CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

HOW DO THE DISABLED COPE WHILE WAITING FOR SSDI?

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Abstract

The wait time for a Social Security Disability Insurance (SSDI) award varies from a few months to several years. Little is known about how applicants fund their consumption during this period. Using the *Survey of Income and Program Participation* (SIPP) linked to the Social Security Administration's *831 file*, this study examines the use of seven different coping strategies on which applicants may rely for resources, including government transfers, intra-family resources, other financial resources, and locational changes. Our results suggest that applicants use some coping strategies more frequently with longer application duration, especially spousal employment, the Supplemental Nutrition Assistance Program (SNAP) and the Supplemental Security Income (SSI) program for the disabled and children. They are also less likely to report receiving Unemployment Insurance benefits, changing their address, and owning a home. Together, these results suggests that some of the studied coping strategies are an important part of funding consumption during the application process, either by sustaining ongoing applications or by making it easier to file an appeal of an initially denied application.

Introduction

A disabled worker seeking Social Security Disability Insurance (SSDI) benefits must first undergo a multi-layered and potentially lengthy disability determination process. Approximately one-third of SSDI applicants are awarded benefits during the first stage of the application process, with an average processing time of 4.3 months; for those few who appeal all the way through to the deferral courts, the average processing time is 57 months (Autor and Duggan 2010).[1] During the application and appeals processes, SSDI applicants receive no income support or medical benefits from the SSDI program. However, they face strong incentives to remain out of the labor force because evidence of gainful employment would disqualify their application.[2]

While considerable attention has been paid to how applicants fill the health insurance coverage gap, much less is known about how disabled individuals fund their consumption during the application process. Two notable exceptions include Bound, Burkhauser, and Nichols (2003) and Honeycutt (2004). They find that income from government transfers and temporary disability insurance programs partially offset the decline in SSDI applicants' own labor earnings. However, while the wait time for SSDI has drawn increased attention from research and the policy-making arenas, how waiting time is correlated with how individuals fund consumption remains unexplored.

Using the 1990 to 2008 *Survey of Income and Program Participation* (SIPP) linked to the SSA's *831 file*, this paper explores how the disabled cope financially while waiting for SSDI. The analysis starts with documenting the evolution of applicants' income and income sources, before SSDI application, during application, and after the final SSDI determination. The study focuses on seven coping strategies that applicants may rely on, including: (1) government transfers [Supplementary Security Income (SSI), Supplemental Nutrition Assistance Program (SNAP), Temporary Disability Insurance (TDI), Workers' Compensation, and Unemployment Insurance (UI)], (2) earnings of the spouse, (3) financial assistance from family and friends, (4) changing living arrangement, (5) borrowing from credit, (6) withdrawals from their savings or

[1] Autor and Duggan (2010) include Compassionate Allowance cases, who receive priority in the disability determination process, in their sample. Maestas, Muller, and Strand (2011) eliminate Compassionate Allowance cases, and find the average wait time to be much longer: 6-20 months between application and the first stage determination.

[2] Gainful employment is defined here as earning over the Substantial Gainful Activity (SGA) amount, or more than $1,010 ($1,690) a month for non-blind (blind) disability beneficiaries in 2012.

401(k) accounts, and (7) liquidation of housing assets. The study extends previous research by focusing on the relationship between the wait time and coping strategy usage. To do so, three different regression models are estimated, examining how wait time is associated with the initial coping strategies used in the month of the application, the average use of coping strategies over the duration of the application, and how the coping strategies change over time as the waiting continues.

The paper proceeds as follows. Section 2 briefly outlines the SSDI and reviews the existing literature. Section 3 describes the data and sample construction and presents descriptive statistics. Section 4 provides an overview of coping strategies and the determination of eligibility and take-up for each strategy. Section 5 analyzes how the wait time is correlated with demographic characteristics and coping strategies used at the time of application. Section 6 describes how SSDI applicants cope by documenting the evolution of the income and income sources before and after SSDI application. Section 7 discusses the econometric approach and summarizes the main results, followed by concluding remarks in Section 8.

The findings can be summarized as follows. First, while the wait time is largely not associated with initial or average coping strategies, we find, over time, a negative relationship between the time since application and receipt of UI as well as worker's compensation, presumably because participation in these programs is time-limited. As these sources phase out, we find a positive relationship between the time since application and spousal employment, SNAP take-up, and SSI take-up and a negative relationship between the time since application and the probability of owning a house. These results suggest that applicants increasingly use these coping strategies to sustain consumption by drawing from additional income sources (SNAP, SSI, spousal earnings, or gains from selling a house). Finally, we find a negative relationship between application duration and the probability of changing one's address, suggesting that any adjustments made to lower living expenses are made closer to disability onset, and applicants avoid the fixed costs of moving as the application process lengthens.

Background

Social Security Disability Insurance. SSDI is a social insurance program that provides cash benefits to workers who face a work-limiting disability expected to last at least 12 months. Individuals must have worked long enough and recently enough to be SSDI-insured; that is, one

must have worked an age-specific number of quarters and have worked 20 quarters in the last 10 years.[3] SSDI-insured individuals are eligible for SSDI benefits if they are not currently earning more than the Substantial Gainful Activity (SGA) level due to a disability and are expected to be unable to do so for at least a year. SSDI benefits are a function of an individual's past labor earnings, using the same formula as Social Security retirement benefits, without an actuarial adjustment for early receipt of benefits. Disabled individuals who do not medically recover will get their full Social Security retirement benefit in perpetuity, as if they had retired at their Full Retirement Age.[4]

SSDI Application Process. The SSA field office screens out applicants who are currently gainfully employed, that is, earning more than the SGA amount. Applications screened out at this level are labeled "technical denials," do not receive a medical review, and are not observed in our data. Applications are then sent to a state Disability Determination Service (DDS) center, where cases are assigned to disability examiners for review on a rotational basis.[5] Disability examiners conduct a medical review, approving only one-third of the cases on average. Applicants denied benefits at this point can appeal, first to the same DDS center that made the original determination, then to an Administrative Law Judge (ALJ). Notably, ALJs overturn SSA's initial rejections in approximately 75 percent of the cases they hear, but there is substantial variation across ALJs in the award rate (French and Song 2009). Rejected applicants can then appeal to the central Appeals Board of Washington and finally to a federal court. Because of the relatively low initial allowance rate and these lengthy appeals processes, the mean determination time for allowed applicants significantly exceeds that of denied applicants (Autor et al. 2011). Hence, both for those ultimately awarded and denied benefits, the many stages of adjudication mean that the application for SSDI benefits can potentially take years.

[3] In order to be covered by SSDI, one must have worked a minimum of 40 or (age-21) quarters overall and have earned half the credits in the last five years or since turning 21. While the rules always refer to "covered quarters," it has been a misnomer since 1978. Covered quarters are calculated by the amount one makes in a calendar year, not the amount of time one was employed. In 2012, earnings of $1,130 are required to earn one quarter of coverage.
[4] Individuals may be terminated from the disability program due to medical recovery or by earnings that exceed the SGA under certain conditions. "Medical recovery" is determined through continuing disability reviews (CDRs), whose use has varied widely over time. Stapleton et al. (2010) find that only 4 percent of 1996 SSDI awardees had their benefits terminated for work in the first ten years in the program. Coe and Rupp (2013) find that approximately 1 percent of SSDI beneficiaries leave the rolls per year either due to work effort or medical recovery.
[5] Exceptions to rotational assignment include high-priority cases flagged as potential terminal illness cases.

There have been recent interventions on the part of the SSA to address the growing time lag between application and decision (for example, nationwide usage of the Quick Disability Determination (QDD) process, creation of additional ALJ positions and National Hearing Centers, and the use of video conferencing). Twenty-four of the 46 states with hearing offices saw a reduction in wait times in 2010 compared with 2008. The SSA reports that the national average processing time for a hearing decision in 2010 was 442 days, down from 514 days in September 2008 (Social Security Administration 2010). The total hearings backlog has decreased by more than 71,000 cases since December 2008 (Allsup Study 2010).

During the applications and appeals process, applicants receive no income support or medical benefits from the SSDI program. However, as long as their application remains pending, they face strong incentives against participating in the labor force – even on a trial basis –since evidence of gainful employment would disqualify their claim. If an individual is allowed onto the disability benefit rolls, benefits commence five months after disability onset. Beneficiaries are eligible for Medicare 29 months after disability onset. Both cash benefits and Medicare coverage can be retroactive.

