

Work Transitions among SSI and SSDI Recipients Nearing Retirement: Employer Accommodations, Private Insurance, and Individuals with Mental Health Disability

Mitzi K. Lauderdale, J.D., CFP®  
Doctoral Student  
Kansas State University

Stuart J. Heckman, Ph.D., CFP®  
Assistant Professor and Faculty Mentor  
Kansas State University

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## Abstract

Disability diagnoses and US disability program expenditures have been on the rise for several decades. Despite a leveling off in 2015, a great burden continues to be placed on both the Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) program funds. Even after the Americans with Disability Act of 1990, employment rates and workplace accommodations among disabled individuals remain low. Demand for private long-term care insurance remains low while the need to receive care for the long-term is on the rise. Individuals with mental illness are the fastest growing segment of SSI and SSDI recipients. Individuals with mental illness are less likely to receive work accommodations and face greater stigmas due to their disability. Using Mitra's (2006) adaptation of the capability approach and panel data from the Health and Retirement Study (HRS) and psychosocial leave behind survey, this study explores individuals nearing retirement and their use of SSI and/or SSDI. Three random effects logistic regressions were employed to predict use of a) SSI and/or SSDI (Model 1), b) SSDI (Model 2), and c) SSI (Model 3). Private long-term care insurance, employer provided health insurance, personality traits (Big 5 traits), and psychiatric diagnosis were examined in the regressions. As Mitra suggests in the capability approach, the choices an individual makes can result in actual functioning or lack thereof. Those who have a psychiatric diagnosis have significantly higher odds of using SSI and/or SSDI. Having access to employer or spousal employer healthcare insurance and being higher on the Big 5 conscientiousness scale reduces the odds of using SSI and/or SSDI while an increase in the Big 5 agreeableness increases the odds of using SSI and/or SSDI. Lastly, choosing to purchase private long term care insurance significantly lowers the odds of using SSI. Policy implications were identified including incentives for individuals and/or employers to carry or provide private long-term care and health insurance for families, and continuing higher education incentives which all could result in some relief to the SSI and SSDI program funds.

## Background

### Introduction

Disability diagnoses affect an estimated 13% of the US population (Erickson, Lee, & von Schrader, 2018). The financial cost of having a disability varies in impact on the individual, family, and community depending on one's employability and severity of disability. Disability diagnoses and US disability program expenditures were on the rise for several decades. Despite some leveling out, the Social Security Disability Insurance Trust Fund is fiscally imbalanced and estimated to be depleted by 2032 (Social Security and Medicare Boards of Trustees, 2018).

Demand for private long term care insurance remains low, yet the demand for long term care service is rising along with the number of disabled individuals and individuals nearing retirement. Some research suggests individuals are less likely to have long term care insurance if they believe there is a substitute for the coverage (Brown, Goda, & McGarry, 2012). Other studies examined the demand effects of private long term care insurance and found Medicare and Medicaid to be considered substitutes for private long term care insurance and used it to explain why wealthy individuals were less likely to purchase private long term care insurance even though they were the ones who have the means to do so (Brown & Finkelstein, 2008; Pauly, 1990). Unfortunately, those considering Medicare as a substitute are mistaken as to the coverage provided.

Personality traits have been studied extensively by psychologists (Caspi, Roberts, & Shiner, 2005) and applied across many other fields and to predict important life outcomes (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007). The Big 5 personality traits of extroversion, agreeableness, conscientiousness, openness to experience, and neuroticism are constructs which have been tested on adults and children, across cultures, and as individuals age (Mroczek, Spiro, & Griffin, 2006). As it relates to disability, researchers found that one's specific personality trait of agreeableness prior to a disability onset can influence their adaptation and recovery of life satisfaction (Boyce & Wood, 2011).

This study explores SSI and SSDI usage by examining whether having private long term care insurance, employer provided health insurance from the respondent's or spouse's employer, having received a mental health diagnosis, and variations among personalities (Big 5 traits) predict usage. Three random effects logistic regressions were employed to predict use of a) SSI and/or SSDI (Model 1), b) SSDI (Model 2), and c) SSI (Model 3).

### Literature Review

US disability program expenditures place a great burden on the Supplemental Security Income (SSI) and Social Security Disability Insurance (SSDI) program funds. The SSDI Trust Fund is funded through social security disability insurance payments by workers and employers, and SSDI qualification is based on entitlement through having paid into the fund. While the total blind and disabled SSI expenditures began leveling out in 2015, expenditures on behalf of individuals aged 50 and above have continued to rise (2017 Annual Report of the SSI Program). SSI recipients qualify based on being blind or disabled or alternatively by reaching age 65. In

addition, an income test and asset test must be met to qualify for the benefits. Since this is a form of welfare, the benefits put strains on the general funds from the US Treasury to fund Supplemental Security Income (SSI).

Researchers have found that even though capacity has diminished for many recipients, disabled individuals often have remaining work capacity and the receipt of disability benefits could discourage labor force participation (Maestas, Mullen, & Strand, 2013). Mental illnesses comprise the largest group of those receiving SSI and SSDI, have surpassed growth in other categories, and many recipients who identify primarily with other types of disabilities are also facing psychiatric comorbidities which present problems returning to the labor force (McAlpine & Warner, 2000).

