The Rising Visibility of the Work-Disabled Population: Influence of Self-Reported Work Disability in Applying for SSDI

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Abstract:
Traditionally, the pension-based retirement system and employer-based health care served as the primary vehicles for leaving the labor force prior to full retirement age. Those workers experiencing health problems could retire and have sufficient income and medical insurance prior to full retirement age (FRA). Yet with the recent erosion of these employment benefits in many occupational sectors, an increasing number of workers are no longer able to "retire early" in the face of significant physical health problems that limit the ability to work. This has contributed to the increase in SSDI applications in the past 15 years and is expected to lead to even greater swells in the future. Given these sweeping changes in the availability of employer-based retirement and medical benefits, as well as changes in the labor force structure, health-mandated early exits from the labor force have become a critically important line of inquiry. To better understand these health-mandated early exits, I examine the interaction of self-perceived work disability with the availability of personal resources and health status in labor force exits and application for and receipt of SSDI using waves 5 through 10 of the Health and Retirement Study. The findings from this study suggest that self-identified work disability is a key predictor of first labor force exit and SSDI receipt. Further, personal resources are also found to be a strong predictor of first labor force exit, application for and receipt of SSDI. This study helps distinguish the "invisible" work-disabled older adults who are able to retire early from the "visible" work-disabled older adults who enter into the SSDI application process.

Specific Aims

Since the inception of the Social Security Disability Insurance (SSDI) program in 1956, its purpose has been to provide a state-sponsored safety net for those who have physical, mental, or emotional problems that limit the ability to work. Traditionally, the pension-based retirement system and employer-based health care served as the primary vehicles for leaving the labor force prior to full retirement age (Burtless and Moffitt 1984; Gordon and Blinder 1980; Samwick and Wise 2003). Those workers experiencing health problems could retire and have sufficient income and medical insurance prior to full retirement age (FRA). Yet with the recent erosion of these employment benefits in many occupational sectors (Shuey and O'Rand 2004; O'Rand 2005), an increasing number of workers are no longer able to "retire early" in the face of significant physical health problems that limit the ability to work. This has contributed to the increase in SSDI applications in the past 15 years and is expected to lead to even greater swells in the future (Benitez-Silva et al. 2005; Burkhauser et al. 2002b).

Given these sweeping changes in the availability of employer-based retirement and medical benefits, as well as changes in the labor force structure, health-mandated early exits from the labor force have become a critically important line of inquiry. Although some research has examined structural "push" and "pull" factors associated with early labor force exits, including age-discrimination (Johnson and Neumark 1997) and reduced incentives for resource accumulation (Straka 1992), little attention has been paid to self-identified work disability as a factor for remaining in or leaving the labor force. Workers can exit the labor force via a "retirement" pathway even if it is truly due to health, making it virtually impossible to know how many work-disabled older adults exist. While only a few studies that have utilized self-identified work disability as a key predictor, there is consensus 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). However, it is unclear how self-identified work disability interacts with the availability of personal resources and health status influencing the decision to exit the labor force early and apply for SSDI.

The purpose of this study is to identify the relative importance of self-perceived work disability in type of labor force exit pathway, choice to apply for SSDI and likelihood of receiving SSDI. Using five waves (10 years) of the *Health and Retirement Study*, a nationally-representative panel study of adults ages 50 and older, I will accomplish three aims:

Aim 1: Examine the relative influence of self-perceived work disability on type of labor force exit, net of actual health status and socioeconomic factors among persons ages 50 and older.

Aim 2: Among those who self-report work disability, determine whether health (e.g., chronic conditions; physical functioning) and socioeconomic (e.g., employer-based insurance, pension or other retirement income) factors influence the decision to apply for SSDI.

Aim 3: Among those who apply for SSDI, determine whether and to what degree self-reported work disability predicts receipt of SSDI.

Background and Significance

Self-Identified Work Disability

Although the SSA disability determination process requires extensive documentation of physical, emotional, and mental limitations, the first step is for a worker to conclude that his/her health prevents full productivity in the workplace. One's subjective assessment of health would seem to be individualistic, yet it is actually a very social process. For example, some older adults consider the external evaluations of their health status provided by physicians, friends, or family in self-assessments of their own health (Borawski-Clark et al. 1996). Although there has been very little systematic work on this topic, it stands to reason that co-workers and work supervisors can also influence an older adult's perception of health status. For instance, there could be a "contagion" effect where as fellow workers with similar health status begin retiring early, the

worker considers work exit pathways for him/herself. Further, research has shown that perceptions of one's level of functioning are a stronger predictor of subsequent behavior than *actual* functional status (Kelley-Moore et al. 2006). Thus, *believing* that one cannot continue to work is likely a key determinant in electing to leave the labor force.