Literature Review. Considerable attention has been paid to how applicants fill the health insurance coverage gap during the 29-month waiting period for Medicare benefits (for example, Gruber and Kubik 2002; Dale and Verdier 2003; Riley 2006; Livermore, Stapleton, and Claypool 2009). The evidence suggests that SSDI applicants have lower health insurance coverage rates for up to three years before application, and one-quarter of SSDI beneficiaries go uninsured during the waiting period.

Most of the work that has focused on the duration of SSDI applications has estimated the causal effects on applicants' subsequent employment and find that longer processing times reduce the employment and earnings of SSDI applicants in the years after their initial decision. Autor et al. (2011) find that the SSDI determination process directly reduces the post-application employment of denied applicants by approximately 3.6 percentage points (7 percent) and allowed applicants by approximately 5.2 percentage points (33 percent).

However, little is known about what these disabled individuals live on before receiving SSDI benefits. Notable exceptions are Honeycutt (2004) and Bound, Burkhauser, and Nichols (2003). Honeycutt (2004) examines income from three sources: disability income, public

assistance, and income related to labor force involvement in the last year of application among new SSDI beneficiaries. He finds that a large proportion of new SSDI beneficiaries receive workers compensation, employer disability, retirement income, and food stamps before obtaining SSDI benefits. Bound, Burkhauser, and Nichols (2003) further our understanding by looking not just at beneficiaries but all SSDI applicants. Using an unbalanced panel, they examine income sources three years before, at SSDI application, and three years after application, instead of just focusing on the year before benefit receipt. They find that earnings, and to a lesser extent total household income, drop dramatically six months prior to SSDI application, but rebound during the subsequent three-year period. In the early months following SSDI application, a patchwork of temporary disability benefits offset declines in SSDI applicants' own labor earnings. In the long run, most of these temporary sources of income decline and are replaced by SSDI benefits for successful applicants or earnings for denied applicants.

This paper builds on this earlier work. Using more recent data, we evaluate the pattern of income evolution while waiting for SSDI benefits, which might not be the same as the earlier work given the size and characteristic changes within the disabled population. This paper also expands the list of coping strategies studied. More importantly, we examine how the waiting time is associated with the use of a certain coping strategy to fund consumption, at application, on average over the entire course of the application and over the course of the disability determination process.

Data, Sample, and Descriptive Statistics

Data. This study uses data from the SSA's *831 file* linked to household information from SIPP panels starting in 1990-2008. The SIPP is a nationally-representative longitudinal survey of households conducted by the U.S. Census Bureau. The main objective of the SIPP is to provide comprehensive information about income and program participation of individuals and households in the United States. Every four months over a two- to four-year period, respondents are asked a battery of questions on their labor market participation, sources of income, employment relationships, demographics and family structure, health insurance status, wealth, and public program participation during each month between interviews. New panels began annually between 1990 and 1993, plus 1996, 2001, 2004, and 2008. The SIPP panel is a useful data set for measuring changes in short term economic well-being.

The SSA's *831 file* is the official disability determination data used by the Disability Determination Services. When a person applies for SSDI or SSI, an *831 file is* opened. We use *831* records to identify the date of the first application and the type of application (SSDI vs SSI). The *831* record subsequently tracks the application through the initial determination and up to reconsideration level.[6] To improve the accuracy of application outcomes, *831 files* are augmented with the Master Beneficiary Records (MBR) and the Payment History Update System (PHUS). MBR and PHUS records contain complete application and determination information, and are matched to 831 files using application and benefit begin dates, respectively.

The matched data have the advantage of accurate information on SSDI application and receipt, plus household and individual characteristics that are not usually available in administrative records. The long time span of the data allows us to examine changes over time and over the business cycle.

Sample. The sample for this analysis includes individuals who are matched to Social Security data (they either disclose their Social Security Number or have a match based on name, birth date, and address so that they can be matched to *831 file*) and who applied for SSDI while being surveyed for the SIPP. We also restrict our sample to individuals age 18 to 66 at the time of SSDI application. These restrictions result in a sample of 4,594 SSDI applicants, and 26,136 person-year observations.

Our sample respondents may have multiple disability applications in the years covered by the administrative data. We focus on the first application we observe in the administrative data to be sure we can observe income and its sources in the SIPP before and after application for SSDI benefits. While the vast majority (85.4 percent) of our sample contains complete information on the first application process, some cases are pending within the SIPP and thus we do not observe the entire application period. For these cases, while we are able to obtain the application duration and determination information from the administrative data, we do not have associated time-varying demographics, income amounts or sources, or information related to coping strategies for applications months that are not covered by the SIPP panel. Moreover, this right-censoring is more likely to affect individuals with longer application durations compared to

[6] In a few cases, the 831 files contain the information on the level of application stage that goes beyond the ADJ level. However, the quality of the data concerning these higher-level appeals decisions is questionable.

individuals with shorter durations. If individuals with difference application durations differ systematically in terms of both observables and unobservables, right-censoring may potentially create biases for our analysis. To address this issue, we run a sensitivity analysis on the subsample for which we observe the entire application period in the SIPP.

Descriptive Statistics. Table 1.1 presents averages for the socioeconomic characteristics of SSDI applicants measured at the month of application. The average age of applicants is 45, slightly more than half are male, and slightly more than three-quarters are white. Educational attainment is roughly evenly distributed between high school drop-outs, high school graduates, and those who have at least some college. Half of all applicants are married at the time of application. On average, household income of just over $3,000 per month supports almost three people. A quarter of applicants have worked in the month of application. Almost half of all applicants apply for both SSDI and SSI, suggesting that these applicants do have relatively strong attachment to the labor force – they have worked to gain enough covered quarters to be insured by SSDI – but remain low-income – their income and assets are low enough that they are below the poverty level.

Table 1.2 presents descriptive statistics by age group. As expected, older applicants are more likely to be male, earn more, live in richer households, are more likely to be white, more likely to be married, and to have less education, on average, than younger applicants. Interestingly, younger applicants have larger families and live in larger households than older applicants, which are both driven by the presence of children in the household. Further, older applicants have shorter wait times – their average application duration is 5 months, which is 2-2.5 months lower than their younger counterparts.

There are differences in demographic characteristics of our sample and that of Bound, Burkhauser, and Nichols (2003). Our sample of SSDI applicants is more likely to be female and a high-school drop-out, and less likely to be married, and have somehow larger household size but lower household income. These differences in samples can largely be explained by changes in applicants over time. Table 1.3 compares applicants of the 1990s to applicants of the 2000s. The starkest difference is the gender composition: 55 percent of applicants were male in the 1990s but only 47 percent are in the 2000s. This is likely due to the shift towards more labor market activity among women, which makes them relatively newly eligible for the SSDI

program. The educational background of applicants has also changed significantly, with the proportion of applicants without a high school degree dropping from one-third to one-fifth. Applicants in the 2000s are also less likely to be married, and while their monthly earnings and household incomes are similar, personal income is lower among the more recent applicants.

Overview of Coping Strategies

We examine the following strategies SSDI applicants use to fund consumption while waiting: (1) government transfers, including SNAP, SSI, UI, TDI, and workers' compensation; (2) earnings of the spouse; (3) financial assistance from family, such as parents, children and other relatives, or friends; (4) changing living arrangement; (5) borrowing from credits; (6) withdrawals from their savings or 401(k) accounts; (7) liquidation of housing assets. Given the complexity of these programs, we briefly discuss rules and regulations that are relevant for this study and how eligibility for each coping strategy is determined. Table 2 summaries the use of each coping strategy at the time of application.[7]

The Supplemental Nutrition Assistance Program. The SNAP is the largest nutrition program for low-income Americans and a mainstay of the federal safety net. To receive SNAP, households must meet three financial criteria: a gross-income test, a net-income test, and an asset test. A household is automatically or "categorically" eligible for SNAP through the receipt of SSI, the Temporary Assistance for Needy Families (TANF), or General Assistance programs. SSI and SSDI benefits are part of gross household income. The amount of SNAP benefit that a household receives is equal to the maximum benefit level less 30 percent of the household's net income (reflecting the assumption that an average household will spend approximately 30 percent of its net income on food).

We determine SNAP eligibility accounting for gross and net income tests, the dependent, shelter, medical expenditure deductions, and categorical eligibility. But we ignore the asset eligibility test for three reasons. First, while the SIPP has information on assets, it comes from the special topical module of the SIPP, which only be asked infrequently (the maximum is once each year per panel and varies substantially by SIPP panel). While the monthly asset information can

[7] For some of coping strategies, we need information from topic modules of the SIPP. Therefore, the sample size changes due to the merge procedure.

be estimated using the linear extrapolation, the method does not reflect potential fluctuations of assets, a potentially large bias given the population we are studying. Second, the existing literature suggests that asset variables in the SIPP suffer from measurement error (Strand, Rupp, and Davies 2009). Finally, the literature also suggests that income limits are much more likely to be binding than asset limits (i.e., Coe and Wu 2013).

