

**Making the Transition: Influence of Self-Identified Work Disability on Labor Force
Careers**

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Final Report

6/30/14

Disclaimer: *The research reported herein was performed pursuant to a grant from Policy Research, Inc. as part of the U.S. Social Security Administration's (SSA's) Improving Disability Determination Process Small Grant Program. The opinions and conclusions expressed are solely those of the author(s) and do not represent the opinions or policy of Policy Research, Inc., SSA or any other agency of the Federal Government.*

Abstract

To date, much of what we know about labor force transitions and the likelihood of applying for SSDI has been based on a person's first labor force exit. Given the fact that workers can experience a number of labor force transitions in mid-life and that persons with health problems and disability tend to be even more varied in their labor force careers (Cahill, Giandrea, and Quinn 2006; Maestas 2004; Warner and Hoffmeister 2006), it is critical to account for these diverse careers when examining the likelihood of workers entering into the disability determination process. Studies that limit their analyses to first labor force exits are missing a proportion of the work disabled population that attempt to avoid applying for SSDI by retiring first only to later apply, for example, and the factors that account for variable labor force careers.

The purpose of this study is to further explore the relative importance of self-identified work disability, personal resources, health and employer characteristics in labor force careers. Three specific aims are examined using five waves (10 years) of the *Health and Retirement Study*, a nationally-representative panel study of adults ages 50 and older. Results indicate six dominant labor force transition patterns, a majority of which do not contain a one-time (crisp) labor force exit. Results also indicate that self-identified work disability, personal resources and labor force transition types are significant predictors of application for SSDI.

Specific Aims

Social Security Disability Insurance (SSDI) is a social insurance program that provides a state-sponsored safety net for those who have physical, mental, or emotional problems that limit the ability to work (Hacker 2006). In the last decade, the number of SSDI applications has increased and this trend is expected to continue (Benitez-Silva et al. 2005; Burkhauser et al. 2002b; Hatcher 2003). The increase in applications has been attributed to changes in employer-based benefits, placing primary risk on workers, and fluctuations in the economy (Ekerdt 2010; Kail, Quadagno, and Keene 2009). Prior research has identified personal resources (e.g., personal savings and pensions), self-identified work disability, and health problems as strong predictors of entering the Disability Determination Process (DDP).

To date, much of what we know about labor force transitions and the likelihood of applying for SSDI has been based on a person's first labor force exit. Given the fact that workers can experience a number of labor force transitions in mid-life and that persons with health problems and disability tend to be even more variable in their labor force careers (Cahill, Giandrea, and Quinn 2006; Maestas 2004; Warner and Hoffmeister 2006), it is critical to account for these diverse careers when examining the likelihood of workers entering into the disability determination process. Studies that limit their analyses to first labor force exits are missing a proportion of the work disabled population that attempt to avoid applying for SSDI by retiring first only to later apply, for example, and the factors that account for variable labor force careers.

Based on the findings from my recent DDP project, we know that self-identification as work disabled is a strong predictor of applying for and receiving SSDI. However, there remain a significant number of older workers who identify as work disabled, but do not receive SSDI at their first exit. A logical extension of this work is to examine labor force careers, so that not only are all potential SSDI applicants and recipients accounted for, but the diverse careers that lead up to entering the DDP can also be examined. The purpose of this study is to further explore the relative importance of self-identified work disability, personal resources, health and employer characteristics in labor force careers. Three specific aims are examined using five waves (10 years) of the *Health and Retirement Study*, a nationally-representative panel study of adults ages 50 and older.

Aim 1: Construct labor force careers for workers ages 50 to full retirement age and develop a typology of the patterns of labor force transitions.

Aim 2: Estimate the likelihood of specific labor force typologies based on self-identified work disability, net of employer characteristics (e.g., work accommodation), personal resources (e.g., employer-based pension) and health status (chronic conditions).

Aim 3: Determine if the likelihood of applying for SSDI is associated with self-identified work disability, net of labor force career type, personal resources, health, and employer characteristics.

Background and Significance

The majority of our knowledge about the likelihood of applying for SSDI is based on a person's first labor force exit and the accompanying socioeconomic and demographic characteristics. While it is important to examine first exits, many workers experience several labor force transitions as they near full retirement age (Cahill et al. 2006; Ekerdt 2010; Ekerdt and Deviney 1990). In order to better understand the factors that influence the likelihood of applying for SSDI, it is necessary to examine the entirety of a labor force career (Marshall 2009). Many older adults apply for SSDI prior to exiting the labor force via SSDI receipt, and are thus

captured in studies examining first labor force exits. However, these studies are missing the older workers who first exit via retired or out of the labor force who may then apply for SSDI or return to the labor force and later apply for SSDI. By incorporating labor force careers rather than first exits only, it is possible to examine the various pathways that may result in entering the disability determination process. Understanding pathways leading to SSDI application may enable the Social Security Administration (SSA) to better understand who applies for SSDI, which labor force transitions best predict application for and receipt of SSDI, and what factors (e.g., access to pension or employer accommodations) surround each labor force transition. Many of the factors associated with first labor force exits can easily be applied to subsequent transitions.

