

**REAL TRENDS OR MEASUREMENT PROBLEMS? DISABILITY AND
EMPLOYMENT TRENDS FROM THE SURVEY OF INCOME AND PROGRAM
PARTICIPATION**

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ABSTRACT

This paper addresses important concerns in using statistical data to track outcomes of people with disabilities and provides new evidence of employment trends of people with disabilities using alternative disability conceptualizations from the Survey of Income and Program Participation (SIPP). This analysis comes at an important time because some researchers have criticized the data and definitions used to measure these trends. At the extreme, some have concluded that such analyses should cease because of major limitations in measuring disability that exists in current surveys (especially the SIPP). Because the SIPP has been used extensively to examine outcomes of people with disabilities, it is important to understand these data criticisms and test whether the trends from the SIPP mirror those in other data sources.

We conclude that the different empirical results found by researchers are not caused by "problems" with the data but rather with the assumptions researchers make when using the data. We illustrate the importance of exercising caution when developing disability questions and measuring disability trends in existing data sources. While some measures of limitations may be problematic, we find that the relatively broad measures used in several disability studies provide reasonable estimations of important subgroups of people with disabilities. We also show that the timing and structure of specific questions affects disability prevalence rates and influences observed outcomes. When we use comparable definitions across panels, we consistently find that employment rates of men with disabilities have fallen from 1990 to 1996 and employment rates of women with disabilities have remained flat. The consistency of these findings across a variety of measures illustrates an important and disturbing trend of downward employment rates for people with disabilities. These findings are particularly disturbing because they suggest that the gap in employment rates between those with and without disabilities is growing.

INTRODUCTION

Over the past several years, policy makers have recognized the importance of expanding employment opportunities and eliminating barriers to gaining employment for people with disabilities. These ideals are embodied in several important pieces of disability legislation, including the Americans with Disabilities Act (ADA), and the newly enacted New Freedom Initiative and the Ticket to Work and Work Incentives Improvement Act. These initiatives not only represent important disability policy changes but also a fundamental recognition of the importance of work for people with disabilities.

Concurrent with these changes, several recent studies have shown a decline in employment among various groups of people with disabilities over the past decade (DeLeire 2000; Burkhauser, et al. 2002). These trends are surprising given the improvement in employment and economic status of nearly every other demographic and socio-economic group during the mid-nineties. Researchers are divided on the specific factors that are influencing these trends, though there is a general agreement that these empirical findings suggest a disturbing trend given the emphasis on promoting employment among people with disabilities.¹

Some researchers, however, have questioned these findings by suggesting that current data sources did not include enough reliable information to adequately capture a credible population of people with disabilities (National Council on Disability 2002; Hale 2001). In fact, these studies suggest that analyses of employment trends among people

¹ Burkhauser and Stapleton (forthcoming) summarized several potential factors that other studies have identified as possible contributors, including the implementation of the ADA, rising health care costs, diminishing overall health of the population, and changes in the characteristics of the population (e.g., aging). The evidence on the effect of the ADA on employment has been mixed. Kruse and Schur (2003) find zero or positive effects, whereas Acemoglu and Angrist (2001) and DeLeire (2000) find negative effects.

with disabilities should cease until a more reliable measure of disability status can be developed in future surveys.

The purpose of our analysis is to address these data criticisms and to examine whether information from the Survey of Income and Program Participation (SIPP) could be used to track employment trends of people with disabilities. Our choice to use the SIPP is important because these data have been used extensively in previous disability analyses and have been subject to much of the criticism by those who are skeptical of the employment trend findings.

Our findings illustrate the importance of exercising caution when measuring disability trends. We show that a major issue in using variables from the SIPP to measure disability status, particularly for trend analyses, is selecting comparable interviews across panels. While we find several comparability problems across panels that are consistent with some data criticisms, we show that some disability definitions can be used to examine important prevalence and employment trends. We conclude that the different empirical results found by researchers are not caused by "problems" with the data but rather with the assumptions researchers make when using the data.

Our findings also have broad implications for collecting data on health related questions, particularly in a longitudinal survey. We show that even relatively minor changes in a questionnaire can affect the way respondents answer specific questions. It will be important for agencies that collect these types of data, especially the Census Bureau, to recognize these changes and their potential consequences for examining trends when designing future questionnaires.

We begin our analysis by presenting a description of some of the more prominent criticisms of the data. Next, we provide a data description of the SIPP, including changes to the 1996 questionnaire, and review the current literature regarding employment trends using these data. We then analyze prevalence and employment rates for people with work limitations and compare these estimates with those from other definitions of disability. Our findings address each of the major criticisms associated with the data and include new analyses of disability trends unavailable in other data sources. We conclude with a summary of our findings and recommendations for using the SIPP in future research.

MEASURING DISABILITY

Researchers and policy makers have grown increasingly aware of problems in identifying the presence of a disability. These issues have important implications in providing assistance to people with disabilities, as well as tracking outcomes following policy changes that affect this population. This awareness has led to a growing interest in clarifying the methods used to identify people with disabilities.

A key obstacle in tracking outcomes of people with disabilities is that there are multiple conceptualizations of disability. As noted in Wunderlich, Rice, and Amado, (2002):

“disability is a dynamic process that can fluctuate in breadth and severity across the life course and may or may not limit ability to work. Disability is not a static event because it is the adaptation of a medical condition in the environment in which one lives.... The meaning assigned to the term (disability) depends on the uses to be made of the concepts” (p 1-3).

Government programs provide an excellent example of differing disability conceptualizations. For example, the definition of the ADA, which captures a generally broad population of people that report some limitation with a social activity, differs from

the Social Security Administration disability definition, which captures people with severe impairments who cannot work. In fact, defining disability is even more complicated because some may be “disabled” in some contexts but not others. For example, a pianist who loses an arm is likely more limited in his/her work activities than, say, a singer with the same impairment.

Some critics claim that data limitations prohibit analyses of outcomes of people with disabilities using survey data (National Council on Disability 2002; Hale 2001). A major concern is that current definitions available from existing surveys are too limited to measure the complexity of disability. The National Council on Disability (NCD) claimed:

“The Federal Government should not encourage or support the dissemination of employment data until a methodology for assessing employment rates among people with disabilities that is acceptable to leading researchers and demographers in the field and credible to persons with disabilities can be developed.” (National Council on Disability 2002, p. 20)

Recently, several papers have criticized the SIPP on the basis of reliability and validity concerns (Levine 2000; McNeil 2000; Presidential Task Force 1999). Three specific criticisms, which were summarized in a Congressional Research Service (CRS) report (Levine 2000), included:

- Questions that rely on whether or not a person is limited in the kind or amount of work are highly influenced by environment (the presence or absence of workplace accommodations), and thus fail to capture important employment aspects such as finding and maintaining a job (**Criticism 1**);
- Trend analysis using the SIPP is impossible because questions relating to disability in the 1996 panel differ from those used in prior years (**Criticism 2**); and
- Some questions relating to visual or hearing impairments have a higher variation in response than most people would expect. Some have used this argument to claim that all other SIPP-based disability definitions are flawed (**Criticism 3**).

Burkhauser et al. (2002) provide the most compelling evidence regarding the first criticism by illustrating that the work limitation definition, while certainly flawed, was generally representative of other broader conceptualizations of disability. They showed that trends in employment for working-age men and women from the Current Population Survey (CPS) and National Health Interview Survey (NHIS) were similar for broad definitions of disability, such as the existence of some type of impairment, as well as for more restricted definitions, such as a report of a work limitation in two successive interviews. While they note that certain definitions, such as the presence of a work limitation, understate overall disability prevalence because they do not capture all people who have limitations (e.g., a person who has a limitation in walking may not be limited in working because of an accommodation), employment trends across these definitions are not significantly different. They find rather large declines under alternative conceptualizations in the employment rates of men and relatively flat trends in the employment rates of women. Their findings are particularly important because they illustrate that trends in employment for both men and women do not vary across disability conceptualizations. Consequently, while this first criticism likely applies to any disability conceptualization because there is no single disability concept, it does not rule out the possibility of tracking outcomes for different subpopulations of this group relevant to specific policy questions.

In the remainder of this paper, we attempt to use the SIPP to address each of these criticisms. Similar to Burkhauser et al. (2002), we use the SIPP to track trends in prevalence and employment outcomes across different disability conceptualizations, including the work limitation definition, to test the sensitivity of our findings to different

definitions (Criticism 1). However, we make additional comparisons across a broader range of disability definitions that are available in the SIPP and not in the CPS or NHIS. We also examine whether trend analysis is possible with these different conceptualizations (Criticism 2) and whether the reliability issue noted above affects all SIPP-based disability definitions (Criticism 3).

DATA DESCRIPTION

The SIPP includes detailed income, demographic, and program and labor force participation information on a nationally representative sample of non-institutionalized, U.S. households. Every four months, interviewers ask respondents to provide information about the preceding four months. Respondents are asked a “core” set of questions during each interview, supplemented by questions on selected topics in topical modules (TMs). The Census Bureau collected separate panels of SIPP data beginning in each year from 1984 through 1993 and again starting in 1996. Panels lasted anywhere from 2.5 to 4 years (*Exhibit 1*).² Because the end of some panels overlaps the beginning of subsequent panels (e.g., 1990 and 1991 panels), some researchers have combined information from overlapping interviews in different panels that occur at the same time to increase the sample size for their analyses (McNeil 2000; Kruse and Schur 2003).

The SIPP includes several health and functional limitation measures in various core and TM interviews of particular interest to researchers interested in disability (*Exhibit 2*). Some measures refer to specific functions, such as the ability to complete certain tasks (e.g., seeing words in print and climbing stairs). Others refer to broad functions, such as the ability to complete work or housework. In general, the most

² In anticipation of the rollout of the 1996 SIPP redesign, Census cancelled the 1994 and 1995 panels. The next panel began in 2000, though follow-up interviews for this panel were cancelled.

commonly used TM is the Functional Limitations and Disability TM, which includes information on a broad range of functional limitations, as well as some information on other indicators, such as general health status.

In 1996, the Census made several changes to the design of the basic survey, including some changes to certain health and functional limitation questions. The purpose of these changes was to enhance the efficiency and adequacy of their data collection efforts. However, as discussed below, some of these changes did affect the comparability of questions across SIPP panels.

PREVIOUS LITERATURE

Several recent studies have used the SIPP to examine employment trends following the implementation of the ADA (DeLeire 2000; Hotchkiss 2002; 2003; and Kruse and Schur 2003). They each define disability in a variety of ways using data collected at several different interviews. DeLeire (2000) identifies disability using the work limitation question from the Work Disability TM in various panels from 1988 to 1993. Hotchkiss (2002, 2003) uses information on work limitations from the Work Disability TM from 1986 through 1997. Kruse and Schur (2003) use information from the overlapping panels of the Functional Limitations and Disability TM to identify different populations under several alternative disability definitions. Unlike the DeLeire (2000) and Hotchkiss (2002) studies, Kruse and Schur (2003) focus on other disability definitions, such as the presence of limitations in Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL) or other functional activities. They use these alternate disability definitions to illustrate that the findings may vary depending on the disability definition used in the analysis. These studies draw differing conclusions

regarding the impact of the ADA on employment, though they all find a relatively consistent downward trend in employment across broad disability definitions.