Overall, almost half of our sample is estimated to be eligible for SNAP at the time of application. As is typical in needs-based programs, take-up is relatively low at 32 percent (Table 2).

The Supplementary Security Income Program. SSI is a means-tested disability program for individuals with low income and assets. The disability determination process is identical to that of the SSDI program. SSI benefits depend on the household's or individual's income but generally can be thought of as raising the beneficiary to the poverty line – the benefits are typically higher than the benefits available through TANF but lower than the full retirement benefits available through SSDI. In most states, SSI recipients also receive Medicaid coverage immediately upon first benefit receipt. Individuals can apply for both SSI and SSDI benefits at the same time if they meet the financial criteria either during the 5-month waiting period for SSDI or concurrent with SSDI receipt. Forty percent to fifty percent of SSDI applicants concurrently apply to SSI.

We determine SSI eligibility only through income tests, omitting asset tests for the same reasons discussed above. About half of our sample is estimated to be eligible for the SSI at the time of application, consistent with the number of dual-applicants in our sample and suggested by the literature (Coe and Rutledge 2012). Within the first month of application, around 7 percent of eligible individuals receive SSI. This sequential pattern could be due to individuals on SSI working enough to gain SSDI coverage and then applying for SSDI benefits.

Unemployment Insurance. UI is a federal-state partnership providing short-term cash benefits to individuals who lose their jobs through no fault of their own, i.e. either involuntarily or voluntarily with a good cause (e.g. due to illness). Unemployed workers are eligible for UI benefits if they fulfill all monetary and non-monetary requirements. Monetary entitlement requires sufficiently high wage earnings during the first four of the last five completed calendar

quarters before the worker files a claim. Non-monetary eligibility criteria concern both the reason for job separation and ongoing claims. Weekly UI benefit formulas specify a minimum and a maximum benefit amount as well as a percentage within these boundaries. The duration of benefits is either set at a fixed level for all UI recipients (nine states), or depends on the total amount of benefits unemployed workers can receive during their eligibility period.

We determine UI eligibility based on monetary eligibility alone, because we do not know the reasons for the job separation. This leads to a relatively high estimate that 58 percent of our sample is eligible for UI at the time of application. Due to the mismeasurement in eligibility and the small overlap between SSDI applicants and UI claimants (Lindner 2011), we find a low take up rate of under 7 percent. Delaying SSDI applications until UI benefits expire might also account for this low take-up rate (Rutledge 2012).

Temporary Disability Insurance. TDI is either provided by employers or by the state. Five states mandate temporary disability insurance coverage: Rhode Island, California, New Jersey, New York, and Hawaii. In order to qualify for benefits, a worker needs to have sufficient past employment or earnings (depending on state laws) and must not be able to perform regular or customary work because of a physical or mental illness. A claimant cannot receive both UI and TDI at the same time. Benefits are calculated similarly to UI benefits but tend to be more generous.

In order to be eligible for TDI benefits, applicants must meet earnings, employment and disability criteria. We determine TDI eligibility by applying earnings and employment tests and ignoring the additional disability test, because individuals in our sample are disabled. Almost 75 percent of our sample is estimated to be eligible for the TDI at the time of application. There is no information from the SIPP on receiving TDI benefits; therefore, we cannot estimate take-up rate for this program.

Worker's Compensation. Worker's compensation is a state-mandated insurance program that provides compensation to employees who suffer job-related injuries and illnesses. Each state has its own laws and programs. Independent contractors are not entitled to worker's compensation. Since we do not know where an injury occurred, we are not able to determine the

eligibility for worker's compensation. Overall, nearly 7 percent receive benefits, which is comparable to the literature (Social Security Administration, 2010).

Spousal Insurance. The interaction of couple's labor supply has been widely discussed in the literature (Heckman 1974, for example). Couples can self-insure through intra-family labor market substitution; i.e., if one person cannot work, the other spouse can enter the labor market. This is often referred to as the added-worker effect. We measure this strategy by examining: 1) changes in marital status; 2) employment and changes in employment of the spouse; 3) earnings and changes in earnings of the spouse. At the time of application, over 60 percent of spouses are working, and the average earnings among employed spouses are $2,775 per month.

Financial Assistance from Family or Friends. Intra-household transfers have received increased attention. We measure this aspect by examining: 1) whether or not a person receives financial assistance; and 2) how much financial assistance the person receives. Overall, less than 2 percent of the sample receives transfers at the time of application, and among applicants receiving transfers, the average amount is $548 and the median is $389.

Borrowing from Credit Cards. An SSDI applicant can also borrow from credit cards to fund consumption while their application is pending. In the SIPP, respondents are asked: "*How much was owed as of the last day of the reference period for store bills or credit card bills?"* Overall, 17 percent of SSDI applicants have an outstanding balance from credit cards in the month of application, which is lower than the 20 percent for the overall SIPP sample of the same age (t=6.5). Among applicants with a credit card balance, the average balance is $3,451 and the median is $1,421.

Withdrawals from Savings or 401(k) Accounts. We measure withdrawals from savings or 401 (k) accounts from two perspectives: 1) whether there is a withdrawal; 2) how much is withdrawn. Few – one-half of 1 percent -- made withdrawals during the month of application, but withdrawals that are made are substantial (the mean amount is $8,073 and the median is $3,837).

Liquidation of Housing Assets. SSDI applicants who own a home could also can partially or fully liquidate housing assets to support the consumption. Unfortunately, only information on home ownership is available from the SIPP; therefore, we will not be able to measure partial liquidation, such as borrowing from home equity line of credit. About 61 percent of the sample own a house 12 months prior to application, and only 59 percent at the time of application are home owners.

Changing Living Arrangement. SSDI applicants could cut expenses by changing their living arrangements, such as moving into relatives' house or into lower-costs housing. The only variable that is available from the SIPP on this dimension is whether respondents change addresses. Overall, 4 percent changed their address between the month before and the month of application.

The Use of Coping Strategies at the Month of Application

The average application duration is over 6 months, or approximately 200 days, but wait times are not normally distributed. Figure 1 presents the cumulative distribution of wait times for all applications (including those still pending). The distribution is quite skewed to the left: the 25^{th} percentile is 60 days, the median wait time is 101 days, and the 75^{th} percentile is 152 days. The right tail is quite long, with 12 percent of the sample waiting at least one year, and 5 percent of the sample waiting more than two years.

Table 3.1 presents descriptive statistics at the month of application by actual application duration. Interestingly, there are not strong correlations between any of the demographic characteristics and wait times. There are a few characteristics that show a U-shaped pattern – there is a decreasing trend between no wait and up to 12 months of wait-time, but then reversing the trend among those who wait longer than 12 months before their final determination. For example, the average income is $1,116 per month for applicants whose case is determined within the first three months of applications; this slowly decreases as the wait time increases, to $846 per month for those waiting between 6-12 months. However, among those whose case takes longer than 12 months to decide, their income is back up to over $1,000 per month. This same pattern holds for employment, earnings and income at both the personal and household level, as well as percent married and percent male.

Much like with demographics, the correlations between using a certain coping strategy at the month of application and the wait time are unclear (Table 3.2). This lack of a correlation could be because of an endogeneity issue. For example, while the wait time is a function of how fast the Social Security Administration can process your claim, it is also a function of how many rounds of appeal one decides to pursue, which may be a function of the applicant's financial situation and ability to fund consumption during an appeals process. While we cannot detect much of a relationship between the initial use of coping strategies and the overall wait time, it is quite possible that the use of certain coping strategies changes as time since application progresses. In the next section, we explore how applicants use coping strategies in the months before and after their SSDI application.

The Use of Coping Strategies before and after SSDI Application

Table 4 explores changes in household income and coping strategies of our sample across seven distinct periods related to the timing of the SSDI application, ranging from 20 months before application to 20 months after application. The first is between 18 and 20 months before application. We use this period to approximate the economic status of SSDI applicants before the onset of disability began to affect various outcomes. The last period is 18-20 months after application. We use this period to approximate the status of applicants after the full application process has been completed. At this point for most applicants, either benefits have begun or respondents have learned that benefits will not be awarded and have had the opportunity to try to return to work.