The use of self-identified work disability in understanding labor force exits is not a new idea, but rather rare (Barnow 2008; Burkhauser et al. 2002a; Hayward and Grady 1990; Brown and Warner 2008). Scholars who incorporate self-identified work disability into their studies generally examine its influence on the timing, transition, and duration of labor force statuses. 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).

Prior research has shown that self-identified work disability is a strong predictor of labor force exits and transitions. While socioeconomic and demographic factors play a role, it is unclear how self-identified work disability interacts with the availability of personal resources and health status influencing the decision to exit the labor force and apply for SSDI. This is a critical area of study because SSDI rolls are increasing and there is a need to understand why the rolls are increasing and by examining the combined impact of self-identified work disability and personal resources and health may provide pertinent information. 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 and receipt for SSDI will in fact depend on personal resources, health, and self-identification of work disability.

Personal Resources and Labor Force Exit

Availability of retirement resources is also an important factor when workers consider exiting the labor force (Rogowski and Karoly 2000; Straka 1992). For workers, this decision is an increasingly daunting one, especially when one considers workers' level of dependence on pension programs. The number of employers offering health benefits and/or retirement health benefits has significantly decreased in the past two decades. The proportion of working men of all ages with access to employer health benefits decreased from 65 to 52 percent between 1979 and 1992 (Harrington Meyer and Pavalko 1996). Further, a U.S. GAO report (2000) shows that even among large employers, which are more likely to offer retiree health benefits, the proportion offering benefits have decreased from over 50 percent in 1993 to 37 percent in 2000. The number of employers offering employee pensions has also decreased (Harrington Meyer and Herd 2001; Quadagno 1999), especially within low status occupations (Rogowski and Karoly 2000). Further, longer life expectancy means that those who retire early must have adequate retirement savings and/or pensions to last a longer period of time than in prior decades (Holden and Hatcher 2011; Rix 2001, 2011).

Employer pension plans, especially among private sector workers, are increasingly defined contribution plans, which place the majority of the risk of retirement savings on the employee (O'Rand et al. 2009). In 2006, 70 percent of private sector workers were covered by defined contribution plans relative to 17 percent in 1980 (Munnell et al. 2008). There are numerous consequences associated with this shift to defined contribution plans beyond the change in risk. Most notably, enrollment in defined contribution plans is voluntary, so even when employer pension benefits are available, few employees choose to participate (Munnell and Sundén 2006). Also, many workers cash-out their plan when they change jobs or are in need of "fast cash" and many do not contribute enough to assure an adequate pension at retirement (Williamson 2011). This means that, increasingly, workers will exit the labor force with either no employer pension or a pension amount smaller relative to those with defined benefit plans. 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.

Beyond personal retirement resources, the availability of spousal earnings or pensions also influences the decision to exit the labor force. Married women are more likely to retire than

divorced or widowed women (Warner and Hofmeister 2006) because of higher levels of household wealth (Wilson 2003). When individuals have access to a spouse's earnings or pension, then they are more likely to exit the labor force (Szinovacz and DeViney 2000). Due to high divorce rates and the weakening employer pension system, fewer workers will have access to spousal earnings and/or pensions. Thus, with the dwindling availability of both personal and spousal retirement resources, workers who become disabled have fewer pathways out of the labor force. This means the disabled worker may have to choose SSDI receipt exit rather than retire early and rely on pension or spouse to supplement income until FRA. The increasing volume of SSDI applications in the past decade (Dahl and Meyerson 2010) is evidence to support the hypothesis of the "invisible" work-disabled previously absorbed into the private pension system becoming more "visible" to public social programs.

Health Status and Labor Force Exit

Numerous studies have shown that although the significance of the normalized notion of retirement is important, exits from the labor force are becoming increasingly diverse with respect to timing and transitions (Ekerdt and DeViney 1999; Hayward and Grady 1990) and vary by social groups (Brown and Warner 2008; Calasanti 1996). Women are more likely to retire prior to age 62 than men (Warner and Hofmeister 2006) and women in poor health retire earlier (Flippen 2005). Women and racial minorities are more likely to report poor health and experience higher levels of disability (Luo and Waite 2005). Black and Hispanic women in particular report worse overall health, have a higher prevalence of several major chronic conditions and spend more years with functional limitations than whites (Angel and Whitfield 2007), and this is especially true for those of low occupation status (Gueorguieva et al. 2009). It is not surprising then that Black and Hispanic women between 50 and 80 years of age are twice as likely to be work-disabled, primarily due to disparities in life course capital, than whites (Brown and Warner 2008).

