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Asset accumulation and labor force participation of disability insurance applicants☆

Pian Shu

Harvard University, United States

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ABSTRACT

This paper provides empirical evidence of the existence of forward-looking asset-accumulation behavior among disability-insurance applicants, previously examined only in the theoretical literature. Using panel data from the RAND Health and Retirement Study, I show that rejected applicants for Social Security Disability Insurance (SSDI) possess significantly more assets than accepted applicants immediately prior to application and exhibit lower attachment to the labor force. These empirical results are consistent with the theoretical prediction in Diamond and Mirrlees (1978) and Golosov and Tsyvinski (2006) that certain individuals with high unwillingness to work maximize utility by planning in advance for their future disability insurance application. Because the existing empirical literature on disability insurance does not account for this intertemporal channel, it may underestimate the total work-disincentive effect of SSDI.

1. Introduction

Social Security Disability Insurance (SSDI), designed to protect the working population from the risk of total disability, is among the largest U.S. income transfer programs. In December 2010, SSDI paid $9.6 billion in benefits to over 9.4 million people, including 8.2 million disabled workers (Social Security Administration, 2010). To qualify for SSDI, a worker must be younger than full retirement age and must have met minimum work requirements. [1] The worker must also be screened for "total disability," which the Social Security Administration (SSA) defines as inability to work due to medical conditions expected to last at least one year or to result in death.

Prior empirical studies report two work-disincentive effects of disability insurance. First, receiving disability benefits may discourage work-capable recipients from returning to the labor force (Chen and van der Klaauw, 2008; von Wachter et al., 2011; Borghans et al., 2012; Maestas et al., 2013; French and Song, 2014; Moore, 2015). [2] Because the program is intended for workers with long-term disabilities, few beneficiaries exit by returning to work. [3] Second, the possibility of receiving disability benefits may prompt work-capable individuals to drop out of the labor force, especially when they face adverse labor-market conditions (Black et al., 2002; Autor and Duggan, 2003, 2006; Duggan et al., 2007; Duggan and Imberman, 2009; von Wachter et al., 2011). The design of the insurance, specifically the disability benefits it offers and its screening stringency, has a significant impact on labor force participation (Gruber and Kubik, 1997; Gruber, 2000; Autor and Duggan, 2003).

This paper explores a dynamic work-disincentive channel previously considered only in the theoretical literature. I develop a two-period model, similar to those of Diamond and Mirrlees (1978) and Golosov and Tsyvinski (2006), which shows that certain individuals with high unwillingness to work maximize utility by planning in advance to apply for disability insurance at a future time of their choosing, regardless of their health at that time. Such individuals find this path preferable to leaving the labor force right away because it allows time to adjust

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E-mail address: pshu@hbs.edu.

[1] The employment requirements are specified by the Social Security Administration and vary from person to person.

[2] For instance, Maestas et al. (2013) and French and Song (2014) find that receiving benefits as a result of random assignment to lenient disability examiners or Administrative Law Judges has a significant and negative impact on applicants' propensity to return to work several years later.

[3] Attainment of full retirement age and death together account for 86% of exits from SSDI in 2004 (Autor and Duggan, 2006).

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their assets accordingly. Because leaving the labor force lowers expected future income, individuals who plan in advance accumulate more assets than they would if they did not plan in advance and only decided to apply upon becoming disabled.

My empirical strategy compares the assets of rejected and accepted SSDI applicants. When disability-insurance screening is sufficiently effective, the pool of rejected applicants will include a higher proportion of planners than the pool of accepted applicants. Thus, all else equal, rejected applicants will possess more assets than accepted applicants. In the absence of planning, healthier agents—those with a lower probability of being disabled in the future—will accumulate fewer assets than less-healthy agents, since they are more likely to continue to work and have higher expected future earnings. In this case, rejected applicants, who are presumably healthier (Bound, 1989), will possess fewer assets than accepted applicants.

Using the RAND Health and Retirement Study (HRS) panel data, I examine the differences between rejected and accepted applicants who applied for SSDI between ages 44 and 65. [4] Consistent with the model, I find evidence that rejected applicants display significantly lower attachment to the labor force before applying for SSDI: they are less likely to be in the labor force and have accumulated fewer years of employment. [5] Although the two groups self-report similar health at the time of application, accepted applicants are significantly less healthy than rejected applicants in the years immediately following application, suggesting that SSDI awards are not random. I use quantile regressions to show that, conditional on a rich set of observed characteristics—including demographics, income, labor force participation, health status, and out-of-pocket medical expenses—rejected applicants possess significantly more liquid financial assets than accepted applicants at the time of application. Both the magnitude and the statistical significance of the effect increase with applicants' asset levels. The divergence in assets at the time of application is unlikely to result from unobserved differences in applicants' inherent tendency to save, since the two groups possessed very similar assets two or three years before application. These results suggest that at least some rejected applicants accumulated assets in a manner consistent with a plan to apply for SSDI regardless of their actual future health status.