McNeil (2000) presents the broadest overview of employment trends of people with disabilities using data from several cross-sections of the Functional Limitations and Disability TM in the 1990 through 1996 panels. Unlike the studies above, he does not attempt to estimate the impact of the ADA on employment rates. Rather, his primary objective is to produce descriptive statistics on employment and prevalence rates across panels.

McNeil compares prevalence and employment rates across several available disability measures, including work limitation measures, other measures of functional activities (e.g., activities of daily living, such as difficulty bathing), and specific impairment measures (e.g., mental retardation). He combines the information from the overlapping TM interviews across panels to increase the sample size for each year.³

While he focuses on producing descriptive employment and prevalence trends for various measures of disability, McNeil (2000) notes problems making comparisons across panels using certain definitions. He first shows a significant decline in employment from 1990 to 1996 by those who reported a work limitation, noting that these rates may be influenced by the significant fall in work limitation prevalence rates in the 1996 panel. His findings illustrate potential problems in examining trends across SIPP panels that are consistent with Criticism 2 above. He also notes some potential problems within each panel because responses to specific questions, such as difficulty seeing words

³ The estimates in McNeil (2000) cover four cross sections: 1991/92 (sixth interview of the 1990 panel and third interview of the 1991 panel), 1993/94 (sixth interview of the 1992 panel and third interview of the 1993 panel), 1994/95 (ninth interview of the 1992 panel and sixth interview of the 1993 panel), and 1997 (fifth interview of 1996 panel).

or letters in newspaper print, change more frequently from interview to interview, which is consistent with Criticism 3. However, he concludes that these issues do not completely rule out using the SIPP in future disability analyses that only rely on cross-sectional estimates.

Unfortunately, these studies do not provide a comprehensive view of the comparability of various SIPP health measures across *all* interviews, nor do they analyze how choosing different questions in varying panels affects their findings. For example, each of the aforementioned studies uses a slightly different cross-section from the SIPP to examine disability prevalence or employment rates. While McNeil's (2000) analysis provides some potential insights on inconsistencies within the SIPP panel, it is not clear if these inconsistencies appear in other SIPP interviews. Consequently, it is difficult to use his analysis, or other analyses of the SIPP data, to assess the consistency of various health measures to address the specific criticisms noted above.

WORK LIMITATION TRENDS

We begin our analysis by examining trends using a work limitation definition. This definition combines interactions between a person's condition and a social activity (in this case, work). It reflects the disability conceptualization put forth by Nagi (1965, 1969, and 1991) and the World Health Organization (Jette and Bradley 2001).⁴ It also relates to the combination of impairment and work questions used by the Social Security Administration (SSA) to make disability determinations for Disability Insurance (DI) and Supplemental Security Income (SSI). Because it is a relatively straightforward interview

question, this question is available in several surveys, including the CPS and NHIS, and, as noted above, has been used extensively in several disability research papers, including Burkhauser et al. (2002).

During the first interview in each panel, SIPP respondents are asked about the presence of a work limitation in the following question:

“Does [insert name] have a physical, mental, or other health condition which limits the kind or amount of work [insert name] can do?” (Question 1)

During follow-up interviews in select topical module interviews in the 1990 through 1993 panels (see Exhibit 2 for the specific interviews in each panel), respondents are asked again about the presence of a work limitation, though the question varies depending on their response during an earlier interview. Question 1 is repeated for respondents who did not report a work limitation in the first interview (or, in the case of a later interview, in another earlier interview). However, people who reported a work limitation in an earlier interview are reminded of their previous answer. These respondents are asked:

“We have recorded that [insert name]’s health limits the kind or amount of work [insert name] can do. Is that correct?” (Question 2)

In the 1996 panel, the Census made several changes to the work limitation question. First, as part of a movement to enhance the efficiency of interviewing respondents, the Census added places in the employment section of the questionnaire where a person could indicate the presence of a work limitation. Respondents who were

⁴ Nagi’s conceptualization of disability includes three components. The first, pathology, is the presence of a physical or mental condition that interrupts the physical or mental process of the human body. An example is deafness. This leads to the second component, impairment, which Nagi defines as a physical, anatomical, or mental loss or abnormality that limits a person’s capacity to function. For example, deafness limits the

not working could indicate the presence of a work limitation in two other areas of the interview.⁵ If a person did not indicate the presence of a work limitation in other parts of the survey, they were given the opportunity to report work limitations directly. More importantly, survey respondents who reported a work limitation either in the direct question regarding work limitations or as a reason for not working in earlier panels were not reminded of their initial responses. Rather, respondents were asked the same question each time (Question 1). In addition, the Census moved the question from the topical module to the core questionnaire, where it was asked in each interview.

The changes to these questions appear to have important implications in examining work limitation prevalence and outcomes trends both within panel and across panels. Presumably, respondents who are reminded of their previous answers are more likely to report a limitation in a later interview than if they had to answer the question without knowledge of their previous response.⁶ Consequently, in “earlier panels” (i.e., 1990-1993), we expect prevalence to increase gradually across each interview because of the reminder built into Question 2. In contrast, we expect that the trends in prevalence in the 1996 panel will remain flat because respondents are not reminded of their previous work limitation responses.

Prevalence

We find the prevalence of work limitations among adults age 25 to 61 gradually increases during each successive interview in the 1990-1993 SIPP panels (*Exhibit 3*). For

ability to interpret sound. The final component, disability, is an inability to perform or a limitation in performing roles and tasks that are socially expected.

⁵ Respondents could indicate a work limitation in response to either of the following questions: “What is the main reason [insert name] did not have a job during the reference period?” and “What best describes [his/her] situation now?”

⁶ Kruse and Schur (2003) also note the potential for increasing prevalence in later interviews in their findings.

example, in the 1990 panel, work limitation prevalence among men increased from 10.1 percent in the first interview to 13.1 percent in the seventh interview.⁷ For women, work limitation prevalence rates increased from 9.6 percent in the first interview to 13.6 percent in the seventh interview. In both cases, these increases amount to over a 30 percent increase in the population reporting a work limitation between the first and last interviews of each panel.

In contrast to the rising prevalence rates in the earlier panels, we observe relatively flat trends in the prevalence of work limitations throughout the 1996 panel, with exception of the first interview (*Exhibit 3*). For example, male prevalence rates in interviews 2 through 9 ranges from 10.1 percent (interview 8) to 11.1 percent (interview 5). However, there is a sharp drop in prevalence rates between the first and second interviews (from 12.3 to 11.1 percent). Similar trends also exist for women.

In general, these findings are consistent with our expectations regarding the structure of the work limitation questions. The reminder built into Question 2 appears to contribute to the increasing trends in later interviews of the 1990-1993 SIPP panels. The relatively flat trends in prevalence in the 1996 panel are also consistent with our expectations given that SIPP respondents are not reminded of their previous responses in this panel.

However, the spike in prevalence rates during the first interview of the 1996 panel is very surprising and cannot be explained by a change in question structure.

Interestingly, the characteristics of those who report a limitation during the first interview appear to be different from those who report a limitation in later interviews. For example, only two-thirds of those who report a limitation in the first interview also report a

⁷ For exact figures see Appendix Exhibit A1.

limitation in the second interview.⁸ By comparison, approximately three-fourths of respondents who report a limitation in an interview following interview 2, go on to report a limitation in the ensuing interview.

We explored several explanations for this spike and concluded that problems implementing this question in the first interview of the redesign likely explain this anomalous finding.⁹ The numerous changes implemented in the 1996 SIPP redesign, which included several changes to the survey mode, could have affected data reporting during the first interview. Because the difference in reliability only appears between interviews 1 and 2 and not all other interviews, we exclude interview 1 from our remaining analyses. We recommend that researchers exercise caution in using this interview of the 1996 panel in making comparisons of work limitation trends within the panel.¹⁰

The difference in reported prevalence of work limitations within panels creates important comparability problems both within and across panels. Rising prevalence rates in later interviews of the 1990 through 1993 panels lead to potential comparability problems in examining disability within each panel. Specifically, the work limitation questions based on reminder questions in later interviews capture a larger and, presumably, healthier pool of respondents who report work limitations than earlier interviews. For example, we find that the propensity to report some other health difficulty (e.g., the presence of another activity limitation) by those who report a work limitation is

⁸ See Appendix Exhibit A2 for more details.

⁹ Census staff also had similar conclusions regarding this spike.

¹⁰ While we do not suggest using interview 1 from the 1996 panel, we did test the sensitivity of our findings to the inclusion of this interview. The direction of our employment trend findings below are not sensitive to the inclusion of interview 1 from the 1996 panel in the analysis, though the magnitude of the employment drop is much smaller.

lower in later interviews (where the sample reporting a work limitation is higher).¹¹ Similarly, comparing prevalence rates across panels in different interviews or pooling interviews across different panels appears to be problematic.¹² For example, prevalence rates in interview 9 of the 1992 panel are much higher than prevalence rates in the earlier interviews of any of the other panels. These findings also suggest that pooling cases across panels, as is done in McNeil's (2000) analysis, can lead to potential biases, particularly in examining employment trends across panels. For example, because McNeil pools information from the ninth interview of the 1992 panel with the sixth interview of the 1993 panel, we suspect that his employment trend estimates, which include information from earlier interviews from the 1990 and 1991 panels, will be biased upwards in 1993 relative to 1990 and 1991.

These findings do provide some credibility to claims regarding the difficulty in conducting trend analyses using SIPP data (Criticism 2). We find that comparisons of earlier panel estimates to the 1996 panel are more problematic because of the basic question changes. These changes are particularly problematic when later interviews of earlier panels are compared to interviews in the 1996 panel.

However, we do not believe these issues completely rule out the usage of the SIPP in trend analyses. While researchers should exercise some caution, comparisons across similar interviews in the 1990 through 1993 panels should be relatively comparable, assuming the upward trend in prevalence is consistent across each interview. More importantly, work limitation estimates in the 1996 panel interviews (excluding

¹¹ See Appendix Exhibit A3 for more details.

¹² It is likely not necessary for most analyses to combine interviews because the SIPP contains a relatively large number of respondents who report a health limitation (approximately 2,000 per panel). Because

interview 1) should be roughly comparable to those in the first interview of each of the earlier panels.¹³

To test whether some comparable trends can be constructed across SIPP panels, we examine trends across the first interview of the 1990, 1991, 1992, and 1993 panel, and the second interview of the 1996 panel. While presumably we could choose any interview from the 1996 panel for this comparison (except interview 1), we restrict our analysis of the 1996 panel to interview 2. Our findings do not change if other interviews from the 1996 panel are included in the analysis.

We find that the characteristics of populations captured using the work limitation definition are roughly comparable across panels, though this definition captures slightly higher prevalence rates in later panels for men and women (*Exhibit 4*). For example, prevalence rates from 1990 to 1996 increased from 10.1 to 11.2 percent for men and 9.6 to 10.7 percent for women. The proportion of men in the sample who are white decreases over time, from 77.1 percent in 1990 to 71.9 percent in 1996, as does the proportion of men in the sample with less than a high school degree (35.9 percent vs. 31.4 percent). We do not observe a change in racial composition of women in the sample, but we do observe very small declines in the proportion of the sample with less than a high school degree (32.3 percent vs. 30.7 percent). While there appears to be some small differences across certain characteristics, the sample captured under each definition over this period appears to be roughly comparable.

differing question structures elicit differing responses, researchers should exercise caution when analyzing responses from similar questions with even slight differences.

