

## THE LABOR SUPPLY EFFECTS OF DISABILITY INSURANCE: EVIDENCE FROM AUTOMATIC CONVERSION USING ADMINISTRATIVE DATA

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Extensive research effort has been devoted to understanding the labor supply effects of social insurance programs, especially in light of the historical decline in male labor force participation. In particular, the Social Security Disability Insurance (DI) program has attracted the attention of policymakers and researchers alike, as it has grown dramatically since inception, and features a particularly strong work disincentive: an implicit 100,000 percent marginal tax rate on the first \$1 of earnings above a threshold representing Substantial Gainful Activity (SGA), set at \$1,000/month in 2010. Only a small group of studies have succeeded in obtaining credible estimates of the effect of DI on labor supply, with conclusions varying considerably.

We take advantage of a unique natural experiment generated by the interaction of the Social Security DI and Old-Age (OA) programs at Full Retirement Age (FRA). When DI beneficiaries reach their FRA, they are automatically converted from the DI program to the OA retired worker program. Their benefit payments continue unchanged, however they are no longer subject to the strict DI program rules limiting work activity. Consequently, the extraordinarily high implicit marginal tax rate on earnings is abruptly relaxed on the day individuals reach their FRA. This abrupt change allows us to use a regression discontinuity research design to estimate the disincentive effect of the DI program on various measures of labor supply.

We use administrative Social Security data for the universe of primary worker DI beneficiaries in the 1934-1942 birth cohorts for the period 1995-2008. We pulled data for the birth cohorts of interest from the Disability Beneficiaries and Dependents (DBAD) extract of the Master Beneficiary Record (MBR) File. We linked the DBAD data to the 831 Disability File and the Master Earnings File (MEF). The linkage to the MEF enables measurement of labor supply on the basis of covered wages recorded on the W-2 form in a calendar year. Our full analysis file contains 19,193,050 person-year observations.

We examine changes in labor supply as DI beneficiaries reach their FRA and convert to the OA program. We investigate changes in labor supply using our full sample, as well as stratifying our sample to examine heterogeneous effects. Because time since entering the DI program may impact future labor supply, we stratify by whether they entered early (before age 59) or late (at ages 59 or older), as well as by impairment type. We also stratify by recent work activity, as those who have recently worked (versus those who have not) may be more likely to do so in the near future. Lastly, we examine earnings and labor force participation.

In the models estimated for all beneficiaries, the age coefficients—the variable of most interest in our analyses—show a steady decline in earnings with age, for both early and late entrants to the DI program. In contrast, among the beneficiaries with recent work activity, the pattern of age coefficients shows a steady decline in earnings with age only until age 66, after which, earnings rise sharply. When DI beneficiaries with recent work activity are stratified by whether they

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entered the program early or late, similar drops towards age 66 are seen, with similar rises following for ages 67 and beyond. Interestingly, the labor supply response seen for those entering the program early was of a greater magnitude versus those entering late, suggesting that the labor supply response is not due to regression to the mean, perhaps driven by a biological recovery effect.

**Figure 1. Implied earnings levels estimated by impairment type for DI beneficiaries entering the program late and with recent work activity.**

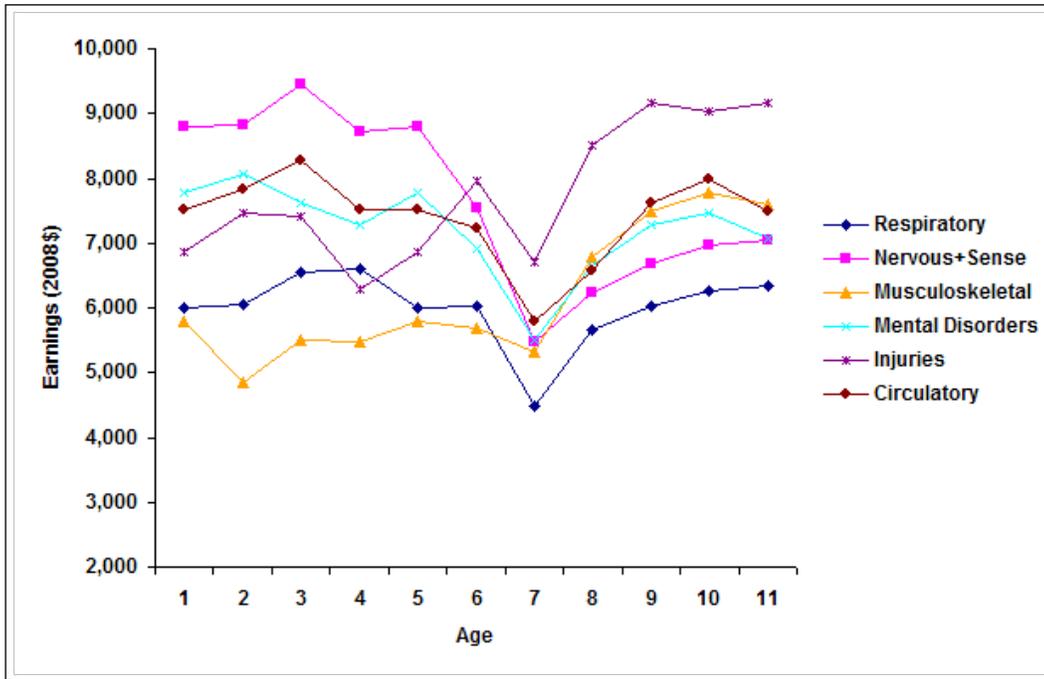


Figure 1 shows the implied earnings levels derived from the age coefficients in the labor supply regressions, estimated separately by impairment type for DI beneficiaries entering the program late and with recent work activity. The earnings represent implied earnings in that the mean earnings for the age 64 reference category have been added to the coefficients for each age variable. Earnings decline precipitously between ages 64 and 66, and then rise abruptly between age 66 and 67. The percent increase in earnings after conversion to OA is largest for those with

musculoskeletal impairments. The pronounced pre-period drop in the two years before conversion is curious, and could suggest anticipatory behavior. Still, it is not clear if in the absence of impending conversion earnings would have continued to decline—as they do in aggregate for all beneficiaries combined (not shown)—or if they would have remained at approximately their age 64 levels.

Our estimates imply that the DI program depresses labor supply among even the oldest DI beneficiaries. To place our estimates in the context of the literature to date that has sought to establish an upper bound on the earnings losses caused by the presence of the DI program by using quasi-experimental variation occurring at the program entry margin, our use of quasi-experimental variation arising from the program exit margin, when individuals are already in their mid-60s and the dominant trend in labor force participation in the population at large is downward, suggests that our estimates are most appropriately viewed as a lower bound estimate of the residual work capacity of all beneficiaries.

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