Not surprisingly, the percent of applicants employed decreases over time – what is more surprising is that the decrease in employment starts immediately, even at 8-10 months before application, not just at the time of application; this finding is consistent with Lindner (2013) who documents employment transitions of SSDI applicants. Employment also continues to decline over time, but never goes to zero; 16 percent of the applicants are still employed 18-20 months after they apply for the disability program. As with participation, earnings decline over time as well, with individual earnings declining the most, but household earnings and household income dropping less severely.

Along with this decrease in earnings and income comes an increase in eligibility for needs-based assistance; the take-up rate among the eligible also increases over time.

Unemployment insurance has a humped-shape over time, with more eligible people receiving UI benefits between 10 months prior and their application, then decreasing over time as their application is reviewed and possibly UI benefits expire. Worker's compensation shows the opposite pattern, with the number of applicants receiving benefits increasing over time.

The pattern of the intra-family resources is also interesting, with the fraction of applicants who receive financial assistance from family or friends increasing over time (it declines to zero 18-20 months after application, which may due to small sample size – less than 200 people). At the same time, home ownership declines, suggesting SSDI applicants could be using housing assets to support their consumption. While applicants may borrow from credit cards or 401(k)s to fund consumption while waiting, there is no significant correlation between borrowing from other financial resources and waiting time. In addition, the probability of changing address decreases after an SSDI application.

How Is Application Duration Related to the Use of Coping Strategies?

The descriptive analysis above illustrates some interesting correlations between the wait time, demographics, and the use of a certain coping strategy. However, the pattern may be confounded by the issue of selection, on either observables or unobservables. To further explore whether and extent to which the length of wait time and other factors relate to certain coping strategies, we estimate equations of the following form:

$$Strategy_{it} = \beta_0 + \beta_1 AW_i + \beta_2 X_{it} + \gamma_t + S_t + \varepsilon_{it} \qquad (1)$$

where $Strategy_{it}$ measures each of the seven coping strategies indicated above, controlling for the actual wait time (AW_i), and individual characteristics such as age, race, education, gender, marital status, and family structure (X_{it}). Because our descriptive statistics suggest that there is a U-shaped relationship between the actual wait time and some coping strategies, we include a squared term of the actual wait time in our model. We also control for time effects by including a set of year indicator variables (γ_t). We include a set of state dummies (S_t), because the wait time for a SSDI award varies substantially, depending on where the disabled individuals live (Allsup Study 2010), and, as highlighted in the public assistance program literature, the use of need-based programs varies substantially by region and state.

Using this analytic framework, we analyze the relationship between outcomes and the wait time. In the first specification, we analyze $Strategy_{it=a}$, measuring the likelihood of using a coping strategy at the time of application as a function of total application duration (AW_i), controlling for individual characteristics. This set of analyses sheds light on how the wait time is correlated with the initial coping strategy selection. Second, we analyze the outcome $Strategy_{it}$ for all months of application as a function of total application duration (AW_i). The results of this model represent the association between the application duration and the average use of a certain coping strategy.

Finally, we analyze how coping strategy usage varies over time since application. To do so, we estimate the following regression:

$$Strategy_{it} = \beta_0 + \beta_1 AW_{it} + \beta_2 AW_i + \beta_3 X_{it} + \gamma_t + S_t + \varepsilon_{it} \qquad (2)$$

where we analyze $Strategy_{it}$ as a function of time since application (AW_{it}), controlling for total application time (AW_i). By adding total application duration fixed effects to the model, this approach explores the changes in using of coping strategies since application given the length of the overall application duration.

Table 5 summarizes regression results using an unbalanced sample, which includes both completed and right-censored observations.[8] Each column presents regression coefficients of linear probability models for the three regressions: month of application, all months of application, and months since application. Each row of the table presents different regression results for each coping strategy separately. Coefficients for binary variables are expressed as percentages. Table 5 presents the results from 52 (13 coping strategies x 3 estimation models) separate regression models.

With few exceptions, the association between using a coping strategy at the time of application and total application duration is largely absent (Table 5, Column 1). The one exception is being married: a one month longer application duration is associated with an almost 0.3 percent higher probability of being married (this effect is attenuated, but only slightly, by the squared term). However, those who are married are not more likely to have a working spouse or

[8] The detailed regression results on each coping strategy using unbalanced sample are summarized in the Appendix. We explore the potential for right censoring biasing our results in robustness tests (Table 6).

higher income through the spouse. To the contrary, the coefficients for spousal employment and spousal earnings are all negative and imprecisely measured. Other coping strategies, such as SNAP take-up or SSI take-up are positively related to a longer application duration, but the coefficients are minuscule and not significantly different from zero. Coefficients for other coping strategies such as UI take-up are negative. The lack of associations between any initial coping strategy and the final wait time suggests that applicants do not differ systematically in their initial use of coping strategies.

The second column shows corresponding results for all application months. Longer wait times are positively associated with being married, which may indicate that married people are more able to fund consumption during the appeals process. However, much like in the earlier model, spousal work or earnings are not associated with longer wait times. Change in address is also significant; applicants with long wait times are less likely to move to a different place. This finding suggests that applicants defer moving while waiting for the outcome of the SSDI application. Although most coefficients are not significant, there are some suggestive differences when comparing these results to the first model. For example, most coefficients in Column 2 tend to be a bit more positive, which suggests that people tend to use these coping strategies more as they progress through the application process. However, coefficients are also more negative for some other coping strategies, such as UI take-up, financial assistance from friends or family, change in address, and home ownership.

The fact that there remains no significant association between wait time and the average use of most coping strategies could be due to the endogeneity of the wait period. One could imagine a model in which individuals appeal the SSDI decision until they get on the rolls or exhaust all other means of funding consumption; those individuals with longer wait times will use the same coping strategies on average because they could use each one for a slightly longer period.

In the third model, we estimate the likelihood of using a coping strategy as a function of time since application, controlling for the overall application duration (Table 5, Column 3). The finding that being married is positively associated with total application duration at the month of application, but is uncorrelated with the time since application, suggests that being married is a precondition for people being able to sustain a longer application duration, though applicants do not get married in order to sustain their application. The role of a working spouse is further

corroborated by the positive and significant coefficient for spousal employment. This suggests an added worker effect: as applicants remain out of the labor market for a longer time, their spouse starts working to balance lost household income. An alternative interpretation of the coefficient could be that individuals with an initially denied application whose spouse finds employment decide to prolong their application by filing an appeal. However, the magnitude of the coefficient is still modest, implying that a three-month longer time since application is associated with about a one percent higher employment rate of a spouse.

The positive association between spousal employment and time since application also implies a positive association between spousal earnings and time since application, but the coefficient is not precisely estimated. We do not find significant differences for spousal earnings conditional on employment, suggesting that newly working spouses have similar earnings than those already working.

Turning to other income sources, one can see that both SNAP take-up and SSI take-up are positively related to a longer time since application. As with spousal employment, these coefficients are consistent with two interpretations. First, applicants increase take-up as the application goes on, or second, initially rejected applicants decide to file an appeal if they can draw from these income sources. Interestingly, for UI take-up and worker's compensation receipt, we observe negative coefficients, perhaps because people lose eligibility for these programs over time.

The last two significant coefficients concern where applicants live. The negative coefficient for a change in address suggests that applicants hold off relocating while they are in the midst of their SSDI application. However, homeowners – a majority (58 percent) of applicants – do seem to sell their home as their application duration increases. These two findings seem contradictory. One way to reconcile these differences is that homeowners tap into their home equity to fund consumption during the application process, but renters do not move, perhaps because the money saved in monthly rent is not enough to justify the fixed costs of moving. As before, the underlying reason for these findings remains unclear, i.e., it could be that people react in these ways to a pending application or that they take these steps and decide to prolong their application by filing an appeal simultaneously.

Finally, while borrowing from credit cards or self-funding consumption through 401(k) savings seems an appropriate coping strategy, especially in the short-run, there is no significant

correlation between borrowing from credit cards/ withdrawing from 401(k)s and wait period. This could be due to measurement error, or it could be that individuals applying for SSDI have limited credit or savings to tap into.

Demographic characteristics are correlated with the use of a certain coping strategy as one would expect (see Appendix). For example, age is negatively correlated with using need-based programs and changing address, but positively correlated with increasing spousal earnings. Minority, low-educated, female applicants, and those with children in the household are more likely to use need-based transfers to fund their consumption. Husbands of applicants are more likely to increase their earnings during the application process than wives of applicants. College-educated applicants see the largest increase in spousal earnings, which could reflect assortative mating and a positive association in the market wages between spouses or the lower replacement rate SSDI benefits among higher earning households. Further, higher education is associated with more borrowing from credit cards and withdrawals from 401(k)s, which likely reveals easier access to these channels of funding consumption after a disability onset.