Long-term care insurance policies are available for purchase as private insurance and Medicaid provides long-term care benefits for SSI participants. Some researchers have suggested that private long-term care insurance for less affluent individuals has been crowded out by Medicaid (Sloan & Norton, 1997). Demand for private long-term care insurance in elder law planning often includes legal spend down plans to qualify for SSI in order to obtain long term care coverage. Once an individual is qualified for SSI, they are qualified for Medicaid long-term care benefits. If individuals had quality private long-term care benefits, the need to spend down assets and qualify for Medicaid would lessen. According to the Genworth Cost of Care Survey (2016), the median semi-private nursing care costs \$6,844 per month and median private room cost \$7,698 per month and costs are rising rapidly. Long-term care is usually needed for most types of disabilities and includes mental illnesses.

Individuals with mental illness are often undiagnosed. However, even if diagnosed, they often withhold the diagnosis from family, friends, and employers due to strong social stigmas. Some researchers have even suggested referring to mental illnesses as brain diseases due to the stigma and discrimination related to mental illnesses (Corrigan & Watson, 2004). Despite legislative efforts to decrease discrimination of disabled individuals in the workplace, employment rates of disabled individuals have remained low despite the fact that an overwhelming majority of unemployed disabled workers say they prefer to work (Unger, 2002). While work does consume a lot of one's time, it also plays a vital role in maintenance of mental health, development, and expression (Blustein, 2008). Working can provide more than economic value to individuals and has been shown to extend to life satisfaction, especially among those with mental illness (Laughlin & Cotton, 1994).

The Americans with Disability Act of 1990 (ADA) requires employers to provide reasonable accommodations to disabled individuals as long as it does not cause an undue burden to the employer (Stein, 2003). Even after ADA, employment rates of disabled individuals remains low (Burkhauser & Stapleton, 2004; Solovieva, Dowler, & Walls, 2011). Accommodations in the workplace to support individuals with disability have been shown to delay the timing of applications for SSDI (Burkhauser, Butler, Kim & Weathers, 1999) and researchers suggest those who receive employer accommodations are 40% more likely to postpone their exit from the labor market for up to two years (Hill, Maestas, & Mullen, 2016).

Furthermore, employers who make accommodations report direct benefits such as employee retention, reduction in training costs, and increased worker productivity resulting in an average of \$1,000 savings per employee along with indirect benefits such as morale, coworker interactions, and overall productivity (Solovieva, Dowler, & Walls, 2011). Hill et al. (2016) also found employee personality types were highly predictive of whether an employer provided accommodations or not. While only a quarter of employers provide accommodations for disabled workers over the age of 50, employees may be partially responsible because many do not ask for accommodations (Hill, Maestas, & Mullen, 2016). Individuals with disability are more likely than those without disability to be in part-time or contingent jobs and Schur (2003) suggested this is due to the income limitations placed on individuals receiving SSI and SSDI, employer discrimination, and actual disability limitations preventing full time employment.

This study investigates individuals nearing retirement and their use of SSI and/or SSDI. Research questions are focused on how having long term care insurance, access to employer provided (respondent or spouse) health insurance, having a diagnosed mental illness, and varying levels or personality traits related to the use of SSI and/or SSDI.

## **Theoretical Framework**

Theoretical approaches have varied among researchers when examining disability, but most commonly used have been disability models including the medical model, the social model, and the Nagi Model (Altman, 2001; Mitra, 2006). Others have utilized economic models such as the life cycle hypothesis (Low & Pistaferri, 2010). Bernell (2003) reviewed disability definitions, disability theories, and disability laws and provided a four pronged approach to defining disability. Bernell synthesized definitions and suggested the inclusion of (a) the presence of a physical or mental condition, (b) receipt of disability benefits, (c) measures of functional ability, including work, and (d) accommodation and type of accommodations in the workplace.

The capability approach was recommended by Mitra (2006) over medical models because it is more comprehensive and takes into account a variety of factors including resources available, the environment and personal characteristics. The capability model, shown in Figure 1, can be applied to disability and focuses more on capabilities which lead to functioning. The capability model incorporates all of Bernell's (2003) recommendations and is much more comprehensive. Ultimately, Mitra (2006) suggests disability can be analyzed as deprivation of capabilities (potential disability) or a deprivation of functioning (actual disability). The difference between capabilities and functioning are one's choices or adjustments based on values. According to Mitra (2006), adjustments to abilities are sometimes made in the face of deprivation.

Based on literature reviewed and Mitra's capability approach, I hypothesize that individuals without long term care insurance will have higher odds of utilizing SSI. In general, utilization of government benefits will vary among personality traits. More specifically, individuals with higher levels of extroversion, agreeableness, conscientiousness, and openness will have lower odds of utilizing SSI and/or SSDI and individuals with higher levels of neuroticism will have higher odds of utilizing SSI and/or SSDI. Lastly, it is expected that individuals with health insurance coverage provided by their spouse's or one's own employer will have lower odds of using SSI and/or SSDI.

### **Research Design, Methods and Data Analysis**

The Health and Retirement Study (HRS) is the largest comprehensive, nationally representative longitudinal panel survey of Americans over the age of 50. Panel interviews were conducted every other year of the first cohort since 1992. Other cohorts were added totaling seven cohorts, and a continued plan to add new younger cohorts every six years. Respondents provided detailed information on health, psychosocial information, employment history, financial information, demographic information, and benefits details for SSI and SSDI on the respondent and spouse which makes the data ideal for this study. The RAND Center for the Study of Aging, with funding from the National Institute on Aging and the Social Security Administration, generates a cleaned and user friendly version of the HRS. The RAND data were merged with the psychosocial leave behind files and core content related to work accommodations found in the core M1 files.

