Tracking the Household Income of Those Who Apply for Federal Disability Transfer Benefits

John Bound
University of Michigan, NBER
and
Richard V. Burkhauser
Cornell University
and
Austin Nichols
University of Michigan

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1. Introduction

The purpose of this research is to study the financial resources available to individuals during the period of time they are applying for Social Security Disability Insurance (DI) and Supplemental Security Insurance (SSI) benefits. There is a five-month waiting period between the time a person becomes disabled and when he or she is first eligible for DI benefits. Beyond this, not everyone applies for DI or SSI immediately after becoming disabled, and the application process itself takes time. Initial determinations are often done within a few months, but a large fraction of those initially denied benefits appeal and the appeal process takes much longer. Unlike most European countries, the U.S. does not have any national short-term sickness or disability program to act as a bridge to long-term disability benefits (i.e., DI). As a result, little is known about the sources of income available to individuals in the period immediately following the point of time they leave work as the result of becoming disabled.

Understanding the resources that individuals have available to them while in the process of applying for DI benefits is important for a number of different reasons. Understanding both the extent of the short-term financial hardships experienced by those who become disabled and the nature of the adjustments they make to try to mitigate these hardships is interesting in its own right. Recent work by Dynarski and Gruber (1997) has suggested that, in general, households in the United States are able to largely buffer themselves against earnings fluctuations by relying on a combination of savings and government transfer programs. Similarly, Burkhauser and Daly (1996) have examined the impact of the onset of a work limitation on family income and have found the typical family does not experience any large decline in incomes immediately after the onset of a limitation. However, both sets of authors find considerable heterogeneity across households in the extent to which they are capable of buffering themselves against possible losses associated with a loss of earnings, but neither set of authors has focused on the impact of the kind of severe disability that is likely to induce an individual to apply for DI or SSI.

Understanding the income losses households experience when applying for DI or SSI is important for another reason, too. It seems clear that a large part of the screening involved in determining who does and does not end up on DI is done by the applicants themselves via self-selection (Bound, 1989; Benitez-Silva, Buchinsky, Chan, Rust, and Sheivasser, 1998). Self-selection works at each stage of the process. Those who initially apply for DI benefits have greater functional limitations than do comparably-aged individuals in the population. Furthermore, among those initially denied DI benefits, those who appeal have significantly worse health than those who do not. Presumably, a large part of why this self-selection is occurring has to do with the costs associated with applying for DI benefits, much of which would involve the lost income experienced by individuals between the time they initially become disabled and the time they qualify for DI benefits.

2. Methods

The data used in this project are the 1990 panel of the Survey of Income and Program Participation (SIPP) that has been matched to the disability determination records of those who applied for DI or SSI and whose applications were acted upon between 1986 and 1994.[1] The SIPP data contain extensive information regarding the source and extent of income received by surveyed family members for each month during the survey period together with employment histories for these same individuals. Using the disability determination records to identify DI and SSI applicants, it is possible to track family incomes in the period of time immediately before and after a family member applies for DI or SSI.

There are several limitations of the SIPP that deserve mention. It is important to bear in mind the SIPP involves short panels following households for two plus years. Thus, while it is possible to track short-term income movements, it is not possible to follow long-term adjustments of those who are eventually denied DI or SSI benefits. It is also important to bear in mind that the income data come from respondents' reports. There is a clear indication in the data that transfer and social security income is being underreported (of those awarded DI benefits, only 90 percent report positive amounts of social security income even 12+ months after the application decision). Perhaps, more importantly, the precise timing of income flows is suspicious. The SIPP re-surveys households every four months. There is ample evidence that individuals do not accurately remember the timing of income receipts during the four-month window preceding an interview. Thus, income changes that occur between windows are more accurately reported than are changes that occur within windows.[2] In our case, applications do not line up with the four-

[1] This is essentially the same data as those used by Lahari, Vaughan and Wixon (1995) and Hu, Lahari, Vaughan and Wixon (1997) in their work studying the application for DI and SSI benefits.