Prior research has shown that self-identified work disability is a strong predictor of labor force exits and transitions (Barnow 2008; Burkhauser et al. 2002a; Hayward and Grady 1990; Brown and Warner 2008). In general, studies show that people who report a health-related work disability are disproportionately more likely to exit the labor force at any age, especially if they are black or have low educational attainment, and are less likely to reenter the labor force (Brown and Warner 2008; Williamson and McNamara 2003). While socioeconomic and demographic factors play a role, it is unclear how self-identified work disability interacts with the availability of personal resources, employer characteristics, and health status to influence labor force careers and ultimately, the application for SSDI. Scholars have noted that empirical studies of economic resources, health status, and use of welfare programs are often studied in separate “silos” (Crystal 2006). It is reasonable to expect that application for SSDI depends on a combination of personal resources, employer characteristics, health, and self-identification of work disability. Examining the combined impact of these factors on labor force careers can provide pertinent information about the circumstances surrounding the decision of older workers to apply for SSDI. I now turn to how personal resources impact labor force transitions.

Availability of retirement resources, such as pensions and health coverage, is an important factor when workers consider transitions in the labor force (Straka 1992; Kail Quadagno, and Keene 2009) and potentially entering into the SSA disability determination process. For workers, this decision is an increasingly burdensome one, especially when one considers workers’ level of dependence on pension programs (Munnell and Sass 2008). The number of employers offering retirement health benefits has significantly decreased in the past two decades. The percentage of employers that paid retiree health benefits between 1988 and 2007 dropped from 66% to 33% (Quadagno and McKelvey 2010). The number of employers offering employee pensions has also decreased (Harrington Meyer and Herd 2001; Kail, Quadagno, and Keene 2009). Further, the type of pensions being offered by employers has shifted the risk of retirement savings from the employer to the employee (O’Rand et al. 2009). In the 1970s, nearly 75% of workers with pension coverage had a defined benefit (DB) plan. By 2006, only 30% of workers had a DB pension plan (Munnell and Sass 2008). This means that, increasingly, workers will exit the labor force without adequate employer pension and health care coverage. Older workers with work disabilities may find it difficult to exit the labor force early as retired in that they don’t have the personal resources and must then rely on SSDI or a spouse. The increasing volume of SSDI applications in the past decade (Dahl and Meyerson 2010) is evidence of the “invisible” work disabled previously absorbed into the private pension system becoming more “visible” to public social programs.

Self-identified work disability and personal resources provide an incomplete explanation of SSDI application and receipt. Prior DDP research (Stone 2013) indicates that

although both self-identified work disability and personal resources are important factors in predicting SSDI application and first labor force exit type, they do not fully explain why some disabled workers apply for SSDI and others do not. Therefore, it is logical to build upon prior studies and incorporate other factors that may help clarify and explain application for SSDI. Health is one such factor that is linked to labor force transitions. In general, workers with health problems are more likely to exit the labor force and are less likely to reenter the labor force (Brown and Warner 2008; Miah and Wilcox-Gok 2007). Self-rated health is a typical indicator of health in the work and retirement literature. However, some scholars have suggested that the number of chronic conditions may serve as a better predictor when examining labor force transitions (Costa 1996; Rice and Fineman 2004; Thorpe et al. 2010). Another factor that is often overlooked in studies examining SSDI application is employer characteristics. For example, some employers offer accommodations when their workers develop health problems that limit their ability to work. It is possible that older workers who develop work-limited health problems will not exit early and apply for SSDI if their employer is willing and able to accommodate them until they are eligible for either their employer-based pension or Social Security benefits.

Knowledge about the various labor force pathways of older workers can better our understanding about the factors that influence who will and will not apply for SSDI. While prior research has provided snapshots of the process behind workers applying for SSDI, we lack a “big picture” of this process. This study provides pertinent information about the factors that distinguish who applies for SSDI and who does not, as well as the variable pathways leading up to SSDI receipt. This information can provide SSA with the various circumstances in which SSDI participation (applicant or recipient) is the result, as well as potential interventions that could limit SSDI applications (e.g., employer accommodations).

In sum, this study builds upon prior research and can prepare the SSA for future increases in SSDI applications by providing pertinent information about who is most likely to apply for SSDI and all of the labor force transition patterns that can result in SSDI application. I focus on the relative importance of self-identified work disability, personal resources, health, and employer characteristics on labor force careers.

Research Design

Data

Data for this project are drawn from the *Health and Retirement Study* (HRS), which is a nationally representative panel study of adults ages 50 and over interviewed every two years from 1992 (Wave 1) to 2010 (Wave 10) [HRS core data file; Rand, version L 2011]. The HRS utilizes a multistage area probability sampling design and has oversamples of Black and Hispanic adults. The HRS did not distinguish between the SSDI and SSI programs when querying respondents about application and receipt until W5. Thus, analyses are limited to W5 through W10. To account for the selective mortality and panel attrition prior to W5, model estimates are adjusted using a Heckman two-stage estimator (Heckman 1979; Berk 1983). This procedure has been used in related empirical work (for description, see Kelley-Moore et al. 2006; Kelley-Moore and Ferraro 2004). HRS is ideal for this study because it provides a multitude of measures for SSDI episodes (i.e., application), functional limitations, personal resources and labor force transitions. The sample ages are restricted to 50- 65 years of age and who are currently employed (full-time or part-time) at W5. Item-missing data is handled with single and

multiple imputation as appropriate and proxy interviews are not be utilized. All analyses are weighted.

