The Effect of Disability Insurance Payments on Beneficiaries' Earnings

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Online Appendix

Appendix 1: Illustrative framework for analyzing responses

To ground the empirical analysis, in this Appendix we briefly review a simple lifecycle framework for understanding the effects of the policy change, as well as a static model. The framework is adapted from Blundell and MaCurdy (1999) to our particular context in which we observe pre-tax-and-transfer earnings as the key outcome of interest. Thus, rather than modeling the tradeoff between consumption and hours worked as in Blundell and MaCurdy, we model the tradeoff between consumption and pre-tax earnings. In other words, following Saez (2010) and other papers that have access to administrative data on earnings but not on hours worked, we model individuals as trading off consumption, in which utility is increasing, against pre-tax earnings, in which utility is decreasing because it requires effort to produce earnings.

Assume, then, that each individual has a quasi-concave utility function that is separable across time from periods t to T: $U_t = U(U^t(C_t, E_t, X_t), U^{t+1}(C_{t+1}, E_{t+1}, X_{t+1}), ..U^T(C_T, E_T, X_T))$, where C_t and E_t are respectively consumption and pre-tax-and-transfer earnings in period t. X_t refers to additional variables that could affect utility. Utility is maximized subject to the intertemporal budget constraint:

$$A_{t+1} = (1 + r_{t+1})(A_t + B_t + Y_t + E_t(1 - \tau_t) - C_t)$$

where A_t represents assets in period t, B_t is DI benefit income, Y_t is other non-asset unearned income (where Y_t has been appropriately adjusted so that virtual income is correctly specified), τ_t represents the net effective marginal tax rate *including* the effects of DI benefits as well as taxes, and r_{t+1} is the interest rate.

With uncertainty, dynamic programming techniques yield the following problem, subject to the asset accumulation rule above:

$$V(A_t,t)=\max\{U(C_t,L_t,X_t)+\kappa E_t[V(A_{t+1},t+1)]\}$$

Here κ represents the discount factor. Standard dynamic programming techniques yield the following first-order conditions:

$$U_C(C_t,E_t)=\lambda_t$$
$$U_E(C_t,E_t)\geq\lambda_t(1-\tau)_t$$
$$\lambda_t=\kappa E_t[\lambda_{t+1}(1+r_{t+1})]$$

where λ_t represents the marginal utility of lifetime wealth in period *t*.

Earnings supply can then be written as a function of the marginal utility of wealth and and the net implicit tax rate:

$$E_t=L(\lambda_t,1-\tau_t,X_t)$$

λ_t reflects the effects of all future income streams and therefore captures the effects of lifetime income, whereas $1-\tau_t$ reflects price effects. To arrive at a specification where mean earnings can serve as the dependent variable (as in our empirical work), we can linearize the expression for E_t above:

$$E_t=\alpha\lambda_t+\beta(1-\tau_t)+\gamma X_t$$

Here α reflects an income effect, and β reflects a substitution effect.

In our empirical context, it is possible to distinguish two sets of years:

1. Years *before* the DI income is anticipated to arrive. In these years, there should be no discontinuous change in slope of earnings at the bend point, because the discontinuous change at the bend point in the slope of the marginal utility of lifetime wealth has not yet been anticipated. There should also be no bunching at the convex kink created by the discontinuous change in the marginal replacement rate at the bend point (see Appendix 2), because the substitution effects created by DI are not anticipated.
2. Years *after* the DI income has been anticipated to arrive. In these years, we should see a change in slope of earnings arise at the bend point, due to the income effect of lifetime wealth. If substitution effects are greater than zero, we should also see bunching arise in the earnings distribution at the bend point.