[2] The finding of more transitions at the “seam” than at other points in a retrospective history pieced together from a series of interviews has been documented repeatedly (Moore and Kasprzyk, 1984; Burkhead and Coder, 1985; Hill 1987).

month windows, but occur randomly with them. For this reason, we expect a smearing across time of income flows. Still we expect that the general patterns we have observed in this data to reflect in qualitative terms the behavior of household incomes during the period around the application for DI or SSI benefits.

Starting from the date at which an individual applied for DI or SSI benefits, we track the individual's family income. We are interested in both the total amount of that income and the sources of the income. For those who applied for disability benefits just prior to or during their tenure in the SIPP panel, we are able to tabulate family incomes for months immediately after their application. For those who applied in the year prior to their tenure in the survey or during the first year of that tenure, we are be able to tabulate family incomes for the year after application. In this fashion we will be able to obtain cross-sectional snapshots of what individuals are living on in the months and years immediately following their application for DI or SSI benefits.

While these cross-sectional snapshots will give us some clear sense of what individuals in the process of applying for DI or SSI live on, they do not follow the same individuals across time and, therefore, do not give us a direct measure of the extent to which those applying for DI or SSI have been able to avoid significant drops in household incomes. To answer this question, we need to follow individuals over time and compare their incomes prior to applying for DI or SSI benefits to their incomes after doing so. Given the nature of the SIPP data we cannot simply follow a single cohort of individuals through the application process, but what we can do is to track the incomes of overlapping sets of individuals. To do this efficiently, we estimate fixed effect regression models where the dependent variable is total household income and explanatory variables include individual fixed effects together with dummy variables indicating the duration since application.

3. Results

DI and SSI applicants represent quite distinct populations with access to quite different resources. For this reason, we will present our results for DI and SSI applicants separately. Figures 1 and 2 chart household monthly incomes for DI and SSI applicants for the months immediately before and after the administrative data indicate the person applied for DI or SSI.[3]

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[3] We have eliminated concurrent applications.

For individuals who applied for DI or SSI more than once during the 1984-1997 interval, we focus on the first application. It is important to note that the samples represented in one month will overlap but will not be identical to the samples represented in other months. However, month by month the samples should be representative of individuals applying for DI or SSI in the early 1990s. The top panel shows the distribution of household incomes falling as one moves closer to the date of application. Whether one looks at mean household income or the quartiles of household income, one finds household income dropping by roughly 25% from 12 months prior to the application for DI benefits to the period of time right after the application. Subsequently, incomes gradually rise, but do not return to the height that they were 12 months prior to application.

As we have noted, Figures 1 and 2 do not follow the same population of individuals across time. To come closer to approximating what we would find were we able to do this, we estimated fixed effect regressions including a dummy variable for the months prior to and subsequent to the application. Since the left-out category represents the time period 15 months or more prior to the application, the regression coefficients can be interpreted as the change in household income relative to this pre-application baseline. The inclusion of the fixed effects in these models allows us to interpret the observed pattern as reflecting what happens, on average, to the household income of individuals during the period of time before and after they apply for DI or SSI benefits.

In Figure 3 we plot predicted values from regressions done separately for successful and unsuccessful DI applicants. For ease of interpretation, we have rescaled the predicted values using average baseline incomes. Thus, the figures can be interpreted as the average percent change (relative to baseline) in household incomes surrounding the application. Figure 3 shows a very clear pattern for the DI applicants, with monthly household income beginning to drop about 6 months prior to the actually application for benefits. Shortly after the application, incomes fall roughly 30 percent. Subsequently, there is some recovery of household incomes, with this pattern being more dramatic for the successful applicants. Twelve months after the application, household incomes continue to be about 15 percent below what they were at baseline. Subsequent to the application, average household incomes slowly rise, eventually recovering roughly half of what they had previously lost.

Figure 4 shows the comparable graph for individuals applying for SSI benefits. Here the fall in family incomes is somewhat less dramatic than it was for those applying for DI benefits. By 12 months after the application those awarded benefits have household incomes that are close to what they were at baseline, while those denied benefits show only a gradual recovery.