My results build upon Benitez-Silva et al. (2004), which finds that rejected applicants for SSDI and SSI have higher average assets than accepted applicants, and that accepted applicants who do not self-identify as disabled on surveys have more assets than those who do. These simple mean comparisons, however, cannot be taken as clear evidence of forward-looking asset accumulation. Many observables can affect asset accumulation, and the existence of outliers in a skewed distribution of wealth is likely to have a disproportionate influence on the mean (Engen and Gruber, 2001). By contrast, my empirical analysis focuses on applicants who applied for SSDI but not SSI; it also uses quantile regressions to control for a rich set of observations and to minimize the impact of outliers. I further show that my results are robust to using a longer pre-period to compare asset accumulation patterns and to exploiting differences among applicants' self-reported disability states.

Furthermore, Benitez-Silva et al. (2004) do not distinguish between SSDI and SSI applicants, even though SSI's asset test is likely to affect the saving behavior of the latter group. As a robustness check I show that, among the SSI applicants, rejected applicants do not possess significantly different assets at the time of application. Using these applicants as a control group yields the same key finding that rejected SSDI applicants accumulate more assets than accepted SSDI applicants at the time of application but not several years before.

This paper contributes to the vast theoretical literature known collectively as New Dynamic Public Finance. This literature argues that policy instruments that distort intertemporal savings can be optimal because, in anticipation of stochastic future shocks to their skills (in this case, onset of disability), some agents will save more and exit the labor force sooner than is socially optimal (in this case, planning to drop out of the labor force and apply for disability insurance) (Golosov et al., 2003, 2006; Kocherlakota, 2005; Albanesi and Sleet, 2006; Golosov and Tsyvinski, 2007; Kocherlakota, 2010; Farhi and Werning, 2012). Consistent with this literature, I find empirical evidence of forward-looking asset-accumulation behavior. My results thus suggest that the existence of disability insurance affects not merely current but also future labor supply. Discussions of the welfare implications of disability insurance thus ought to take into account the possibility of an intertemporal work-disincentive effect.

2. A two-period model of asset accumulation and disability application

Following Diamond and Mirrlees (1978) and Golosov and Tsyvinski (2006), I develop a two-period model with Type I and Type II screening errors to capture the forward-looking asset-accumulation behavior of applicants. I then discuss the model's empirical implications. Appendix B provides all of the proofs.

2.1. Model set-up

The model consists of two periods. In the first period, all agents are able to work. In the second period, each agent faces a probability of being disabled and unable to work. Thus, the sole source of uncertainty in the model is disability status in the second period. In either period, an agent who is working will supply one unit of labor inelastically and receive wage w. All agents begin the first period with zero assets. I denote the discount rate as β and the interest rate as R. To simplify the math without loss of generality, I also assume that $\beta R = 1$.

Agents differ on two parameters: θ_i, the probability of being totally disabled in the second period, and x_i, the disutility of work in each period. Both are known to the agent. An agent derives utility $u(c_i) - x_i$ in a given period if working and $u(c_i)$ if not, where c_i is consumption in that period. Following standard assumptions, $u(\cdot)$ is increasing and concave, and $u(0) = -\infty$. As in Golosov and Tsyvinski (2006), I also assume that labor (in this case, disutility of work) and consumption enter separately into an agent's calculation of utility. By distinguishing disutility of work from probability of total disability, I conceptually distinguish *unwillingness* to work from *inability* to work. [6] Empirically, I consider the former an unobserved preference whereas the latter can be partially observed based on health.

Like SSDI, the disability-insurance program in this model exists in the second period by imposing a labor tax (τ) on the wages of the working population and transferring benefits (T) to recipients, where total transfers equal total tax payments. Because the population of disabled workers is much smaller than the working population, it is reasonable to assume that $(1-\tau)w > T$. An agent receiving disability benefits cannot work and takes the parameters (τ, T) as given.[7]

Though Diamond and Mirrlees (1978) and Golosov and Tsyvinski (2006) do not explicitly include screening in their model, screening clearly affects the labor force participation and the asset accumulation of potential applicants. To incorporate screening into the model, I assume that both Type I and Type II classification errors characterize the screening

[4] I omitted applicants for SSDI who also applied for Supplemental Security Income (SSI) because SSI imposes an assets test. SSI pays stipends to low-income individuals who are 65 or older, blind, or disabled.

[5] Giertz and Kubik (2011) find similar results using HRS data to compare the labor-force participation of rejected and accepted applicants. But they do not study asset accumulation or test a model similar to mine.

[6] For purposes of designing optimal disability insurance, Diamond and Sheshinski (1995) argue that there is no need to distinguish between the two. However, the optimal design of disability insurance is beyond the scope of this paper.

[7] Golosov and Tsyvinski (2006) point out that this may not be the optimal design of disability insurance. The purpose of this model, however, is to illustrate how individuals behave under the current program.