

Disability, Earnings, Income and Consumption

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Abstract: We determine the prevalence of disability and examine how a wide range of outcomes change with disability. The outcomes we examine include employment, hours, earnings, income and consumption. We have five main findings. First, disability rates are high. We find that nearly one-fifth of male household heads 22-64 in the PSID are currently disabled. Approximately, 30 percent of our sample has a disabling condition at some time during 1968-2003. Of these disabled, over 51 percent have a condition that lasts more than 3 years. 30 percent are severely disabled and 20 percent are both chronically and severely disabled. In terms of life-time prevalence, we find that a person reaching age 60 has a 54 percent chance of having been disabled at least one during his working years and a nearly 40 percent chance of experiencing a chronic disability. Second, disability is associated with much worse outcomes. Ten years after disability onset, those with chronic and severe disability condition have seen their earnings decline by about 55%, after-tax income by about 30%, food plus housing consumption by almost 25%, and food consumption by 20%. In addition, 66 percent of these most disabled individuals do not work ten years after onset. Third, these outcome measures differ sharply across disability groups. The previously mentioned declines for the most disabled are over twice as large as those for the average disabled. Fourth, our findings indicate the partial but incomplete role individual savings, family support and social insurance play in reducing the consumption drop following disability. Despite the various government programs available, about one-fifth of the disabled have incomes below the poverty line in the long term. Fifth, we find a noticeable fall in earnings and income prior to the onset of reported disability.

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1. Introduction

Despite a reduction in dangerous work and improvements in health care, overall disability rates in the United States are high and have fallen little in recent decades. Census of Population data from the year 2000 indicate that 20.9 million families (28.9% of all American families) had at least one member with a disability (Wang 2005). The data also indicate that 12.8% of families with disabled members are living in poverty; the corresponding rate for families without members with a disability is only 7.7%.¹ A widely cited disability statistic indicates that a twenty year old worker has a 30% chance of becoming disabled before reaching retirement age.²

Enrollment in public disability programs is also high. In June 2006, the number of individuals receiving Social Security Administration administered disability related benefits was 11.2 million: 6 million received Social Security Disability Insurance (SSDI), 3.8 million received Supplemental Security Income (due to disability) and 1.4 million received both benefits. Over 14 percent of males 60-64 and 7 percent of males 50-59 currently receive SSDI.

Public spending on the growing disabled population has becoming a major budgetary issue. In 2005, \$85.4 billion was spent on Disability Insurance benefits and \$34.4 billion on the share of Supplementary Security Income (SSI) for the blind and the disabled.³ Private spending on the disabled was also high with \$80.8 billion spent on Workers' Compensation by employers in 2003. These expenditures are considerably higher than other welfare or social insurance programs such as Unemployment Insurance benefits (\$40 billion in 2004), Temporary Assistance to Needy Families (\$12 billion in 2003) and Food Stamps (\$29.6 billion in 2005).⁴ Autor and Duggan (2006) recently suggests that SSDI recipiency will rise by an additional 71% before reaching a steady state rate of approximately 7% of non-elderly adults.

Despite these substantial costs, there are still very few studies that examine the economic situation of the disabled, relative to the large economics literature on the unemployed, single

¹ Several studies report a rise in disability rates in recent decades, though its interpretation is controversial. Haveman and Wolfe (1990) report that the percentage of disabled individuals in the working age population changed from 7% in 1962 to 9.5% in 1984. Bound and Waidman (2002) report an increase in reported disability rates between 1969 and 1996.

² See U.S. Social Security Administration (2006).

³ Specifically a total of \$31.2 billion was spent on SSI by the Federal Government on the blind the disabled (age 0-64), a further \$3.1 billion was spent in state supplementation (SSA, 2005).

⁴ See Council of Economic Advisers (2006).

mothers and recently, retirees.⁵ This paper examines the lifetime prevalence of disability and how the disabled fare before and after the onset of their disability. First, we examine the rate of disability using several different definitions. Second, we examine how employment, earnings, income, consumption and other outcomes change during the five years prior to disability onset and the subsequent 10 years. Third, we show how these outcomes differ by the extent of disability, where the extent of disability is viewed as having two dimensions, persistence and severity. We examine the overall pattern of transfer receipt, as well as the role it plays for various subgroups of the disabled. To answer these questions, we use up to 33 years of data from the Panel Study of Income Dynamics (PSID). With the longitudinal structure of these data, we can examine changes in the variables of interest before and after individuals suffers disability onset. In order to perform these analyses, we must rely on a self-reported measure of disability. While the only feasible option, some past work has suggested that self-reported disability is a good measure of disability.

Our study differs from the literature in many dimensions. First, we analyze a more comprehensive range of variables that capture the economic circumstances of the disabled: earnings, hours, employment, income, public transfer receipt, poverty rates, food consumption and housing consumption. In taking this wider view, we obtain a better picture of the material well-being of the disabled. Second, we make use of the latest panels of the PSID. Third, we confront the issue of public transfers underreporting, which could lead researchers to overestimate the fall in income for the disabled. Fourth, we go beyond a uniform characterization of the disabled by dividing the disabled based on the duration of their disability condition (persistence) and the severity of the condition. We should emphasize that our results provide an important input into the calculation of optimal benefit levels (Chetty 2006) and the desirability of further insurance against disability (Chandra and Samwick 2005).

There are several findings in this paper. First, disability rates are high. We find that nearly one-fifth of male household heads 22-64 in the PSID are currently disabled. Approximately, 30 percent of our sample has a disabling condition at some time during 1968-2003. When dividing these disabled individuals based on the persistence of their condition, 18%

⁵ Haveman and Wolfe (1990) study the difference between the income and earnings of the disabled and non-disabled using the Current Population Survey. Bound and Burkhauser (1999) also compare disabled and non-disabled earnings. Bound and Waidman (2002) look at employment rates among the disabled. Charles (2002) examines earnings, hours and wages after disability. Stephens (2001) analyzes some of these outcomes and food consumption as well. There is also related work by Rupp and Davies (2004) and others.

have a short term condition and 51% have a condition that lasts more than 3 years. When the division is based on the severity of the condition, 30% of the disabled are severely disabled. When we combine both disability classifications, we find that about 20% of the disabled are both chronically and severely disabled. In terms of life-time prevalence, we find that a man reaching age 50 has a 35% chance of experiencing disability at least once sometime before reaching this age. The figure for a man reaching age 60 is 54% and he has a nearly 40 percent of experiencing a chronic disability. Second, disability is associated with much worse outcomes. Ten years after disability onset, those with chronic and severe disability condition have seen their earnings decline by about 55%, after-tax income by 30%, food and housing consumption by almost 25%, and food consumption by 20%. In addition, two-thirds of these most disabled individuals do not work ten years after onset. Third, these outcome measures differ sharply across disability groups. The previously mentioned declines for those with chronic and severe disabilities are over twice as large as those for the average disabled. Fourth, our findings indicate the partial but incomplete role individual savings, family support and social insurance play in reducing the consumption drop following disability. Despite the various government programs available, about one-fifth of the disabled have incomes below the poverty line in the long term. Fifth, we find a noticeable fall in earnings and income prior to the onset of reported disability.

The rest of the paper is organized as follows. Section 2 describes our data set and sample, as well as how we define the disabled. We explain how we categorize the disabled based on the persistence and severity of their condition. We briefly discuss lifetime prevalence of disability. This section also outlines the empirical strategy we adopt for the rest of the paper. Section 3 examines the change in earnings and employment following disability. Section 4 examines the fall in income following disability onset, the rise in poverty and transfer receipt. Section 5 summarizes the change in food expenditures and housing expenditures. Section 6 concludes.

2. Data and Categorizing the Disabled

A. Survey, Sample, and Key Variables

We briefly describe the survey, analysis sample, and key variables that we use. More detail is in the Data Appendix. We use the Panel Study of Income Dynamics (PSID) in this

study. The PSID is a longitudinal dataset that began in 1968 with an initial sample of about 4,800 U.S. households with 18,000 individuals. The initial sample of the dataset consisted of two separate samples, both of which we use: a nationally representative sample and a national sample of low-income families. The number of families in the latter group was about 1,800. Until 1997, each household was interviewed annually, when the survey moved to a bi-annual format.⁶ Children in sample households are followed as they leave and form their own families. The interviews are mostly done via telephone (92%) during the period between March and September of the year. As of 2003, the PSID had collected information on 65,334 individuals.

Since the survey's initial focus was the dynamics of poverty, questions are asked on benefits received, work hours, earnings, income, health, and other outcomes. A particularly attractive feature of the PSID is that it collects information on housing and family food expenditures, variables that are not available in many other microeconomic surveys. This information has been used by many authors to measure the material well-being of individuals.

We use the entire PSID panel, beginning with 1968 through the 2003 wave in this study. We select male household heads who were 22-64 years of age during this survey year. Our focus is those who are over the age of 22 because those below this age are unlikely to be household heads. Some of the key information we need is only collected for household heads. We retain any data on disability for these people outside this age range because it may be useful in determining the persistence or severity of an individual's disabling condition. As we will explain later, the degree of persistence is determined based on the frequency of positive limitation reports after disability onset. Thus, ignoring information after the age of 64 may lead an individual to be misclassified, especially if his age of disability onset is close to 64.⁷ The choice to focus on male household heads is necessary because the disability questions were not asked of spouses until 1981. The PSID defines the household head in a married couple family to be the male except in the case when he is so severely disabled that he is unable to respond to the survey.

The main disability question in the PSID is: "*Do you have any physical or nervous condition that limits the type or amount of work you can do?*" This question is asked of the

⁶ Some data are available for intervening years, because the 1999 survey asked about both 1998 and 1997 earnings, for example.

⁷ Similarly the onset age cannot be correctly determined if we exclude all data outside the age range. For example, a person whose disability began at age 18 could have his onset age mistakenly set to 22 if we disregard the responses to the disability question outside the age range.

household head consistently throughout the survey.⁸ Several authors have questioned the validity of these self-reported disability status and chosen to focus on those who receive benefits such as SSI and SSDI.⁹ However, such an approach is not without its limitations. First, some disabled individuals may not file for SSDI or SSI because of the paperwork and the requirement that the disabling condition must be expected to last for at least 12 months. Second, not all disabled individuals will qualify for these programs, in part because SSDI requires the applicant to have worked sufficiently in the years prior to disability while SSI has a stringent asset limit.¹⁰ Third, the denial of an SSDI application does not necessarily imply that the individual is not disabled (see also Nagi 1969; and Bound 1989). This point is also indicated by the high acceptance rates for those who appeal (see Benitez-Silva et al. 1999 who report that in 1993, among the 48% of denied claimants who requested reconsideration, 50% were accepted).¹¹ Fourth, SSDI and SSI benefits are not given to those who earn above a certain amount despite their disability. In 2006, a recipient of SSDI could not earn more than \$860 after a trial period whereas SSI recipients had their benefits reduced by 50% of earnings above \$85 (Social Security Administration 2006b). Moreover, a recent study by Benitez-Silva et al. (2004) suggests that self-reported disability responses are an unbiased indicator of SSA eligibility decisions. Stern (1989) had made a similar argument earlier. In their comparison of the Current Population Survey (CPS) and the National Health Interview Survey (NHIS), Burkhauser et al. (2002) argue that the work limitation-based definition of disability may underestimate disability rates. Given all of these considerations and our goal of capturing all types of disabilities, we believe that these self-reported disability status responses, while not perfect, are better than other available alternatives.

We select those for whom we have interviews for at least four years, at least three of which are consecutive, in order to have sufficient information on the variables of interest. We then split the sample of male household heads into a sample of disabled individuals and a sample

⁸ A similar question is also asked of the non-head family members, but not in every wave of the survey.

⁹ See Bound et al. (2006) and Kreider and Pepper (2006).

¹⁰ Only about 80% of working age individuals are insured by SSDI (Autor and Duggan, 2006).

¹¹ Bound (1989) suggests that many rejected DI applicants were in fact incapable to work. Citing the study by Nagi (1969), Bound (1989) stated: "Of the population denied benefits, 35.6% were found incapable of any work, and another 12.3% were only capable of work at home or in sheltered environments." In addition, Bound (1989) cites the study of Treitel (1976), which suggests that many rejected applicants did not work despite the DI denials and using administrative follow up records shows that 13.8% of those who were denied benefits in 1967 had died by 1973.

of non-disabled individuals. The non-disabled sample consists of those who never report that they have a physical or nervous limitation during the survey years. The sample of disabled individuals, however, requires additional explanation. As we mentioned above, a question regarding the presence of a physical or nervous limitation is asked every survey year. Thus, one can obtain the disabled sample from those who reported that they had such a physical or nervous limitation in any survey year.

Determining the year of limitation onset is not trivial. However, a valuable feature of the PSID is that a retrospective question on when a work limitation began is available for the 1969-1978 waves (except for 1976 and 1977). For those who are disabled before 1978, we use the responses to this retrospective question to determine their year of onset. Since the possible responses for these questions were coded in intervals, we determine the intersection of the intervals given by these questions and take the earliest year within the intersection as the year of disability onset. For the disabled who have no work limitations between 1968 and 1978, determining the year of onset is more difficult since no questions about when the condition began are asked. Also, we need to account for those interviewees who enter the survey after 1978. Such individuals will have missing data for 1968-1978, so we cannot simply take the first year that they report a disability as the onset year. Thus, for those who first report having a disability condition after 1978 we take their year of onset to be the year in which they first report having a limitation, but additionally we require that the individual report no limitations in the two consecutive years immediately prior to the year in which they first report having a limitation.¹² We further impose the restriction that a disabled individual in our sample must be in the survey for a minimum of 3 years within the 10 years after onset so as to have sufficient information after onset. This restriction is important for the determination of the disability persistence and severity groups which we introduce shortly. We further exclude those whose onset age is under 18, since our focus is on disabilities that begin during the working years. Thus, we slightly understate the extent of work limitations.

We replace missing demographic information (age, marital status, years of education, number of family members, number of children and state of residence) by the non-missing value in the nearest wave. Lastly, we exclude individuals whose key demographic variables (education,

¹² For example, if the first time an individual reports having a limitation is 1980, then the year of onset would be 1980 if the individual has no limitations in 1978 and 1979.

age and marital status) are missing. These restrictions result in a primary sample of 7,220 observations, 2181 (30.2%) of whom are classified as ever disabled.

B. Categorizing the Disabled

As well as determining how the disabled as a whole fare around disability onset, we are interested in differentiating among the disabled. To understand the material circumstances of the disabled requires recognizing that the disabled are not a homogeneous group. We find that different groups of the disabled, defined by questions available in the PSID, differ sharply in their earnings losses, receipt of transfers, and consumption following disability onset. In this paper, we reduce the overall concept of the extent of disability down to two dimensions: the persistence and the severity of the disabling condition. Our notion of persistence is a modification of Charles' (2003) notion of chronicity and is based on the individual's number of positive post-onset limitation reports. In the case of disability severity, we rely on whether an individual's ability to do work is severely limited. We use the self-reported severity assessment and validate its use in our analysis. Finally, we combine our persistence and severity measures into a single disability measure by dividing the chronically disabled into those with chronic and severe disabilities and those with chronic and not severe disabilities. These divisions allow us to compare the outcomes of those with differing degrees of disability.

We determine the degree of persistence of a disability based on the number of disability reports during the ten years after disability onset. We divide the disabled into three groups. The **One-Time Disabled** are those who report a disability once, but then do not report a disability again during the next ten years. For those who do not have complete data for the 10 years after onset, we require them to have 2 consecutive negative limitation reports immediately after onset. The **Temporarily Disabled** are those who have one or two positive limitation reports within the ten years after disability onset. Thus, including the onset report, a temporarily disabled individual will have at most three positive limitation reports through the tenth year after onset. The **Chronically Disabled** are those who have three or more positive limitation reports during the ten years after disability onset. Note that we exclude from the sample those who are not in the sample for at least three years after onset.¹³

¹³ If we require more than three (four to six) post-onset positive limitation reports to be in the chronic group, the results are very similar.

Our disability persistence classification differs from that of Charles (2003) as he defines his most chronically disabled group to be those who report a positive limitation in every year after onset (as long as they are in the survey). This classification system is somewhat sensitive to the number of years an individual is in the survey. This sensitivity is increased by the use of a shorter panel (1968-1993) in his work. Thus, a disabled person is more likely to be in the most chronic group the closer his year of onset is to 1993. Our use of all of the waves, coupled with the previous requirement that a disabled individual has to be in the survey for at least three years (within the 10 years after onset) reduces this problem.

The descriptive statistics of the disabled in the three persistence groups, as well as those for the non-disabled group are displayed in Table 2a. In the disabled sample, 389 individuals (18.2%) are in the one-time group, 649 individuals (30.4%) belong to the temporary group and 1090 individuals (51.2%) belong to the chronic group.¹⁴ The mean age of onset differs slightly across these disabled groups: 36.6 years for the one-time group, 38 for the temporary group, and 42.2 for the chronic group. Members of the chronically disabled group are on average less educated, only 27.8% having attended college. The corresponding percentages for the one-time and temporary groups are 45.2% and 36.1%, respectively. The three disabled groups have on average participated in a similar number of interviews over the entire survey.

The second dimension to the extent of disability that we examine is disability severity. In the PSID, after asking whether the head has a physical or nervous condition, a question is asked about how much this condition limits the work the head can do. The question was refined over the years but the essence remains the same. The Data Appendix reports the exact wording of the question and possible responses. The possible answers to the severity questions are the following eight responses roughly in the order of severity: Not limiting, Not at all, Just a little, Somewhat, A Lot, Severely, Completely, Can do Nothing. We group the eight possible responses into two categories: those “Severely Disabled” and those “Not Severely Disabled.” Those **Not Severely Disabled in year t** are those who report “A little,” “Somewhat,” “Not Limiting,” or “Not at all” in response to the severity question in the year t survey. Those **Severely Disabled in year t** are those who report “Can do nothing,” “Completely,” “A lot,” or “Severely” in response to the severity question in the year t survey.

¹⁴ 53 disabled individuals cannot be grouped under the persistence classification because they do not satisfy the requirement that they must have 2 periods of consecutive negative limitation immediately after onset. These individuals are not included in the regressions that split the sample by degree of persistence.

The main difficulty in using these responses is that they are necessarily subjective. One may argue that more objective measures, such as number of tasks the individual has trouble doing, should be used instead (see Bound 1989). For instance, the Census Bureau's definition of severely disabled is based partly on how many ADL, IADL and functional activities the individual cannot perform.¹⁵ However, surveys like the PSID or the CPS do not ask these questions on a regular basis. The CPS has its own criteria for determining who is severely disabled,¹⁶ but the criteria are so loose that in 2005, 73% of the disabled were classified as being severely disabled in the CPS.¹⁷

To validate our definition of severely disabled, we would like to compare the number of tasks the severely disabled can perform relative to the not severely disabled group and the non-disabled group. The PSID survey had a special health supplement in the 1986 survey and six questions related to daily activities were asked: 1) Do you have any trouble either walking several blocks or climbing a few flights of stairs, because of your health? 2) Do you have trouble bending, lifting or stooping because of your health? 3) Would your health keep you from driving a car? 4) When you travel around your community, does someone have to assist you because of your health? 5) Do you have to stay indoors most or all of the day because of your health? 6) Does your health confine you to a bed or a chair for most or all of the day? The respondent is asked to simply say yes or no to each of the questions above. We compare the number of these activity limitations for those who said they were severely disabled and the not-severely disabled in 1986. The upper panel of Table 2b shows for each severity group, the percentage of the household heads reported having trouble performing each of the six activities. For all six activities, the percentage is higher for the severe group than the not severe group. We see that 85% of members in the severe group have trouble walking or climbing stairs, whereas

¹⁵ Specifically, using the SIPP, the Census Bureau (McNeil, 2001) defines severe disability using the following criteria: 1) The person used a wheelchair, a cane, crutches or a walker, 2) The person had any other mental or emotional condition that seriously interfered with everyday activities, 3) The person received federal benefits based on an inability to work, 4) The person had Alzheimer's disease, 5) The person had developmental disability or mental retardation, 6) The person was unable to perform or needed help to perform one or more of the functional activities, ADLs or IADLs, 7) The person was unable to do housework, 8) The person was in the age range 16-67 and had a condition that made it difficult to work at a job or business. A person who falls in any one of the above criteria is considered to be severely disabled.

¹⁶ The CPS, which does not ask about specific activities the individual can perform, also has its own definition of severe disability. A person is severely work disabled in the CPS if he falls into any of the following four criteria: 1) He is not currently in the labor force because of a disability, 2) He did not work at all in the previous year because of illness or disability, 3) He was under 65 years old and covered by Medicare in the previous year, 4) He was under 65 years old and received Supplementary Security Income (SSI) in the previous year.

¹⁷ CPS disability data can be found at: <http://www.census.gov/hhes/www/disability/disabcps.html>

only 55% of the not severe group have such a problem. The biggest difference is the “stay indoors” category where 40% of the severely disabled group report having a problem compared with only 10% of the not severe group. The bottom panel of Table 2b tabulates the mean number of these daily activities that each severity group has trouble performing. The severe group on average has trouble performing 3.25 activities, compared with only 1.61 for the not severe group. The panel also tabulates these numbers for different age groups, and we see that for each disabled group, the number of activity limitation is very similar by age. We have also examined whether those with a longer disabling condition might “exaggerate” the severity of their condition (for example, a person says he is severely disabled simply because he has not recovered after a long time) but we found no evidence of such behavior. In sum, we take these patterns as evidence supporting our view that the self-reported severity questions are good indicators of the true severity of the disabling condition.

Given that the severity questions are asked during each year of disability, the next issue we need to resolve is which of the many possible responses to use. Two natural choices are the average severity over the course of the disability and the initial severity at the onset of disability. We choose to rely on average severity throughout the paper, since it captures a more complete picture of the disabling condition. It is worth noting that the results are very similar if we use the initial severity report. We define the severity ratio as the fraction of the time the individual reports he is severely disabled in the year of onset and the 10 years after onset. We then define the **Not Severely Disabled** to be those whose severity ratio is less than 0.5. That is, starting from the year of onset to the 10th year after onset, less than 50% of the observed severity reports consist of the following responses: “Can do nothing,” “Completely,” “A lot” or “Severely.” The **Severely Disabled** are the disabled whose severity ratio is more than 0.5. In the case where exactly half of the responses indicate severe disability (i.e. a severity ratio of 0.5), we classify the disabled individual using the initial severity report or first observed severity report.¹⁸

Table 2c reports the means and standard deviations of various characteristics for the two severity groups. Of the 1993 disabled individuals whom we can classify, 607 (30%) are severely disabled. The severely disabled group is about 4.6 years older on average at disability onset, they are less likely to have received higher education (23.2% compared with 39.9% for the not

¹⁸ For those disabled individuals who did not respond to the severity question during the year of onset, we use first observed severity report (up to the 10th year after onset). Those who never respond to the severity question in this 11 year period (year of onset and the subsequent 10 years) are dropped.

severe group). The severely disabled also on average have slightly more chronic conditions; 4.56 positive limitation reports compared with only 2.92 reports for the not severe group. 85% of the severity reports of the severely disabled group are classified as “severe.” In contrast, less than 10% of the severity reports for the not severe group are classified as “severe.” Since the average number of post onset reports (up to the 10th year after onset) for both severity groups are very similar (7.78 and 7.35 for the not-severe and severe groups respectively), it appears that this grouping method is not sensitive to the number of years the disabled individual remains in the survey after disability onset.

In many of our analyses, we combine the two disability concepts together by splitting the Chronically Disabled into two groups. The **Chronic, Not Severe** are chronically disabled, but not severely disabled under the severity classification. The **Chronic, Severe** are chronically disabled and severely disabled under the severity classification. Hence this classification yields four groups of interest – one-time, temporary, chronic-not severe and chronic-severe groups, which we collectively call the “extent of disability groups.” Note that in principle these four groups are not fully ordered. A priori we cannot say, for example, that the chronic-not severe group is “more disabled” than the temporary group. In practice, though, the chronic-not severe group fares much worse as we see below.

Table 2d reports the descriptive statistics for these extent of disability groups. The chronic-not severe group consists of 639 individuals (30.5% of the disabled) and the chronic-severe group consists of 421 individuals (20.1%). Focusing on the difference between the chronic-not severe group and the chronic-severe group, we see that the latter group has a higher average age of onset (45.3 years of age) about 5 years older than the former group (40.2 years). Also the chronic-severe group is less educated, with only 18.8% having ever attended college. This group also has a slightly more chronic condition, with an average of 6.2 positive limitation reports in the 10 years after onset, compared with 5.4 reports for the chronic-not severe group. In terms of the severity ratio, the average for the chronic-severe group is some 6.1 times higher than that of the chronic-not severe group. It is, therefore, fair to say that the chronic-more severe group consists of the most disabled individuals given their higher degrees of persistence and severity.

Working Lifetime Prevalence

Table 1 shows for each year, the number of families with a currently disabled head and the corresponding disability rate in the PSID. The disability rates can also be seen in Figure 2. It is apparent that the disability rate has risen over the 1974-2003 period from around 13% in 1974 to about 17% in 2003. Burkhauser et al. (2006) show a similar trend but their rates are slightly lower due to the age group on which they focus. These very high disability rates have led to some skepticism regarding the validity of the work limitation definition of disability.

Burkhauser et al. (2002) argue that on the contrary, the work limitation based definition of disability in national surveys such as the Current Population Survey underestimates the size of the disabled when compared with the National Health Interview Survey.

A more interesting question to ask is the probability of being disabled over the working life of an individual. With data spanning over 35 years, the PSID is ideally suited for this purpose. We define the working lifetime prevalence of disability the probability of an individual ever becoming disabled by a given age. We calculate this measure for all ages from 28-64. In defining lifetime prevalence of disability we classify individuals by the most serious form of disability the individual has ever experienced. We rank the disability types in increasing order of seriousness as follows: one-time, temporary, chronic-not severe and chronic-severe. We use the information on disability reports and severity in a rolling ten-year-ahead window to classify an individual's current disability. Thus, this measure accounts for the potential worsening of a condition over time.

In these analyses we use sample weights to make the disability frequencies better approximate U.S. averages.¹⁹ As the year after 1968 increases, the number of years of past information in the PSID increases. In addition, we use up to ten years of future information on persistence and severity to classify a person's current condition. Thus, in order to have the best data to summarize disability histories, we focus on those individuals in the middle years of the survey. Specifically, we report results for those male household heads who answer the survey in sometime during 1980-1990 and have been in the survey for at least ten years prior to the specified year. If we were to use the initial waves of the survey, we would understate the prevalence rate because we do not have information on the individual prior to 1968 and many

¹⁹ We use the current year weight in these analyses. Using the initial year weight (in the 1980-90 window) yields almost identical percentages.

individuals will have a disabling condition well before the PSID began.²⁰ On the other hand, using the most recent years would not give us the full ten years of data after onset to classify a given disability.

We first report these prevalence rates by studying the chance of experiencing disability by the time an individual falls in three different age groups: 40-49, 50-59 and 60-64. These results are displayed in Appendix Table 1. Generally, we see a rise in disability prevalence over the 1980-1990 period – the probability of experiencing disability at least once before reaching 50 years of age rises from 27.1% to 34.2% over this period, a rise of 26%. Most of the rise comes from an increase in one-time disability which is more than doubled over this period. Correspondingly, the probability of experiencing disability at least once before reaching 60 years of age rises from 40.7% to 46.6% over this period, mostly due to rise in one-time and temporary disability. By the time the individual is near his retirement age, the probability of him experiencing disability at least is close to 60% in all years. This rise in disability prevalence may in part be due to the SSDI and SSI liberalization that took place after 1984 (Autor and Duggan, 2002). We see an overall rise in the disability prevalence over this period, but the chance of ever having a chronic and severe condition remains quite stable over this period (it is falling for the 60-64 age group). The chronic and severe group is of particular interest because we will see that it fares particularly badly after disability onset. .

Appendix Table 2 also reports the prevalence rates for the 1980-1990 subsample, but sorted by age. Not surprisingly, the chance of experiencing disability rises with age. By the time an individual reaches 60 years of age, there is 54% chance that he has experienced some kind of disability during his working years. In particular, there is a 20% chance that an individual has ever experienced a chronically and severely disability by age 60. The corresponding rates for one-time, temporary and chronic-not severe disabling conditions are 7%, 9.9% and 17.3% respectively. By the time an individual reaches age 64, the probability of having ever experienced a chronic and severe disability is 29.6%, which is essentially the same as the widely cited statistic that a 20 year old has a 30% chance of becoming disabled before reaching retirement age. Another point to take from this table is the rise in prevalence of chronic-severe disability with age. The probability of ever experiencing a chronic and severe disability by age

²⁰ Recall that the retrospective question was asked only if the individual is currently disabled.

50 is more than four times that by age 40. Similarly, the prevalence rate by age 60 is twice that by age 50.

C. Empirical Methodology

We estimate the following fixed effect model for person i in year t :

$$(1) \quad y_{it} = \alpha_i + \gamma_t + X_{it}\beta + \sum_h \sum_k \delta_k^h A_{kit}^h + \varepsilon_{it}$$

Where y_{it} is the outcome of interest such as labor earnings, for person i in year t , X_{it} is a set of time-varying explanatory variables including marital status, state of residence, age and age-squared, education and the number of children and extra controls are placed depending on the dependent variable,²¹ α_i is an individual fixed effect, γ_t is an indicator variable for year t . A_{kit}^h is an indicator variable which equals one if in year t , individual i belongs to disability group h and he is k years from the year in which he becomes disabled, and ε_{it} is a potentially serially correlated error term. Throughout this study, we aim to focus on a set of outcomes 5 years before and 10 years after the year of disability onset, thus $k \in \{-5, 10\}$. Given the inclusion of individual fixed effects, δ_{hk} measures the change in the dependent variable k years away from the year of onset for those in disability group h relative to the value of their dependent variable more than five years prior to disability. This way of modeling outcomes is essentially the same as that of Charles (2003) and Stephens (2001).²²

3. Employment and Earnings Following Disability

We first investigate the change in annual earnings, annual hours worked, the probability of work and hourly wage, during the 5 years before and 10 years after disability onset. For earnings and

²¹ The number of members in the family is included in the income regressions. For earnings, hours, hourly earnings and income we also include age and education interactions, age-squared and education interactions, education and time from 1968 interactions, as well as education and time from 1968 squared interactions. For the food, housing and consumption regressions, variables for types of family members are also included. See the data appendix for more details.

