Extended Abstract for "Disability and Distress: The Effect of Disability Programs on Financial Outcomes"*

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Extended Abstract.
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Over the past decades, disability programs have expanded rapidly, prompting a public debate about their costs and benefits. On the cost side, disability programs can distort decisions about work and human-capital investment. On the benefits side, disability programs can provide protection against the major consumption shocks associated with disability.

Research on disability programs has focused mostly on the costs of the programs, especially on the programs' labor-supply effects, often interpreted as moral-hazard costs. Maestas et al. (2013), for instance, find that Social Security Disability Insurance reduces labor force participation by 28 percentage points. French and Song (2014) and others arrive at roughly similar estimates.[1] All else equal, these sizable effects on labor supply suggest that disability-program benefits should be less generous.

And yet there exists little evidence for the other side of the analysis, the benefits of disability programs.[2] To our knowledge, there exist no studies assessing the effects of US disability programs on outcomes other than labor supply and mortality in administrative data.

In the absence of such studies, evidence on the benefits of disability programs is mostly anecdotal. In *Evicted*, Matthew Desmond writes of a recipient of the Supplemental Security Income (SSI) program that "her $754 monthly [SSI] check was more reliable than any job she could get" and explains that landlords seek out SSI recipients because their stable income makes them reliable tenants (Desmond, 2016). These hypotheses have yet to be tested in empirical research.

This paper presents evidence on the benefits of disability programs by focusing on the effect of the programs on financial outcomes. We link administrative records from the Social Security Administration (SSA) to records on bankruptcy, foreclosure, home purchases, and home sales. To isolate the causal effect of disability programs, we exploit a particular administrative rule that governs how the SSA evaluates applicants. SSA's examiners decide whether an applicant can work in some capacity given his or her disability and vocational factors such as age, education, and experience.[3] SSA guidelines require examiners to use more-lenient standards for older applicants, and categorizes applicants based on whether they are under age 50, between ages 50 and 55, or above age 55.[4] This rule allows us to isolate the causal effect of disability

[1] Bound (1989) uses the labor supply of denied disability-insurance applicants as an upper bound for allowed applicants, concluding that employment among disability-insurance recipients would be at most 30 percentage points higher had they been denied. Updating Bound's analysis, von Wachter et al. (2011) find similar effects for older cohorts and larger effects for younger cohorts. Chen and van der Klaauw (2008) find smaller employment effects for more-recent applicants. Moore (2015) estimates similar effects as Maestas et al. (2013) and French and Song (2014) for disability-insurance recipients whose eligibility based on drug and alcohol addiction was terminated as part of the 1996 welfare reform law.

[2] Two notable exceptions are Autor et al. (2017), who study the effects of disability receipt on consumption in Norway, and Gelber et al. (2018), who study the effect of disability insurance benefits on mortality.

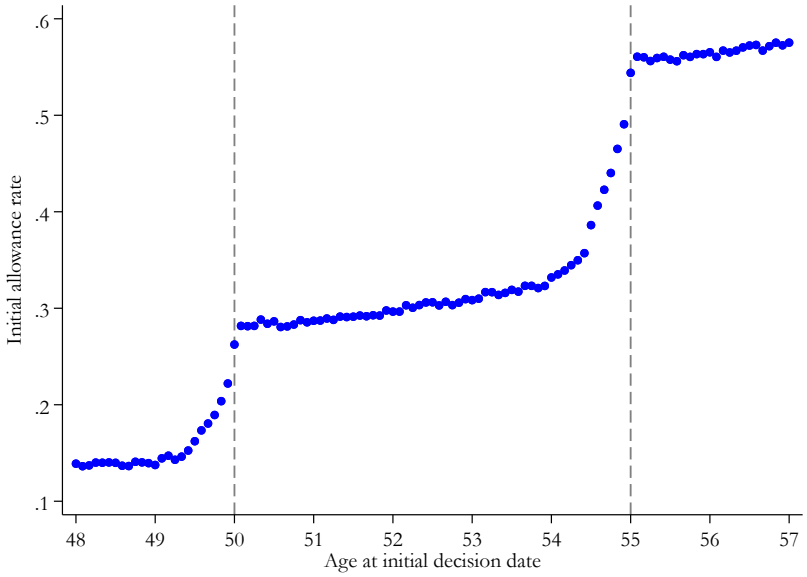
[3] The full vocational grid used in this process is available here: http://policy.ssa.gov/poms.nsf/lnx/0425025035.