Some respondents authorized administrative data links to the Social Security Administration (SSA) which was utilized as a follow up to compare the analysis using the self-reported data in the publicly available set to the SSA linked data for SSI. In phase two of the project, the publicly available data was utilized and later combined with the restricted data for further in depth analysis into SSI usage. Literature suggests there may be a selection issue with someone opting into the linked data by providing permission. Those with administrative links have been found to have greater education and higher levels of income than those without links (Kapteyn, Michaud, Smith, and Van Soest, 2006). If only the linked data were used, this would have needed to be taken into account and addressed by a selection model. However, the linked data were combined with the publicly available data and simply used to clarify some missing data related to the dependent variables. The HRS data are publicly available, but the SSA linked data requires a restricted data application (RDA) for a license. IRB and MiCDA enclave approvals were obtained for the second phase of the research where the restricted data were incorporated.

The data used in the following five models come from five different waves collected every other year from 2006-2014. The full sample during this decade includes approximately 20,000 respondents. The sample in these models were restricted to respondents under the age of 65 reducing the sample to approximately 7,000 individuals between the age of 50 and 65. Under 65 was the population of interest because SSI becomes available to individuals without disability after the age of 65 based on the income and asset requirements and SSDI is only available until an individual reaches full retirement age which varies among respondents but all exceed 65 years. The psychosocial leave behind questionnaires were only administered to 50% of the sample each wave, conducted every other year, and were combined into time invariant variables derived out of years 2008 and 2010.

Three separate models were employed with different dependent variables with consistent variables of interest and control variables with one fewer variable of interest in Model 3. The capability approach was operationalized using commodities/resources of household income, household net worth, health insurance, and long term care benefits. Environment factors addressing physical, social, economic, cultural, political included race and census region. Personal characteristics included variables for psychiatric diagnosis, health status, gender, education,

marital status, and Big 5 personality traits. Capabilities were measured by time variant labor forces status. Lastly, functioning was measured by the use of SSI and/or SSDI benefits.

### Dependent Variables

*Model 1: Use of SSI and/or SSDI.* The binary variable was coded as 1 for each wave if the respondent reported they were applying for SSI, receiving SSI, applying for SSDI, applying for both, applying for SSDI/receiving SSI, receiving SSDI, receiving SSDI/applying for SSI, receiving SSDI and SSI, applying but don't know which, or receiving but don't know which. One of the biggest differences in the dependent variable for Model 1 when compared to Models 2 and 3 are two response options of *applying but don't know which* (SSI or SSDI) and *receiving but don't know which* (SSI or SSDI). Application and receipt of benefits were both included because they are both an intentional choice to use the benefits.

*Model 2: Use of SSI.* The binary variable was coded as 1 for each wave if the respondent reported they were applying for SSI, receiving SSI, applying for both, applying for SSDI/receiving SSI, receiving SSDI/applying for SSI, and receiving SSDI and SSI.

*Model 3: Use of SSDI.* The binary variable was coded as 1 for each wave if the respondent reported they were applying for SSDI, applying for both, applying for SSDI/receiving SSI, receiving SSDI, receiving SSDI/applying for SSI, and receiving SSDI and SSI.

The *n* varies across waves by decreasing due to panel attrition and increasing due to additions of new cohorts. As show in Table 1, all three models show an increase in usage over time, with Model 1 showing the largest increase (5%).

Table 1  
*Descriptive Statistics for Dependent Variables Across Waves*

	2006 <i>n</i> = 7069	2008 <i>n</i> =5867	2010 <i>n</i> =11,084	2012 <i>n</i> =9806	2014 <i>n</i> =8362
Uses SSDI and/or SSI (Model 1)	11.50%	11.97%	13.33%	14.84%	16.47%
Uses SSI (Model 2)	3.11%	3.51%	4.11%	5.11%	5.36%
Uses SSDI (Model 3)	9.15%	9.49%	11.43%	12.02%	13.81%

Sources: Health and Retirement Study, RAND HRS 2006-2014 and Psychosocial Leave Behind 2008/10

### Variables of Interest

Long term care insurance was a binary time varying variable where *yes* = 1 and *no* = 0. Any responses of *don't know* were left as missing. While one could suggest that not knowing could be the same as not having insurance when trying to predict usage of benefits, however, this decision was made because it is possible an individual was receiving advice from others who do know about their insurance and factored it into their recommendations.

Health insurance was a time varying binary variable where individuals who had insurance due to their own employer, their spouse's employer, or covered but don't know whether by employer or not were coded as 1. Those without were coded as 0.

Psychiatric diagnosis was time invariant and binary where if the respondent was asked every wave if they have ever been told by a doctor that they had psychiatric problems they were coded as 1 and if not they were 0. Missing and don't know responses were left as missing responses.

Big 5 personality traits were pulled from the psychosocial leave behind survey. Since only 50% of respondents were interviewed each wave (every other year), responses from 2008 and 2010 were combine to create a time invariant variable for each trait; extroversion, agreeableness, conscientiousness, openness to experience, and neuroticism. Each scale was coded based on the guidance of Smith et al. (2013) and ranged from 1 – 4, where 1 = not at all, 2 = a little, 3 = some, and 4 = a lot. While some researchers have found personality traits to change over time due to sudden life events and can be curvilinear in some cases, they also found a peak is reached between age 40 and 60 (Specht, Egloff, & Schmukle, 2011). A longer standing belief is that personality traits are relatively stable over time (Roberts, Wood, & Caspi, 2008). Given this time frame only covers one decade and the well-grounded research that personalities are relatively stable, it was decided to create this variable as time invariant.