²² Charles (2002) includes individual-specific time trends in his analysis, which is the essence of one of the approaches in the Jacobson, LaLonde and Sullivan (1993) analysis of the displaced. However, we suspect disabling conditions have effects prior to disability onset, and have found the results to be sensitive to the period over which such trends are estimated.

hours we begin by looking at the level changes of these variables and their corresponding percentage changes. It might be more natural to estimate the model (1) above with the dependent variable in logarithms in some cases so as to analyze percentage changes directly. But as we will show, many disabled people have zero earnings and zero hours of work following disability, so taking the log of zero is not possible. Defining a lower cutoff (e.g. $\log(y)=\log(a)$ for $y < a$) is not ideal either as the estimates are sensitive to this cutoff due to the large percentage of disabled who have zero earnings and the differences in this fraction across groups and over time.²³ We will first look at the changes in earnings, hours and other outcomes of the disabled group as a whole, before focusing on these changes for the persistence, severity and the extent of disability groups. All monetary variables are defined in 2003 dollars.

A. Earnings

We begin by looking at changes in the level of earnings of the disabled as a whole Table 3, column 2 tabulates the estimated coefficients from equation (1) with earnings as the dependent variable and Figure 3a plots these coefficients. Consistent with our expectations, a sharp decline in earnings takes place for the average individual who becomes disabled, with earnings having fallen by over \$4,800 by the year of onset. By the 10th year after disability onset, earnings for the disabled are estimated to be about \$8,300 below what they were before the fifth year prior to disability. To see the implied percentage changes we divide these estimated coefficients by the average earnings of the disabled before the 5th year prior to disability (\$43,512). The results are shown in the third column of Table 3 and are displayed in Figure 3b. Here we see that during the year of onset ($t=0$), earnings of the disabled are 11% below the level more than 5 years earlier. By the tenth year after onset, the loss in earnings for the disabled is on average 20%. Our results are very similar to those of Stephens (2001) who finds that disabled individuals experience a decline in annual earnings of about 10% during the year of onset and experience a longer term loss in annual earnings of about 22%. Both our results and those of Stephens (2001) are not comparable to those of Charles (2003) because the analyses in Charles exclude those with zero earnings.²⁴

²³ Charles (2002) analyzes outcomes in logarithms, omitting observations with zero values and includes a selection correction term (inverse Mill's ratio).

²⁴ As we summarize in the Mok, Meyer, Charles and Achen (2007), our attempts (and those of Charles) are unable to produce results similar to those in the published paper.

Next we turn to these changes when we sub-divide the disabled individuals based on the persistence of their disability. Section A of Table 4a tabulates these estimates for the three persistence groups and their implied percentage changes. The percentage changes are displayed in Figure 3c. For the one-time group, earnings decline very slowly over the course of disability, reaching a trough in the 5th year after disability onset at about 9%. In the long term, the earnings loss for the one-time group is about 4%. However most of the estimated single year changes for this group are statistically insignificant, a F-test indicates that we cannot reject the null hypothesis that all post-onset coefficients for this group equal zero; the P-value for the F-test is 0.26. For the chronic group, we see that their annual earnings have fallen by about 20% by the year of onset. The drop continues until the eighth year after onset when earnings for this group have fallen by about 37%. Our long term percentage earnings declines for the one-time, temporary, and chronic groups are about 3.8%, 5.3% and 35.3% respectively.

Now we turn to the results when the grouping scheme is based on the severity dimension of disability. Section A of Table 5 reports the coefficient estimates and Figure 3d shows the implied percentage change in earnings. The not-severely disabled group's annual earnings has fallen by about 8% by the year of onset, with a long-term decline in annual earnings of about 12%. The severely disabled suffer from much greater losses. During the year of onset, annual earnings are estimated to be 20% below previous earnings, and the loss widens by a further 15 percentage points during the year after onset. The drop then slows down and by the tenth year after onset, the earnings loss for this group is estimated to be about 41%. Later we will see that this pronounced drop is due to the large number of people who work zero hours after disability onset.

The estimates under the combined persistence and severity classification are reported in section B of Table 4a, while the implied percentage changes are shown in Figure 3f. The estimates for the one-time group and temporary group are very close to those under the persistence classification so we omit them in this section of the table. During the year of disability onset, the chronic-not severe group is estimated to see a further 6 percentage points decline in earnings, resulting in a cumulative 16.6% loss in earnings. The chronic-severe group is estimated to experience a sharp further decline in earnings of about 14 percentage points at onset, resulting in a 26% cumulative loss. Earnings of both groups continue to decline in the years afterwards until around the eighth year after onset with the average earnings for the

chronic-not severe group estimated to be about 26% below prior earnings, and earnings for the chronic-severe group estimated to be down by a 58%. An important question here is why there is a drop in earnings even prior disability, especially for the chronic-severe group. We conjecture that these individuals may have some type of health problem well before the year that they first report a work limitation in the PSID. It may be that several years of frequent unemployment and poorly paying jobs leads some people to conclude that declaring disability is preferable to continued attempts to work (see also Autor and Duggan 2001, 2003). In addition, we have also looked at, relative to other disability groups, whether the chronically and severely disabled individuals are likely to reside in high unemployment areas, whether they experienced longer unemployment before onset and whether their subjective personal health assessments indicate deteriorating health prior to disability onset. There is some suggestive evidence that each of these contribute to the pre-onset fall in earnings. Overall our results suggest that annual earnings do decline after disability onset, but this decline is more apparent for the chronic and the more severely disabled group. In addition, there is also little evidence suggesting that earnings will recover for those who are chronically disabled (see also Bound 1989).

B. Hours of Work and Employment

In this subsection, we focus on how hours of work and employment change following disability onset. The third column of Table 3 reports and Figure 4a plots the estimates of equation (1) with annual hours of work as the dependent variable, for the disabled group as a whole. Annual hours of work are estimated to fall by about 230 hours for the disabled by disability onset. Hours fall by a further 130 hours in the year after onset, leading to a total decline in annual work of 360 hours by the year after first reporting disability. From then on, the change in the level of hours is roughly flat. By the tenth year after onset, work hours of the disabled are on average about 360 hours lower per year.

We then examine employment changes. The fifth column of Table 3 reports the unconditional percentage of the male household heads in our sample who are not working (i.e. reported zero hours of work) during the years prior to and after disability onset and Figure 4b graphs these percentages. The non-work percentage rises steadily prior to onset, reaching 9.3%

in the year before onset, rises to 12.3% during the year of onset,²⁵ then to 20.6% in the year after onset and it continues to rise for the next four years. After the sixth year after onset, the percentage of the disabled who are not working begins to decline somewhat. By the tenth year after onset, about 20% of the disabled do not work.

We next examine whether changes in annual hours of work and employment differ across disability groups. Section A of Table 4b shows these hours and employment estimates for the degree of persistence groups. Figures 4c and 4d depict these results graphically. We see that for the one-time disabled group, hours of work are estimated to be about 118 hours lower during the year of onset. The decline in the year after onset is an additional 25 hours, for a total change of 142 hours. But from then on, most of estimates are not statistically different from zero, implying that hours of work recover after the year following onset. Turning to the temporary group, on average there is a 188 hours drop per year by the onset year, then a further 64 hour drop the year after onset, for a total of 252 hours per year below the pre-disability level. Nevertheless from then on, a recovery occurs and by the fifth year after onset, annual hours of work for this group are essentially back to the pre-disability level.

For the chronic group however, the pattern is dramatic – by onset hours of work are estimated to be 358 hours below the level five years earlier and then decline by another 222 hours in the following year. From then on, the drop slows down completely. We, however, do not see any major sign of recovery in the next nine years and hours of work are on average about 600 below the baseline level. Our results are quite different from those in Charles (2003). First, the changes in hours following disability that we find are several times larger than those in Charles (2003), even when he includes those who work zero hours in his regression. Second, Charles (2003) suggests a recovery of working hours, but we only observe this for the one-time and temporary groups. We observe that our most chronically disabled group suffers a long term decline of almost 650 annual hours of work. We should mention that our methods are different from Charles (2003) in several ways. First, we use the post-1993 panels. Second, our fixed effects regressions include educational dummies.²⁶ Third, we do not include an individual specific linear time trend, because we expect that an individual's hours trend will change with

²⁵ Bound and Burkhauser (1999) document that as many as 35% of the disabled do not work during the year of onset (they define not working as working less than 52 hours in the year).

²⁶ If years of education do not change over time for sample members, then these education dummies would not be estimable. However, education does change, especially for the younger respondents.

health and this change seems to happen prior to when a respondent indicates he is disabled. We do not want the individual specific trend to incorporate this change, as it is what we are hoping to measure.

We now turn to the employment estimates, which are depicted in Figure 4d. We see that the percentage of the disabled who are not working rises during the year after onset. For the temporary group, the percentage rises to about 15% in the year after onset, but declines over the next three years. However, for the chronic group, the percentage of those who are not working rises to 14% during the year of onset, then to 26.8% in the year after onset and it continues to rise slowly in the years follow, reaching a high at 34.5%. Thus, one of the main reasons why changes in hours of work are so large for the chronic group is due to a substantial number of people who do not work after disability onset.

Let us now turn to the results for the severity classification, which are tabulated in section B of Table 5, and depicted in Figures 4e and 4f. For the not severe group, annual hours of work decline by 157 hours by the year of onset and fluctuate around this level during the next nine years. For the severely disabled group however, the pattern is again dramatic. Annual hours drop rapidly by onset when they have fallen on average 440 hours, they then decline by a further 344 hours in the following year, resulting in a loss of work time of 784 hours per year. The drop then essentially stops and stays roughly at this level in the following years. Looking at Figure 4f, we see that the percentage of the severely disabled who work zero hours is rising rapidly after onset. By the tenth year after onset, as many as 55% of the disabled in this group are not working. Compared with the results in Figure 4e, where we see the estimated hours loss to be fairly stable from the second year after onset, we can infer that the effect of those severely disabled who return to their normal working hours is counter-balanced by an increase in the number of people who are not working.

Section B of Table 4b reports the regression estimates and percentages of zero hours of work under the extent of disability groupings, and Figures 4g and 4h depict these results. Again we focus our attention on the chronic-not severe and chronic-severe groups. Looking first at Figure 4g, we see a significant difference in the change in work hours for these two groups after onset. For the chronic-not severe group, hours of work decline by 212 hours by the year of onset, and by a further 116 hours in the year after onset. From this point onwards, there is little change. But for the chronic-severe group, hours of work are estimated drop a very large 600 hours by the

year of onset, then by a further 400 hours in the following year. Hours continue to fall in the next three years, and the long-term change is about 1200 hours per year. The difference between the chronic-not severe group and the chronic-severe group is large – the former group regains hours of work slowly, while a higher and higher percentage of the latter group is leaving work. By the tenth year after onset, as many as 66% of the chronic-severe group are not working at all, while the percentage for the chronic-not severe group is only about 16%, which is quite close to that for the one-time and temporary groups.

C. Hourly Earnings Following Disability

From the results on employment above, we saw many disabled do not work after disability onset. Here we ask the question of what happens to hourly earnings conditional on working. Clearly those working will not be a random sample of the disabled; we expect they will be disproportionately those who experience lower hourly earnings losses. We measure hourly earnings as annual earnings divided by hours of work (in 2003 dollars), and classify as working those who work 500 hours or more in the year. The fixed effects log hourly earnings equations are shown in the last column of Table 3 and are depicted in Figure 5a. We find that hourly earnings are on average 2% lower by the year of onset, albeit imprecisely estimated. By the seventh year after onset, hourly earnings have fallen 9.3%. These findings are in sharp contrast compared with those in Charles (2003), who found very small changes in hourly earnings (no more than 3.2% and are mostly statistically insignificant). Our evidence however suggests large and significant changes in hourly earnings following disability.

The change in hourly earnings changes for the combined persistence and severity groups are reported in Section B of Table 6 and plotted in Figure 5b. We see that the changes for the one-time and temporary groups are close to zero and none of the estimates are significant at the 5% level. Most of the changes we observed in Figure 5b are concentrated among the chronic-not severe and chronic-severe groups. The loss in hourly earnings is very similar for these two groups. The long term decline in hourly earnings is about 18% for both groups. Our results suggest that among those chronically disabled individuals who are working, the hourly rate of pay is on average similar regardless of the severity of the condition.

4. The Change in Income, Poverty and Transfers with Disability

A. After-tax Income

The previous section suggest that earnings fall for the disabled after disability onset, but it would be premature to conclude that these large declines in earnings translate into large reduction in the economic well-being of the disabled. The decline in earnings may be cushioned by 1) government transfer programs, 2) intra-family risk sharing through earnings of a spouse and children, 3) inter-family transfers such as support from friends and relatives and 4) programs such as EITC which supplement income for the working-poor. The use of the after-tax family income variable provided by the PSID, which is the sum of labor, asset and transfer income less the federal income tax liability²⁷ may be unsatisfactory for two reasons. First, this measure does not include in-kind transfers such as Food Stamps and subsidized housing. Second, public transfer income is generally under-reported in household surveys, and transfers to the disabled in the PSID are no exception.²⁸ We therefore provide use two income measures for this study: “total income” which is the sum of labor, asset, transfer incomes (public and private), food stamps and the amount of housing subsidy received²⁹ and “adjusted family income” that in addition imputes public transfers to account for their under-reporting. Adjusted family income accounts for under-reporting in the five main programs for the disabled (Social Security Disability Insurance, Supplemental Security Income, Unemployment Insurance, Workers’ Compensation and Food Stamps) by scaling benefits received by the inverse of the reporting rates by program in Meyer, Mok and Sullivan (2006). These reporting rates are calculated by comparing the weighted sum of the benefits received by the entire PSID sample with those reported to be paid out by government agencies. By scaling up benefits in this way, we implicitly assume that non-reporting recipients share the same characteristics as reporting recipients.

²⁷ The PSID provides family income and it estimates the amount of income tax (for 1968-1991 waves). We use TAXSIM to generate taxes for the 1992-2003 waves. See the data appendix for detail. A technical appendix of how we estimate federal tax liability via TAXSIM is available upon request.

²⁸ See Meyer, Mok and Sullivan (2006) for evidence on a wide range of transfers in several datasets including the PSID.

²⁹ See the data appendix for how the amount of housing subsidy is estimated

Table 7a reports the fixed effect regression estimates for various after-tax income measures and the disabled group as a whole. As well as reporting the coefficient estimates for the two income measures above, we also report income without public transfers, which enables us to see the importance of public transfers for the disabled. The implied percentage changes are shown after each column of estimates, and are displayed in Figure 6a. The three income measures, not surprisingly, began to differ at the year of onset. Income without public transfers on average falls by 9.5% by the year of onset. Accounting for public transfers, income falls by 6.7% by this point. When one accounts for under-reporting of public transfers, income falls by only about 4.6%. From the year after onset onwards, the effect of public transfers remains a roughly constant 4% of income. The effect of adjusting for under-reporting is also quite similar over the 10 years after onset, roughly an additional 1.5 percentage points. Thus, if we fail to account transfer underreporting, we overstate after-tax income losses by about 1.5 percentage points. The main result here is that income does not recover over time following disability onset. By the 10th year after onset, family income net of public transfers is estimated to fall by 16%. Total income and adjusted income fall 9% and 8% respectively. Our results show a somewhat larger decline than those of Stephens (2001), possibly due to his focus on families with a head and a wife, rather than all families with a male head and that we include more explanatory variables.³⁰ Summarizing the difference between the long-term change in individual earnings and family income, we see that earnings fall by about 20%, but the income fall is lower at about 8%. The next question we ask is how the income fall differs across disability groups. As we will see, the fall we observe above is primarily due to the chronically disabled group. For brevity, we only look at changes in adjusted income for the persistence and severity classifications.

Table 7b reports the estimated dollar changes and implied percentage changes in adjusted income for the persistence groups, and Figure 6b plots the percentage changes. The fall in adjusted income for the one-time and temporary groups is small and statistically insignificant. There is not a noticeable trend after disability onset. The chronically disabled group is estimated to see their adjusted income decline by a quite large 9.4% by the year of onset, though income had been falling well before the year of onset. The fall continues for the next 10 years after

³⁰ Stephens (2001) finds that family income falls by about 7.4% by the year of onset; by the 5th year after onset, that fall is 15.5%.

disability onset and by the 10th year after onset, it is estimated to be 16% (the corresponding change in earnings is 35%). Changes in the same outcome for the severity groups is reported in Table 7c, and Figure 6c displays the implied percentage changes. As one might expect, the fall in adjusted income is more striking for the severely disabled group. By the year of onset, adjusted income is estimated to fall by a mere 2% for the not severe group and 12% for the severe group. The declines continued for both groups. By the tenth year after onset, adjusted income for the less-severely disabled has fallen by 4%. For the severely disabled the fall is 20%. These drops are less than these groups' earnings losses (12% and 41% for the non-severe and severe groups respectively).

Turning now to the extent of disability classification, the results are reported in Table 7d (income without public transfers), Table 7e (total income) and Table 7f (adjusted income). The results are also displayed in Figures 6d-6f. For the chronic-not severe and chronic-severe groups, income without public transfers is estimated to decline by 12% and 25%, respectively, by the year of onset. When we include public transfers, these magnitudes are reduced to 9% and 18%, respectively. When we further account for underreporting, income losses for these two groups are 7% and 13%. The income loss widens for these two disability groups in the following years, but the rate of change is higher for the chronic-severe group. Looking at the change in adjusted income, the long term loss for the chronic-not severe group is about 11%, but for the chronic-severe group, the loss is about 26%. Excluding public transfers, these losses would be 20.3% and 48% for the chronic-not severe and chronic-severe groups respectively (the corresponding loss in earnings are 27% and 53% respectively).

B. Poverty

Another standard indicator of well-being is the percentage of a group with income below the poverty line. We compare several of our family income measures to the official poverty line for both families with a currently disabled head and families with a currently non-disabled head. Since the official definition of income does not include taxes, we use only the pre-tax income measures in this section. Figure 7a shows the percentage of families with total income below the poverty line. Figure 7b reports the same series for the adjusted income measure. There are several features in these figures. First, in recessions, poverty among the disabled rises faster than the non-disabled. At the height of the 1982-1983 and 1991-1992 recessions, the percentage of

families with a disabled head living below poverty are 24% and 20% respectively using our total income measure and are 20% and 16% respectively when adjusted income is used.³¹ Second, the disabled are much more likely to live in poverty than the non-disabled; the difference in poverty rates is usually more than 10%. Third, when adjusted income is used, poverty rates among the disabled are on average about 4 percentage points below that using the official income variable. In other words, excluding Food Stamps and public housing, and not accounting for under-reporting in transfer benefits leads to a poverty rate among the disabled that is about 4 percentage points higher.³²

Figure 8a shows the percentage of the disabled living below poverty in the years before and after disability onset. It is clear that poverty rises around the time of disability onset due to the decline in earnings. In the years prior to the year of onset, the poverty rate of the disabled is roughly 10% under both income measures. It rises to 13% (12%) during the year of onset when total income (adjusted income) is used. The rate rises during the next 6 years, reaching a peak of 16% (14%) measured using total income (adjusted income). Figure 8b shows these percentages for the combined persistence and severity groups, using the adjusted income measure. Not surprisingly, the chronic-more severe group has the highest poverty rates. Almost 23% of the chronic-severe disabled group lives below poverty in the year after disability onset, and the percentage remains high over during the ten years after onset. In contrast, there is little change in the poverty rate for the one-time disabled group over time. For the temporary group, poverty among them rises to a peak of around 17% in the second year after onset, then declines steadily afterwards with the recovery of earnings and employment.

C. Transfer Income

In this section we examine the change in the receipt of public transfers by the disabled. Public transfer income is defined as the sum of AFDC/TANF, UI, WC, SSI, Social Security retirement and disability benefits, and other welfare benefits. This standard measure of public transfer income however does not include Food Stamps and the amount of subsidized housing,³³ both of which are often received by the disabled. We do include Food Stamps and subsidized

³¹ The numbers when the official income measure (that excludes Food Stamps and the value of subsidized housing) is used are 26% and 25% for the 1982-1983 and 1991-1992 recessions, respectively.

³² The poverty rates among the disabled when we use the official income measure are available from the authors upon request.

³³ For brevity, the method of constructing the amount of rental subsidy is left in the data appendix.

housing in our second measure of public transfers, total public transfer income. We also adjust the benefits received from the five programs using the underreporting rates discussed earlier to obtain adjusted public transfers.

We first examine changes in these three measures of public transfers for the disabled group as a whole. Table 8 reports fixed effect regression estimates with public transfer income as the dependent variable and Figure 9a displays these results. Not surprisingly, receipt of public transfer income rises with disability. In the year of onset, using the adjusted public transfer measure, the disabled receive \$2,500 (2003 dollars) more than they did prior to onset. Without accounting for underreporting, that amount would be about \$1,400. An interesting finding is that we do not see a substantial fall in the amount of public transfer income received during the 10 years after disability onset.

Sections A and B of Table 9 report the estimates for total public transfer income and adjusted public transfer income respectively, using the extent of disability classification. Figures 9b and 9c graphically display these results. For the one-time group, the estimates are small in magnitude and none is significantly different from zero, indicating that the one-time group receives little in public transfers as expected. For the temporary group, transfer income receipt increases during the year of onset (\$1,360 and \$2,050 in total and adjusted public transfers, respectively). Transfers peak the year after onset and then decline slowly over time. The pattern is similar for the chronic-not severe group, but with higher magnitudes. The temporary group, whose members have shown signs of improvement in their disabling condition and whose earnings are recovering quickly, are still receiving public transfers even by the tenth year after disability onset. For the chronic-severe group, however, public transfer receipt increases sharply during the year of onset; \$3,060 and \$5,620 for total and adjusted public transfers, respectively. By the tenth year after onset, adjusted public transfer receipt for this group is estimated to be \$10,781, more than four times that of the chronic-not severe group (\$2,472) and more than three times that of the temporary group (\$3,070). The sum of public transfers received by a family with an average chronically-severely disabled head by the 10th year after onset is estimated to be \$106,742.³⁴ We have also estimated fixed effects linear probability models for the likelihood of

³⁴ Since adjusted public transfers received by this group are close to zero before disability onset (the estimates for the years before onset are small and their sum is close to zero), we estimate adjusted public transfers received by an average chronic-severe disabled individual during the 11 years beginning with onset by summing the coefficient estimates.

receiving various transfers (results available upon request). We find that for the chronic-severe group, the likelihood of receiving SSDI is about 8% by the year of onset, 18% by the year after onset and close to 40% by the 10th year after onset. For SSI, these numbers are 4%, 3% and 11%, respectively. For Food Stamps, these numbers are 6%, 8% and 11%, respectively.

This part of the paper illustrates the economic hardship and the reliance of the disabled on public transfer programs. This pattern is particularly true for the most disabled group which suffers large earnings and income losses and has a high receipt rate of public transfer income. Despite the various public transfers they receive, about one-fifth of the most disabled have incomes below the poverty line in the long term. We have also examined the changes in earnings of other family members and find that they are small and insignificant, consistent with the findings of Nagi and Hadley (1972).

5. Consumption Changes Surrounding Disability

A. Food and Housing Consumption

We now turn to examining consumption since economic theory suggests that material well-being is more directly tied to current consumption than current income. Conceptually, income is subject to transitory fluctuations due to events such as job changes and changes in family composition. Furthermore, income changes may not translate into living standard changes if savings can be drawn upon (Poterba 1991, Cutler and Katz 1991). In terms of how accurately consumption and income are measured, there is substantial evidence suggesting that income is underreported. Meyer, Mok and Sullivan (2006) find that many types of transfer income are sharply underreported in major household surveys. Meyer and Sullivan (2003) argue find that income is badly measured for those who live at the bottom the resource distribution, likely due to the many small irregular sources of income for this group. Adding to the problems with income is the fact that government transfer under-reporting has increased over the last decade and that measuring disposable income requires accounting for taxes. On the other hand, using consumption reduces many of the problems discussed above. Consumption seems to be subject to less under-reporting at the bottom and is more is more closely associated with other

measures of well-being (Meyer and Sullivan 2003). Consumption reflects income and payroll taxes and the ability to draw upon savings.

We focus on the two components of consumption that can be measured well in the PSID: food and housing. We also analyze the components of food and housing consumption. We define food consumption as the sum of family food consumption at home, family food consumption outside the home and the face value of Food Stamps received.³⁵ We define housing expense as the sum of owned dwelling service flows calculated as 6% of current housing value, rent payments, and the rental subsidy for those with free or subsidized housing. The PSID does not ask questions on the amount of rental subsidy received, especially for those whose dwelling is partially publicly subsidized. Detail on how we construct rental subsidy is left in the data appendix. We should emphasize that consumption is measured at the household level, so a fall in it reflects more than a decline in consumption for the disabled head. In our estimation, we control for demographics including family size. Again, both food and consumption expenditures are deflated using the CPI-U and are put on an annual basis. In revisions, we will likely consider using food and housing expenditures as well as other family characteristics to predict total consumption using Consumer Expenditure Survey data as others have done (Skinner 1988; Meyer and Sullivan 2003; Blundell et al. 2005). A potential concern in predicting consumption for the disabled will be that the relationship between characteristics and consumption differs between the disabled and non-disabled.

Table 10 reports and Figure displays the changes in food consumption and food plus housing consumption for the disabled group as a whole. By the year of onset, the drop in food consumption is estimated to be a mere 1% and is imprecisely estimated. Food plus housing on the other hand, is estimated to be about 2.5% lower by the year of onset. Food consumption begins to decline from the second year after disability onset; the estimates indicate that it is 5% lower by this period, while food plus housing is now about 8% below its baseline. By the tenth year after onset, food consumption and food plus housing consumption have fallen by about

³⁵ The PSID food spending question is “How much do you (family) spend on food in an average week?” The time frame for this question is not entirely clear. We follow Zeldes (1989), Gruber (1997) and others in assuming that the question refers to the time of interview rather than the previous year. We do not adjust Food Stamp values using the underreporting rates discussed earlier. We do not include 1973, 1988 and 1989 in the food consumption analyses because food consumed per week was not asked in 1973, and food stamps received were not asked for the calendar years 1972, 1988 and 1989. We do not exclude 1972 since the Food Stamps program was still small at the time.

7.1% and 11%, respectively. Our estimates for food consumption are very similar to those reported by Stephens (2001). These results suggest that food demand is relatively income inelastic compared with other consumption. It is helpful to compare the long-term decline in earnings, adjusted income, food plus housing consumption and food consumption for the disabled as a whole, which are 19.1%, 8.1%, 10.6% and 8.6% respectively. We see the effects of behavioral responses in these differences and that different measures of well-being give somewhat different answers.

The consumption responses differ sharply by disability group. Table 11 reports the estimates for the food and food plus housing regressions, respectively and Figures 11a and 11b plot these estimates. Food consumption does not seem to change for the one-time disabled group, as the estimates are all close to zero and statistically insignificant. For the temporary group, food expenses are estimated to drop in the second year after onset by a magnitude of some 6% relative to that at baseline and remain around 4% lower on average over the next 10 years. The chronic group, however, experiences a substantial drop in food consumption. By the second year after onset, food consumption has dropped by an average of about 6.5%, and drops by a further 5.2%. Food consumption remains about 14% below the baseline level through the 10th year after onset. For food plus housing consumption, the pattern is somewhat similar, but the magnitude of the decline is larger in general.

Switching to the severity classification scheme gives us the results in Table 12. These results are shown in Figures 12a and 12b. It is apparent that the less severe group does not seem to experience any appreciable decline in food consumption following onset as the estimates are mostly small and statistically insignificant. However, for food plus housing consumption we do see a significant decline for the not severe group. By the tenth year after onset, food plus housing consumption is on average about 7% below that at baseline. The decline for the severe group, however, is again pronounced. Food consumption and food plus housing consumption have declined by about 15% and 18% respectively by the second year after onset, with both remain at around this level in the following years. The long-term decline in food and food plus housing consumption are about 15% and 20%, respectively.

Dividing the chronic group based on the disability severity gives the results in Table 13. Figures 13a and 13b display the results for food and food plus housing consumption. Here again we see the biggest changes are evident for the most disabled group – the chronic-severe group.

By the second year after onset, food consumption is about 20% below what it was at baseline and the decline remain at around 20% for the next 10 years. By the tenth year after onset, food consumption expenditure remains about 15% lower. We also examine food consumed at home and food consumed outside the home which are reported in Table 14 and displayed in Figures 14a and 14b. These results show a significant decline in food consumed at home for the chronic-severe group. The long-term decline is about 23.7%. For food eaten out, we observe a 23% decline by the year of onset and a very large 55% decline by the 10th year after onset. The long-term disaggregated food consumption changes for the other groups are mostly small and imprecisely estimated. Our results are consistent with the overall picture that the chronic-severe group is deeply affected by disability. The results also indicate that the families with the most disabled heads adjust their food consumption behavior by becoming less likely to eat outside and more likely to eat at home over the course of the disability. Looking at food plus housing consumption, we see a decline of 11% by the year of onset, and 22% by the second year after onset. By the 10th year after onset, food plus housing consumption is about 23.7% below that prior to disability. These changes fit with our notion of what types of expenditures are income elastic. We see the largest responses for food away from home and for housing and the smallest for food at home. The long-term decline in annual earnings, adjusted income, food plus housing expenditure and food expenditure for the chronic severe group are 52.8%, 26.2%, 23.7% and 20.4%, respectively. These magnitudes are more than twice the changes for the average disabled. Given that twenty percent of the disabled belong to this category, and forty percent eventually fall in this group, the question arises as to whether current transfer programs provide sufficient insurance.

B. Exploring the Source of Changes in Housing Consumption

The above results indicate that housing consumption falls following disability onset. Exactly how the fall in housing consumption occurs is unclear since we might think housing consumption is hard to adjust. We examine the importance of changes such as selling a house and becoming a renter or buying a smaller house or apartment. To understand the sources of the decline we decompose the changes in housing consumption into changes in housing type and consumption given the housing type. Let the consumption for person i in year t be the sum over

housing types of the product of an indicator for housing type j times the consumption of housing type j , where $j \in \{\text{own, rent, public housing}\}$. In other words

$$(2) \quad C_{it} = \sum_j S_{it}^j C_{it}^j$$

We let the corresponding variables without the subscript i denote averages over i . By appropriately adding and subtracting terms we can then write the change between two periods, denoted 1 and 2 as

$$(3) \quad C_2 - C_1 = \sum_j (S_2^j - S_1^j) C_2^j + \sum_j (C_2^j - C_1^j) S_1^j$$

Equation (3) then shows that the change in consumption between two periods depends on the change in shares (S^j) and the changes in consumption given type (C^j). To estimate these terms, accounting for individual characteristics, we run a series of fixed effect regressions similar to those above. We focus on changes specifically after the fifth year of disability onset. First, we run a series of fixed effect linear probability models of the form

$$(4) \quad s_{it} = \alpha_i + \gamma_t + X_{it}\beta + \sum_h \sum_k \delta_k^h A_{kit}^h + \sum_h \theta^h B_{it}^h + \varepsilon_{it}$$

where s_{it} is a dichotomous variable which equals one if individual i consumes a particular housing type,³⁶ α_i is a fixed effect, γ_t is a set of time indicator variables, X_{it} is a set of time-varying explanatory variables including marital status, state of residence, age and age-squared, education and the number of children. A_{kit}^h is a dichotomous variable which equals one if individual i is in disability group h and is k years after disability onset, where $k \in \{-5, -4, \dots, 4, 5\}$ B_{it}^h is a dichotomous variable which equals one if the individual i is in disability group h and is in year 6 through 10 after disability onset. ε_{it} is a potentially serially correlated error term as before. There are three possible types of housing thus we run the fixed effect linear probability model three times, one for each housing type. We again focus on our persistence-severity groups so $h \in \{1, 2, 3, 4\}$. The coefficients of interest are the θ_h which represent the estimated change in the probability of consuming a housing type in the long term following disability.