Perhaps what is most surprising in these numbers is that family incomes do not fall more than they do. To address this issue in somewhat more detail, we tabulated income by source, and by months since application for both those applying for DI and those applying for SSI benefits. Results are reported in Tables 1 and 2. In the top panel we report average monthly household income by source, while the bottom panel reports the fraction of the households receiving positive amounts of income from that source. The bottom two rows of the second panel in each tables reports sample sizes as well as the fraction for which a decision has been made. At baseline, 12+ months prior to the application, household earnings account for the vast majority of total household income, with the applicant's earnings accounting for somewhat more than half of the total earnings, but less than half of total family income. This pattern changes in the months immediately after the application where, in relative terms, spouse and transfer income become much more important. The pattern for SSI applicants is similar in the sense that their own earnings drop dramatically around the time of the application, but shows even more muted patterns of income change.

Tables 1 and 2 give us some idea why we did not see more dramatic household income changes around the date of application. An applicant's earnings certainly drop dramatically around the time he or she applies for benefits. However, even at baseline, on average the applicant's earnings represent only a component of total household income. Thus, eliminating own earnings has less of a dramatic effect than one might have imagined. What also emerges from these tabulations is just how crucial a spouse's earnings are in terms of lowering the impact of a disabling event on family incomes. In tabulations not shown we computed the percent drop in household income by gender and marital status. Sample sizes for these tabulations were quite small, but the differences across groups were substantial, with the percent drops in household income experienced by single men and women being quite a bit greater than those experienced by their married counterparts.

4. References

Benitez-Silva, Hugo, Moshe Buchinsky, Hiu-Man Chan, John Rust, and Sofia Sheivasser. 1998. "An Empirical Analysis of the Social Security Disability Application, Appeal, and Award Process," paper presented at the International Health and Retirement Surveys Conference, Amsterdam, August.

Bound, John. 1989. "The Health and Earnings of Disability Insurance Applicants," *American Economic Review*, LXXIX: 482-503.

Burkhauser, Richard V., Debra Dwyer, Maarten Lindeboom, Jules Theeuwes, and Isolde Woittiez. 1999. "Health, Work, and Economic Status: A Cross-National Comparison of United States and Dutch Men Nearing Retirement Age." In James Smith and Robert Willis (eds.), *Wealth, Work and Health: Innovations in Measurement in the Social Sciences: Essays in Honor of F. Thomas Juster*. Ann Arbor: University of Michigan, pp 233-266.

Burkhauser, Richard V. and Mary C. Daly. 1996. "Employment and Economic Well-Being Following the Onset of a Disability: The Role for Public Policy." In Jerry Mashaw, Virginia Reno, Richard V. Burkhauser, and Monroe Berkowitz (eds.), *Disability, Work, and Cash Benefits*. Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, pp. 59-102.

Burkhauser, Richard V. and David C. Wittenburg. 1996. "How Current Disability Transfer Policies Discourage Work: Analysis from the 1990 SIPP," *Journal of Vocational Rehabilitation*, 7(1/2) (August): 9-27.

Burkhead, D. and J. Coder. 1985. "Gross Changes in Income Recipiency from the Survey of Income and Program Participation," *Proceedings of the Section on Social Statistics, American Statistical Association*, pp. 351-356.

Dynarski, Susan and Jonathan Gruber. 1997. "Can Families Smooth Variable Earnings?" *Brookings Papers on Economic Activity*, No. 1, pp. 229-84.

Hill, D. 1987. "Response Errors Around the Seam: Analysis of Change in a Panel with Overlapping Reference Periods," *Proceedings of the Section on Survey Research Methods, American Statistical Association*, pp. 210-215.

Hu, Jainting, Kajal Lahari, Denton R. Vaughan and Bernard Wixon. 1997. "Structural Model of Social Security's Disability Determination Process," Social Security Administration, Office of Research, Evaluation and Statistics, Working Paper # 72.