Extroversion included sub-dimensions of outgoing, friendly, lively, active, and talkative. Agreeableness included sub-dimensions of helpful, warm, caring, softhearted, and sympathetic. Conscientiousness included the sub-dimensions of organized, responsible, hardworking, careless (reverse coded), and thorough. Openness to experience included the sub-dimensions of creative, imaginative, intelligent, curious, broadminded, sophisticated, and adventurous. Neuroticism included the sub-dimensions of moody, worrying, nervous, and calm (reverse code).

A scale for each trait was created by calculating the means of the sub-dimension within a given trait for each respondent, shown in Table 2. For each scale, the trait was set to missing if more than half of the items had missing values in within each sub-dimension. All sub-dimensions except for careless and calm were on a scale of 1 – 4, where 1 = not at all, 2 = a little, 3 = some, and 4 = a lot. Careless and calm were reverse coded.

Employer accommodations represented two different variables explored. The first was whether an employer provided accommodations at the onset of disability limiting one's ability to work and if a current employer is providing accommodations. While the variables were not ultimately utilized in the models several efforts were made to incorporate them into the analysis.

### **Control Variables**

Income was used as a time varying continuous control variable. In order to provide a normal distribution, the income was logged. To avoid the issue of logging a zero, \$1 was added to the income variable. Also time varying and continuous was net worth. Net worth was transformed using the inverse hyperbolic sine to allow for utilization of negative net worth responses (*see* Pence, 2006).

Labor force had the reference category of disabled and the other categories included full time, part time, unemployed, part time retired, retired, and not in labor force. Another categorical variable was marital status. Married was the reference group and compared to partnered, divorced or separated, widowed, and never married. Divorced and separated were combined because they are similar in that the single economic unit concept no longer fits and a built in physical/social support system is not present.

Self-reported health was a continuous time variant variable and reverse coded to be ordered poor (1) to excellent (5). Gender was included as a time invariant binary control variable where male = 1 and female = 0. A categorical variable of race included White as the reference group compared to Black and other. Education in years was included as a time invariant continuous variable. Census region was in categories of Northeast, Midwest, South, and West with South being the reference group. Due to the small number of *other* responses and not wanting to exclude them, individuals with *other* as a response were combined with West.

### Empirical Models

With the longitudinal nature of the data available, need for some time invariant variables to operationalize the theory, and a desire to determine the main effect of both time varying and time invariant characteristics, random effects (or random slopes) logistic regression models were estimated. Three random effects logit models were calculated as follows:

$$\log\left(\frac{P_{it}}{1 - P_{it}}\right) = \mu_t + \beta x_{it} + \gamma z_i + \alpha_i$$

Where  $P_{it}$  is the probability householder  $i$  exhibits a characteristic in wave  $t$ ,  $x_{it}$  is a vector of time-varying household characteristics,  $z_i$  is a vector of time-invariant household characteristics, and  $\alpha_i$  is a random variable representing all differences between individuals that are stable over time and not accounted for by  $\gamma z_i$ .

### Findings/Results

The sample across the decade had a median age ranging from 56 to 58, were mostly married (60.6-70.9%), White (76.6%), female (61.51%), employed full time (45.54-48.82%) or retired (18.67-26.07%), had a median of 13 years of education, and almost a quarter (24.35%) had been told by a doctor that they suffered from a psychiatric diagnosis at one time in their life. As shown in Table 2, individuals having long term care insurance ranged over time from 8% to over 10% and employer provided health insurance coverage varied over time from approximately 55% – 69% of respondents.

Model 1, shown in Table 3, predicted use of SSI and/or SSDI in individuals aged 50-65 and presented significant findings. With a *rho* of .9147, the model suggested approximately 92% of variation in outcome was due to individual changes over time. Individuals with health insurance provided by a spouse's or one's own employer had approximately 93% lower odds of using SSI or SSDI than individuals who did not. Those with a psychiatric diagnosis from anytime in their lifetime had over 17 times the odds of using SSI and/or SSDI than someone without a diagnosis.

An individual with a unit increase on the Big 5 Agreeableness scale (1-4) had 2.7 times the odds of using SSI and/or SSDI. However when separated into Model 2 (Table 4) and Model 3 (Table 5) it was no longer significant. With a unit increase in the Big 5 Conscientiousness scale (1-4) an individual had approximately 82% lower odds of using SSI or SSDI.

Marital status played a very important role in use of benefits; divorced/separated and partnered had almost 5 times higher odds of using SSI and/or SSDI than married individuals and never married had over 5 times the odds over married individuals. For each additional year of education achieved, an individual had approximately 17% lower odds of using SSI and/or SSDI. Each wave when compared to the first wave had 1 to 4 times the odds of using SSI and/or SSDI.

Model 2, shown in Table 4, predicts usage of SSI. The only difference in the setup from Model 1 to Model 2 is the independent variable. Model 2 had a *rho* of .7819 suggesting approximately 78% of variation in the outcome was due to individual changes over time in this model. Health insurance and psychiatric diagnosis continued to be significant predictors. Unique to Model 2 (Table 4), individuals with long term care insurance had approximately 67% lower odds of using SSI than individuals without. While this was not significant in Model 1 with SSI and SSDI combined it is significant when predicting SSI usage alone. As mentioned previously, agreeableness was no longer significant in this separate SSI model when it was in the combined SSI and/or SSDI model. Also different was only wave 4 when compared to wave 1 was significant and showed an individual had almost 1.7 times the odds of using SSI in wave 4 when compared to wave 1. Models 1 and 3 showed more significant and greater magnitude of prediction across waves.