Many labor force exits are due to health problems (Uccello 1998). For example, health is a significant predictor of retirement (Miah and Wilcox-Gok 2007; Szinovacz and Davey 2005), unemployment (Burr and Mutchler 2007; Schur 2002), and application for or receipt of disability insurance (Bound et al. 1999; Mutchler et al. 1999; Schur 2002). Although retirement is the normative notion behind exiting the labor force, more workers, particularly minority women, are experiencing health-mandated exits that are becoming more visible in society (Bound et al. 1999; Henretta, Chan, and Rand 1992), via increasing numbers of applications for and enrollment in SSDI. Further, both the fact that women are more likely to become disabled (Laditka and Laditka 2002) and a larger proportion of women are in the labor force than ever before (Lee and Mather 2008), it stands to reason that the number of women exiting the labor force early due to work limitations will increase, and in effect, further increase the number of applicants for and recipients of SSDI.

Knowledge about who applies for and receives SSDI can better enable policy makers to adjust current legislation about eligibility requirements and ways in which to keep older adults with work disability in the labor force. The responsibility for accumulating retirement resources is shifting from employers to employees (Shuey 2004; Shuey and O'Rand 2004), fewer working Americans are able to accumulate retirement resources due to job loss, divorce and economic downturns (Warner and Hofmeister 2006), and health-mandated exits are happening at younger ages (Henretta 1992; Sammartino 1987). The combined effect of all three of these trends will mean that more people will exit work-disabled with few resources and in all likelihood, will apply for SSDI. Even if these individuals do not receive SSDI, SSA could be overwhelmed by the sheer volume of applicants which will not only cost SSA resources, but will also hinder the process of awarding benefits to those who are eligible.

In sum, this study builds upon prior research and can prepare the SSA for future increases in SSDI applications and receipt by providing pertinent information about who is most likely to apply for and receive SSDI. This study focuses on the unique influence of self-identified work

disability, net of individual resources and health, which has been shown to be a robust predictor of early retirement.

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) [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 with 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 functional limitations, resources and labor force participation. The sample ages are restricted to 50- 64 years of age and who are currently employed at W5. Item-missing data is handled with single and multiple imputation as appropriate and proxy interviews are not utilized. All analyses are weighted.

Measures

There are three dependent variables, one for each study aim. *Aim 1:* The dependent variable for Aim 1 is type of *labor force exit* (*LFE*). LFE is a nominal variable with four categories: (1) *retired* 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* if ever received SSDI; (4) *continued working* if the respondent did not exit the labor force. Any respondent that receives SSDI is coded as such, regardless if they claim the retired or out of the labor force status. These analyses exclude any respondent who transitions to part-time work, as it is likely to be confounded with unidentified work disability. Prior literature indicates that partial retirement or part-time work may be the worker satisfying a "desire for structured activity, social contacts, or additional income" (Hayward, Hardy, and Liu 1994 p.84). Kim and DeVaney (2005) found that partial retirement is influenced by chronic health conditions, self-employment, and education. Specifically, "male workers, older workers, those with more education, those with more chronic conditions, and those who are self-employed are more likely to choose partial retirement than full-time work" (Kim and DeVaney 2005 p. 390). Partial retirement and part-time work have received far too little attention in work and retirement literature to draw clear conclusions about what they measure (Ekerdt 2010). It is not in the scope of this study to examine what part-time work or partial retirement actually measure, but the importance of each concept is acknowledged and this study recognizes that by excluding them, an important piece of the relationship between self-identified work limitation and LFE may be missed.

These four categories were selected because they capture a wide array of labor force exits and still help isolate the particular labor force exit pathway of interest (Hayward and Grady 1990; Williamson and McNamara 2003). Although continuing to work is not an exit pathway, it is important to identify this group for valid contrasts. For these two aims, only the first observed exit occurring in waves 5 through 10 is counted.

Aim 2: Application for SSDI is the dependent variable for the second aim. This variable is dichotomous (1=yes; 0 = no). Respondents were queried about whether they had ever applied for SSDI. *Aim 3*: *Receipt of SSDI* is the dependent variable for aim three. This variable is also dichotomous (1=yes; 0 = no). The HRS confirmed the self-reported receipt of SSDI.

