

# The Labor Market Consequences of Receiving Disability Benefits During Childhood

## Online Appendix

### 1 Retroactive Payments

Some people previously rejected from benefits who qualified after the *Zebley* decision also received a substantial lump-sum retroactive payment. If a readjudication concluded that in addition to qualifying for benefits, the individual also should have qualified for benefits prior to the *Zebley* decision given the new standards, he could receive payments retroactively. Such a readjudication was eligible to anyone denied after January 1, 1980, and thus applies to everyone in my sample. Cohorts that were younger at the time of the *Zebley* decision received smaller backpayments, shown by the significantly negative estimate in Column 6 of Table 2. It could be that a smaller lump-sum retroactive payment, rather than increased SSI receipt, leads younger cohorts to experience lower cumulative earnings through their mid-30s. It is important to further explore this channel since the policy takeaways would differ substantially if a large lump-sum payment or increased SSI receipt was driving the main results.

Using an alternative sample, I provide suggestive evidence that these large lump-sum payments did not lead to significant impacts on labor market outcomes. I consider individuals newly given an award after the *Zebley* decision who were initially rejected in a 40-week window of January 1, 1980, the date cutoff for retroactive payments.<sup>29</sup> My main results used individuals initially rejected from SSI between 1986 and 1989, some of whom then proceeded to reapply, and qualify, for benefits after the *Zebley* decision. This alternative

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<sup>29</sup>I also restrict the sample to people who did not reapply for benefits between this initial application date and the *Zebley* decision, because a reapplication could contaminate the sample by making someone who was initially rejected in 1979 eligible for a retroactive payment, given the new application.

strategy uses individuals rejected between 1979 and 1980, *all* of whom proceeded to reapply, and qualify, for benefits after the *Zebley* decision. Those initially denied in the 40 weeks before January 1, 1980 would not have been eligible for any retroactive payment when newly qualifying, whereas those denied after would have been. To control for disability severity, I match eligible and ineligible individuals for backpay by the number of years after the *Zebley* award they continuously received benefits.<sup>30</sup> People tend to lose benefits because of changes in health status, not because of increased income.<sup>31</sup> If the primary reason for losing benefits was that people started to work, matching by length of benefit spell would ensure that people with similar durations of benefit receipt experienced similar levels of income.

I first show that eligibility for backpayment led to increased receipt of backpayment. Though not a true regression discontinuity given the non-randomness associated with disability severity, a similar model given the date cutoff associated with eligibility for retroactive payments is as follows:

$$y_i = \tau \cdot \mathbf{1}(\text{Week}_i > c) + \beta_1 \cdot (\text{Week}_i - c) + \beta_2 \cdot (\text{Week}_i - c) \cdot \mathbf{1}(\text{Week}_i > c) + \varepsilon_i \quad (3)$$

$\text{Week}_i$  refers to the week an individual was denied SSI benefits, centered around  $c$ , the cutoff date of January 1, 1980. Figure [A6](#) plots  $y_i$ , the amount of backpay individual  $i$  received, as a function of the number of weeks from January 1, 1980 that the individual was initially denied. The vertical jump at zero weeks of approximately \$20,000 is the estimate of  $\tau$ , and shows that individuals eligible for backpay received \$20,000 more backpay than ineligible

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<sup>30</sup>In related work, I implement a regression discontinuity (RD) to show that getting the notification about the change in standards leads to an almost three times higher rate of reapplication. The increase in *successful* reapplications is much smaller but still significant. Using an RD strategy, I find that the benefit spell for accepted individuals eligible for backpayment is about two years shorter, demonstrating the lower disability severity of the treated group. Therefore, I match on the length of this benefit spell to attempt to equate the disability severity.

<sup>31</sup>40% of the individuals in this sub-sample lose benefits because of excess income or resources. However, only one code is noted when each individual loses benefits, and a change in health status would be listed even if there were simultaneous changes in health and income. It is thus possible that excess income is a more common reason for losing benefits than I measure.

