is available for such a long time period.

Furthermore, the March-to-March match makes it possible to identify a longer-term population with disabilities that reports having a work limitation-based disability in two consecutive periods one year apart. Researchers have used the March CPS to identify persons who report a work limitation-based disability using both a one- and two-period definition. Persons who have experienced a disability over a longer time period may differ from persons who have temporary disabilities or who have recently experienced the onset of a longer-term disability. Most major surveys interview persons at one point in time and are therefore unable to differentiate between persons with these different disability experiences.<sup>6</sup>

Typically, researchers using the March CPS do not make use of the opportunity to use the March CPS two-period definition of disability. However there are exceptions. Burkhauser, Daly, Houtenville and Nargis (2002) do so to show that while the yearly employment rates of working-age people with disabilities in the March CPS using both the one- and two-period work limitation-based definition of disability differ from those in the NHIS using an impairment-based definition of disability, the yearly employment rate trends in these three populations are not significantly different. Burkhauser, Houtenville and Rovba (2006a) use the one- and two-period work limitation-based definition of disability in the March CPS to trace the levels and trends in poverty rates of these populations relative to their counterparts without disabilities and Burkhauser, Houtenville and Rovba (2006b) do so to trace the levels and trends in the employment rates of these two populations to their counterparts without disabilities.

## Prevalence Trends

Here we showcase the relative strength of the March CPS by using all available years of data to trace the levels and trends in the prevalence rate of disability in the working-age population with disabilities as well as the relative poverty and employment rates of these

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<sup>6</sup> The Census 2000, the ACS, and the NHIS are examples of such surveys. The PSID because of its longitudinal structure interviews household heads and their spouses over the entire period they are in the sample. See Burkhauser, Schroeder and Weathers (2006) for a discussion of the relative merits of the PSID for disability research. It is also possible to use the SIPP to construct multi-period measures of disability. See Wittenburg and Nelson (2006) for information on how this is done.

populations to their counterparts without disabilities using both the one- and two-period definitions of disability available in the March CPS. Since those with a work limitation that has lasted less than one year are included in our first measure but not in our second, a higher percentage of the overall population will be considered to have a disability using our first measure of disability. Their poverty rate is likely to be lower since we are identifying, on average, a population with less severe disabilities.

Figure 3, taken from Burkhauser, Houtenville and Rovba (2006b), reports levels and trends in the prevalence of disabilities among working-age men (aged 21-58) from 1980-2004 using both a one- and a two-period measure of disability. To be consistent in our measurement of key economic well-being and employment outcomes, our report on the prevalence of disability is for the year prior to the March report on a disability by our population in the one-period case. In the two-period case, it is also for the year prior to the March report of a disability, but only those who also reported a work limitation in the previous March are considered to have a longer-term disability. Because the work limitation question was first asked in the March 1981 CPS we are only able to report on disability prevalence beginning in 1980 in the one-period case and in 1981 in the two-period case. In addition, because of changes in the March CPS survey design, it is not possible to match survey years 1985/1986 and 1995/1996 and thus to report our two-period measure for 1985 and 1995.

Not surprisingly, the prevalence of disability using the standard one-period work limitation-based measure is higher than that using the longer-term measure in all years. But the trends in both are similar. In the 1980s, the prevalence of disability (using our one-period measure) among working-age people with disabilities varied from a low of 6.33 percent to a high of 6.91 percent with no discernable trend. Prevalence rates were higher in 1990s and early 2000s ranging from 6.70 percent in 2002 to 7.73 percent in 1993. Using the two-period measure of disability, the prevalence of longer-term disability also increased in the 1990s and 2000s. Prevalence rates ranged from 3.83 to 4.28 percent in the 1980s and from 3.92 to 5.34 percent

thereafter. Collectively these data suggest a rise in self-reported work limitation-based disability rates since the passage of the Americans with Disabilities Act of 1990.<sup>7</sup>

### Trends in Poverty Rates

Table 10, taken from Burkhauser, Houtenville, and Rovba (2006a), documents the fluctuations in the poverty rate of working-age people with and without a disability over the business cycles of the 1980s and the 1990s. Data limitations prevent us from directly measuring the poverty rates of working-age people with and without disabilities in 1979, the peak year of the 1970s business cycle. But we see that the poverty rates of both groups follow the business cycle, rising between 1980 and 1983, the first business cycle trough year we will consider. Both populations' poverty rates are sensitive to the ebb and flow of economic activity over the next two business cycles (1983-1993 and 1993-2004), fluctuating in a similar manner over these years. But the net change in their poverty rates over these two business cycles differ. The poverty rate of working-age people with disabilities rose between 1983 and 1993, while the poverty rate of working-age people without disabilities fell. While the poverty rates of both those with and without disabilities fell in the 1990s, the relative risk of poverty for those with disabilities rose. In 1983, working-age people with disabilities were 2.83 times more likely to be in poverty than were working-age people without disabilities. At the end of the 1980s business

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<sup>7</sup>Kirchner (1996), in one of the first criticisms of the use of work limitation-based disability measures from the CPS in estimations of the employment rates of working-age people with disabilities, argued that falling employment rates in this population could be caused by a change in the attitudes of people with disabilities after the passage of the ADA that would lead those who were employed to be less likely to describe themselves as having a work limitation and, hence, artificially decreasing the employment rates of those with disabilities who did report a work limitation. This explanation, however, is inconsistent with the rise in self-reported work limitations since 1990 found in the data. Burkhauser, Daly, Houtenville and Nargis (2002) show that while the employment rate levels in the March CPS are lower than in similar age populations drawn from the National Health Interview Study between 1983-1996—that uses an impairment-based measure of the working-age population with disabilities—the employment trends in the two populations are not significantly different from one another. Hence, the trends in the relative employment of working-age people with disabilities in the NHIS, using this arguably less sensitive measure to potential changes in the attitudes of those with disabilities, do not change differently from those found in the CPS after the passage of the ADA. Because the disability questions in the NHIS were dramatically changed after 1996, it is not possible to use these data to compare employment rates before and after 1996.

cycle in 1993, their relative risk had risen to 3.33. By 2004, working-age people with disabilities were 3.40 times more likely to be in poverty than were working-age people without disabilities.

In Figure 4, we extend this typical analysis of the poverty rate of working-age people with disabilities by comparing the level and the trend in the yearly poverty rate of working-age people with disabilities over their counterparts without disabilities using both a single-period and two-period measure of disability. As can be seen in Figure 4, while the relative risk of poverty is higher for both our disability populations, it is much more so for those with longer-term disabilities. However the trends in these risk ratios appear to be similar. We formally test these assertions below using regression analysis.

Business cycle theory suggests that indicators of economic well-being are non-linear functions of time. (See Blanchard and Fischer, 1989.) Hence we allow for non-linearity by including higher-order polynomial terms in our regression. A visual inspection of time-trends leads us to use a quadratic function to model the trends for our poverty risk rates for those with and without disabilities. Statistically, adding more complex elements of time series analysis would not serve our purpose, which is to test the equality of levels and trends of time series, not to model the structural data generating process.

The estimated regression equation, with t-statistic in parentheses, is:<sup>8</sup>

$$y = 2.41 + 0.26 \cdot t - 0.4 \cdot t^2 + 0.002 \cdot t^3 - 0.00004 \cdot t^4 + 1.38 \cdot d - 0.47 \cdot t \cdot d + 0.07 \cdot t^2 \cdot d - 0.004 \cdot t^3 \cdot d + 0.00007 \cdot t^4 \cdot d$$

$$(5.64)(1.31)(-1.27) \quad (1.45) \quad (-1.65) \quad (1.70) \quad (-1.25) \quad (1.36) \quad (-1.32) \quad (1.25)$$

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<sup>8</sup> Because the dependent variable in our regression is an estimate itself, the regression is weighted by the reciprocals of the standard errors of the ratio of poverty rates  $y = pov_t^d / pov_t^{nd}$ . Several methods exist to estimate standard errors of ratio. The first method proposed for this purpose is the “delta” method that estimates asymptotic variance of  $y$  using a second-order Taylor series approximation. However, the Taylor series approximation does not generally work well for ratios, and the assumption of well-behaved parametric distribution for  $y$  is questionable. For example, if poverty rates for disabled and non-disabled populations are distributed independent-unit normal, then  $y$  follows a Cauchy distribution, which has no mean and infinite variance. An alternative approach that avoids some of the delta method’s pitfalls is non-parametric bootstrapping. We use this method to estimate standard errors of  $y$ . Also, we test for the presence of autocorrelation in our regression, since autocorrelation can either inflate or deflate the standard errors of the estimates. Based on both Breush-Godfrey and Durbin alternative tests, we fail to reject the null hypothesis of no autocorrelation. Therefore, no further modifications to the regression are necessary. Our OLS estimates are unbiased, consistent, and efficient.

The regression estimates the levels of both relative poverty risk series and their time trends between 1980 and 2004. The dependant variable is the ratio of the poverty rate for working-age people who report a work limitation-based disability in year ( $t$ ) over the yearly poverty rate for working-age people who do not report a work limitation-based disability in year ( $t$ ) or ( $y = \frac{pov_t^{d_i}}{pov_t^{nd_i}}$ ), where the definition of what constitutes a disability ( $i$ ) varies from  $i=1$ , a one-period disability measure to  $i=2$ , a two-period disability measure. This dependent variable is regressed on the following explanatory variables: a constant, which is the relative poverty risk using a one-period disability definition; a time trend ( $t = 1, 2, \dots 25$ ), which is the trend in that poverty risk; a dummy variable for the definition of disability ( $d = 1$  if the two-period definition is used, otherwise 0), which controls for the difference between levels in the two relative poverty risk measures; ( $d$ ) and ( $t$ ) interacted, which controls for the difference between the trends in the two relative poverty risk measures; and, finally, higher-order polynomial terms and their interactions with ( $d$ ) to allow for non-linearity of time trend.

The level of relative poverty risk based on our two-period work limitation-based measure of disability is significantly larger than the level of relative poverty risk using our one-period measure. This is not surprising since people with short-term work limitations are not included in the population with disabilities in our two-period matched sample.

Our null hypothesis for the trends is that they are the same for both definitions of disability. Using an F-statistic, we find that the set of interaction terms in our regression is not statistically different from zero at any conventional level. Therefore, we fail to reject the null hypothesis that the time-trends of the poverty risk ratios of our two disability definitions are the same. Thus, we find that the levels of our relative poverty risks using our one- and our two-period measures of disability are significantly different over the period of our analysis, but the time-trends of these relative poverty risks are not.

## **Measuring Employment Outcomes Using Alternative Definitions of Disability**

Despite the fact that the March CPS has very limited information on health and researchers using it must rely on its work limitation question alone to capture the working-age population with disabilities, the CPS has been widely used in the economics literature, cited above, to look at the employment and/or economic well-being of working-age people with

disabilities. Here we demonstrate its value in providing such long-term employment series using both a one- and two-period measure of work limitation-based disability by reproducing figures and tables from Burkhauser, Houtenville and Rovba (2006b).

### **Trends in the Employment of Working-Age Men with Disabilities**

We will follow convention for the employment literature on working-age people with disabilities by focusing on weeks worked in the previous year. That is, the year prior to the March report of a work limitation. While there are many alternative yearly measures of employment that have been used in this literature (e.g. at least 52 hours of work in the past year, full time or part time work in the past year, hours of work in the past year, etc.) we choose the weeks worked measure because it is the one used by Acemoglu and Angrist (2001). Like them, we also look at those aged 21-58.<sup>9</sup>

Table 11 uses annual weeks worked to capture levels and trends in the employment of working-age men with disabilities using both our one- and two-period measures of disabilities. As in the previous tables, weeks worked are influenced by both cyclical and secular events. However in all years, mean weeks worked of working-age men with disabilities is lower than that of working-age men without disabilities. And, the mean weeks worked of men with longer-term disabilities is lowest of all.