The results are shown in the upper panel of Table 15. We see that for the chronic-not severe and the chronic-severe group, the likelihood of living in public housing (fully or partially

³⁶ We determine housing type consumption in a year based on the highest amount of 1) 6% of home value, 2) rent paid and 3) the rental equivalent of subsidized housing received.

subsidized) increases in the long run by 2.1% and 5.4% respectively. However there is not discernable changes in the likelihood of renting or owning a home for these groups in the long run.

To examine adjustments by the disabled in the amount of housing, we estimate models similar to (4), but now the amount of housing consumption of a particular type is the dependent variable. We split the sample in three parts according to the type of housing chosen and estimate the fixed effect regressions in each sub-sample. Again, the coefficients of interest are the θ_h which represent the estimated long-term change in the amount spent on housing, conditional on the individual being in disabled group h and consuming a particular housing type. The chronic-severe group again displays some shocking patterns – for those who are home-owners, the amount of their housing consumption in the long run is estimated to decline by over \$2000 per year, which translates to a decline in home value of over \$33000. For those who rent private housing units, the amount of annual rent in the long run is estimated to decline by about \$1053 (\$88 per month). Both results are suggestive that for those chronic-severe disabled individuals who do not receive public housing, they do adjust their housing expenditure downwards to accommodate the overall decline in their earnings.

6. Conclusions

Given that almost one-fifth of the working-age population in the United States is currently disabled, examining the economic circumstances of these individuals is important for both economists and policymakers. This paper studies the prevalence of disability and changes in the economic well-being of the disabled surrounding disability onset. We examine changes in earnings, hours of work, employment, hourly earnings, income, poverty, receipt of public transfers, food and housing consumption over the years prior to and after disability onset. We also examine how the changes in these variables differ with the persistence and severity of the disability. Several measurement issues are accounted for as we include in-kind transfers in income and second we account for the underreporting of government transfers. These issues are not handled carefully in much empirical, and can lead to an overstatement of the losses following disability, especially for the less well-off groups that are very dependent on these transfers.

We find that lifetime disability prevalence in the United States has not fallen over the 1980s. The chance of having experienced at least one period of disability for a person who is reaching his retirement age is found to be 72%. In particular, the chance of having experienced a chronic and severe disability rises with age, from about 3% for a 40 year old to 20% for a 60 year old. Consistent with previous research, we show that the well-being of the disabled as a whole declines significantly following disability onset and we show that the decline varies sharply across disabled groups. For the least disabled group, there is very little evidence of a long-term decline in economic circumstances. However, for those with a severe and chronic disability, the decline in well-being is dramatic. The long-term decline for this most disabled group is 61% for annual earnings, 46% for income, 25% for food and housing consumption expenditures and 16% for food expenditures. These drops are more than twice those for the average disabled individual and in the long term, and about 20% of this group lives below the poverty line. We also see a noticeable fall in earnings prior to disability and conjecture that deteriorating health and a high frequency of unemployment may be responsible. The chronic and severe disabled group is not small – 4% of the working-age males currently in this group and about 20% will enter this group by age 60.

Our research also gives a very mixed conclusion about the extent to which individuals themselves and government programs provide insurance against the shock of disability. We find that the least disabled groups do not exhibit large changes in consumption expenditures, but the most disabled group experiences a sharp fall. Future research should investigate the reasons for this fall, including the functioning of private insurance markets and the adequacy of and gaps in coverage of government insurance programs. Faced with an aging population and high disability prevalence that rises with age we may experience a “double crisis” of rising spending as suggested in Autor and Duggan (2006) and pronounced material deprivation as is suggested in our study.

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Appendix 1

Data Appendix

The PSID Sample

Our primary data source is the Panel Survey of Income Dynamics (PSID). Our sample consists of the male household heads age 22-64 during the survey years of 1968-2003. We require the person to be in the survey for at least 4 years, 3 of which must be consecutive. We require that those disabled after 1978 have 2 consecutive years of non-disability immediately before the first positive limitation report. All disabled must have at least 3 years of data in the subsequent 10 years after the year of onset. Those who are first observed to be disabled in 1999, 2001 or 2003 will automatically be eliminated by the requirement that an individual must be in the survey for at least 3 years after the year of onset.

We replace missing demographic variables with those in the nearest survey year, if available. If such data are not available, we delete those with missing values. The number of observations in the primary sample is 7220.

Source of Variables

The PSID consists of family level data and individual level data. While the same variable can appear in both files, it need not be identical. Based on the assessment of the PSID staff, we select our variables as below:

Age of head: Individual file

Marital status of head: Family level

Education of head: Family level

Hours of work: Family level

Determining the Year of Disability Onset

The year of disability onset is determined by the responses to the retrospective question of when a work limitation started (through 1978) and is the first time a disability is reported following at least two negative limitation report (after 1978). The wording of the retrospective question is: *“How long have you been limited in this way by your health?”* The PSID coded the responses into 4 categories: zero to 18 months, 2-4 years, 5-7 years, 8 or more years. For the 1978 survey, the responses were the actual number of years the individual has been limited. For those disabled who answer the retrospective questions, we select the first string of positive limitation reports. For these years we use the retrospective question to determine the interval in which the onset year must fall. We determine the intersection of these intervals, taking the onset year to be the earliest year within the remaining interval. If the individual’s first observed disability is prior to the earliest year given by the retrospective questions, we will take the year of first observed disability as the year of onset. Those who answered the category “8 or more years” all the time are dropped from the sample as their condition might be birth related. For those who do not

answer these retrospective questions, we require them to have 2 consecutive years of non-disability immediately before the first observe positive limitation.

We do not regard a missing response to the disability question as a negative limitation report. Note also that an individual who first reports disability in the 1990 wave, for example, may actually have had his condition since soon after his previous interview in 1989. We therefore adjust his year of onset by determining the midpoint of the dates between the interview that he reported a positive limitation and the interview in the previous year, if available. Should this midpoint fall in year t-1 for an individual who first reported disability in year t, his year of onset would be year t-1. We make this adjustment only for those who do not answer the retrospective disability questions. If an adjustment is made such that year t-1 is the year of onset, we still count the disability report in year t as the onset report.

Severity questions and main possible responses in the PSID

The following table shows the questions about limitation severity over time in the PSID.

Screening question: Do you have any physical or nervous condition that limits the type or amount of work you can do?	
Survey Years	Question and the main possible responses
1968, 1972-1976	How much does it limit your work? Completely: "I can't work" Severely: "It limits me a lot" "Some"; "Not much"; can only work a few hours at a time, "must rest"; mentions part-time work; can't lift heavy objects; reports periods of pain Limitation, but not on work
1977-1985	Does it limit your work a lot, somewhat, or just a little? A lot Somewhat Just a little
1986-2003	Does this condition keep you from doing some type of work? Yes No (i.e. Not limiting) Can do nothing For work you can do, how much does it limit the amount of work you can do – a lot, somewhat or just a little A lot Somewhat Just a little Not at all Answered "Can do nothing" or "Not Limiting" in the preceding question

Note that starting with the 1986 wave, the individual first answered whether the condition caused them to be unable to anything, before answering the extent of the disability question. Even though those who said "Can do nothing" or the condition is "Not limiting" were not asked the subsequent seriousness question, we can still divide them into the six qualitative types. We utilize only the severity reports up to the 10th year after onset. The results are virtually the same when more severity reports are used for the longer-term disabled.

Accounting for Underreporting

We scale up the five main programs for the disabled using these underreporting rates: Unemployment Insurance (0.603), Workers' Compensation (0.373), Social Security Disability Insurance (0.823), Supplementary Security Income (0.608) and Food Stamps (0.66). Since unemployment benefits and Workers' Compensation were combined for the earlier years, the underreporting rate for these two benefits combined is 0.484). Also in some of the years we only have social security income, rather than each component separately, we assume that those families with a member above the age 62 were receiving retirement income. Thus we only count social security income as disability insurance if none of the members in the family is above 62.

Poverty Thresholds

The official poverty line varies with the number of adults, children and family member over age 65. We use the official poverty thresholds published by the U.S. Census bureau annually from 1980 to present. For poverty thresholds prior to 1980, we use the CPI-U to index the 1980 thresholds backwards.

Weights

Weights are adjusted using the population multiplication factors given in the PSID documentation. These multiplication factors are: 1969-1971: (400), 1972-1977: (500), 1978-1983 (565), 1984-1996 (688), 1997 and beyond (1000).

Definitions

Adjusted Income equals income but with DI, SSI, FS, WC and UI receipts scaled up using the underreporting rates.

After-tax income is income less federal income tax liability.

Asset Income is the sum of rental income, interest and dividend income, non-labor farm and gardening income, alimony and non-labor business income for head and wife of the family.

Food Expenditures are the sum of the value of food consumed at home, food eaten outside, and the value of food stamps received.

Consumption Expenditures are the sum of food and housing expenses.

Housing Expenditures (see the housing expense section below).

Hourly Earnings are the amount of annual earnings divided by the number of hours worked in the year.

Income is the sum of labor income, asset income, transfer income, value of food stamps received and the rental equivalence for those who received subsidized housing.

Private Transfers are the sum of money received from friends and relatives by all family members.

Public Transfers are the sum of AFDC, UI, WC, SSI, Social Security Income, Food Stamps, Rental Equivalence of Subsidized Housing, and Other Welfare Benefits.

Severity Ratio is the fraction of the seriousness reports (up to the 10th year after the year of onset) such that the individual reported “Can do nothing”, “Completely”, “A lot” or “Severely”.

Under-reporting Rate is the ratio of weighted aggregate benefit receipts in the PSID and the administratively reported amount of benefits paid out.

Estimating Federal Income Tax Liability

The PSID provides estimates of the amount of federal income tax liability for the 1968-1991 waves. For the remaining waves, we estimate the family’s federal income tax liability using TAXSIM. We determine, using the data available, the number of dependents, the amount of asset income, dividend income and earnings for 2 tax units - 1) the Head and Spouse and 2) Other Family Unit Members (OFUM). Family federal income tax liability is the sum of the taxes estimated for these two tax units. A more technical appendix is available from the authors upon request.

Housing Choice

We determine an individual’s choice of housing (home-ownership, private rental or publicly subsidized housing) based on several factors. First, in each year, the PSID asks each family what form of dwelling unit the family resides – 1) Own Home, 2) Renting or 3) Not Owning and Not renting. Those who owned a home is classified as so, but for those in the two remaining groups, one would need to divide them into those who received public housing (partial or full) and those who do not. Questions about public housing are available only in the 1968-1972 and 1986-2003 waves. Thus we first determine whether a family is living in a publicly subsidized housing unit for these years. For the 1973-1985 years we interpolate forward and backward. Specifically, we start from the last housing response in 1968-1972 waves and we determine the head lives in a publicly subsidized housing unit in the following year if all of the following hold:

- a) The person lived in a publicly subsidized housing unit in the prior year
- b) The family the individual lives did not move in the previous year
- c) The family the individual lives does not own a home.
- d) If there is a switch from renting to “not paying rent nor owning”, the reason for not paying rent must be 1) Paid for by someone else, 2) Part of compensation and 3) Other.

We repeat this procedure forward beginning in 1973 wave. A similar procedure is applied using the first housing response starting from 1986 survey but we interpolate backwards. We also ensure that the number of interpolations done from each end to be roughly equal. Note that if a person neither pays rent nor own, but does not receive public housing, he is treated as renting privately.

Housing Expenses and Public Housing Subsidies

After housing choice (home-ownership, private rental , public or subsidized housing) is determined. We calculate the housing expense and the amount of private and public housing subsidy, the method for each is summarized in the table below:

	Housing Expenses	Private Housing Subsidies	Public Housing Subsidies
Home Ownership	6% of home value	Zero	Zero
Private Rental	Rent or the rental equivalent (if he neither rents or owns)	Rental equivalent	Zero
Public or Subsidized Housing	<p>If the person does not rent or own, it is the rental equivalent.</p> <p>If the person rents, housing expense is the larger number of estimated rental equivalent and the actual amount of rent.</p>	Zero	<p>If the person does not rent nor own, it would be the rental equivalent.</p> <p>If the person rents, the amount of rental subsidy is the estimated rental equivalent minus the actual rent paid (set to zero if the difference is negative).</p>

To estimate the rental equivalence of those who rent but received public housing, we do the followings:

1. Use the 1986-2003 waves to estimate a rent regression using the sample of families who rent but do not receive public housing, the dependent variable is the rent they paid and the explanatory variables include the state, time from 1968 and its squared, number of rooms, type of unit (2 family house, apartment, trailer, rowhouse and other) and urbanicity (if the largest city in the county of residence has 50,000 or more individuals).
2. Using the resulting estimates, we estimate the rent for those who rent but received public housing subsidy, the estimated rental equivalence is 0.775 times the estimated rent. 0.775 is calculated by comparing the mean of the rental equivalence for those whose housing is fully publicly subsidized with those who rent privately. Since the housing

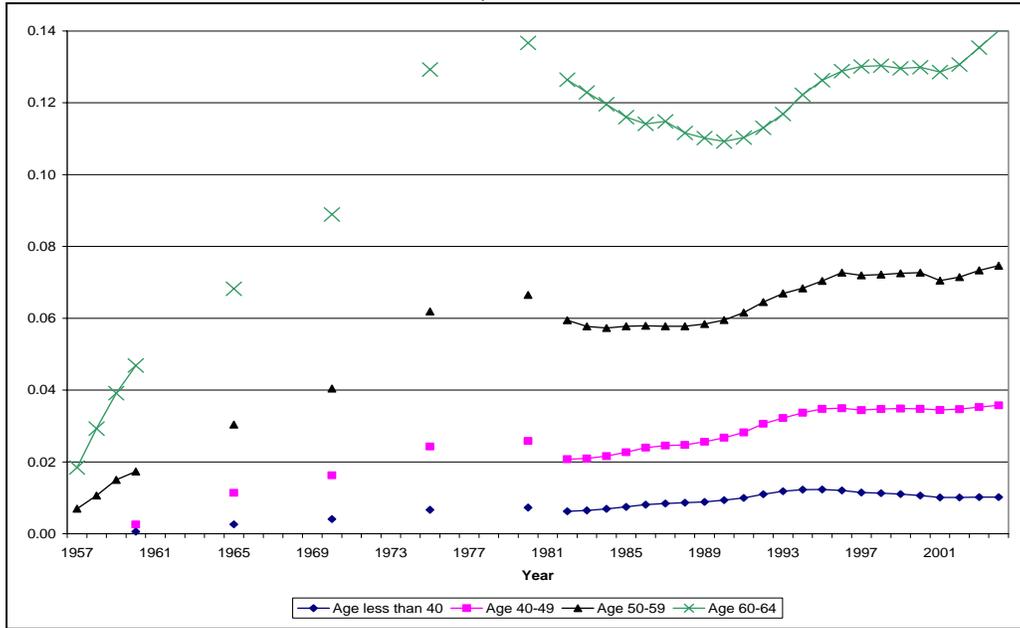
quality for those who receive public housing would be lower in general, we use this factor to scale down the estimated rent.

Independent Variables in the Regression

- 1) Time dummies
- 2) State dummies
- 3) Marital Status
- 4) Education Indicators (12-16 years of education and 17+ years of education)
- 5) Age and Age-Squared
- 7) Time dummies for the year since onset, 21 in total representing the 10 years before and after the year of disability. A separate set of time dummies for different severity class.
- 8) Number of members in the family (for income regressions only).
- 9) Age and Education interactions, age-squared and education interactions, education and time from 1968 interactions, education and time from 1968 squared interactions (for earnings, hours, hourly earnings and income regressions only).
- 10) Number of men, women, young adults (11-17 years old), children (0-10 years old) and senior citizens (65 years old and above) in the family, as well as the squared of these variables. Included only in the food, housing and consumption regressions.

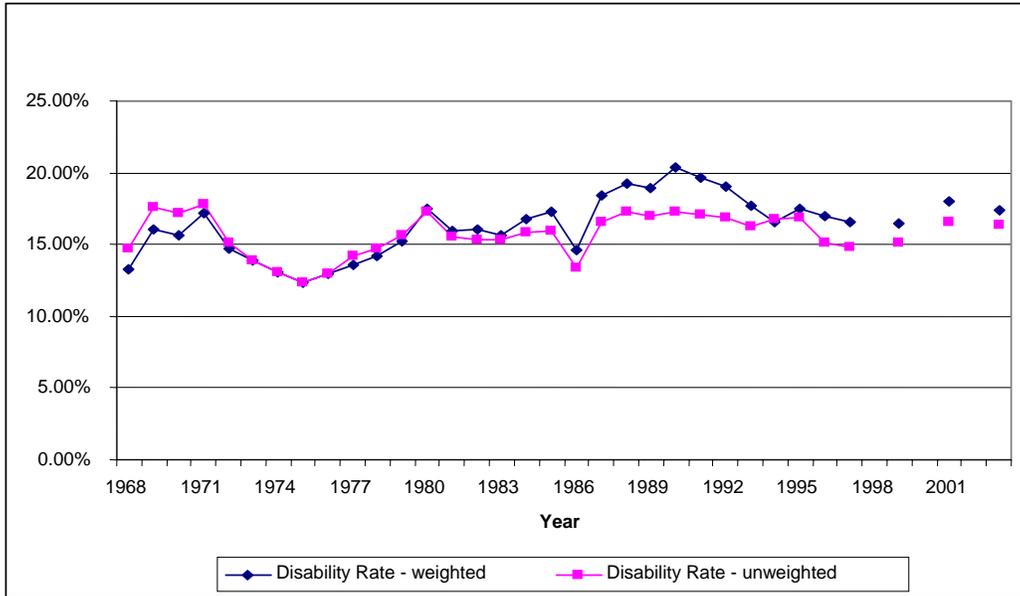
Figure 1

SSDI Recipient to Population Ratios by Age, Males, 1957-2004



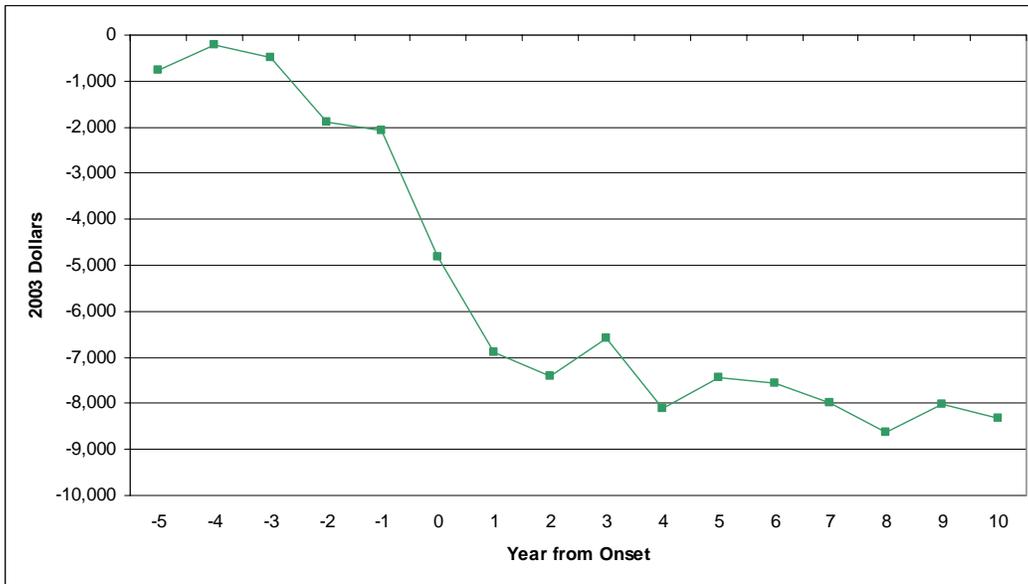
Source: Annual Statistical Supplement, Various Years and US Census Bureau

Figure 2
Disability Rate, Male Household Heads, 1968-2003



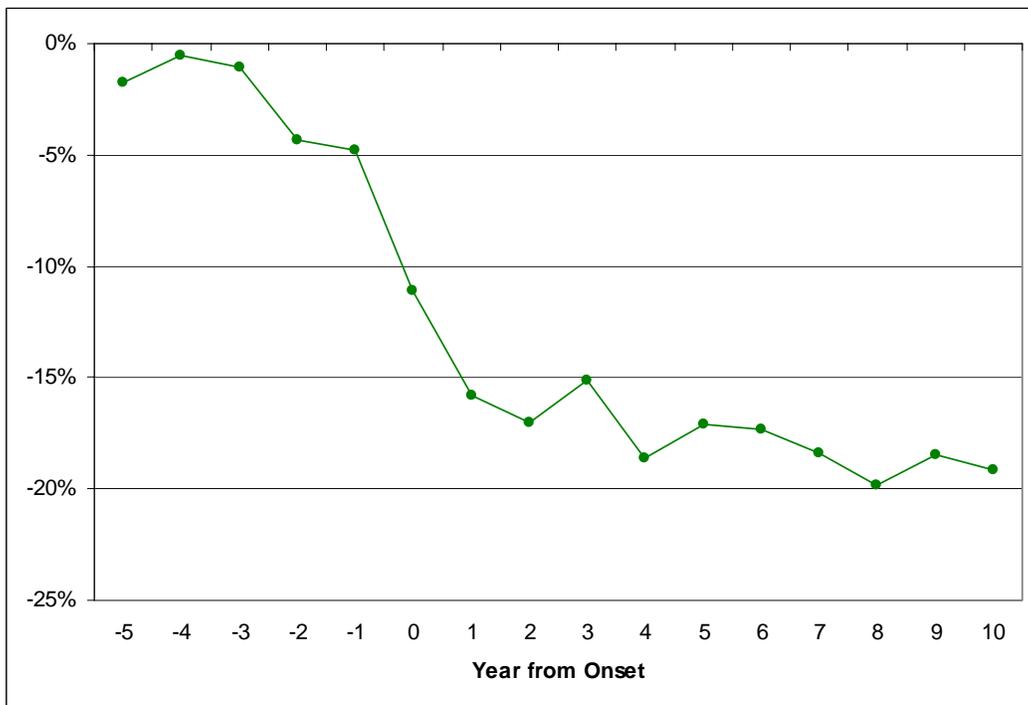
This figure shows the percentage of male household heads that are currently disabled in the PSID. The sample is household heads 22-64 years of age who are in the survey for at least three consecutive years. The currently disabled are those who report having a physical or nervous limitation in the survey year. PSID family weights are used. See the notes to Table 1 for more detail.

Figure 3a
Change of Annual Earnings Before and After Disability,,
All Disabled



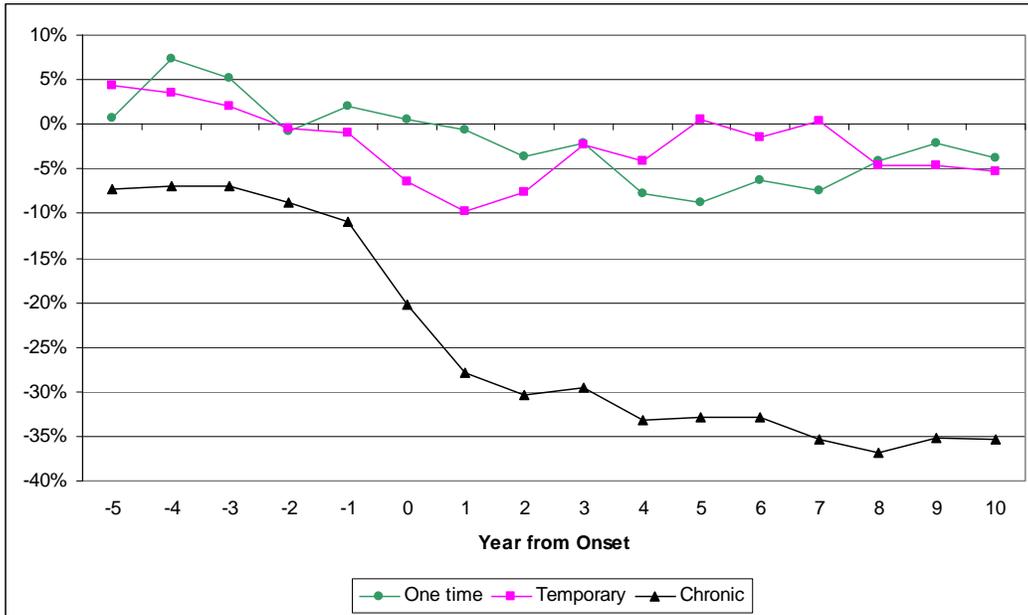
This figure plots the fixed effect regression estimates in Table 3. See Table 3 for details.

Figure 3b
Implied Percentage Change in Annual Earnings Before and After Disability,
All Disabled



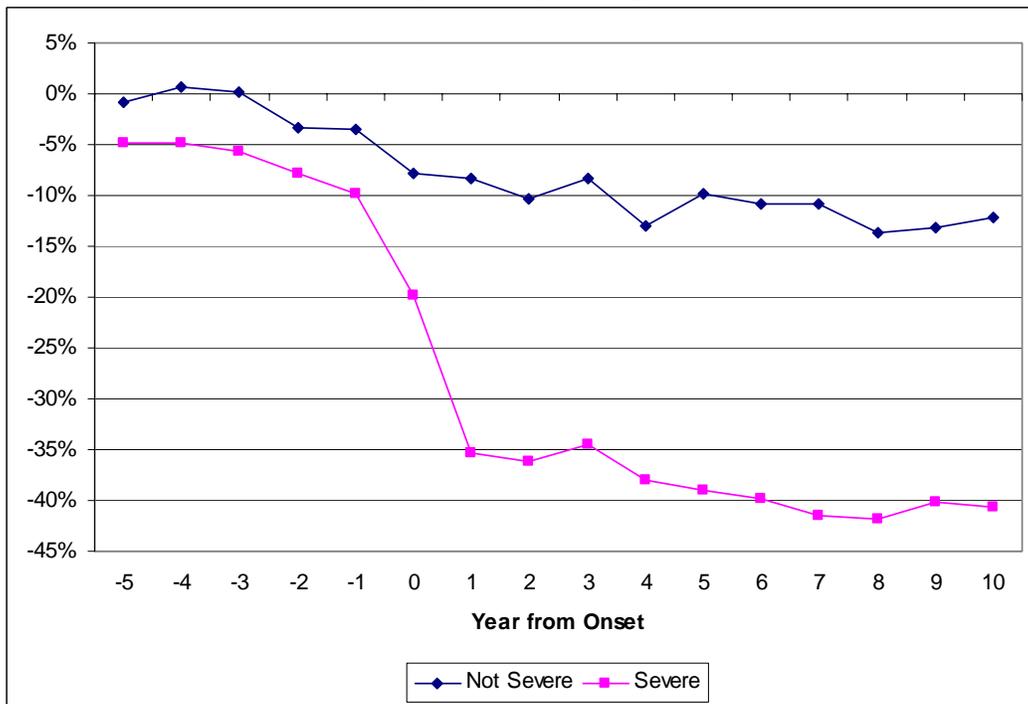
This figure plots the percentage change in annual earnings of the disabled relative to their earnings prior to the 5th year before disability as implied by estimates in Table 3.

Figure 3c
Implied Percentage Change in Annual Earnings Before and After Disability,
By Persistence Group



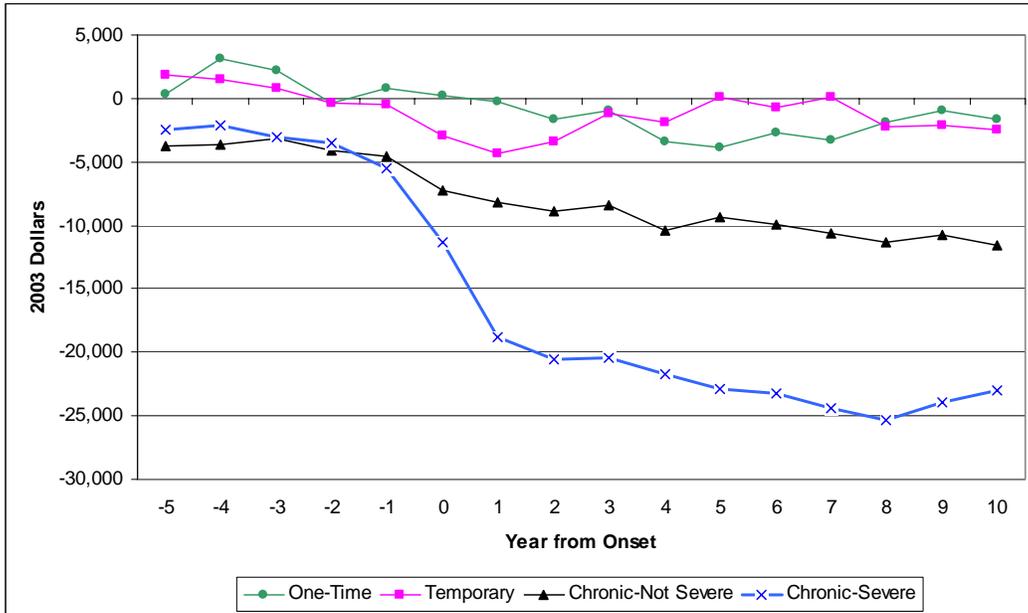
This figure plots the percentage changes implied by estimates in Table 4a.