The key independent variable is *self-reported work disability*. 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 affirmative responses to both questions are coded 1, and all others are coded 0. For the first aim, self-identified work disability is lagged. The wave prior to the first labor force exit is used to determine if the respondent identified as work disabled or not. There are three domains for the independent and control variables. First, *personal resources*: access to employer based insurance, access to employer based insurance via a spouse, and household income (log-transformed dollars. Second, *health status*: number of chronic conditions (continuous 0-8 e.g., diabetes or arthritis). *Demographic* covariates used for all three specific aims include: age (continuous); race/ethnicity (non-Hispanic White, non-Hispanic Black and Hispanic); education (categorical 1=less than high school/5=graduate school); occupational class for longest-working job (series of binary indicators: e.g., manufacturing; service; managerial); and gender.

Analysis Plan for Aims

Aim1: This aim examines the relative influence of self-perceived work disability on type of labor force exit by employing multinomial logistic regression (Long and Freese 2001). The outcome has four nominal categories: *retired*, *SSDI receipt*, *out of the labor force* and *continued working*. This type of model is ideal because it allows for direct comparison of the relative odds for each of the covariates across types of labor force exit. Three nested models are used to estimate the odds-ratios of the covariates for the four exit types. Model 1 (base model) includes *self-reported work disability* and *demographic* variables. Model 2 adds *health status* and Model 3 adds *personal resources*. The log likelihood is used to assess model fit and the log-likelihood ratio (LR) test is used to test for significant change in model fit between the three models (DeMaris 2004).

Aim 2: For this aim, analyses are limited to those who self-report work disability. To determine whether and which health and personal resource factors influence the decision to apply for SSDI among those who self-report work disability, a series of three nested logistic regression models are estimated. This aim highlights the differences between those who self-report work disability and apply for SSDI versus those who self-report work disability and do not apply for SSDI. The outcome is *application for SSDI*. Model 1 (base model) includes *demographic* variables. Model 2 adds *health status* and Model 3 adds *personal resources*. Again, the LR test to test for significant change in model fit between the three models will be utilized.

Aim 3: For this aim, analyses are limited to those who applied for SSDI. To determine whether and to what degree self-reported work disability predicts receipt of SSDI, three logistic regression models are estimated. The outcome is *receipt of SSDI*. Model 1 (base model) estimates odds ratios for receiving SSDI using *self-reported work disability* and *demographic* variables as predictors. Model 2 adds *health status* and Model 3 adds *personal resources*. It allows me to observe if *self-reported work disability* remains significant, net of other resource and health factors. Change in model fit will be assessed using the LR test.

The findings from this study can help SSA refine application procedures and adapt program outputs by having 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. Lastly, the findings can provide an estimate of the "invisible" work disabled older adults who are able to retire early, giving SSA an idea of how future reductions in pensions and personal resources may impact the numbers applying for SSDI.

Results[1]

To determine the relative influence of self-identified work disability, health status, and personal resources on first labor force exit, three multinomial logistic models were estimated predicting whether respondents were retired, receiving SSDI, or out of the labor force versus in the labor force. Table 1 displays these results, where Model 1 presents the relative influence of

[1] Tables 1, 2, and 3 are located on pages 15-17.

self-identified work disability in the odds of being retired, receiving SSDI, and being out of the labor force, Model 2 incorporates the number of chronic conditions, and Model 3 accounts for personal resources.

From Employment to Retirement (Aim 1)

Overall, Model 1 indicates that the odds of being retired (versus in the labor force) are about 2.08 higher ($e^{.74}$) for those who self-identify as work disabled compared to those who do not identify as such. Age is positively associated with the odds of being retired, consistent with prior research (Brown and Warner 2008). Model 2 incorporates number of chronic conditions. Consistent with model 1, model 2 indicates that retirees have higher odds of identifying as work disabled and to be older. However, education is no longer a significant predictor of retirement status (compared to workers), rather, respondents with a greater number of chronic conditions have higher odds of retirement (versus in the labor force) than those with fewer by a factor of 1.20. Interestingly enough, in Model 3, self-identified work disability is no longer significant. It appears that when personal resources are accounted for, there are no significant differences in the odds of being retired versus in the labor force in regards to work disability. It is possible that those who have a self-identified work disability are able to exit via retirement due to greater personal resources. Model 3 also indicates that those whose longest job occupation consists of clerical work have higher odds of being retired than those in professional and managerial occupations by a factor of 1.59. This is consistent with literature that suggests that those in higher paying occupations retire at later ages relative to those in lower level occupations. In sum, the odds of being retired versus in the labor force are higher for those with self-identified work disability, however, when personal resources are accounted for, self-identified work disability no longer significantly predicts the odds of being retired versus in the labor force.