¹³ As noted above, the SIPP did include some redesign efforts to streamline the questionnaire for the work limitation responses, though we do not believe these changes necessarily had a major impact on overall reported prevalence. Because of the streamline, however, we would expect a relatively minor increase in reported prevalence in the 1996 panel relative to earlier panels.

A major question still exists as to whether these findings are comparable to trends found in studies using other data sources. For example, some might continue to question our findings on the basis that the 1996 SIPP redesign represented a fundamental shift in obtaining interview information from respondents. To address this concern, we compare our findings for our work limitation analyses above to those from Burkhauser, et al. (2002) who used data from the CPS and NHIS over several years to examine trends in work limitation prevalence and employment.

We find that the SIPP prevalence trends are generally comparable to trends in work limitation measures found in other data sources such as the CPS and NHIS (*Exhibit 5*).¹⁴ While the prevalence rates in the NHIS and SIPP are relatively higher than the CPS, the *trend* in prevalence rates across each of the surveys is generally increasing. In fact, the increases in prevalence for both men and women are almost identical across the NHIS and SIPP. These findings suggest that, when comparable questions are used from select interviews across SIPP panels, the sample captured under these definitions are relatively similar and comparable to other surveys, despite the changes to the 1996 questionnaire.

Employment trends

Given the importance of employment as an outcome, we now turn our attention to tracking employment trends by those who report a work limitation. As in Exhibit 5, we track employment trends using relatively comparable interviews from each SIPP panel. We present annual employment estimates across panels to remove any seasonal variation

¹⁴ An overview and description of specific definitions included in the CPS, NHIS, and SIPP is included in Appendix Exhibit A4.

that might exist in any panel.¹⁵ We calculate these employment estimates by aggregating monthly reported employment status across twelve months from the interview date in each of the panels. For example, in the 1990 panel, we use information from interviews 1 through 3 (each interview contains four months of data) to obtain 12 months of employment data on each respondent who reported a work limitation.

We find that annual employment rates decrease slightly over time for men with disabilities and remain unchanged for women (*Exhibit 6*). Specifically, male employment rates drop by over 12 percent (from 53.3 to 46.6 percent from 1990 to 1996), while the corresponding female employment rates dip by 3 percent (from 42.7 to 41.4 percent). We find that these trends hold even after adjusting for any changes in the demographic characteristics, such as age, of respondents who report work limitations from 1990 through 1996.¹⁶

These findings are also similar to employment trends of the work limited population reported in the CPS and NHIS (*Exhibit 7*). While there are some differences in overall employment rates, which tend to be higher in the SIPP and NHIS, there is a decline in employment from 1990 to 1996 by those who report a work limitation in each survey. Consequently, several trends in the SIPP appear to mirror those in other data sources, suggesting that it is possible to examine trends in outcomes using these data.

Similar to Burkhauser, et al. (2002), we believe these findings illustrate a very disturbing trend, particularly given trends in employment among men and women

¹⁵ Our findings are consistent using monthly employment definitions of trends, though, because the 1996 panel starts in a different month from the earlier panels, the annual definition makes for easier comparisons across panels

¹⁶In separate econometric analyses that are available upon request, we estimate that people with work limitations in 1996 are significantly less likely to be employed than people with work limitations in 1990 after controlling for age, gender, education, and race. (Appendix Exhibit A5).

without disabilities.¹⁷ For example, while the employment of both men without and without disabilities declined during the recession in the early nineties, while the gaps in employment rates immediately following the recession increased across both men and women. Specifically, the gap increased because the employment rates of men without disabilities generally recovered following the recession, whereas the employment rates of men with disabilities continued to decline. Over this same period, the employment rates of women without disabilities generally followed an increasing secular trend of increasing labor force participation among women throughout the nineties, the employment rate of women with disabilities remained stagnant. Consequently, it appears that both men and women with disabilities were being left behind the major economic expansion of the nineties.

These findings also have direct relevance for the criticism that the SIPP cannot be used for trend analyses (Criticism 2). We agree that this criticism is valid if care is not used when selecting the appropriate interview from each SIPP panel in developing trend analysis. Specifically, based on our findings above for prevalence, we expect that employment rates in later interviews of the earlier SIPP panels would be relatively higher than those in earlier interviews because they capture a larger and relatively healthier population. In fact, we find that quarterly employment rates increase with each corresponding increase in prevalence rate across each interview in the earlier panels. For example, in the 1990 panel, quarterly employment rates for men increase from 46.3 percent in interview 1 to 55.2 percent in interview 7.¹⁸

¹⁷ See Appendix Exhibit A6 for employment rates of men and women without disabilities from the CPS, NHIS and SIPP. We also include employment rates across different disability definitions that are used in these data sources and later in this paper.

¹⁸ See Appendix A7 for more details.

However, as our analysis above indicates, we believe this criticism can be directly addressed by using disability definitions that are comparable across select interviews across each panel (i.e., interview 1 in the 1990-1993 panel and interviews 2-9 in the 1996 panel). When these interviews are included in the analysis, the trends from the SIPP generally mirror those in the CPS and NHIS. Presumably, the CPS and NHIS provide a stronger framework for trend analyses because they both include several more years of information than the SIPP. However, the SIPP is still a useful source for trend analysis to supplement these other data sources because it includes more health information than the CPS (see below) and more detailed income, employment, and program participation information than the NHIS.

ALTERNATIVE DISABILITY DEFINITIONS

A major advantage of the SIPP is that it includes several questions on health and functional limitation status from various topical modules (see Exhibit 2) that researchers can use to examine alternative disability conceptualizations. In response to the criticism that a definition relying on work limitations does not pick up the entire population of people with disabilities (Criticism 1), we test a variety of disability conceptualizations to determine if trends in outcomes are sensitive to the definition of disability. If trends for differing groups of people are the same, then we are more confident that the sub-group of people with disabilities we choose reflects the trends in the broader population of people with disabilities. We first choose additional questions from the SIPP's topical modules on disability that include information on the interaction between a respondent's impairment and some social activity. This analysis will allow us to further examine data Criticism 1, as well as further test the sensitivity of the findings from Burkhauser, et al. (2002). We

then examine other measures of health status in SIPP, including those with noted reliability problems (Criticism 3).

Activity Limitations

We use information from the SIPP Functional Limitation and Disability TMs to construct the following alternative definitions of disability:

- **Other Activity Limitations:** We classify individuals who report a difficulty in an Activity of Daily Living (ADL) or an Instrumental Activity of Daily Living (IADL) as having an “other activity limitation.”¹⁹
- **Housework Limitations:** We classify respondents who report a limitation in their ability to complete housework as having a “housework limitation.”²⁰

The advantage of these alternative definitions is that, similar to the work limitation measure, they attempt to identify a limitation that influences a social activity. Additionally, unlike the work limitation measures, the questions for each of these definitions are similar across each panel. The other activity limitation measure attempts to identify limitations in Activities of Daily Living (ADLs), such as bathing and eating, and Instrumental Activities of Daily Living (IADLs), such as preparing a meal. The housework limitation measure attempts to identify a limitation that affects a person’s ability to complete daily housework chores. A variation of the “other activity limitations” measure was used in Kruse and Schur’s (2003) analysis, while McNeil (2000) examined variations of both of these conceptualizations.

Similar to our findings on work limitation prevalence (see Exhibit 5), we find that the prevalence rates of other activity limitations and housework limitations increase

¹⁹ ADL and IADL limitations include difficulties in any of the following: ability to lift 10 pounds, walk up a flights of stairs, walk ¼ mile, use the telephone, get around inside the home, get around outside the home, sit in a chair, shower, dress, walk, eat, use the toilet, handle money and bills, prepare a meal, and do light housework.

slightly from 1990 through 1996 for men and women (*Exhibit 8*). Other Activity Limitation prevalence rates for men range between 7.7 (1990, interview 3) and 8.6 percent (1996, interview 5). Trends for women are similar, though rates are much higher, ranging between 11.0 (1991, interview 2) and 12.7 percent (1992, interview 9). Housework limitation prevalence rates range between 5.6 (1990, interview 3) and 6.1 percent (1993, interview 3) for men. For women, there is greater variation, with prevalence rates ranging between 6.4 (1996, interview 5) and 8.1 percent (1993, interview 6).

There are important compositional differences in the populations captured under these different conceptualizations (*Exhibit 9*). In general, prevalence of work limitations is relatively higher than prevalence of the other measures (10.9 percent for work limitation vs. 10.1 and 6.5 percent, respectively, for other activity and housework limitation measures). However, in comparison to the work-limited population, the populations captured under these two alternative definitions are more likely to be female, have a similar racial makeup, and slightly more likely to have a high school diploma.

Despite the compositional differences, the employment trends of the other activity limited and housework limited populations are similar to those in the work limited population (*Exhibit 10*). Between 1990 and 1996, annual employment rates for men decline from 53.5 to 50.1 percent, and 45.4 to 39.0 percent, respectively in the other activity limited and housework limited populations. During the same period, employment rates for women with other activity limitations increased from 49.0 to 51.7 percent while they declined from 43.0 percent to 39.3 percent for women with housework limitations.

²⁰ Unlike the work limitation question, respondents are not reminded of their answers to the housework limitation question from previous topical module interviews.

The findings across these different subpopulations of people with disabilities suggest the same disturbing trend of declining employment rates during the early nineties. These findings are also consistent with other studies that illustrate declining employment trends for people with disabilities across very broad conceptualizations, such as the existence of an impairment, as well as very narrow definitions, such as reported limitations in two consecutive periods (Burkhauser, et al. 2002). These findings also address Criticism 1 that the work limited population, while not necessarily capturing the entire population of people with disabilities, does capture an important subcomponent whose trends are similar to trends from other disability conceptualizations.

Other Definitions

The SIPP includes information on other disability related items, including difficulty seeing words in print or hearing words, which were included among the criticisms noted above (Criticism 3).²¹ These questions attempt to capture other types of more specific health limitations associated with specific functions.

McNeil (2000) illustrates a reliability problem with these specific questions across SIPP interviews. Specifically, he shows that only 25 percent of respondents who report not being able to see “any words” continue to report the same difficulty one year later –

²¹ The SIPP also includes other disability definitions for subsets of the work limited population that have been used in previous research, but we exclude here because they do not deal directly with any of the specific data criticisms noted above. For example, Kruse and Schur (2003) use information on “the ability to work” of those in the work limited population. However, we are skeptical of these definitions for two reasons. First, because this question is embedded in a skip pattern (i.e., those with work limitations are the only respondents asked this questions), we are concerned about comparing responses across periods because the subset of the population may change somewhat from period to period. More importantly, as we show in Burkhauser, et al. (2003), the prevalence rates for this specific definition appear to change substantially over time, which we believe is related to the skip pattern, as well as policy changes that might influence a person’s response to this question. The SIPP also includes information on specific impairments for those who report a work limitation or other activity limitation, though these definitions have not been used extensively in disability research because they are embedded in a skip pattern.

though approximately 50 percent of these cases do continue to report some difficulty. We conducted an analysis of these questions and confirm this reliability problem.

A major question is whether this reliability issue is specific to these questions or whether it represents a more fundamental problem with SIPP data. For example, if people respond differently to a disability conceptualization from interview to interview, a logical conclusion is that the particular conceptualization is a relatively weak measure of a real health condition. A different interpretation, however, could be that if respondents change their answer from interview to interview, then the survey instrument is fundamentally flawed. The latter concern has much stronger implications for using not only disability data from the SIPP, but also any data from the SIPP.

