

# **Does Delay Cause Decay? The Effect of Administrative Decision Time on the Labor Force Participation and Earnings of Disability Applicants**

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## Introduction

An influential body of research analyzes the causal effect of receipt of Social Security Disability Insurance benefits (SSDI) on employment and earnings by comparing the post-application labor force participation of those awarded benefits relative to those denied benefits.<sup>1</sup> Implicit in this analytic approach is the assumption that the SSDI determination process affects applicants' labor supply exclusively through a single causal channel—the allowance or denial decision. While this channel is undoubtedly of first-order importance, the SSDI determination process may affect post-application labor supply through other channels as well. Of particular note is the fact that SSDI applicants must engage in a prolonged period of labor force non-participation while they seek benefits. If applicants' employment potential deteriorates while they are out of the labor force, then the observed, post-application labor supply of denied and allowed applicants may understate their employment potential at the time of SSDI application. Moreover, if either the rate of deterioration or average SSDI determination time differs between allowed and denied applicants, a comparison of their post-SSDI determination labor supply may not identify the pure effect of the SSDI award on employment outcomes.

From the time that an SSDI application is filed to the time a final determination is made, the applicant is effectively barred from earning more than \$1,000 per month in paid employment, since this would exceed the Substantial Gainful Activity (SGA) threshold and result in a summary denial of benefits. The SSDI application process is typically lengthy, with several levels of determination and appeal. In our administrative sample of SSDI applicants, discussed below, the average time from SSDI application to final determination exceeds one year. Surprisingly, the mean determination time for allowed applicants significantly exceeds that of denied applicants (14.1 versus 9.7 months) because half of beneficiaries are allowed only after a lengthy appeal. Hence, both for those ultimately awarded and denied benefits, it appears plausible that the

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<sup>1</sup> Bound (1989) introduced the empirical approach of using the labor supply of denied SSDI applicants to form an upper bound on the potential labor supply of accepted applicants, an approach recently employed by von Wachter, Song, and Manchester (2011). Bound (1991) and Parsons (1991) debate the validity of this comparison. Several recent papers in this literature, including Chen and van der Klaauw (2005), French and Song (2011), and Maestas, Mullen and Strand (2011), exploit plausibly exogenous variation in SSDI awards to estimate the causal effect of receiving SSDI benefits on labor supply.

substantial time spent out of the labor force while applying for benefits may potentially have deleterious effects on skills, job readiness, and employability.

Due to the scale of the SSDI program, even modest deleterious effects of the SSDI application process on the subsequent labor force participation of applicants would have potentially economically significant implications. More than 22 million Americans applied for SSDI benefits in the past ten years, with approximately six million applications filed in the most recent eight calendar quarters alone.<sup>2</sup>

In this paper, we test whether the duration of the SSDI determination process affects the subsequent employment of allowed and denied applicants. We use a unique Social Security Administration workload database to identify exogenous variation in applicants' initial decision times induced by differences in processing speed among the disability examiners to which they are randomly assigned. The average examiner in our sample spends 3 months reviewing a case prior to making an initial determination. Mean determination times differ substantially across examiners, however, with the 90/10 range in mean examiner time equal to 2.2 months. Notably, the characteristics of applicants assigned to each examiner and geographic variation in processing times explain only a modest portion of cross-examiner variation. The remaining variation is likely primarily attributable to productivity differentials among Social Security Administration (SSA) employees.

Critical to our identification strategy, we show that this examiner-level variation in average processing times significantly affects applicants' total processing time but is uncorrelated with initial allowance and denial outcomes. We find that longer processing times reduce the employment and earnings of SSDI applicants in the years after their initial decision. A one standard deviation (2.4 month) increase in initial processing time reduces annual employment rates by 1 percentage point (3.2%) in years two, three and four post-decision. Extrapolating these effects to total applicant processing times, we estimate that the SSDI determination process directly reduces the post-application employment of denied applicants by approximately 3.6 percentage points (7%) and allowed applicants by approximately 5.2 percentage points (33%).

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<sup>2</sup> Statistics available at <http://www.ssa.gov/OACT/STATS/dibStat.html>, accessed 9/25/2011.

## Empirical Strategy

We begin with a causal model of labor supply of the following form:

$$y_i = X_i\beta + \delta t_i + \gamma DI_i - s_i + \varepsilon_i, \quad (1)$$

where  $y_i$  is observed post-application labor supply of applicant  $i$ ,  $X_i$  denotes observed characteristics that influence labor supply (e.g., age, impairment),  $t_i$  is applicant  $i$ 's application processing time measured in months from the date of application until the date of allowance or final denial,  $DI_i = 1$  if the applicant was ultimately allowed benefits (i.e., is observed to be a SSDI beneficiary within 5 years of the initial determination),  $s_i$  denotes unobserved impairment severity measured in terms of lost labor supply, and  $\varepsilon_i$  is an idiosyncratic error term. The causal parameter of interest is  $\delta$ , which measures the labor supply decay rate, that is the loss in labor supply caused by an additional month of application processing time.

