

## EMPLOYMENT, EARNINGS, AND DISABILITY

(1991/92, 1993/94, 1994/95 and 1997 data from the Survey of Income and Program Participation)

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## **Introduction**

This paper seeks to address four issues: (1) In the context of a household survey, does there now exist an appropriate method for measuring changes in the employment status of individuals with disabilities? (2) based on data from the Survey of Income and Program Participation, what have been the recent changes in the employment rate of individuals with disabilities? (3) what are the relationships between disability, employment, and participation in the major programs that are designed to provide benefits to individuals with disabilities?, and (4) does disability status appear to affect the likelihood that individuals will participate in programs that are not identified as >disability= programs?

The data for this paper come primarily from wave 5 of the 1996 panel of the Survey of Income and Program Participation (SIPP). The wave 5 interviews were conducted during the period August to November in 1997. An extensive set of disability questions were asked both in wave 5 of the 1996 panel and again in wave 11 (collected in August-November 1999) but the wave 11 data are not yet available. Similar sets of disability questions have been asked periodically since wave 3 of the 1991 panel and wave 6 of the 1990 panel (data collected October 1991-January 1992). Disability data were also collected in earlier SIPP panels, but the earlier question sets were somewhat abbreviated compared to the later sets.

## **Measuring changes in the employment rate of individuals with disabilities: the current state of affairs**

An analysis of this issue must be concerned with several critical sub-issues: (1) how is disability defined? (2) which question or questions in a household survey provide a valid and reliable measure of disability status?, and (3) what design features would make it possible for a given household survey to serve as a vehicle for measuring changes in the employment status of individuals with disabilities?

The first critical sub-issue has to do with the definition of disability. The Americans with Disabilities Act of 1990 defines disability as «a physical or mental impairment that substantially limits one or more major life activities» (the definition goes on to include those individuals who have a *record* of such an impairment or who are *regarded* as having such an impairment).

The ADA definition provides a certain foundation for those who seek to devise a disability question or set of questions for a household survey. It would seem evident, for example, that the survey must address possible limitations in major life activities. But it is far from clear how best to do this. An approach that simply adopted the wording of the ADA , that is, an approach that simply asked if the

sample person had a physical or mental impairment that substantially limited any major life activities seems very unlikely to be successful. Many respondents would be uncertain as to what was meant by »a physical or mental impairment« and many would require some clarification of what was meant by »major life activities.«

The disability measurement approach used in the SIPP calls for questions about the ability to perform a number of specified »major life activities.« The activities covered in the SIPP will become apparent as SIPP data are introduced. It can be argued that asking about limitations in a number of individual activities provides the most accurate measure of the aggregate number of individuals with a disability, but it is also true that there is interest in the number and characteristics of individuals with limitations in specific activities.

The second critical sub-issue concerns validity and reliability. The SIPP disability questions have a certain face validity. The data have been examined by a wide range of data users and those users have generally accepted the appropriateness of the disability concepts. But there are questions about the reliability of the SIPP data. The design of SIPP has produced data files that make it possible to examine the consistency of individual responses from one point in time to another. For example, the same set of disability questions that were asked in wave 6 of the 1992 panel and wave 3 of the 1993 panel were asked again one year later in wave 9 of the 1992 panel and wave 6 of the 1993 panel.

Data on the relationship between responses in time 1 and responses in time 2 are shown in Table A1.

Data are shown for certain individual activities as well as for some summary measures. The tables cross-classify time 1 and time 2 responses and show the employment rates for time 1 and time 2 for each of the classification categories. A certain amount of disagreement between time 1 and time 2 responses is to be expected; the status of individuals does change over time, and a year is not a trivial period of time. Nevertheless, the great amount of change between time 1 statuses and time 2 statuses suggests a substantial reliability problem. For example, of the 461,000 (weighted) individuals who were classified as unable to see the words and letters in ordinary newspaper print in time 1, only 117,000 had the same classification in time 2.

The summary measure shown on the last page of Table A1 exhibits a higher level of consistency. Of the 11.4 million with a severe disability in time 1, 8.4 million had a severe disability in time 2.

The data in Table A1 show that at least some SIPP disability estimates are seriously affected by reliability problems. For example, an estimate of the employment rate of individuals with a severe vision impairment is based on a vision impairment question that is not answered consistently over time. When an overall measure of disability status is used, the reliability problem is diminished.