However, the reliability problem for this particular definition appears to be related to the nature of the question, rather than a systemic problem with SIPP data collection procedures. For example, the vision question appears to capture a non-severe impairment that could change from period to period based on a number of factors, including the availability of glasses or an outdated prescription.²² In fact, this question does not capture all types of vision problems (e.g., far-sighted problems, complete blindness). Consequently, it is not necessarily surprising that respondents change their answer to this question from period to period, though the inconsistent responses do suggest that modifying or dropping the question is appropriate.²³ Given these limitations, it is not clear that such definitions should be used to examine disability trends.

²² Although the question tries to capture seeing based on the availability of glasses, it is likely that respondents who do not have eyeglasses, who misplaced glasses, or who have outdated prescriptions, answer that they have difficulty seeing items in print, even with eyeglasses.

²³ A more appropriate question might ask a respondent more directly about blindness.

More importantly, this criticism does not apply to the work limitation question or other broad conceptualizations of disability examined here. For example, in Appendix Exhibit A2, we illustrate that, in general, three-quarters of people in the 1996 panel who indicate a work limitation in one period subsequently report a work limitation in the ensuing interview.²⁴ The prevalence rates are also consistent across panels. These findings suggest that the Census should reexamine the usefulness of loosely defined conceptualizations, such as the vision question mentioned above, but continue to employ questions that capture difficulties in a variety of activity limitations, including work limitations.

CONCLUSIONS

Our findings reconfirm the disturbing trend in declining employment rates of people with disabilities shown in studies using other data sources. These findings are particularly bothersome given the trends in employment among men and women without disabilities, which suggest that the employment gap across those with and without disabilities is growing.

When we use comparable definitions across panels, we consistently find that employment rates of men with disabilities have fallen from 1990 to 1996 and employment rates of women with disabilities have remained flat. These findings, which are consistent across a variety of disability definitions, are particularly disturbing given the increases in employment among men and women without disabilities immediately following the business cycle.²⁵

²⁴ When people are reminded of their answer from earlier interviews as in the 1990 through 1993 panels, approximately 90 percent continue to report a limitation in a subsequent interview.

²⁵ The employment rates of women without disabilities has been especially large over this period because of broader factors leading to higher labor force participation rates among women in the labor force.

Our findings also directly address the three major data criticisms noted in the earlier literature. First, while we agree that the work limitation definition does not identify all people with disabilities, similar to Burkhauser et al. (2002), we find that prevalence and employment trends based on this definition are similar to those observed using other disability conceptualizations. Second, we directly address the advantages, as well as significant limitations, of using the SIPP for trend analyses. We show that certain questions from select interviews can be used in trend analyses, and the findings from these analyses are consistent with studies that use data from other data sources. However, we also show the problems that can occur if non-comparable interviews are used to track trends in employment and prevalence. Finally, while we confirm the criticism that certain measures are not reliable for disability analyses, the rationale behind this criticism does not apply to all SIPP-based disability conceptualizations. We conclude that the anomalous results noted in some of these data criticisms have more to deal with how researchers use the data than specific problems with “bad data” associated with problematic data collection efforts.

Our findings also have important implications for future survey design efforts using longitudinal data. Our analysis illustrates that even small changes in a questionnaire can affect the way respondents reply to an interview question. It is important that survey designers recognize the potential implications of these changes, particularly changes in questions from interview to interview. We also suggest that the Census test the current battery of questions used in surveys, particularly those that appear less reliable across interviews. It is equally important, however, that the Census continue to track consistent

information on a broad set of questions, including work limitations, that can be used to continue to track trends for subpopulations of people with disabilities.

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Exhibit 1: 1990-1996 SIPP Panel Summary Information

Panel	First Interview	Last Interview	Interviews	Original Sample Members	Interview Mode	Data Collection
1990	Feb. 1990	Sept. 1992	8	61,900	In-person	Paper
1991	Feb. 1991	Sept. 1993	8	40,800	In-person	Paper
1992	Feb. 1992	May 1995	10	56,300	Telephone*	Paper
1993	Feb. 1993	Jan. 1996	9	56,800	Telephone	Paper
1996	Apr. 1996	Mar. 2000	12	95,152	In-person / Telephone	CAPI

Note: Panels were stopped in 1994 and 1995. The next panel began in 2000, but data from it are not yet available.

*Census conducted in-person interviews during the first, second, and sixth interview of the 1992 panel.

Source: U.S. Bureau of the Census (1998) Survey of Income and Program Participation Quality Profile,” Third Edition (<http://www.sipp.census.gov/sipp/qprofile.htm>).

Exhibit 2: Summary of Topical Modules that Contain Health Related Information from the 1990, 1991, 1992, 1993, and 1996 SIPP Panels

Topical Module	Interview Timing	Brief Description
Functional Limitations and Disability	1990 Interviews 3 and 6 1991 Interview 3 1992 Interviews 6 and 9 1993 Interviews 3 and 6 1996 Interviews 5 and 11	Includes information about a person's health and disability, activities of daily living (ADLs), instrumental activities of daily living (IADLs), and abilities to complete broad functions, such as housework.
Work Disability History	1990 Interview 2 1991 Interview 2 1992 Interview 2 1993 Interview 2 1996 Interview 2	Includes information about the condition causing the disability, the last time the respondent worked before they became limited, and how much a respondent worked.
Medical Expense and Work Disability	1990 Interview 7 1991 Interview 4 1992 Interview 7 1993 Interviews 4 and 7 1996 Interviews 3, 6, 9, and 12	Includes information regarding medical expenses and work prevention.

Exhibit 3: Work Limitations Prevalence Rates for Adults with Disabilities (Aged 25-61) by Interview Wave from the 1990, 1991, 1992, 1993, and 1996 SIPP Panels

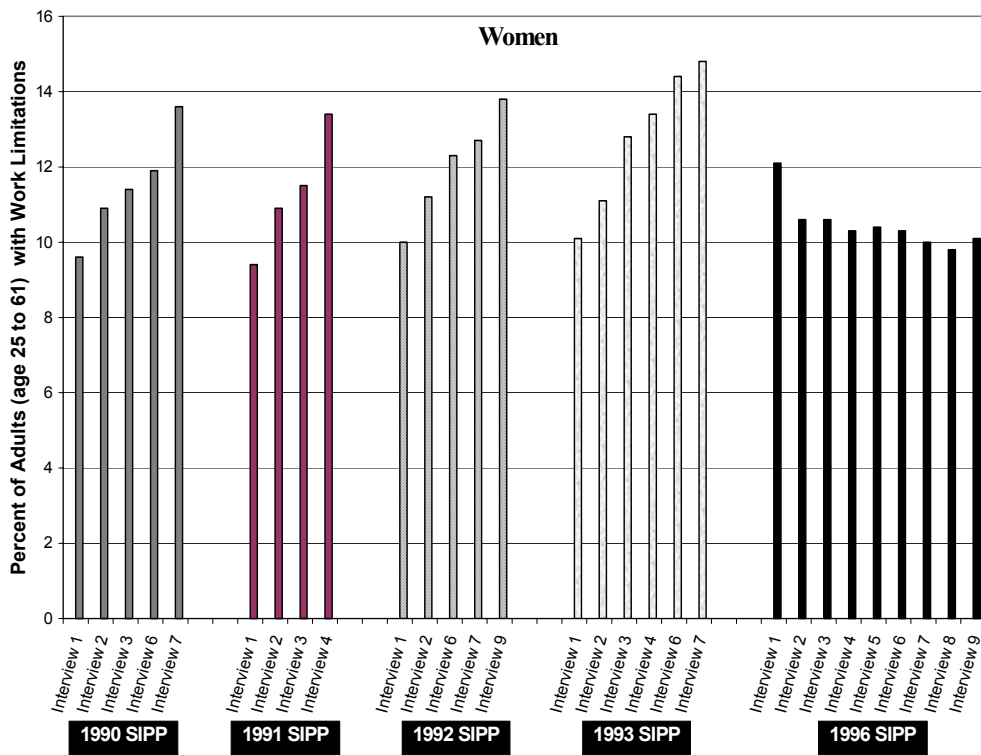
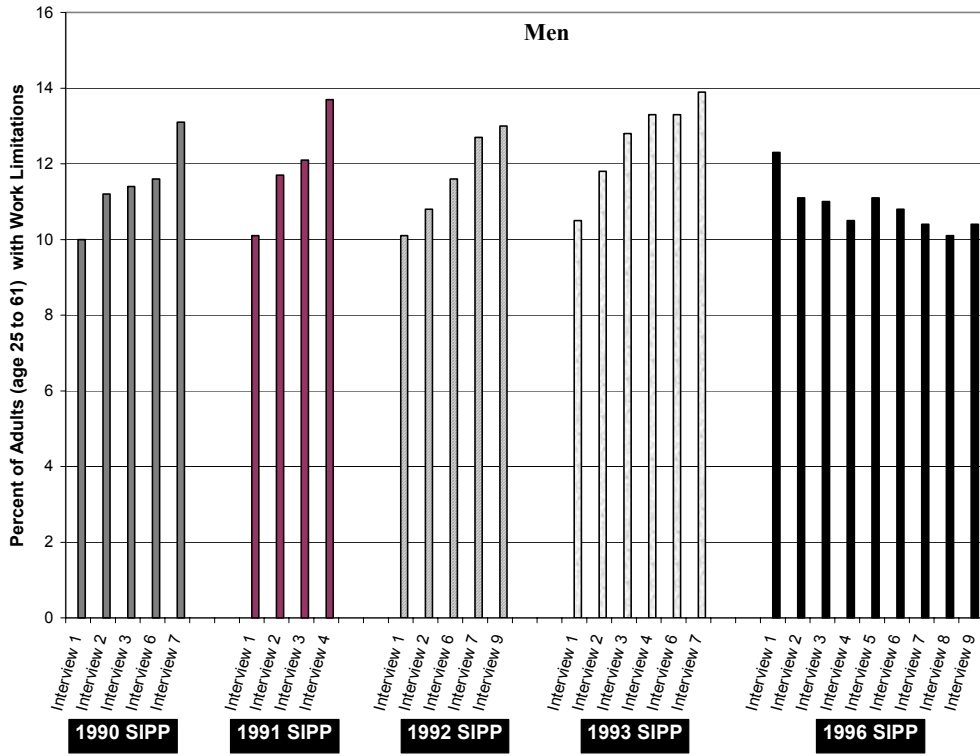
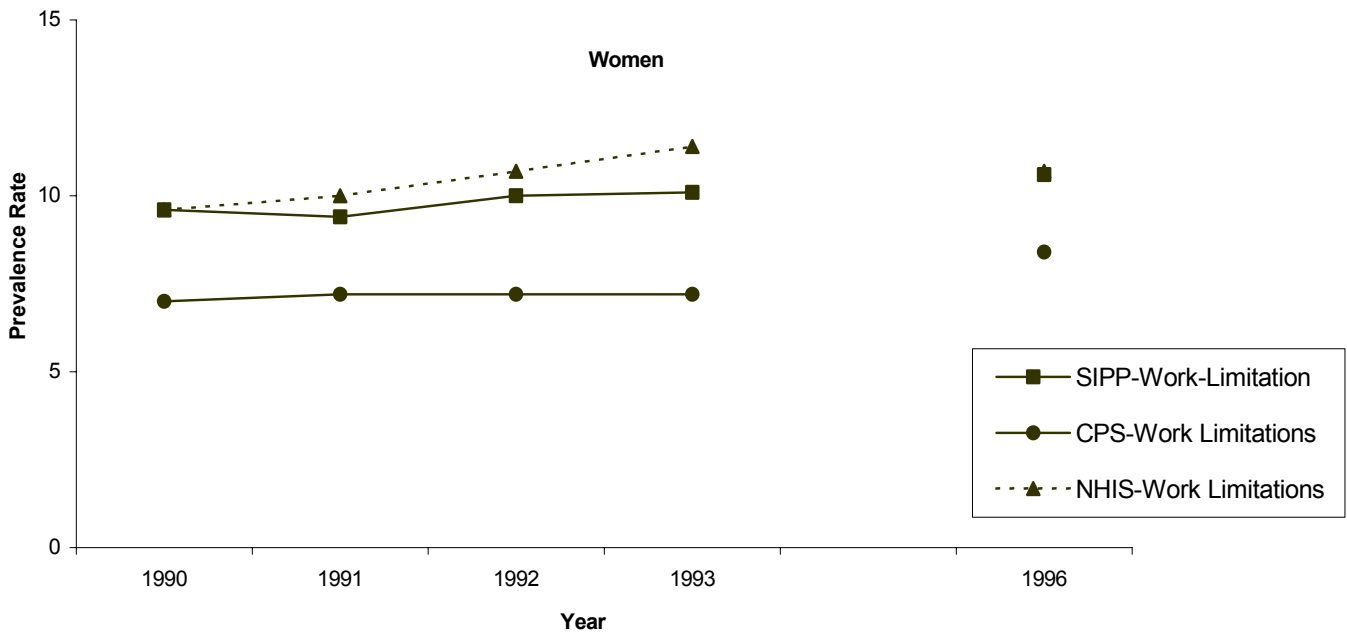
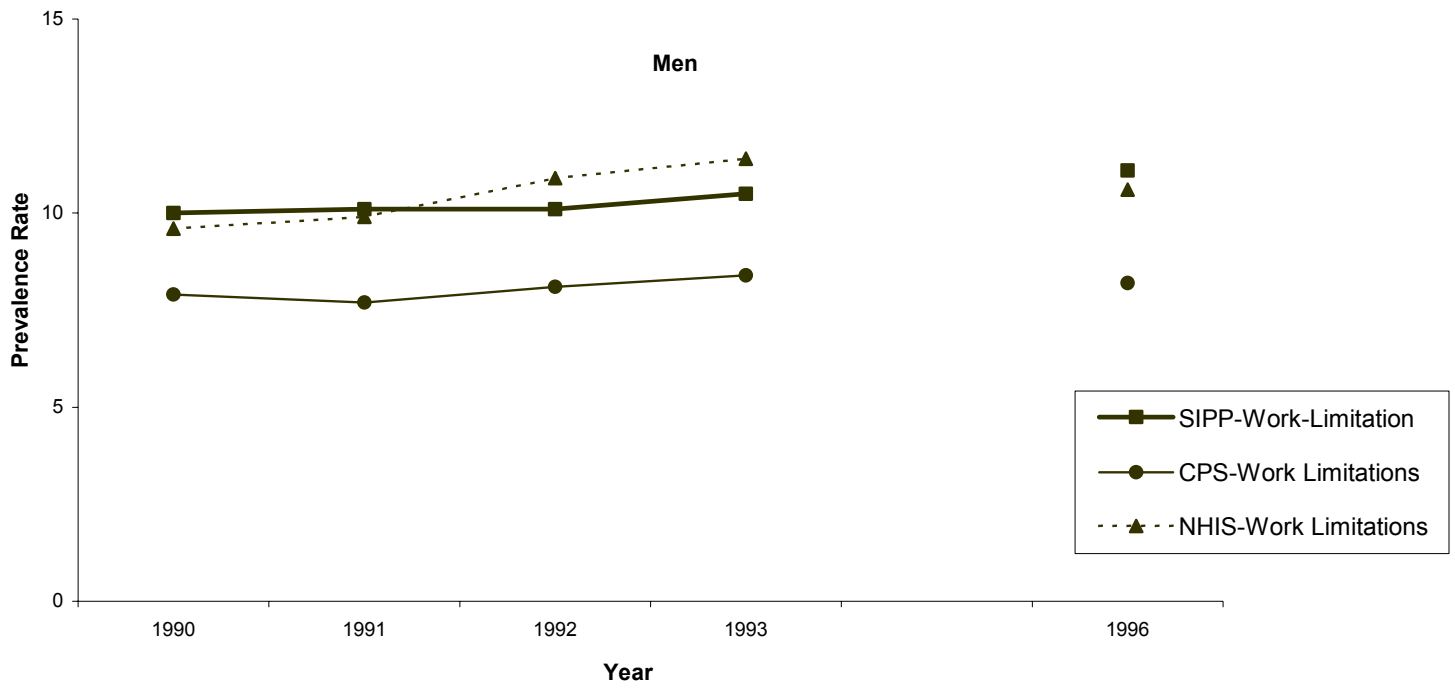