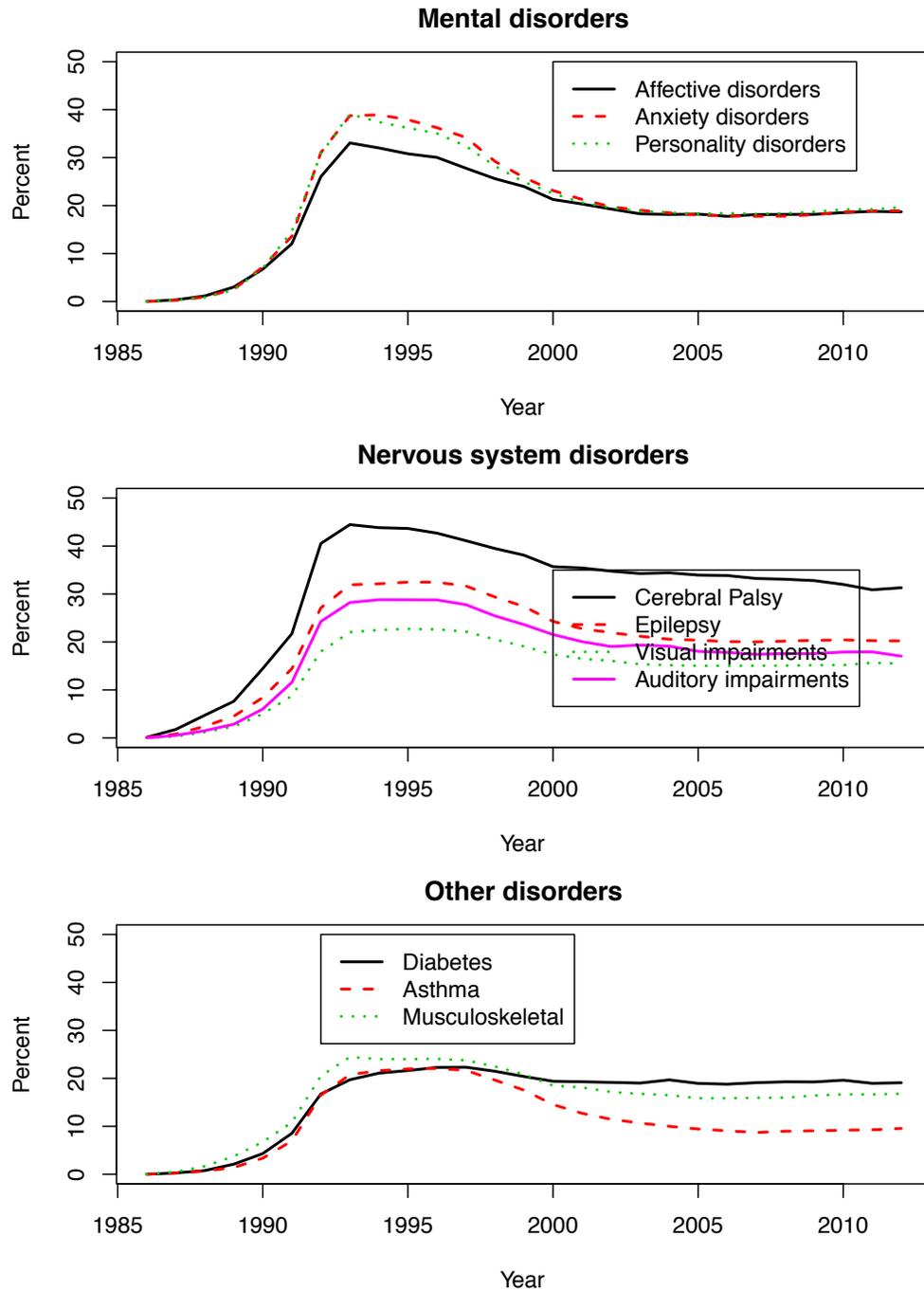
ones.

Figure [A7](#) plots a year-by-year estimate of  $\tau$  from Equation [3](#) for the amount of SSI payments received. Individuals eligible for backpayment receive substantially higher SSI payments in the several years following the *Zebley* decision precisely because of the additional backpayment – recall that everyone in this sample necessarily qualified at some point between 1991 and 1994. After 1996, there is no longer any significant difference in total SSI payments received, which is to be expected given that the treated and untreated samples are matched by duration of benefits.

Figure [A8](#) considers cumulative labor market earnings in the years after backpay was awarded. Each point refers to its own estimate of  $\tau$  from Equation [3](#), with standard errors clustered by the number of weeks from January 1, 1980 in which an individual was initially denied. The estimated difference in cumulative earnings between individuals eligible and ineligible for backpay is always insignificant and small in magnitude – 13 years after the *Zebley* decision the point estimate for the increase in total cumulative earnings is just \$3,300. The result is the same for the distribution of labor market earnings in each year (as in Figure [7](#)).