A key challenge for consistently estimating  $\delta$  is that impairment severity,  $s_i$ , may affect processing time; that is, SSA may process severely ill applicants more rapidly than more ambiguous cases because the former are allowed at step 3 (i.e., meeting the listing) rather than at step 5 (i.e., capacity for any job) or on a subsequent appeal. If processing time is shorter for more severe ailments and  $s_i$  is imperfectly observed, then OLS estimates of  $\delta$  will be biased upward (towards zero)—that is, they will underestimate the decay rate. Intuitively, applicants with shorter processing times will be observed to have relatively low post-application labor supply (due to their unobservably poor health) while those with longer processing times will have higher post-application labor supply due to their relatively good health. In this case, estimates of the decay rate would be confounded with the direct effect of health on labor supply and would understate the health-constant adverse effect of additional waiting time on subsequent labor supply.

To overcome this confound, we employ an empirical strategy similar to that used by Maestas, Mullen and Strand (2011) to estimate the effect of SSDI benefit receipt on labor supply ( $\gamma$ ). Maestas, Mullen and Strand present evidence that DDS examiners differ in the implicit thresholds that they employ when judging the severity of a

disability. Because applications are randomly assigned to examiners, examiner-specific allowance rates can be used to instrument for the ultimate allowance decision for individual applicants, thereby identifying the causal effect of the allowance decision on labor supply.

In a similar vein, we take advantage of the fact that DDS examiners also vary considerably in their rate of processing disability applications; some DDS examiners are considerably faster than others. Using the random assignment of cases to DDS examiners, this natural variation in examiner processing speed during the *initial* determination phase generates exogenous variation in *total* processing time (which includes time spent in the appellate phases) which is uncorrelated with applicants' unobserved severity  $s_i$ . Thus, we can use examiner assignments to isolate exogenous variation in applicant processing times that is independent of impairment severity. The instrumental variable we employ in our analysis is the average processing time of examiner  $j$  to which applicant  $i$  is randomly assigned, excluding applicant  $i$ 's own processing time:  $EXTIME_{ij} = \frac{1}{N_{j-1}} \sum_{k \neq i, k=1}^{N_j} t_k$ .

While this identification strategy breaks the correlation between  $t_i$  and  $s_i$ , there remains the possibility of a correlation between the instrument  $EXTIME_{ij}$  and the indicator for ultimate allowance,  $DI_i$ . As we show in the paper, while  $EXTIME_{ij}$  is not correlated with the likelihood of initial allowance, it is positively correlated with both the likelihood of appeal and, ultimately, with the likelihood of benefit receipt. That is, all else equal, an applicant initially denied by a slower DDS examiner is more likely to appeal than one denied by a faster DDS examiner. This could plausibly arise if an applicant assigned to a slower examiner experiences a greater decay in employability in the initial determination phase, and consequently has a lower opportunity cost of remaining out of the labor force while pursuing an appeal.

The direct effect can potentially be isolated, however, by estimating  $\delta$  on the subsample of initially allowed applicants, since for these applicants there is no appeal and as we show later  $EXTIME_{ij}$  is uncorrelated with the probability of initial allowance—which in this case is equivalent to ultimate allowance. The key assumption underlying

this strategy is that the true decay parameter  $\delta$  is the same for both allowed and denied applicants.

## **Findings and Conclusion**

Exploiting examiner-level variation, we find that longer processing times significantly reduce the employment and earnings of SSDI applicants in the years after their initial decision. Our main estimates indicate that a one standard deviation (2.4 months) increase in initial processing time reduces annual employment rates by about 1 percentage point (3.2%) in years two and three following the initial determination. This effect remains robustly significant into the fourth post-determination year (the final year of our observation window).

To contextualize these numbers, we use them to estimate the impact of average applicant processing times on labor force participation of SSDI applicants. This calculation suggests that the SSDI determination process directly reduces the post-application employment of denied applicants by an average of approximately 3.6 percentage points (6.8%) in years two and three following the initial determination and, similarly, reduces the average employment of allowed applicants by 5.2 percentage points (33%). These calculations are arguably conservative because they ignore the fixed cost of *any* labor force withdrawal on subsequent employment.

Importantly, this paper presents the first causal estimates of the effect of application processing time on the subsequent labor supply of disability applicants. We show that the employment decay effect is a distinct causal channel through which the SSDI program impacts post-application labor supply outcomes—separate from the benefit receipt effect, which has been the exclusive focus of the literature to date. Combining the labor supply decay effect with a credible estimate of the benefit receipt effect suggests that the SSDI program effect on employment is nearly 25 percent larger than previously thought.

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