By estimating these relationships for an unbalanced sample, we allow individuals with potentially very long wait times to influence the results. However, since the wait time is, at least to some extent, endogenous due to the decision to appeal, and applicants with a longer application duration are more likely to have some non-observed application months due to right-censoring which may potentially create biases, we test the robustness of our results by estimating these relationships on a balanced panel. This limits our sample to applicants who have a final decision on their application filed during the SIPP panel, and cuts our sample size by 15 percent. Despite these cuts and the endogeneity concern, our findings are largely consistent between samples (see Table 6). Wait time is largely not associated with initial or average coping strategies, but individuals over time are less likely to have UI income and more likely to have SNAP and SSI benefits. Further, over time SSDI applicants are less likely to change address.

Conclusion

Our analysis shows, with the exception of being married and changes in address, no strong relationship between application duration and initial or average coping strategy use. However, when we focus on the time since application, we find that some coping strategies are positively related to a longer time since application (e.g., spousal employment, SNAP and SSI

take-up, selling a home), whereas other coping strategies are negatively related to the time since application (e.g., UI take-up, change in address).

Together, these findings suggest that being married at the onset of an application is an important precondition for being able to sustain a long application period. However, the cause of this correlation remains unknown. Spouses may provide important intra-household disability insurance, or they may just allow individuals to undertake more rounds of appeal. Aside from spousal employment, there are important dynamics at play concerning government sources of income. As wait time lengthens, applicants are less likely to report receiving UI and worker's compensation benefits. Benefits from these programs are relatively high, but access for these programs is restrictive and temporary. As the application duration continues, applicants are also more likely to report income from SNAP and SSI, which are two means-tested, relatively accessible income resources with relatively small benefits (e.g., Lindner and Austin 2013). While SSDI benefits are paid to the applicant retroactively, it would be interesting to further examine how much money from these other benefit programs support long wait times within the SSDI program.

Another interesting finding is the apparently different methods for which homeowners and renters finance consumption during a long wait period. Homeowners are more likely to sell and tap into their home equity, while renters are less likely to move to avoid the cost of moving.

Our study provides a first and important step to better understanding how various coping strategies may affect application duration. However, our analysis cannot address which of the causal mechanisms underlying the found relationships are relevant. For example, applicants may decide to use more means-tested benefits as the application process continues and as other means to support their consumption dwindles, or individuals who can tap these alternative sources of income may be more likely to file appeals and lengthen their wait time. Further work to disentangle the causal mechanism is important to determine the optimal resource allocation. For instance, if long wait times cause individuals to use means-tested programs, a reallocation of funds to decrease SSDI wait would also decrease outlays for these means-tested programs. If the availability of these coping strategies is leading to more appeals, causing a longer wait time, then the decision to appeal and eventual final SSDI determination could be a function of state welfare generosities or individual characteristics, such as home ownership, not related to one's medical conditions.

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Figure 1. *The Cumulative Distribution of Waiting Times*

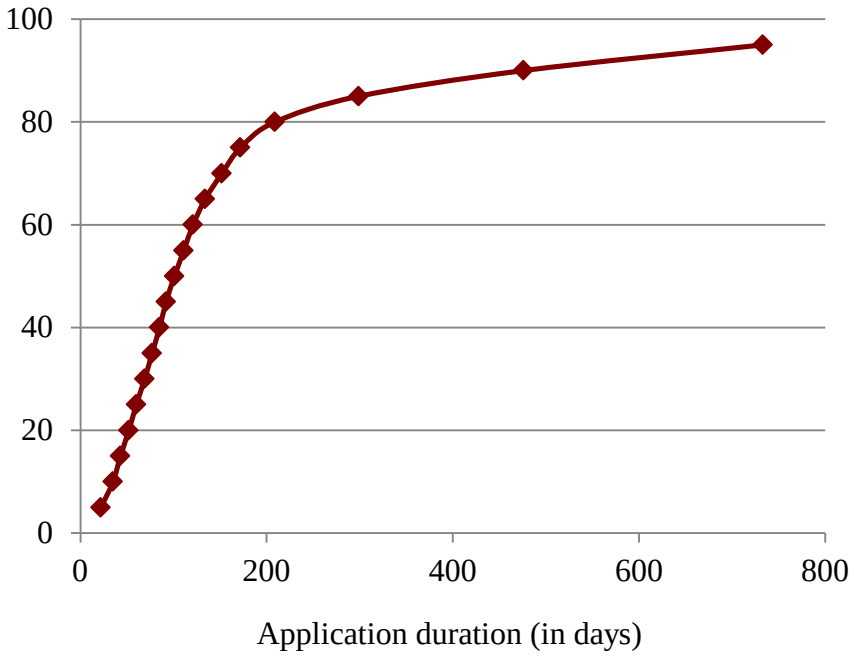

Table 1.1. *Descriptive Statistics of SSDI Applicants, at the Month of Application*

	Month of application	
	Mean	Standard deviation
Age	45	0.29
Male	53.8	1.2
Race		
White	78	0.92
Black	19.5	0.88
Other	2.5	0.33
Education		
High-school drop-out	31.6	1.02
High-school graduate	37.3	1.06
Some college	31	1.06
Marital status		
Married	50.4	1.11
Divorced	25.4	0.96
Single	19.2	0.96
Family/household structure		
Family size	2.7	0.04
Household size	2.9	0.04
Number of kids in family	0.7	0.02
Employment		
Employed this month	25.1	0.94
Income		
Income (person)	1,063	42.61
Income (household)	3,086	69.47
Earnings (monthly, person)	415	27.6
Earnings (household)	2,071	59.09
SSDI		
Application right-censored	14.6	0.78
Application duration	6.6	0.33
Joint SSDI/SSI application	47.8	1.11
N	4,594	

Table 1.2. *Descriptive Statistics of SSDI Applicants, by Age Groups, at the Month of Application*

	Age under 40		Age 40-49		Age 50+	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Age	31.1	0.26	44.6	0.13	56.6	0.13
Male	50	2.23	53.2	2.24	57.4	1.82
Race						
White	75.3	1.75	75.5	1.76	82.2	1.36
Black	22.2	1.68	22.1	1.72	15.3	1.28
Other	2.5	0.62	2.4	0.56	2.4	0.54
Education						
High-school drop-out	25.3	1.74	29.2	1.89	39.1	1.71
High-school graduate	42.6	2.02	37.1	1.94	33.1	1.64
Some college	32.1	2.07	33.6	1.89	27.8	1.6
Marital status						
Married	41.3	1.99	53.9	2.02	55.6	1.76
Divorced	17.3	1.46	30.6	1.88	27.6	1.6
Single	40.8	2.12	13	1.38	6.5	0.91
Family/household structure						
Family size	3.1	0.08	2.8	0.08	2.3	0.05
Household size	3.3	0.07	3	0.08	2.5	0.06
Number of kids in family	1.1	0.05	0.7	0.04	0.3	0.03
Employment						
Employed this month	25.9	1.73	25.4	1.78	23.4	1.44
Income						
Income (person)	814	52.48	1,016	99.58	1,301	70.21
Income (household)	2,929	115.59	2,991	141.38	3,287	112.5
Earnings (monthly, person)	400	48.37	351	45.38	465	49.29
Earnings (household)	2,141	109.29	1,987	104.63	2,072	98.14

Table 1.2. *Descriptive Statistics of SSDI Applicants, by Age Groups, at the Month of Application* (cont'd)

	Age under 40		Age 40-49		Age 50+	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
SSDI						
Application right-censored	11.7	1.26	18.3	1.54	14.1	1.33
Application duration	7.3	0.76	7.6	0.55	5.1	0.41
Month of first benefit payment	16.8	1.75	14.8	1.01	9.2	0.41
Joint SSDI/SSI application	63	1.94	49.9	2.02	34	1.66
N	1,311		1,301		1,855	

Table 1.3. *Descriptive Statistics of SSDI Applicants, 1990s vs. 2000s, at the Month of Application*