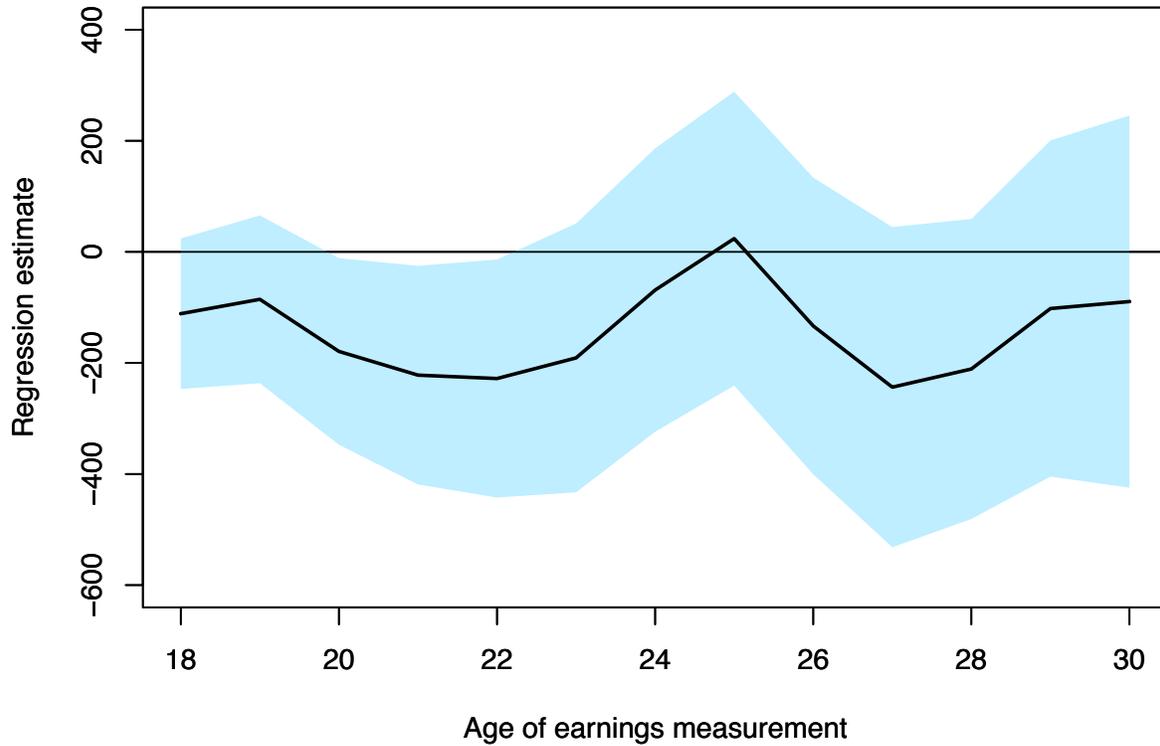
This suggests that a large lump-sum backpayment does not affect labor market outcomes for individuals initially denied SSI benefits. These retroactive payments seem to not crowd out employment or earnings. In the primary sample, the maximum difference in backpayment was just \$2,000 lower for the age-8 cohort relative to the age-18 cohort, substantially less than the \$20,000 backpayment associated with this alternative matching strategy. Given that there are no significant labor market impacts with a backpayment that is almost ten times as large, it seems safe to assume that the primary mechanism behind the main results is not a difference in backpay received.

Figure A1: Percent of Initially Rejected Applicants Currently Receiving SSI Benefits, by Disability Type