Measures

Aim 1: labor force career is constructed by transforming the data into a rectangular person-interval file containing labor force histories for each respondent (Allison 1984). These labor force histories for each respondent were then used to construct specific labor force career typologies. These specific labor force careers are constructed using five mutually exclusive labor force status categories: (1) *retire* if self-identified as retired. Any case that also mentions another status (e.g., disability) is excluded (Szinovacz and Davey 2005); (2) *out of the labor force* if did not identify as retired, working or disabled; (3) *SSDI receipt*; (4) *full-time worker* if work 35 or more hours/week; and (5) *part-time worker* if work less than 35 hours/week (Brown and Warner 2008). These five categories were selected because they capture a wide array of labor force statuses most relevant for understanding SSDI eligibility (Hayward and Grady 1990; Loprest et al. 1995; Williamson and McNamara 2003). Labor force careers can include any logical combination of these five categories with no limit on the number of transitions. *Aim 2:* The dependent variables for Aim 2 includes each *labor force typology*. *Labor force typologies* are constructed using the dominant patterns of labor force careers observed in Aim 1. For example, one *labor force typology* may include *part-time work to retire*.

Aim 3: Application for SSDI is the dependent variable for the third aim. This variable is dichotomous (1=yes; 0 = no) and is time-varying. Respondents were queried in waves five-ten if they applied for SSDI.

The key independent variable is *self-identified work disability* and is a dichotomous time-varying variable. Respondents were asked, “Do you have any impairment or health problem that limits the kind or amount of paid work you can do? Does this limitation keep you from working altogether?” Respondents with an affirmative response to question one or two are coded 1 (work disability) and all others are coded 0. There are five domains for the independent and control variables. First, *personal resources* (time-varying): access to employer based insurance, access to employer based insurance via a spouse and household income (log-transformed dollars). Second, *health status* (time-varying): number of chronic conditions (continuous 0-8 e.g., diabetes or arthritis). Third, *employer characteristics* (time-varying; yes coded 1): employer provides worker with accommodations (e.g., shortened work day and change in job duties). Fourth, seven mutually exclusive *labor force typologies*: *Continuous full-time* (Work full-time during observation period), *Full-time to Retire* (Work full-time and retire during observation period), *Part-time to Retire* (Work part-time and retire during observation period), *Comeback* (Work full- or part-time, retire, then return during observation period), *Retire and/or Out of Labor Force* (have at least one retire and out of the labor force transition during observation window), *Full-time or Part-time and Other* (transition between full- and part-time during observation period). Lastly, *demographic* covariates include: age (continuous 50-65 years); race/ethnicity (non-Hispanic White, non-Hispanic Black and Hispanic); education (continuous 0-17 years); occupational class for longest-working job (series of binary indicators: e.g., manufacturing; service; managerial); and gender (female coded 1).

Analysis Plan for Aims

Aim1: Construct the labor force careers for workers ages 50 to full retirement age and develop a typology of the patterns of labor force transitions. Labor force careers are constructed

by transforming the data into a rectangular person-interval file containing labor force histories for each respondent (Allison 1995). These labor force histories for each respondent are used to construct specific labor force careers. Person-interval files are constructed for only the respondents working part- or full-time at wave five. Seven mutually exclusive *labor force typologies* were identified from the dominant transition patterns based on the frequency of occurrences in the sample. These seven mutually exclusive *labor force typologies* include: *Continuous full-time* (Work full-time during observation period), *Full-time to Retire* (Work full-time and retire during observation period), *Part-time to Retire* (Work part-time and retire during observation period), *Comeback* (Work full- or part-time, retire, then return during observation period), *Retire and/or Out of Labor Force* (have at least one retire and out of the labor force transition during observation window), *Full-time or Part-time* (transition between full- and part-time during observation period) and *Other*. Theoretically, there are several other potential typologies beyond the seven examined in this study. However, only labor force typologies that consisted of at least 4% of the total sample size (N=8,801) were included in this study. The “other” category encompasses all labor force typologies not included in the core seven. This study limits the typologies in this way to ensure statistical power (enough cases) for statistical analysis. Each typology created is based on an intensive descriptive analysis of labor force transitions during waves five through ten.

Aim 2: For this aim, estimates of the likelihood of specific labor force typologies are calculated using logistic regression. The outcome is *labor force typologies*, each of the six typologies (other category is omitted because it is not meaningful) are a dependent variable. To determine the likelihood of specific *labor force typologies*, I estimate a series of logistic regression models predicting the risk or likelihood of having each typology. The logistic models examine which factors (e.g., demographics) best explain each typology. Estimates of the log odds for each typology are calculating using *self-identified work disability*, *demographic*, *employer characteristics*, *health* and *personal resources*. Assessment of the log-likelihood is used to evaluate goodness of fit for each model (DeMaris 2004).