The last model, Model 3, predicts use of SSDI. This model, shown in Table 5, had a slight variation of Models 1 and 2 because it did not include the use of long term care insurance. Since SSDI does not provide long term care benefits it was removed from the model as a choice substitution. The results were consistent with Model 1 except for agreeableness trait was no longer significant, just as it was not in Model 2. Also unique was only waves 3 through 5 when compared to the first wave significantly predicted the use of SSDI. An individual had over 2 times the odds of using SSDI in each wave 3-5 than in wave 1. Model 3 had a *rho* of .8731 suggesting approximately 87% of variation in the outcome was due to individual changes over time in this model.

As hypothesized, individuals with long term care insurance were less likely to use SSI than those without long term care insurance. While Model 1 with both SSI and/or SSDI was not significant, when predicting only SSI in Model 2, individuals with long term care insurance had approximately 67% lower odds of using SSI. Also, having employer provided health insurance either from their own employer or spouse's employer significantly reduced the odds of using SSI and/or SSDI in all three models and were as hypothesized.

While individuals use of SSI and SSDI did vary across personality traits, only agreeableness and conscientiousness were found to be significant. The directionality of agreeableness was opposite of that hypothesized and was only found to be significant in Model 1 where SSI and/or SSDI were predicted. However, an increase in the conscientiousness scale decreased the odds of using SSI and/or SSDI in all three models.

Since the dependent variable of SSI usage was not able to take into account any of the individuals who responded they were using SSI/SSDI but did not know which, the restricted data were used by merging it with the public data. The SSI usage variable was recoded to identify anyone who did not know whether they were using SSI/SSDI and were included in the SSI restricted sample as user of SSI. This grew the sample from 7210 to 7244. All variables of significance remained, directionality was consistent, and magnitude along with *rho* were very similar. Since there were little to no differences between the merged restricted and public data sets, the public information is reported.

Table 2

*Descriptive Statistics for Independent Variables Across Waves, Proportion or Median*

<i>Proportion or Median</i>	<i>2006</i> <i>n = 7069</i>	<i>2008</i> <i>n=5867</i>	<i>2010</i> <i>n=11,084</i>	<i>2012</i> <i>n=9806</i>	<i>2014</i> <i>n=8362</i>
Long term care insurance	9.77%	10.23%	8.58%	8.03%	8.13%
Health insurance (R or Sp employer)	68.80%	66.62%	58.91%	55.67%	55.17%
Psychiatric diagnosis	24.35% - time invariant				
Personality traits (scale 1-4)					
Extroversion	3.2 - time invariant				
Agreeableness	3.6 - time invariant				
Conscientiousness	3.4 - time invariant				
Openness	3.0 - time invariant				
Neuroticism	2.0 - time invariant				
HH income (logged)	\$ 55,500	59,600	50,000	50,000	50,000
HH net worth (invhypsine)	\$190,300	174,000	80,000	76,400	85,000
Labor force					
Disabled	4.58%	4.45%	4.63%	4.56%	4.02%
Full time	48.78%	48.82%	47.97%	47.22%	45.54%
Part time	9.49%	9.17%	10.67%	10.44%	10.11%
Unemployed	2.40%	2.86%	6.90%	5.82%	4.09%
Part time retired	6.10%	6.00%	4.23%	4.69%	5.12%
Retired	21.09%	21.66%	18.67%	22.25%	26.07%
Not in labor force	7.55%	7.04%	6.93%	5.02%	5.06%
Marital status (married)					
Married	70.90%	69.46%	63.05%	61.84%	60.60%
Partnered	5.53%	5.80%	7.62%	7.82%	8.31%
Divorced/separated	14.09%	14.47%	16.99%	17.50%	18.19%
Widowed	5.96%	6.53%	5.21%	5.47%	5.54%
Never married	3.49%	3.73%	7.09%	7.36%	7.33%
Health self rep (scale 1-5)	3.00	3.00	3.00	3.00	3.00
Male	38.49% - time invariant				
Race					
White	76.6% - time invariant				
Black	15.47% - time invariant				
Other	7.94% - time invariant				
Education (years)	13.0 - time invariant				
Census region					
South	39.71%	39.99%	41.26%	40.88%	40.81%
North East	14.67%	14.06%	15.37%	15.29%	84.51%
Midwest	25.13%	25.05%	19.70%	19.69%	19.29%
West (and other)	20.49%	20.87%	23.67%	24.14%	24.41%
Age	57	58	56	57	58

*Note:* Unweighted. Personality traits sampled half in 2008 and half in 2010.