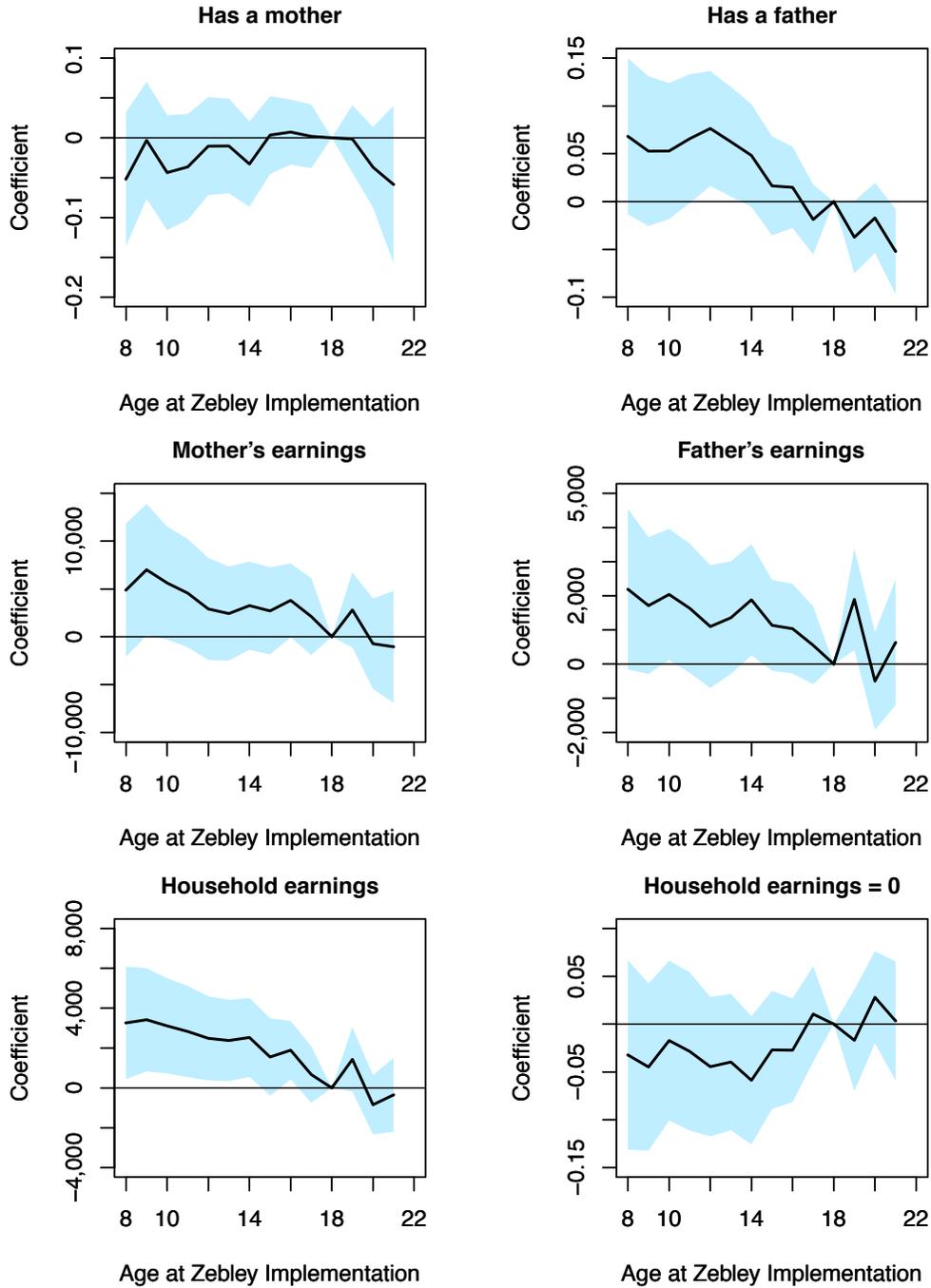
SOURCE: Author's calculations using SSA administrative data. Includes individuals who applied for SSI benefits as children between 1986 and 1989 and were rejected for medical reasons. Individuals are grouped by diagnosis at time of initial application.