Exhibit 4: Characteristics of Adult (Age 25 to 61) SIPP Respondents who Report a Work Limitation in Each Panel

Year	1990 Interview 1	1991 Interview 1	1992 Interview 1	1993 Interview 1	1996 Interview 2
	Men				
Prevalence					
Percent of Overall Population	10.1	10.2	10.2	10.6	11.2
	Characteristics Of the Work Limited Population				
White	77.1	78.7	74.5	75.4	71.9
Percent Age 45-61	53.9	52.3	52.2	50.8	52.0
< High School	35.9	28.4	32.3	32.6	31.4
	Women				
Prevalence					
Percent of Overall Population	9.6	9.4	10.1	10.2	10.7
	Characteristics Of the Work Limited Population				
White	73.9	74.4	76.3	73.8	73.3
Percent Age 45-61	55.7	52.8	52.4	53.0	49.3
< High School	32.3	31.7	31.1	27.4	30.7

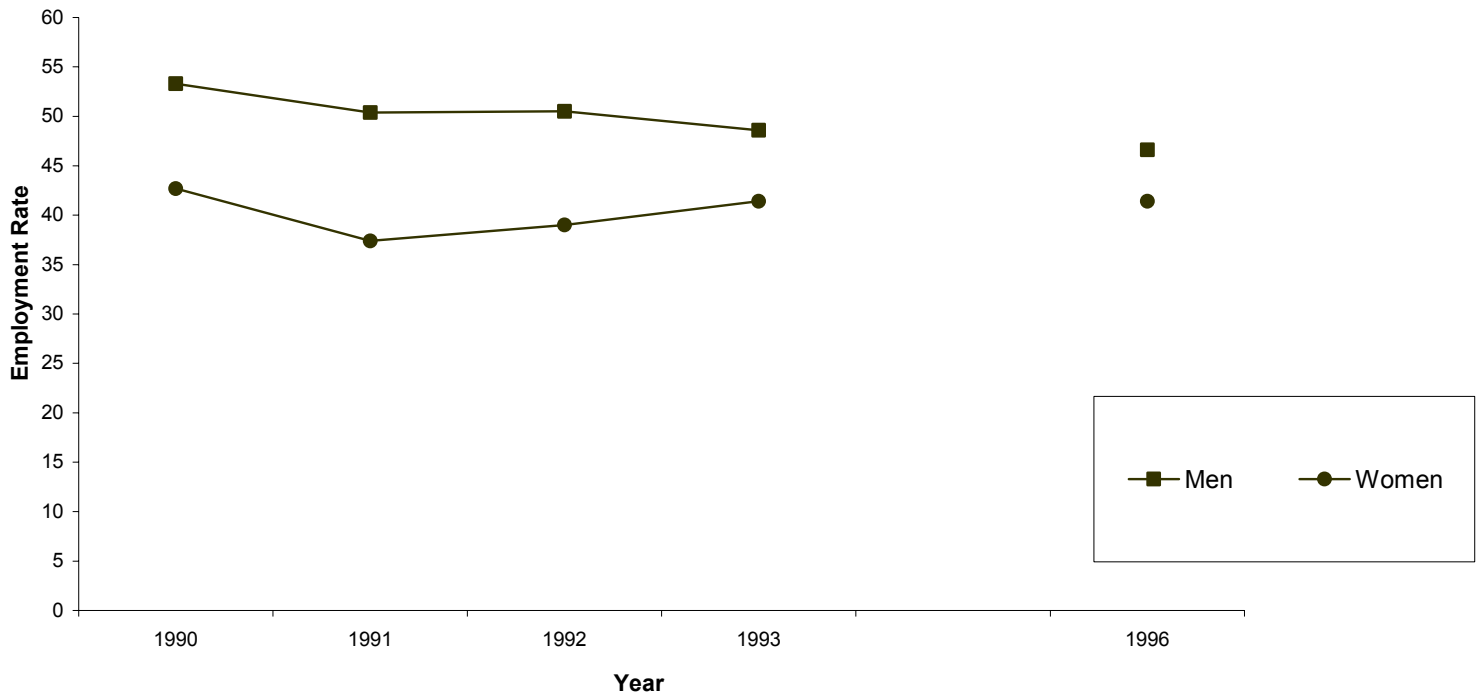
Note: In the 1990 through 1993 panels, “less than high school” is identified by indicating that 11th grade or lower was the highest grade or year of regular school attended. In 1996, the question was changed. “Less than high school” is identified by indicating 11th grade or lower was the highest grade completed.