Our final critical sub-issue has to do with the design of the household survey. If a household survey is to measure change, a basic requirement is that the same questions be asked over time. There are also considerations of sample overlap, attrition, and time-in-sample bias. Attrition refers to the increase over time in the number of noninterviewed sample units. Time-in-sample bias refers to the tendency for

respondents to answer questions differently depending on the number of times they have been interviewed over time. In the absence of attrition and time-in-sample bias, it would be efficient to measure change by asking, over time, the same set of questions of the same set of sample persons. Short and McArthur (1987) examined data from the 1984 SIPP panel and found that attrition bias existed for a number of demographic and economic measures. There is also clear evidence of the existence of time-in-sample bias. Studies of the rotation group data from the Current Population Survey have shown that the measured unemployment rates for rotation groups that have been in sample for a period of time tend to be lower than the measured unemployment rates for rotation groups that are new to the sample (Bailar, 1975). In fact, a great merit of the design of the CPS is the fact that the effect of this bias is eliminated by a rotation group scheme that keeps the average time-in-sample constant over time. In contrast, the SIPP has been viewed primarily as a panel or longitudinal survey, and the design of SIPP reflects this purpose and makes the survey liable to the effects of attrition and time-in-sample bias.

The CPS is designed to measure changes in employment status, but there are no questions in that survey that are intended to identify individuals with disabilities. It is true that there are questions each month that identify individuals who are reported to be not in the labor force because they are disabled, and there are questions each March that ask if anyone in the household has a condition that prevents them from working or which limits the kind or amount of work they can do, but these items were not intended to, nor do they, identify the population that would be considered to have a disability under the ADA definition.

When SIPP is viewed as an instrument for measuring changes in the employment rate of individuals with disabilities, certain weaknesses are apparent. First, as described above, there are questions about the reliability of the disability data obtained in SIPP. It is most unlikely that this problem is unique to SIPP, but it is a problem that affects SIPP data. Second, because SIPP was designed to provide panel or longitudinal estimates, SIPP estimates of change are subject to time-in-sample bias. Finally, the 1996 panel introduced significant changes to the questionnaire. The disability topical module that was included in the 1996 panel is very similar to those included in earlier panels, but the changes to the core questionnaire in the way that work disability status was determined raise serious questions about data comparability. These changes will be discussed below. The 1996 panel also marked the introduction of computer-assisted interviewing. Interviews in earlier panels were conducted by marking responses on a printed questionnaire.

### **Recent changes in the employment rate of individuals with disabilities**

Table 1 shows disability and employment rate data for four time periods. Data for the first period, 1991/92, come from wave 6 of the 1990 panel and wave 3 of the 1991 panel. Data for the second period, 1993/94, come from wave 6 of the 1992 panel and wave 3 of the 1993 panel. Data for the third period, 1994/95, come from wave 9 of the 1992 panel and wave 6 of the 1993 panel. And data for the fourth period, 1997, come from wave 5 of the 1996 panel.

Individuals were considered to be employed if they worked at a job or business at any time during the month preceding the interview month.

The data in table 1 are arranged so that the disability measures that are constant for all 4 time periods are shown first. That is, the first section of Table 1 shows the number of individuals with a limitation and their rate of employment for specific physical functions, specific ADLs, specific IADLs, and certain other specific measures.

Because a rather small percentage of the population is identified by many of the individual measures, it is not surprising that the estimates of the number with a given characteristic and, of course, the employment rate of those with a given characteristic, tend to be somewhat volatile. What is surprising, however, is the very noticeable decline in the number of persons identified as having difficulty seeing or hearing. In 1993/94, 5.2 million persons (in the 21 to 64 age group) were classified as having difficulty seeing, and 5.7 million were classified as having difficulty hearing. In 1997, the number with difficulty seeing was 3.5 million and the number with difficulty hearing was 3.4 million. The decline took place in two stages; from 1993/94 to 1994/95 and from 1994/95 to 1997. There is no obvious explanation in terms of the way the questions were asked. Although there was what appears to be a very slight change in the seeing and hearing questions for the 1996 panel, the questions asked in earlier panels were identical.