The employment of both those with and without disabilities is impacted by the business cycle. As can be seen in column 1, employment is lowest in the three business cycle trough years of 1982, 1993, and 2004. But while overall employment rises slightly over these three trough years (column 5)—from 43.06 to 44.96 to 45.35 weeks per year—for working-age men without (one-period) disabilities, it falls dramatically for those with disabilities (column 3)—from 16.90 to 14.84 to 11.61 weeks per year. Hence, over these two business cycles the weeks worked of those with disabilities (using our one-period measure of disabilities) falls from 0.39 of those without disabilities in 1982 to 0.33 in 1993 to 0.26 in 2004 (column 4).

There is a substantial decline in the relative hours worked of those with and without disabilities that occurred between 1992 and 1993 (column 4), a decline from 0.39 to 0.33. This

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<sup>9</sup> In Houtenville and Burkhauser (2005) we replicate the Acemoglu and Angrist (2001) findings for all four groups—*younger men (21-44)*, *older men (45-61)*, *younger women (21-44)* and *older women (45-61)*.

one year decline of 0.06 in the relative weeks worked of working-age men with disabilities is the largest single year decline in the entire series of years covered in Table 11. It is this decline that lead Acemoglu and Angrist (2001) to investigate whether or not the ADA, which was implemented in this year, was responsible for the decline. But, as Table 11 also shows, the next greatest yearly decline in this ratio was not captured by Acemoglu and Angrist (2001) since they focused only on the years 1988-1996. It occurred in the recession low year of 1982 when the ratio fell by 0.04 from 0.43 in 1981 to 0.39. This was the most important single year decline in our series until the 0.06 decline that occurred simultaneously with the implementation of the ADA and the depths of the 1990s recession in 1993. In the replication and evaluation of the Acemoglu and Angrist work discussed in Burkhauser, Houtenville and Rovba (2006b), we were motivated by this evidence to extend the number of years used in their model to see if this altered their controversial findings.

But the most compelling initial evidence that led us to replicate and test the sensitivity of their results can be seen in the four remaining columns of Table 11. Here we show that the dramatic decline found between 1992 and 1993 in the one-period disability population used by Acemoglu and Angrist is not found in the longer-term disability population, who presumably would be more likely to be most impacted by the ADA, as well as by public disability transfer policies. The employment of men with longer-term disabilities (column 6) is at a 1980s low of 8.42 mean weeks worked in 1982 and a 1980s low of 0.19 relative to those without longer-term disabilities. But it rises to a high of 11.63 weeks in 1986 before falling to a low of 9.43 weeks in 1990. It then rises to 11.42 weeks in 1992 before falling slightly to 10.76 weeks in 1993 and then falling dramatically to 7.78 weeks in 1994. Mean weeks worked then rise in 1996 only to fall thereafter to a low of 6.44 weeks in 2002.

Most importantly, the trends in the ratio of mean weeks worked for those with and without disabilities using our two-period measure of disability (column 8) is also quite different from those found using our one-period measure in column 4. The ratio rises to a high of 0.25 in 1986; falls to 0.20 in 1990; rises to 0.25 in 1992; falls to 0.24 in 1993; and then to 0.17 in 1994. It remains there except in 1996, until 1999, when it falls again to a low of 0.14 in 2002 before rising back to 0.17 in 2004. Thus, over the last two business cycles of the 20<sup>th</sup> Century while the relative employment of working-age people with disabilities has declined using both a one- and a two- period measure of this population, the timing of these declines is quite different.

## The Robustness of Findings across Data Sets

As we have discussed above, some critics of the literature that has used the March CPS to identify the working-age population with disabilities have argued that this sample of the working-age people with disabilities created from those who report a current work limitation may not accurately measure the *true* working-age population with a disability (Hale, 2001). Unfortunately, no consensus exists on the dimensions of the conceptually true population with disabilities. However if this work limitation-based sample of it was random, then the only effect of this type of measurement error would be to introduce noise into the level of the working-age population with disabilities. A potentially more serious problem is selection bias, i.e., that the work limitation-based population with disabilities may represent a select portion of the population with disabilities and hence, not adequately reflect outcomes, such as employment, for the *true* population with disabilities.

Burkhauser et al. (2002) show the population with impairments is substantially understated by estimates that are based on the work-limitation question in the NHIS, and although the severity of the impairment explains much of the variance in work limitations, it does not explain all of it. As is shown in Table 12, for example, of those who reported being "deaf in both ears" or "blind in both eyes"—impairments that many would expect to be work limiting—only 38 percent or 69 percent respectively, also reported being "unable to work or to be limited in the kind or amount of work they do."

Burkhauser et al. (2002) also demonstrate that this mis-estimation of the level of disability translates to difference in outcome measures. Table 12 shows that, for example, of those who report being "deaf in both ears" or "blind in both eyes," those who reported these impairments but reported no work limitation were 2.07 and 4.0 times more likely, respectively, to be employed than were such persons who did report a work limitation. This finding suggests that using a work-limitation question to define the impairment-based population with disabilities will systematically understate its employment rate.

Table 13 replicates the Burkhauser et al. (2002) findings using both a work limitation-based population with disabilities and an impairment-based population with disabilities from the ACS. In 2003, the ACS collected information from over 500,000 households. This is five times the households surveyed in the 2003 March CPS and the NHIS. (For a detailed discussion of the value of the ACS for disability research, see Weathers, 2005.) As is shown in Table 13, the ACS

employment disability question understates the population with sensory, mental, physical, and self-care disabilities; i.e., not all persons with these disabilities report an employment disability. In addition, those with sensory, mental, physical, and/or self-care disabilities that also report an employment disability have substantially lower employment rates than those with sensory, mental, physical, and/or self-care disabilities who do not report an employment disability.

However, with regard to trends in the outcome measures, Burkhauser et al. (2002) show that the employment trends of the work limitation disability population mirror those of other populations with disabilities, including the population with impairments, which is presumably less subject to selection bias and less influenced by the social environment. They compare the employment rates of those with a March CPS one-period work limitation-based disability for the years 1983-1996 with those estimated from the National Health Interview Survey (NHIS) for those years and find that there is no significant difference in their levels and trends. When they compare them with the employment rates for an impairment-based disability population in the NHIS over these years, they find that while the employment rates in the March CPS population are significantly lower, there is no significant difference in the trends in these two measures. When they compare the employment rates of those with a March CPS two-period work limitation-based disability with the NHIS employment rates, they also find them to be significantly lower but not significantly different in trend.

Figure 5, taken from Burkhauser, Houtenville and Rovba (2006b), also uses data from the March CPS and NHIS to show that these same patterns hold when we focus on the relative employment of men with disabilities using the same age group (age 21-58) and measure of employment (relative weeks worked per year) as Acemoglu and Angrist (2001). A decline in the relative employment of working-age men with disabilities is found in all four populations. Because the NHIS stopped asking the work limitation question as well as the same detailed set of questions on impairments after 1996, it is not possible to compare post-1996 employment values in the NHIS with those from 1983-1996. But we can make comparisons across these years with the March CPS data. As can also be seen in Figure 5, the decline in the relative employment of working-age men with disabilities continued well after 1996.

Trends across states also provide a way to gauge the robustness of the March CPS results. Table 14 shows the prevalence of work limitations for those ages 25-61, by state from the 2004 March CPS and 2003 ACS. The 2004 March CPS work limitation prevalence rate ranged from

5.3 percent in Nevada to 16.0 percent in West Virginia, while the 2003 ACS work limitation prevalence rate ranged from 4.1 percent in Utah to 14.0 percent in West Virginia. These two series are highly correlated—a correlation coefficient of 0.88. Table 14 also contains the 2003 ACS overall disability prevalence rate, which ranges from 8.9 percent in New Jersey to 21.2 percent in West Virginia. The 2003 ACS overall disability prevalence rate is highly correlated with both the 2003 ACS and 2004 March CPS work limitation rates—correlation coefficients of 0.95 and 0.87, respectively. These results suggest that, much like the time trends, work limitation questions should not be used to generate level-estimates, but are discerning patterns across states.

## **Summary and Conclusions**

The March CPS is one of several national datasets that has been used to perform research and policy analysis related to persons with disabilities. It is a nationally representative sample of the population of United States households and is the primary data set used by the Bureau of the Census to capture employment and economic well being of Americans. Official United States Bureau of the Census employment rates, income levels, and poverty rates are all based on data from the March CPS. Since 1981 the March CPS has asked the householder for information on the work limitations of members of the household. Hence it offers the longest continuous data on a consistently measured population with disabilities. Furthermore because it re-interviews households, researchers can follow a two-period population with disabilities. Most other national datasets only interview sample members once and are unable to describe the dynamic aspects of disability. Researchers have used the March CPS re-interviews to separately consider the subset of persons who have long-term disabilities by examining the responses to the work limitation question in two March CPS interviews. This *User Guide* describes how the patterns in the disability prevalence rates and the poverty and employment rates of working-age persons with disabilities change over time using these two alternative measures of disability. A subpopulation of those with disabilities are longer-term disabled. But this sub-population has a substantially greater risk of being in poverty and a substantially lower probability of being employed.

But the March CPS also has its weaknesses. Its work limitation measure of disability only captures a portion of the broader population with disabilities that has been captured with other

data sets using a wider range of questions related to the ICF conceptualization of disability. And the March CPS work limitation-based employment rates are likely to understate the employment rate of this larger population since it is likely that those who, controlling for the severity of the disability, report a work limitation are more likely not to be working (as shown in Table 12).

However, while work limitation questions are limited in their ability to measure the level of disability, they are useful for looking at trends over time and across states. Evidence from the CPS, NHIS, and ACS, suggests that measurement error introduced by the narrowness of work limitation questions relative to the broader ICF concept of disability does not influence comparisons of outcomes over time and across states—in other words, the measurement error does not vary over time and across state. This plays into the tremendous advantage of the March CPS—its consistent collection of work limitation and outcomes data since 1980—something that can't be matched by the ACS, SIPP, and NHIS.

Ultimately, the choice of a data source depends upon the specific needs of the user. The March CPS provides a valuable source, and in some cases the only source, to understand the effect of disability over time. However, it also has limitations related to the breadth of questions used to identify disability. For estimates of numbers of persons with disabilities that do not require re-interviews of sample members or a historical perspective, users are encouraged to investigate other data sources described in the StatsRRTC *User Guide Series*.