Figure 3d
Implied Percentage Change in Annual Earnings Before and After Disability,
By Severity Group



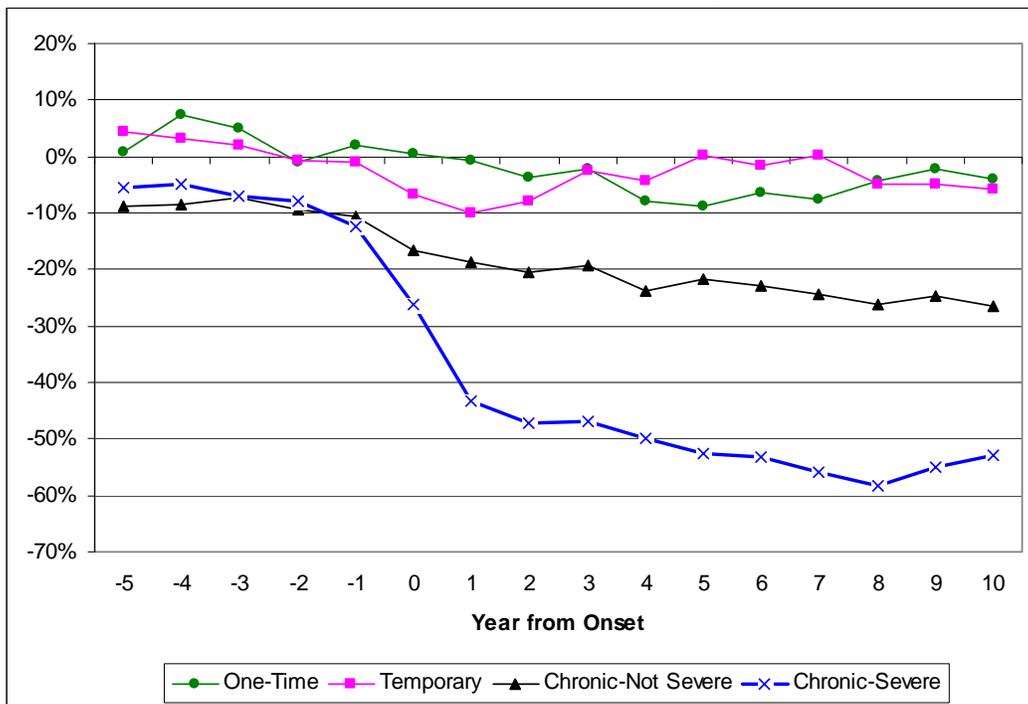
This figure plots the percentage changes implied by estimates in Table 5.

Figure 3e
Change in Annual Earnings Before and After Disability,
By Extent of Disability Group



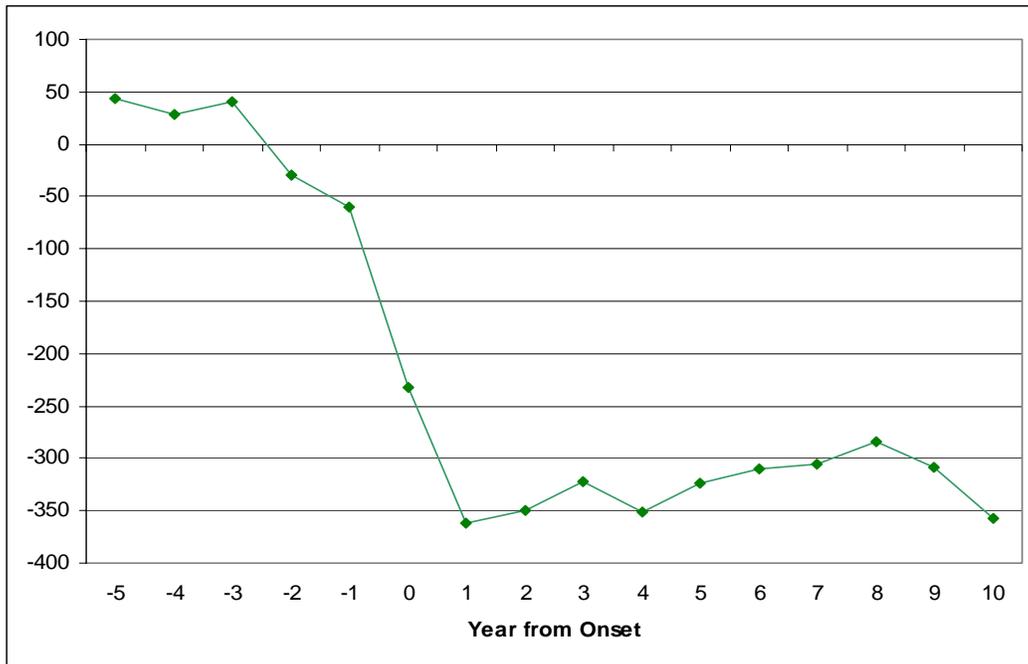
This figure plots fixed effect regression estimates in Table 4a.

Figure 3f
Implied Percentage Change in Annual Earnings Before and After Disability,
By Extent of Disability Group



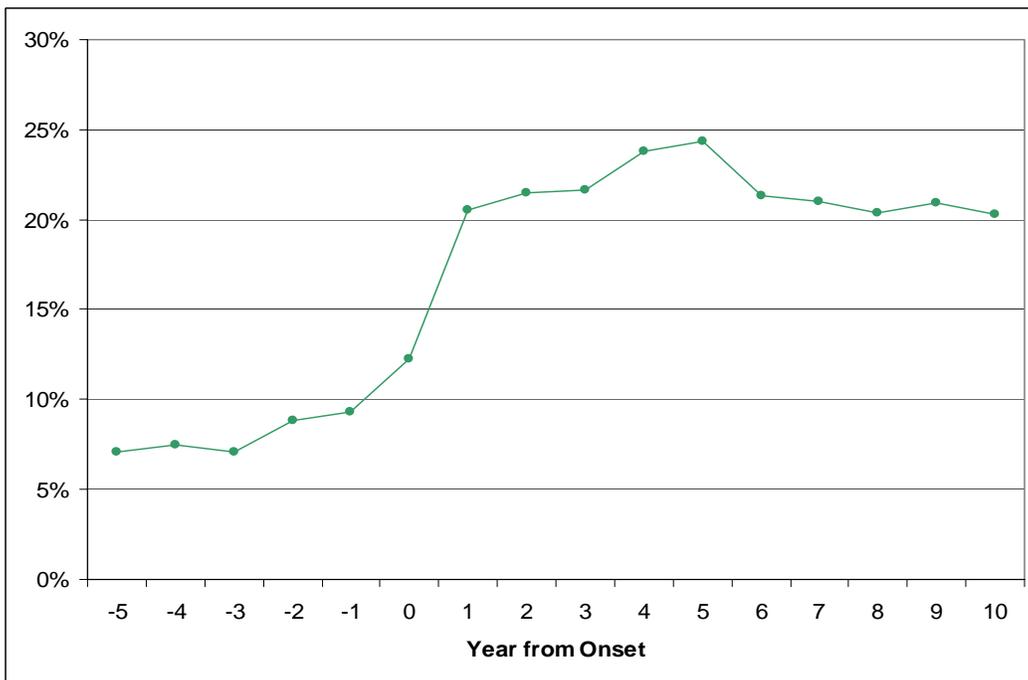
This figure plots the percentage change in annual earnings of the disabled relative to their earnings prior to the 5th year before disability as implied by estimates in Table 4a.

Figure 4a
Change in Annual Hours of Work Before and After Disability,
All Disabled



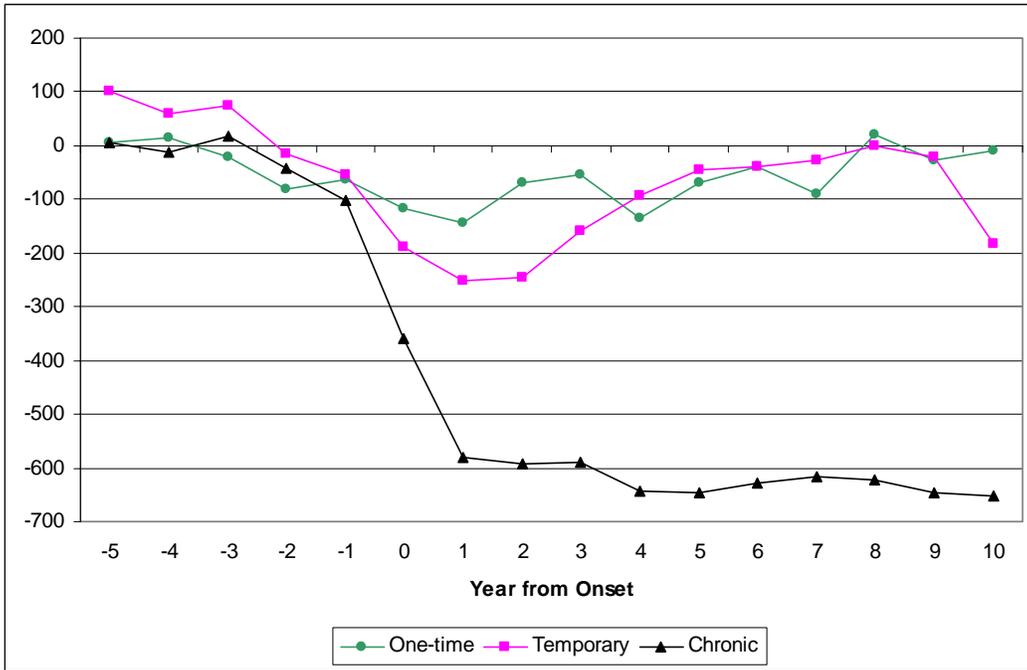
This figure plots fixed effect regression estimates from Table 3.

Figure 4b
Percentage with Zero Hours of Work Before and After Disability,
All Disabled



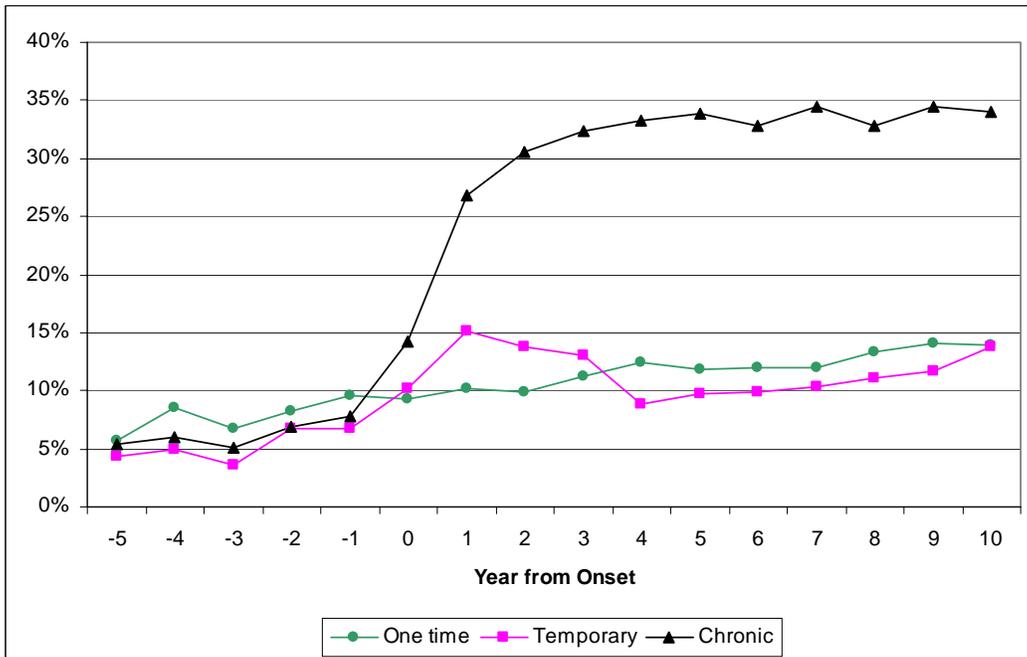
This figure shows the percentage of the disabled who work zero hours in the year.

Figure 4c
Change of Annual Hours of Work Before and After Disability,
By Persistence Group



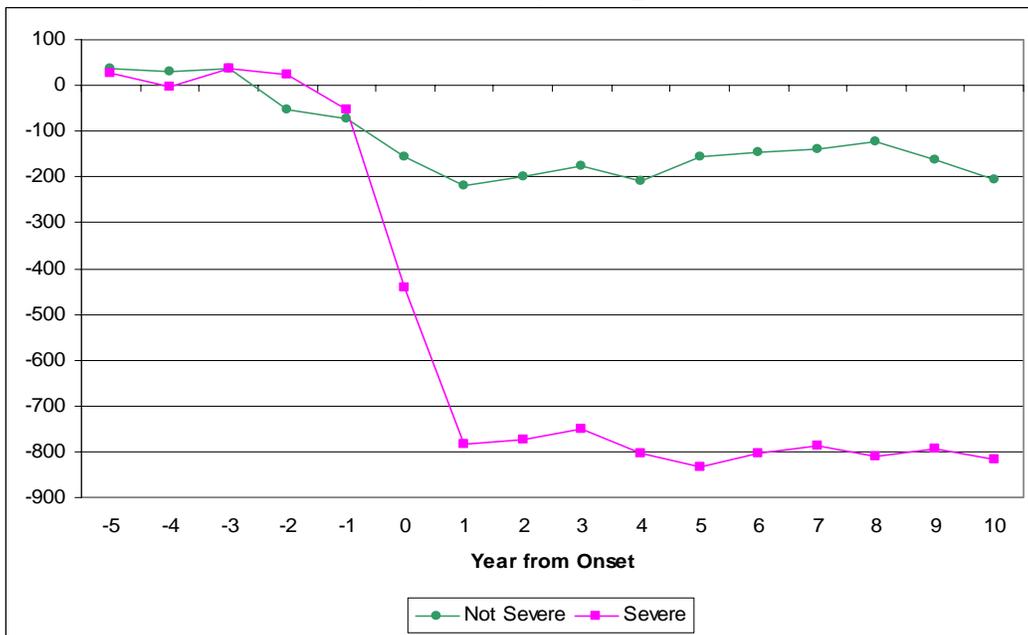
This figure plots fixed effect regression estimates from Table 4b.

Figure 4d
Percentage with Zero Hours of Work Before and After Disability,
By Persistence Group



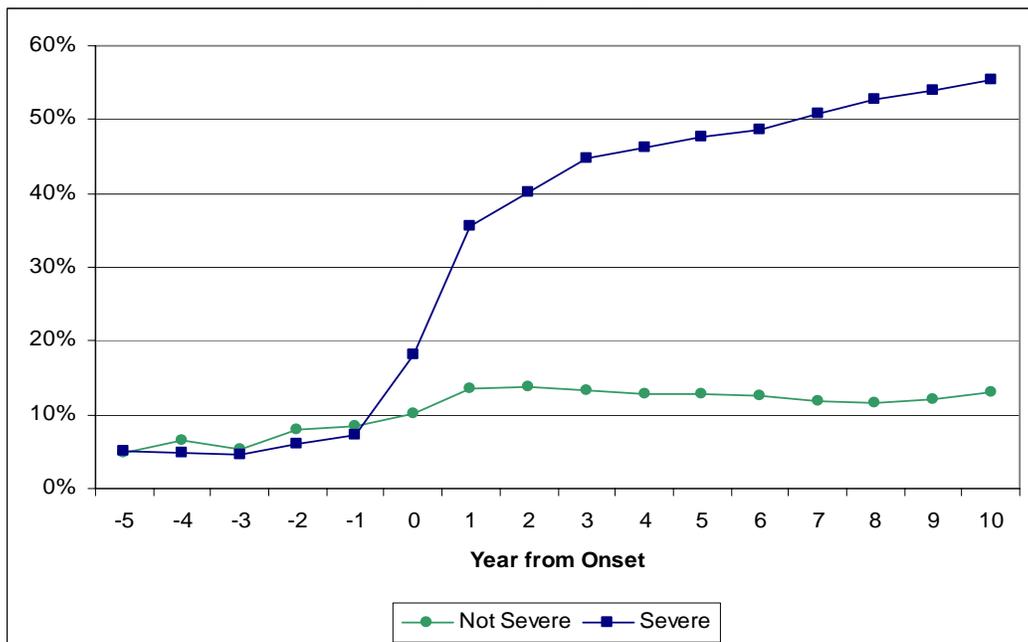
This figure plots the percentage of the disabled who worked zero hours as tabulated in Table 4b.

Figure 4e
Change in Annual Hours of Work Before and After Disability,
By Severity Group



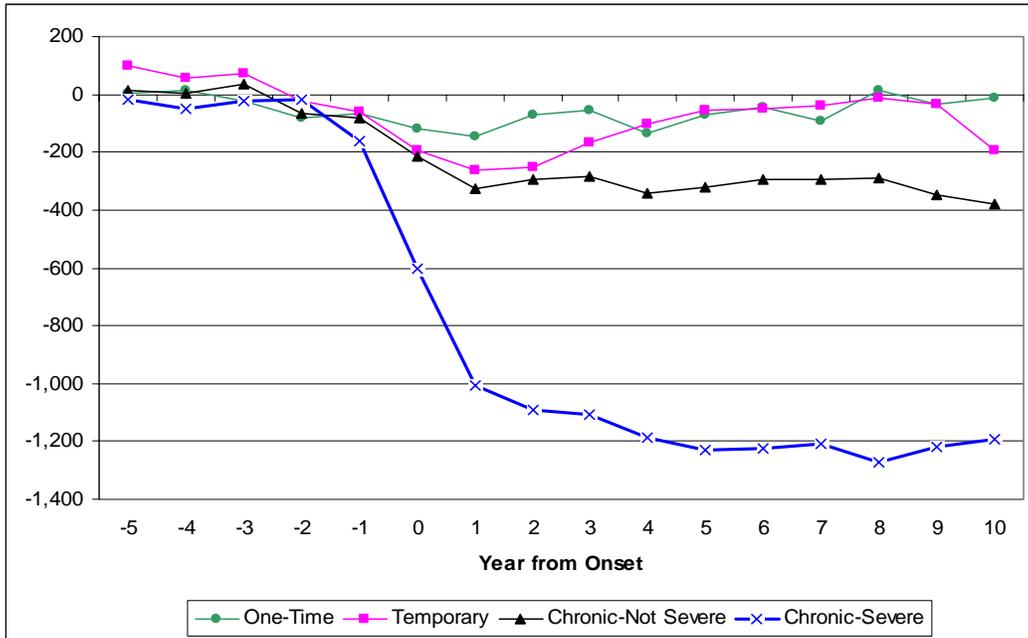
This figure plots fixed effect regression estimates from Table 5.

Figure 4f
Percentage of People with Zero Hours of Work Before and After Disability,
By Severity Group



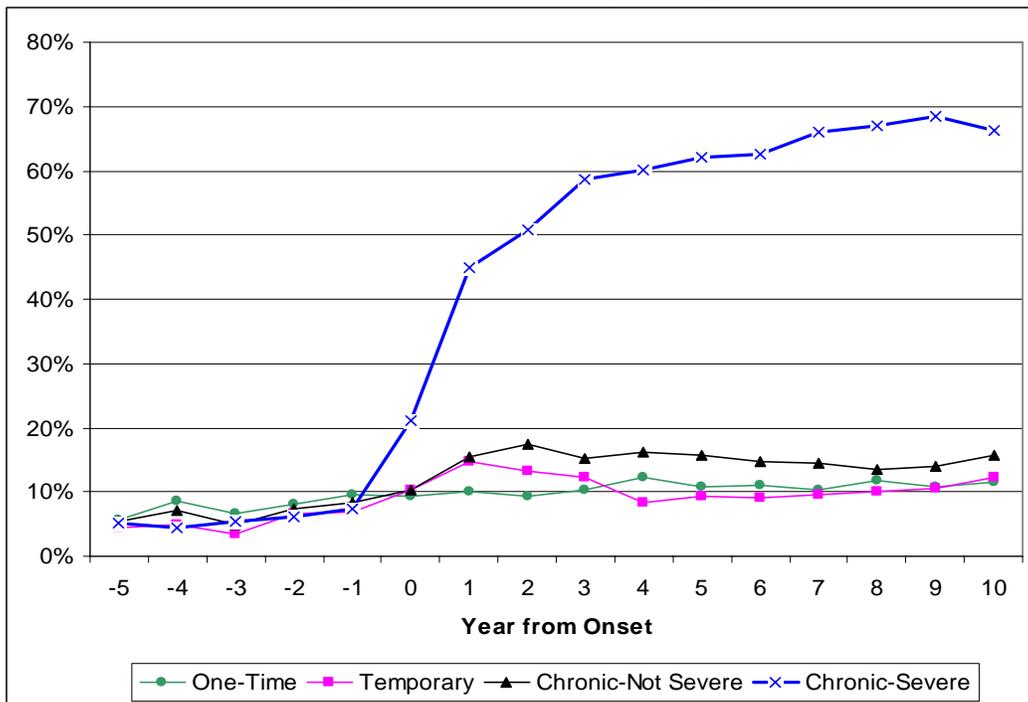
This figure plots the percentage of the disabled who worked zero hours in the years from onset as tabulated in Table 5.

Figure 4g
Change in Annual Hours of Work Before and After Disability,
By Extent of Disability Group



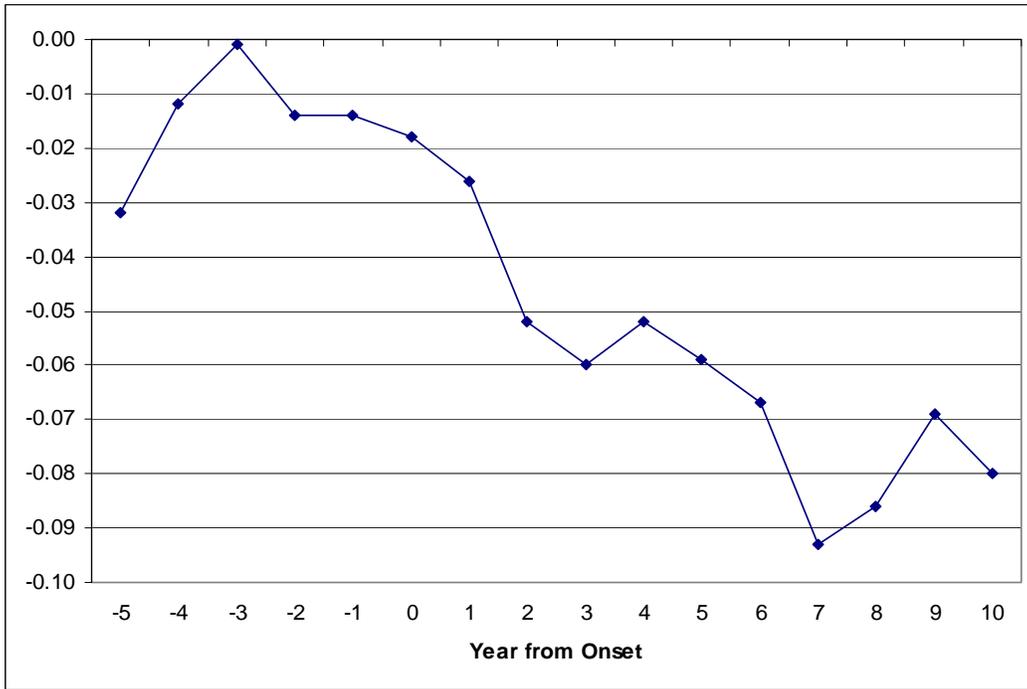
This figure plots fixed effect regression estimates from Table 4b.

Figure 4h
Percentage of People with Zero Hours of Work Before and After Disability,
By Extent of Disability Group



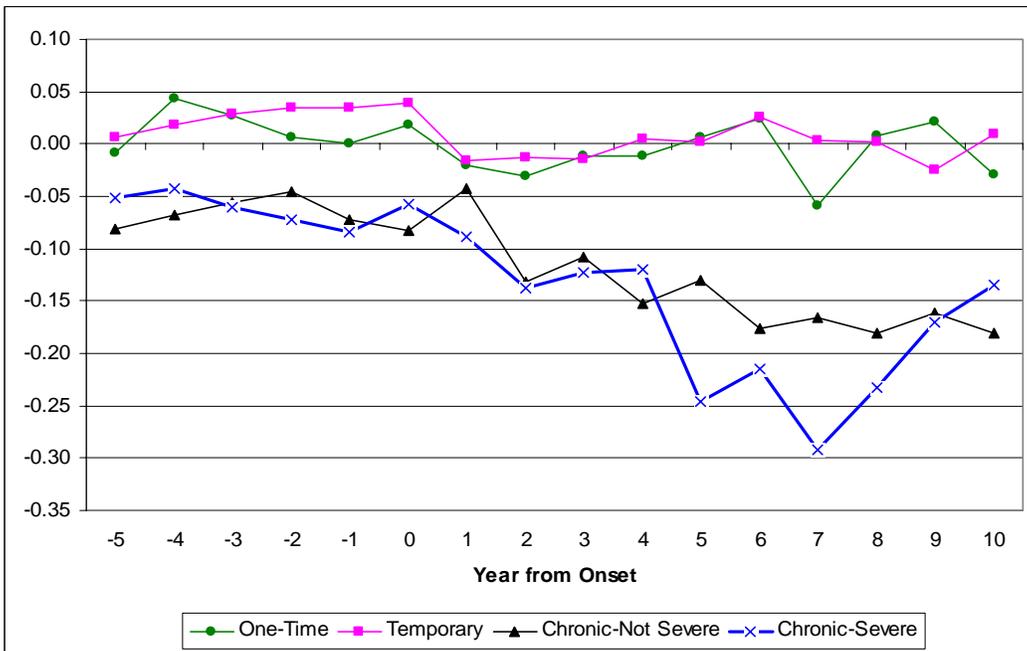
This figure plots the percentage of the disabled who worked zero hours in the years from onset as tabulated in Table 4b.

Figure 5a
Change in Log Hourly Earnings Before and After Disability,
All Disabled



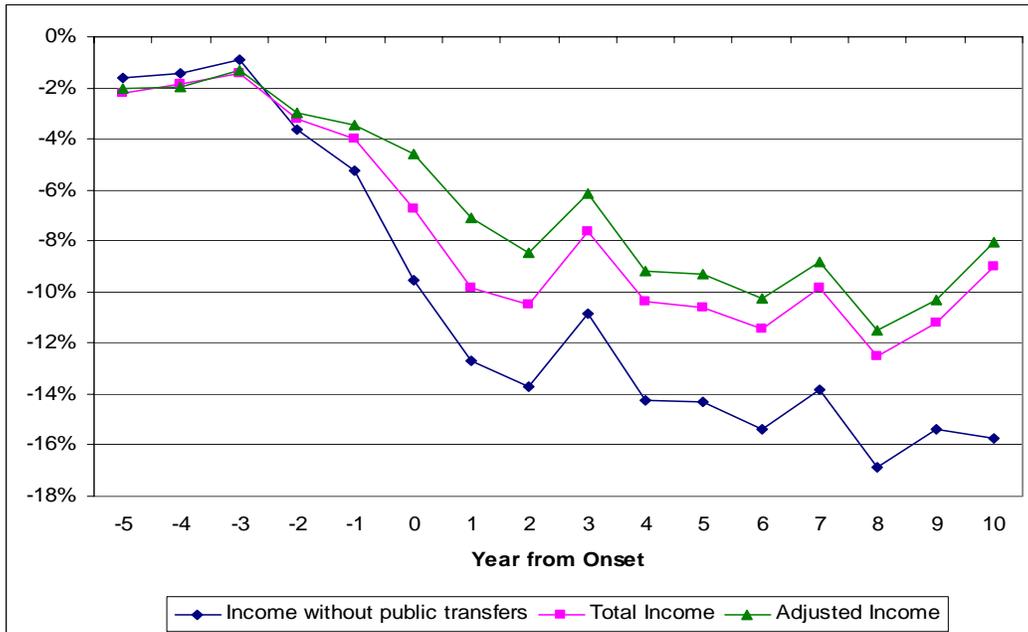
This figure plots fixed effect regression estimates from Table 3.

Figure 5b
Change in Log Hourly Earnings Before and After Disability,
By Extent of Disability Group



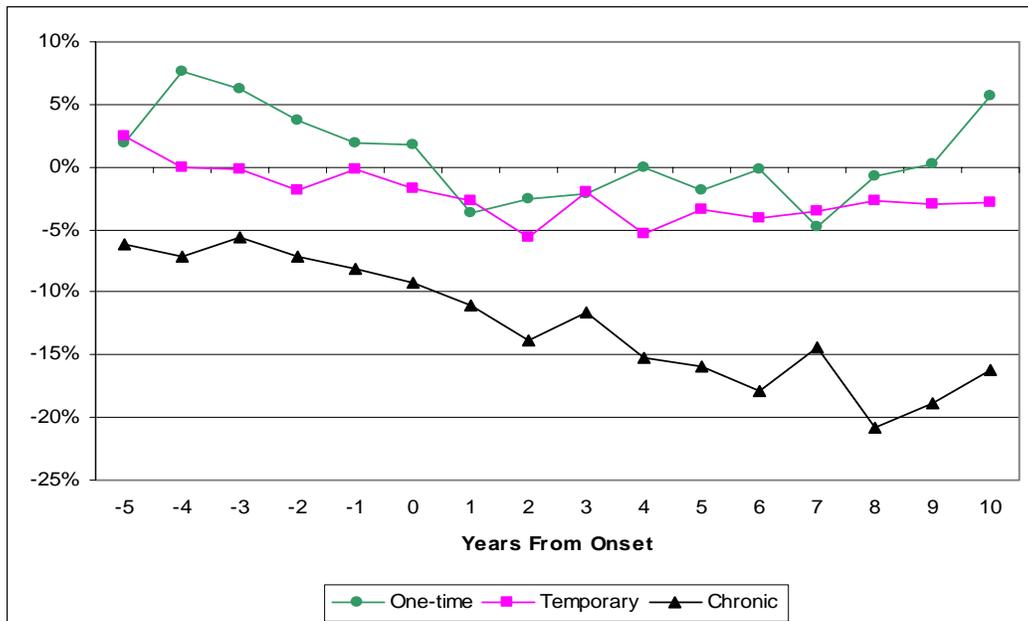
This figure plots fixed effect regression estimates from Table 6. See the notes to Table 6 for details.