Lahari, Kajal, Denton R. Vaughan and Bernard Wixon. 1995. "Modeling Social Security's Sequential Disability Determination Using Matched SIPP Data," *Social Security Bulletin*, 58 pp. 3-42.

Moore, J. and D. Kasprzyk. 1984. "Month-to-Month Recipiency Turnover in the ISDP," Proceedings *of the Section on Survey Research Methods, American Statistical Association*, pp. 210-215.

Table 1: Monthly Household Income by Source for Those Applying for Social Security Disability Insurance (DI) .

	Mean Income (1990 Dollars), by Source							
	Months Before Application				Months After Application			
Income Sources	**12 or more**	**8-6**	**5-3**	**2-0**	**1-3**	**4-6**	**7-9**	**13 or more**
Total	$3,149	$3,192	$3,018	$2,629	$2,153	$2,307	$2,445	$2,438
Total Earnings	2,645	2,412	2,174	1,666	1,185	1,224	1,281	1,264
Own Earnings	1,447	1,294	1,061	609	215	189	255	271
Spouse Earnings	1,092	1,001	974	968	949	963	901	929
Property	118	130	166	205	154	154	139	137
All Other Income	397	612	655	732	767	864	957	970
Mean-tested	19	38	23	26	47	65	68	67
SSI	8	17	10	8	17	31	34	48
Social Security	102	111	102	132	189	276	342	480
Unemployment	37	49	50	47	44	41	42	26
Veterans	11	32	18	19	27	17	16	46

	Percent Receiving Positive Amounts, by Source							
	Months Before Application				Months After Application			
Income Sources	**12 or more**	**8-6**	**5-3**	**2-0**	**1-3**	**4-6**	**7-9**	**13 or more**
Total	100	100	99	98	98	96	99	100
Total Earnings	100	100	99	98	98	96	99	100
Own Earnings	88	58	53	35	17	17	20	29
Spouse Earnings	73	56	61	59	61	62	62	66
Property	76	60	66	64	63	62	61	71
All Other Income	69	56	68	72	76	80	82	90
Mean-tested	13	11	11	12	14	17	17	28
SSI	6	5	5	5	7	10	11	21
Social Security	22	20	12	12	10	9	10	18
Unemployment	22	9	12	12	10	9	10	18
Veterans	4	5	4	5	7	6	6	11
Sample Size	458	255	272	264	249	244	236	519
Percentage Determined	0	0	0	0	38	73	88	98

Table 2: Monthly Household Income by Source for Those Applying for Supplemental Security Income (SSI).

	Mean Income (1990 Dollars), by Source							
	Months Before Application				Months After Application			
Income Sources	**12 or more**	**8-6**	**5-3**	**2-0**	**1-3**	**4-6**	**7-9**	**13 or more**
Total	1,933	1,827	1,790	1,629	1,529	1,494	1,531	1,611
Total Earnings	1,526	1,298	1,297	1,062	983	965	966	939
Own Earnings	550	377	336	210	131	169	158	196
Spouse Earnings	679	868	787	662	640	544	477	482
Property	30	81	48	35	33	25	24	31
All Other Income	242	293	292	377	330	275	323	385
Mean-tested	135	155	155	155	182	228	245	265
SSI	40	48	47	46	60	105	128	170
Social Security	108	118	117	127	133	126	153	219
Unemployment	24	39	39	36	38	28	24	25
Veterans	7	3	4	5	9	6	7	24

	Percent Receiving Positive Amounts, by Source							
	Before Application				After Application			
Income Sources	**12 or more**	**8-6**	**5-3**	**2-0**	**1-3**	**4-6**	**7-9**	**13 or more**
Total	100	96	97	94	93	95	96	99
Total Earnings	100	96	97	94	93	95	96	99
Own Earnings	64	37	37	27	15	17	19	29
Spouse Earnings	66	61	60	50	48	50	45	50
Property	47	27	32	29	32	33	32	41
All Other Income	67	38	46	52	53	53	55	74
Mean-tested	41	34	37	42	45	51	54	66
SSI	13	11	12	13	17	24	28	49
Social Security	26	17	20	21	24	27	32	45
Unemployment	23	7	10	9	9	9	9	15
Veterans	4	1	2	2	30	3	3	7
Sample Size	601	293	316	313	302	293	290	542
Percentage Determined	0	0	0	0	26	72	92	99