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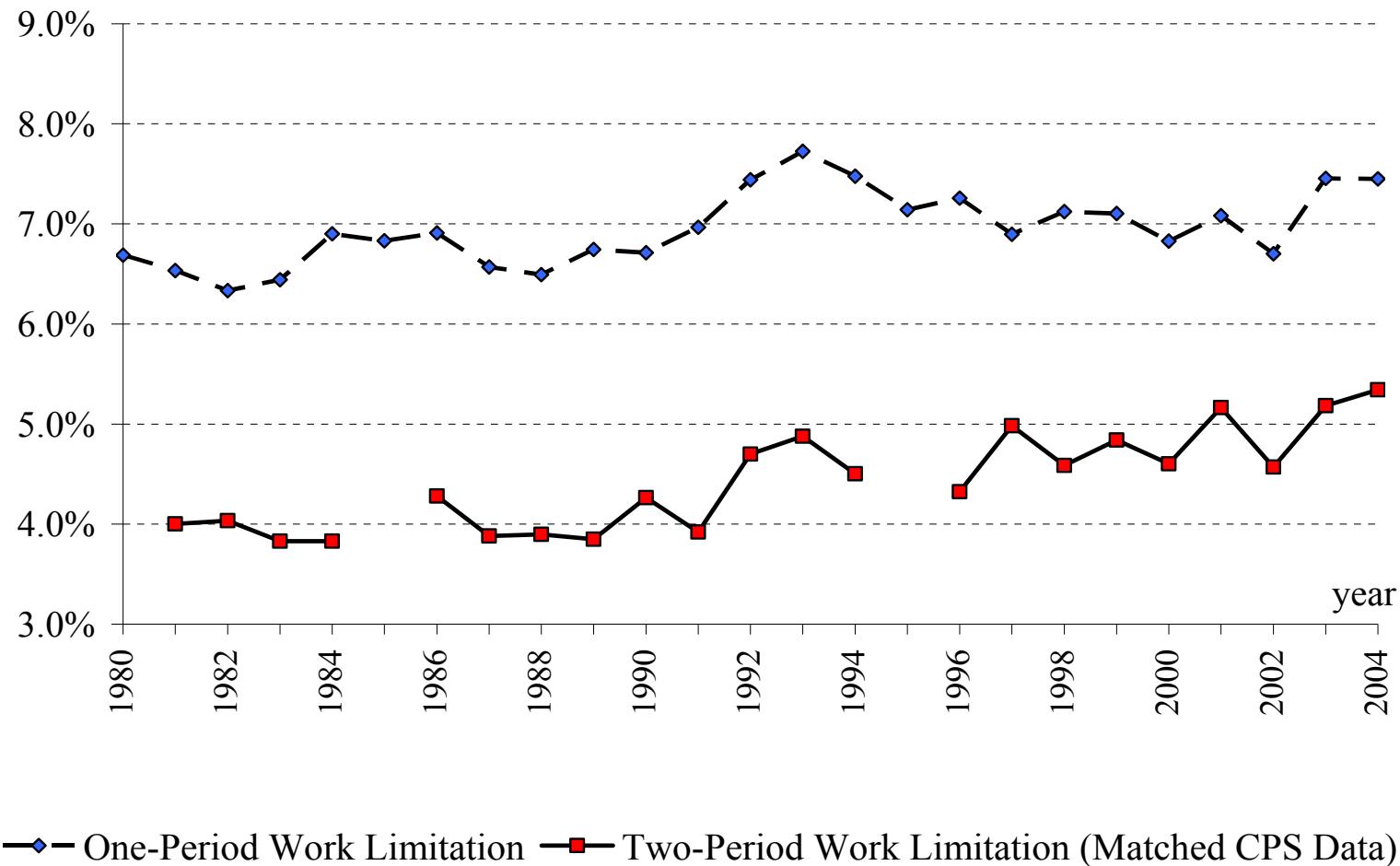
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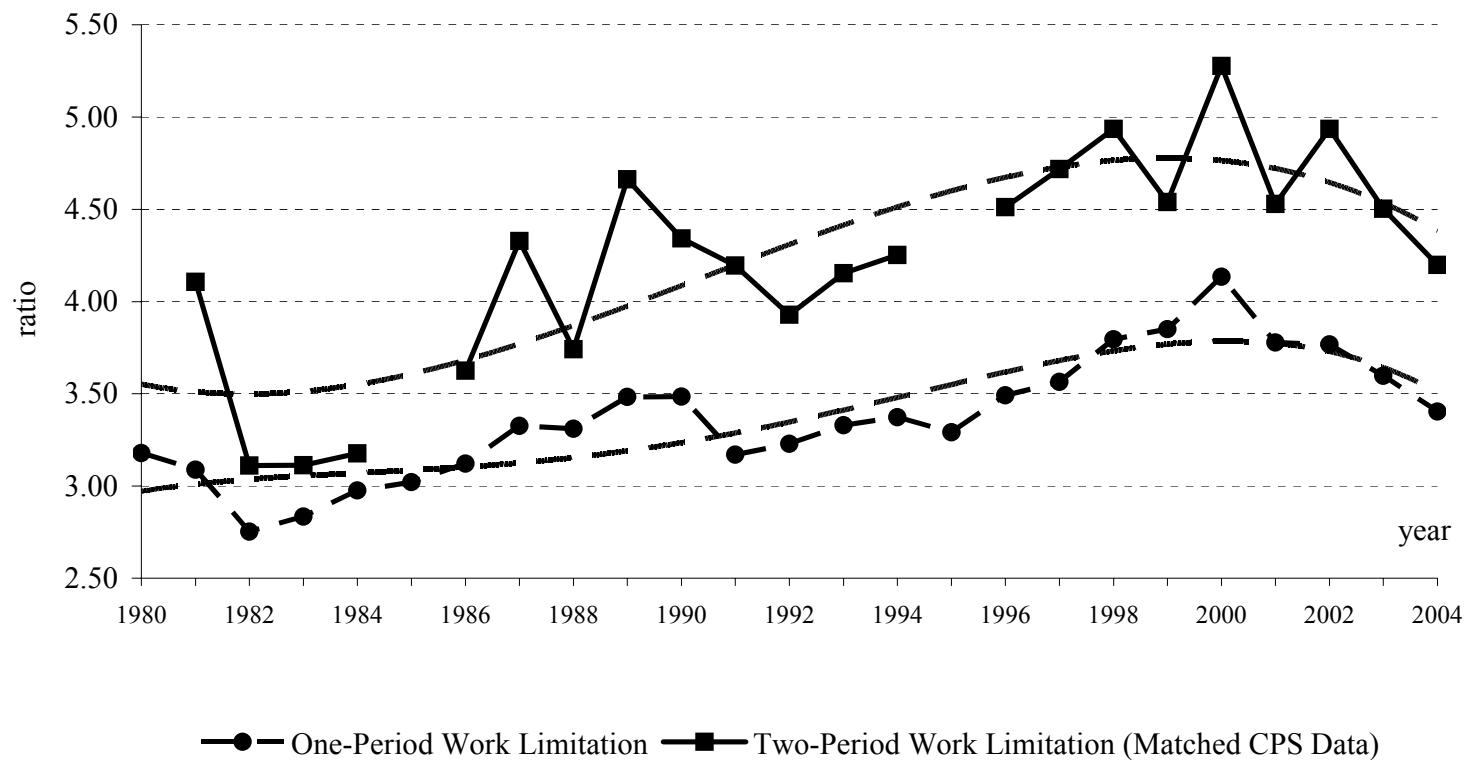
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**Figure 3. Disability Prevalence for Working-Age (Ages 21-58) Men in the Cross-sectional March CPS Data and Matched CPS Data**



Source: Authors' calculations using the Current Population Survey, 1981-2005.

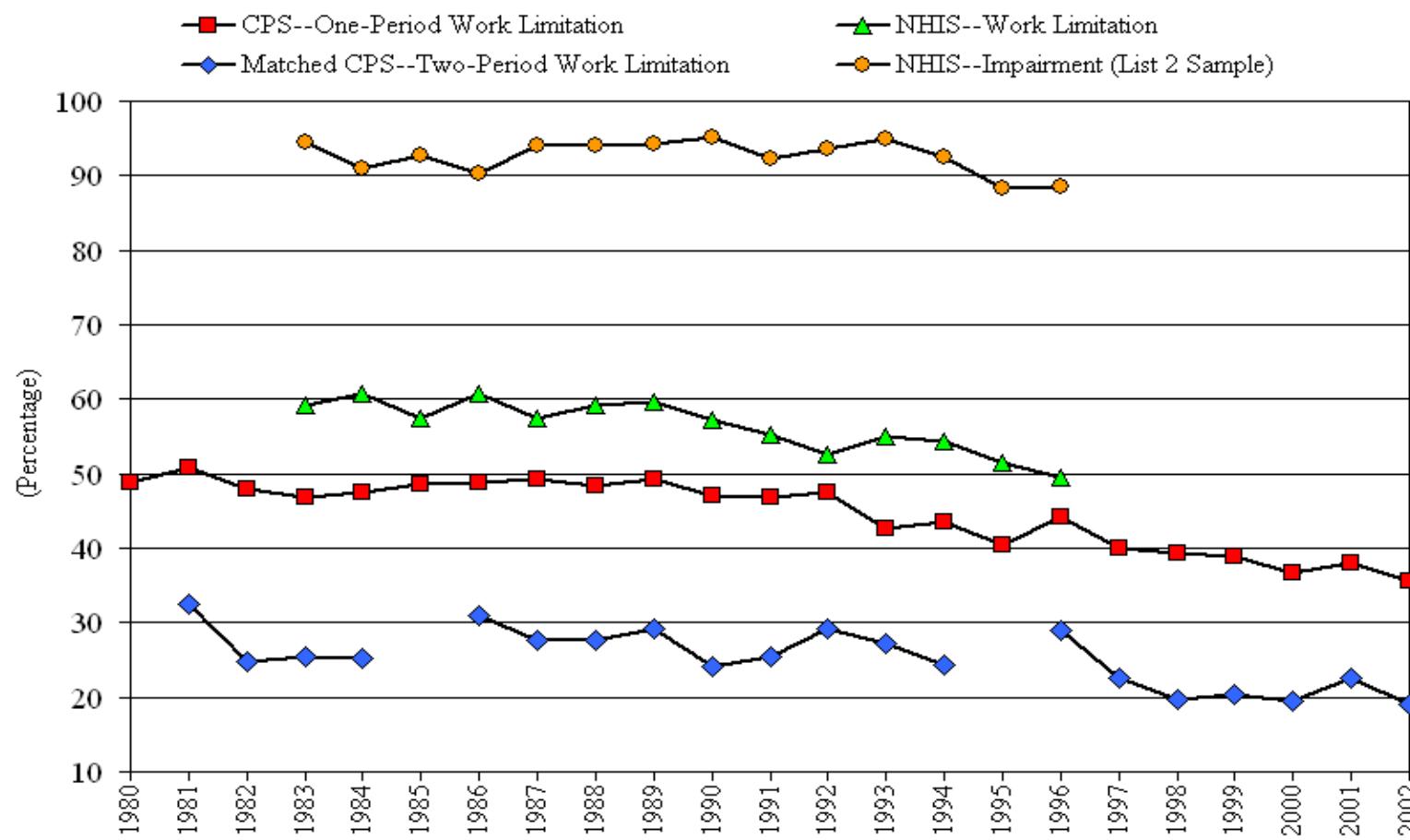
**Figure 4. Trends in the Ratio of Poverty Rates of People With and Without Work Limitations using Cross-Sectional and Matched CPS Data, 1980-2004**



Source: Author's calculations based on the March CPS (1981-2005).

**Figure 5. Trends in the Relative Employment of Working-Age (21-58) Men in the March CPS and NHIS Data, using Alternative Definitions of Disability**

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Source: Authors' calculations using the Current Population Survey, 1981-2003, and National Health Interview Survey, 1983-1996.

**Table 1a. Disability Definitions from the 2002 CPS**

ICF Category	Variable	Question	Universe
	Work Limitation	(Do you/Does anyone in this household) have a health problem or disability which prevents (you/them) from working or which limits the kind or amount of work (you/they) can do? If yes to ..., who is that? (Anyone else?)	15 to 80
Participation Restriction	Matched Work Limitation	For a portion of the CPS sample, information is available from the previous March. As a result, persons reporting work limitation in the current and previous March can be identified.	16 to 80

Source: Author's adaptation from CPS website <http://www.bls.census.gov/cps/bqestair.htm>.