	1990s		2000s	
	Mean	Standard deviation	Mean	Standard deviation
Age	45.1	0.3	44.4	0.85
Male	55.2	1.28	47.2	3.02
Race				
White	78.1	1.03	77.8	2.01
Black	19.4	0.99	20.1	1.94
Other	2.5	0.37	2.1	0.6
Education				
High-school drop-out	33.8	1.15	21.7	2.03
High-school graduate	37.7	1.17	35.7	2.44
Some college	28.6	1.09	42.6	2.9
Marital status				
Married	51	1.21	47.7	2.75
Divorced	25.4	1.07	25	2.12
Single	18.5	0.97	22.5	2.95
Family/household structure				
Family size	2.7	0.05	2.6	0.09
Household size	2.9	0.05	2.9	0.07
Number of kids in family	0.7	0.03	0.7	0.05
Employment				
Employed this month	24.8	1.05	26.4	2.18
Income				
Income (person)	1,087	49.44	954	70.1
Income (household)	3,093	76.91	3,057	161.5
Earnings (monthly, person)	415	31.6	417	51.96
Earnings (household)	2,051	65.29	2,164	139.84
SSDI				
Application right-censored	13.6	0.83	19.5	2.19
Application duration	6.7	0.38	5.9	0.55
Month of first benefit payment	-12.7	0.63	-12.6	0.82
Joint SSDI/SSI application	47.8	1.21	47.6	2.8
N	2,058		2,536	

Table 2. *The Use of Coping Strategies at the Month of Application*

	Month of application	
	Mean	Standard deviation
Government transfers		
SNAP		
Eligibility	47.8	1.11
Take-up rate	31.8	1.48
SSI (federal and state)		
Eligibility	49.3	1.11
Take-up rate	6.8	0.8
UI		
Eligibility	58.4	1.09
Take-up rate	6.7	1.05
TDI		
Eligibility	74.6	2.13
Workers' compensation		
Recipiency	6.8	0.54
Intra-family resources		
Changing marital status		
Getting married	0	0.03
Getting divorced	0.1	0.06
Changing spousal employment		
Newly working spouse	0.9	0.25
Newly not working spouse	1.2	0.28
Spousal labor supply		
Employment	62.7	1.45
Earnings	2,775	80.48
Received financial assistance from family and friends		
Fraction	1.6	0.31
Amount	547.9	95.63
Other financial resources		
Borrowing from credit cards		
Fraction	17.1	0.82
Amount	3,451.1	278.64
Withdrawals from saving or 401(k) account		
Fraction	0.5	0.15
Amount	8,072.8	3,371.94
Home ownership	58.8	1.11
Locational changes		
Changed address	4.1	0.41
N	4,594	

Table 3.1. *Descriptive Statistics of SSDI Applicants, by Application Duration, at the Month of Applicaton*

	0-3 months		4-6 months		6-12 months		Longer than 12 months	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Age	44.8	0.41	45.1	0.5	45.6	0.92	44.9	0.98
Male	55.2	1.61	53	2.21	50.9	3.95	52.5	4.64
Race								
White	79.8	1.27	76.6	1.81	75.5	3.17	75.8	2.44
Black	17.5	1.21	21.2	1.76	21.3	3.01	22.4	2.38
Other	2.7	0.48	2.2	0.57	3.2	1.33	1.8	0.77
Education								
High-school drop-out	31.5	1.46	31.7	1.98	31.4	3.35	32.3	2.68
High-school graduate	36.9	1.5	37.3	2.04	39.6	3.6	37.3	2.73
Some college	31.6	1.55	31	1.97	29	3.55	30.4	2.53
Marital status								
Married	50.6	1.59	46.1	2.1	48.3	3.72	58.8	2.79
Divorced	23.5	1.32	26.9	1.94	28.5	3.32	27.2	2.52
Single	21.1	1.49	21.3	1.74	16	2.63	10.7	1.79
Family/household structure								
Family size	2.7	0.06	2.7	0.07	2.7	0.13	2.8	0.09
Household size	2.9	0.06	2.9	0.07	2.9	0.13	2.9	0.09
Number of kids in family	0.7	0.03	0.7	0.04	0.6	0.07	0.8	0.06
Employment								
Employed this month	25.8	1.35	23.5	1.82	21.4	2.86	27.6	2.5
Income								
Income (person)	1,116	68.12	1,028	75.69	846	89.36	1,075	91.1
Income (household)	3,166	106.23	2,992	124.07	2,846	200.57	3,125	165.55
Earnings (monthly, person)	474	43.43	363	48.26	284	66.66	383	62.95
Earnings (household)	2,170	89	1,954	106.6	1,908	187.94	2,030	141.45

Table 3.1. *Descriptive Statistics of SSDI Applicants, by Application Duration, at the Month of Applicaton* (cont'd)

	0-3 months		4-6 months		6-12 months		Longer than 12 months	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
SSDI								
Application right-censored	2.9	0.58	9.3	1.25	19.9	3.35	62.7	2.75
Application duration	1.3	0.22	4.1	0.04	8.1	0.13	28.6	1.66
Month of first benefit payment	5.4	0.31	7.8	0.37	11	0.46	29.4	1.69
Joint SSDI/SSI application	46.4	1.6	53.5	2.11	49.5	3.71	41.2	2.77
N	2,049		1,476		475		594	

Table 3.2. *The Use of Coping Strategies, by Application Duration, at the Month of Application*

	0-3 months		4-6 months		6-12 months		Longer than 12 months	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Government transfers								
SNAP								
Eligibility	47.5	1.6	48	2.12	52.6	3.73	45.3	2.8
Take-up rate	29.7	2.1	35.5	2.88	31.1	4.6	33.2	3.88
SSI (federal and state)								
Eligibility	48.2	1.6	52.3	2.11	52.2	3.72	46.1	2.82
Take-up rate	7.6	1.17	4.8	1.17	6.4	2.64	8.3	2.73
UI								
Eligibility	59.7	1.54	57.2	2.12	52.8	3.69	59.5	2.79
Take-up rate	7.1	1.79	8.1	1.59	6.2	2.49	3	1.19
TDI								
Eligibility	75.4	3.07	77.8	3.91	64.3	6.68	73.8	5.93
Workers' comp								
Recipiency	5.7	0.69	6.9	1.08	7.8	1.95	9.6	1.65
Intra-family resources								
Changing marital status								
Getting married	0	0.05	0	0	0	0	0.1	0.13
Getting divorced	0.1	0.05	0	0	0.6	0.42	0.3	0.22
Changing spousal employment								
Newly working spouse	0.9	0.36	0.5	0.33	0	0	1.7	0.87
Newly not working spouse	1.5	0.46	0.8	0.41	1.1	1.14	0.7	0.43
Spousal labor supply								
Employment	63.1	2.02	61.5	2.9	57.6	5.56	66	3.38
Earnings	2883	129.7	2719	134.03	2650	197.55	2587	159.57

Table 3.2. *The Use of Coping Strategies, by Application Duration, at the Month of Application* (cont'd)

	0-3 months		4-6 months		6-12 months		Longer than 12 months	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Receiving fin. assistance (family/friends)								
Fraction	2.2	0.53	1.1	0.46	1.4	0.89	0.9	0.48
Other financial resources								
Borrowing from credit cards								
Fraction	16	1.12	18.5	1.73	19.1	2.79	16.9	2.07
Amount	4,278.40	493.43	2,685.70	366.98	2,237.7	493.9	3,021.7	588.73
Withdrawals from saving or 401(k) account								
Fraction	0.3	0.17	0.6	0.3	0.8	0.69	0.9	0.51
Home ownership	60	1.6	57.2	2.11	51.4	3.73	62.2	2.73
Location changes								
Changed address	3.4	0.51	5.5	0.94	2.7	1.19	5	1.15
N	2,049		1,476		475		594	

Table 4. *Evolution of Household Income and Coping Strategies Before and After SSDI Application*

	Timing of SSDI application (months)						
	-18 to -20	-8 to -10	-3 to -5	-1 to 0	1 to 3	8 to 10	18 to 20
Employed this month	66.92	57.43	46.93	27.83	22.06	17.58	15.70
Earnings (person)	1,751.55	1,351.51	962.38	494.07	315.47	250.06	295.53
Earnings (household)	3,510.97	3,045.38	2,635.11	2,128.83	1,920.01	1,833.22	1,733.24
Income (person)	2,100.10	1,825.89	1,564.64	1,134.21	992.00	989.89	984.27
Income (household)	4,204.24	3,868.76	3,591.25	3,148.57	2,979.64	2,871.21	2,813.62
Government transfers							
SNAP: eligibility	29.16	34.83	39.52	46.77	48.93	47.82	48.52
SNAP: take-up	24.97	27.28	27.48	30.33	34.21	37.90	41.53
SSI (federal and state): eligibility	34.92	38.05	39.78	45.66	47.48	47.19	55.17
SSI (federal and state): take-up	6.15	6.81	5.92	6.27	7.01	10.08	21.28
TDI: eligibility	83.02	78.47	74.98	74.66	71.48	57.35	44.51
UI: eligibility	72.17	66.99	62.82	59.13	55.60	45.96	28.85
UI: take-up	3.74	5.45	6.00	6.51	5.07	1.82	0.00
Workers' comp: recipiency	2.87	6.02	6.83	6.84	6.81	9.91	7.97
Intra-family resources							
Spousal earnings	2,793.11	2,807.55	2,795.37	2,760.13	2,728.75	2,824.18	2,529.73
Receiving fin. assistance (family/friends)	0.50	0.73	1.08	1.64	2.09	2.18	0.00
Home ownership	62.47	58.79	58.19	58.72	57.68	58.82	56.14
Other financial resources							
Withdraw from saving (401K KEOGH IRA)	1.07	0.65	0.48	0.51	0.59	0.81	1.27
Whether borrowed- credit card loan	18.15	17.29	17.41	17.07	17.65	19.47	17.30
Location changes							
Changed address	5.81	4.63	4.22	3.86	1.86	1.26	1.56