As described in Blundell and MaCurdy (1999), if agents behave completely myopically or if capital markets are constrained so that it is not possible to transfer capital across periods (*e.g.* individuals wish to borrow but are liquidity constrained), then a static specification is appropriate. In Blundell and MaCurdy's static, linearized specification, earnings in a given time period t can then be written as a function of the net returns to work $1-\tau_t$ in that period, unearned income B_t+Y_t, and other factors X_t:

$$E_t = \alpha(B_t + Y_t) + \beta(1-\tau_t) + X_t$$

In this case, we would expect no change in slope at the bend point prior to going on DI, but if there are income effects then we would expect a change in slope after going on DI. Since earnings supply in each period is determined by the net returns to work in that period, we also would not expect bunching at the convex kink prior to going on DI, but if substitution effects are greater than zero then we would expect bunching to arise after going on DI.

As in Imbens, Rubin and Sacerdote (2001), given that DI transfer payments are constant from year to year, in the lifecycle model with no myopia, we can also derive this specification by assuming that utility is Stone-Geary. In particular, we can assume that utility is given by:

$$U_t = \sum_{\tau=t}^{T} \frac{1}{(1+\delta)^{\tau}} [\theta_E \ln(E_t - \gamma_E) + \theta_C \ln(C_t - \gamma_C)],$$

where δ is the discount rate, and θ_E, θ_C, γ_E, and γ_C are preference parameters. Individuals are again subject to the intertemporal budget constraint:

$$A_{t+1} = (1+r_{t+1})(A_t + B_t + Y_t + E_t(1-\tau_t) - C_t)$$

Imbens, Rubin and Sacerdote (2001) show that in this context, earnings in each year can be expressed as a linear function of the DI annuity transfer payments in each year, as in the static specification:[1]

$$E_t = \alpha(B_t + Y_t) + \beta(1-\tau_t) + X_t$$

As described in the main text, our estimation strategy is valid if other unobserved determinants of work (*e.g.* Y_t) do not lead to a change in slope in the outcome at the bend point. The models above also do not consider the option value of work that has been considered in the DI context (*e.g.* Coile 2015), though as a benchmark the models above illustrate certain key forces determining earnings.

Appendix 2: Model of earnings response and procedure for estimating excess normalized bunching at kink

2.a. Saez (2010) Model

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[1] The Imbens *et al.* model is in the context of the determination of hours worked, but it easily extends to the context of earnings, exactly as the extension of the dynamic labor supply model in Blundell and MaCurdy (1999) generalizes to the earnings context as shown above.

In Saez (2010), individuals maximize utility u(*c,z;n*) over consumption, *c*, and costly earnings, *z*.[2] Heterogeneity is parameterized by an "ability" parameter *n*, which is distributed according to the smooth CDF *F*(·). Individuals maximize utility subject to the following budget constraint: $c=(1-\tau)z+R$, where *R* is virtual income and τ is the marginal tax rate. Thus, this is a static model, as in the static model described in Appendix 1. We refer to the "tax rate" created by the conversion of AIME to PIA. We stress that DI is *not* administered through the tax system and does not create an actual tax. Rather, the economic theory used to describe the incentives this creates is parallel to that governing the effects of taxes. We adopt the tax rate terminology to be consistent with previous literature estimating the effects of taxes on non-linear budget sets. The decrease in the "marginal net-of-tax rate" at the convex kink in the theory corresponds in our empirical context to the decrease in the marginal replacement rate at the bend point in the AIME-to-PIA conversion formula.

Following Saez (2010), we use a quasi-linear and isoelastic utility function:

$$u(c,z;n)=c-\frac{n}{1+1/\varepsilon}(\frac{z}{n})^{1+1/\varepsilon}$$

Consider first a linear tax schedule with a constant marginal tax rate τ_0. Observe that with a smooth distribution of skills *n*, we have a smooth distribution of earnings that is monotonic in skill, provided we make the typical Spence-Mirlees assumption. We refer to individuals' earnings on a linear tax schedule as their "initial" earnings. The probability distribution function of initial earnings is given by $h_0(.)$.