**Table 1b. Demographic Definitions from the 2004 March CPS**

Variable	Question/Recode	Universe
<b>Gender</b>	Enter appropriate sex.	All Ages
<b>Age</b>	What is (name's/your) date of birth? [Probe] As of last week, that would make (name/you) ((age/approximately age/less than 1/over 98) years/year) old. Is that correct? [Probe] Even though you don't know (name's/your) exact birth date, what is your best guess as to how old (you/he/she) (were/was) on (your/his/her) last birthday?	All Ages
<b>Race</b>	>RACE-scrn< What is (name's/your) race? [Probe] (Are/Is) you/he/she) White, Black, American Indian, Aleut or Eskimo, Asian or Pacific Islander or something else?	All Ages
<b>Ethnicity</b>	What is (name's/your) origin or descent? [Show flashcard.] German, Italian, Irish, French, Polish, Russian, English, Scottish, Mexican American, Chicano, Mexican, Puerto Rican, Cuban, Central/South American, Other Hispanic, Afro-American, Dutch, Swedish, Hungarian, Another Group, Don't know.	All Ages
Hispanic	Recoded to 1 if Mexican American, Chicano, Mexican, Puerto Rican, Cuban, Central/South American, Other Hispanic.	All Ages
<b>Education</b>	What is the highest level of school [person] has completed or the highest degree [person] has received?	All Ages
Less than High School	If response indicates less than 1st grade, 1st, 2nd, 3rd or 4th grade, 5th or 6th grade, 7th or 8th grade, 9th grade, 10th grade, 11th grade, 12th grade or no diploma.	All Ages
High School	If response indicates high school graduate (high school diploma or equivalent).	All Ages
Some College	If response indicates some college but no degree, associate's degree in college-occupational/vocational, or associate's degree in college-academic.	All Ages
Bachelor's or More	If response indicates one of the following: bachelor's degree (e.g., BA, BS, AB), master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA), professional school degree (e.g.: MD, DDS, DVM, LLB, JD), or doctorate degree (e.g., PhD, EdD).	All Ages

Source: Author's adaptation from CPS website <http://www.bls.census.gov/cps/bquestair.htm>.

**Table 1c. Employment Definitions from the 2004 March CPS**

Variable	Question(s)/Recode	Universe
<b><i>Employment Status Questions</i></b>		
Current Employment	Last week, did [person] do any work for either pay or profit?	All Persons
Weeks Worked	During [the previous calendar year] in how many weeks did [person] work even for a few hours? Include paid vacation and sick leave as work.	Ages 15 and older
Hours Work per Week	In the weeks that [person] worked [the previous calendar year], how many hours did [person] usually work per week?	Ages 15 and older
<b><i>Employment Variables</i></b>		
Employed in Reference Period	The person is classified as employed if he or she, in week prior to survey, did any work for either pay or profit?	All Persons
Employed Sometime in Previous Year	At least 52 hours of work during the previous calendar year. Determined by multiplying usual hours per week by the number of weeks worked in past 12 months.	Ages 15 and older
Employed Full-time Year Round	At least 50 weeks during the previous calendar year and at least 35 hours per week. Determined by condition that weeks worked is greater than or equal to 50 and usual hours per week is greater than or equal to 35 hours.	Ages 15 and older

Source: Author's adaptation from CPS website <http://www.bls.census.gov/cps/bqestair.htm>.

**Table 1d. Economic Well-Being Measures from the 2004 March CPS**

<b>Variable</b>	<b>Question/Recode</b>	<b>Universe</b>
Income	The CPS collects data on 23 sources of income for each person: (1) labor earnings, (2) self-employment income (3) farm income, (4) public assistance and welfare, (5) unemployment compensation, (6) worker's compensation, (7) veteran's benefits, (8) Supplemental Security Income program, (9) Social Security Old Age, Survivors and Disability program, (10) educational assistance, (11) dividends, (12) interest income, (13) rental income, (14) alimony, (15) child support, (16,17) two sources of private retirement income, (18,19) two sources of private disability income, (20,21) two sources of private survivor's income, (22) financial assistance from outside the household, and (23) any other income. Capital gains or capital losses, taxes and the value of noncash benefits (such as food stamps and housing subsidies) are not considered in this measure of income. If a person lives with a family, add up the income of all family members. (Non-relatives, such as housemates, do not count.)	Ages 15 and older
Family Poverty	The Census Bureau calculates the poverty rate based on family income rather than household income. There can be more than one family in a household. The poverty rate is derived from family income and family composition (regarding size, number of children and number of elderly family members), along with standard poverty thresholds, to construct a poverty measure. See the Census Bureau website <a href="http://www.census.gov/hhes/poverty/povdef.html">http://www.census.gov/hhes/poverty/povdef.html</a> for details.	All ages except unrelated Household members below the age of 15.
Household Size	Author's calculations using the household sequence number.	All Ages
Household Income	The sum of income for each household member age 15 and older in the household unit.	All Ages
Household Size Adjusted Income	Household income divided by the square root of household size. See Citro and Michael (1995) page 176 for further information.	All Ages

Source: Author's adaptation from CPS website <http://www.bls.census.gov/cps/bquestair.htm>.

**Table 2. Population and Prevalence Estimates by Work Limitation Status**

Category/Statistic	Cross-Sectional Sample		Matched Sample					
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only	Work Limitation in First March Only		
			Category/Statistic	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only
<b>All, Age 16-80<sup>a</sup></b>								
Population Estimate	197,926,055	21,012,701	190,760,111	12,580,229	8,339,394	7,056,858		
Prevalence Rate	90.4	9.6	87.2	5.8	3.8	3.2		
Sample Size	152,968	152,968	40,300	40,300	40,300	40,300		
<b>Ages 16 to 17<sup>a</sup></b>								
Population Estimate	8,551,550	165,948	8,509,027	41,453	99,156	37,294		
Prevalence Rate	98.1	1.9	98.0	0.5	1.1	0.4		
Sample Size	7,607	7,607	1,817	1,817	1,817	1,817		
<b>Ages 18 to 24</b>								
Population Estimate	26,803,529	816,662	26,402,150	424,216	367,936	351,410		
Prevalence Rate	97.0	3.0	95.8	1.5	1.3	1.3		
Sample Size	18,438	18,438	3,782	3,782	3,782	3,782		
<b>Ages 25 to 61</b>								
Population Estimate	132,649,606	12,102,093	129,030,935	7,683,107	4,393,052	3,617,462		
Prevalence Rate	91.6	8.4	89.2	5.3	3.0	2.5		
Sample Size	104,432	104,432	28,425	28,425	28,425	28,425		
<b>Ages 62 to 64</b>								
Population Estimate	5,482,126	1,278,528	5,110,982	823,435	450,606	353,229		
Prevalence Rate	81.1	18.9	75.9	12.2	6.7	5.2		
Sample Size	4,201	4,201	1,545	1,545	1,545	1,545		
<b>Ages 65 to 80<sup>a</sup></b>								
Population Estimate	24,439,244	6,649,469	21,707,018	3,608,018	3,028,645	2,697,463		
Prevalence Rate	78.6	21.4	69.9	11.6	9.8	8.7		
Sample Size	18,290	18,290	4,731	4,731	4,731	4,731		

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

<sup>a</sup>Age range differs from other User Guides.

**Table 3. Demographic Characteristics by Work Limitation Status**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only	Work Limitation in First March Only
<b>Age</b>						
% 16 to 24 <sup>a</sup>	17.9	4.7	18.3	3.7	5.6	5.5
% 25 to 34	18.8	7.9	15.3	5.0	6.4	7.4
% 35 to 44	20.4	13.5	19.0	12.0	11.8	12.2
% 45 to 54	18.5	20.5	21.3	24.4	18.0	17.0
% 55 to 64	12.0	21.8	14.8	26.2	21.8	19.6
% 65 to 74	7.5	16.4	8.2	19.7	21.0	24.8
% 75 to 80 <sup>a</sup>	4.9	15.3	3.2	9.0	15.3	13.5
% 85 or older	NA	NA	NA	NA	NA	NA
<b>Gender</b>						
% Male	48.5	47.5	48.6	48.8	45.7	46.7
% Female	51.5	52.5	51.4	51.2	54.3	53.3
<b>Race</b>						
% Asian	4.6	1.8	4.6	1.3	2.4	2.4
% Black	11.1	17.3	10.9	19.0	14.6	16.6
% Native American	0.7	0.9	0.7	0.8	0.7	0.5
% White	82.1	78.0	82.2	76.6	80.9	78.5
% Some Other Race	0.3	0.3	0.3	0.3	0.1	0.1
<b>Ethnicity</b>						
% Hispanic	13.0	8.6	13.1	6.3	11.4	9.0
<b>Education</b>						
% Less than High School	17.5	30.3	17.0	32.3	27.2	25.9
% High School/Equivalent	29.9	36.4	29.1	35.8	36.9	37.6
% Some College	26.8	22.2	27.6	23.0	22.4	22.5
% Bachelor's or More	25.7	11.1	26.3	8.9	13.5	14.0
<b>Total</b>	197,926,055	21,012,701	190,760,111	12,580,229	8,339,394	7,056,858

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

<sup>a</sup> Age range differs from other User Guides.

NA refers to statistics that are not available in the data.

**Table 4. Employment Rates, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only	Work Limitation in First March Only
<b>All</b>						
Reference Period (Prior Week)	81.4	19.6	82.8	13.0	31.0	51.4
Sometime in Previous Year	86.2	27.9	87.1	16.0	46.5	56.1
Full-Time in Previous Year	65.3	9.4	67.6	3.5	19.3	35.8
<b>Men</b>						
Reference Period (Prior Week)	88.4	20.6	89.6	14.8	32.7	59.8
Sometime in Previous Year	93.3	28.8	94.0	17.5	51.5	67.0
Full-Time in Previous Year	77.4	11.0	79.5	4.6	24.0	47.9
<b>Women</b>						
Reference Period (Prior Week)	74.7	18.7	76.2	11.2	29.4	44.4
Sometime in Previous Year	79.3	27.1	80.3	14.4	41.9	46.8
Full-Time in Previous Year	53.7	7.9	56.1	2.4	15.0	25.7
<b>Asian</b>						
Reference Period (Prior Week)	82.1	21.4	83.4	14.9	32.2	52.7
Sometime in Previous Year	86.6	30.3	87.5	18.4	49.1	57.5
Full-Time in Previous Year	65.4	10.0	67.6	4.3	19.9	38.3
<b>Black</b>						
Reference Period (Prior Week)	76.2	16.6	77.6	15.1	27.5	60.4
Sometime in Previous Year	81.2	29.6	82.1	18.9	51.3	59.1
Full-Time in Previous Year	60.6	7.9	63.4	3.8	20.3	45.8
<b>Native American</b>						
Reference Period (Prior Week)	79.2	11.8	82.4	5.6	23.3	45.4
Sometime in Previous Year	85.8	17.9	87.2	6.8	30.6	48.0
Full-Time in Previous Year	66.3	7.2	70.0	0.8	17.4	25.2

Continued

**Table 4 (continued). Employment Rates, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only	Work Limitation in First March Only
<b>White</b>						
Reference Period (Prior Week)	72.2	11.1	74.6	10.4	2.4	37.0
Sometime in Previous Year	79.0	24.1	82.1	12.7	37.1	42.1
Full-Time in Previous Year	53.9	3.6	57.3	1.9	0.0	3.6
<b>Hispanic</b>						
Reference Period (Prior Week)	77.0	26.0	75.9	20.4	51.8	61.3
Sometime in Previous Year	80.4	33.9	81.1	22.2	70.3	70.5
Full-Time in Previous Year	62.8	13.5	63.9	8.0	26.9	44.4
<b>Less than High School</b>						
Reference Period (Prior Week)	69.0	9.1	70.5	4.0	20.6	39.4
Sometime in Previous Year	76.0	15.8	76.6	5.6	29.3	38.7
Full-Time in Previous Year	52.3	4.0	54.9	1.4	8.8	19.7
<b>High School</b>						
Reference Period (Prior Week)	79.6	18.4	81.2	14.1	29.2	51.5
Sometime in Previous Year	84.9	25.4	86.0	17.3	41.2	53.7
Full-Time in Previous Year	64.6	8.0	66.8	2.8	18.6	36.5
<b>More Than High School</b>						
Reference Period (Prior Week)	84.7	27.8	85.6	17.9	38.4	57.1
Sometime in Previous Year	88.7	38.4	89.3	21.6	61.1	66.5
Full-Time in Previous Year	68.0	14.3	70.1	5.8	25.8	43.0