[4] Chen and van der Klaauw (2008) first exploited the age-55 threshold to study how disability

receipt on financial outcomes through a regression discontinuity (RD) design. We compare applicants who apply when they are just below either age 50 or age 55, whichever threshold is closer, to applicants who are just above those ages.

Figure 1 describes the overall variation we exploit. It plots initial allowance rates by age in months. There exists clear discontinuities at ages 50 and 55, with sudden jumps in the allowance rates at those thresholds. There also exists a non-linear pattern to the left of each discontinuity, with initial allowance rates rising steeply in the six age groups leading up to the threshold. That non-linear pattern is likely driven by the SSA's "borderline age rule," which instructs examiners to "consider" using the higher age category for applicants approaching the age cutoff.[5]

Figure 1: Overall Initial Allowance Rate By Age



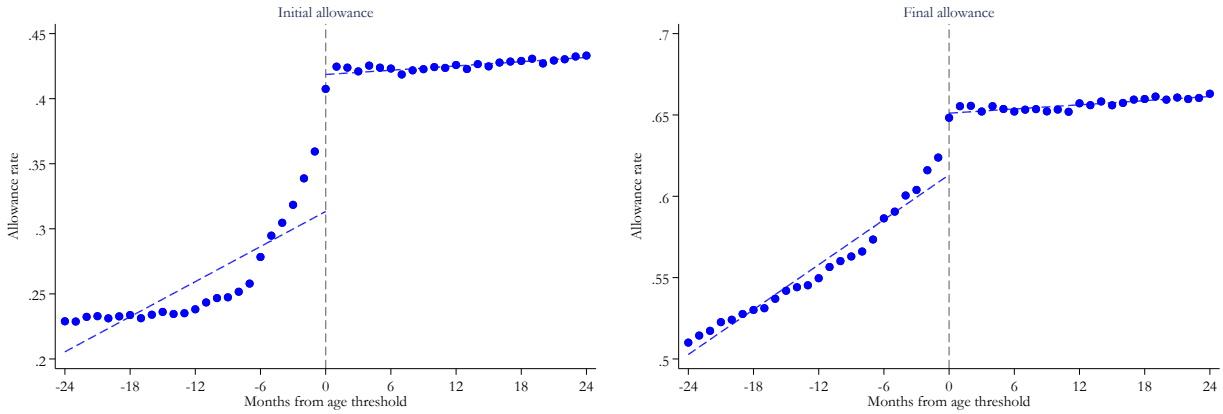
This figure plots initial allowance rate by disability-program applicant age for applicants in the bankruptcy sample. This figure is based on the bankruptcy sample, applicants who reach stage 5 of the disability determination process, who have an initial decision date in 2000–2009, and whose ZIP Code of residence has an average of at least five recorded bankruptcies per year during this period.

Figure 2 combines the age-50 and age-55 thresholds and plots the average initial-allowance rate and final-allowance rate against age in months relative to either age 50 or 55. There is a clear, discontinuous increase in allowance rate at the threshold. The share of applicants initially allowed onto disability programs increases by 9.4 percentage points at the threshold, off of a base of 29 percentage points for those just below the cutoff. The final allowance rate (after all appeals) increases by roughly 3.2 percentage points off of a base of 61 percentage points.

insurance affects labor supply.

[5] "If a claimant is within a few days to a few months of reaching a higher age category and using the chronological age results in a denial, consider using the higher age category if it results in a

Figure 2: First Stage, Allowance Rate Relative to Applicant Age



Notes: Figures plot initial allowance rate (left-hand side) and final allowance rate after all appeals (right-hand side) relative to the disability-program applicant's age at the initial decision date for applicants in the bankruptcy sample. Age is calculated as months from age 50 or age 55, whichever threshold is closer. This figure is based on the bankruptcy sample, applicants who reach stage 5 of the disability determination process, who have an initial decision date in 2000–2009, and whose ZIP Code of residence has an average of at least five recorded bankruptcies per year during this period.