Now consider the introduction of a piecewise linear tax schedule with a convex kink: the marginal tax rate below earnings level z^* is τ_0, and the marginal tax rate above z^* is $\tau_1 > \tau_0$. Given the tax schedule, individuals bunch at the kink point z^*; as explained in Saez (2010), the realized density in earnings has an excess mass at z^*. Those initially locating between z^* and some higher earnings level Δz^* will bunch at the kink z^* once the piecewise linear tax schedule has been introduced.

The "excess mass" *B* of bunchers will be:

$$B=\int_{z^*}^{z^*+\Delta z^*} h(\xi)d\xi$$

where ξ is the dummy of integration. Define "normalized bunching" *b* as the amount of bunching at the kink normalized by the density at the kink *h(z)* under a linear tax schedule:

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[2] This section often corresponds closely to the description of the Saez methodology in Gelber, Jones and Sacks (2014).

$$b \equiv \frac{B}{h(z)}$$

2.b. Procedure for estimating excess mass

We seek to estimate the "excess mass" at the kink, *i.e.* the fraction of the sample that locates at the kink under the kinked tax schedule but not under the linear tax schedule. Following a standard procedure in the literature (*e.g.* Saez 2010), we estimate the counterfactual density (*i.e.* the density in the presence of a linear budget set) by fitting a smooth polynomial to the earnings density away from the kink, and then estimating the "excess" mass in the region of the kink that occurs above this smooth polynomial.

Specifically, for each earnings bin z_i, we calculate p_i, the proportion of the sample with earnings in the range $[z_i\text{-}k/2, z_i\text{+}k/2)$. The earnings bins are normalized by distance-to-kink, so that for z_i=0, p_i is the fraction of all individuals with earnings in the range [0,*k*). To estimate bunching, we assume that p_i can be written as:

$$p_i = \sum\nolimits_{d=0}^{D} \beta_d (z_i)^d + \sum\nolimits_{j=-k}^{k} \gamma 1\{z_i = j\} + \varepsilon_i$$

and run this regression (where 1 denotes the indicator function and *j* denotes the bin). This equation expresses the earnings distribution as a degree *D* polynomial, plus a set of indicators for each bin within $k\delta$ of the kink, where δ is the bin width. In our empirical application, we choose D=7, δ=50 and k=1 as our baseline (so that two bins are excluded from the polynomial estimation). As we show, our results are robust to alternative choices of D, δ, and k. We employ the bandwidth of \$1,500 used elsewhere in the paper. We control for a baseline seventh-degree polynomial through the density of AIME following Chetty *et al.* (2011). γ reflects the excess density near the kink.

Our measure of excess mass is $\hat{M} = 2k\hat{\gamma}$, the estimated excess probability of locating at the kink (relative to the polynomial term). This measure depends on the counterfactual density near the kink, so to obtain a measure of excess mass that is comparable at the kink, we scale by the predicted density that we would obtain if there were a linear budget set. This is just the constant term in the polynomial, since z_i is the distance to zero. Thus, our estimate of normalized excess mass is $\hat{B} = \frac{\hat{M}}{\hat{\beta}_0}$. We calculate standard errors using the delta method. We calculate the density in each bin by dividing the number of beneficiaries in the bin by the total number of beneficiaries within the bandwidth; note that this normalization should *not* affect the excess normalized mass or the estimated density, because dividing by the total number of beneficiaries within the bandwidth affects the numerator (*i.e.* $\hat{M}$) and denominator (*i.e.* $\hat{\beta}_0$) of the expression for $\hat{B}$ $(=\frac{\hat{M}}{\hat{\beta}_0})$ in equal proportions and therefore should have no impact on $\hat{B}$.