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

**Table 5. Economic Well Being Measures, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only	Work Limitation in First March Only
<b>All</b>						
% Below Poverty Line	8.0	28.8	6.3	30.2	23.3	20.5
Median Household Income	61,999	27,955	65,100	25,048	35,770	36,000
Median HH Size Adjusted Income	36,770	17,967	39,500	16,085	23,560	23,170
<b>Men</b>						
% Below Poverty Line	6.7	26.7	5.3	27.5	21.7	18.0
Median Household Income	64,000	28,594	66,958	25,000	36,000	41,250
Median HH Size Adjusted Income	38,003	18,044	40,189	16,111	24,000	25,600
<b>Women</b>						
% Below Poverty Line	9.3	31.0	7.2	32.9	24.9	22.7
Median Household Income	60,000	27,364	64,000	25,201	35,238	31,948
Median HH Size Adjusted Income	35,394	17,845	38,847	16,041	23,188	21,213
<b>Asian</b>						
% Below Poverty Line	6.9	26.1	5.6	27.6	20.0	16.3
Median Household Income	64,365	30,420	67,655	26,498	38,202	41,703
Median HH Size Adjusted Income	38,223	19,549	41,132	17,680	25,105	26,870
<b>Black</b>						
% Below Poverty Line	16.8	35.9	14.3	42.7	30.6	14.9
Median Household Income	42,000	24,000	44,800	22,904	27,800	40,800
Median HH Size Adjusted Income	22,389	13,695	23,914	10,766	16,528	21,103
<b>Native American</b>						
% Below Poverty Line	14.5	38.9	10.8	38.4	42.0	33.3
Median Household Income	44,600	20,000	48,000	17,687	16,670	22,477
Median HH Size Adjusted Income	27,135	12,506	29,318	11,778	11,486	12,430

Continued

**Table 5 (continued). Economic Well Being Measures, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in Second March Only	Work Limitation in First March Only
<b>White</b>						
% Below Poverty Line	17.9	43.4	11.2	41.8	54.0	61.9
Median Household Income	47,932	20,582	48,462	19,292	28,531	6,300
Median HH Size Adjusted Income	25,101	12,883	24,328	11,167	16,472	6,300
<b>Hispanic</b>						
% Below Poverty Line	9.4	30.1	6.9	7.9	9.4	33.8
Median Household Income	71,000	29,132	78,058	44,720	42,148	50,058
Median HH Size Adjusted Income	40,250	17,680	43,132	25,328	24,334	26,586
<b>Less than High School</b>						
% Below Poverty Line	22.8	42.2	20.8	42.5	38.9	38.3
Median Household Income	34,000	19,912	34,120	17,324	22,374	20,504
Median HH Size Adjusted Income	18,200	11,880	18,200	11,304	12,660	12,500
<b>High School</b>						
% Below Poverty Line	9.4	27.7	6.9	27.8	23.4	19.5
Median Household Income	52,000	28,718	54,080	25,714	36,734	32,430
Median HH Size Adjusted Income	30,518	18,055	32,625	16,100	24,533	23,170
<b>More than High School</b>						
% Below Poverty Line	4.6	21.2	3.6	24.4	14.7	13.0
Median Household Income	74,500	36,262	78,058	28,746	44,190	50,577
Median HH Size Adjusted Income	44,725	24,092	47,947	21,319	32,000	31,990

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

**Table 6. Estimated Population of Persons with Disabilities, by Data Source**

Category/Statistic	No Disability	Disability	Participation Restriction		Activity Limitation		Impairment	
			Employment	IADL	Self-Care	Mental	Physical	Sensory
<i>Ages 18 to 24</i>								
2004 March CPS	<b>26,803,529</b>	<b>816,662</b>	<b>816,662</b>	NA	NA	NA	NA	NA
Census 2000	24,790,000	1,442,000	NA	NA	207,000	883,000	456,000	326,000
ACS 2003	24,194,401	1,667,355	714,229	399,423	187,904	953,448	535,666	356,820
NHIS, 2002	25,225,000	2,126,000	927,000	228,000	147,000	786,000	859,000	78,000
PSID, 2003	7,660,000	2,152,000	1,131,000	416,000	157,000	1,477,000	NA	NA
SIPP, 2002	24,820,000	2,426,337	1,209,000	366,000	146,000	1,076,000	982,000	533,000
<i>Ages 25 to 61</i>								
2004 March CPS	<b>132,649,606</b>	<b>12,102,093</b>	<b>12,102,093</b>	NA	NA	NA	NA	NA
Census 2000	124,493,000	14,005,000	NA	NA	2,627,000	5,218,000	9,447,000	3,346,000
ACS 2003	126,649,510	17,146,845	9,854,223	4,227,427	2,925,715	5,745,569	10,819,521	3,944,388
NHIS, 2002	115,934,000	23,192,000	13,725,000	3,169,000	1,350,000	4,627,000	14,545,000	2,730,000
PSID, 2003	112,556,000	30,656,000	19,300,000	12,375,000	9,395,000	13,896,000	NA	NA
SIPP, 2002	115,900,000	26,620,000	14,420,000	4,931,000	3,362,000	4,394,000	18,790,000	6,490,000
<i>Ages 62 to 64</i>								
2004 March CPS	<b>5,482,126</b>	<b>1,278,528</b>	<b>1,278,528</b>	NA	NA	NA	NA	NA
Census 2000	4,806,000	1,413,000	NA	NA	257,000	348,000	1,134,000	373,000
ACS 2003	4,941,802	1,795,533	1,111,762	404,875	293,507	393,782	1,292,381	455,364
NHIS, 2002	4,239,000	2,045,000	1,281,000	300,000	127,000	144,000	1,466,000	310,000
PSID, 2003	3,677,000	2,276,000	1,873,000	1,536,000	1,252,000	472,000	NA	NA
SIPP, 2002	3,958,000	2,581,000	1,496,000	567,000	376,000	252,000	2,165,000	672,000

Continued

**Table 6 (continued). Estimated Population of Persons with Disabilities, by Data Source**

Category/Statistic	No Disability	Disability	Participation Restriction		Activity Limitation		Impairment		
			Employment	IADL	Self-Care	Mental	Physical	Sensory	
<i>Ages 18 to 64</i>									
2004 March CPS	<b>164,935,261</b>	<b>14,197,283</b>	<b>14,197,283</b>	NA	NA	NA	NA	NA	NA
Census 2000	154,091,000	16,861,000	NA	NA	3,093,000	6,450,000	11,039,000	4,046,000	
ACS 2003	155,785,713	20,609,733	11,680,214	5,031,725	3,407,126	7,092,799	12,647,568	4,756,572	
NHIS, 2002	145,399,000	27,363,000	15,934,000	3,697,000	1,626,000	5,558,000	16,871,000	3,119,000	
PSID, 2003	123,903,000	35,084,000	22,304,000	14,327,000	10,804,000	15,845,000	NA	NA	
SIPP, 2002	144,678,000	31,627,000	17,126,000	5,864,000	3,885,000	5,723,000	21,938,000	7,695,000	

Source: Calculations from the various Cornell StatsRRTC User Guides.

Note: (1) For the Census 2000, the disability column is represented by those persons with sensory, physical, mental, and/or self-care disabilities.

Note: (2) Instrumental Activities of Daily Living (IADLs) include a broader set of participation restrictions than the “go-outside-home” definition in the American Community Survey. It also includes participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.

Note: (3) The March 2004 Current Population Supplement collects 2003 calendar year information on poverty and household income. Population and prevalence estimates are collected in March 2004.

Note: (4) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question.

Note: Standard errors for Census 2000 estimates are in Appendix Table 1. Standard errors for other datasets available in respective user guides.

**Table 7. Estimated Disability Prevalence Rates, By Data Source**

Category/Statistic	Disability	Participation Restriction		Activity Limitation	Impairment		
		Employment	IADL	Self-Care	Mental	Physical	Sensory
<b>Ages 18 to 24</b>							
2004 March CPS	<b>3.0</b>	<b>3.0</b>	NA	NA	NA	NA	NA
Census 2000	5.5	NA	NA	0.8	3.4	1.7	1.2
ACS, 2003	6.5	2.8	1.5	0.7	3.7	2.1	1.4
NHIS, 2002	7.8	3.4	0.8	0.5	2.9	3.1	0.3
PSID, 2003	21.7	11.4	4.2	1.6	14.9	NA	NA
SIPP, 2002	8.9	4.4	1.3	0.5	4.0	3.6	2.0
<b>Ages 25 to 61</b>							
2004 March CPS	<b>8.4</b>	<b>8.4</b>	NA	NA	NA	NA	NA
Census 2000	10.1	NA	NA	1.9	3.8	6.8	2.4
ACS, 2003	11.9	6.9	2.9	2.0	4.0	7.5	2.7
NHIS, 2002	16.7	9.9	2.3	1.0	3.3	10.5	2.0
PSID, 2003	21.4	13.5	8.6	6.6	9.7	NA	NA
SIPP, 2002	18.7	10.1	3.5	2.4	3.1	13.2	4.6
<b>Ages 62 to 64</b>							
2004 March CPS	<b>18.9</b>	<b>18.9</b>	NA	NA	NA	NA	NA
ACS, 2003	26.7	16.5	6.0	4.4	5.8	19.2	6.8
Census 2000	22.7	NA	NA	4.1	5.6	18.2	6.0
NHIS, 2002	32.5	20.4	4.8	2.0	2.3	23.3	4.9
PSID, 2003	38.2	31.5	25.8	21.0	7.9	NA	NA
SIPP, 2002	39.5	22.9	8.7	5.8	3.9	33.1	10.3
<b>Ages 18 to 64</b>							
2004 March CPS	<b>7.9</b>	<b>7.9</b>	NA	NA	NA	NA	NA
Census 2000	9.9	NA	NA	1.8	3.8	6.5	2.4
ACS, 2003	11.7	6.6	2.9	1.9	4.0	7.2	2.7
NHIS, 2002	15.8	9.2	2.1	0.9	3.2	9.8	1.8
PSID, 2003	22.1	14.0	9.0	6.8	10.0	NA	NA
SIPP, 2002	17.9	9.7	3.3	2.2	3.2	12.4	4.4

Source: Calculations from the various Cornell StatsRRTC User Guides.

Note: (2) Instrumental Activities of Daily Living (IADLs) include a broader set of participation restrictions than the “go-outside-home” definition in the American Community Survey. It also includes participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.

Note: (3) The March 2004 Current Population Supplement collects 2003 calendar year information on poverty and household income. Population and prevalence estimates are collected in March 2004.

Note: (4) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question.

Note: Standard errors for Census 2000 estimates are in Appendix Table 1. Standard errors for other datasets available in respective user guides.

**Table 8. Estimated Employment Rates for Persons With Disabilities Ages 25 to 61, By Data Source**

Category/Statistic	No Disability	Disability	Participation Restriction		Activity Limitation		Impairment	
			Employment	IADL	Self-Care	Mental	Physical	Sensory
<b>Reference Week, Ages 25 to 61</b>								
2004 March CPS	<b>81.4</b>	<b>19.6</b>	<b>19.6</b>	NA	NA	NA	NA	NA
Census 2000	78.8	41.8	NA	NA	21.7	30.2	35.6	52.1
ACS, 2003	79.5	39.3	18.9	17.9	18.3	28.2	33.8	49.9
NHIS, 2002	83.3	47.3	29.8	18.3	14.1	37.1	43.8	58.6
PSID, 2003	85.4	62.5	61.7	45.1	47.9	51.9	NA	NA
SIPP, 2002	82.4	48.9	27.7	20.3	22.8	37	46.4	53.5
<b>Sometime Previous Year, Ages 25 to 61</b>								
2004 March CPS	<b>86.2</b>	<b>27.9</b>	<b>27.9</b>	NA	NA	NA	NA	NA
Census 2000	86.3	51.9	NA	NA	31.9	40.4	45.4	61.1
ACS, 2003	87.1	48.9	28.3	25.8	26.2	37.2	42.8	58.1
NHIS, 2002	88.3	57.9	42	25.7	19.9	51.8	53.8	66.6
PSID, 2003	91.5	73.8	72.2	58.3	58.8	64.3	NA	NA
SIPP, 2002	90.6	61.1	41	34.1	38.8	46.3	59	63.7
<b>Full-Year Full-Time, Ages 25 to 61</b>								
2004 March CPS	<b>65.3</b>	<b>9.4</b>	<b>9.4</b>	NA	NA	NA	NA	NA
Census 2000	58.8	27.1	NA	NA	13.1	16.7	22.6	37.4
ACS, 2003	59.6	24.5	9.1	9	9.4	15	20.3	34.5
NHIS, 2002	62.8	29.8	16.3	9.3	6.2	21.3	27.2	43.4
PSID, 2003	67.8	43.4	41.7	30.0	32.2	34.3	NA	NA
SIPP, 2002	58.1	31.2	15.3	12	15	20.3	29.6	35.6

Source: Calculations from the various Cornell StatsRRTC User Guides.