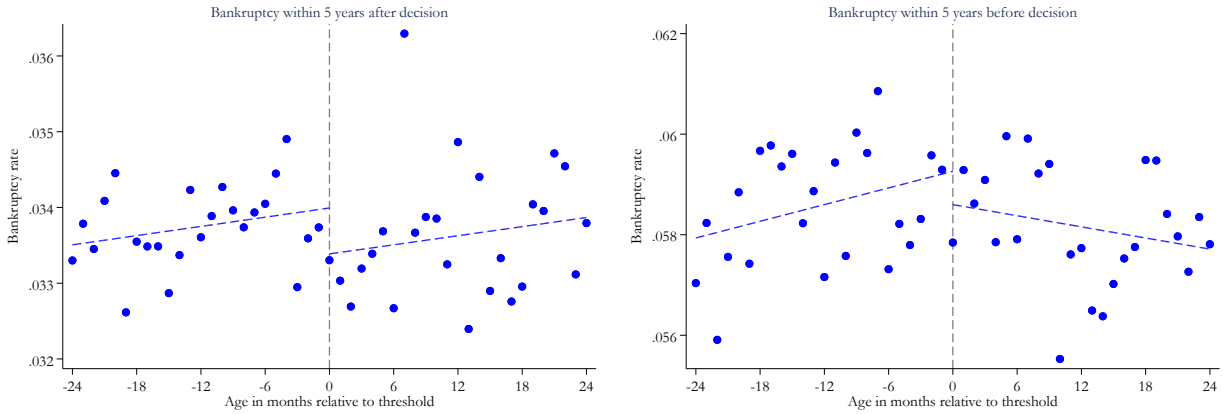
We merge to the data records on bankruptcies, foreclosures, and home transactions. This allows us to study how those outcomes are affected by allowance onto disability programs. Figure 3 presents RD plots for bankruptcy. The left-hand panel plots bankruptcy rates for the five years after initial decision. There exists a discontinuous decrease in bankruptcies at the thresholds after initial decision. The probability of bankruptcy decreases by 0.06 percentage points off of a base of 3.4 percentage points. As a falsification check, the right-hand panel plots bankruptcy rates for the five years *before* initial decision. Reassuringly, there exists no statistically significant discontinuity before the decision date.

Figure 4 performs a similar analysis for foreclosure or the sale of a home. The figure suggests a clear drop in foreclosures and home sales within three years after initial decision (left-hand panel), with no statistically significant discontinuity before initial decision (right-hand panel). The risk of foreclosure/sale decreases by 0.4 percentage points at the age-based thresholds off of a base of 13 percentage points. This figure provides strong evidence that disability benefits allow some recipients to stay in homes they would have otherwise lost to foreclosure or sale.

Finally, Figure 5 suggests a similar pattern, but of opposite sign for the purchase of a new home. Applicants above ages 50 or 55 are 0.09 percentage points more likely to buy a home after initial decision, off of a mean of 1.8 percentage points.

favorable determination, after you evaluate *all* factors." (DI 25015.006).