Exhibit 5: Summary of Work Limitation Prevalence Rates Across the SIPP, CPS, and NHIS from 1990 through 1996¹



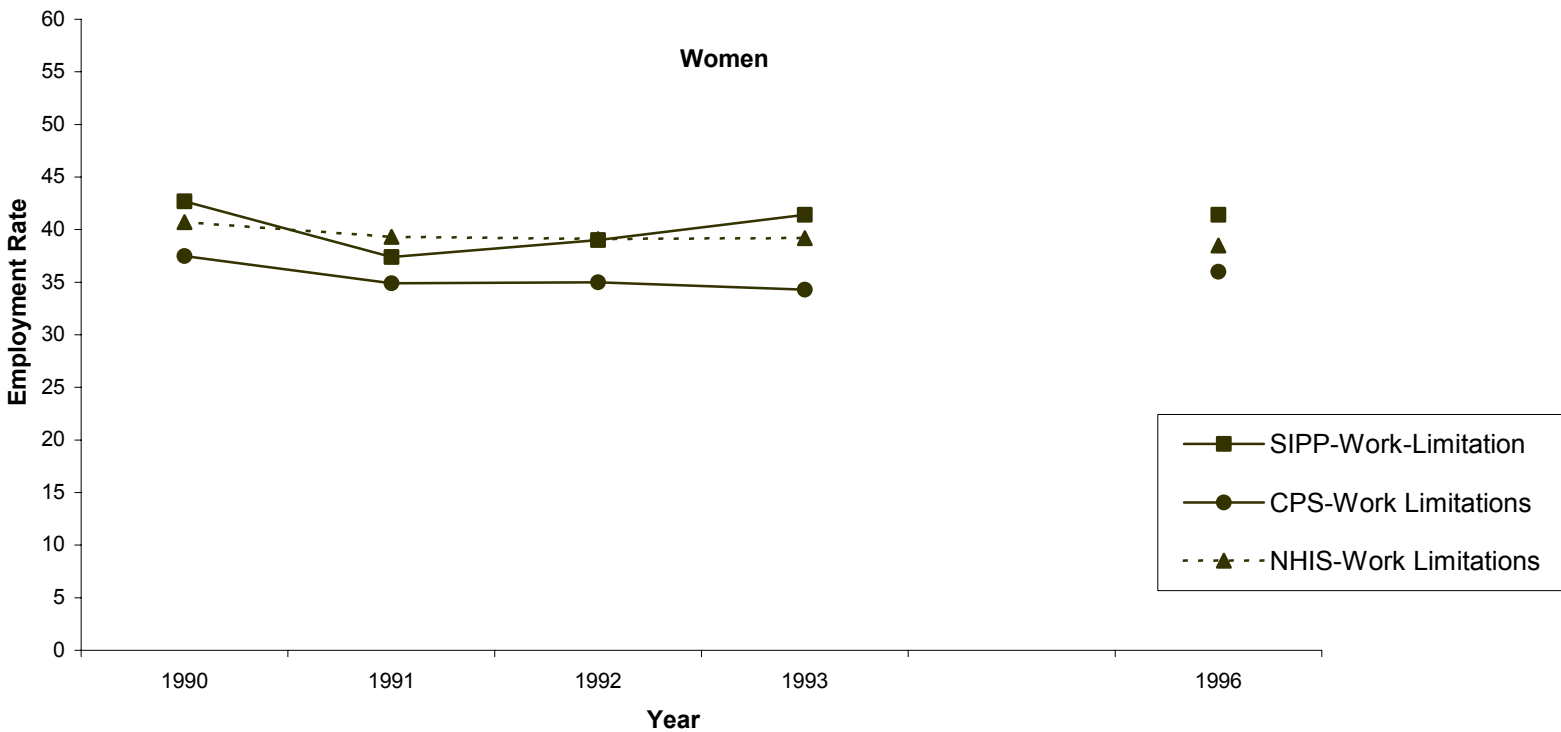
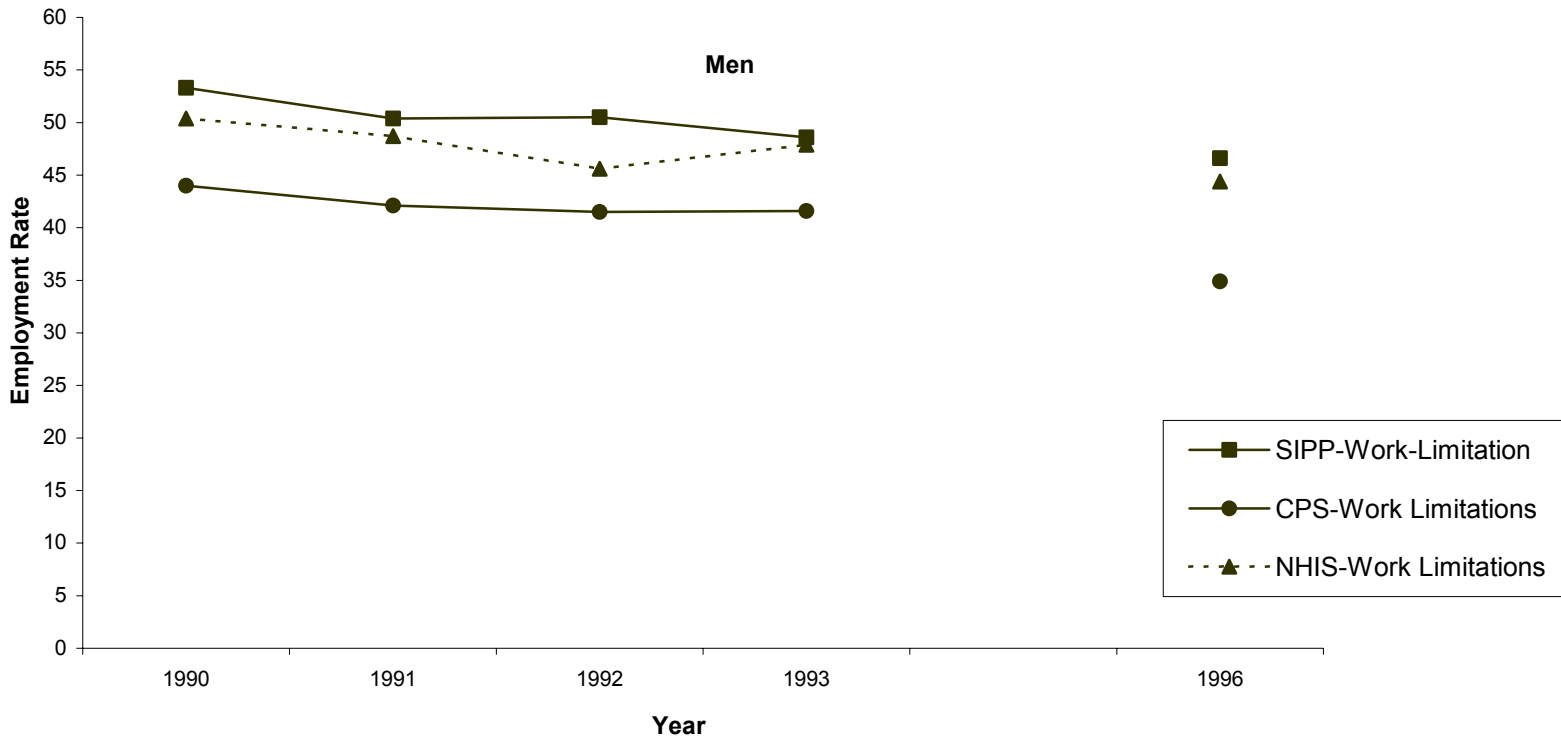
¹ The CPS and NHIS estimates were obtained from Burkhauser, Houtenville, and Wittenburg, forthcoming.

Exhibit 6: Annual Employment Rates of Adults (Aged 25-61) who Report Work Limitations in the SIPP, by Panel and Gender²



² An individual is considered employed if s/he works more than 52 hours over a one year period. We measure annual employment using interviews 2-4 in the 1996 SIPP and 1-3 in the 1990, 1991, 1992, and 1993 SIPP panels.

Exhibit 7: Summary of Employment Rate Trends of Respondents who Report a Work Limitation in the SIPP, CPS, and NHIS from 1990 through 1996, by Gender³



³ The CPS and NHIS estimates were obtained from Burkhauser, Houtenville, and Wittenburg, forthcoming.

Exhibit 8: Prevalence Rates Under Alternative Disability Definitions for Adults with Disabilities (Aged 25-61) by Interview Wave from the 1990, 1991, 1992, 1993, and 1996 SIPP Panels

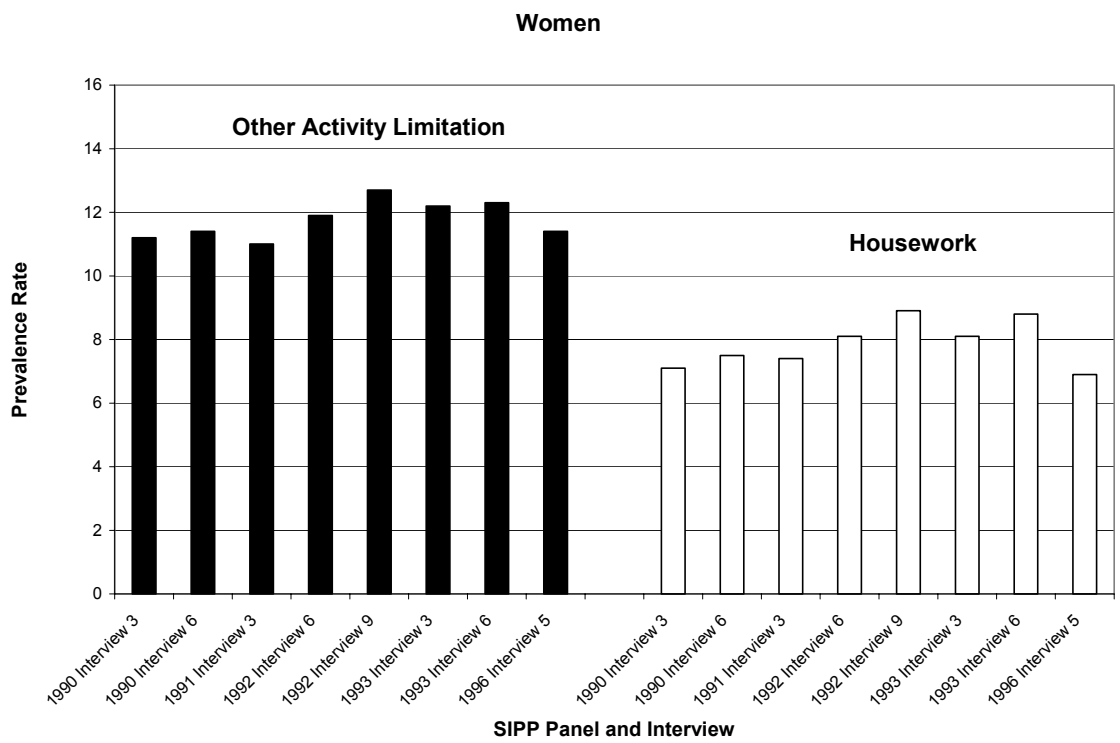
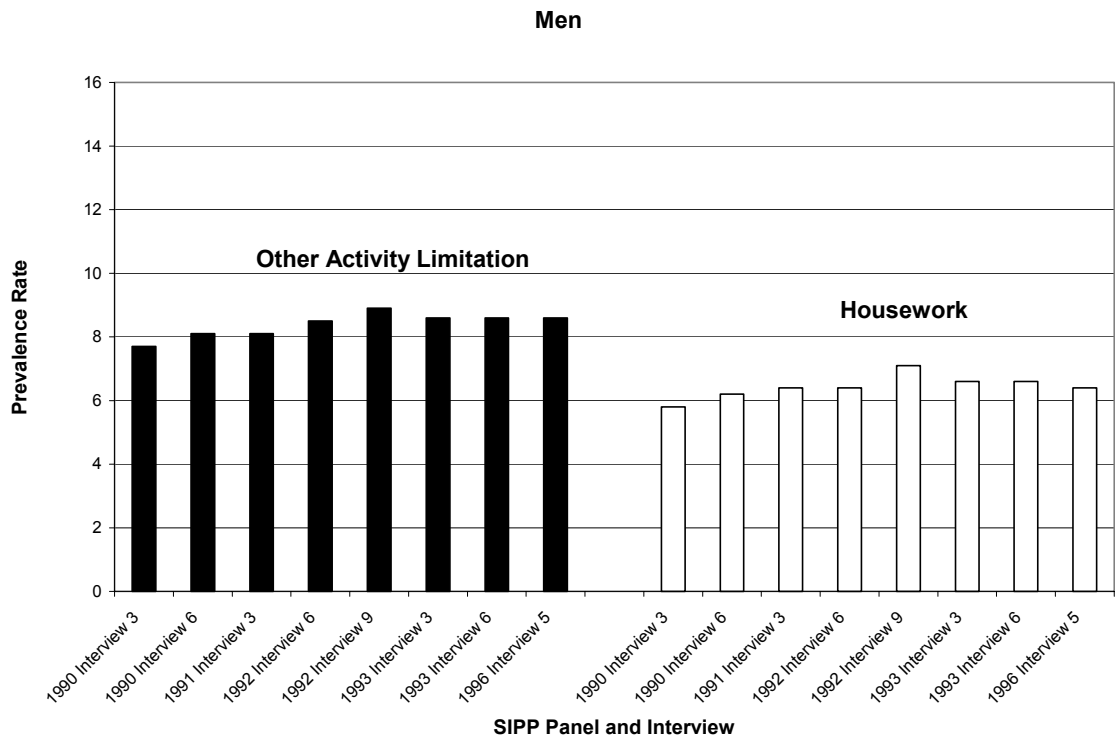