Aim 3: To determine the likelihood of applying for SSDI, which is time-varying, estimates are calculated using the longitudinal command for logistic regression in [Stata v. 13.1-SE xtlogit] (Rabe-Hesketh and Skrondal 2012). The outcome is *application for SSDI*. Model 1 estimates the log odds for applying for SSDI using *self-identified work disability* and *demographics*. Model 2 adds *labor force typologies*. Model 3 adds *personal resources*, *health* and *employer characteristics*. The log likelihood is used to assess model fit and the Bayesian Information Criterion (BIC) is used to test for significant change in model fit between the three models (DeMaris 2004; Rabe-Hesketh and Skrondal 2012).

The findings from this study can help SSA by providing a better characterization of the subset of older workers with health problems that seek SSDI. The characteristics of older workers most likely to apply for SSDI identified in this study can also give an idea of strategies to keep disabled workers in the labor force, such as employer accommodations. Lastly, the findings can provide information about the various circumstances that lead to the application for and receipt of SSDI using labor force careers. This will provide SSA with information about the workers who enter into the disability determination process immediately following exiting the labor force, but also information about older disabled workers who make several transitions before entering the DDP and the factors that characterize this process.

Results¹

Labor Force Status

Preliminary descriptive analyses of labor force status by wave is presented in Figure 1. In wave five (2000), the majority of cases are working full-time or are retired. By wave ten (2010), the majority of cases are retired. In general, there are fewer episodes of working part- or full-time between waves 5 and 10 (2000-2010). Further, the percentage of workers that retire, drop out of the labor force and who die increase over time. A special case labor force status is SSDI receipt. Between 2000 and 2010, there are no new cases of SSDI receipt, despite there being new cases of application. It appears that the vast majority of SSDI recipients in the sample receive SSDI prior to age fifty. Figure two presents descriptive statistics of SSDI recipients at baseline (wave five). It is evident that the majority of SSDI recipients (83.28%) self-identify as work disabled, are female (58.2%) and longest job tenure occupation is labor (50.12%). The majority of SSDI recipients are white followed by non-Hispanic black; very few SSDI recipients had longest job tenure occupations of service, sales, clerical and managerial/professional.

Labor Force Typology (Aim One)

Descriptive analyses were used to determine the dominant labor force transitions patterns. Table 1 present the seven mutually exclusive labor force types, as well as selected variables of interest for each type. The seven types account for 78% of all labor force transition types. The remaining 22% are relegated to the *other* category. Although the *other* category is somewhat meaningless given the variation in possible transitions, it is worth noting that no Hispanics fall into this category. This is interesting because it means that 100% of Hispanic labor force transitions in the sample are accounted for by the dominant six types.

The percentage distribution for each type is presented in the second column. Only 7% of the sample *continues working full-time* between years 2000 and 2010. The modal category, at 23.4%, is *retire and/or out of the labor force* (with periods of part- and full-time work in between). The next two most common types are those that work *full-time then retire* (17.5%) and *full-time or part-time* between 2000 and 2010 (17.6%).

In Table 2, columns three through seven illustrate the percentage distribution of selected variables for each type. Females dominate each type except for the *comeback* group (those who exit labor force and then return) and those who *continue working full-time* throughout the observation period. This means that those who *work full-time then retire*, *work part-time then retire*, transition between *retire and out of the labor force* and transition between *part- and full-time* work are more likely to be women than men ($p < .001$). Self-identified work disability is most common among those who transition between *retire and out of the labor force* and those who work *part-time then retire*, 36.03% and 18.94%, respectively. Not surprising, a very small percent of those who *continue working full-time* identify as work disabled (4.32%). What is interesting is that in several of the labor force transition types, self-identified work disabled individuals are exiting via retirement. This supports the notion that there is hidden disability within the retirement exits. In the types that consist of the largest groups of self-identified work disabled, we also find the highest percentage of employer accommodations (employer helps).

Likelihood of Labor Force Types (Aim Two)

¹ Figures 1 & 2 and Tables 1, 2, and 3 are located on pages 14-17.

To determine the likelihood of specific labor force types, six logistic regression models were estimated at baseline (wave five). Each model consists of one labor force type as the dependent variable and several covariates. Results are presented in Table 2.