Figure 3: Bankruptcy Rate Relative to Applicant Age

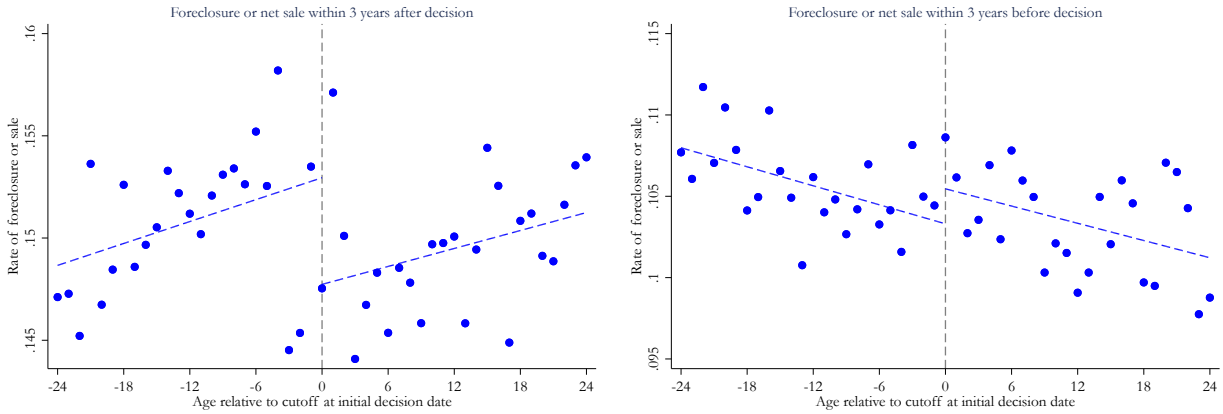


Notes: Figures plot bankruptcy rate within five years after initial decision (left-hand side) and the bankruptcy rate within five years before initial decision (right-hand side) relative to the disability-program applicant's age at the initial decision date for applicants in the bankruptcy sample. Age is calculated as months from age 50 or age 55, whichever threshold is closer. This figure is based on the bankruptcy sample, disability-program applicants who reach stage 5 of the disability determination process, who have an initial decision date in 2000–2009, and whose ZIP Code of residence has an average of at least five recorded bankruptcies per year during this period.

All in all, these reduced-form results suggest a substantial decrease in the rates of bankruptcies, foreclosures, and home sales at ages 50 and 55, along with an increase in home purchases. In order to assess the welfare implications of those findings, we must consider the *mechanism* through which disability benefits affect those outcomes. One possible channel is liquidity: disability programs relax liquidity constraints by increasing beneficiaries' income, reducing income volatility, and providing access to health insurance. If the reduced-form results reflect primarily a liquidity channel, then we can interpret the reductions in bankruptcy and foreclosure as reductions in financial distress and therefore as improvements in welfare. A combination of empirical evidence and institutional details suggests that liquidity is the most likely channel through which disability benefits affect financial outcomes.

We consider alternative mechanisms through which disability benefits might affect financial outcomes. Those mechanisms have more ambiguous welfare implications. One potential alternative mechanism would be access to credit. Disability benefits could affect either the supply of credit or demand for credit. On the supply side, disability benefits could increase access to credit, prompting lenders to offer more credit cards, bank loans, and mortgages. That increase in access to credit could have two potential effects. First, it could mechanically increase bankruptcy and foreclosure rates since individuals can only default if they have access to credit. That said, overall, we find that disability benefits lead to a *decline* in bankruptcies and foreclosures, so such an "access to credit" effect would lead us to under-estimate the liquidity effect.

Figure 4: Foreclosure or Home Sales Rate Relative to Applicant Age



Notes: Figures plot the foreclosure or home sales rate within three years after initial decision (left-hand side) and the foreclosure or home sales rate within three years before initial decision (right-hand side) relative to the disability-program applicant's age at the initial decision date for applicants in the foreclosure sample. Age is calculated as months from age 50 or age 55, whichever threshold is closer. This figure is based on the foreclosure or home sales sample, disability-program applicants who reach stage 5 of the disability determination process, who we identify as homeowners, have an initial decision date in 2005–2014, and whose ZIP code of residence at application has at least 15 home sales during this period.

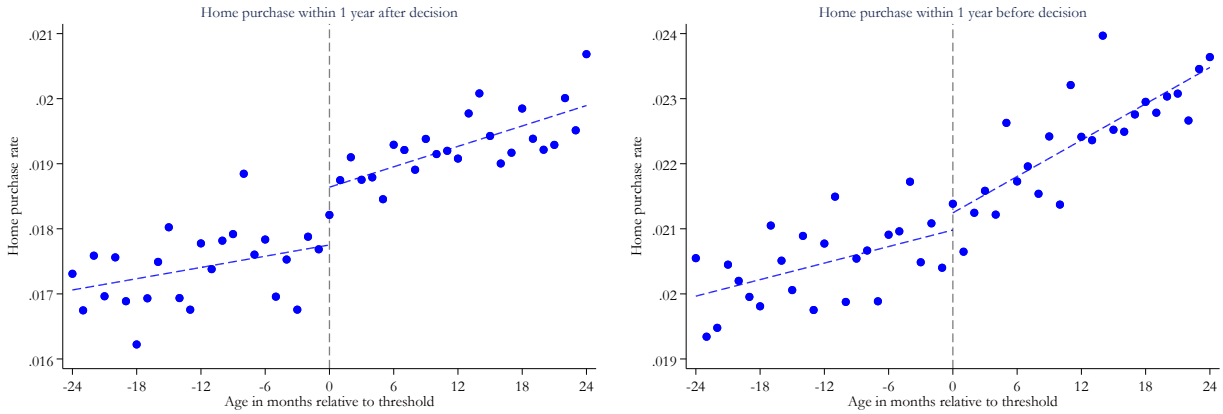
Second, greater access to credit could lead households to roll over debt onto credit cards or other new products and thus avoid default. If this were the case, we would expect the additional loans to postpone bankruptcy but not to eliminate it entirely. Yet our analysis suggests no increases in bankruptcies or foreclosures in later years. Although we cannot rule out a later increase in bankruptcies and foreclosures entirely, we think it unlikely based on the estimates we have compiled, which extend for five years after initial decision.