Sources: Health and Retirement Study, RAND HRS 2006-2014 and Psychosocial Leave Behind 2008/10

Table 3

*Summary of Random Effects Logistic Regression Analysis for Variables Predicting Social Security Disability (SSDI) Participation or Supplemental Security Income (SSI) Either Through Pending Application or Receipt by Individuals Under the Age of 65 (n = 7210)*

Uses SSI or SSDI	OR	SE B	P>z	[95% Conf. Interval]	
Long term care insurance	0.8992	0.2797	0.733	0.4888	1.6544
Health insurance (R or Sp employer)	0.0652 ***	0.0155	<.001	0.0410	0.1039
Psychiatric diagnosis	17.5723 ***	5.4807	<.001	9.5356	32.3826
Personality traits					
Extroversion	0.6153	0.1781	0.093	0.3489	1.0850
Agreeableness	2.6973 **	0.9088	0.003	1.3936	5.2207
Conscientiousness	0.1835 ***	0.0584	<.001	0.0983	0.3425
Openness	1.0747	0.3111	0.804	0.6094	1.8953
Neuroticism	1.1218	0.2465	0.601	0.7292	1.7258
HH income (logged)	1.0821	0.0537	0.112	0.9817	1.1927
HH net worth (invhypsine)	0.9586 **	0.0120	0.001	0.9354	0.9823
Labor force (disabled)					
Full time	0.0001 ***	0.0000	<.001	0.0000	0.0002
Part time	0.0004 ***	0.0002	<.001	0.0001	0.0014
Unemployed	0.0017 ***	0.0010	<.001	0.0006	0.0051
Part time retired	0.0068 ***	0.0036	<.001	0.0024	0.0193
Retired	0.6538	0.1796	0.122	0.3816	1.1202
Not in labor force	0.0141 ***	0.0071	<.001	0.0052	0.0379
Marital status (married)					
Partnered	4.0279 **	1.7207	0.001	1.7436	9.3046
Divorced/separated	6.2319 ***	2.0462	<.001	3.2744	11.8604
Widowed	1.6182	0.6238	0.212	0.7602	3.4447
Never married	3.7199 *	1.9176	0.011	1.3544	10.2168
Health self rep	0.2245 ***	0.0259	<.001	0.1791	0.2814
Male	2.4647 **	0.6970	0.001	1.4160	4.2901
Race (white)					
Black	8.7976 ***	3.0496	<.001	4.4597	17.3550
Other	0.7464	0.3427	0.524	0.3035	1.8354
Education (years)	0.8371 ***	0.0378	<.001	0.7663	0.9144
Census region (South)					
North East	2.9973 **	1.0863	0.002	1.4731	6.0985
Midwest	1.4281	0.4483	0.256	0.7718	2.6422
West	0.8048	0.2683	0.515	0.4187	1.5470
Wave					
2	1.5868 *	0.3078	0.017	1.0849	2.3208
3	2.2244 **	0.5222	0.001	1.4040	3.5241
4	3.0537 ***	0.7862	<.001	1.8437	5.0580
5	4.2322 ***	1.1178	<.001	2.5220	7.1021
_cons	49.5923 *	76.0919	0.011	2.4512	1003.3540
sigma_u	5.9388	0.3201		5.3433	6.6006
rho	0.9147	0.0084		0.8967	0.9298

*Note:* Standard errors are robust. Health insurance coverage include both sources of respondent and spouse employer provided. Personality traits were measured as time invariant (measured in 2008 or 2010) and formed using scales for the "Big 5" Personality Traits. Income was transformed by logging and net worth was transformed using inverse hyperbolic sine.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Sources: Health and Retirement Study, RAND HRS 2006-2014 and Psychosocial Leave Behind 2008/10

Table 4

*Summary of Random Effects Logistic Regression Analysis for Variables Predicting Supplemental Security Income (SSI) Participation Either Through Pending Application or Receipt by Individuals Under the Age of 65 (n = 7210)*

Uses SSI Disability	OR	SE B	P>z	[95% Conf. Interval]	
Long term care ins	0.3260 *	0.1432	0.011	0.1378	0.7713
Health insurance (R or Sp employer)	0.1203 ***	0.0364	<.001	0.0665	0.2175
Psychiatric diagnosis	2.4855 ***	0.6185	<.001	1.5262	4.0479
Personality traits					
Extroversion	0.8784	0.2165	0.599	0.5419	1.4239
Agreeableness	1.0829	0.3152	0.784	0.6120	1.9159
Conscientiousness	0.3767 ***	0.0977	<.001	0.2266	0.6262
Openness	1.5312	0.3795	0.086	0.9420	2.4890
Neuroticism	1.0781	0.2026	0.689	0.7460	1.5583
HH income (logged)	1.0693	0.0429	0.095	0.9883	1.1568
HH net worth (invhypsine)	0.9534 ***	0.0104	<.001	0.9333	0.9739
Labor force (disabled)					
Full time	0.0023 ***	0.0014	<.001	0.0007	0.0075
Part time	0.0030 ***	0.0022	<.001	0.0007	0.0127
Unemployed	0.0163 ***	0.0094	<.001	0.0053	0.0503
Part time retired	0.0422 ***	0.0204	<.001	0.0164	0.1088
Retired	0.6338	0.1328	0.03	0.4202	0.9557
Not in labor force	0.0661 ***	0.0266	<.001	0.0300	0.1453
Marital status (married)					
Partnered	4.6561 ***	1.6135	<.001	2.3608	9.1830
Divorced/separated	4.8116 ***	1.2487	<.001	2.8933	8.0019
Widowed	1.1995	0.3903	0.576	0.6340	2.2697
Never married	5.4627 ***	1.9306	<.001	2.7326	10.9203
Health self rep	0.5217 ***	0.0542	<.001	0.4256	0.6395
Male	0.4841 **	0.1207	0.004	0.2969	0.7893
Race (white)					
Black	3.7579 ***	1.0154	<.001	2.2128	6.3818
Other	1.8044	0.6494	0.101	0.8912	3.6534
Education (years)	0.8338 ***	0.0317	<.001	0.7740	0.8983
Census region (South)					
North East	2.1547 *	0.6910	0.017	1.1493	4.0398
Midwest	1.6979	0.4972	0.071	0.9564	3.0142
West	2.4749 **	0.7521	0.003	1.3642	4.4900
Wave					
2	1.3344	0.2858	0.178	0.8770	2.0303
3	1.2867	0.3029	0.284	0.8111	2.0409
4	1.6614 *	0.4184	0.044	1.0141	2.7217
5	1.6616	0.4350	0.052	0.9947	2.7758
_cons	0.5212	0.6581	0.606	0.0439	6.1915
sigma_u	3.4341	0.1973		3.0684	3.8434
rho	0.7819	0.0196		0.7411	0.8179