Figure 1: Monthly Household Income, DI Applicants

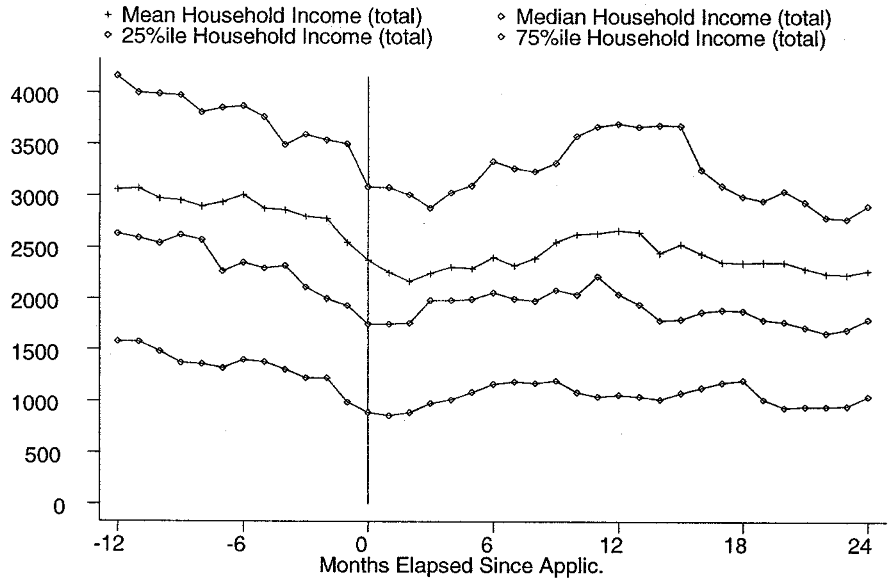

Figure 2: Monthly Household Income, SSI Applicants

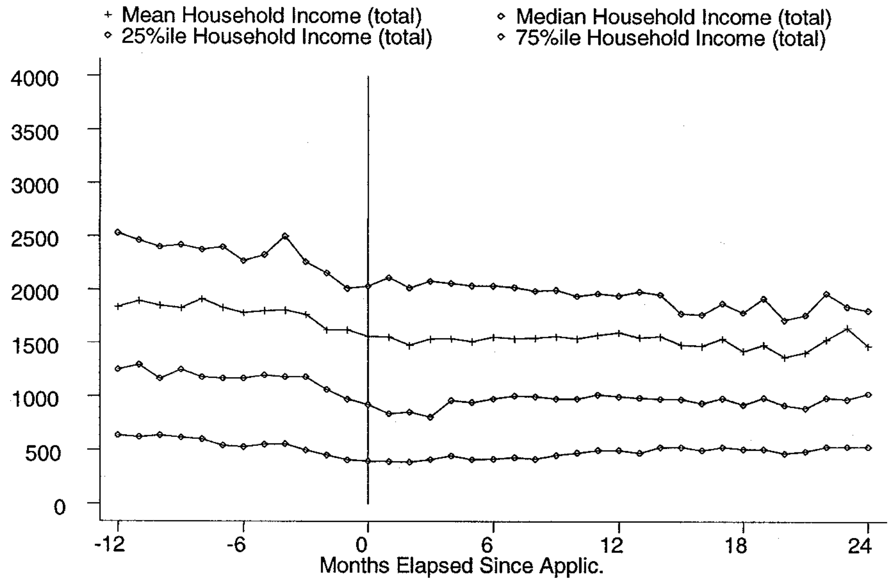