Exhibit 9: Comparison of Characteristics Using Alternative Disability Conceptualizations in the SIPP (1996 Panel-only)

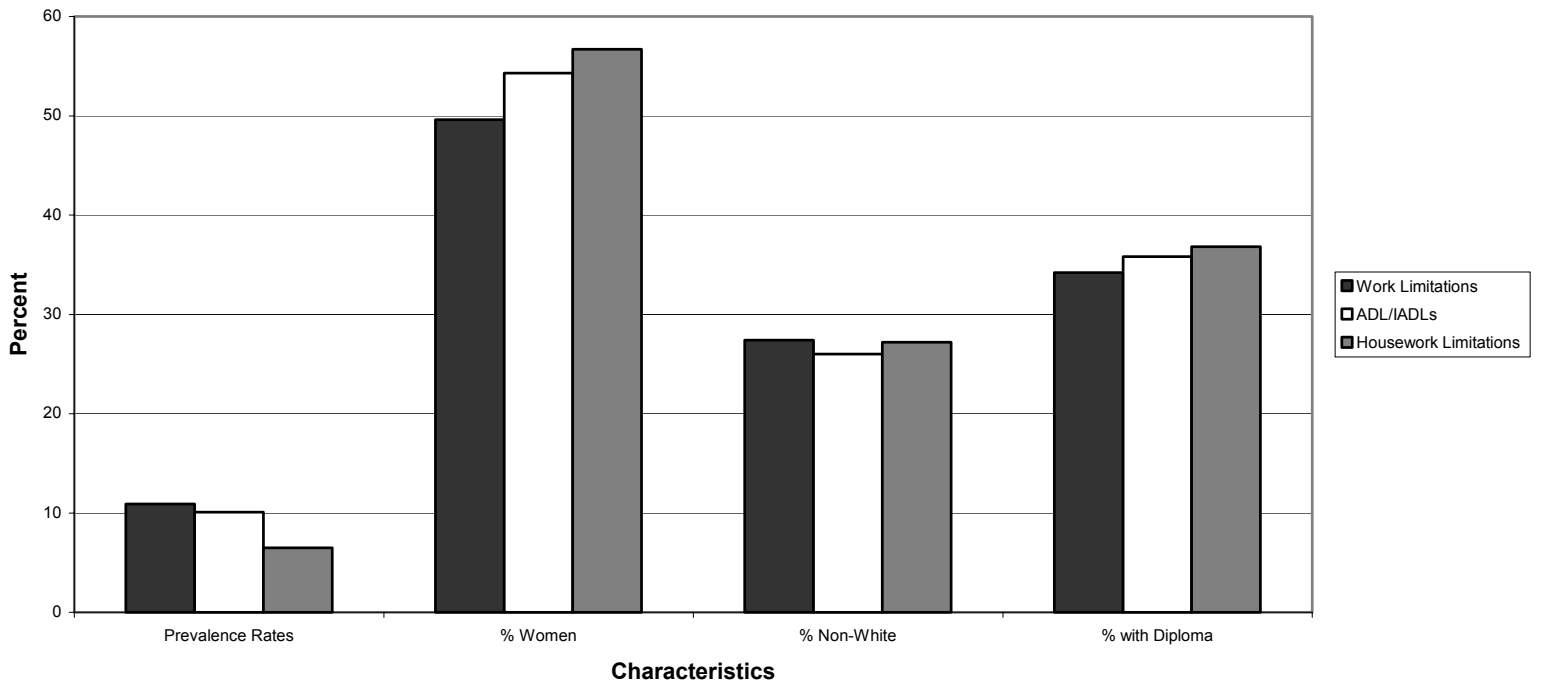
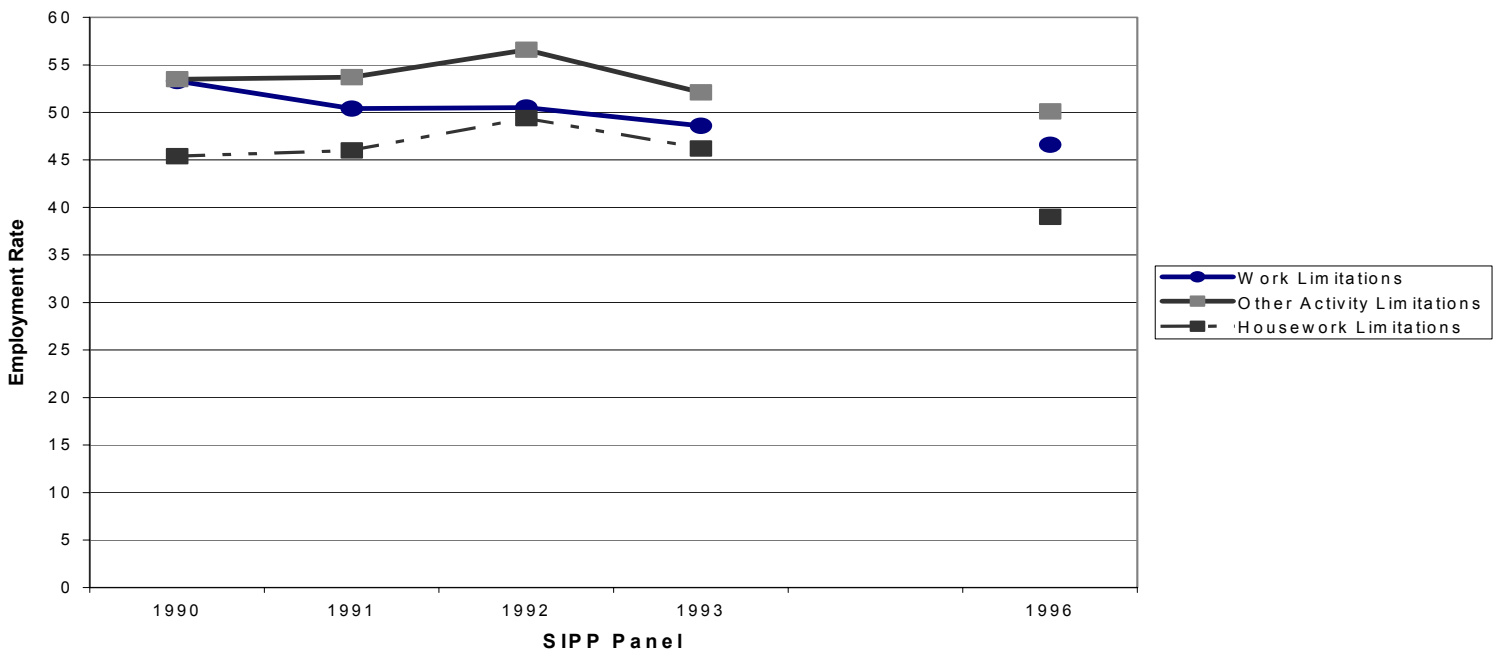
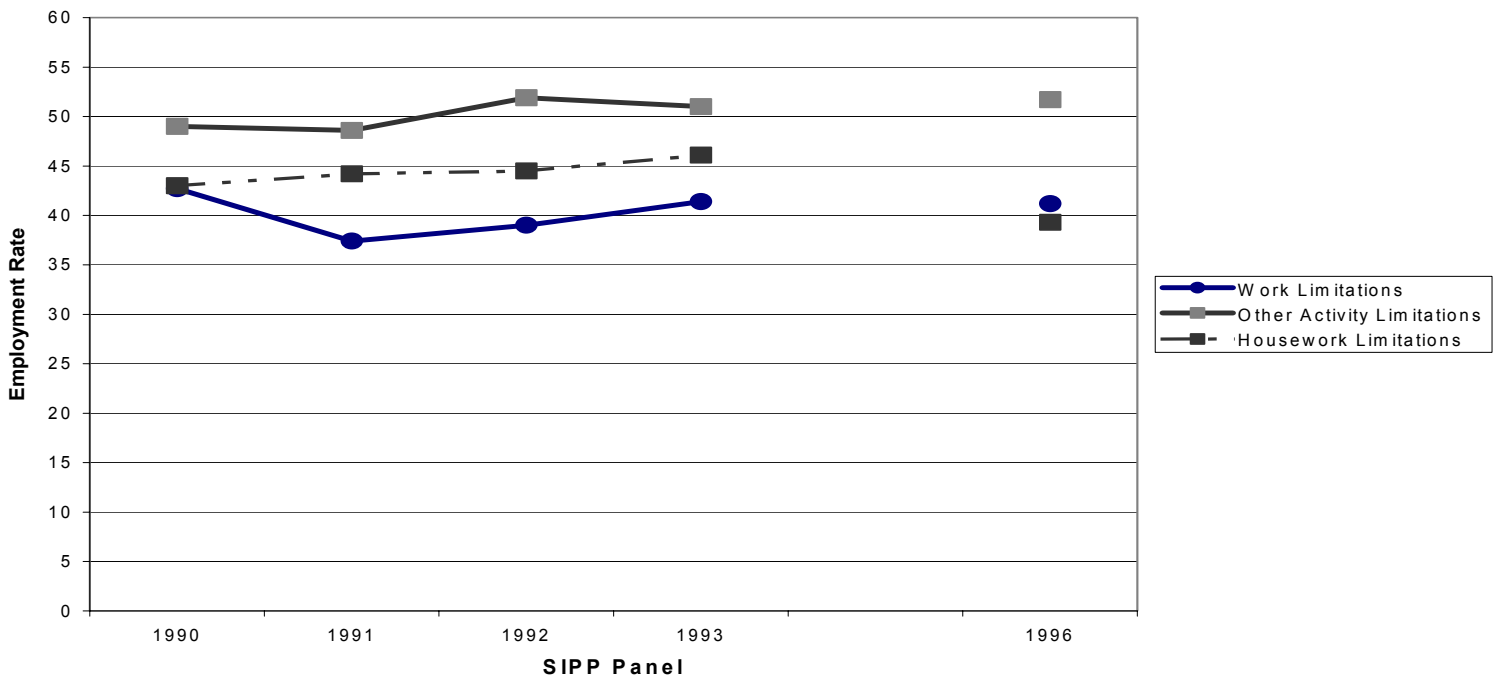


Exhibit 10: Summary of Employment Rate Trends from Alternative Disability Conceptualizations in the SIPP from 1990 through 1996, by Gender

Men



Women



Appendix Exhibit A1: Work Limitation Prevalence Rates for Adults with Disabilities (Aged 25-61) by Interview Wave from the 1990, 1991, 1992, 1993, and 1996 SIPP Panels

Year	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5	Interview 6	Interview 7	Interview 8	Interview 9
Total									
1990	9.8	11.0	11.4	*	*	11.7	13.4	*	x
1991	9.8	11.3	11.8	13.5	*	*	*	*	x
1992	10.1	11.0	*	*	*	12.0	12.7	*	13.4
1993	10.3	11.4	12.8	13.4	*	13.9	14.3	*	*
1996	12.2	10.9	10.8	10.4	10.7	10.5	10.2	10.0	10.2
Men									
1990	10.0	11.2	11.4	*	*	11.6	13.1	*	x
1991	10.1	11.7	12.1	13.7	*	*	*	*	x
1992	10.1	10.8	*	*	*	11.6	12.7	*	13.0
1993	10.5	11.8	12.8	13.3	*	13.3	13.9	*	*
1996	12.3	11.1	11.0	10.5	11.1	10.8	10.4	10.1	10.4
Women									
1990	9.6	10.9	11.4	*	*	11.9	13.6	*	x
1991	9.4	10.9	11.5	13.4	*	*	*	*	x
1992	10.0	11.2	*	*	*	12.3	12.7	*	13.8
1993	10.1	11.1	12.8	13.4	*	14.4	14.8	*	*
1996	12.1	10.6	10.6	10.3	10.4	10.3	10.0	9.8	10.1

* No available information in the core or topical modules on work limitations during interview wave.

x No available information is available because the panel had ended.