Figure 6a
Implied Percentage Change in various After-tax Income Measures Before and After Disability, All Disabled



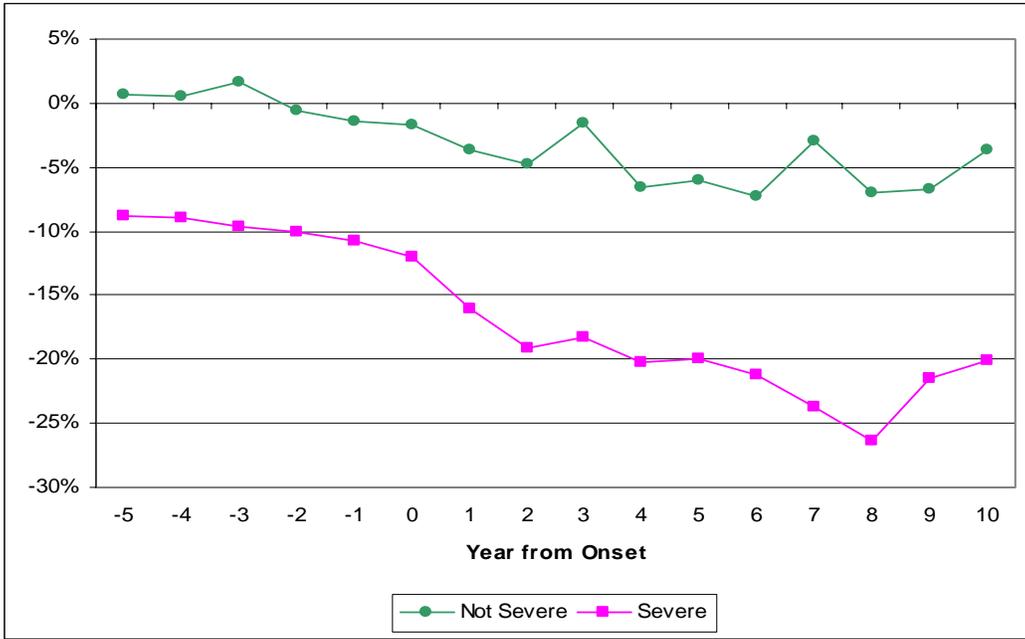
The figure above shows the implied percentage change in various income measures, obtained by dividing the estimates in Table 7a by the corresponding average after-tax income measure prior to the 5th year before disability onset (After-tax Income without public transfers: \$51,816, After-tax Total Income: \$52,917, After-tax Adjusted Income: \$53,254).

Figure 6b
Implied Percentage Change in After-tax Adjusted Income Before and After Disability, By Persistence Group



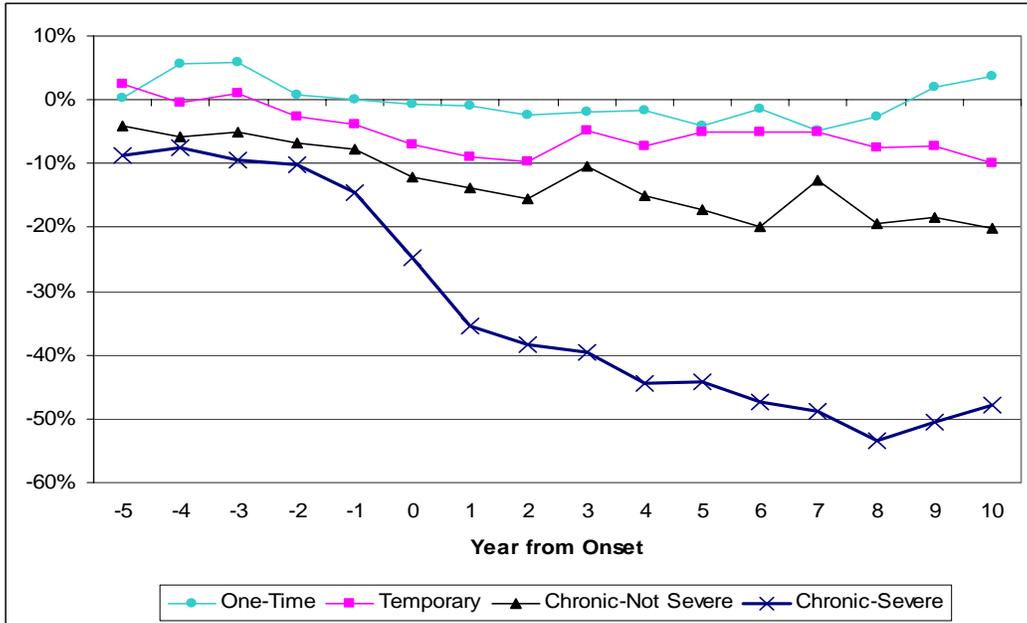
The figure above shows the implied percentage change in adjusted income, obtained by dividing the estimates in Table 7b by the average after-tax adjusted income of the disabled prior to the 5th year before disability onset (\$53,254).

Figure 6c
Implied Percentage Change in After-tax Adjusted Income Before and After Disability,
By Severity Group



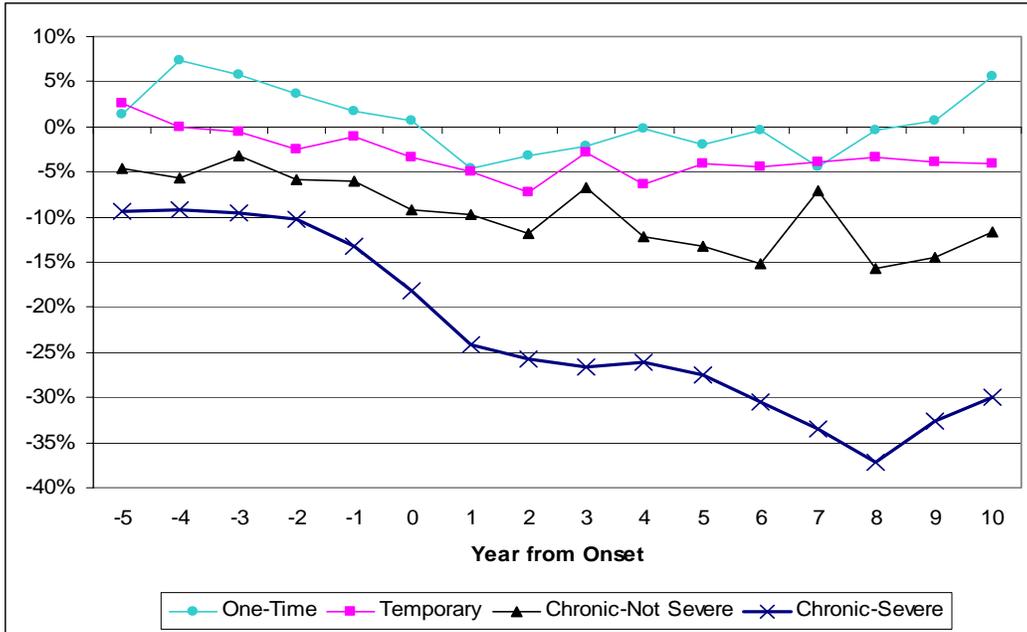
The figure above shows the implied percentage change in adjusted income, obtained by dividing the estimates in Table 7c by the average after-tax adjusted income of the disabled prior to the 5th year before disability onset (\$53,254).

Figure 6d
Implied Percentage Change in After-tax Income without Public Transfers Before and After Disability,
By Extent of Disability Group



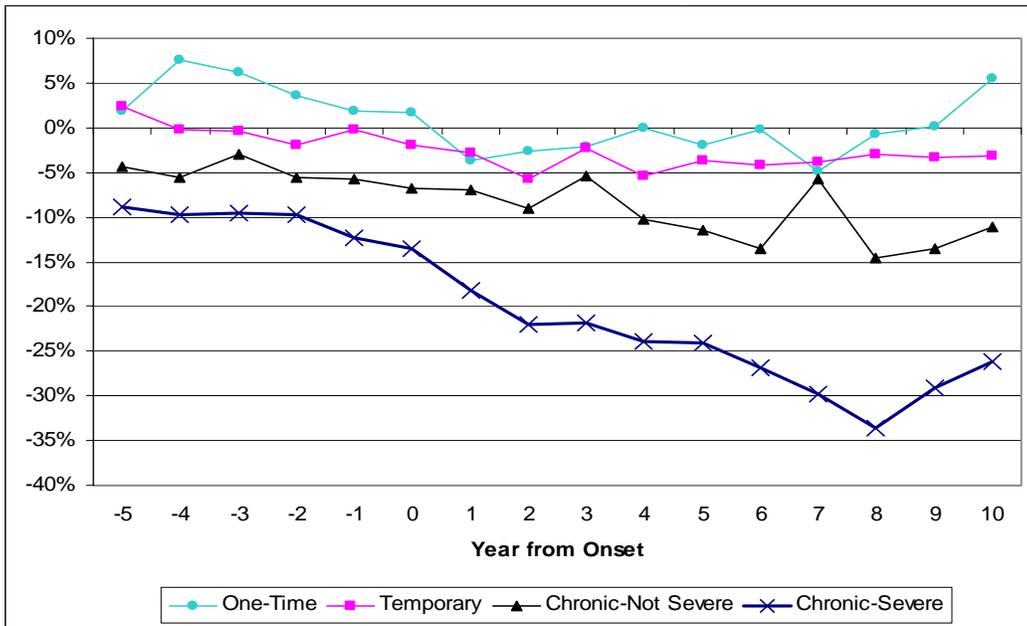
The figure above shows the implied percentage change in adjusted income, obtained by dividing the estimates in Table 7d by the average income without public transfers of the disabled prior to the 5th year before disability onset (\$51,816).

Figure 6e
Implied Percentage Change in After-tax Total Income Before and After Disability,
By Extent of Disability Group



The figure above shows the implied percentage change in total income, obtained by dividing the estimates in Table 7e by the average after-tax total income of the disabled prior to the 5th year before disability onset (\$52,917).

Figure 6f
Implied Percentage Change in After-tax Adjusted Income Before and After Disability,
By Extent of Disability Group



The figure above shows the implied percentage change in adjusted income, obtained by dividing the estimates in Table 7f by the average adjusted income of the disabled prior to the 5th year before disability onset (\$53,254).

Figure 7a
Fraction of Families with Total Income below the Poverty Line,
Families with Male Head

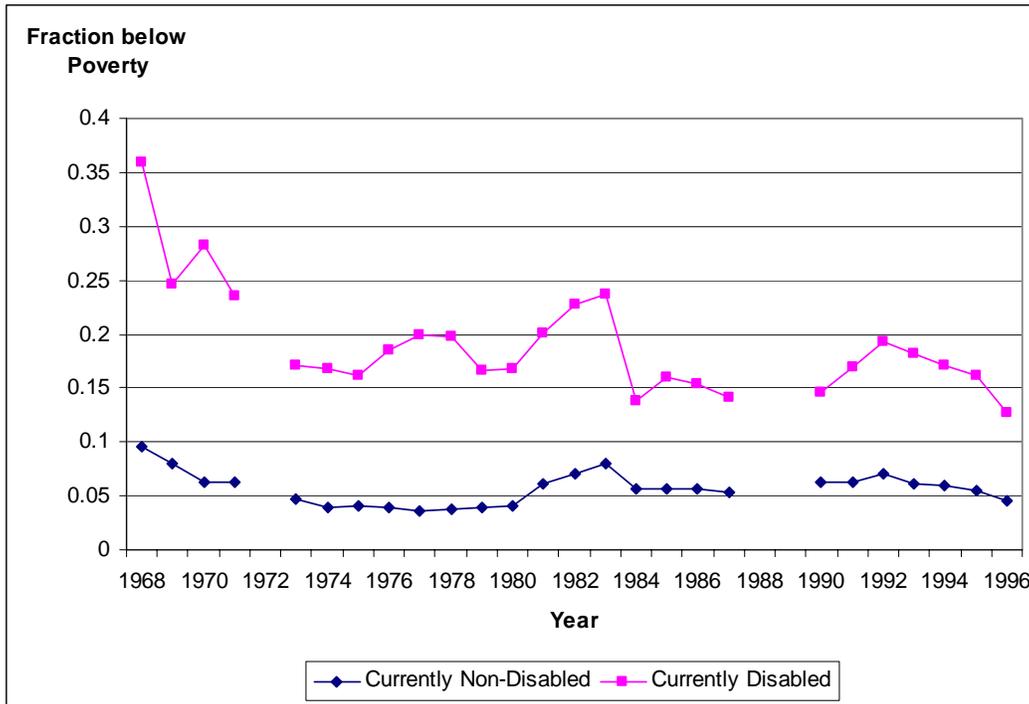


Figure 7b
Fraction of Families with Adjusted Income below the Poverty Line,
Families with Male Head

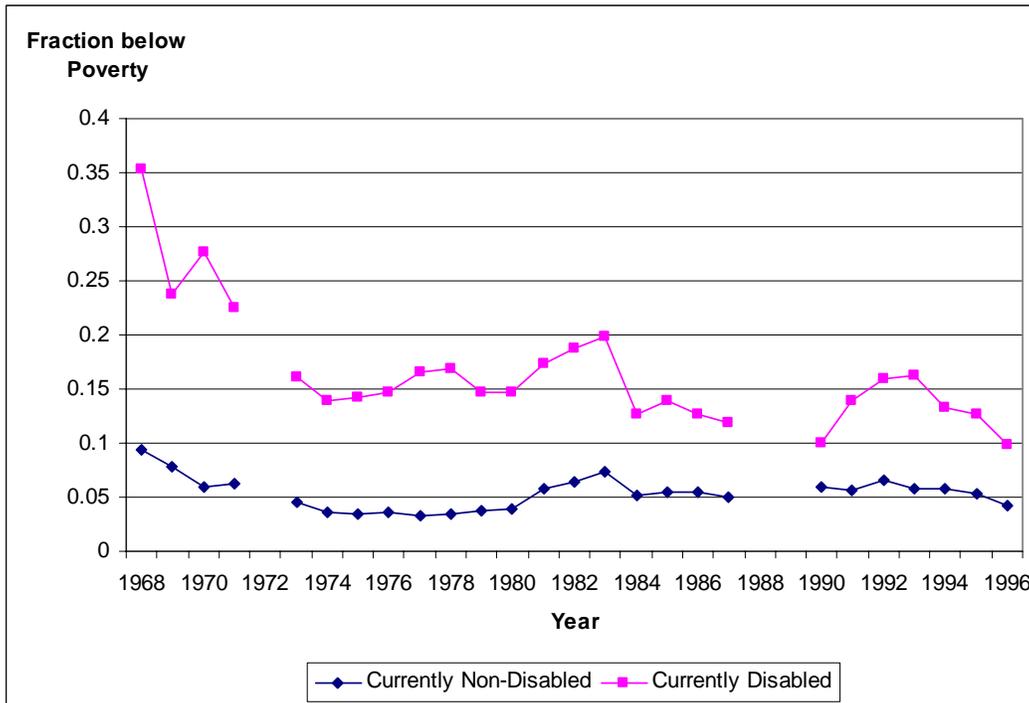


Figure 8a
Fraction of Families with Income below the Poverty Threshold,
All Families with Disabled Male Head

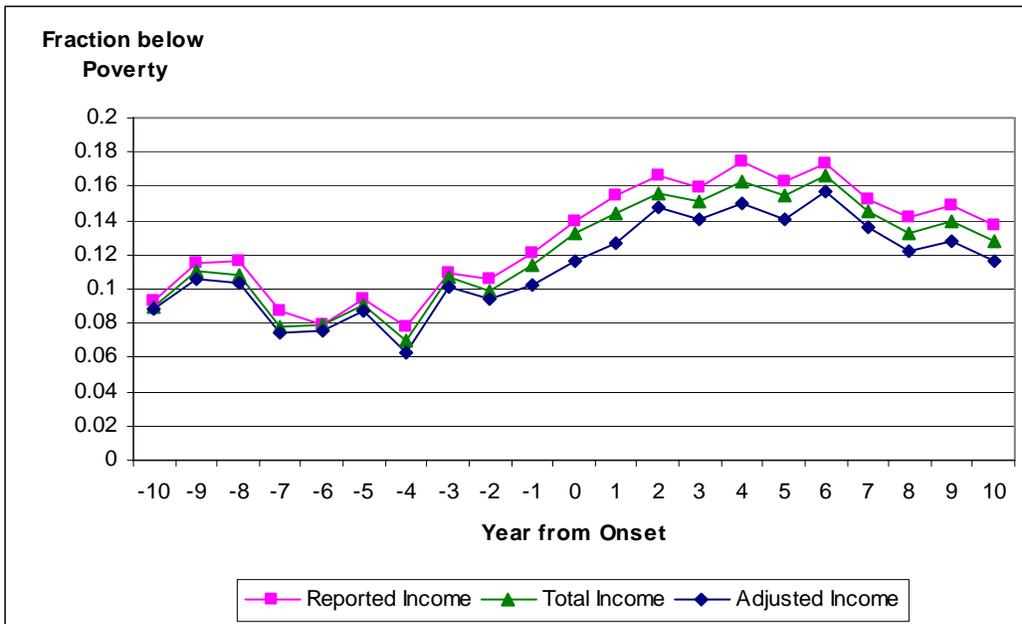


Figure 8b
Fraction of Families with Adjusted Income below the Poverty Line,
By Extent of Disability Group

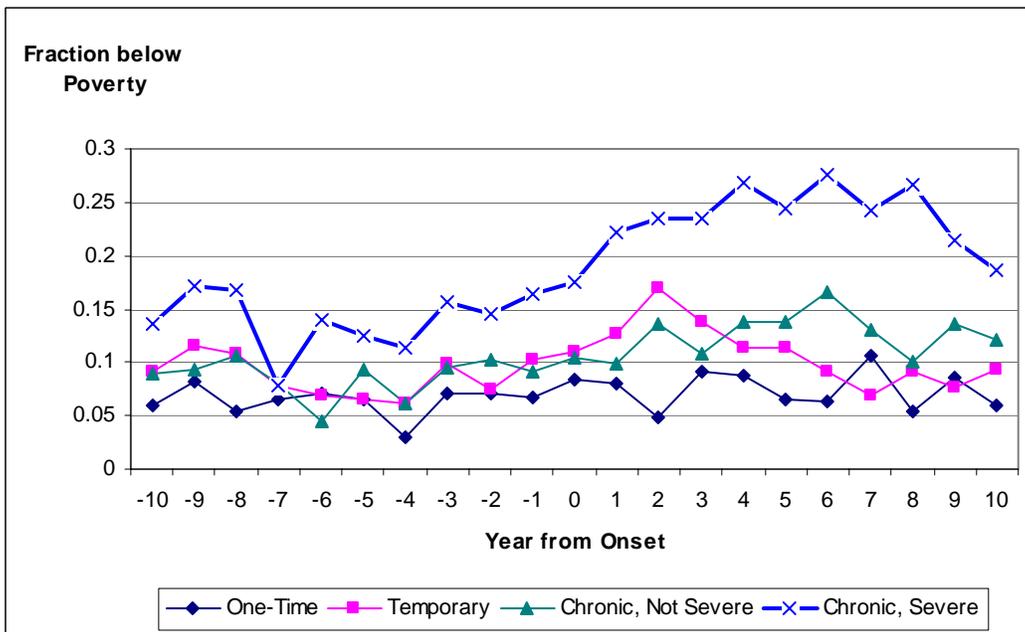
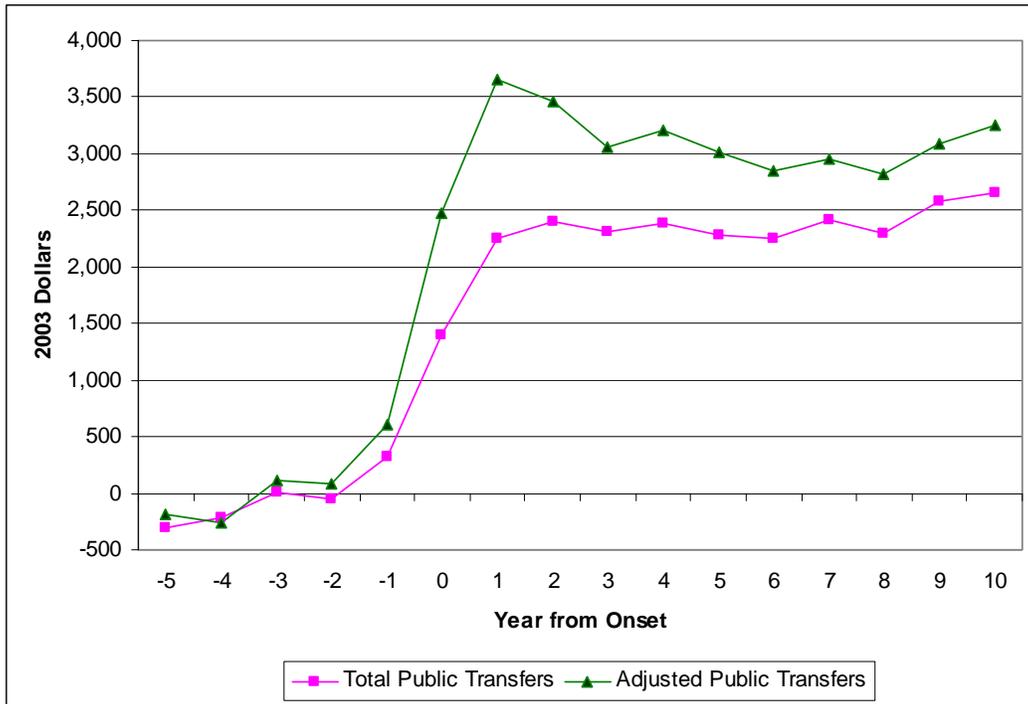
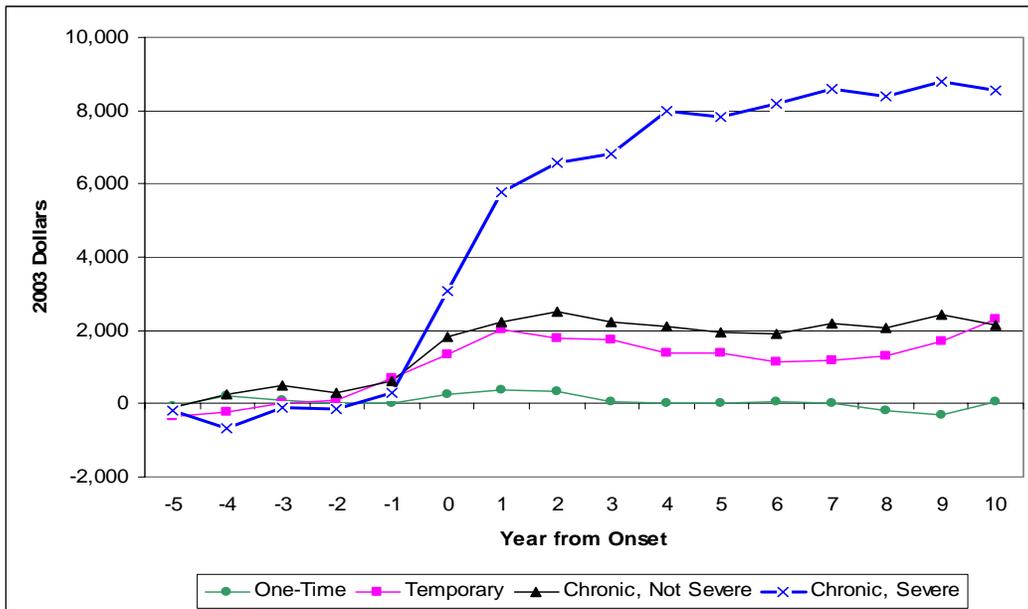


Figure 9a
Change in Total and Adjusted Public Transfer Income Measures Before and After Disability, All Disabled



This figure plots fixed effect regression estimates from Table 8. See the notes to Table 8 for details.

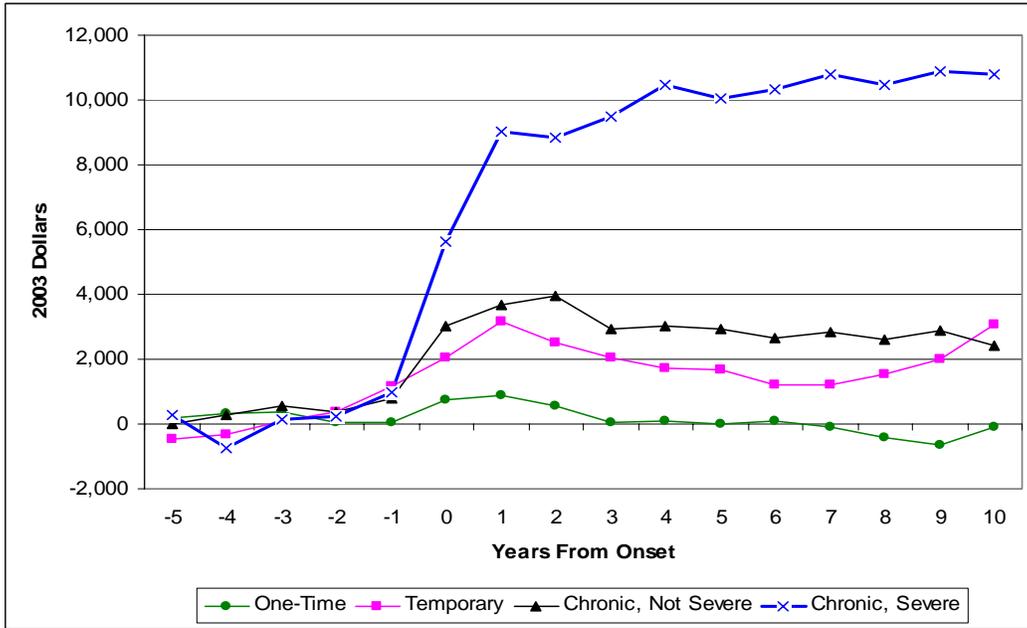
Figure 9b
Change in Total Public Transfer Income Before and After Disability, By Extent of Disability Group



This figure plots fixed effect regression estimates from Table 9. See the footnote in that Table for sample selection and estimation particulars.

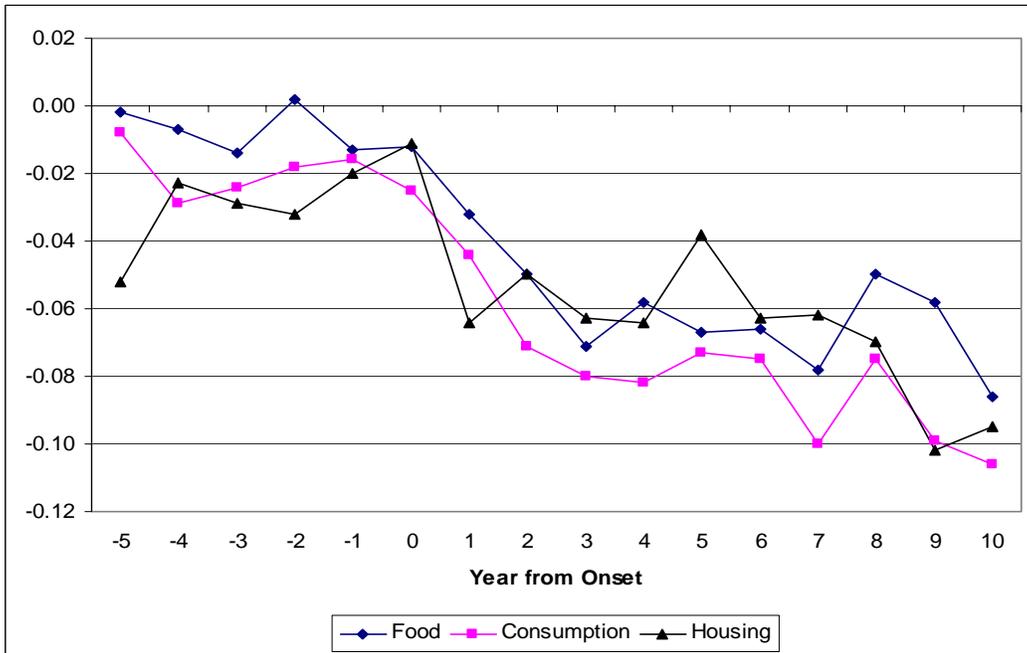
Figure 9c

**Change in Adjusted Public Transfer Income Before and After Disability,
By Extent of Disability Group**



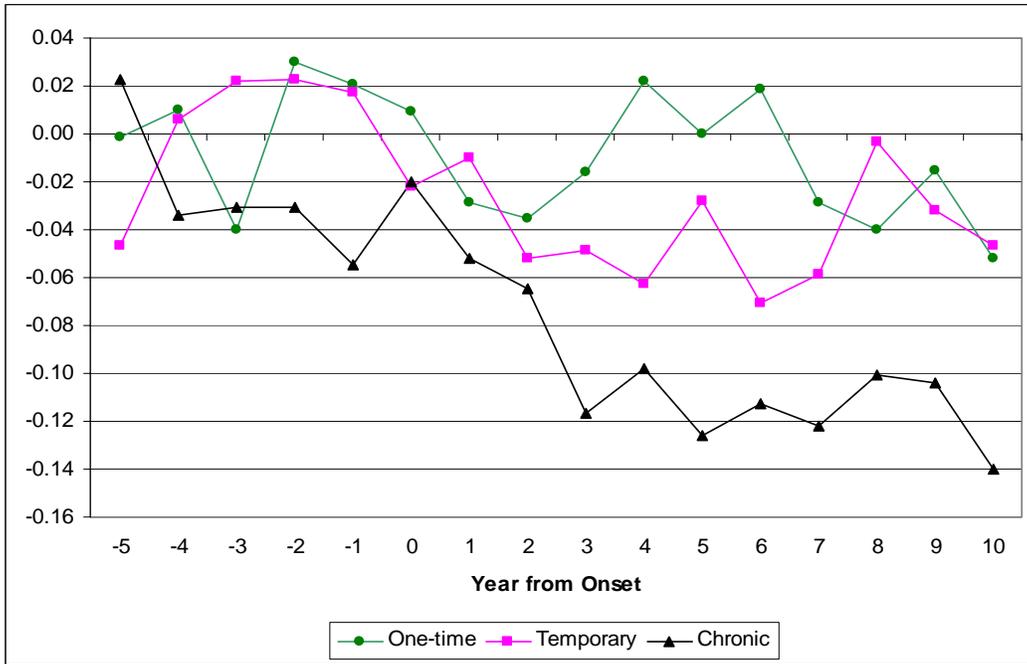
This figure plots fixed effect regression estimates from Table 9. See the notes to Table 9 for details.