From Employment to SSDI Receipt (Aim 1)

Respondents who identify as work disabled or who are black have higher odds of exit via receipt of SSDI. This means that even when health status and personal resources are accounted for, self-identified work disability and being black remain significant predictors of SSDI receipt. Specifically, self-identifying as work disabled raises odds of SSDI receipt by a factor of 103.64 and black respondents (compared to whites) have odds 3.25 times higher for SSDI receipt when accounting for health and personal resources. Further, having greater personal resources, namely household income and employer based insurance, lowers the odds of receiving SSDI versus staying in the labor force.

From Employment to Out of the Labor Force (Aim 1)

In the final comparison, being female and having an occupation that consist of labor raises the odds of being out of the labor force relative to males and professional/managerial occupations regardless of health and personal resources. In Model 3, female respondents have higher odds of being out of the labor force (versus in the labor force) than males by a factor of 2.45. Model 3 also indicates that having greater personal resources (household income and employer insurance) lowers the odds of being out of the labor force.

In sum, the odds of exiting the labor force via retirement are higher for older respondents and those who identify as having a work disability. However, once personal resources are accounted for, self-identified work disability no longer has a significant impact on the odds of exiting the labor force via retirement. In comparison, self-identified work disability raises the odds of exiting via SSDI receipt even when personal resources are accounted for in the model. Lastly, being female and having a manual occupation raises the odds of being out of the labor force even when accounting for health and personal resources. Assessment of model fit indicates that all three models are significant and the log likelihood ratio test indicates that Model 3 is the best-fitting model overall.

Application for SSDI among Work Disabled (Aim 2)

To assess whether health and personal resources influence the application for SSDI among those who self-reported work disability, three nested logistic regression models were estimated. Table 2 shows the results, where Model 1 presents the relative influence of demographic characteristics, Model 2 includes the number of chronic conditions, and Model 3 incorporates personal resources.

Overall, Model 1 suggests that as increasing chronological age lowers the odds of applying for SSDI by a factor of .89. Given that workers can collect (reduced) Social Security benefits at age 62, it is not surprising that when respondents approach this age and full retirement age, the odds of applying for SSDI are lower than at younger ages. More years of educational attainment lower the odds of applying for SSDI by a factor of .90. Model 1 also shows that blacks and those with more manual occupations have higher odds of applying for SSDI compared to non-Hispanic whites and professional/managerial occupations, respectively. In Model 2, number of chronic conditions is incorporated. In comparison to Model 1, a manual occupation is no longer a significant predictor of the odds of applying for SSDI. More chronic conditions raise the odds of applying for SSDI by a factor of 1.35. This may indicate that rather that chronic conditions are more numerous in labor-intense occupations compared to professional and managerial occupations. It is possible that chronic conditions are a symptom of more manual or physical occupations and better account for applying for SSDI than the actual occupation. Lastly, Model 3 includes personal resources. Age, black, and chronic conditions remain important predictors of application for SSDI, however, education is no longer significant when personal resources are incorporated. The influence of education may be overshadowed by the result or outcome of higher educational attainment. Specifically, higher household income and access to employer-based insurance are directly related to educational attainment, and therefore, may be more important in lowering the odds in applying for SSDI. The finding that greater personal resources lower the odds of applying for SSDI is consistent with prior literature. Model chi-square (X^2) indicates that each model is significant, and the log likelihood ratio tests indicate that Model 3 is the best fitting model.

Receipt of SSDI (Aim 3)

To determine whether self-identified work disability predicts receipt of SSDI among those who applied for SSDI, three nested logistic models were estimated. Table 3 presents these results, where Model 1 presents the relative influence of self-identified work disability and demographic characteristics, Model 2 includes the number of chronic conditions, and Model 3 incorporates personal resources. Self-identified work disability is a key predictor of SSDI receipt in all three models. This means that despite the incorporation of health and personal resources, SSDI applicants that self-identify as work disabled have significantly higher odds of receiving SSDI than those who do not self-identify as work disabled. Model chi-square and log likelihood ratio tests indicate that Model 3 is the best fitting model. In Model 3, self-identification as work disability raises the odds of receiving SSDI by a factor of 22.51. As expected, greater personal resources lower the odds of receiving SSDI. A surprising finding is that having a manual occupation does not significantly raise the odds of receiving SSDI among those who self-identify as work disabled. Instead, compared to professional and managerial occupations, the odds of receiving SSDI are lowered among those with sales and service occupations. Consistent with expectations, self-identified work disability remains a strong predictor of SSDI receipt while accounting for health and personal resources.