To begin, self-identified work disability is only a significant predictor of *work full-time then retire, comeback, retire and/or Out* and *full-time or part-time*; the strongest being for *comeback*. Self-identified work disability does not significantly explain *continuous full-time* nor *part-time to retire* types. There are no observations of SSDI application among *continuous full-time, comeback* and *retire and/or out of the labor force*. This means that no one in these category types applied for SSDI during the observation period. Application for SSDI lowers the odds of *full-time then retire, part-time then retire* and *full-time or part-time*. This means that applying for SSDI does not increase the odds for any typology (with observations), it merely lowers the risk for some types. For the first two typologies mentioned (full/part-time then retire), this finding is substantiated by prior research. Individuals who make the ideological one-time crisp exit from work to retire are less likely to be work disabled and therefore less likely to be in need of SSDI. It is interesting to note that although both log odds are significant, the magnitude of the log odds for SSDI application lowering the risk for part-time to retire is smaller than for full-time to retire. This suggests that the effect of SSDI application is not as strong for those working part-time then retiring. However, the third typology, transitions between full-time and part-time work, is not as easy to explain. Workers in this age group that transition between full-time and part-time work may do so for several reasons. Some may assume that poor health would explain the majority of transitions between these two categories, but given that these individuals are less likely to apply for SSDI, this may not be the case. It is possible that this is a group of workers that have chronic conditions that limit their work, but are not impaired to the point that they would qualify for SSDI so they don't apply. A second explanation for this finding is that this group of people transitioning between part-time and full-time work can afford to do so via spousal income and are not dependent on steady full-time work, regardless of impairment(s).

For personal resources, having employer insurance increases the odds of *full-time then retire, comeback* and *full-time or part-time*, but lowers the odds for *part-time then retire* and *retire and/or out of the labor force*. Spousal insurance is only significant for *full-time retire*; if a spouse provides spousal insurance, then they are more likely to work *full-time then retire*. Further, household income significantly ($p < .05$) lowers or raises the odds for all labor force types except *full-time or part-time*. Specifically, the higher the household income, the higher the odds of *continuous work, work full-time then retire* or *work part-time then retire*. Conversely, the higher the household income, the lower the odds of returning to the labor force or *retire and/or out of the labor force*. There are too few cases where the employer helps employees to include in the models. However, based on descriptive statistics, it appears that only those categorized as *full-time then retire, part-time then retire* or *retire and/or out of the labor force* have a significant relationship with help from employers (see Table 1).

Longest job tenure occupation has mixed results. Table 2 indicates that service and labor occupations have little to no significant effect on increasing or lowering the odds of typology classification (reference category is professional/managerial occupations), while clerical and sale have a significant influence on some typology classifications. Specifically, individuals with clerical positions for the majority of their working career had a greater likelihood of working full-time or working full-time then retiring. Sales occupations had higher odds for working part-time then retiring and transitioning between full-time and part-time. Lastly, a larger number of

chronic conditions lowers the odds of continuously working full-time and increases the odds of working full-time then retiring. Model fit (X^2) indicates that each model is significant. While no statistical test allows for a direct comparison between labor force typologies, it is evident that, overall, several key variables emerge to help categorization into types. These include self-identified work disability, SSDI application, age, female, having employer insurance and income. In sum, demographic variables, the key independent variable, personal resources and SSDI application all help to explain categorization into typologies.

SSDI Application over Time (Aim Three)

Three nested models were estimated to determine the likelihood of applying for SSDI. Table 3 presents the results and the Bayesian Information Criterion (BIC) and log-likelihood (LL) indicate that Model 3 is the best fitting, as well as the best overall model of the three. The BIC and LL are used to determine the best fitting model as covariates are added in a hierarchical fashion; the smaller the LL and BIC as covariates are added, the better fitting the model.

Model 1 estimates the likelihood of applying for SSDI using self-identified work disability, demographics, and job tenure. Identifying as work disabled, being female and being black significantly increase the likelihood of applying for SSDI. Hispanics, older respondents and cases with lower educational attainment have lower odds of applying for SSDI than whites, younger respondents and cases with higher levels of education. This pattern continues in model 2, however labor is no longer a significant predictor and the effect size for self-identified work disability decreases. This could mean that by accounting for labor force transitions types, the effect of self-identified work disability is no longer as strong and that having a labor-intensive occupation no longer matters. Also, compared to *retire and/or out of the labor force*, individuals who work part- or full-time then retire are less likely to apply for SSDI. Individuals who do not make a “crisp exit” out of the labor force have higher odds of applying for SSDI. Model 3 is interesting for several reasons. First, self-identified work disability is has a much smaller effect size than in models 1 and 2 and the significance level has dropped. It seems that accounting for personal resources and health have diminished the effect of self-identified work disability. Second, non-Hispanic blacks now have lower odds of applying for SSDI. This suggests that when personal resources and health are taken into account, non-Hispanic blacks are less likely to apply for SSDI. Third, labor is now a significant predictor of application for SSDI with a relatively large effect size. Fourth, the overall pattern regarding types has changed only in larger effect sizes. Lastly, having personal resources lowers the odds of applying for SSDI.

Overall, it appears that when personal resources and labor force transition types are accounted for, the importance of self-identified work disability is reduced. Also, it appears that those who have greater resources and a “crisp exist” from the labor force are less likely to apply for SSDI compared to those with multiple exits (and/or transitions) and those with fewer personal resources.

Discussion

If only first exits are accounted for, it appears that the majority of the transitions include working either part-time or full-time then retiring. While this may be true for some, and is often referred to as the ideological labor force exit, there is a substantial proportion of workers that do not make crisp one-time exits via retirement. By focusing on first transition out of the labor force, we miss approximately 80% (in this sample) of cases. Further, we also miss the diversity

in labor force transitions, such as reentry (the comebacks) and shifts between full-time, part-time and out of the labor force. This matters for subsequent analyses of SSDI application.