Disability benefits could also affect demand for credit through an income effect. If credit is a normal good, then disability benefits will increase demand for credit, which could mechanically increase bankruptcies and foreclosures.[6] However, as with greater credit access, this mechanical increase would lead us to under-estimate the liquidity effect.

Although we cannot rule out these alternative mechanisms, we conclude from the evidence and institutional details that, for the most part, they either work in the opposite direction of our results or would likely be small in magnitude. The most likely

[6]On the other hand, if credit is an inferior good, then disability benefits will decrease demand for credit, which could mechanically reduce bankruptcies and foreclosures. Although this is possible, we think it is unlikely that demand for credit is decreasing in income for households with such low levels of income. Income is positively associated with applications for credit for American households in this income range. (Authors' calculations based on the 2016 Survey of Consumer Finances.)

Figure 5: Home Purchase Rate Relative to Applicant Age



Notes: Figures plot home purchase rate within one year after initial decision (left-hand side) and the bankruptcy rate within one year before initial decision (right-hand side) relative to the disability-program applicant's age at the initial decision date. Age is calculated as months from age 50 or age 55, whichever threshold is closer. This figure is based on the home purchase sample, disability-program applicants who reach stage 5 of the disability determination process, who have an initial decision date in 2000–2014, and whose ZIP Code of residence has an average of at least 15 home purchases or 15 home sales per year during this period.

channel then is the liquidity channel: disability receipt increases applicants' liquidity, so they become solvent. Newly allowed applicants can repay their debts rather than default, and this liquidity leads to a decrease in bankruptcies, foreclosures, and home sales for allowed applicants.

In addition to disability recipients themselves, the effects of disability programs on bankruptcy and foreclosure may also benefit a diffuse group of third parties. Positive externalities arise because bankruptcy and foreclosure are expensive financial events for other parties. For instance, foreclosure involves a direct cost on local government agencies that have to handle an increase in crime, fires, lower property tax receipts, and have to administer the process of foreclosure. Apgar et al. (2005) estimate that each foreclosure costs local government agencies $34,000. Each foreclosure also lowers nearby property values (Campbell et al., 2011; Anenberg and Kung, 2014). Campbell et al. (2011) extrapolate from their difference-in-difference estimates to calculate that each foreclosure lowers neighborhood property values from $148,000 to $477,000.[7]

As a rough back-of-the-envelope calculation, suppose that each foreclosure imposes a social cost of $145,000, 80 percent of the lower estimate from Campbell et al. (2011) and the public-sector cost estimated by Apgar et al. (2005). It is unclear what

[7]Bankruptcies may also involve a negative externality, though few studies have sought to quantify it. On average, $167,576 of debt is discharged in each bankruptcy, which could result in lower credit supply and higher interest rates.[8] In addition, each bankruptcy requires oversight and resources on the part of the bankruptcy court and the filer's creditors have to monitor the case.

analogous number to use for bankruptcy. As a benchmark we consider $40,000 as the social cost of each bankruptcy, a quarter of the average debt discharged. Simply multiplying these numbers by the reduced-form estimates, scaled by the first stage, above suggests that each disability allowance reduces social costs by $4,394 through lower foreclosures and bankruptcies. This estimate of social costs prevented by disability allowance is larger than previous estimates of the effect of disability insurance on earnings—for instance, Maestas et al. (2013) estimate that allowance onto SSDI lowers earnings by $3,781. As another point of comparison, the decrease in social costs amounts to 30 percent of the average annual SSDI benefit amount. This back-of-the-envelope calculation is speculative, but most likely a conservative estimate since we ignore other potential externalities that are beyond the scope of this paper and we use lower bounds from the literature.

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