Discussion

The purpose of this study is to identify the relative importance of self-identified work disability in type of first labor force exit, choice to apply for SSDI, and the likelihood of receiving SSDI. The multinomial logistic regression and logistic regression models all indicate that self-identified work disability is indeed a strong predictor of labor force exit, application for SSDI, and SSDI receipt. Specifically, self-identified work disability is a strong predictor of retirement and SSDI receipt. This finding is consistent with prior literature (Barnow 2008; Burkhauser et al. 2002a; Hayward and Grady 1990; Brown and Warner 2008), however,

contributes the finding that self-identified work disability is not a significant predictor of being out of the labor force. Being out of the labor force is best explained by personal resources. Self-identified work disability remains a strong predictor for a retire or SSDI receipt labor force exit after accounting for chronic conditions and personal resources. In fact, a greater number of chronic conditions are only a significant predictor for raising the odds of a retire exit while greater personal resources lower the odds of all three exit types. This may indicate that *believing* one is work disabled is a stronger predictor of first labor force exit than actual chronic conditions. For the first specific aim, it is clear that self-identified work disability is indeed a significant predictor of the odds for retiring and receiving SSDI net of health and personal resources. What is interesting is that although we expect self-identifying as work disabled to predict receipt of SSDI, not everyone who self-identifies as work disabled receives SSDI.

To further explore the influence of health and personal resources, application for SSDI among those who self-identified as work disabled was examined. The results suggest that as age increases, the odds of applying for SSDI is lower. Although this may seem counterintuitive given the expectations of normative aging equating with declining function and ability to work, it may be explained by the structure of Social Security Benefits. Specifically, workers are eligible for early benefits at age 62 and by full retirement age, they are no longer considered disabled but rather old. This finding is similar to prior literature where the odds of receiving SSDI were lower as ages approached 62 and full retirement age. Rather than apply for SSDI, which can be a complex and frustrating ordeal, older workers may be more inclined to apply for early benefits, especially if they are in a position to accept the financial disincentives for early retirement benefits. Other demographic characteristics that significantly influence applying for SSDI include manual occupations and being black. Compared to professional and managerial occupations, those with manual occupations have higher odds of applying for SSDI. This could be the result of the nature of occupations that require manual labor. Specifically, prior literature has suggested that manual or physical occupations tend to increase the risk of injuries and chronic conditions that may result in work disability (Hayward and Grady 1990). Relative to whites, blacks have higher odds of applying for SSDI, which is consistent with prior research. Results also indicate that personal resources lower the odds of applying for SSDI. This means that workers who have higher household income and employer insurance (self or spouse) tend not to apply for SSDI. This is consistent with the expectations of this study and prior literature. Among those who self-identify as work disabled, health and personal resources are strong predictors of application for SSDI. If more workers had access to greater personal resources, it is likely that the need to apply for SSDI would be reduced.

The final specific aim is designed to determine whether self-reported work disability predicts receipt of SSDI among those that apply, as well as the relative influence of health and personal resources. Self-identified work disability remained significant net of health and personal resources, which suggests that it is a strong predictor of SSDI receipt. Those who report being work disabled are indeed more likely to receive SSDI. What is interesting is that chronic conditions do not play a significant role in receiving SSDI. This lends further support to the idea initially discussed for the first specific aim that believing one is work disabled has a greater impact than objective measures of health. Consistent with the first two specific aims, greater personal resources lower the odds of receiving SSDI. Although self-identified work disability is a strong predictor of SSDI receipt, personal resources are also a strong predictor.

Overall, the results indicate that self-identified work disability is a strong predictor of first labor force exit (excluding out of the labor force) and receiving SSDI. The results suggest that even though chronic conditions and personal resources have an impact on first labor force exit, application for and receipt of SSDI, believing one is work disabled remains a strong predictor. Greater personal resources have a consistent impact on the outcomes of interest compared to chronic conditions, which suggests that the decision to apply for SSDI and the ultimate receipt of SSDI are not only dependent on actually identifying as work disabled, but

also on the amount and type of personal resources available. A second piece to this story is that identifying as work disabled does not automatically equate with applying for SSDI. Rather, those who identify as work disabled *and* have inadequate or limited personal resources have higher odds of applying for SSDI. Those who identify as work disabled and have adequate personal resources have lower odds of applying for SSDI.