Figure 10
Change in Log Food Consumption, Log Housing and Log Food plus Housing Consumption,
Before and After Disability, All Disabled



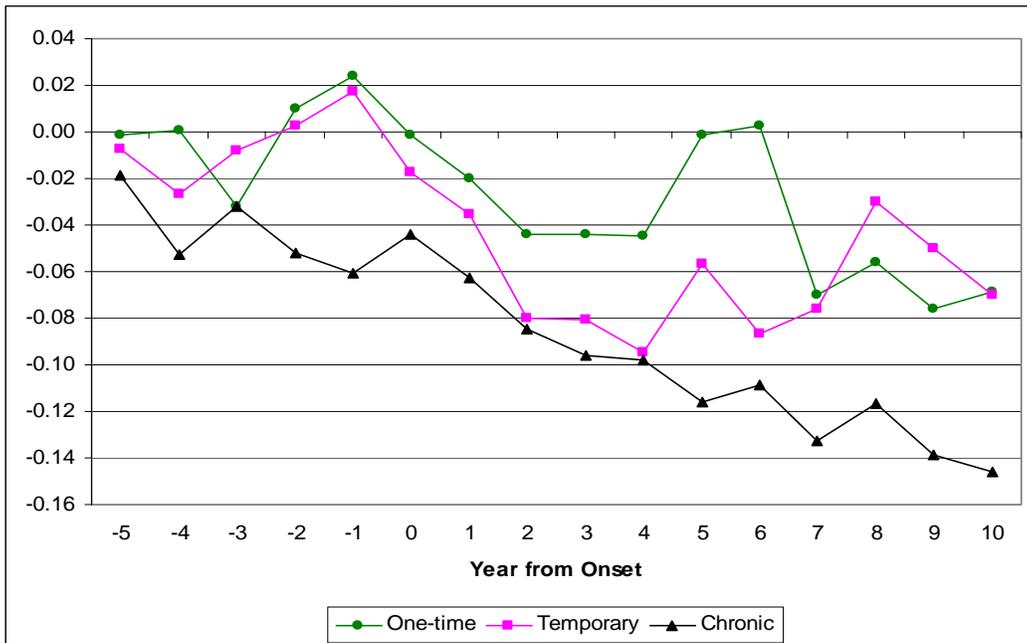
This figure plots fixed effect regression estimates from Table 10. See the notes to Table 10 for details.

Figure 11a
Change in Log Food Expenditure Before and After Disability,
By Persistence Group



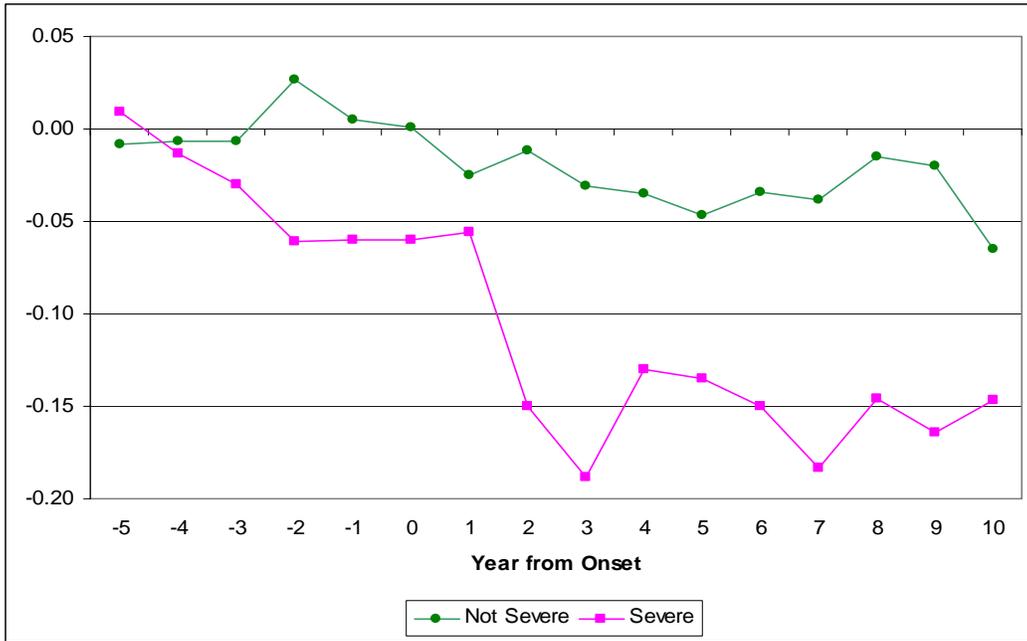
This figure plots fixed effect regression estimates from Table 11. See the notes to Table 11 for details.

Figure 11b
Change in Log Food plus Housing Consumption Before and After Disability,
By Persistence Group



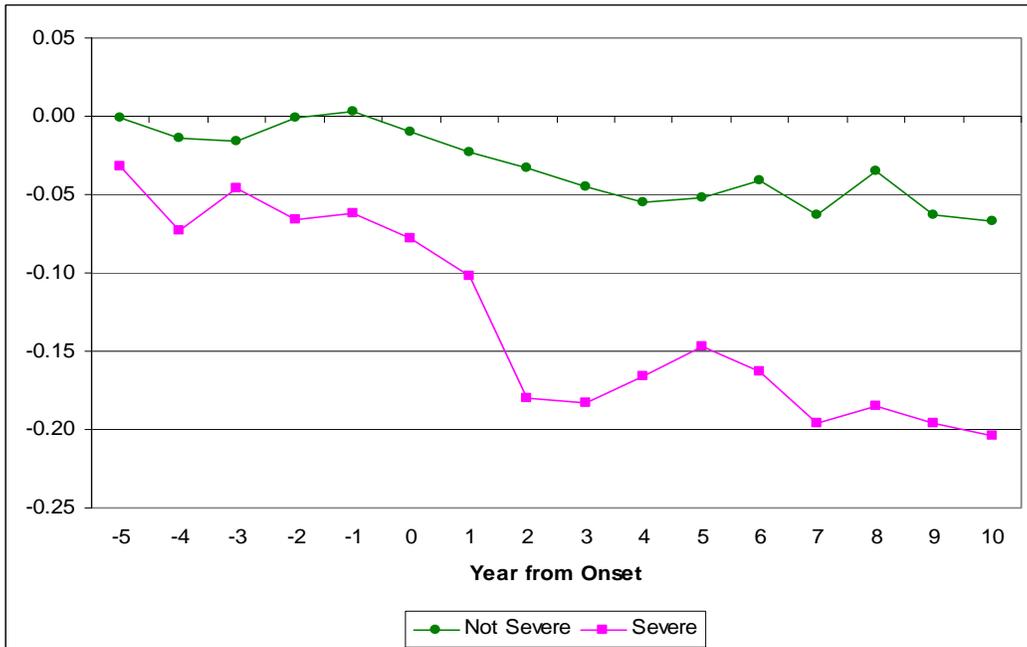
This figure plots fixed effect regression estimates from Table 11. See the notes to Table 11 for details.

Figure 12a
Change in Log Food Consumption Before and After Disability,
By Severity Group



This figure plots the fixed effect regression estimates in Table 12. See the footnote in that Table for sample selection and estimation particulars.

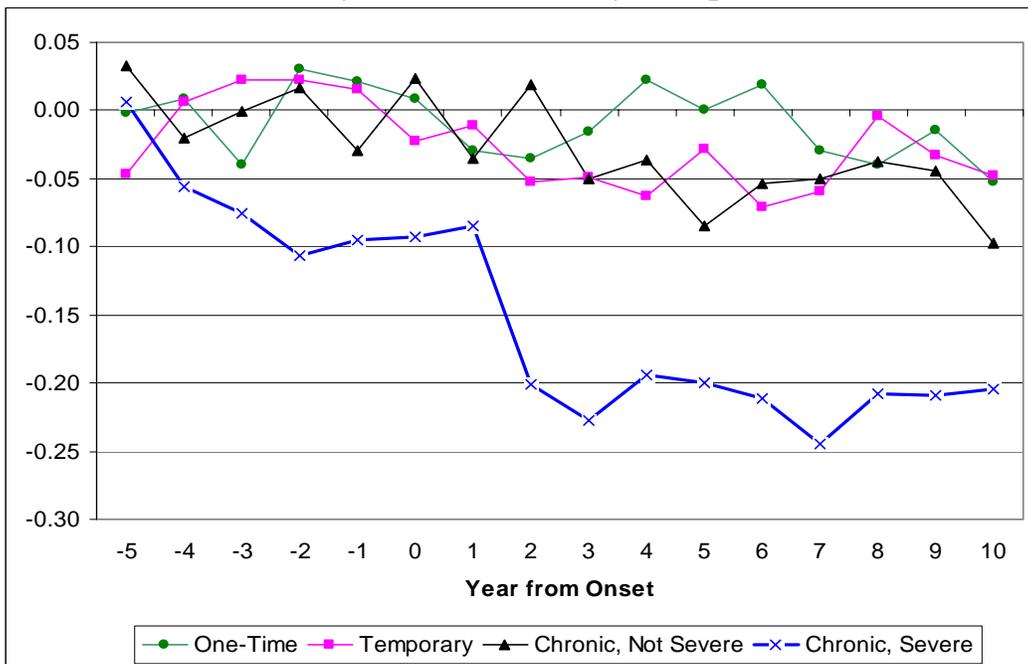
Figure 12b
Change in Log Food plus Housing Consumption Before and After Disability,
By Severity Group



This figure plots fixed effect regression estimates from Table 12. See the notes to Table 12 for details.

Figure 13a

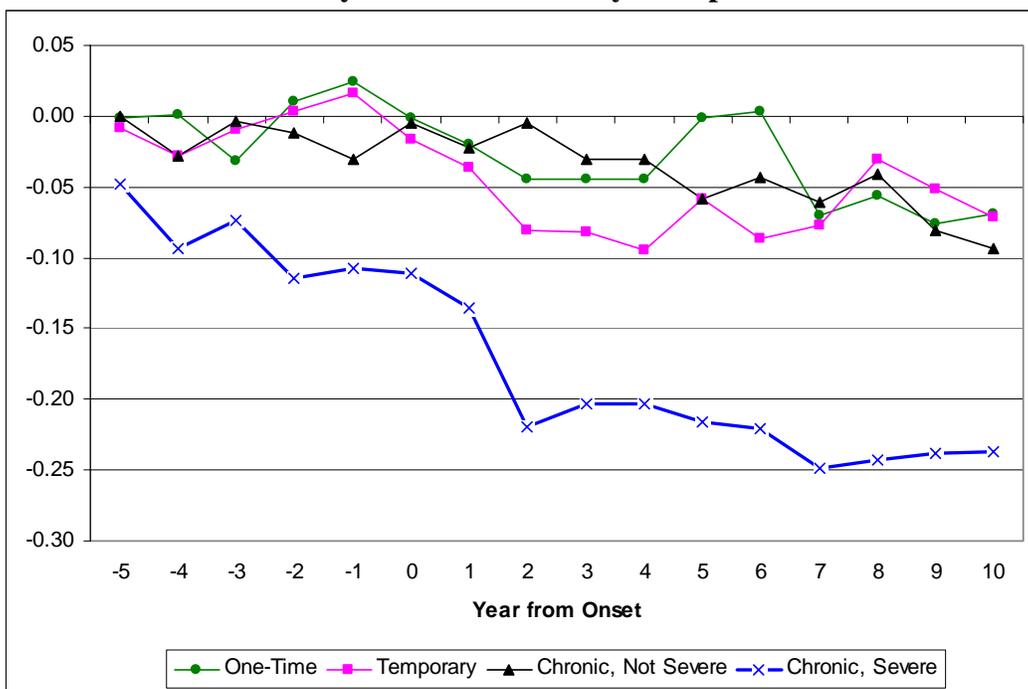
Change in Log Food Consumption Before and After Disability, By Extent of Disability Group



This figure plots fixed effect regression estimates from Table 13. See the notes to Table 13 for details.

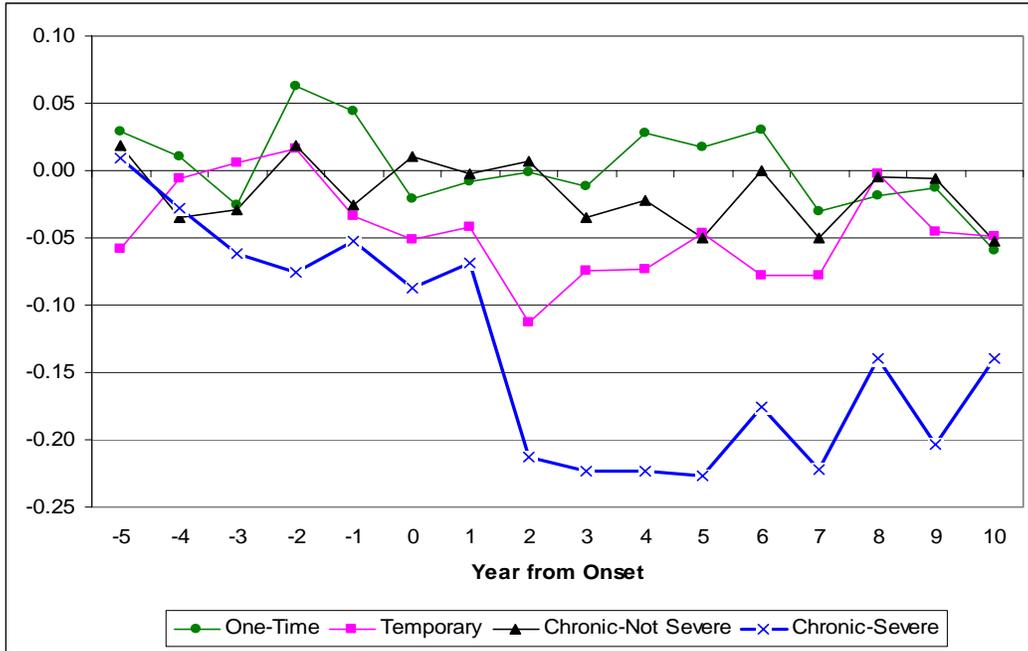
Figure 13b

Change in Log Food plus Housing Consumption Before and After Disability, By Extent of Disability Group



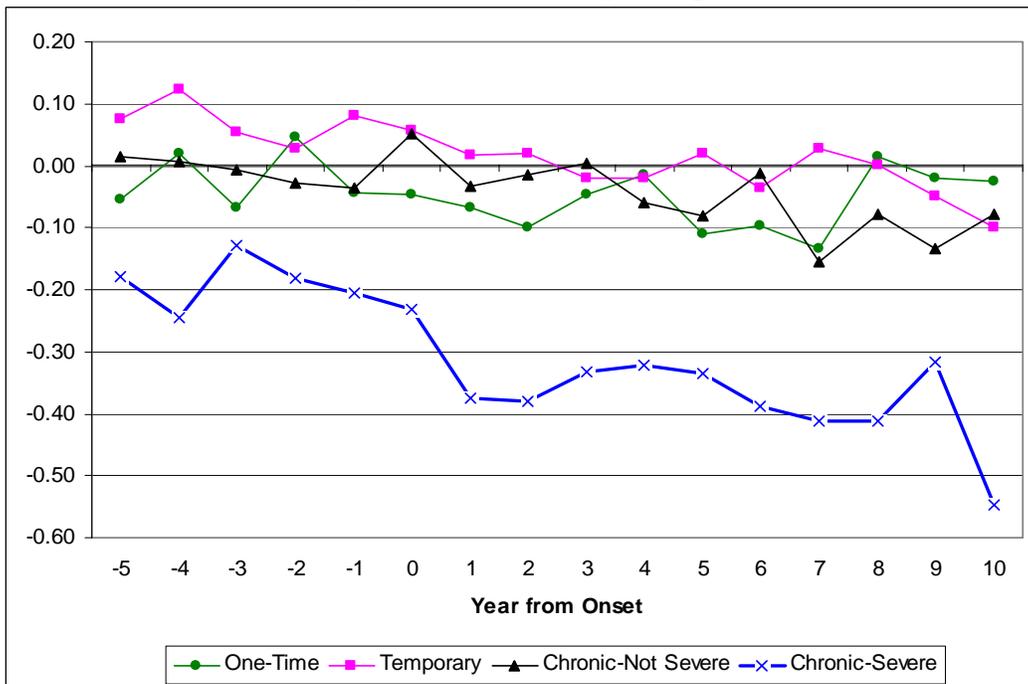
This figure plots fixed effect regression estimates from Table 13. See the notes to Table 13 for details.

Figure 14a
Change in Log Expenditure on Food Eaten at Home Before and After Disability,
By Extent of Disability Group



This figure plots fixed effect regression estimates from Table 14. See the notes to Table 14 for details.

Figure 14b
Change in Log Expenditure on Food Eaten at Home Before and After Disability,
By Extent of Disability Group



This figure plots the fixed effect regression estimates in Table 14. See the notes to Table 14 for details.

Table 1

**Number of Families with a Disabled Head and Disability Rates,
1968-2003**

Year	Number of families with a disabled head (weighted)	Disability rate (weighted)	Disability rate (unweighted)
1968	2,242,000	13.23%	14.74%
1969	3,198,800	16.05%	17.63%
1970	3,231,600	15.61%	17.21%
1971	3,618,400	17.17%	17.81%
1972	3,948,500	14.76%	15.11%
1973	3,742,000	13.89%	13.87%
1974	4,096,000	13.03%	13.04%
1975	3,902,500	12.33%	12.36%
1976	4,149,500	12.97%	12.92%
1977	4,413,500	13.58%	14.20%
1978	5,239,245	14.15%	14.68%
1979	6,277,715	15.27%	15.68%
1980	7,222,960	17.44%	17.26%
1981	6,677,735	15.97%	15.55%
1982	6,712,200	16.05%	15.34%
1983	6,542,135	15.68%	15.30%
1984	9,159,344	16.76%	15.87%
1985	9,477,200	17.23%	15.92%
1986	8,035,152	14.64%	13.37%
1987	10,144,560	18.41%	16.54%
1988	10,582,128	19.23%	17.31%
1989	11,768,698	18.88%	16.94%
1990	12,874,770	20.40%	17.30%
1991	12,407,389	19.65%	17.05%
1992	11,917,635	19.03%	16.89%
1993	10,930,252	17.66%	16.25%
1994	14,103,420	16.52%	16.77%
1995	11,346,854	17.48%	16.90%
1996	9,546,472	16.95%	15.08%
1997	10,784,569	16.54%	14.83%
1999	11,228,580	16.43%	15.17%
2001	12,665,362	17.98%	16.58%
2003	12,708,532	17.42%	16.58%

The sample is male household heads ages 22-64 years who are in the PSID for three consecutive years during 1968-2003. The disabled in a survey year are those who answer yes to the question: "Do you have a physical or nervous limitation that limits the amount or type of work you can do?"

Table 2a

**Sample Means and Standard Deviations,
Non-disabled and Disability Persistence Groups**

	Non-Disabled	One-Time	Temporary	Chronic
Age at Disability Onset		36.599 (10.663)	38.008 (12.768)	42.191 (12.473)
Age	35.306 (8.647)	37.722 (8.382)	41.534 (10.498)	46.244 (10.567)
White	0.650 (0.477)	0.720 (0.450)	0.655 (0.476)	0.645 (0.479)
Married	0.791 (0.310)	0.811 (0.299)	0.803 (0.297)	0.815 (0.299)
Number of Years In Survey	12.913 (8.101)	19.763 (7.780)	18.267 (8.167)	18.172 (8.242)
Highest Level of Education – High School	0.352 (0.478)	0.308 (0.462)	0.313 (0.464)	0.305 (0.460)
Highest Level of Education - College	0.447 (0.497)	0.452 (0.498)	0.361 (0.481)	0.278 (0.448)
Years in Survey after Onset		10.334 (5.902)	13.103 (8.694)	14.616 (7.959)
Number of Consecutive Positive Limitation Reports			0.487 (0.658)	3.981 (5.405)
Number of Valid Reports of Disability Status From Onset to the 10th Year after Onset		7.527 (2.456)	7.348 (2.533)	8.036 (2.267)
Severity Ratio		0.142 (0.349)	0.247 (0.332)	0.419 (0.385)
Age in the Last Interview	42.817 (11.664)	49.604 (12.530)	53.783 (14.613)	59.285 (13.895)
Number of Positive Limitation Reports From Onset to the 10th Year after Onset			1.424 (0.495)	5.661 (2.210)
Number of Individuals	5039	389	649	1090

Standard deviations are in parentheses. The sample is male household heads ages 22-64 with at least four years in the PSID during 1968-2003, three of which must be consecutive. Age and Married are averages over the sample years during which the individual is the head and ages 22-64. See text for details.

Table 2b
Severity and Activity Limitations

A. Percentage of household heads with given activity limitation						
	Walking/Stairs	Bending/Lifting	Driving	Assistance for Travel	Stay Indoors	Bed/Chair Confinement
Not Disabled	0.083	0.092	0.014	0.007	0.008	0.002
Not Severe	0.548	0.615	0.185	0.111	0.098	0.060
Severe	0.850	0.848	0.471	0.388	0.402	0.307

See text for sample definitions. The six activity questions are: 1) Do you have any trouble either walking several blocks or climbing a few flights of stairs, because of your health? 2) Do you have trouble bending, lifting or stooping because of your health? 3) Would your health keep you from driving a car? 4) When you travel around your community, does someone have to assist you because of your health? 5) Do you have to stay indoors most or all of the day because of your health? 6) Does your health confine you to a bed or a chair for most or all of the day? The possible answers to these activity questions are “yes” and “no”.

B. Average Number of Activity Limitations			
	Not Disabled	Not Severe	Severe
All	0.205	1.612	3.254
Age group 18-40	0.103	1.154	2.541
Age group 41-50	0.201	1.295	3.077
Age group 51-60	0.287	1.702	2.956
Age group 61-65	0.394	2.015	3.149

Table 2c
Sample Means and Standard Deviations,
Non-disabled and the Disability Severity Groups

	Non- Disabled	Not Severe	Severe
Age at Disability Onset		38.693 (12.265)	43.278 (12.333)
Age	35.306 (8.647)	41.313 (10.195)	45.803 (11.138)
White	0.650 (0.477)	0.711 (0.454)	0.540 (0.499)
Married	0.791 (0.310)	0.822 (0.283)	0.773 (0.333)
Number of Years In Survey (as head and 22-64 of age)	12.913 (8.101)	19.246 (7.940)	16.761 (8.036)
Highest Level of Education - High School	0.352 (0.478)	0.312 (0.463)	0.292 (0.455)
Highest Level of Education – College	0.447 (0.497)	0.399 (0.490)	0.232 (0.423)
Years in Survey after Onset		12.667 (7.484)	12.053 (7.638)
Number of Consecutive Positive Limitation Reports		1.706 (3.779)	3.629 (5.377)
Number of Valid Reports of Disability Status from Onset to the 10th Year after Onset		7.784 (2.417)	7.353 (2.521)
Severity Ratio		0.093 (0.160)	0.846 (0.183)
Age in the Last Interview	42.817 (11.664)	54.057 (14.176)	57.486 (14.248)
Number of Positive Limitation Reports from Onset to the 10th Year after Onset		2.921 (2.786)	4.563 (3.113)
Number of Observations	5039	1386	607

Standard deviations are in parentheses. The sample is male household heads ages 22-64 with at least four years in the PSID during 1968-2003, three of which must be consecutive. Age and Married are averages over the sample years during which the individual is the head and ages 22-64. See text for details.

Table 2d
Sample Means and Standard Deviations,
Non-disabled and the Extent of Disability Groups

	Non-Disabled	Disabled Groups			
		One-Time	Temporary	Chronic Not Severe	Chronic Severe
Age at Disability Onset		36.599 (10.663)	38.008 (12.768)	40.167 (12.592)	45.352 (11.721)
Age	35.306 (8.647)	37.722 (8.382)	41.534 (10.498)	44.494 (10.371)	48.596 (10.352)
White	0.650 (0.477)	0.720 (0.450)	0.655 (0.476)	0.729 (0.445)	0.523 (0.500)
Married	0.791 (0.310)	0.811 (0.299)	0.803 (0.297)	0.830 (0.280)	0.797 (0.319)
Number of Years In Survey	12.913 (8.101)	19.763 (7.780)	18.267 (8.167)	19.510 (8.015)	16.466 (8.185)
Highest Level of Education - High School	0.352 (0.478)	0.308 (0.462)	0.313 (0.464)	0.330 (0.471)	0.264 (0.441)
Highest Level of Education – College	0.447 (0.497)	0.452 (0.498)	0.361 (0.481)	0.343 (0.475)	0.188 (0.391)
Years in Survey after Onset		10.334 (5.902)	13.103 (8.694)	15.424 (7.931)	13.211 (7.684)
Number of Consecutive Positive Limitation Reports			0.487 (0.658)	3.404 (5.031)	5.064 (5.900)
Number of Valid Reports of Disability Status from Onset to the 10th Year after Onset		7.527 (2.456)	7.348 (2.533)	8.326 (2.141)	7.734 (2.320)
Severity Ratio		0.142 (0.349)	0.247 (0.332)	0.138 (0.168)	0.846 (0.169)
Age in the Last Interview	42.817 (11.664)	49.604 (12.530)	53.783 (14.613)	58.285 (14.049)	60.601 (13.472)
Number of Positive Limitation Reports from Onset to the 10th Year after Onset			1.424 (0.495)	5.429 (2.097)	6.173 (2.283)
Number of Observations	5039	389	649	639	421

Standard deviations are in parentheses. The sample is male household heads ages 22-64 with at least four years in the PSID during 1968-2003, three of which must be consecutive. Age and Married are averages over the sample years during which the individual is the head and ages 22-64. See text for details.

Table 3
Annual Earnings, Hours and Hourly Earnings Before and After Disability
All Disabled

Year from onset	Annual Earning	Implied % change	Hours	% with zero hours	Hourly Earnings	Log Hourly Earnings
-5	-748.75 [1,028.015]	-1.72%	43.556 [21.389]**	7.06%	-0.941 [0.445]**	-0.032 [0.016]**
-4	-225.107 [1,265.383]	-0.52%	29.051 [23.332]	7.45%	-0.361 [0.570]	-0.012 [0.017]
-3	-473.635 [1,324.218]	-1.09%	41.309 [23.536]*	7.07%	-0.45 [0.559]	-0.001 [0.017]
-2	-1886.254 [1,309.535]	-4.33%	-28.937 [25.216]	8.86%	-0.62 [0.535]	-0.014 [0.018]
-1	-2067.93 [1,461.399]	-4.75%	-59.591 [25.728]**	9.28%	-0.616 [0.640]	-0.014 [0.018]
0	-4826.374 [1,467.911]***	-11.09%	-232.424 [28.116]***	12.25%	-0.262 [0.639]	-0.018 [0.019]
1	-6893.324 [1,644.988]***	-15.84%	-361.922 [29.814]***	20.57%	-0.336 [0.828]	-0.026 [0.021]
2	-7395.76 [1,546.069]***	-17.00%	-349.551 [30.640]***	21.51%	-1.241 [0.623]**	-0.052 [0.023]**
3	-6577.364 [1,599.780]***	-15.12%	-322.435 [30.964]***	21.67%	-0.519 [0.725]	-0.06 [0.024]**
4	-8107.106 [1,661.564]***	-18.63%	-350.589 [31.622]***	23.77%	-1.303 [0.686]*	-0.052 [0.023]**
5	-7436.278 [1,791.102]***	-17.09%	-324.084 [33.677]***	24.37%	-1.264 [0.770]	-0.059 [0.024]**
6	-7547.688 [1,770.737]***	-17.35%	-309.586 [34.116]***	21.33%	-1.352 [0.726]*	-0.067 [0.024]***
7	-7994.682 [1,989.263]***	-18.37%	-305.764 [35.232]***	21.02%	-1.525 [0.817]*	-0.093 [0.028]***
8	-8615.675 [1,877.519]***	-19.80%	-284.028 [36.155]***	20.36%	-2.346 [0.745]***	-0.086 [0.026]***
9	-8029.703 [1,949.926]***	-18.45%	-308.266 [38.694]***	20.95%	-1.426 [0.823]*	-0.069 [0.031]**
10	-8316.649 [2,126.590]***	-19.11%	-357.166 [39.894]***	20.30%	-1.149 [0.987]	-0.08 [0.029]***

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. The implied percentage change column is obtained by dividing the corresponding estimates by the average earnings of the disabled prior to the 5th year before disability onset (\$43512). See the text for details.

Table 4a
Annual Earnings Before and After Disability
Persistence Groups and Extent of Disability Groups

Year from onset	A. Persistence Groups					B. Extent of Disability Groups				
	One-Time	Implied % Change	Temporary	Implied % Change	Chronic	Implied % Change	Chronic Not Severe	Implied % Change	Chronic Severe	Implied % Change
-5	336.885	0.77%	1924.074	4.42%	-3,196.84	-7.35%	-3,797.91	-8.73%	-2,418.81	-5.56%
	[3,133.017]		[1,473.666]		[1,041.383]***		[1,325.646]***		[1,504.896]	
-4	3194.091	7.34%	1508.673	3.47%	-2,997.72	-6.89%	-3,673.77	-8.44%	-2,117.96	-4.87%
	[3,962.925]		[2,027.065]		[1,078.417]***		[1,421.760]***		[1,397.557]	
-3	2220.064	5.10%	874.775	2.01%	-3,042.81	-6.99%	-3,149.79	-7.24%	-3,015.69	-6.93%
	[4,292.570]		[1,865.895]		[1,091.334]***		[1,316.684]**		[1,555.374]*	
-2	-379.077	-0.87%	-228.945	-0.53%	-3,821.24	-8.78%	-4,087.81	-9.39%	-3,500.86	-8.05%
	[3,698.730]		[2,023.513]		[1,203.716]***		[1,477.468]***		[1,660.254]**	
-1	877.381	2.02%	-393.982	-0.91%	-4,786.72	-11.00%	-4,589.81	-10.55%	-5,449.96	-12.53%
	[4,531.219]		[2,112.682]		[1,235.667]***		[1,492.722]***		[1,689.701]***	
0	201.399	0.46%	-2789.038	-6.41%	-8,771.41	-20.16%	-7,223.86	-16.60%	-11,359.25	-26.11%
	[3,990.613]		[2,383.790]		[1,331.689]***		[1,573.614]***		[1,882.377]***	
1	-272.989	-0.63%	-4235.261	-9.73%	-12,145.96	-27.91%	-8,169.84	-18.78%	-18,785.07	-43.17%
	[4,796.012]		[2,493.626]*		[1,424.232]***		[1,658.063]***		[1,978.455]***	
2	-1555.512	-3.57%	-3324.281	-7.64%	-13,196.55	-30.33%	-8,905.63	-20.47%	-20,505.91	-47.13%
	[3,646.112]		[2,584.192]		[1,498.227]***		[1,758.872]***		[2,021.320]***	
3	-953.598	-2.19%	-1018.197	-2.34%	-12,867.72	-29.57%	-8,429.66	-19.37%	-20,375.10	-46.83%
	[2,884.930]		[3,038.382]		[1,525.867]***		[1,785.251]***		[1,995.012]***	
4	-3392.446	-7.80%	-1775.355	-4.08%	-14,407.76	-33.11%	-10,382.87	-23.86%	-21,766.31	-50.02%
	[3,021.227]		[3,178.694]		[1,573.570]***		[1,830.516]***		[2,076.883]***	
5	-3805.46	-8.75%	246.754	0.57%	-14,276.06	-32.81%	-9,405.73	-21.62%	-22,830.55	-52.47%
	[2,380.956]		[3,760.869]		[1,667.770]***		[1,987.801]***		[1,974.308]***	
6	-2707.43	-6.22%	-610.922	-1.40%	-14,302.50	-32.87%	-9,935.48	-22.83%	-23,188.62	-53.29%
	[3,173.415]		[3,054.563]		[1,835.331]***		[2,179.845]***		[2,082.766]***	
7	-3212.781	-7.38%	188.884	0.43%	-15,402.35	-35.40%	-10,590.21	-24.34%	-24,382.38	-56.04%
	[3,231.223]		[3,959.826]		[1,858.608]***		[2,215.121]***		[2,118.015]***	
8	-1801.005	-4.14%	-2026.317	-4.66%	-16,022.61	-36.82%	-11,378.13	-26.15%	-25,334.70	-58.22%
	[3,322.129]		[3,117.479]		[1,930.921]***		[2,274.382]***		[2,257.279]***	
9	-914.282	-2.10%	-1994.558	-4.58%	-15,276.28	-35.11%	-10,743.33	-24.69%	-23,955.58	-55.05%
	[3,654.953]		[3,124.212]		[2,021.664]***		[2,425.212]***		[2,267.656]***	
10	-1643.315	-3.78%	-2296.869	-5.28%	-15,365.96	-35.31%	-11,574.86	-26.60%	-22,988.01	-52.83%
	[4,673.927]		[3,404.324]		[2,124.795]***		[2,533.017]***		[2,419.273]***	

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are the coefficient estimates of the time from onset indicator variables in the fixed effect regression model with the Persistence and extent of disability classifications. The implied percentage change column is obtained by dividing the corresponding estimates by the average earnings of the disabled prior to the 5th year before disability onset (\$43512). See the text for details.