Note: (1) For the Census 2000, the disability column is represented by those persons with sensory, physical, mental, and/or self-care disabilities.

Note: (2) Instrumental Activities of Daily Living (IADLs) include a broader set of participation restrictions than the “go-outside-home” definition in the American Community Survey. It also includes participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.

Note: (3) The March 2004 Current Population Supplement collects 2003 calendar year information on poverty and household income. Population and prevalence estimates are collected in March 2004.

Note: (4) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question.

Note: Standard errors for Census 2000 estimates are in Appendix Table 3. Standard errors for other datasets available in respective user guides.

**Table 9. Economic Well Being Estimates for Persons with Disabilities Ages 25 to 61, By Data Source**

Category/Statistic	No Disability	Disability	Participation Restriction		Activity Limitation		Impairment	
			Employment	IADL	Self-Care	Mental	Physical	Sensory
<b>Poverty Rates, Ages 25 to 61</b>								
2004 March CPS	<b>8.0</b>	<b>28.8</b>	<b>28.8</b>	NA	NA	NA	NA	NA
Census 2000	7.9	23.2	NA	NA	30.0	30.6	24.2	20.1
ACS, 2003	7.7	23.7	29.6	29.7	28.9	30.8	25.0	20.8
NHIS, 2002	7.5	21.2	26.5	32.3	30.1	29.8	22.1	20.7
PSID, 2003	4.9	13.2	14.4	18.6	18.0	16.6	NA	NA
SIPP, 2002	6.5	18.8	26.0	26.3	25.1	24.9	19.1	17.6
<b>Median Household Income, Ages 25 to 61</b>								
2004 March CPS	<b>\$61,999</b>	<b>\$27,955</b>	<b>\$27,955</b>	NA	NA	NA	NA	NA
Census 2000	\$56,860	\$33,600	NA	NA	\$27,200	\$26,170	\$32,000	\$37,400
ACS, 2003	\$60,000	\$34,600	\$28,000	\$28,600	\$28,000	\$27,400	\$32,100	\$38,000
NHIS, 2002	\$55,000 -	\$25,000 -	\$25,000 -	\$20,000 -	\$20,000 -	\$20,000 -	\$25,000-	\$35,000-
	\$64,000	\$34,999	\$34,999	\$24,999	\$24,999	\$24,999	\$34,999	\$44,999
PSID, 2003	\$64,000	\$40,788	\$36,240	\$35,192	\$36,000	\$37,900	NA	NA
SIPP, 2002	\$53,313	\$33,895	\$25,664	\$24,989	\$26,735	\$26,218	\$33,490	\$33,776
<b>Median Size-Adjusted Household Income, Ages 25 to 61</b>								
2004 March CPS	<b>\$36,770</b>	<b>\$17,967</b>	<b>\$17,967</b>	NA	NA	NA	NA	NA
Census 2000	\$33,234	\$20,412	NA	NA	\$16,330	\$16,000	\$19,676	\$22,617
ACS, 2003	\$35,796	\$21,304	\$17,487	\$17,615	\$17,667	\$17,321	\$20,207	\$23,415
NHIS, 2002	NA	NA	NA	NA	NA	NA	NA	NA
PSID, 2003	\$39,202	\$27,365	\$25,525	\$23,132	\$23,430	\$24,447	NA	NA
SIPP, 2002	NA	NA	NA	NA	NA	NA	NA	NA

Source: Calculations from the various Cornell StatsRRTC User Guides.

Note: (1) For the Census 2000, the disability column is represented by those persons with sensory, physical, mental, and/or self-care disabilities.

Note: (2) Instrumental Activities of Daily Living (IADLs) include a broader set of participation restrictions than the “go-outside-home” definition in the American Community Survey. It also includes participation restrictions that affect the ability to: manage money and keep track of bills, prepare meals, and do work around the house.

Note: (3) The March 2004 Current Population Supplement collects 2003 calendar year information on poverty and household income. Population and prevalence estimates are collected in March 2004.

Note: (4) The PSID only asks this question for the Head and Wife of the Household. Children of the Head and Wife are not asked this question, and the PSID assigns missing values to children for this question.

**Table 10. Poverty Rate for Selected Economically Vulnerable Working-Aged Populations (Aged 25-61)**  
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Income				Relative Poverty Risk
Year	Total Population	Work Limitation (1)	No work Limitation (2)	(1)/(2)
1979	8.06	--	--	--
1980	9.44	25.61	8.06	3.18
1981	10.26	27.22	8.81	3.09
1982	11.39	27.72	10.07	2.75
<b>1983</b>	<b>11.49</b>	<b>28.61</b>	<b>10.10</b>	<b>2.83</b>
1984	10.86	28.00	9.41	2.98
1985	10.45	27.33	9.04	3.02
1986	10.08	27.09	8.68	3.12
1987	9.60	27.35	8.22	3.33
1988	9.40	26.69	8.06	3.31
1989	9.27	27.26	7.83	3.48
1990	9.77	28.72	8.24	3.49
1991	10.35	28.14	8.88	3.17
1992	10.58	29.12	9.02	3.23
<b>1993</b>	<b>11.23</b>	<b>31.28</b>	<b>9.40</b>	<b>3.33</b>
1994	10.77	30.35	9.00	3.37
1995	10.20	28.20	8.57	3.29
1996	10.19	29.49	8.45	3.49
1997	9.74	28.78	8.07	3.56
1998	9.43	29.30	7.72	3.80
1999	8.66	27.20	7.06	3.85
2000	8.46	28.07	6.79	4.13
2001	8.94	27.51	7.28	3.78
2002	9.48	29.38	7.80	3.77
2003	9.76	28.85	8.02	3.60
<b>2004</b>	<b>10.06</b>	<b>28.49</b>	<b>8.37</b>	<b>3.40</b>

Source: Adapted from Burkhauser, Houtenville and Rovba (2006b).

<sup>a</sup> In April of survey year 1984, sample weights based on the 1970 Census were replaced with sample weights based on the 1980 Census and the sample design was changed to increase the accuracy of the state estimates. In survey year 1994 there were several changes in the CPS. It moved fully to computer-assisted survey interviews. Sample weights based on the 1980 Census were replaced with sample weights based on the 1990 Census. The Monthly Basic Survey was revised, and three new disabilities questions were added. It is possible that these changes affected the measurement of the population with disabilities either through changes in the sample weights or in the way respondents answered disabilities questions.

<sup>b</sup> Persons with work limitations are defined as those who report having (or are reported by the household's respondent as having), at the time of the survey, "a health problem or disabilities which prevents them from working or which limits the kind or amount of work they can do."

**Table 11. Mean Annual Weeks Worked for Working-Age (Ages 21-58) Men with and without Disabilities in the Cross-sectional and Matched CPS Data**

Income Year	One-Period Sample				Two-Period Sample			
	Total One-Period Population	One-Period Work Limitation	No One-Period Work Limitation	Ratio (1)/(2)	Total Two-Period Population	Two-Period Work Limitation	No Two-Period Work Limitation	Ratio (3)/(4)
		(1)	(2)			(3)	(4)	
1980	43.16	18.24	44.95	0.41	--	--	--	--
1981	42.80	18.98	44.46	0.43	44.66	12.06	46.02	0.26
<b>1982</b>	<b>41.40</b>	<b>16.90</b>	<b>43.06</b>	<b>0.39</b>	<b>43.06</b>	<b>8.42</b>	<b>44.52</b>	<b>0.19</b>
1983	41.54	17.10	43.22	0.40	43.09	9.27	44.43	0.21
1984	42.50	17.48	44.36	0.39	44.36	9.34	45.75	0.20
1985	42.83	17.71	44.67	0.40	--	--	--	--
1986	43.09	17.76	44.97	0.39	44.69	11.63	46.17	0.25
1987	43.35	17.68	45.15	0.39	45.12	10.52	46.51	0.23
1988	43.76	17.54	45.58	0.38	45.25	9.66	46.69	0.21
1989	44.50	18.73	46.36	0.40	45.74	10.70	47.14	0.23
1990	44.00	17.25	45.93	0.38	44.91	9.43	46.49	0.20
1991	43.16	16.71	45.14	0.37	44.45	9.47	45.87	0.21
1992	42.80	17.29	44.85	0.39	43.63	11.42	45.22	0.25
<b>1993</b>	<b>42.63</b>	<b>14.84</b>	<b>44.96</b>	<b>0.33</b>	<b>43.98</b>	<b>10.76</b>	<b>45.68</b>	<b>0.24</b>
1994	43.23	15.50	45.47	0.34	44.01	7.78	45.72	0.17
1995	43.43	14.91	45.63	0.33	--	--	--	--
1996	43.74	15.73	45.93	0.34	44.81	10.81	46.34	0.23
1997	44.01	14.26	46.22	0.31	44.53	7.90	46.45	0.17
1998	44.38	14.81	46.65	0.32	45.43	8.57	47.21	0.18
1999	44.27	14.47	46.55	0.31	44.84	7.88	46.72	0.17
2000	44.47	13.43	46.74	0.29	45.14	7.19	46.97	0.15
2001	43.68	13.41	45.99	0.29	44.14	7.57	46.13	0.16
2002	43.08	12.57	45.27	0.28	43.66	6.44	45.44	0.14
2003	42.63	11.76	45.11	0.26	43.20	7.50	45.16	0.17
<b>2004</b>	<b>42.84</b>	<b>11.61</b>	<b>45.35</b>	<b>0.26</b>	<b>43.13</b>	<b>7.58</b>	<b>45.14</b>	<b>0.17</b>

Source: Adapted from Houtenville and Burkhauser (2005).

**Table 12. Impairment, Work Limitations, and Employment in the NHIS, Ages 25-61**

NHIS Category	Total Population		Pop. with Work Limitations		Pop. without Work Limitations	
	Percentage	Employment Rate	Percentage	Employment Rate	Percentage	Employment Rate
Any Impairment	19.5	72.5	25.9	41.5	74.1	83.4
Blind in Both Eyes	0.2	39.1	69.0	20.3	31.0	81.1
Other Visual Impairments	1.8	63.0	36.2	31.6	63.8	80.9
Deaf in Both Ears	0.4	68.0	38.0	40.8	62.0	84.6
Other Hearing Impairments	7.5	73.6	23.4	39.6	76.6	83.9
Stammering and Stuttering	0.4	65.4	33.4	23.7	66.6	86.3
Other Speech Impairments	0.3	44.0	64.9	29.1	35.1	71.6
Paraplegia, Hemiplegia, Quadriplegia	0.1	25.1	90.3	20.2	9.8	72.4
Paraparesis or Hemiparesis	0.1	31.2	88.6	26.6	11.5	66.7
Cerebral Palsy	0.1	42.4	74.5	32.4	25.5	71.7
Mental Retardation	0.3	30.6	90.2	28.4	9.8	51.6
Other Impairments	11.7	72.6	27.2	45.2	72.8	83.3

Source: Adapted from Burkhauser, Daly, Houtenville, and Nargis (2002).