Figure A2: Earnings Estimates Over Time



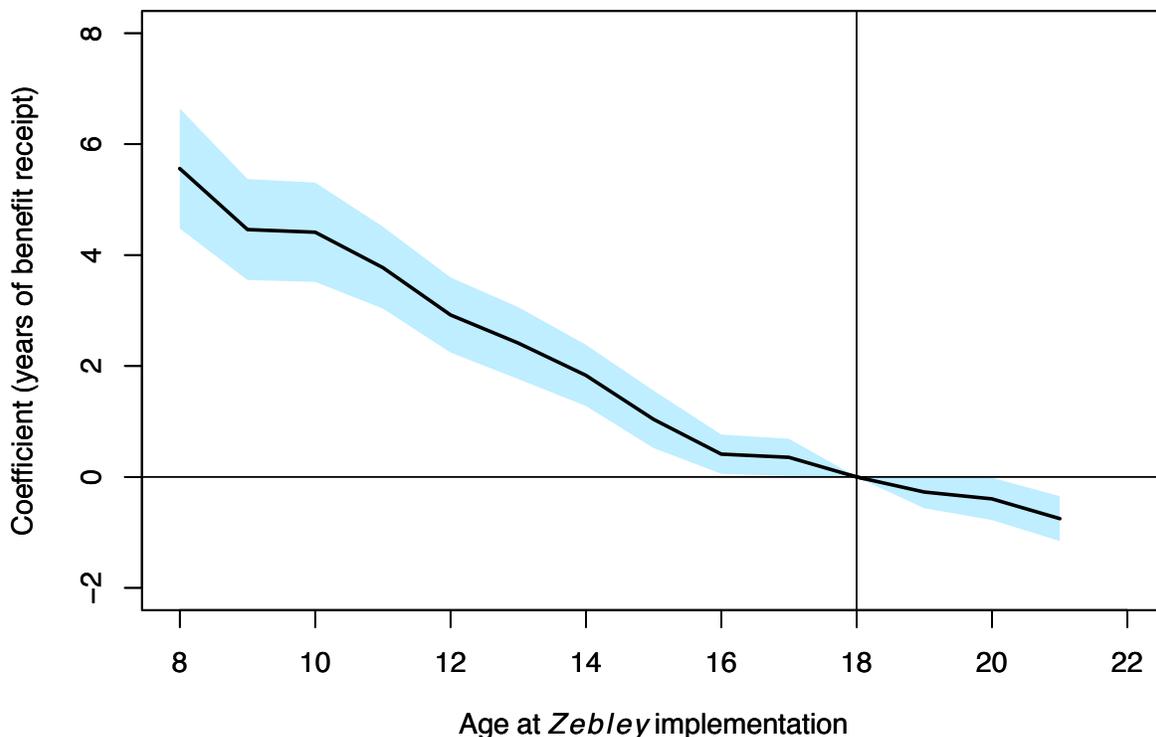
NOTE: Each point is similar to the top row in Column 1 of Table 3, plotting the estimate of an additional year of exposure to eased standards for mental cohorts on an individual's earnings at each given age, controlling for age at application and age at application interacted with diagnosis type. Standard errors are clustered by the individual's age at *Zebley* implementation by the state in which the initial application was filed. The shaded region shows the 95% confidence interval. The sample includes all individuals who applied for SSI benefits and were rejected for medical reasons between the years 1986 and 1989, given a diagnosis that is considered mental or nonmental, excluding intellectual disabilities. Earnings are an individual's wage, salary, and tip income reported on W-2 forms in the year he turned that age.

Figure A3: Parental Earnings in Year of Initial Application



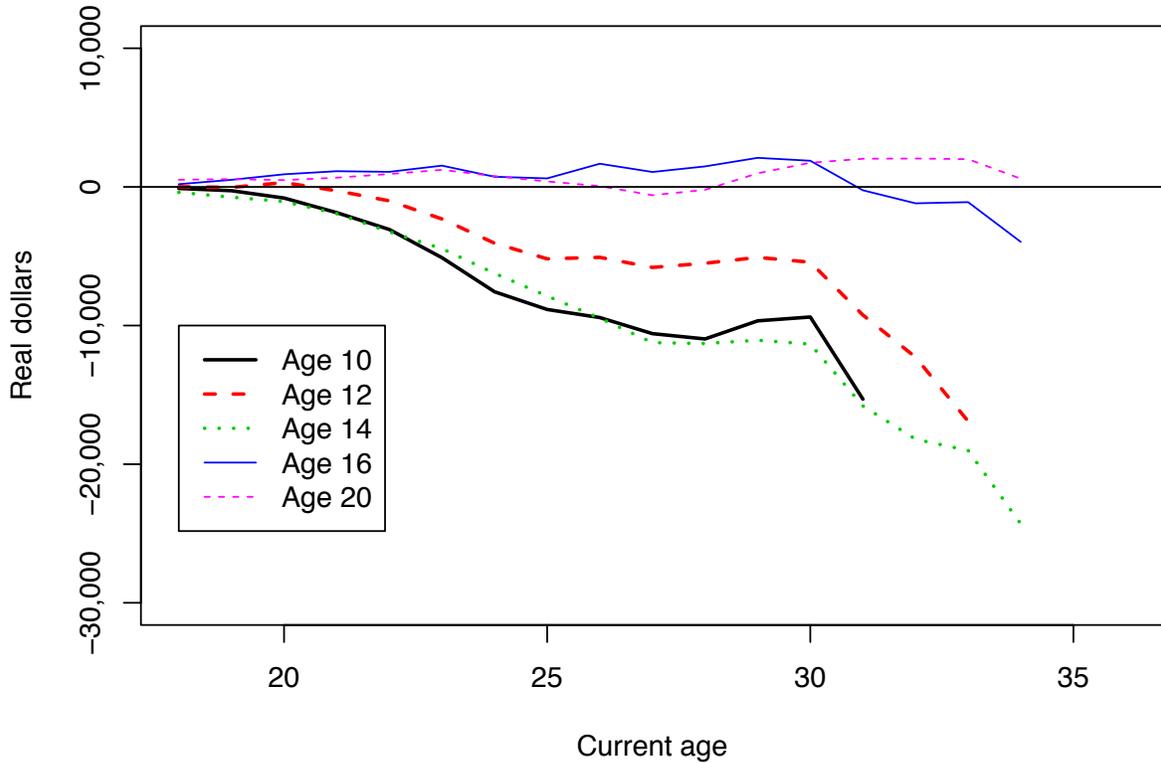
NOTE: All earnings are measured in the calendar year of the initial application. Household earnings are the sum of mother and father earnings. Individuals are grouped into age cohorts by their age on February 22, 1991, the date of implementation of new standards. Plots the coefficient on the interaction of age cohort with having a mental disorder using Equation 1, controlling for age at application and age at application interacted with diagnosis type. Standard errors are clustered by the individual's age at *Zebley* implementation by the state in which the initial application was filed. The shaded region shows the 95% confidence interval.