Regarding SSDI recipients, the majority receive SSDI prior to age 50 and remain on SSDI until they die or age out of the program, according to the HRS sample. Although this fact limits analyses given that HRS does not distinguish between SSI/SSDI recipients prior to wave five, it is still an important finding. This finding suggests that SSDI caters to the permanently disabled, given so few cases are observed that no longer receive SSDI and return to the labor force. Some may argue that this finding is consistent with the contention of the SSDI program operating as designed. However, SSDI is designed to pay benefits to people who cannot work because they have an impairment that is expected to last at least one year or result in death (SSA 2014). Therefore, it is reasonable to expect more than a few workers to exit the labor force via SSDI receipt and then to return post rehabilitation or treatment, however, this is not the case in this study. Future studies should examine potential explanations for this lack of receipt post age 50 in the HRS sample. Further, the majority of SSDI recipients have a labor-intensive occupation, self-identify as work disabled and are female. There are several cases that continue to apply for SSDI after wave five and between ages 50 and FRA, but they are not receiving SSDI. Specifically, individuals with fewer personal resources (e.g., employer insurance, income) and non-crisp labor force exits are most likely to apply for SSDI. One possible explanation is that HRS is not capturing the cases that receive SSDI after age 50 or the SSDI program is not comprehensive enough to capture those who develop a work disability later in life. Although this may be good news for preventing burden on the program in terms of paying out to disabled workers, there are still individuals applying for SSDI and this number is growing. While the costs are obviously lower, it is still costly (dollars and time) to handle all of these applications. The growth in attorneys handling SSDI applications and appeals processes, as well as the media attention to such growth, is an indication that we will not be seeing a decline in applications any time soon.

As a key independent variable, self-identified work disability is a strong predictor for several of the labor force transition types. Individuals who identify as work disabled are more likely to belong to labor force transition types that do not include crisp exits. Specifically, individuals who identify as work disabled are more likely to return to the labor force after first exit of retire and they are more likely to experience multiple transitions between retire, out of the labor force, part-time and full-time work compared to those who do not identify as work disabled. It is clear that work disability has a strong impact on labor force participation and exit behavior. Unfortunately, it is difficult to determine the impact of self-identified work disability on SSDI receipt given too few new cases of SSDI receipt post wave five. Given that the HRS does not differentiate between SSI and SSDI receipt prior to wave five, we are limited in our options for examining only SSDI recipients prior to wave five. Although self-identified work disability is initially a strong predictor of application for SSDI, its strength as a predictor diminishes when personal resources and labor force career transition type are taken into account. This suggests that when it comes to applying for SSDI, access to personal resources and labor force transition type have a stronger impact on likelihood of applying than identifying as work disabled. That being said, self-identified work disability remains a significant predictor of application for SSDI regardless of covariates, which suggests it is still a strong predictor of application for SSDI.

As mentioned previously, crisp-exits are not the modal pattern of labor force exits. Studies that focus solely on first-exit from the labor force when examining SSDI application and

receipt may miss those who apply for and/or receive SSDI after their first exit. For example, many individuals were categorized as “comeback” in to the labor force. This means that they worked full- or part-time, retired, then returned to the labor force (occurred at least once). Also, results indicate that many individuals transition between retire and out of the labor force, with intermittent periods of part-time or full-time working. Many of these individuals apply for SSDI and will not be captured by the majority of studies focusing on first labor force exits.

Implications

The findings from this study indicate that older workers who self-identify as work disabled and older workers with limited personal resources and “non-crisp” labor force exits are at the greatest risk of applying for SSDI. The results provide a characterization of who applies for SSDI, but also provides possible strategies or ideas that may decrease the number of SSDI applications and recipients in the future. First, we know that SSDI recipients tend to be younger than 50, permanently disabled, in labor occupations and female. Programs or interventions can be implemented that target these groups of people to provide occupations not impacted by their disability and possible employer accommodations. Second, it is clear that many disabled workers attempt to remain in the labor force (often due to financial and insurance limitations). Many of these workers transition between full and part-time jobs, drop out of the labor force for a period of time and return when able. If given the proper skills and knowledge, it is possible that many of the work disabled applying for SSDI would no longer need to apply if they were provided with better employment opportunities and/or training. Lastly, the results suggest that there is a segment of the population that can be termed the “hidden disabled.” These are the individuals who identify as work disabled, but exit via retirement because they have the personal resources to do so. As we continue to see a decline in employer provided pensions and insurance, it is possible that many of these “hidden” work disabled individuals may begin to apply for SSDI. Knowledge is power. Knowing that there is a “hidden” disabled population and that the structure of employment benefits is changing, now is the time to develop intervention studies and programs that can curtail future increases in SSDI application and recipients.