**Table 13. Impairment, Employment Disability, and Employment in the ACS, Ages 25-61**

ACS Category	Total Population		Pop. with Employment Dis.		Pop. without Employment Dis.	
	Percentage	Employment Rate	Percentage	Employment Rate	Percentage	Employment Rate
Any of these Disabilities	11.4	38.1	83.8	15.3	5.6	64.9
Sensory Disability	2.9	47.4	15.8	13.2	1.9	69.7
Physical Disability	8.1	32.0	69.4	14.7	3.2	61.2
Mental Disability	4.1	27.1	39.0	13.0	1.3	59.5
Self-Care Disability	2.1	17.3	26.0	13.2	0.3	50.3

Source: Authors' calculations using the 2003 American Community Survey.

**Table 10. Poverty Rate for Selected Economically Vulnerable Working-Aged Populations (Aged 25-61)**  
<sup>a,b</sup>

Income	Total Population	Work Limitation (1)	No work Limitation (2)	Relative Poverty Risk (1)/(2)
Year				
1979	8.06	--	--	--
1980	9.44	25.61	8.06	3.18
1981	10.26	27.22	8.81	3.09
1982	11.39	27.72	10.07	2.75
<b>1983</b>	<b>11.49</b>	<b>28.61</b>	<b>10.10</b>	<b>2.83</b>
1984	10.86	28.00	9.41	2.98
1985	10.45	27.33	9.04	3.02
1986	10.08	27.09	8.68	3.12
1987	9.60	27.35	8.22	3.33
1988	9.40	26.69	8.06	3.31
1989	9.27	27.26	7.83	3.48
1990	9.77	28.72	8.24	3.49
1991	10.35	28.14	8.88	3.17
1992	10.58	29.12	9.02	3.23
<b>1993</b>	<b>11.23</b>	<b>31.28</b>	<b>9.40</b>	<b>3.33</b>
1994	10.77	30.35	9.00	3.37
1995	10.20	28.20	8.57	3.29
1996	10.19	29.49	8.45	3.49
1997	9.74	28.78	8.07	3.56
1998	9.43	29.30	7.72	3.80
1999	8.66	27.20	7.06	3.85
2000	8.46	28.07	6.79	4.13
2001	8.94	27.51	7.28	3.78
2002	9.48	29.38	7.80	3.77
2003	9.76	28.85	8.02	3.60
<b>2004</b>	<b>10.06</b>	<b>28.49</b>	<b>8.37</b>	<b>3.40</b>

Source: Adapted from Burkhauser, Houtenville and Rovba (2006b).

<sup>a</sup> In April of survey year 1984, sample weights based on the 1970 Census were replaced with sample weights based on the 1980 Census and the sample design was changed to increase the accuracy of state estimates. In survey year 1994 there were several changes in the CPS. It moved fully to computer-assisted survey interviews. Sample weights based on the 1980 Census were replaced with sample weights based on the 1990 Census. The Monthly Basic Survey was revised, and three new disabilities questions were added. It is possible that these changes affected the measurement of the population with disabilities either through changes in the sample weights or in the way respondents answered disabilities questions.

<sup>b</sup> Persons with work limitations are defined as those who report having (or are reported by the household's respondent as having), at the time of the survey, "a health problem or disabilities which prevents them from working or which limits the kind or amount of work they can do."

**Table 14 (continued). Comparison of State Level Prevalence Estimates for Those Ages 25-61 from 2004 March CPS and 2003 ACS**

<b>State</b>	<b>2004 March CPS</b>		<b>2003 ACS</b>
	<b>Work Limitation</b>	<b>Work Limitation</b>	<b>Overall Disability</b>
South Dakota	5.4	4.7	9.5
Tennessee	10.0	8.9	15.1
Texas	6.7	5.8	10.9
Utah	7.1	4.1	9.9
Vermont	9.1	7.8	13.9
Virginia	6.2	6.4	11.1
Washington	7.8	6.7	12.7
West Virginia	16.0	14.0	21.2
Wisconsin	6.6	6.3	11.4
Wyoming	7.7	6.1	12.7

Source: Authors' calculations using the 2004 CPS and Weathers (2005).

**Appendix Table 1A. Definitions of Disability and Employment in March CPS, NHIS, ACS**

<b>Measure/Source</b>	<b>Definitions</b>
<b><i>Disability: One-Period Work Limitation</i></b>	
March CPS	The CPS March Supplement asks “[d]oes 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? [If so,] who is that? (Anyone else?)” Those who answer yes to this question are considered to report a work limitation.
NHIS	The NHIS asks “[d]oes any impairment or health problem NOW keep [person] from working at a job or business? Is [person] limited in the kind OR amount of work [person] can do because of any impairment?” Those who answer yes to either questions are considered to report a work limitation.
ACS	Because of a physical, mental, or emotional condition lasting 6 months or more, does this person have any difficulty in doing any of the following activities: ... Working at a job or business?
<b><i>Disability: Two-Period Work Limitation</i></b>	
March CPS	A portion of the March Supplement participants were asked about work limitation in two consecutive years. Those who report work limitations in two consecutive years (March to March) are considered to report a two period work limitation. The years 1986 and 1996 are not applicable because the Census Bureau changed the sampling frame and thus housing units were not consecutively interviewed. Also note, the CPS follows housing units not the people in the households, so that matched files do not contain movers.
NHIS	Not Available.
ACS	Not Available.
<b><i>Disability: Impairment</i></b>	
March CPS	Not Available.
NHIS	Respondents receive one of six condition lists that ask them if they have a specific condition (we focus on conditions in list #2). This method yields a random sample because being asked about a condition is not dependent on one's response to another question. This method captures those with specific conditions but who may or may not report having no health or functioning difficulties. Only one-sixth of the sample is directly asked about a specific condition. The set of impairments used in this paper are blindness in both eyes, other visual impairments, deafness in both ears, other hearing impairments, stammering and stuttering, other speech impairments, mental retardation, absence of both arms/hands, one arm/hand, fingers, one or both legs, feet/toes, kidney, breast, muscle of extremity, tips of fingers, and/or toes, complete paralysis of entire body, one side of body, both legs, other extremity; cerebral palsy, partial paralysis one side of body, legs, other extremity, other complete or partial paralysis, curvature or other deformity of back or spine, orthopedic impairment of the back, spina bifida, deformity/orthopedic impairment of hand, fingers, shoulder(s), other upper extremity, flatfeet, clubfoot, or other deformity/orthopedic impairment, and cleft palate.
ACS	Not Available.
<b><i>Employment: Current Employment</i></b>	
March CPS	(Beginning in 1994) Last week, did [person] do any work for either pay or profit? (Prior to 1997) During the previous two weeks, did [person] work at any time at a job or business not counting work around the house? (Include unpaid work in the family farm/business.) Even though [person] did not work during those 2 weeks, did [person] have a job a job or business? ...
NHIS	“Earlier you said that [person] has a job or business but didn't work last week or the week before. Was [person] ... on layoff from a job.

Continued

**Appendix Table 1A (continued). Definitions of Disability and Employment in March CPS, NHIS, ACS**

<b>Measure/Source</b>	<b>Definitions</b>
<b>Employment: Current Employment</b>	
NHIS	(After 1996) Which of the following {were/was} {you/subject name} doing last week? ... 'working for pay at a job or business' or 'with a job or business, but not at work'.
ACS	LAST WEEK, did this person do ANY work for either pay or profit? Mark the "Yes" box even if the person worked for only 1 hour, or helped without pay in a family business or farm for 15 hours or more, or was on active duty in the Armed Forces. LAST WEEK, was the person TEMPORARILY absent from a job or business? (Yes, on vacation, temporary illness, labor dispute, etc.)
<b>Employment: Some Employment</b>	
March CPS	A At least 52 hours of work during the previous year. Determined by multiplying usual hours per week by the number of weeks worked in past 12 months, which are derived from the following questions. During [the previous calendar year] in how many weeks did [person] work even for a few hours? Include paid vacation and sick leave as work. In the weeks that [person] worked [the previous calendar year], how many hours did [person] usually work per week?
NHIS	Did {you/he/she} work for pay at any time in {last year in 4 digit format}? Yes.
ACS	At least 52 hours of work during the previous year. Determined by multiplying usual hours per week by the number of weeks worked in past 12 months, which are derived from the following questions. During the PAST 12 MONTHS, how many WEEKS did this person work? <i>Count paid vacation, paid sick leave and military service.</i> During the PAST 12 MONTHS, in the WEEKS WORKED, how many hours did this person usually work each WEEK?
<b>Employment: Full-Time, Full-Year</b>	
March CPS	At least 50 weeks during the previous year and at least 35 hours per week, as determined from the following questions. During [the previous calendar year] in how many weeks did [person] work even for a few hours? Include paid vacation and sick leave as work. In the weeks that [person] worked [the previous calendar year], how many hours did [person] usually work per week?
NHIS	Those answering 35 or greater weeks and 12 months to the following questions. How many hours did {you/subject name} work LAST WEEK at all jobs or businesses? OR How many hours {do/does} {you/subject name} USUALLY work at all jobs or businesses? How many months in {last year in 4 digit format} did {you/subject name} have at least one job or business?
ACS	At least 50 weeks during the previous year and at least 35 hours per week, as determined from the following questions. During the PAST 12 MONTHS, how many WEEKS did this person work? <i>Count paid vacation, paid sick leave and military service.</i> During the PAST 12 MONTHS, in the WEEKS WORKED, how many hours did this person usually work each WEEK?

Source: Adapted from Burkhauser, Houtenville and Wittenburg (2003), Weathers (2005), and Harris, Hendershot, and Stapleton (2005).

**Appendix Table 2A. Data for Figure 5—Annual Weeks Worked of Working-Age People with Disabilities**

Year	Men Ages 21-39			Men Ages 40-58			Women Ages 21-39			Women Ages 40-58		
	Work Limitation		Relative Rate	Work Limitation		Relative Rate	Work Limitation		Relative Rate	Work Limitation		Relative Rate
	With	Without		With	Without		With	Without		With	Without	
1980	44.4	21.2	47.8	30.9	15.3	49.7	48.0	16.7	34.8	31.1	9.8	31.4
1981	44.0	22.3	50.8	31.2	14.9	47.8	47.8	17.6	36.8	31.4	9.7	30.9
1982	42.3	20.6	48.6	31.3	15.5	49.7	46.6	15.2	32.7	31.0	9.5	30.8
1983	42.5	19.0	44.8	31.9	15.5	48.4	46.9	16.5	35.2	32.0	9.9	30.9
1984	44.1	20.8	47.2	33.0	15.6	47.2	47.4	16.1	34.0	32.9	11.0	33.4
1985	44.7	20.5	45.9	33.2	17.0	51.1	47.4	16.3	34.3	33.5	10.9	32.7
1986	44.9	20.6	45.9	34.0	16.8	49.5	47.5	16.2	34.0	34.3	10.8	31.6
1987	45.1	20.4	45.2	34.6	17.7	51.2	47.5	16.4	34.6	35.1	11.2	31.9
1988	45.6	20.4	44.7	35.1	17.3	49.3	47.7	16.0	33.5	36.2	12.8	35.4
1989	45.6	22.8	50.1	35.0	19.8	56.5	47.9	16.1	33.7	36.5	11.7	31.9
1990	45.2	19.7	43.6	34.9	17.6	50.3	47.5	15.8	33.4	36.7	11.9	32.3
1991	44.2	18.9	42.7	35.2	18.8	53.5	46.9	15.9	33.8	37.2	11.5	30.8
1992	43.9	19.7	44.9	35.1	16.4	46.9	46.6	16.1	34.6	37.6	11.7	31.2
1993	44.3	17.8	40.2	35.1	14.0	40.0	46.9	13.6	29.0	37.9	13.3	35.0
1994	44.8	18.4	41.0	35.6	14.9	41.9	47.3	14.6	30.8	38.0	13.8	36.2
1995	45.1	17.4	38.7	35.9	16.1	44.9	47.2	14.3	30.3	38.9	11.8	30.2
1996	45.1	17.7	39.2	36.0	15.4	42.8	47.5	15.7	33.1	39.2	12.8	32.7
1997	45.5	15.7	34.4	36.8	14.7	40.1	47.7	14.3	29.9	39.6	12.1	30.6
1998	45.9	16.0	34.7	36.7	15.1	41.1	48.0	14.7	30.7	39.6	10.7	27.0
1999	45.8	18.6	40.6	37.0	15.6	42.1	47.8	13.2	27.7	40.2	12.8	31.9
2000	45.8	14.1	30.7	37.3	17.1	45.9	47.9	13.2	27.6	39.9	11.8	29.7
2001	45.1	17.4	38.7	36.2	13.5	37.3	47.5	12.4	26.1	39.9	11.4	28.5
2002	44.3	15.4	34.7	35.3	12.4	35.1	47.0	12.0	25.5	39.5	10.3	26.0

Source: Adapted from Houtenville and Burkhauser (2005).