Table 4b
Annual Hours of Work Before and After Disability
Persistence Groups and Extent of Disability Groups

Year from onset	A. Persistence Groups					B. Extent of Disability Groups				
	One-Time	% with zero Hours	Temporary	% with zero Hours	Chronic	% with zero Hours	Chronic Not Severe	% with zero Hours	Chronic Severe	% with zero Hours
-5	5.522 [37.211]	5.75%	100.984 [33.338]***	4.41%	5.558 [34.977]	5.32%	11.393 [40.625]	5.49%	-18.46 [59.118]	5.16%
-4	13.287 [43.312]	8.51%	60.396 [41.401]	4.91%	-12.352 [35.084]	5.96%	1.779 [45.690]	7.06%	-47.48 [50.985]	4.39%
-3	-20.172 [40.579]	6.71%	74.911 [43.430]*	3.54%	16.519 [35.319]	5.14%	34.284 [44.282]	5.00%	-23.08 [52.168]	5.45%
-2	-81.654 [42.875]*	8.17%	-16.369 [47.858]	6.68%	-41.962 [37.030]	6.87%	-64.779 [45.174]	7.45%	-18.16 [57.965]	6.07%
-1	-63.497 [45.749]	9.54%	-54.285 [46.802]	6.78%	-102.562 [38.008]***	7.79%	-80.372 [48.726]*	8.25%	-161.94 [54.775]***	7.26%
0	-117.651 [47.055]**	9.23%	-188.384 [49.718]***	10.19%	-358.228 [42.737]***	14.30%	-212.107 [52.125]***	10.28%	-602.61 [66.150]***	21.20%
1	-142.456 [51.344]***	10.18%	-252.48 [52.423]***	15.06%	-580.142 [44.626]***	26.84%	-328.429 [53.241]***	15.56%	-1,005.69 [64.671]***	44.88%
2	-68.668 [54.188]	9.84%	-244.743 [50.226]***	13.83%	-590.983 [46.071]***	30.57%	-295.87 [53.876]***	17.44%	-1,090.09 [67.054]***	50.88%
3	-52.87 [54.939]	11.17%	-157.752 [51.433]***	12.98%	-590.144 [45.379]***	32.40%	-285.725 [51.750]***	15.12%	-1,105.73 [65.873]***	58.62%
4	-133.914 [56.319]**	12.46%	-93.752 [50.950]*	8.81%	-642.015 [46.181]***	33.30%	-342.268 [52.596]***	16.07%	-1,188.46 [66.467]***	60.17%
5	-70.006 [64.351]	11.79%	-46.005 [53.916]	9.73%	-646.899 [48.459]***	33.91%	-321.523 [55.516]***	15.74%	-1,230.44 [65.660]***	61.98%
6	-39.811 [59.750]	11.92%	-38.576 [55.648]	9.84%	-628.358 [49.569]***	32.75%	-292.28 [56.864]***	14.77%	-1,222.05 [71.172]***	62.70%
7	-90.835 [63.064]	12.05%	-26.608 [55.625]	10.36%	-616.869 [51.109]***	34.48%	-293.125 [57.733]***	14.48%	-1,206.27 [75.701]***	65.98%
8	20.664 [62.559]	13.27%	-1.662 [56.149]	11.11%	-622.381 [52.242]***	32.87%	-288.281 [57.772]***	13.60%	-1,272.66 [76.299]***	67.05%
9	-28.337 [73.557]	14.05%	-20.257 [60.370]	11.70%	-645.577 [55.657]***	34.49%	-347.575 [62.482]***	14.06%	-1,221.86 [82.454]***	68.35%
10	-8.153 [75.486]	13.97%	-182.365 [62.139]***	13.82%	-652.732 [57.077]***	34.05%	-381.456 [64.300]***	15.74%	-1,192.75 [84.534]***	66.35%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are the coefficient estimates of the time from onset indicator variables in the fixed effect regression model with the Persistence and extent of disability classifications. See the text for details.

Table 5
Annual Earnings and Annual Hours Before and After Disability
Severity Groups

Year from onset	A. Annual Earnings				B. Annual Hours of Work			
	Not Severe	Implied % Change	Severe	Implied % Change	Not Severe	% with zero hours	Severe	% with zero hours
-5	-362.69 [1,292.121]	-0.83%	-2124.361 [1,321.425]	-4.88%	38.271 [23.431]	4.79%	26.633 [43.944]	5.18%
-4	270.323 [1,548.193]	0.62%	-2103.562 [1,854.308]	-4.83%	29.785 [27.643]	6.64%	-2.452 [40.261]	4.78%
-3	75.265 [1,643.959]	0.17%	-2487.129 [1,663.660]	-5.72%	37.004 [27.038]	5.32%	37.943 [43.018]	4.49%
-2	-1467.902 [1,572.208]	-3.37%	-3421.886 [1,695.458]**	-7.86%	-52.52 [28.830]*	8.00%	25.038 [46.441]	6.15%
-1	-1558.125 [1,801.221]	-3.58%	-4279.143 [1,745.093]**	-9.83%	-72.891 [29.993]**	8.37%	-54.113 [45.387]	7.23%
0	-3408.27 [1,736.082]**	-7.83%	-8664.011 [1,973.634]***	-19.91%	-156.671 [31.935]***	10.06%	-440.244 [53.250]***	18.03%
1	-3598.824 [2,007.139]*	-8.27%	-15368.509 [1,940.379]***	-35.32%	-217.713 [33.413]***	13.59%	-784.433 [55.056]***	35.46%
2	-4461.128 [1,786.818]**	-10.25%	-15713.452 [2,049.927]***	-36.11%	-200.098 [33.844]***	13.71%	-774.248 [58.920]***	40.23%
3	-3660.074 [1,834.745]**	-8.41%	-15002.748 [2,052.854]***	-34.48%	-175.72 [34.155]***	13.21%	-750.348 [59.387]***	44.64%
4	-5679.82 [1,917.379]***	-13.05%	-16533.913 [2,034.221]***	-38.00%	-209.857 [34.341]***	12.94%	-803.022 [62.069]***	46.12%
5	-4311.683 [2,097.953]**	-9.91%	-17000.013 [2,015.177]***	-39.07%	-154.257 [37.219]***	12.78%	-832.18 [64.048]***	47.55%
6	-4705.796 [1,994.230]**	-10.81%	-17332.649 [2,110.325]***	-39.83%	-144.711 [37.396]***	12.47%	-803.38 [67.269]***	48.53%
7	-4708.512 [2,319.470]**	-10.82%	-18088.735 [2,285.244]***	-41.57%	-140.755 [37.896]***	11.95%	-788.532 [72.299]***	50.74%
8	-5926.215 [2,073.439]***	-13.62%	-18205.36 [2,378.227]***	-41.84%	-123.553 [38.341]***	11.68%	-810.011 [74.745]***	52.81%
9	-5737.626 [2,151.591]***	-13.19%	-17513.192 [2,319.587]***	-40.25%	-163.255 [42.426]***	12.16%	-794.796 [79.305]***	53.89%
10	-5310.09 [2,439.669]**	-12.20%	-17694.153 [2,407.835]***	-40.66%	-206.539 [43.368]***	13.17%	-815.635 [83.462]***	55.43%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are the coefficient estimates of the time from onset indicator variables in the fixed effect regression model with the severity classification. See the text for details. The implied percentage change column is obtained by dividing the corresponding estimates by the average earnings of the disabled prior to the 5th year before disability onset (\$43512). See the text for details.

Table 6
Hourly Earnings and Log Hourly Earnings
Extent of Disability Groups

Year from onset	A. Hourly Earnings				B. Log Hourly Earnings			
	One-Time	Temporary	Chronic Not Severe	Chronic Severe	One-Time	Temporary	Chronic Not Severe	Chronic Severe
-5	0.321 [1.428]	-0.29 [0.746]	-1.91 [0.604]***	-0.01 [0.897]	-0.008 [0.027]	0.007 [0.028]	-0.081 [0.031]***	-0.05 [0.033]
-4	1.439 [1.857]	0.481 [1.017]	-1.699 [0.645]***	-0.07 [0.753]	0.043 [0.033]	0.018 [0.029]	-0.068 [0.029]**	-0.04 [0.044]
-3	7.777 [6.624]	0.815 [1.113]	-1.496 [0.639]**	-0.87 [0.690]	0.027 [0.030]	0.028 [0.030]	-0.056 [0.031]*	-0.06 [0.041]
-2	0.849 [1.553]	1.217 [1.706]	-1.701 [0.682]**	-0.66 [0.886]	0.007 [0.032]	0.035 [0.031]	-0.046 [0.032]	-0.07 [0.048]
-1	1.435 [2.111]	0.55 [1.193]	-1.468 [0.859]*	-1.33 [0.803]*	0.001 [0.034]	0.035 [0.031]	-0.073 [0.033]**	-0.08 [0.044]*
0	1.547 [1.943]	0.168 [1.212]	-2.494 [0.713]***	-2.28 [1.014]**	0.018 [0.035]	0.039 [0.034]	-0.082 [0.035]**	-0.06 [0.048]
1	2.377 [2.600]	-1.054 [1.360]	-1.751 [1.249]	-5.40 [1.316]***	-0.02 [0.044]	-0.016 [0.036]	-0.042 [0.034]	-0.09 [0.060]
2	1.073 [1.781]	0.675 [1.727]	-3.166 [0.935]***	-3.66 [4.683]	-0.031 [0.042]	-0.013 [0.036]	-0.131 [0.040]***	-0.14 [0.064]**
3	0.85 [1.423]	0.961 [1.762]	-3.478 [0.800]***	-8.85 [1.131]***	-0.011 [0.052]	-0.014 [0.039]	-0.108 [0.040]***	-0.12 [0.062]**
4	0.353 [1.657]	0.721 [1.517]	-3.693 [0.873]***	-7.46 [1.690]***	-0.011 [0.041]	0.005 [0.037]	-0.152 [0.039]***	-0.12 [0.072]*
5	-1.211 [1.061]	1.325 [1.917]	-3.492 [0.985]***	-8.22 [1.696]***	0.007 [0.042]	0.002 [0.037]	-0.13 [0.041]***	-0.25 [0.094]***
6	-0.613 [1.485]	0.392 [1.656]	-3.813 [0.996]***	-10.13 [1.291]***	0.025 [0.042]	0.026 [0.037]	-0.176 [0.043]***	-0.22 [0.087]**
7	-0.219 [1.516]	7.88 [8.379]	-4.446 [1.099]***	-11.65 [1.297]***	-0.059 [0.071]	0.003 [0.042]	-0.166 [0.041]***	-0.29 [0.108]***
8	-0.683 [1.497]	-0.045 [1.669]	-4.841 [1.087]***	-11.36 [1.332]***	0.008 [0.047]	0.002 [0.040]	-0.18 [0.041]***	-0.23 [0.101]**
9	0.342 [1.782]	-0.439 [1.733]	-3.925 [1.153]***	-10.41 [1.410]***	0.021 [0.058]	-0.025 [0.051]	-0.162 [0.051]***	-0.17 [0.104]
10	-0.684 [2.284]	2.496 [2.513]	-4.952 [1.209]***	-9.89 [1.714]***	-0.029 [0.050]	0.01 [0.049]	-0.18 [0.045]***	-0.14 [0.119]

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are the coefficient estimates of the time from onset indicator variables in the fixed effect regression model with the extent of disability classification. See the text for details. The log hourly earnings regressions also delete those who worked less than 500 hours in the year.

Table 7a
After-Tax Income Before and After Disability
All Disabled

Year from onset	Income without Public Transfers	Implied % Change	Total income	Implied % Change	Adjusted income	Implied % Change
-5	-825.528 [993.686]	-1.59%	-1,180.02 [985.905]	-2.23%	-1,079.65 [987.326]	-2.03%
-4	-736.533 [1,158.705]	-1.42%	-979.61 [1,202.404]	-1.85%	-1,048.00 [1,199.491]	-1.97%
-3	-473.768 [1,528.595]	-0.91%	-752.18 [1,619.519]	-1.42%	-683.39 [1,622.586]	-1.28%
-2	-1892.897 [1,332.562]	-3.65%	-1,713.84 [1,337.271]	-3.24%	-1,587.79 [1,337.506]	-2.98%
-1	-2725.937 [1,357.767]**	-5.26%	-2,104.01 [1,345.211]	-3.98%	-1,828.06 [1,345.872]	-3.43%
0	-4930.09 [1,372.026]***	-9.51%	-3,562.22 [1,344.796]***	-6.73%	-2,436.36 [1,349.162]*	-4.58%
1	-6575.064 [1,561.285]***	-12.69%	-5,203.35 [1,238.059]***	-9.83%	-3,785.37 [1,253.396]***	-7.11%
2	-7102.526 [1,385.209]***	-13.71%	-5,548.27 [1,274.157]***	-10.48%	-4,501.91 [1,290.507]***	-8.45%
3	-5609.022 [1,576.702]***	-10.82%	-4,051.54 [1,512.252]***	-7.66%	-3,256.75 [1,516.495]**	-6.12%
4	-7395.892 [1,568.762]***	-14.27%	-5,487.01 [1,541.297]***	-10.37%	-4,894.94 [1,514.096]***	-9.19%
5	-7407.893 [1,629.509]***	-14.30%	-5,611.93 [1,467.327]***	-10.61%	-4,942.66 [1,473.927]***	-9.28%
6	-7966.766 [1,641.879]***	-15.38%	-6,040.91 [1,572.444]***	-11.42%	-5,447.27 [1,579.398]***	-10.23%
7	-7168.439 [2,043.412]***	-13.83%	-5,196.81 [2,037.954]**	-9.82%	-4,710.51 [2,046.064]**	-8.85%
8	-8752.606 [1,733.479]***	-16.89%	-6,631.22 [1,642.944]***	-12.53%	-6,117.24 [1,646.858]***	-11.49%
9	-7970.124 [1,774.785]***	-15.38%	-5,917.55 [1,690.524]***	-11.18%	-5,479.12 [1,695.346]***	-10.29%
10	-8151.349 [1,961.558]***	-15.73%	-4,769.80 [1,940.026]**	-9.01%	-4,288.64 [1,948.068]**	-8.05%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. Income is deflated using CPI-U with 2003 as the base year. Implied percentage changes are obtained by dividing the corresponding estimates by the average income measures of the disabled prior to the 5th year before disability onset (After-tax Income without Public Transfers \$51816; After-tax Total Income \$52917; After-tax Adjusted Income \$53254). See the data appendix for variable definitions and the text for further details.

Table 7b
After-Tax Adjusted Income Before and After Disability
Persistence Groups

Year from onset	One-Time	Implied % Change	Temporary	Implied % Change	Chronic	Implied % Change
-5	1,018.40 [3,282.843]	1.91%	1,335.30 [1,400.201]	2.51%	-3,269.16 [1,036.957]***	-6.14%
-4	4,050.15 [4,241.370]	7.61%	-37.87 [1,792.656]	-0.07%	-3,787.17 [1,051.570]***	-7.11%
-3	3,336.23 [6,508.617]	6.26%	-111.00 [1,682.675]	-0.21%	-2,993.65 [1,156.915]***	-5.62%
-2	1,979.61 [4,842.908]	3.72%	-955.28 [1,723.387]	-1.79%	-3,800.20 [1,214.531]***	-7.14%
-1	1,052.49 [4,802.799]	1.98%	-60.37 [1,751.086]	-0.11%	-4,293.07 [1,215.635]***	-8.06%
0	926.33 [4,539.815]	1.74%	-946.80 [1,897.140]	-1.78%	-4,912.72 [1,294.443]***	-9.23%
1	-1,964.65 [3,154.126]	-3.69%	-1,420.91 [1,969.010]	-2.67%	-5,897.91 [1,401.041]***	-11.08%
2	-1,370.65 [3,213.641]	-2.57%	-2,991.00 [1,880.677]	-5.62%	-7,365.74 [1,444.710]***	-13.83%
3	-1,115.32 [2,653.135]	-2.09%	-1,086.18 [2,463.098]	-2.04%	-6,220.40 [1,979.876]***	-11.68%
4	-3.13 [3,928.005]	-0.01%	-2,819.47 [1,983.472]	-5.29%	-8,129.30 [1,781.221]***	-15.27%
5	-996.50 [3,766.402]	-1.87%	-1,808.26 [2,215.810]	-3.40%	-8,484.12 [1,587.246]***	-15.93%
6	-90.77 [4,189.567]	-0.17%	-2,148.78 [2,161.532]	-4.04%	-9,531.47 [1,715.574]***	-17.90%
7	-2,528.46 [4,105.072]	-4.75%	-1,905.90 [2,264.527]	-3.58%	-7,699.77 [2,915.960]***	-14.46%
8	-376.30 [3,711.761]	-0.71%	-1,436.21 [2,514.314]	-2.70%	-11,119.07 [1,744.650]***	-20.88%
9	102.43 [4,156.117]	0.19%	-1,611.18 [2,450.781]	-3.03%	-10,013.30 [1,804.803]***	-18.80%
10	2,988.88 [5,622.796]	5.61%	-1,520.32 [2,555.042]	-2.85%	-8,660.32 [2,091.201]***	-16.26%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. Income is deflated using CPI-U with 2003 as the base year. Implied percentage changes are obtained by dividing the corresponding estimates by the average income measures of the disabled prior to the 5th year before disability onset (After-tax Income without Public Transfers \$51816; After-tax Total Income \$52917; After-tax Adjusted Income \$53254). See the data appendix for variable definitions and the text for further details.

Table 7c
Adjusted Income Before and After Disability
By Severity Groups

Year from onset	Not Severe	Implied % Change	Severe	Implied % Change
-5	346.178 [1,280.792]	0.65%	-4,680.24 [1,192.557]***	-8.79%
-4	286.137 [1,542.978]	0.54%	-4,737.75 [1,641.652]***	-8.90%
-3	879.342 [2,215.897]	1.65%	-5,118.63 [1,603.007]***	-9.61%
-2	-341.555 [1,743.017]	-0.64%	-5,349.92 [1,600.735]***	-10.05%
-1	-716.424 [1,735.963]	-1.35%	-5,692.08 [1,627.413]***	-10.69%
0	-928.066 [1,705.010]	-1.74%	-6,406.05 [1,722.953]***	-12.03%
1	-1942.884 [1,503.399]	-3.65%	-8,584.61 [1,738.704]***	-16.12%
2	-2542.72 [1,537.065]*	-4.77%	-10,175.79 [1,695.702]***	-19.11%
3	-825.287 [1,920.653]	-1.55%	-9,737.86 [1,775.940]***	-18.29%
4	-3492.535 [1,861.475]*	-6.56%	-10,764.58 [1,836.413]***	-20.21%
5	-3200.796 [1,733.074]*	-6.01%	-10,640.65 [1,961.455]***	-19.98%
6	-3865.873 [1,789.621]**	-7.26%	-11,264.29 [2,415.679]***	-21.15%
7	-1602.577 [2,685.537]	-3.01%	-12,662.15 [2,291.051]***	-23.78%
8	-3726.949 [1,894.854]**	-7.00%	-14,018.60 [2,308.734]***	-26.32%
9	-3564.739 [1,942.833]*	-6.69%	-11,471.12 [2,420.354]***	-21.54%
10	-1951.963 [2,335.397]	-3.67%	-10,673.90 [2,725.840]***	-20.04%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. Income is deflated using CPI-U with 2003 as the base year. Implied percentage changes are obtained by dividing the corresponding estimates by the average income measures of the disabled prior to the 5th year before disability onset (After-tax Income without Public Transfers \$51816; After-tax Total Income \$52917; After-tax Adjusted Income \$53254). See the data appendix for variable definitions and the text for further details.

Table 7d
Income without Public Transfers Before and After Disability
Extent of Disability Groups

Year from onset	One-Time	Implied % Change	Temporary	Implied % Change	Chronic Not Severe	Implied % Change	Chronic Severe	Implied % Change
-5	194.929 [3,188.323]	0.38%	1,252.05 [1,403.276]	2.42%	-2,125.00 [1,291.903]	-4.10%	-4,455.26 [1,588.739]***	-8.60%
-4	2867.045 [3,914.342]	5.53%	-202.28 [1,669.933]	-0.39%	-2,985.36 [1,293.859]**	-5.76%	-3,823.75 [1,595.114]**	-7.38%
-3	3028.304 [5,816.214]	5.84%	514.96 [1,721.591]	0.99%	-2,658.48 [1,372.566]*	-5.13%	-4,903.75 [1,777.287]***	-9.46%
-2	421.985 [4,451.388]	0.81%	-1,380.02 [1,717.578]	-2.66%	-3,554.94 [1,537.528]**	-6.86%	-5,331.13 [1,812.713]***	-10.29%
-1	-36.165 [4,500.595]	-0.07%	-1,955.62 [1,737.566]	-3.77%	-4,068.43 [1,548.301]***	-7.85%	-7,499.28 [1,794.073]***	-14.47%
0	-376.637 [4,270.682]	-0.73%	-3,594.14 [1,902.415]*	-6.94%	-6,335.25 [1,583.601]***	-12.23%	-12,828.49 [1,993.418]***	-24.76%
1	-459.656 [5,045.123]	-0.89%	-4,580.96 [2,030.101]**	-8.84%	-7,104.99 [1,630.519]***	-13.71%	-18,327.39 [1,977.864]***	-35.37%
2	-1215.226 [3,557.170]	-2.35%	-4,990.40 [1,962.761]**	-9.63%	-8,017.67 [1,743.706]***	-15.47%	-19,825.30 [2,089.586]***	-38.26%
3	-1006.419 [2,769.003]	-1.94%	-2,451.16 [2,610.616]	-4.73%	-5,413.46 [2,725.242]**	-10.45%	-20,510.25 [2,128.449]***	-39.58%
4	-836.439 [3,828.037]	-1.61%	-3,820.76 [2,236.751]*	-7.37%	-7,745.08 [2,336.572]***	-14.95%	-23,020.29 [2,143.043]***	-44.43%
5	-2099.523 [3,623.690]	-4.05%	-2,594.17 [2,823.212]	-5.01%	-8,985.30 [1,869.300]***	-17.34%	-22,952.51 [2,164.658]***	-44.30%
6	-686.827 [3,953.535]	-1.33%	-2,674.36 [2,506.654]	-5.16%	-10,269.18 [1,992.143]***	-19.82%	-24,494.89 [2,266.275]***	-47.27%
7	-2543.434 [3,850.037]	-4.91%	-2,596.42 [3,029.079]	-5.01%	-6,584.54 [3,759.977]*	-12.71%	-25,299.92 [2,306.388]***	-48.83%
8	-1338.173 [3,635.756]	-2.58%	-3,863.81 [2,624.285]	-7.46%	-10,105.17 [2,198.890]***	-19.50%	-27,697.10 [2,355.638]***	-53.45%
9	1014.444 [4,078.545]	1.96%	-3,804.22 [2,524.035]	-7.34%	-9,587.56 [2,189.222]***	-18.50%	-26,169.32 [2,308.065]***	-50.50%
10	1938.482 [4,861.845]	3.74%	-5,159.86 [2,657.403]*	-9.96%	-10,377.65 [2,480.502]***	-20.03%	-24,798.42 [2,527.780]***	-47.86%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. Income is deflated using CPI-U with 2003 as the base year. Implied percentage changes are obtained by dividing the corresponding estimates by the average income measures of the disabled prior to the 5th year before disability onset (After-tax Income without Public Transfers \$51816; After-tax Total Income \$52917; After-tax Adjusted Income \$53254). See the data appendix for variable definitions and the text for further details.

Table 7e
Total Income Before and After Disability
Extent of Disability Groups

Year from onset	One-Time	Implied % Change	Temporary	Implied % Change	Chronic Not Severe	Implied % Change	Chronic Severe	Implied % Change
-5	720.764 [3,286.653]	1.36%	1,391.80 [1,402.908]	2.63%	-2,475.49 [1,310.660]*	-4.68%	-4,984.17 [1,519.947]***	-9.42%
-4	3915.088 [4,248.229]	7.40%	-15.88 [1,791.662]	-0.03%	-3,012.66 [1,326.266]**	-5.69%	-4,868.55 [1,577.867]***	-9.20%
-3	3054.903 [6,499.318]	5.77%	-255.13 [1,683.201]	-0.48%	-1,683.61 [1,423.720]	-3.18%	-5,092.75 [1,744.256]***	-9.62%
-2	1903.445 [4,840.083]	3.60%	-1,281.00 [1,721.437]	-2.42%	-3,093.43 [1,525.934]**	-5.85%	-5,391.32 [1,744.986]***	-10.19%
-1	958.867 [4,801.191]	1.81%	-618.15 [1,740.278]	-1.17%	-3,209.14 [1,505.400]**	-6.06%	-6,999.90 [1,702.849]***	-13.23%
0	318.881 [4,527.089]	0.60%	-1,782.30 [1,882.998]	-3.37%	-4,862.80 [1,586.161]***	-9.19%	-9,582.91 [1,817.686]***	-18.11%
1	-2478.263 [3,134.662]	-4.68%	-2,620.46 [1,953.844]	-4.95%	-5,117.38 [1,684.793]***	-9.67%	-12,748.42 [1,815.380]***	-24.09%
2	-1662.751 [3,211.752]	-3.14%	-3,802.82 [1,828.439]**	-7.19%	-6,271.45 [1,732.178]***	-11.85%	-13,643.03 [1,888.768]***	-25.78%
3	-1163.851 [2,669.877]	-2.20%	-1,555.01 [2,464.305]	-2.94%	-3,566.80 [2,829.454]	-6.74%	-14,083.81 [1,947.394]***	-26.61%
4	-125.09 [3,928.972]	-0.24%	-3,347.65 [1,981.730]*	-6.33%	-6,419.44 [2,421.882]***	-12.13%	-13,766.24 [2,465.401]***	-26.01%
5	-1086.23 [3,750.091]	-2.05%	-2,145.93 [2,209.545]	-4.06%	-7,023.20 [1,906.467]***	-13.27%	-14,587.16 [2,024.771]***	-27.57%
6	-182.222 [4,183.685]	-0.34%	-2,387.06 [2,155.229]	-4.51%	-8,031.02 [2,066.967]***	-15.18%	-16,122.57 [2,130.096]***	-30.47%
7	-2313.229 [4,101.423]	-4.37%	-2,074.09 [2,257.806]	-3.92%	-3,725.06 [4,221.574]	-7.04%	-17,731.01 [2,238.671]***	-33.51%
8	-229.997 [3,711.343]	-0.43%	-1,808.65 [2,508.712]	-3.42%	-8,354.97 [2,012.746]***	-15.79%	-19,678.24 [2,315.474]***	-37.19%
9	389.582 [4,132.804]	0.74%	-2,030.82 [2,445.337]	-3.84%	-7,650.86 [2,127.419]***	-14.46%	-17,239.55 [2,274.665]***	-32.58%
10	2934.347 [5,570.224]	5.55%	-2,157.57 [2,539.944]	-4.08%	-6,158.17 [2,550.161]**	-11.64%	-15,825.34 [2,575.072]***	-29.91%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. Implied percentage changes are obtained by dividing the corresponding estimates by the average income measures of the disabled prior to the 5th year before disability onset (After-tax Income without Public Transfers \$51816; After-tax Total Income \$52917; After-tax Adjusted Income \$53254). See the data appendix for variable definitions and the text for further details.

Table 7f
Adjusted Income Before and After Disability
Extent of Disability Groups

Year from onset	One-Time	Implied % Change	Temporary	Implied % Change	Chronic Not Severe	Implied % Change	Chronic Severe	Implied % Change
-5	1,005.61 [3,283.959]	1.89%	1,294.63 [1,400.486]	2.43%	-2,354.71 [1,329.292]*	-4.42%	-4,694.18 [1,528.262]***	-8.81%
-4	4,035.16 [4,243.036]	7.58%	-89.28 [1,792.436]	-0.17%	-2,964.07 [1,327.017]**	-5.57%	-5,199.16 [1,547.356]***	-9.76%
-3	3,318.04 [6,510.653]	6.23%	-168.47 [1,681.776]	-0.32%	-1,611.53 [1,432.871]	-3.03%	-5,101.07 [1,725.273]***	-9.58%
-2	1,958.12 [4,844.986]	3.68%	-1,016.53 [1,722.287]	-1.91%	-2,983.92 [1,532.856]*	-5.60%	-5,213.63 [1,733.135]***	-9.79%
-1	1,027.42 [4,805.009]	1.93%	-126.55 [1,749.919]	-0.24%	-3,016.10 [1,506.039]**	-5.66%	-6,535.48 [1,722.423]***	-12.27%
0	897.38 [4,542.155]	1.69%	-1,022.58 [1,895.779]	-1.92%	-3,566.24 [1,592.828]**	-6.70%	-7,228.33 [1,872.010]***	-13.57%
1	-1,996.81 [3,155.548]	-3.75%	-1,502.65 [1,968.518]	-2.82%	-3,677.80 [1,731.074]**	-6.91%	-9,649.40 [1,966.803]***	-18.12%
2	-1,405.21 [3,215.240]	-2.64%	-3,075.86 [1,879.566]	-5.78%	-4,818.54 [1,791.116]***	-9.05%	-11,706.28 [1,969.632]***	-21.98%
3	-1,148.42 [2,654.059]	-2.16%	-1,178.31 [2,462.656]	-2.21%	-2,859.74 [2,847.019]	-5.37%	-11,584.36 [2,017.428]***	-21.75%
4	-36.54 [3,929.591]	-0.07%	-2,915.47 [1,981.923]	-5.47%	-5,446.03 [2,430.678]**	-10.23%	-12,768.07 [2,024.736]***	-23.98%
5	-1,032.06 [3,769.061]	-1.94%	-1,908.97 [2,214.915]	-3.58%	-6,101.90 [1,938.935]***	-11.46%	-12,823.02 [2,106.898]***	-24.08%
6	-134.13 [4,191.553]	-0.25%	-2,260.03 [2,159.993]	-4.24%	-7,249.68 [2,100.976]***	-13.61%	-14,255.88 [2,217.485]***	-26.77%
7	-2,574.68 [4,106.920]	-4.83%	-2,018.14 [2,262.736]	-3.79%	-3,045.22 [4,240.976]	-5.72%	-15,893.91 [2,382.912]***	-29.85%
8	-431.78 [3,714.458]	-0.81%	-1,559.15 [2,512.364]	-2.93%	-7,786.71 [2,029.727]***	-14.62%	-17,885.65 [2,425.370]***	-33.59%
9	47.86 [4,157.664]	0.09%	-1,745.97 [2,447.791]	-3.28%	-7,158.93 [2,135.927]***	-13.44%	-15,525.05 [2,424.120]***	-29.15%
10	2,942.82 [5,623.515]	5.53%	-1,660.98 [2,551.031]	-3.12%	-5,880.67 [2,569.755]**	-11.04%	-13,948.40 [2,683.189]***	-26.19%

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. Implied percentage changes are obtained by dividing the corresponding estimates by the average income measures of the disabled prior to the 5th year before disability onset (After-tax Income without Public Transfers \$51816; After-tax Total Income \$52917; After-tax Adjusted Income \$53254). See the data appendix for variable definitions and the text for further details.