Table 5. *Regression Analysis: Unbalanced Sample*

	Column 1		Column 2		Column 3
	Application begin		Application months		Application duration FE
Coping strategies	Application duration (months)	Application duration squared (months)	Application duration (months)	Application duration squared (months)	Time since application (months)
Married	0.283***	-0.001*	0.258*	-0.001	-0.082
	(0.0740)	(0.0010)	(0.1230)	(0.0010)	(0.1170)
Spousal employment	-0.083	0.000	0.164	-0.001	0.346*
	(0.1540)	(0.0010)	(0.1620)	(0.0010)	(0.1630)
Spouse earnings: level	-9.350	0.067	3.938	0.019	10.786
	(7.7731)	(0.0670)	(8.1037)	(0.0699)	(7.9889)
Spousal earnings | employment	-12.810	0.142	-4.939	0.104	-3.658
	(11.2388)	(0.1034)	(9.3040)	(0.0883)	(8.7488)
SNAP: recipiency | eligible	0.081	-0.001	0.232	-0.002	0.431*
	(0.0840)	(0.0010)	(0.1390)	(0.0010)	(0.2010)
SSI (fed): recipiency | eligible	0.018	0.001	0.141	0.001	0.328**
	(0.0800)	(0.0010)	(0.1190)	(0.0010)	(0.1030)
UI: recipiency | eligible	-0.026	0.000	-0.041	0.000	-0.283*
	(0.0320)	0.0000	(0.0380)	0.0000	(0.1140)
Workers' comp: recipiency	0.053	-0.001**	0.055	-0.001	-0.165*
	(0.0390)	0.0000	(0.0480)	0.0000	(0.0670)
Fin. assistance (family/friends): receipt	-0.006	0.000	-0.012	0.000	-0.004
	(0.0130)	0.0000	(0.0100)	0.0000	(0.0130)
Changed address	0.042	0.000	-0.033**	0.000	-0.085***
	(0.0330)	0.0000	(0.0110)	0.0000	(0.0200)
Home ownership	-0.098	0.000	-0.202	0.000	-0.339*
	(0.1070)	(0.0010)	(0.1270)	(0.0010)	(0.1330)
Withdraw from saving (401K KEOGH IRA)	0.021	0.000	0.000	0.000	-0.027
	(0.0160)	0.0000	(0.0210)	0.0000	(0.0320)
Whether borrowed- credit card loan	-0.027	0.000	0.061	-0.001	0.030
	(0.0860)	(0.0010)	(0.0870)	0.0000	(0.1320)

Table 6. *Regression Analysis: Balanced Sample*

	Column 1		Column 2		Column 3
	Application begin		Application months		Application duration FE
Coping strategies	Application duration (months)	Application duration squared (months)	Application duration (months)	Application duration squared (months)	Time since application (months)
Married	0.497***	0.002	0.345	0.008	-0.077
	-0.134	-0.001	-0.374	-0.012	(0.0990)
Spousal employment	-0.587	0.026	0.720	-0.015	0.131
	-0.378	-0.014	-0.565	-0.019	(0.1940)
Spouse earnings: level	-29.074	1.287	38.424	-0.819	-1.619
	-18.089	-0.659	-24.892	-0.799	(8.2247)
Spousal earnings | employment	-19.836	0.657	14.597	-0.351	-5.993
	-21.808	-0.747	-23.502	-0.693	(9.8808)
SNAP: recipiency | eligible	0.306	0.001	0.201	0.021	0.443*
	-0.182	-0.002	-0.557	-0.018	(0.2250)
SSI (fed): recipiency | eligible	-0.258	-0.002	-0.266	0.004	0.440**
	-0.132	-0.001	-0.241	-0.007	(0.1350)
UI: recipiency | eligible	0.131	0.001	-0.096	-0.001	-0.331***
	-0.130	-0.001	-0.218	-0.008	(0.0990)
Workers' comp: recipiency	0.097	0.000	0.348	-0.010	-0.098
	-0.083	-0.001	-0.228	-0.007	(0.1020)
Fin. assistance (family/friends): receipt	-0.036	0.000**	-0.036	0.001	-0.027
	-0.018	0.000	-0.040	-0.001	(0.0250)
Changed address	0.123	0.001	-0.096*	0.002	-0.161***
	-0.074	-0.001	-0.041	-0.001	(0.0350)
Home ownership	-0.276	-0.002	-0.685	0.010	-0.156
	-0.138	-0.001	-0.426	-0.014	(0.1110)
Withdraw from saving (401K KEOGH IRA)	0.038	0.000	0.130	-0.004	-0.028
	-0.038	0.000	-0.123	-0.003	(0.0390)
Whether borrowed- credit card loan	-0.037	-0.001	0.338	-0.006	0.150
	-0.138	-0.001	-0.380	-0.013	(0.1390)

Appendix Table 1. *Unbalanced Sample*

	Covariates				
OUTCOME VARIABLE	Time since application	Age	Male	Black	Other
Married	0.003	0.008 ***	0.102 ***	-0.205 ***	-0.023
	(0.0017)	(0.0009)	(0.0182)	(0.0239)	(0.0375)
Spousal employment	0.003	-0.003	-0.090 ***	0.006	-0.052
	(0.0019)	(0.0015)	(0.0257)	(0.0360)	(0.0561)
Spouse earnings: level	7.670	6.632	-939.660 ***	-143.152	376.150
	(8.8711)	(6.6332)	(129.9988)	(180.9659)	(488.2769)
Spousal earnings | employment	-4.224	25.843 **	-1090.000 ***	-190.449	714.146
	(9.4562)	(7.9212)	(142.9882)	(189.1865)	(583.1332)
SNAP: recipiency | eligible	0.005 *	-0.004 **	-0.104 ***	0.132 ***	0.108 *
	(0.0021)	(0.0012)	(0.0231)	(0.0272)	(0.0493)
SSI (fed): recipiency | eligible	0.004 **	-0.002 *	0.006	0.007	0.035
	(0.0014)	(0.0008)	(0.0156)	(0.0205)	(0.0389)
UI: recipiency | eligible	-0.002 *	-0.001 *	0.018 *	-0.007	-0.008
	(0.0009)	(0.0005)	(0.0088)	(0.0105)	(0.0217)
Workers's comp: recipiency	0.000	0.000	0.010	-0.014	0.017
	(0.0005)	(0.0004)	(0.0087)	(0.0097)	(0.0237)
Fin. assistance (family/friends): recipiency	0.000 *	0.000	0.000	-0.001	-0.003
	(0.0001)	(0.0002)	(0.0024)	(0.0029)	(0.0051)
Changed address	-0.001 ***	-0.001 ***	0.003	-0.001	0.002
	(0.0002)	(0.0001)	(0.0021)	(0.0028)	(0.0057)
Home ownership	-0.005 **	0.008 ***	-0.016	-0.105 ***	-0.055
	(0.0016)	(0.0010)	(0.0184)	(0.0236)	(0.0416)
Withdraw from saving (401K KEOGH IRA)	0.000	0.001 ***	-0.004	-0.002	-0.006
	(0.0003)	(0.0003)	(0.0046)	(0.0062)	(0.0061)
Whether borrowed- credit card loan	0.001	0.001	-0.065 ***	-0.047 *	0.002
	(0.0014)	(0.0008)	(0.0150)	(0.0197)	(0.0359)

Appendix Table 1. *Unbalanced Sample* (cont'd)