**Table 1se. Standard Errors for Population and Prevalence Estimates by Work Limitation Status**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in 2 <sup>nd</sup> March Only	Work Limitation in 1 <sup>st</sup> March Only
<b>All, Age 16-80<sup>a</sup></b>						
Population Estimate	22,648	172,609	106,912	136,697	112,561	103,893
Prevalence Rate	0.08	0.08	0.09	0.06	0.05	0.05
<b>Ages 16 to 17<sup>a</sup></b>						
Population Estimate	113,920	16,216	113,649	8,107	12,537	7,690
Prevalence Rate	0.18	0.18	0.19	0.10	0.14	0.09
<b>Ages 18 to 24</b>						
Population Estimate	191,737	35,915	190,518	25,911	24,134	23,587
Prevalence Rate	0.13	0.13	0.15	0.09	0.09	0.09
<b>Ages 25 to 61</b>						
Population Estimate	263,846	134,247	267,304	108,227	82,541	75,051
Prevalence Rate	0.09	0.09	0.10	0.07	0.06	0.05
<b>Ages 62 to 64</b>						
Population Estimate	91,947	44,885	88,865	36,063	26,703	23,648
Prevalence Rate	0.60	0.60	0.66	0.50	0.38	0.34
<b>Ages 65 to 80<sup>a</sup></b>						
Population Estimate	184,343	100,957	175,094	74,954	68,775	64,961
Prevalence Rate	0.29	0.29	0.33	0.23	0.21	0.20

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

<sup>a</sup> Age range differs from other User Guides.

**Table 2se. Standard Errors for Demographic Characteristics by Work Limitation Status**

Category/Statistic	Cross-Sectional Sample		Matched Sample			
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in 2 <sup>nd</sup> March Only	Work Limitation in 1 <sup>st</sup> March Only
<b>Age</b>						
% 16 to 24 <sup>a</sup>	0.11	0.18	0.11	0.21	0.32	0.34
% 25 to 34	0.11	0.23	0.10	0.24	0.34	0.39
% 35 to 44	0.11	0.30	0.11	0.36	0.44	0.49
% 45 to 54	0.11	0.35	0.12	0.48	0.53	0.56
% 55 to 64	0.09	0.36	0.10	0.49	0.57	0.60
% 65 to 74	0.07	0.32	0.08	0.45	0.56	0.65
% 75 to 80 <sup>a</sup>	0.06	0.31	0.05	0.32	0.50	0.51
% 85 or older	NA	NA	NA	NA	NA	NA
<b>Gender</b>						
% Male	0.14	0.43	0.14	0.56	0.69	0.75
% Female	0.14	0.43	0.14	0.56	0.69	0.75
<b>Race</b>						
% Asian	0.06	0.12	0.06	0.13	0.21	0.23
% Black	0.09	0.33	0.09	0.44	0.49	0.56
% Native American	0.02	0.08	0.02	0.10	0.11	0.11
% White	0.11	0.36	0.11	0.48	0.54	0.62
% Some Other Race	0.02	0.05	0.02	0.06	0.04	0.05
<b>Ethnicity</b>						
% Hispanic	0.10	0.24	0.10	0.27	0.44	0.43
<b>Education</b>						
% Less than High School	0.11	0.40	0.11	0.53	0.61	0.66
% High School/Equivalent	0.13	0.42	0.13	0.54	0.67	0.73
% Some College	0.13	0.36	0.13	0.47	0.57	0.63
% Bachelor's or More	0.12	0.27	0.13	0.32	0.47	0.52

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

<sup>a</sup> Age range differs from other User Guides.

NA refers to statistics that are not available in the data.

**Table 3se. Standard Error for Employment Rates, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in 2nd March Only	Work Limitation in 1st March Only
<b>All</b>						
Reference Period (Prior Week)	0.13	0.45	0.13	0.48	0.88	1.05
Sometime in Previous Year	0.12	0.51	0.12	0.53	0.95	1.04
Full-Time in Previous Year	0.16	0.33	0.16	0.26	0.75	1.00
<b>Men</b>						
Reference Period (Prior Week)	0.16	0.66	0.15	0.72	1.29	1.52
Sometime in Previous Year	0.12	0.74	0.12	0.77	1.37	1.46
Full-Time in Previous Year	0.21	0.51	0.20	0.43	1.17	1.55
<b>Women</b>						
Reference Period (Prior Week)	0.21	0.63	0.21	0.64	1.20	1.41
Sometime in Previous Year	0.20	0.71	0.20	0.71	1.30	1.42
Full-Time in Previous Year	0.24	0.43	0.24	0.31	0.94	1.24
<b>Asian</b>						
Reference Period (Prior Week)	0.15	0.54	0.14	0.59	1.00	1.21
Sometime in Previous Year	0.13	0.60	0.13	0.65	1.07	1.20
Full-Time in Previous Year	0.18	0.39	0.18	0.34	0.85	1.18
<b>Black</b>						
Reference Period (Prior Week)	0.40	1.37	0.40	1.90	2.32	2.91
Sometime in Previous Year	0.37	1.68	0.37	2.08	2.59	2.92
Full-Time in Previous Year	0.46	0.99	0.46	1.02	2.09	2.96
<b>Native American</b>						
Reference Period (Prior Week)	0.42	0.85	0.40	0.72	2.00	2.31
Sometime in Previous Year	0.36	1.01	0.35	0.79	2.18	2.32
Full-Time in Previous Year	0.49	0.68	0.49	0.28	1.80	2.01
<b>White</b>						
Reference Period (Prior Week)	1.80	3.55	1.78	4.27	3.40	12.16
Sometime in Previous Year	1.64	4.83	1.56	4.65	10.72	12.43
Full-Time in Previous Year	2.01	2.10	2.02	1.91	0.00	4.69

**Table 3se (continued). Standard Error for Employment Rates, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in 2nd March Only	Work Limitation in 1st March Only
<b><i>Hispanic</i></b>						
Reference Period (Prior Week)	0.66	3.69	0.67	5.08	5.78	6.37
Sometime in Previous Year	0.62	3.98	0.62	5.24	5.29	5.97
Full-Time in Previous Year	0.76	2.88	0.76	3.42	5.13	6.50
<b><i>Less than High School</i></b>						
Reference Period (Prior Week)	0.49	0.66	0.51	0.57	1.63	2.27
Sometime in Previous Year	0.45	0.83	0.47	0.66	1.84	2.26
Full-Time in Previous Year	0.53	0.45	0.55	0.34	1.14	1.85
<b><i>High School</i></b>						
Reference Period (Prior Week)	0.25	0.73	0.25	0.80	1.41	1.72
Sometime in Previous Year	0.22	0.82	0.22	0.87	1.52	1.71
Full-Time in Previous Year	0.30	0.51	0.30	0.38	1.20	1.65
<b><i>More Than High School</i></b>						
Reference Period (Prior Week)	0.16	0.83	0.16	0.91	1.46	1.59
Sometime in Previous Year	0.14	0.91	0.14	0.98	1.46	1.52
Full-Time in Previous Year	0.21	0.65	0.21	0.56	1.31	1.59

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.

**Table 4se. Standard Errors for Economic Well Being Measures, Ages 25 to 61**

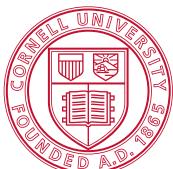
Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in 2nd March Only	Work Limitation in 1st March Only
			Matched Sample		Matched Sample	Matched Sample
<b>All</b>						
% Below Poverty Line	0.09	0.52	0.09	0.66	0.80	0.85
Median Household Income	224	468	438	945	1,623	1,455
Median HH Size Adjusted Income	135	287	268	595	993	910
<b>Men</b>						
% Below Poverty Line	0.12	0.72	0.11	0.91	1.13	1.19
Median Household Income	325	648	628	1,182	2,611	2,135
Median HH Size Adjusted Income	196	408	384	742	1,670	1,407
<b>Women</b>						
% Below Poverty Line	0.14	0.74	0.13	0.96	1.14	1.19
Median Household Income	310	674	611	1,461	1,998	1,986
Median HH Size Adjusted Income	185	403	373	921	1,140	1,188
<b>Asian</b>						
% Below Poverty Line	0.10	0.58	0.09	0.75	0.86	0.90
Median Household Income	252	569	482	1,146	1,800	1,712
Median HH Size Adjusted Income	152	352	297	732	1,131	1,078
<b>Black</b>						
% Below Poverty Line	0.35	1.76	0.33	2.63	2.39	2.12
Median Household Income	440	1,182	1,154	3,720	4,266	3,884
Median HH Size Adjusted Income	240	620	639	1,740	2,357	1,909
<b>Native American</b>						
% Below Poverty Line	0.36	1.28	0.33	1.53	2.34	2.19
Median Household Income	525	797	1,259	1,643	2,959	2,277
Median HH Size Adjusted Income	315	466	727	866	1,837	1,467

Continued

**Table 4se. Standard Errors for Economic Well Being Measures, Ages 25 to 61**

Category/Statistic	Cross-Sectional Sample			Matched Sample		
	No Work Limitation	Work Limitation	No Work Limitation in Either March	Work Limitation in Both Marches	Work Limitation in 2nd March Only	Work Limitation in 1st March Only
<b>White</b>						
% Below Poverty Line	1.54	5.60	1.29	6.90	11.06	12.23
Median Household Income	1,390	2,100	3,490	4,286	7,019	2,158
Median HH Size Adjusted Income	853	1,258	2,188	2,111	4,054	1,327
<b>Hispanic</b>						
% Below Poverty Line	0.46	3.86	0.40	3.40	3.38	6.19
Median Household Income	1,158	3,242	2,354	4,867	13,695	14,846
Median HH Size Adjusted Income	669	1,776	1,307	3,070	5,939	8,595
<b>Less than High School</b>						
% Below Poverty Line	0.44	1.13	0.45	1.43	1.97	2.26
Median Household Income	391	621	969	1,151	1,708	2,514
Median HH Size Adjusted Income	215	347	541	697	1,003	1,182
<b>High School</b>						
% Below Poverty Line	0.18	0.84	0.16	1.04	1.31	1.36
Median Household Income	293	742	590	1,649	2,563	2,243
Median HH Size Adjusted Income	174	421	361	1,032	1,338	1,376
<b>More than High School</b>						
% Below Poverty Line	0.09	0.76	0.08	1.02	1.06	1.08
Median Household Income	328	880	614	1,665	2,919	2,374
Median HH Size Adjusted Income	197	566	374	1,051	1,919	1,526

Source: Author's calculations using the March 2003, 2004 Current Population Survey, Annual Social and Economic Supplement.



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