Figure A4: Number of Years Receiving Benefits Through Age 24, Using Accepted Applicants with Mental Disorders as Counterfactual



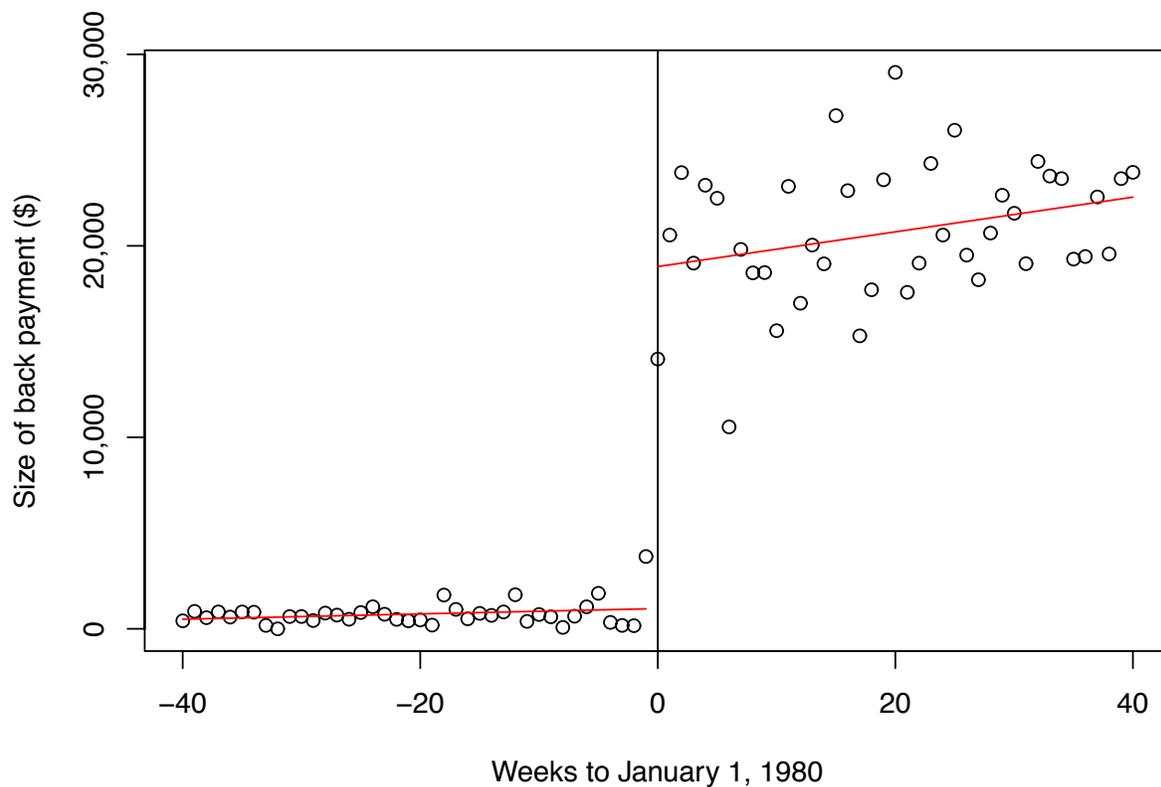
NOTE: Individuals are grouped into age cohorts by their age on February 22, 1991, the date of implementation of new standards. Includes accepted applicants with mental disorders as the counterfactual group, rather than rejected applicants with nonmental disorders. Plots the coefficient on the interaction of age cohort with being initially denied SSI benefits using Equation 1, controlling for age at application and age at application interacted with initial rejection. Standard errors are clustered by the individual's age at *Zebley* implementation by the state in which the initial application was filed. The shaded region shows the 95% confidence interval. The vertical line at age 18 represents the omitted cohort, where the estimate is mechanically equal to zero.