	Covariates						
OUTCOME VARIABLE	High-school graduate	Some college	Family size	Number of kids in family	Windowed	Divorced/ separated	Single
Married	0.009	0.069 **	0.215 ***	-0.158 ***			
	(0.0252)	(0.0250)	(0.0099)	(0.0145)			
Spousal employment	0.098 **	0.132 ***	-0.013	0.008			
	(0.0370)	(0.0370)	(0.0149)	(0.0203)			
Spouse earnings: level	334.261 *	933.800 ***	11.226	-77.953			
	(136.0140)	(153.1445)	(75.3818)	(102.9364)			
Spousal earnings | employment	179.915	913.598 ***	-5.644	-110.689			
	(149.0206)	(172.6212)	(93.4987)	(129.6577)			
SNAP: recipiency | eligible	-0.108 ***	-0.137 ***	-0.089 ***	0.156 ***	0.075	0.206 ***	0.123
	(0.0292)	(0.0285)	(0.0137)	(0.0175)	(0.0573)	(0.0289)	(0.0354)
SSI (fed): recipiency | eligible	-0.035	-0.061 **	-0.002	0.009	0.070	0.038 *	0.099
	(0.0190)	(0.0199)	(0.0081)	(0.0110)	(0.0424)	(0.0172)	(0.0247)
UI: recipiency | eligible	-0.008	-0.007	-0.010 *	0.004	-0.031	0.017	-0.022
	(0.0122)	(0.0126)	(0.0047)	(0.0061)	(0.0213)	(0.0116)	(0.0135)
Workers's comp: recipiency	-0.008	-0.009	-0.008	0.009	-0.044 **	-0.035 ***	-0.051
	(0.0131)	(0.0128)	(0.0046)	(0.0061)	(0.0169)	(0.0104)	(0.0119)
Fin. assistance (family/friends): recipiency	-0.001	0.002	-0.005 ***	0.005 **	-0.007 *	0.003	0.002
	(0.0031)	(0.0034)	(0.0011)	(0.0018)	(0.0033)	(0.0030)	(0.0039)
Changed address	-0.002	-0.004	-0.004 **	0.006 ***	0.006	0.010 ***	0.002
	(0.0030)	(0.0030)	(0.0012)	(0.0017)	(0.0054)	(0.0028)	(0.0035)
Home ownership	0.120 ***	0.172 ***	0.117 ***	-0.154 ***	-0.017	-0.162 ***	-0.092
	(0.0253)	(0.0246)	(0.0100)	(0.0137)	(0.0542)	(0.0240)	(0.0292)
Withdraw from saving (401K KEOGH IRA)	0.006 *	0.017 ***	-0.001	0.000	-0.008	0.001	0.003
	(0.0027)	(0.0047)	(0.0017)	(0.0020)	(0.0079)	(0.0063)	(0.0060)
Whether borrowed- credit card loan	0.044 *	0.118 ***	-0.015	0.005	0.147 ***	0.122 ***	0.081
	(0.0179)	(0.0195)	(0.0086)	(0.0121)	(0.0428)	(0.0198)	(0.0240)

Appendix Table 2. *Balanced Sample*

	Covariates				
OUTCOME VARIABLE	Time since application	Age	Male	Black	Other
Married	0.006 ***	0.008 ***	0.088 ***	-0.212 ***	-0.020
	(0.0017)	(0.0009)	(0.0174)	(0.0224)	(0.0382)
Spousal employment	0.004	-0.003	-0.075 **	-0.018	-0.023
	(0.0026)	(0.0016)	(0.0270)	(0.0398)	(0.0542)
Spouse earnings: level	12.873	5.464	-895.151 ***	-159.218	180.217
	(12.9184)	(7.0970)	(139.7725)	(198.9188)	(520.7827)
Spousal earnings | employment	0.609	25.440 **	-1069.000 ***	-57.091	365.313
	(11.4360)	(8.3645)	(152.4778)	(213.8473)	(619.2723)
SNAP: recipiency | eligible	0.011 ***	-0.004 **	-0.124 ***	0.131 ***	0.119
	(0.0024)	(0.0013)	(0.0251)	(0.0291)	(0.0532)
SSI (fed): recipiency | eligible	0.001	-0.001	0.010	0.010	0.049
	(0.0012)	(0.0007)	(0.0118)	(0.0158)	(0.0361)
UI: recipiency | eligible	-0.003 ***	-0.001 *	0.020 *	-0.015	-0.007
	(0.0007)	(0.0005)	(0.0102)	(0.0119)	(0.0258)
Workers's comp: recipiency	0.000	-0.001	0.021 *	-0.014	0.035
	(0.0007)	(0.0004)	(0.0087)	(0.0096)	(0.0275)
Fin. assistance (family/friends): recipi	0.000 *	0.000	0.000	-0.002	-0.003
	(0.0001)	(0.0002)	(0.0027)	(0.0034)	(0.0062)
Changed address	-0.001 ***	-0.001 ***	0.002	-0.002	0.000
	(0.0002)	(0.0002)	(0.0024)	(0.0033)	(0.0056)
Home ownership	-0.005 *	0.008 ***	0.000	-0.125 ***	-0.022
	(0.0020)	(0.0010)	(0.0185)	(0.0233)	(0.0434)
Withdraw from saving (401K KEOGH IRA)	0.000	0.001 ***	-0.005	0.000	-0.002
	(0.0005)	(0.0003)	(0.0047)	(0.0078)	(0.0073)
Whether borrowed- credit card loan	0.002	0.001	-0.061 ***	-0.051 *	-0.004
	(0.0019)	(0.0008)	(0.0160)	(0.0206)	(0.0372)

Appendix Table 2. *Balanced Sample* (cont'd)

	Covariates						
OUTCOME VARIABLE	High-school graduate	Some college	Family size	Number of kids in family	Windowed	Divorced/ separated	Single
Married	0.007	0.064 **	0.221 ***	-0.157 ***			
	(0.0235)	(0.0237)	(0.0098)	(0.0142)			
Spousal employment	0.053	0.096 *	-0.017	0.006			
	(0.0376)	(0.0381)	(0.0152)	(0.0207)			
Spouse earnings: level	285.799 *	842.487 ***	-32.518	-70.636			
	(139.7254)	(156.9988)	(70.5121)	(87.6105)			
Spousal earnings | employment	273.731	907.260 ***	-59.470	-80.056			
	(153.8772)	(174.2699)	(91.0455)	(118.7141)			
SNAP: recipiency | eligible	-0.119 ***	-0.140 ***	-0.083 ***	0.154 ***	0.094	0.209 ***	0.140
	(0.0304)	(0.0311)	(0.0142)	(0.0177)	(0.0550)	(0.0317)	(0.0363)
SSI (fed): recipiency | eligible	-0.016	-0.045 **	-0.001	0.012	0.037	0.037 **	0.078
	(0.0156)	(0.0158)	(0.0063)	(0.0107)	(0.0249)	(0.0137)	(0.0175)
UI: recipiency | eligible	-0.004	-0.006	-0.010	0.005	-0.031	0.013	-0.028
	(0.0136)	(0.0142)	(0.0056)	(0.0074)	(0.0252)	(0.0137)	(0.0158)
Workers's comp: recipiency	-0.014	-0.014	0.000	-0.004	-0.018	-0.024 *	-0.047
	(0.0144)	(0.0139)	(0.0049)	(0.0065)	(0.0188)	(0.0104)	(0.0114)
Fin. assistance (family/friends): recipi	-0.002	-0.001	-0.006 ***	0.006 **	-0.008	0.000	0.001
	(0.0036)	(0.0039)	(0.0014)	(0.0022)	(0.0042)	(0.0034)	(0.0047)
Changed address	-0.001	-0.002	-0.004 *	0.005 *	0.003	0.011 **	0.001
	(0.0032)	(0.0032)	(0.0014)	(0.0020)	(0.0062)	(0.0033)	(0.0039)
Home ownership	0.113 ***	0.142 ***	0.105 ***	-0.151 ***	-0.002	-0.189 ***	-0.102
	(0.0250)	(0.0249)	(0.0099)	(0.0140)	(0.0517)	(0.0238)	(0.0290)
Withdraw from saving (401K KEOGH IRA)	0.006	0.017 **	-0.002	0.001	-0.011	0.003	0.007
	(0.0031)	(0.0053)	(0.0018)	(0.0022)	(0.0068)	(0.0073)	(0.0073)
Whether borrowed- credit card loan	0.026	0.103 ***	-0.010	0.004	0.163 ***	0.122 ***	0.079
	(0.0196)	(0.0211)	(0.0093)	(0.0126)	(0.0419)	(0.0211)	(0.0244)

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