*Note:* Standard errors are robust. Personality traits were measured as time invariant (measured in 2008 or 2010) and formed using scales for the "Big 5" Personality Traits. Income was transformed by logging and net worth was transformed using inverse hyperbolic sine.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Sources: Health and Retirement Study, RAND HRS 2006-2014 and Psychosocial Leave Behind 2008/10

Table 5

*Summary of Random Effects Logistic Regression Analysis for Variables Predicting Social Security Disability (SSDI) Participation Either Through Pending Application or Receipt by Individuals Under the Age of 65 (n = 7221)*

Uses SSDI	OR	SE B	P>z	[95% Conf. Interval]	
Health insurance (R or Sp employer)	0.1561 ***	0.0284	<.001	0.1092	0.2230
Psychiatric diagnosis	7.7222 ***	1.8368	<.001	4.8448	12.3084
Personality traits					
Extroversion	0.7591	0.1865	0.262	0.4689	1.2288
Agreeableness	1.7943	0.4806	0.029	1.0615	3.0331
Conscientiousness	0.4442 **	0.1115	0.001	0.2716	0.7266
Openness	0.9458	0.2206	0.811	0.5988	1.4938
Neuroticism	0.9595	0.1691	0.814	0.6793	1.3552
HH income (logged)	1.0324	0.0412	0.424	0.9548	1.1164
HH net worth (invhypsine)	0.9686 **	0.0096	0.001	0.9500	0.9875
Labor force (disabled)					
Full time	0.0005 ***	0.0003	<.001	0.0002	0.0014
Part time	0.0032 ***	0.0016	<.001	0.0012	0.0087
Unemployed	0.0132 ***	0.0055	<.001	0.0058	0.0300
Part time retired	0.0353 ***	0.0146	<.001	0.0157	0.0794
Retired	0.9703	0.2097	0.889	0.6352	1.4822
Not in labor force	0.0459 ***	0.0191	<.001	0.0203	0.1036
Marital status (married)					
Partnered	1.7526	0.6070	0.105	0.8889	3.4554
Divorced/separated	1.9592 **	0.4926	0.007	1.1968	3.2070
Widowed	1.6498	0.4616	0.074	0.9534	2.8548
Never married	1.4296	0.5743	0.374	0.6506	3.1415
Health self rep	0.2948 ***	0.0253	<.001	0.2491	0.3488
Male	3.0458 ***	0.6870	<.001	1.9575	4.7391
Race (white)					
Black	4.1131 ***	1.1116	<.001	2.4217	6.9858
Other	0.6810	0.2481	0.292	0.3335	1.3908
Education (years)	0.9418	0.0331	0.088	0.8791	1.0091
Census region (South)					
North East	1.4322	0.4295	0.231	0.7957	2.5778
Midwest	1.2014	0.3058	0.471	0.7295	1.9784
West	0.5595 *	0.1528	0.034	0.3276	0.9557
Wave					
2	1.2852	0.2199	0.143	0.9190	1.7971
3	2.1804 ***	0.4132	<.001	1.5039	3.1613
4	2.1543 ***	0.4485	<.001	1.4325	3.2398
5	2.8649 ***	0.6037	<.001	1.8955	4.3301
_cons	2.1483	2.6382	0.534	0.1935	23.8459
sigma_u	4.757931	0.218385		4.348593	5.2058
rho	0.873114	0.01017		0.8518086	0.8917458

*Note:* Standard errors are robust. Health insurance coverage include both sources of respondent and spouse employer provided. Personality traits were measured as time invariant (measured in 2008 or 2010) and formed using scales for the "Big 5" Personality Traits. Income was transformed by logging and net worth was transformed using inverse hyperbolic sine.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

Sources: Health and Retirement Study, RAND HRS 2006-2014 and Psychosocial Leave Behind 2008/10

### Discussion/Implications

Employer provided health insurance can be valuable in reducing the odds of individuals using SSI and/or SSDI. Long term care insurance can be another useful tool in reducing the odds of individuals using SSI which comes directly from the US Treasury General Funds. All citizens have a vested interest in reducing the expenses of welfare but not at the expense of the individuals receiving the benefits. If benefits can be self-funded, employer funded or incentivized then both needs are met. All labor force categories except for retirement have significantly lower odds of using SSI and/or SSDI than individuals reporting as disabled for the labor force questions. This is consistent with expectations given the necessary requirements to qualify for the programs.

When modeling the use of SSDI and/or SSI, use of SSI only, use of SSDI only, further evidence of the mental health crisis is provided. There is a great need to take measures to increase the mental wellness of America and support of those suffering from mental illness. Additionally, the results provide further evidence of the value of education. Women have lower odds of using the benefits. Married individuals have the lowest odds and that is likely attributed to the married couple being considered one single economic unit and having the support of each other. There is also a lower expected need for long term care services since there is presumed to be a spouse available to assist.