Figure A5: Cumulative Earnings by Age, Using Accepted Applicants with Mental Disorders as Counterfactual



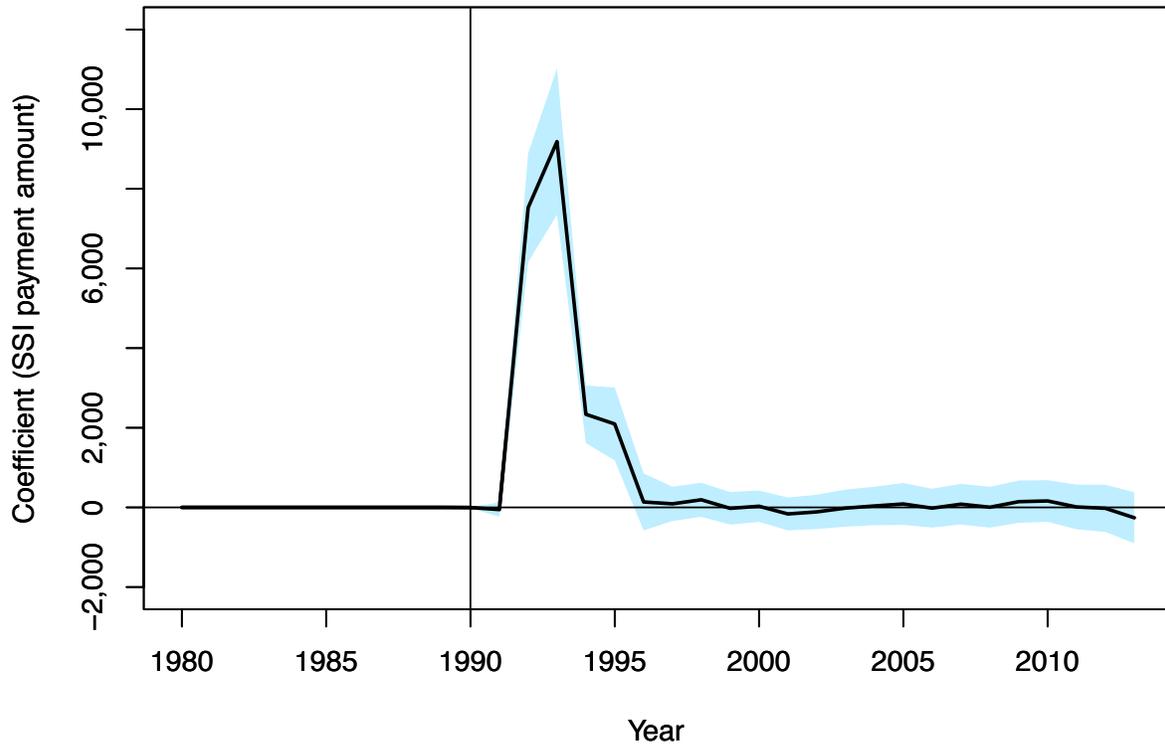
NOTE: Earnings are reported from an individual's wage, salary, and tip income reported on W-2 forms in the year he turned a given age. Cumulative earnings are the total lifetime earnings from age 18 up until the current age. Individuals are grouped into age cohorts by their age on February 22, 1991, the date of implementation of new standards. Includes accepted applicants with mental disorders as the counterfactual group, rather than rejected applicants with nonmental disorders. Each line depicts the regression estimated earnings trajectory for a given age cohort. Each point plots the coefficient on the interaction of age cohort with being initially denied SSI benefits using Equation 1 on cumulative earnings at that age, controlling for age at application and age at application interacted with initial rejection.