The first summary disability measure is based on individual items other than work disability or program

participation and is labeled 'Definition 1'. The overall employment rate for individuals 21 to 64 was higher in 1997 than in 1994/95, but Definition 1 shows that the employment rate of individuals with a disability of any severity was lower in 1997 than in 1994/95. The employment rate of those with any disability was 50.4 in 1994/95 and 48.1 in 1997. For individuals with a severe disability, the employment rate was 34.1 in 1994/95 and 29.4 in 1997. For those with a nonsevere disability, the rates were 61.6 in 1994/95 and 63.9 in 1997.

The next estimates in Table 1 show the number of persons with a work disability and the number participating in two major programs. It has been the convention in SIPP disability reports to classify individuals who are under 65 years old and who are covered by Medicare or who are receiving Supplemental Security Income (SSI) payments as having a severe disability. For individuals under 65 years, benefits from these programs are available only if the individual has a disability that prevents gainful employment.

When compared to earlier estimates, the 1997 data on the number of individuals with a condition that limits the kind or amount of work that can be done are remarkable. In 1994/95, 20.3 million individuals had a work disability; 8.6 million were unable to work and 11.7 million were able to work. In 1997, the number with a work disability was 16.1 million; the number unable to work was 9.4 million, and the number able to work was 6.7 million. The method of asking the traditional 'work disability' question changed greatly in the 1996 panel, but the huge difference in results could not have been anticipated. In earlier panels, a core question about limitations in the kind or amount of work that could be done was

asked for all working-age individuals at the beginning of the panel. There were no further core questions about the existence of a work disability. At the time of the disability topical module, a verification question was asked for those who had been identified in the beginning of the panel as having a work disability. The work disability question itself was asked for those who had not been identified in the beginning of the panel as having a work disability. In the 1996 panel, a question about limitations in the kind or amount of work that can be done is asked each wave unless the individual has already been identified who is not in the labor force because of long-term illness or disability. There is some evidence that a time-in-sample effect exists - tabulations have shown that the number of individuals classified as having a work disability fell sharply from wave 1 to wave 2. But any time-in-sample effects would appear to explain only a small portion of the total decline.

Definition 2 brings information on work disability and program participation into the disability definition. The new definition leads to the same conclusion about recent changes in employment rates by disability status; the 1997 employment rate for individuals with a disability was lower than the 1994/95 rate. For those with a severe disability, the 1997 rate was lower; for those with a nonsevere disability, the 1997 rate was higher. Under Definition 2, the employment rate for individuals with a nonsevere disability was at least as high as the overall employment rate for each of the four time periods.

Definition 3 is based on a disability definition that includes the activity of taking prescription medicines in the right amount at the right time. The prescription medicine item was first asked during the 1994/95 time period.

Definition 4 incorporates the prescription medicine item as well as three measures that were not asked prior to the 1996 panel. The new items concern the use of hands and fingers to grasp objects, whether mental symptoms have seriously interfered with everyday activities, and an item which asked if individuals had a condition that made it difficult to remain employed or to find a job. This last item was included because disability advocates have long argued that the traditional work disability question - are you limited in the kind or amount of work you can do - lacks face validity. To answer the traditional question, an individual must declare that he or she is either limited or not limited, regardless of any consideration of the environment that he or she faces. The reality is that many individuals would be limited under some environmental conditions, but not limited under others. The new work disability question has the merit of allowing an individual to report that a condition has caused employment problems without reporting that, regardless of environmental considerations, he or she is limited.

When Definition 4 is used as the measure of disability status, the employment rate of individuals with disabilities was 50.2; the rate for those with a severe disability was 31.1, and the rate for those with a nonsevere disability was 82.0.

Definitions 5 and 6 are included to show how wide a definition of disability is possible using data from items that were introduced in the 1996 panel. Definition 5 is based on a disability definition that considers an individual to have a disability if he or she has difficulty moving a large chair, standing for one hour, sitting for one hour, stooping, or reaching. Definition 6 considers an individual to have a

disability if he or she is frequently depressed or anxious or has a lot of trouble getting along with others, concentrating on tasks, or coping with stress.