Implications

The findings from this study indicate that older workers who self-identify as work disabled and older workers with limited personal resources are at the greatest risk of applying for SSDI and receiving SSDI. This provides not only a characterization of the subset of older workers who seek SSDI benefits, but it also provides possible ideas for strategies to decrease the number of SSDI applications and recipients. Primarily, this study indicates that while objective health is somewhat important for predicting SSDI application, self-identified work disability is potentially a stronger predictor. The use of national datasets that provide information about self-identified work disability can be used to project future swells of SSDI applications. Studies that focus solely on objective measures of health to predict SSDI application are ignoring the importance of how belief in being work disabled also has a strong impact on applying for SSDI. This study also suggests that personal resources truly matter in regards to the three outcomes of interest. Results suggest that work disabled individuals with economic resources do not apply for SSDI. It is conceivable that work disabled individuals only apply for SSDI when they have no other options in terms of supplementing their income and health insurance. While SSA and SSDI recipients describe SSDI as an insurance program, the results suggest that the subset of older disabled workers that apply for SSDI may be applying due to a lack of economic resources. This may suggest that SSDI, while not intended nor designed to be a social welfare program in any way, is providing some older disabled workers protection from financial insecurities. These older workers also tend to have lower levels of education, lower-paying occupations, and minority status.

The results also suggest that there are "invisible" work disabled older adults that retire early rather than enter into the SSDI determination process. This is evidenced by the finding that self-identified work disability is no longer a strong predictor of a retired status when personal resources are accounted for. If trends continue and employer pension and insurance programs continue to disappear, SSA may face an even greater increase in application for SSDI. Currently, the workers who self-identify as work disabled but have adequate personal resources "retire" rather than apply for SSDI. If the reduction in employer pensions and insurance programs continue, many of these self-identified disabled workers who were invisible to the SSDI determination process may become visible.

Limitations and Future Research

Limitations in this study are three-fold. First, since HRS does not differentiate between SSI and SSDI until wave five, cases for each dependent variable are lost. A loss of information is never desired, but in this case, inevitable. Also, inadequacy of the first four waves also furthers issues with selection bias and panel attrition. Although measures have been taken to accommodate for these issues, their effect could be further reduced if waves one through four were adequate for this analysis. Further studies should link SSA records with HRS respondents in order to differentiate between SSDI and SSI in waves one through four. 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. Lastly, due to both the inability to use waves one through four and missing in dependent variables, there were too few cases to incorporate other indicators of health and personal resources. Advances in the handling of missing data for dependent variables as well as a solution to the first limitation would both adjust for this final limitation.

Future studies should further investigate the role of occupation type and employer accommodations in exiting the labor force, application for and receipt of SSDI. Studies should

focus on factors beyond health and personal resources that may impact the decision of those who are work disabled to apply for SSDI, such as employment opportunities and family involvement. Lastly, future studies should further examine the influence of self-identified work disability on SSDI application. It would be fruitful to conduct a mixed-methods study 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.

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Table 1. Multinomial Logistic Regression Coefficients Predicting First Labor Force Exit Relative to Being in the Labor Force

	Retired			SSDI Receipt			Out of the Labor Force		
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
S.I. Work Disability[a]	.74***	.55**	.29	5.40***	5.14***	4.64***	.77	.93	.44
	(.19)	(.20)	(.22)	(.74)	(.78)	(.78)	(.57)	(.53)	(.59)
Age	.29***	.28***	.26***	.09	.08	.08	-.04	-.04	-.09
	(.03)	(.03)	(.04)	(.11)	(.11)	(.13)	(.11)	(.12)	(.12)
Female	-.01	-.01	-.02	.99	1.02	.97	1.00†	1.05*	.89†
	(.14)	(.14)	(.15)	(.66)	(.69)	(.71)	(.52)	(.52)	(.53)
Black	.22	.18	.28	1.10*	.99†	1.18†	.29	.33	.39
	(.17)	(.17)	(.18)	(.53)	(.53)	(.68)	(.54)	(.54)	(.59)
Hispanic	-.39	-.32	-.42	.85	1.10	.52	1.09	.02	-.33
	(.26)	(.26)	(.28)	(.82)	(.88)	(1.01)	(.69)	(.67)	(.78)
Education	-.05†	-.04	-.02	-.03	-.02	.04	-.18*	-.18*	-.12
	(.03)	(.03)	(.03)	(.08)	(.08)	(.10)	(.08)	(.08)	(.08)
Sales	-.03	-.03	-.07	-.46	-.43	-.72	-.19	-.19	-.32
	(.10)	(.10)	(.12)	(.60)	(.61)	(.67)	(.51)	(.50)	(.51)
Clerical	.34	.35	.45*	-.33	-.26	-.38	.66	.61	.89
	(.23)	(.23)	(.23)	(1.2)	(1.2)	(1.38)	(.83)	(.88)	(.89)
Service	.03	-.01	-.18	.55	.47	.28	1.27	1.27	.79
	(.26)	(.26)	(.29)	(1.07)	(1.08)	(1.24)	(.90)	(.90)	(.91)
Labor	.25	.24	.20	1.40	1.45	1.05	1.52*	1.54*	1.25†
	(.22)	(.22)	(.23)	(.99)	(1.03)	(1.16)	(.77)	(.77)	(.78)
No. Chronic Cond.[b]		.18***	.19**		.26	.34*		-.14	-.03
		(.05)	(.06)		(.17)	(.17)		(.19)	(.19)
Earnings (log transformed)			-.11***			-.18***			-.15***
			(.01)			(.04)			(.03)
Employer Insurance			-.53**			-2.35**			-2.63***
			(.17)			(.74)			(.74)
Spousal Insurance			-.15			-1.66			-.49
			(.20)			(1.09)			(.53)
Intercept	-18.76	18.59	-16.71	-13.23	-13.12	-12.24	-1.3	-.76	2.78