Figure A6: Amount of Back Pay Received



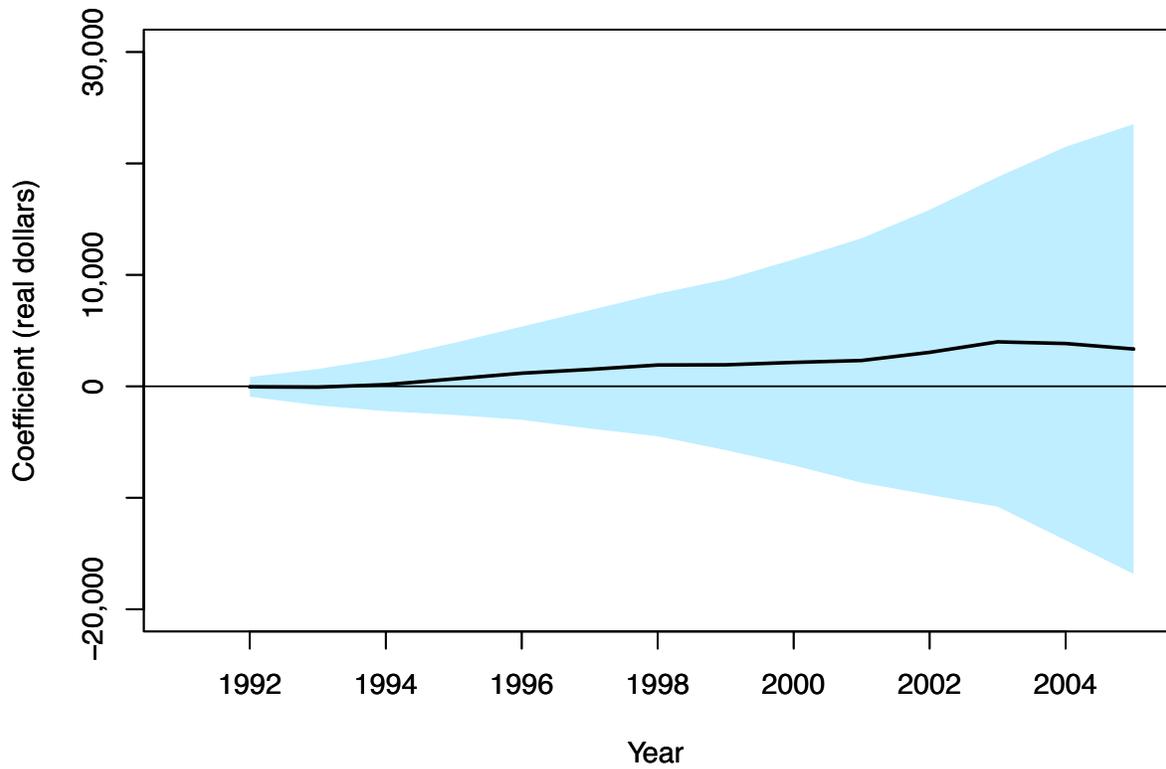
NOTE: Individuals are placed in a weekly bin based on the distance of the date of initial denial from January 1, 1980, the cutoff for being eligible for back payment. Only includes individuals who had a successful application following the *Zebley* decision who had not reapplied for benefits in the intervening decade. Untreated individuals with a benefit spell longer than 12 years are randomly dropped to match the share with that benefit length in the treated group to mechanically equate the duration of benefits.

Figure A7: Level of SSI Payments in a Given Year, by Eligibility for Back Pay



NOTE: Each point is its own estimate of  $\tau$  from Equation (3), indicating the difference in SSI payments received between treated and untreated individuals. Untreated individuals with a benefit spell longer than 12 years are randomly dropped to match the share with that benefit length in the treated group to mechanically equate the duration of benefits. Standard errors are clustered by the number of weeks from January 1, 1980 in which an individual was initially denied from SSI benefits. The shaded region shows the 95% confidence interval.

Figure A8: Cumulative Labor Market Earnings by Year, by Eligibility for Back Pay



NOTE: Each point is its own estimate of  $\tau$  from Equation (3), indicating the difference in cumulative labor market earnings from 1992 between treated and untreated individuals. Untreated individuals with a benefit spell longer than 12 years are randomly dropped to match the share with that benefit length in the treated group to mechanically equate the duration of benefits. Standard errors are clustered by the number of weeks from January 1, 1980 in which an individual was initially denied SSI benefits. The shaded region shows the 95% confidence interval