The final section of Table 1 presents data on disability status cross-tabulated by a measure of availability for employment. The measure shown in the table considers individuals to have a reduced availability for employment if they participated in a major program (Medicare, SSI, and Social Security), or if they had been identified as having a disability that prevented them from working. The data show that the number of individuals who had a disability and a reduced availability for employment was 10.2 million in 1994/95, and 11.7 million in 1997. The employment rate for members of this group was 6.8 percent in 1994/95 and 9.8 percent in 1997. The number of individuals with a disability and without a reduced availability for employment was 19.2 million in 1994/95, and 14.8 million in 1997. The very large drop in this figure reflects the very large reduction in the estimate of the number of individuals with a work disability which did not prevent them from working. The employment rate of individuals with a work disability and without a reduced availability for employment was 76.6 percent in 1994/95, and 80.2 percent in 1997. For those in this category with a severe disability, the employment rates were about the same for the two time periods - 75.5 percent in 1994/95, and 75.1 percent in 1997. For those with a nonsevere disability, the 1994/95 rate was 77.0 percent, and the 1997 rate was 81.8 percent.

### **Disability, employment, and participation in major programs**

Table 2 offers additional data on the employment status of individuals with disabilities. The disability

definition used for Table 2 is the definition that is labeled Definition 4 in Table 1. Of the 17.3 million individuals with a severe disability, 6.9 million were covered by Medicare or received SSI payments. Of the remaining 10.4 million, 1.2 million received Social Security payments but were not covered by Medicare. So the number of individuals with a severe disability who participated in a major program was 8.1 million, and the number who did not participate was 9.2 million. The employment rate for the 9.2 million who did not participate in a major program was 47.3 percent. The 9.2 million can be further divided into those who were classified as prevented from working (3.3 million) and those who were not (5.9 million). The employment rate for the 5.9 million who were not classified as prevented from working was 73.5 percent.

The above paragraph suggests that substantially increasing the employment rate of the 17.3 million individuals with a severe disability might prove to be a challenging task. The 8.1 million individuals who are currently covered by Medicare or who are receiving SSI or Social Security payments would presumably need transition assistance if they were to leave these programs. And the 3.3 million persons who are classified as prevented from working but who are not receiving benefits from the above programs may have to be convinced that changes could be made to the environment that would make it possible for them to work.

### **Disability and welfare**

Table 3 contains annualized estimates of earnings and the value of selected welfare benefits for the

population 21 to 64 years of age and shows the large impact disability status has on both earnings and welfare. Overall, individuals 21 to 64 years of age had \$3.6 trillion dollars in earnings and received \$14.6 billion in Temporary Assistance for Needy Families (TANF) payments, \$17.6 billion in SSI payments, \$13.3 billion in food stamps, and \$50.7 billion in Medicaid benefits. Individuals with a severe disability received 2.9 percent of aggregate earnings, 34.2 percent of TANF benefits, 100 percent of SSI benefits, 33.1 percent of food stamps, and 66.9 percent of Medicaid benefits.

Table 4 shows that the total value of the four types of welfare was \$96.2 billion. Of the total, \$61.0 billion went to individuals with a severe disability. Only for the youngest age group did the amount of welfare received by those with a severe disability make up less than half the total. Individuals 21 to 34 received \$37.7 billion in welfare benefits and \$15.9 billion of this amount went to those with a severe disability. Individuals 35 to 44 received \$27.7 billion in welfare benefits, \$17.3 billion of which went to those with a severe disability. For the population 45 to 64, welfare benefits totaled \$30.8 billion and benefits to those with a severe disability totaled \$27.8 billion.

It can be argued that the data in Table 4 should not be surprising since, for the universe being examined here (age 21 to 64 years old), SSI is a program specifically for individuals with a severe disability.

Table 5 shows data similar to Table 4 but the definition of welfare has been changed to exclude SSI benefits and the value of Medicaid benefits received by SSI recipients. The data in Table 5 show a reduced impact of disability status, but the role of disability is still substantial. Of the \$51.2 billion received as benefits, \$15.9 billion went to individuals with a severe disability. If attention is focused on

the group that usually receives a good deal of attention, unmarried women with children, Table 5 shows that there were 10.0 million individuals in this category, and 3.6 million received welfare benefits worth \$27.2 billion (keep in mind that these are selected benefits). The table also shows that 1.4 million of the 10.0 million women in this category had a severe disability. Of the 1.4 million, 860,000 received welfare benefits worth \$6.4 billion.