SSA could enact “preventive application” programs that target the segment of the population with the greatest risk for applying to SSDI. These programs could include education, skills training, etc. to diversify the workers abilities so when their impairment becomes a disability, they will be better able to find a job that matches their abilities rather than applying for SSDI. A part of the disability movement is the idea that a disability does not have to be disabling. This means that even among the most severely disabled, society can (and should) provide opportunities that meet the abilities of everyone. If the majority accepts this contention, then it is reasonable to expect employers and SSA to provide these opportunities so that even the most severely disabled person can work and only partially rely on SSDI.

Limitations and Future Research

Limitations in this study are three-fold. First, since HRS does not differentiate between SSDI and SSI until wave five, there too few new cases of SSDI receipt to conduct analyses. This inadequacy also extends issues with selection bias and panel attrition. A second limitation is the lack of geographically linked data. Without this information, it is impossible to account for the variation in employment rates (and opportunities) and variations in SSA rates of SSDI application approvals and refusal. At this point in time, no dataset exists that can account for this limitations. Third, and a bit more technical, there is no statistical method available within social

sciences to use latent class analysis with panel data. This is often the reason why researchers focus on first labor force exits because it is so difficult to adequately capture labor force careers with multiple exits without some form of latent class analysis. Multiple-spells hazard models are a possible alternative method, but many of the assumptions are violated in the case of multiple exits and re-entries. It was my hope to develop a new method for using latent class analysis with panel data, but I have been unsuccessful thus far. There is hope within the discipline of econometrics, but that is the unforeseeable future.

Future studies should consider applying for HRS data that is link to SSA data. This would alleviate some of the limitations discussed earlier. Studies should also further explore ways in which labor force transition patterns occur and what best explains the dominant patterns. This study only presents six of the dominant patterns, but there are several other labor force transitions types that occur. Lastly, future studies should explore the use of mixed-methods in which interviewers could ask some of the whys behind applying for SSDI and ascertain the context in which self-identified work disability is an important predictor of application for SSDI. Researchers would also gain insight into the thought-process behind labor force transitions and exits.

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Figure 1. Labor Force Status By Wave

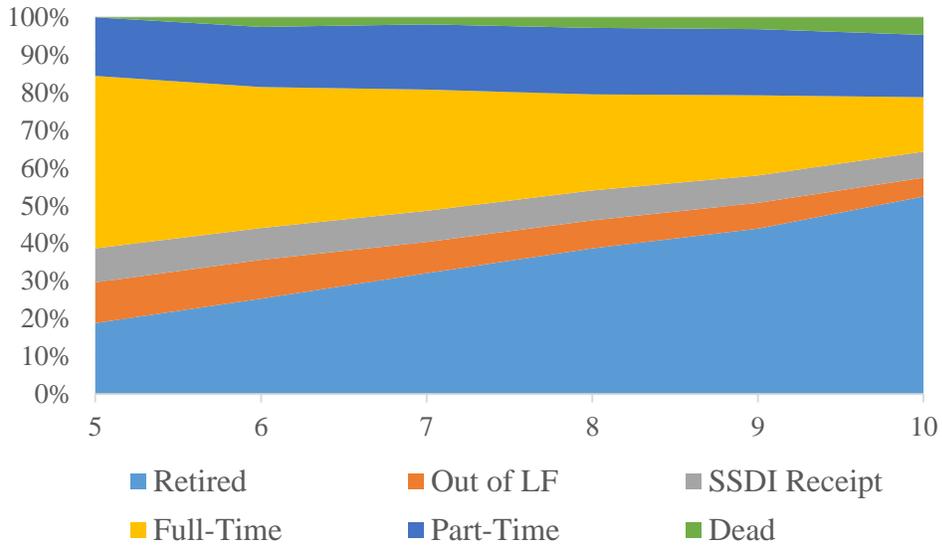


Figure 2. Descriptive Statistics of SSDI Recipients at Baseline (N=1,189)