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

N=1,930; Standard errors in parentheses; Male, Non-Hispanic White, and Managerial/Professional are reference categories; Continued working is base outcome; Weighted; [a] Self-identified work disability; [b]Number of Chronic Conditions

Log Likelihood Ratio Test (LR Test): Significant improvement in model fit between models 1 and 2 (p<.0001), and models 2 and 3 (p<.0001)

Table 2. Among Self-Identified Work Disability Respondents, Logistic Regression Models Predicting Application for SSDI (Odds Ratios)

Variables	Model 1	Model 2	Model 3
Age	.89***	.82***	.80***
	(.03)	(.03)	(.03)
Female	.867	.92	.76†
	(.10)	(.14)	(.13)
Black	2.08***	2.07***	1.95***
	(.28)	(.37)†	(.37)
Hispanic	1.36	1.66	1.49
	(.29)	(.46)	(.43)
Education	.90***	.90***	.95
	(.02)	(.03)	(.03)
Sales	1.17	1.04	1.01
	(.12)	(.15)	(.15)
Clerical	1.35	1.06	1.21
	(.29)	(.32)	(.54)
Service	1.46†	1.12	1.01
	(.33)	(.34)	(.33)
Labor	2.14***	1.8*	1.67†
	(.43)	(.50)	(.49)
No. Chronic Cond.[a]		1.35***	1.37***
		(.07)	(.07)
Earnings (log transformed)			.93***
			(.01)
Employer insurance			.40***
			(.07)
Spousal insurance			.40***
			(.08)
X^2	115.27***	109.13***	184.76***
LR Test		1057.31***	122.07***

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

N=1,078; Standard errors in parentheses; Male, Non-Hispanic White, and Managerial/Professional are reference categories; [a] Number of Chronic Conditions; Weighted; Odds ratios are reported

Table 3. Among SSDI Applications, Logistic Regression Predicting SSDI Receipt (Odds Ratios)

Variables	Model 1	Model 2	Model 3
S.I. Work Disability[a]	16.00***	38.79***	22.51***
	(5.7)	(31.17)	(18.47)
Age	1.06	1.08	1.04
	(.05)	(.07)	(.07)
Female	1.16	1.09	.93
	(.20)	(.26)	(.24)
Black	1.01	.94	.78
	(.19)	(.25)	(.22)
Hispanic	.58*	.64	.55
	(.16)	(.22)	(.22)
Education	.95†	.95	1.01
	(.03)	(.04)	(.05)
Sales	.87	.74	.67†
	(.15)	(.18)	(.16)
Clerical	.72	.49	.60
	(.27)	(.25)	(.30)
Service	.53†	.36*	.39†
	(.19)	(.19)	(.20)
Labor	1.06	.90	.90
	(.35)	(.40)	(.40)
No. Chronic Cond.[b]		1.09	1.12
		(.09)	(.10)
Earnings (log transformed)			.91***
			(.02)
Employer insurance			.29***
			(.09)
Spousal insurance			.44**
			(.14)
X^2	83.34***	44.88***	75.10***
LR Test		517.23***	48.69***

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

N=478; Standard errors in parentheses; Male, Non-Hispanic White, and Managerial/Professional are reference categories; [a] Self-identified Work Disability; [b] Number of Chronic Conditions; Weighted; Odds ratios are reported