Finally, Table 6 presents the results of a logistic regression in which the receipt of TANF benefits is the dependent variable. The universe for the regression is unmarried women with children under 18 years of age.

The first set of variables is comprised of three age categories. The middle age category is the reference group, and the coefficient is positive for the younger age category and negative for the older. That is, there is an inverse relation between age and the likelihood of receiving TANF.

Education categories make up the second set of variables. The reference group is high school graduates and the coefficients of the other groups show that there is an inverse relationship between educational attainment and the receipt of TANF.

The third set of variables are race and ethnicity categories. The reference group is comprised of white, not Hispanic origin individuals. The coefficients for those who are Hispanic origin or who are Black, not Hispanic origin are positive, and the coefficient for those who not of Hispanic origin and who are neither

white nor Black is not significant.

Categories of number of children make up the fourth set of variables. The coefficients show that the number of children is directly related to the receipt of TANF.

The fifth set of variables show that women who were never married were more likely to receive TANF benefits than women who had been married previously.

The sixth and final set of variables are disability categories. Women with no disability are in the reference group. The coefficient for women with a nonsevere disability is positive and the coefficient for women with a severe disability is also positive and even greater.

## **Conclusions**

1) The SIPP is the only household survey that obtains regular information on employment status and periodically collects information on disability status in a way that is roughly consistent with the ADA definition of disability. There are, however, problems in using SIPP to measure changes in the employment rate of individuals with disabilities. These problems have to do with (i) an apparent lack of reliability for many individual measures of disability status, (ii) the fact that the SIPP was designed as a panel or longitudinal survey and is subject to attrition and time-in-sample bias, and (iii) the fact that changes in the 1996 panel to core questions on work disability status have produced work disability

estimates that are clearly not comparable to estimates from earlier panels. We note here that the sample design of SIPP has changed over time and is likely to change again. Weinberg (1999) has noted that if SIPP is to become the official source of income and poverty statistics, SIPP will have to be redesigned to minimize the effect of attrition and time-in-sample biases on time-series estimates.

2) If the problems noted above are set aside, the SIPP data from wave 5 of the 1996 panel suggest that the employment rate of individuals with a disability declined from 1994/95 to 1997.

Definition 1 (see Table 1) is the disability definition that is based on measures that are most comparable over time. Under that definition, the employment rate for individuals with a disability was 50.4 percent in 1994/95, and 48.1 percent in 1997. For those with a severe disability, the comparable rates were 34.1 percent and 29.4 percent. Among those with a nonsevere disability, the 1997 rate (63.9 percent) was higher than the 1994/95 rate (61.6 percent). Definition 2 adds the criteria of work disability and program participation to Definition 1. The 1994/95 to 1997 changes in employment rates have the same pattern under both definitions. The pattern changes when a measure of availability for employment is introduced. The data show that the employment rate of individuals with a disability who did not have a reduced availability for employment was 76.6 percent in 1994/95, and 80.2 percent in 1997.

Individuals who did not have a reduced availability for employment and who had a severe disability category had an employment rate of 75.5 percent in 1994/95, and 75.1 percent in 1997; and those with a nonsevere disability had an employment rate of 77.0 in 1994/95, and 81.8 percent in 1997.

3) The major conclusion of this paper regarding the measurement over time of the employment status of

individuals with disabilities is that there is currently no satisfactory vehicle for producing such a measure.

In fact, a Presidential Order dated March 13, 1998, established a National Task Force on Employment of Adults with Disabilities, and instructed the Bureau of Labor Statistics and the Census Bureau, in cooperation with other selected Federal agencies, to design and implement a statistically reliable and accurate method to measure the employment rate of adults with disabilities.

4) Although SIPP may not be an adequate vehicle for measuring changes over time in the employment rate of individuals with disabilities, SIPP data on individuals with disabilities may be very useful for cross-sectional studies. A major conclusion from the data presented in this paper is that the relationship between disability and welfare should not be ignored. Of course, the relationship between disability and the receipt of SSI and Medicaid benefits is obvious, but the data suggest that disability plays an important role in determining whether individuals become TANF recipients.

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