Table 8
Public Transfer Income Before and After Disability
All Disabled

Year from onset	Public transfer income	Total public transfer Income	Adjusted public Transfer income
-5	-339.836 [108.067]***	-298.81 [118.635]**	-190.49 [178.401]
-4	-163.171 [124.929]	-214.231 [138.555]	-253.458 [190.784]
-3	-3.667 [131.475]	15.699 [147.404]	118.397 [213.855]
-2	32.171 [135.789]	-50.234 [147.673]	84.474 [206.559]
-1	312.13 [154.313]**	323.399 [167.735]*	598.923 [229.975]***
0	1329.594 [181.830]***	1393.615 [197.810]***	2473.948 [303.638]***
1	2086.189 [200.810]***	2247.807 [219.364]***	3660.472 [364.381]***
2	2121.97 [208.483]***	2394.004 [231.234]***	3460.179 [356.734]***
3	2168.917 [214.680]***	2316.185 [236.566]***	3062.364 [341.307]***
4	2231.035 [242.704]***	2392.287 [231.733]***	3213.788 [323.146]***
5	2072.708 [218.503]***	2280.942 [244.857]***	3016.929 [351.614]***
6	2077.9 [221.387]***	2248.948 [249.690]***	2850.216 [359.226]***
7	2157.06 [225.948]***	2419.914 [258.512]***	2958.906 [372.262]***
8	2048.45 [227.389]***	2299.214 [261.075]***	2817.035 [359.976]***
9	2482.17 [251.396]***	2583.919 [287.577]***	3082.841 [393.663]***
10	2565.896 [266.611]***	2661.059 [311.235]***	3251.83 [419.428]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 9
Total Public Transfer Income Before and After Disability
Extent of Disability Groups

Year from onset	A. Total Public Transfer Income				B. Adjusted Public Transfer Income			
	One-Time	Temporary	Chronic Not Severe	Chronic Severe	One-Time	Temporary	Chronic Not Severe	Chronic Severe
-5	-75.796 [183.878]	-364.103 [210.797]*	-110.867 [207.986]	-174.947 [329.543]	199.536 [388.344]	-462.984 [265.942]*	7.375 [304.152]	270.154 [522.060]
-4	208.551 [207.891]	-235.384 [219.327]	234.994 [279.452]	-658.994 [348.490]*	323.499 [337.358]	-302.823 [277.294]	282.272 [404.907]	-722.271 [467.666]
-3	85.982 [225.051]	4.124 [243.164]	492.545 [293.389]*	-106.711 [365.569]	350.113 [499.545]	92.973 [320.497]	563.513 [399.303]	154.426 [499.552]
-2	16.353 [225.255]	90.583 [270.709]	287.06 [258.353]	-131.506 [379.080]	64.709 [318.300]	353.459 [378.514]	392.438 [374.031]	233.212 [564.202]
-1	-2.125 [252.695]	709.587 [327.399]**	605.456 [292.596]**	314.821 [425.168]	57.774 [367.735]	1162.231 [431.543]***	776.984 [377.253]**	964.488 [671.564]
0	251.815 [247.671]	1362.406 [339.332]***	1813.329 [351.785]***	3054.881 [629.233]***	765.301 [392.369]*	2046.173 [434.013]***	3009.025 [543.179]***	5624.806 [1,078.253]***
1	386.841 [307.043]	2042.926 [369.889]***	2234.526 [387.070]***	5756.269 [671.346]***	864.73 [451.804]*	3148.307 [542.240]***	3674.5 [675.273]***	9009.464 [1,201.101]***
2	335.154 [256.630]	1788.921 [389.479]***	2505.015 [427.458]***	6557.783 [698.189]***	576.129 [413.204]	2500.689 [540.804]***	3965.612 [730.719]***	8823.536 [1,060.783]***
3	60.608 [245.472]	1751.468 [402.935]***	2233.214 [439.590]***	6834.703 [675.475]***	61.981 [333.240]	2052.678 [498.689]***	2930.518 [666.668]***	9488.058 [1,046.068]***
4	23.023 [230.235]	1387.177 [382.866]***	2097.291 [370.733]***	7993.357 [697.014]***	78.732 [356.370]	1718.748 [459.677]***	3044.079 [510.298]***	10479.722 [1,067.098]***
5	-2.895 [293.200]	1383.805 [391.343]***	1953.526 [400.784]***	7833.87 [711.817]***	-16.334 [374.111]	1685.043 [460.194]***	2914.158 [663.117]***	10064.883 [1,051.919]***
6	51.753 [278.210]	1121.713 [398.396]***	1905.118 [395.696]***	8169.388 [740.724]***	72.551 [351.091]	1215.87 [464.824]***	2650.843 [631.360]***	10343.246 [1,120.056]***
7	10.066 [325.201]	1187.794 [373.303]***	2193.65 [410.124]***	8574.927 [776.084]***	-78.694 [391.152]	1230.8 [440.519]***	2830.854 [591.859]***	10780.634 [1,263.620]***
8	-188.383 [344.702]	1294.192 [404.006]***	2059.703 [394.655]***	8402.497 [808.138]***	-424.886 [408.240]	1514.267 [481.116]***	2622.279 [533.594]***	10458.147 [1,259.393]***
9	-312.997 [396.877]	1688.857 [438.249]***	2418.047 [411.604]***	8786.312 [906.763]***	-633.447 [456.593]	1986.903 [518.961]***	2901.154 [511.620]***	10887.705 [1,431.785]***
10	36.204 [432.440]	2293.698 [570.171]***	2160.538 [441.482]***	8534.17 [932.610]***	-87.206 [516.453]	3070.62 [756.444]***	2427.76 [564.461]***	10781.039 [1,376.417]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 10
Log Food Consumption and Log Food plus Housing Consumption

All Disabled		
Year from onset	Log Food Consumption	Log Food plus Housing Consumption
-5	-0.002 [0.016]	-0.008 [0.012]
-4	-0.007 [0.015]	-0.029 [0.015]*
-3	-0.014 [0.017]	-0.024 [0.014]*
-2	0.002 [0.016]	-0.018 [0.015]
-1	-0.013 [0.016]	-0.016 [0.015]
0	-0.012 [0.016]	-0.025 [0.015]*
1	-0.032 [0.018]*	-0.044 [0.016]***
2	-0.05 [0.017]***	-0.071 [0.016]***
3	-0.071 [0.018]***	-0.08 [0.017]***
4	-0.058 [0.018]***	-0.082 [0.018]***
5	-0.067 [0.019]***	-0.073 [0.018]***
6	-0.066 [0.019]***	-0.075 [0.018]***
7	-0.078 [0.018]***	-0.1 [0.018]***
8	-0.05 [0.019]***	-0.075 [0.018]***
9	-0.058 [0.020]***	-0.099 [0.020]***
10	-0.086 [0.022]***	-0.106 [0.022]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 11
Log Food Consumption and Log Food plus Housing Consumption
By Persistence Groups

Year from onset	A. Log Food Consumption			B. Log Food plus Housing Consumption		
	One-Time	Temporary	Chronic	One-Time	Temporary	Chronic
-5	-0.001 [0.035]	-0.047 [0.031]	0.023 [0.020]	-0.001 [0.024]	-0.007 [0.025]	-0.019 [0.017]
-4	0.01 [0.033]	0.006 [0.028]	-0.034 [0.021]	0.001 [0.028]	-0.027 [0.030]	-0.053 [0.021]**
-3	-0.04 [0.038]	0.022 [0.030]	-0.031 [0.025]	-0.032 [0.029]	-0.008 [0.027]	-0.032 [0.021]
-2	0.03 [0.032]	0.023 [0.030]	-0.031 [0.024]	0.01 [0.028]	0.003 [0.031]	-0.052 [0.022]**
-1	0.021 [0.030]	0.017 [0.030]	-0.055 [0.025]**	0.024 [0.026]	0.017 [0.026]	-0.061 [0.023]***
0	0.009 [0.031]	-0.022 [0.029]	-0.02 [0.023]	-0.001 [0.027]	-0.017 [0.026]	-0.044 [0.022]**
1	-0.029 [0.034]	-0.01 [0.030]	-0.052 [0.028]*	-0.02 [0.031]	-0.035 [0.029]	-0.063 [0.022]***
2	-0.035 [0.034]	-0.052 [0.031]*	-0.065 [0.025]***	-0.044 [0.030]	-0.08 [0.031]***	-0.085 [0.023]***
3	-0.016 [0.034]	-0.049 [0.032]	-0.117 [0.027]***	-0.044 [0.034]	-0.081 [0.031]***	-0.096 [0.023]***
4	0.022 [0.034]	-0.063 [0.034]*	-0.098 [0.026]***	-0.045 [0.035]	-0.095 [0.035]***	-0.098 [0.024]***
5	0 [0.031]	-0.028 [0.035]	-0.126 [0.027]***	-0.001 [0.029]	-0.057 [0.032]*	-0.116 [0.027]***
6	0.019 [0.032]	-0.071 [0.034]**	-0.113 [0.028]***	0.003 [0.032]	-0.087 [0.032]***	-0.109 [0.025]***
7	-0.029 [0.033]	-0.059 [0.032]*	-0.122 [0.026]***	-0.07 [0.036]**	-0.076 [0.031]**	-0.133 [0.025]***
8	-0.04 [0.036]	-0.003 [0.033]	-0.101 [0.027]***	-0.056 [0.033]*	-0.03 [0.031]	-0.117 [0.026]***
9	-0.015 [0.038]	-0.032 [0.035]	-0.104 [0.027]***	-0.076 [0.043]*	-0.05 [0.032]	-0.139 [0.027]***
10	-0.052 [0.038]	-0.047 [0.035]	-0.14 [0.032]***	-0.069 [0.042]*	-0.07 [0.034]**	-0.146 [0.031]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 12
Log Food Consumption and Log Food plus Housing Consumption
By Severity Groups

Year from onset	A. Log Food Consumption		B. Log Food plus Housing Consumption	
	Not Severe	Severe	Not Severe	Severe
-5	-0.008 [0.019]	0.009 [0.027]	-0.001 [0.014]	-0.032 [0.023]
-4	-0.007 [0.018]	-0.013 [0.028]	-0.014 [0.016]	-0.073 [0.033]**
-3	-0.007 [0.020]	-0.03 [0.033]	-0.016 [0.016]	-0.046 [0.027]*
-2	0.027 [0.019]	-0.061 [0.030]**	-0.001 [0.018]	-0.066 [0.027]**
-1	0.005 [0.019]	-0.06 [0.033]*	0.003 [0.017]	-0.062 [0.026]**
0	0.001 [0.019]	-0.06 [0.029]**	-0.01 [0.018]	-0.078 [0.026]***
1	-0.025 [0.022]	-0.056 [0.034]	-0.023 [0.018]	-0.102 [0.029]***
2	-0.012 [0.020]	-0.15 [0.033]***	-0.033 [0.019]*	-0.18 [0.029]***
3	-0.031 [0.020]	-0.188 [0.037]***	-0.045 [0.019]**	-0.183 [0.033]***
4	-0.035 [0.021]*	-0.13 [0.035]***	-0.055 [0.021]***	-0.166 [0.032]***
5	-0.047 [0.021]**	-0.135 [0.035]***	-0.052 [0.021]**	-0.147 [0.029]***
6	-0.034 [0.022]	-0.15 [0.037]***	-0.041 [0.020]**	-0.163 [0.031]***
7	-0.038 [0.021]*	-0.183 [0.035]***	-0.063 [0.021]***	-0.196 [0.032]***
8	-0.015 [0.022]	-0.146 [0.037]***	-0.035 [0.021]*	-0.185 [0.031]***
9	-0.02 [0.022]	-0.164 [0.038]***	-0.063 [0.023]***	-0.196 [0.035]***
10	-0.065 [0.025]***	-0.147 [0.046]***	-0.067 [0.025]***	-0.204 [0.042]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 13
Log Food Consumption and Log Food plus Housing Consumption
Extent of Disability Groups

Year from onset	A. Log Food Consumption				B. Log Food plus Housing Consumption			
	One-Time	Temporary	Chronic Not Severe	Chronic Severe	One-Time	Temporary	Chronic Not Severe	Chronic Severe
-5	-0.002 [0.035]	-0.047 [0.031]	0.033 [0.026]	0.006 [0.030]	-0.001 [0.024]	-0.008 [0.025]	0 [0.021]	-0.048 [0.027]*
-4	0.009 [0.033]	0.006 [0.028]	-0.02 [0.027]	-0.056 [0.032]*	0.001 [0.028]	-0.028 [0.030]	-0.028 [0.024]	-0.093 [0.038]**
-3	-0.04 [0.038]	0.022 [0.030]	-0.001 [0.032]	-0.075 [0.039]*	-0.032 [0.029]	-0.009 [0.027]	-0.004 [0.025]	-0.074 [0.034]**
-2	0.03 [0.032]	0.022 [0.030]	0.017 [0.030]	-0.107 [0.037]***	0.01 [0.028]	0.003 [0.031]	-0.012 [0.026]	-0.114 [0.036]***
-1	0.021 [0.030]	0.016 [0.030]	-0.029 [0.031]	-0.095 [0.040]**	0.024 [0.026]	0.016 [0.026]	-0.031 [0.029]	-0.108 [0.033]***
0	0.009 [0.032]	-0.022 [0.029]	0.023 [0.028]	-0.093 [0.036]***	-0.001 [0.027]	-0.017 [0.026]	-0.005 [0.029]	-0.111 [0.032]***
1	-0.029 [0.034]	-0.011 [0.030]	-0.035 [0.038]	-0.085 [0.041]**	-0.02 [0.031]	-0.036 [0.029]	-0.022 [0.028]	-0.135 [0.033]***
2	-0.035 [0.034]	-0.053 [0.031]*	0.019 [0.029]	-0.201 [0.039]***	-0.044 [0.030]	-0.081 [0.031]***	-0.005 [0.029]	-0.219 [0.033]***
3	-0.016 [0.034]	-0.049 [0.032]	-0.05 [0.032]	-0.228 [0.044]***	-0.044 [0.034]	-0.082 [0.031]***	-0.031 [0.028]	-0.203 [0.034]***
4	0.022 [0.034]	-0.063 [0.034]*	-0.036 [0.032]	-0.194 [0.041]***	-0.045 [0.035]	-0.095 [0.035]***	-0.031 [0.030]	-0.203 [0.037]***
5	0 [0.031]	-0.028 [0.035]	-0.085 [0.034]**	-0.2 [0.040]***	-0.001 [0.029]	-0.058 [0.032]*	-0.059 [0.035]*	-0.216 [0.034]***
6	0.019 [0.032]	-0.071 [0.034]**	-0.054 [0.035]	-0.211 [0.042]***	0.003 [0.032]	-0.087 [0.032]***	-0.043 [0.031]	-0.221 [0.036]***
7	-0.029 [0.033]	-0.059 [0.032]*	-0.05 [0.032]	-0.245 [0.040]***	-0.07 [0.036]*	-0.077 [0.031]**	-0.061 [0.031]**	-0.249 [0.035]***
8	-0.04 [0.036]	-0.004 [0.033]	-0.038 [0.033]	-0.208 [0.043]***	-0.056 [0.033]*	-0.031 [0.031]	-0.041 [0.032]	-0.243 [0.036]***
9	-0.015 [0.038]	-0.033 [0.035]	-0.044 [0.033]	-0.209 [0.044]***	-0.076 [0.043]*	-0.051 [0.032]	-0.081 [0.034]**	-0.238 [0.037]***
10	-0.052 [0.038]	-0.048 [0.035]	-0.097 [0.039]**	-0.204 [0.056]***	-0.069 [0.042]*	-0.071 [0.034]**	-0.094 [0.039]**	-0.237 [0.043]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 14
Log Food Eaten at Home and Log Food Eaten Outside the Home
Extent of Disability Groups

Year from onset	A. Log Food Eaten at Home				B. Log Food Eaten Outside the Home			
	One-Time	Temporary	Chronic Not Severe	Chronic Severe	One-Time	Temporary	Chronic Not Severe	Chronic Severe
-5	0.029 [0.031]	-0.058 [0.036]	0.019 [0.026]	0.009 [0.035]	-0.055 [0.065]	0.076 [0.061]	0.014 [0.065]	-0.178 [0.099]*
-4	0.01 [0.034]	-0.006 [0.031]	-0.035 [0.031]	-0.028 [0.033]	0.021 [0.063]	0.123 [0.054]**	0.006 [0.063]	-0.244 [0.100]**
-3	-0.026 [0.037]	0.006 [0.032]	-0.029 [0.036]	-0.062 [0.041]	-0.067 [0.064]	0.055 [0.059]	-0.006 [0.069]	-0.128 [0.092]
-2	0.063 [0.030]**	0.016 [0.033]	0.019 [0.032]	-0.075 [0.039]*	0.046 [0.061]	0.027 [0.068]	-0.028 [0.066]	-0.182 [0.092]**
-1	0.044 [0.032]	-0.034 [0.033]	-0.025 [0.035]	-0.052 [0.040]	-0.043 [0.059]	0.08 [0.063]	-0.036 [0.062]	-0.206 [0.092]**
0	-0.021 [0.035]	-0.051 [0.037]	0.01 [0.031]	-0.087 [0.042]**	-0.047 [0.065]	0.058 [0.061]	0.052 [0.066]	-0.232 [0.090]**
1	-0.008 [0.036]	-0.042 [0.034]	-0.002 [0.032]	-0.069 [0.039]*	-0.067 [0.060]	0.017 [0.061]	-0.032 [0.071]	-0.374 [0.096]***
2	-0.001 [0.033]	-0.113 [0.038]***	0.007 [0.033]	-0.213 [0.042]***	-0.1 [0.061]	0.02 [0.065]	-0.014 [0.068]	-0.379 [0.093]***
3	-0.012 [0.035]	-0.074 [0.037]**	-0.035 [0.034]	-0.223 [0.047]***	-0.046 [0.061]	-0.021 [0.064]	0.003 [0.069]	-0.333 [0.096]***
4	0.028 [0.035]	-0.073 [0.039]*	-0.022 [0.032]	-0.223 [0.046]***	-0.014 [0.063]	-0.019 [0.070]	-0.059 [0.069]	-0.322 [0.094]***
5	0.017 [0.035]	-0.047 [0.039]	-0.05 [0.037]	-0.227 [0.047]***	-0.11 [0.066]*	0.021 [0.071]	-0.082 [0.071]	-0.335 [0.088]***
6	0.03 [0.036]	-0.078 [0.038]**	0 [0.036]	-0.176 [0.046]***	-0.098 [0.068]	-0.037 [0.073]	-0.013 [0.070]	-0.387 [0.093]***
7	-0.03 [0.036]	-0.078 [0.037]**	-0.05 [0.037]	-0.222 [0.045]***	-0.133 [0.069]*	0.027 [0.071]	-0.155 [0.074]**	-0.413 [0.095]***
8	-0.019 [0.041]	-0.002 [0.036]	-0.005 [0.036]	-0.139 [0.047]***	0.014 [0.070]	0.002 [0.074]	-0.078 [0.075]	-0.412 [0.099]***
9	-0.013 [0.042]	-0.045 [0.038]	-0.006 [0.037]	-0.203 [0.050]***	-0.021 [0.069]	-0.049 [0.081]	-0.135 [0.075]*	-0.317 [0.102]***
10	-0.059 [0.042]	-0.049 [0.040]	-0.052 [0.039]	-0.139 [0.060]**	-0.025 [0.086]	-0.1 [0.087]	-0.079 [0.081]	-0.547 [0.118]***

***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by person are in parentheses. The numbers are, for each variable of interest, the coefficient estimates of the time from onset indicator variables in the basic fixed effect regression model. See the data appendix for variable definitions and the text for further details.

Table 15
Decomposition of Change in Housing Consumption

Housing Type	One-Time	Temporary	Chronic -Not Severe	Chronic - Severe
Home	-0.026 [0.029]	-0.05 [0.029]*	0.011 [0.028]	-0.034 [0.038]
Publicly Subsidized	0.027 [0.010]***	0.011 [0.009]	0.021 [0.011]**	0.054 [0.021]**
Rent	-0.001 [0.028]	0.04 [0.028]	-0.033 [0.028]	-0.021 [0.042]
Housing Consumption Given Type				
Home	-806.332 [509.576]	-405.53 [554.367]	-143.609 [618.304]	-2,007.73 [526.629]***
Publicly Subsidized	555.595 [966.094]	740.881 [1,528.655]	-22.015 [1,195.573]	1071.613 [1,432.457]
Rent	-537.468 [372.319]	-985.993 [385.561]**	-453.155 [414.366]	-1053.847 [392.493]***

***Significant at 1%, **Significant at 5%, * Significant at 10%. Standard errors clustered by person are in parentheses. The table reports the coefficient estimates on the interaction of each disability group with being after the 6th year after onset ($t \in \{6, 10\}$). For the upper panel, the dependent variable is a dichotomous variable that equals one if the specified housing type is chosen. For the bottom panel, the dependent variable is the amount of housing consumption, conditional on the housing type chosen (which is taken to be the type with the largest consumption). See the text for details.

Appendix Table 1
Prevalence of Disability by Year
Age 40-49

	N	Any disability	Currently Disabled	One-Time	Temporary	Chronic-Not Severe	Chronic-Severe
1980	430	0.2712 (0.0256)	0.1263 (0.0188)	0.0262 (0.0088)	0.0794 (0.0158)	0.0983 (0.0172)	0.0673 (0.0142)
1982	441	0.2670 (0.0249)	0.1059 (0.0171)	0.0251 (0.0086)	0.0924 (0.0165)	0.1005 (0.0170)	0.0488 (0.0118)
1984	461	0.2431 (0.0232)	0.1055 (0.0166)	0.0297 (0.0090)	0.0841 (0.0148)	0.0829 (0.0148)	0.0463 (0.0112)
1986	513	0.2979 (0.0237)	0.0967 (0.0155)	0.0518 (0.0109)	0.0905 (0.0144)	0.1208 (0.0172)	0.0348 (0.0091)
1988	618	0.3136 (0.0222)	0.1289 (0.0161)	0.0529 (0.0105)	0.0937 (0.0139)	0.1242 (0.0160)	0.0428 (0.0096)
1990	745	0.3422 (0.0210)	0.1446 (0.0157)	0.0620 (0.0104)	0.0895 (0.0129)	0.1449 (0.0158)	0.0458 (0.0088)

Age 50-59

	N	Any disability	Currently Disabled	One-Time	Temporary	Chronic-Not Severe	Chronic-Severe
1980	410	0.4075 (0.0274)	0.2426 (0.0238)	0.0421 (0.0114)	0.0628 (0.0126)	0.1409 (0.0196)	0.1616 (0.0201)
1982	424	0.4143 (0.0273)	0.2104 (0.0226)	0.0503 (0.0123)	0.0604 (0.0123)	0.1429 (0.0195)	0.1608 (0.0202)
1984	423	0.4022 (0.0274)	0.2004 (0.0222)	0.0540 (0.0126)	0.0684 (0.0136)	0.1579 (0.0205)	0.1219 (0.0180)
1986	422	0.4108 (0.0277)	0.1931 (0.0222)	0.0677 (0.0144)	0.0681 (0.0136)	0.1323 (0.0191)	0.1427 (0.0197)
1988	388	0.4356 (0.0295)	0.2052 (0.0237)	0.1007 (0.0183)	0.0862 (0.0160)	0.1364 (0.0200)	0.1123 (0.0187)
1990	359	0.4655 (0.0321)	0.2470 (0.0283)	0.0736 (0.0166)	0.1052 (0.0195)	0.1345 (0.0218)	0.1522 (0.0234)

Age 60-64

	N	Any disability	Currently Disabled	One-Time	Temporary	Chronic-Not Severe	Chronic-Severe
1980	131	0.5826 (0.0549)	0.4373 (0.0549)	0.0130 (0.0129)	0.1574 (0.0404)	0.1156 (0.0342)	0.2966 (0.0503)
1982	152	0.6292 (0.0487)	0.4273 (0.0494)	0.0433 (0.0213)	0.1127 (0.0306)	0.1543 (0.0358)	0.3189 (0.0468)
1984	148	0.6730 (0.0463)	0.4246 (0.0484)	0.0302 (0.0163)	0.0647 (0.0240)	0.2380 (0.0420)	0.3401 (0.0459)
1986	150	0.7133 (0.0438)	0.2945 (0.0439)	0.0361 (0.0182)	0.1484 (0.0352)	0.2218 (0.0404)	0.3070 (0.0440)
1988	184	0.5975 (0.0415)	0.3409 (0.0397)	0.0683 (0.0219)	0.1006 (0.0248)	0.2254 (0.0356)	0.2032 (0.0329)
1990	197	0.5610 (0.0396)	0.2856 (0.0359)	0.1220 (0.0262)	0.1183 (0.0254)	0.1642 (0.0293)	0.1564 (0.0287)

This table reports for each year the fraction of the sample that has had a disability by the specified year, the fraction of individuals who are currently disabled, and the fraction for whom a given disability type is their most severe disability to date. These fractions are weighted as are the standard errors which are in parentheses. We restrict this sample to individuals with at least 10 years of data prior to the specified year.

Appendix Table 2
Prevalence of Disability by Age

Age	N	Any disability	Currently Disabled	One-Time	Temporary	Chronic-Not Severe	Chronic-Severe
30	537	0.2179 (0.0215)	0.0876 (0.0156)	0.0410 (0.0090)	0.0640 (0.0127)	0.0810 (0.0144)	0.0318 (0.0095)
32	896	0.2249 (0.0168)	0.0790 (0.0108)	0.0433 (0.0085)	0.0653 (0.0095)	0.0819 (0.0112)	0.0343 (0.0074)
34	1051	0.2380 (0.0158)	0.0883 (0.0109)	0.0542 (0.0084)	0.0605 (0.0087)	0.0824 (0.0100)	0.0409 (0.0078)
36	1008	0.2380 (0.0160)	0.0901 (0.0106)	0.0526 (0.0082)	0.0510 (0.0080)	0.1030 (0.0118)	0.0314 (0.0063)
38	901	0.2493 (0.0175)	0.0765 (0.0105)	0.0530 (0.0085)	0.0656 (0.0099)	0.1008 (0.0128)	0.0300 (0.0065)
40	821	0.2614 (0.0182)	0.0864 (0.0111)	0.0506 (0.0088)	0.0671 (0.0102)	0.1199 (0.0138)	0.0237 (0.0056)
42	709	0.2619 (0.0195)	0.1075 (0.0139)	0.0493 (0.0093)	0.0761 (0.0116)	0.1079 (0.0141)	0.0286 (0.0069)
44	549	0.3122 (0.0234)	0.1297 (0.0170)	0.0468 (0.0105)	0.1057 (0.0157)	0.1284 (0.0171)	0.0313 (0.0077)
46	472	0.2922 (0.0249)	0.0985 (0.0164)	0.0432 (0.0111)	0.1058 (0.0172)	0.0899 (0.0151)	0.0532 (0.0123)
48	459	0.3267 (0.0258)	0.1309 (0.0181)	0.0433 (0.0112)	0.0776 (0.0147)	0.1405 (0.0190)	0.0654 (0.0130)
50	430	0.3504 (0.0277)	0.1525 (0.0210)	0.0713 (0.0154)	0.0729 (0.0145)	0.1041 (0.0170)	0.1021 (0.0177)
52	471	0.3579 (0.0257)	0.1746 (0.0204)	0.0620 (0.0131)	0.0707 (0.0133)	0.1247 (0.0180)	0.1005 (0.0158)
54	454	0.3735 (0.0263)	0.2017 (0.0219)	0.0497 (0.0120)	0.0672 (0.0135)	0.1235 (0.0173)	0.1331 (0.0186)
56	460	0.4334 (0.0268)	0.2363 (0.0231)	0.0600 (0.0132)	0.0673 (0.0130)	0.1450 (0.0188)	0.1611 (0.0200)
58	416	0.4989 (0.0287)	0.2588 (0.0252)	0.0712 (0.0152)	0.0927 (0.0160)	0.1742 (0.0220)	0.1609 (0.0207)
60	393	0.5382 (0.0291)	0.2711 (0.0253)	0.0718 (0.0156)	0.0981 (0.0165)	0.1732 (0.0222)	0.1951 (0.0223)
62	349	0.6669 (0.0302)	0.4241 (0.0316)	0.0726 (0.0172)	0.1194 (0.0206)	0.1892 (0.0251)	0.2857 (0.0286)
64	302	0.7226 (0.0326)	0.4209 (0.0355)	0.0343 (0.0138)	0.1607 (0.0272)	0.2329 (0.0306)	0.2948 (0.0324)

This table reports for each age the fraction of the sample that has had a disability by the specified year, the fraction of individuals who are currently disabled, and the fraction for whom a given disability type is their most severe disability to date. These fractions are weighted as are the standard errors which are in parentheses. We restrict this sample to individuals with at least 10 years of data prior to the specified age.