As education increases, the odds of being on SSI and/or SSDI are significantly lower. Future research includes examining the length of individuals receiving benefits. For the same reasons as having higher education resulting in lower odds of using benefits, it could be expected that higher education would result in shorter terms of receiving benefits.

This study provides a glimpse into personality traits and disability benefit usage. Given the previous findings of the personality trait of agreeableness being positively associated with adaption and recovery of life satisfaction after an acquired disability (Boyce & Wood, 2011) along with the positive relationship found here with use of SSI and/or SSDI and insignificant results in Models 2 (SSI only) and 3 (SSDI only), further research is needed. Further investigation into the traits and ways to leverage the knowledge of those traits in individuals can help inform future policy measures.

After completing phase 1 analyzing the public data, the combined benefits logit resulted in the long term care insurance independent variable not being significant and the agreeableness scale as significant. Long term care was not included in the SSDI analysis since SSDI does not provide that coverage, but it was significant in the SSI only coverage. When broken up into the SSDI model and the SSI model, agreeableness was no longer significant. The publicly available data reported a substantial number of individuals who indicated they were applying for or receiving some benefit but did not know which benefit. By incorporating in the more detailed restricted data 20 more respondents were moved from “did not know” to “applying for or receiving SSI”. It was hypothesized that the “did not know” respondents made an impact on the agreeableness scale. Even after adding in additional respondents as using SSI, agreeableness was still not significant. Further analysis of “did not know” group could prove to be beneficial, but it could represent lack of knowledge therefore lack of calculated decisions in deciding to use benefits or not. If lack of knowledge is the case, then educational interventions could be beneficial.

Employer accommodations at the onset of disability diagnosis and accommodations in a current position were removed from the model. Many different models were explored to allow for the inclusion of current and prior employer accommodations, but the regressions would not function properly resulting in insignificance across the model, lack of fit, and multicollinearity issues. The low frequency appeared to cause the greatest problems in the models. The low frequency was attributed in large part to the sample being individuals nearing retirement and the fact that respondents had to be working to report receiving employer accommodations. Very few individuals reported currently receiving employer accommodations or having received them upon diagnoses. Prior research found personality traits were highly predictive of employer accommodations (Hill, Maestas, & Mullen, 2016) which could explain multicollinearity issues when employer accommodations were included.

An investigation was conducted into respondents who were using SSI/SSDI and then not in the following wave, however, the frequencies were too low to conduct a meaningful analysis. For example, there were only 180 respondents using SSI in wave 4 who were not using SSI in wave 5. Of the 180, only 1 was receiving current employer accommodations. Further exploration should be considered in alternate datasets not limited to individuals over the age of 50. Future direction of research includes examining individuals who were once receiving SSI and/or SSDI and no longer receiving the benefits and the relationship of work accommodation. Examining receiving SSI/SSDI rather than using it which includes applying for and/or receiving will be a different approach considered in the future.

Based on the findings in this study, policy implications are suggested. Evidence suggests continuing tax benefits for employer provided health plans could assist in reducing usage of SSI and/or SSDI. Congress could consider expanding the tax benefits to those who provide family and spousal coverage. Given the specific results related to SSI, which is funded by taxpayer dollars, considering tax incentives for private long term care insurance and possibly even as an employer provided or subsidized benefit is advisable.

Given the magnitude of increased odds for individuals with a mental health diagnosis, considering incentivizing expanded health insurance to include more mental health coverage could be worthwhile. Lastly, further evidence is provided to continue to provide higher education tax incentives as increased education lowers the odds of using SSI and/SSDI.

As Mitra suggests in the capability approach, the choices an individual makes can result in actual function or lack thereof. Those who choose to purchase private long term care insurance are less likely to lack function when defined as using SSI and/or SSDI. If positive choices can be incentivized, with education and financial sophistication, disabled individuals who are insurable for long term care insurance can rely on private insurance rather than spending down assets to qualify to Medicaid. By adding incentives for Americans to purchase private long-term care insurance action can lead to lower reliance on Medicaid and fewer individuals utilizing asset spend down techniques.

While self-reported use of SSI and/SSDI is the only option provided in these data, along with only a limited number of additional details in the restricted data, actual use of SSI and/or SSDI would be helpful. Given the variation seen when comparing models, the individuals who

report using either SSI and/or SSDI but do not know which one are a unique group. If their choices do impact their use of benefits, then were those choices guided by a professional? If not, then they were ultimately uninformed choices but choices none the less. By using linked data from the Social Security Administration, further insight can be gained into this population of individuals. Another limitation to this study was lack of information on private disability insurance. Exploring other sources which include information on disability insurance could be information.

In support of the goal of ARDRAW related to employer supports, this research suggests employers might play a key role in reducing the odds of their employees or their spouses using SSI and/or SSDI. Health insurance provided by employers of either the respondent or spouse decreased the odds of using SSI and/or SSDI in all three regressions. While this research does not suggest a causal relationship between having employer provided health insurance and the use of SSDI and/or SSI, it does demonstrate a decrease in the odds of usage. The same goes for a reduction in odds of using SSI when an individual has long term care insurance rather than a causal relationship. Long term care benefits could be offered by employers to make acquisition more affordable for employees since income could be a limiting factor. Similar to prior research findings, having a substitute benefit decreased the odds of benefits usage (Brown, Goda, & McGarry, 2012). Employer provided substitutes appear to be worth exploring and possibly incentivizing.

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**Appendix**

Figure 1: The Capability Approach (Mitra, 2006)