Appendix Exhibit A2: Proportion of 1996 SIPP respondents who Reported Two Consecutive Periods of Work Limitations, By Interview

Interview	Percent
Interview 1	67.7
Interview 2	75.8
Interview 3	74.4
Interview 4	76.9
Interview 5	76.3
Interview 6	76.3
Interview 7	77.3
Interview 8	79.4

Appendix Exhibit A3: Proportion of Population with Work Limitations Reporting Limitations in Other Activities

	Wave 3	Wave 6
1990	56.0	55.3
1993	58.1	54.9

Appendix Exhibit A4: Comparison Data Sets and Variable Definitions

Variable	National Health Interview Survey (NHIS)	Current Population Survey (CPS)	Survey of Income and Program Participation (SIPP)
General Survey Information			
Background	The annual cross-sectional survey of the non-institutionalized civilian population of the United States. The federal government uses data from the NHIS to monitor trends in illness and disability. Researchers use this data to analyze access to health care and health insurance and to evaluate federal health programs.	The CPS is a monthly survey of the non-institutionalized population of the United States. Information is collected on labor force characteristics (e.g., employment, earnings, hours of work). In March of each year, the CPS basic monthly survey is supplemented with the Annual Demographic Survey. This supplement focuses on sources of income, government program participation, previous employment, insurance, and a variety of demographic characteristics. The CPS and the Annual Demographic Survey are used extensively by government agencies, academic researchers, policy makers, journalists, and the general public to evaluate government programs, economic well-being and behavior of individuals, families and households. The CPS follow housing units over a course of 4 months and then returns 8 months later to follow them for another 4 months. This allows for the matching of housing units and multi-period analysis. Although people who move out of the housing unit are not followed.	The SIPP is a longitudinal survey that contains detailed monthly demographic, program, employment, and health characteristics for a nationally representative sample of the non-institutionalized resident population of the United States. The purpose of the SIPP is to provide comprehensive information regarding the income and program characteristics from of a representative sample of United States population Interviewers collect information from a separate rotation group each month regarding their activity in the previous four months. Each panel includes four "rotation" groups. The design allows SIPP interviewers to remain in the field on a continual basis. Each rotation group represents a random sample of the US population. The SIPP interview includes two types of questions: core and topical module (TM). The core questions are updated each interview and include demographic, program participation, and employment information. TM questions relate to special topics of interest that generally does not change each interview period, such as past program participation, work history, or health.
Agency	Center for Disease Control and Prevention	Conducted by the Bureau of the Census on behalf of the Bureau of Labor Statistics	Conducted by the Bureau of the Census on behalf of the Bureau of Labor Statistics
Survey Universe	Resident civilian population of the United States: Those on active duty with the Armed Forces and U.S. citizens living abroad are not surveyed, however, the dependents of those on active duty with the Armed Forces who live in the U.S. are included. Those in long-term care facilities are also excluded.	Resident population of the United States: citizens living abroad are not surveyed. Those in long-term care facilities are excluded.	Nationally representative sample of the non-institutionalized resident population of the United States. This population interviews includes persons living in-group quarters, such as dormitories, rooming houses, and religious group dwellings. Persons excluded from the SIPP population include crew members of merchant vessels, Armed Forces personnel living in military barracks, institutionalized persons, such as correctional facility inmates, residents of long-term care facilities, and citizens residing abroad. Foreign visitors who work or attend school in this country and their families are eligible for interviews.

Source: Burkhauser, Houtenville, and Wittenburg (forthcoming)

Appendix Exhibit A4: Comparison Data Sets and Variable Definitions

	National Health Interview Survey	Current Population Survey	Survey of Income and Program Participation
Years Available and Major Revisions	The NHIS began in July 1957. We use 1983-1996 because work limitations and impairment information was consistently collected. Major revisions were made to the survey instrument in 1983 and 1997.	The CPS began in the early 1940s, however, the work limitation variable was not asked until 1981. In 1994, major revisions were made to the Basic Monthly Survey and the labor force questions. The changes to the March Supplement were less substantial and reflect the shift to computer-assisted interviews.	The Census Bureau collects data for each SIPP panel, which are available in each year from 1984 through 1993 and then again starting in 1996. While the interview length varies across SIPP panels, since 1990, each panel includes at least eight "interview waves" over approximately a 2.5-year period. Panels for 1994 and 1995 do not exist, because the Census cancelled these efforts in anticipation of the rollout of the 1996 SIPP "redesign." The next SIPP panel will start in 2000. We use data from the 1990, 1991, 1992, 1993, and 1996 panels.
Number of Participants	Approximately 80,000 individuals annually	Approximately 150,000 individuals annually	Sample size varies by panel, 40,000 non-institutionalized persons (1991 panel) to 95,000 non-institutionalized persons (1996 panel).
Disability Information			
Work Limitation	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.	The 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.	The first core interview asks "Does — have a physical, mental or other health condition which limits the kind or amount of work — can do?"
Housework Limitation	Not Applicable	Not Applicable	In the functional limitations and disability topical module, respondents are asked: "Does — have a physical, mental or other health condition which limits the kind or amount of work — can do around the house?"
Limitations in Other Activities	Not Applicable	Not Applicable	In the functional limitations and disability topical module, respondents are asked: Does — have any difficulty getting around inside the home? Does — have any difficulty getting around outside the home, for example to shop or visit a doctor's office? Does — have any difficulty getting into and out of bed or a chair? Does — have any difficulty taking a bath or a shower? Does — have any difficulty getting dressed? Does — have any difficulty eating? Does — have any difficulty using the toilet, including getting to the toilet? Does — have any difficulty keeping track of money and bills? Does — have any difficulty preparing meals? Does — have any difficulty doing light housework, such as washing dishes or sweeping a floor?

Appendix Exhibit A4: Comparison Data Sets and Variable Definitions

	National Health Interview Survey	Current Population Survey	Survey of Income and Program Participation
Employment Measure	In order to be more consistent with the CPS measure of employment in these tables, people are employed if they had a job in the previous two weeks, which includes those on layoff. This definition is based on the following questions: “[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?” ... “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.”	People are employed if they work 52 hours or more and have positive earnings in the previous year. This is reflects attachment to the labor force and the underlying survey questions are more consistently worded over time.	We consider an individual who reports more than 52 hours over the entire year (i.e., one hour per week) from their primary and/or secondary job (including self-employment) as employed Individuals with fewer than 52 work hours annually are considered detached from the labor market. We calculate annual hours by aggregating total monthly hour measures across all 12 months.

Appendix A5: Predicted Employment Outcomes for Prime Age Men Who Report a Work Limitations from 1990 through 1996 SIPP Panels

Variable	Parameter Estimate	Standard Error
Intercept	0.427	0.015
1991	-0.044	0.013
1992	-0.039	0.013
1993	-0.037	0.013
1996	-0.038	0.012
Age 35 – 44	-0.052	0.012
Age 45 – 54	-0.116	0.012
Age 55 – 61	-0.228	0.012
Male	0.097	0.008
Black	-0.173	0.011
Hispanic	-0.063	0.015
Non-White, Non-Black, Non-Hispanic	-0.064	0.023
High School	0.141	0.009
Some College	0.273	0.011
Completed College	0.333	0.014

Note: All estimates are significant at the $p < 0.01$ level.

Appendix Exhibit A6: Employment Rates of Men and Women without Disabilities by Survey and Disability Definition

Year	NHIS		CPS		SIPP		
	Impairment	Work Limitation	Work Limitation	One-Year Limitation	Work Limitation	Household Limitation	Other Limitation
Men							
1990	91.3	93.2	96.1	95.9	95.8	94.3	94.8
1991	90.7	92.4	95.9	95.5	94.8	92.9	93.2
1992	89.7	92.0	95.4	95.3	94.8	93.1	93.5
1993	90.4	92.7	94.8	94.2	94.0	92.5	93.0
1994	90.3	92.8	94.5	94.5	na	na	na
1995	91.0	93.3	94.8	94.3	na	na	na
1996	90.0	93.5	94.8	na	na	na	na
1997	na	na	94.9	94.5	93.4	93.7	94.4
Women							
1990	70.8	73.5	77.0	77.2	78.6	77.7	78.7
1991	70.9	73.0	77.6	76.6	79.1	78.1	79.0
1992	71.8	74.1	77.8	77.6	79.6	78.4	79.1
1993	72.3	74.3	77.6	77.2	78.4	77.8	78.6
1994	73.3	75.0	78.3	78.2	na	na	na
1995	74.6	75.8	79.1	78.9	na	na	na
1996	74.0	76.1	79.7	na	na	na	na
1997	na	na	80.1	80.0	80.7	80.5	81.6
Source: Authors' calculations using the SIPP and Burkhauser, et al. (2002)							

Appendix Exhibit A7: Quarterly Employment Rates of Adults (Aged 25-61) who report Work Limitations in each Interview Wave, by Gender⁴

Year	Interview 1	Interview 2	Interview 3	Interview 4	Interview 5	Interview 6	Interview 7	Interview 8	Interview 9
Men									
1990	46.3	53.6	55.7	*	*	56.8	55.2	*	x
1991	44.5	49.7	52.4	50.7	*	*	*	*	x
1992	44.1	48.5	*	*	*	49.9	52.5	*	53.9
1993	42.1	46.1	49.8	51.5	*	54.2	54.6	*	*
1996	43.9	42.6	41.9	40.0	41.3	39.9	37.0	35.5	38.1
Women									
1990	35.3	36.5	40.7	*	*	43.0	43.8	*	x
1991	32.7	34.8	39.4	39.1	*	*	*	*	x
1992	33.0	36.1	*	*	*	39.6	39.7	*	42.4
1993	33.8	35.1	39.0	39.0	*	40.1	42.1	*	*
1996	38.5	37.4	35.9	33.8	34.3	35.0	32.8	31.2	34.1

* No available information in the core or topical modules on work limitations during interview wave

x No information is available because the panel had ended.

⁴ We define "employed" as having a job during one of the four reference months of each interview wave.