Figure 3. Percent Drop in Total Household Income by Award Status, DI applicants

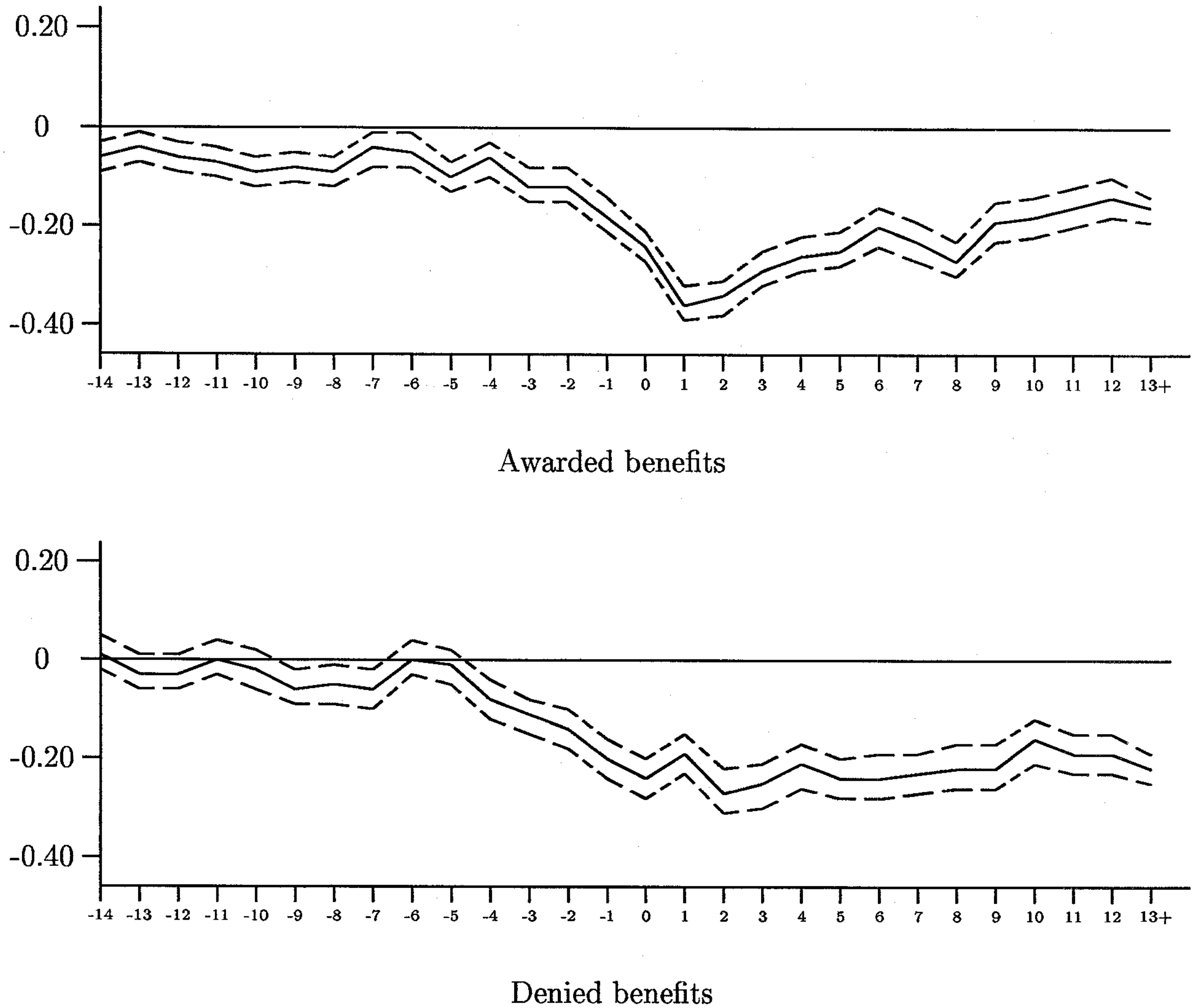

Figure 4. Percent Drop in Total Household Income by Award Status, SSI applicants