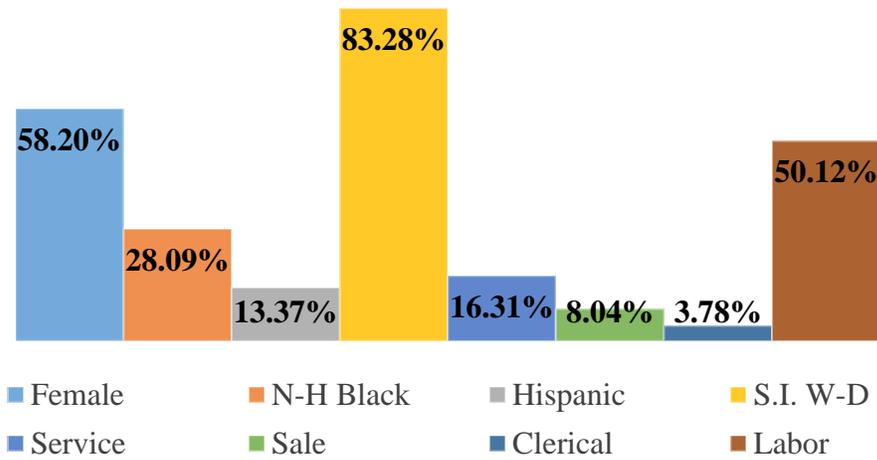


Table 1. Descriptive Statistics of Labor Force Transition Types at Baseline

Typology	Percent (N=8,801)	<i>Female</i>	<i>S.I. Work Disability</i>	<i>Employer Helps</i>	<i>Non-Hispanic Black</i>	<i>Hispanic</i>
Continuous Full-Time	6.8% (598)	49.18%***	4.32%***	0%***	13.55%	6.35%**
Full-Time to Retire	17.5% (1,544)	51.55%***	8.5%***	1.17%**	15.22%	9.07%
Part-time to Retire	8.0% (702)	67.24%***	18.94%***	2.71%†	13.11%†	7.41%†
Comeback	4.7% (418)	49.28%***	10.91%***	1.2%	14.59%	5.98%*
Retire and/or Out	23.4% (2,062)	71.14%***	36.03%***	2.38%†	14.21%	12.37%***
Full-time or part-time	17.6% (1,552)	52.84%***	9.06%***	0.9%**	12.82%**	8.12%
Other	22% (1,925)	52.84%***	30.57%***	0.82%	18.08%***	0%***

Notes: †p<.10, * p<.05, ** p<.01, *** p<.001 (chi-square)

Table 2. Logistic Regression of Each Typology at Baseline (log odds)

<i>Variables</i>	Continuous FT (N=598)	FT-Retire (N=1,544)	PT-Retire (N=702)	Comeback (N=418)	Retire &/or Out (N=2,062)	FT or PT (N=1,552)
<i>S.I. Work Disability</i>	-0.41	-0.43*	-0.07	-1.13***	0.50***	-0.78***
<i>SSDI Applied</i>	-	-4.7***	-2.5*	-	-	-4.3***
<i>Female</i>	-0.82**	0.23*	0.36*	-0.31†	0.54***	-0.4***
<i>Age</i>	-0.15*	-0.06*	0.18***	-0.03	0.07**	-0.13***
<i>Education</i>	0.06	-0.09***	0.05†	0.02	-0.07***	0.02
<i>Hispanic</i>	0.22	0.40†	-0.37	-0.15	-0.09	0.21
<i>Non-Hispanic Black</i>	0.27	0.02	-0.22	0.09	-0.05	0.11
<i>Employer Insurance</i>	-.29	0.99***	-0.65***	0.27†	-1.00***	0.36**
<i>Spousal Insurance</i>	-0.50	0.56**	0.08	-0.32	-0.02	-0.01
<i>Earnings (ln)</i>	0.12*	0.65***	0.48***	-0.31*	-0.28*	0.23
<i>Sale</i>	0.23	-0.25	0.56*	-0.31	-0.30*	0.60***
<i>Service</i>	0.17	0.27	-0.54†	.05	-0.30†	-0.09
<i>Clerical</i>	0.70*	0.28*	0.29	-0.10	-0.27*	0.10
<i>Labor</i>	0.11	0.24†	-0.16	0.05	-0.22†	0.07
<i>No. Chronic Co. ^a</i>	-0.29**	0.14**	-0.03	-0.07	-0.04	-0.03
BIC	813.68	2467.43	1625.98	1672.87	3843.87	3107.88
X²	42.37***	191.49***	155.55***	51.18***	255.3***	120.86***

Notes: †p<.10, * p<.05, ** p<.01, *** p<.001

Male, Non-Hispanic White, and Managerial/Professional are reference categories; ^a Number of Chronic Conditions; Weighted

Table 3. Logistic Regression of SSDI Application between Waves 5 and 10 (log odds)

<i>Variables</i>	SSDI Application		
	Model 1	Model 2	Model 3
<i>S.I. Work Disability</i>	1.79***	0.98***	0.07*
<i>Female</i>	0.85**	2.22***	3.20***
<i>Age</i>	-0.17*	-0.68***	-0.81***
<i>Non-Hispanic Black</i>	2.04***	5.00***	-3.02***
<i>Hispanic</i>	-1.28*	-1.25†	-1.25
<i>Education</i>	-0.52***	-0.53***	-0.59***
<i>Service</i>	0.22	0.26	-1.85
<i>Labor</i>	0.43*	0.01	1.61*
<i>FT-Retire^a</i>	-	-27.41***	-33.73***
<i>PT-Retire</i>	-	-23.42***	-30.11***
<i>FT or PT</i>	-	22.76***	30.49***
<i>Employer Help</i>	-	-	-.056
<i>Employer Insurance</i>	-	-	-1.35*
<i>Spousal Insurance</i>	-	-	-0.62*
<i>Earnings (Ln)</i>	-	-	-0.21**
<i>No. Chronic Co.^b</i>	-	-	8.03***
LL	-2842.12	-1559.08	-754.66
X ²	219.38***	393.92***	573.92***
BIC	5788.89	3250.62	1674.60

Notes: †p<.10, * p<.05, ** p<.01, *** p<.001

Male, Non-Hispanic White, Managerial/Professional and Retire or out of the labor force are reference categories; ^a Full-time then retire; part-time then retire; full-time or part-time; ^b Number of Chronic Conditions; Weighted