2.c. Discussion of estimates

Appendix Table A15 shows that the resulting estimates of γ are precise, insignificant and very small. For example, in the baseline the mean density in the two bins surrounding the excluded region is 895 times larger than γ.[3] These conclusions hold through variations on the baseline estimates: controlling for covariates; using an alternative bandwidth; controlling for an eighth-degree polynomial; and defining the kink as a larger region around the bend point. Consistent with the exposition of the models in Appendix 1, this finding could reflect that future DI claimants do not anticipate or understand the DI income they will receive or that they do not react to the substitution incentives even when correctly anticipating them.[4]

Appendix 3: Fuzzy RKD specification

Initial AIME is fixed. However, in certain cases AIME can change while a beneficiary is on DI. First, the documented date of disability onset may change through the DI application and award process, thus changing the years on which the AIME calculation is based. This accounts for more than 80 percent of adjustments to AIME. Second, SSA observes earnings with a lag, so additional information on pre-DI earnings may be provided and change the AIME calculation. Third, beneficiaries may have sufficient earnings while on DI to have their AIME updated; our tabulations show that in approximately five percent of cases, AIME is updated for this reason.

The adjustments to AIME are typically minor, so initial AIME measures AIME in subsequent years with only modest error. To account for AIME changes, we also estimate a "fuzzy RKD," where the "reduced form" model remains (2) but it is scaled by the "first stage" estimates of the change in the slope of mean realized DI benefits while a beneficiary is on DI:

$$Benefits_i = \alpha_0 + \alpha_1(A_i - A_0) + \alpha_2(A_i - A_0)D_i + \varepsilon_i$$

The effect of a dollar of DI benefits on average earnings is then given by β_2/α_2. However, some of the measured changes in AIME once on DI could be due to measurement error rather than true changes, potentially leading to lack of precision in the first stage.

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[3] In Appendix Table A4, we also test for a discontinuity in the level of the number of observations and find no significant discontinuity across any of the specifications at the upper bend point.

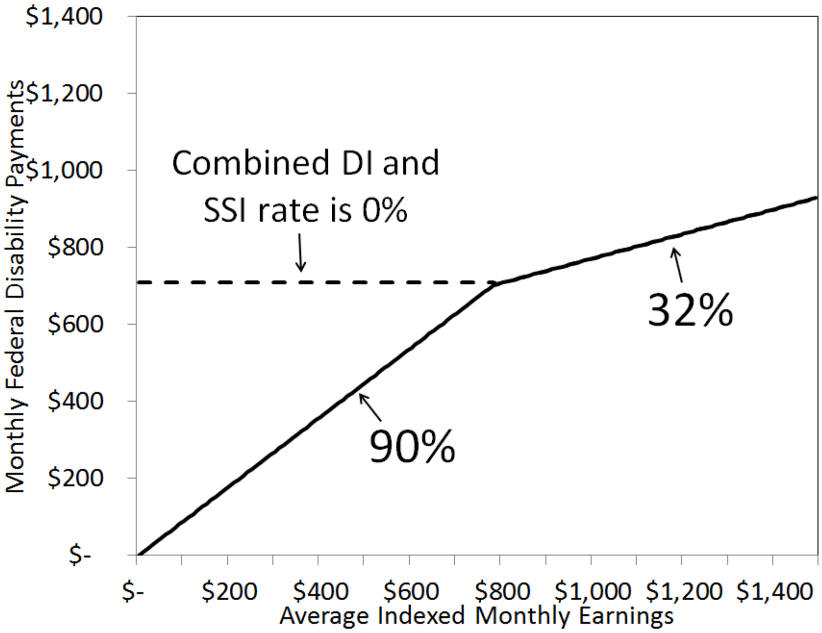
[4] In the context of bunching in initial AIME, it is not straightforward to translate γ into a substitution elasticity as in Saez (2010), because it is unknown when individuals anticipate going on DI.

In practice, AIME changes are sufficiently minor that we obtain essentially identical results using the sharp and fuzzy RKD. We use the sharp RKD as our baseline, while also showing the results using the fuzzy RKD.

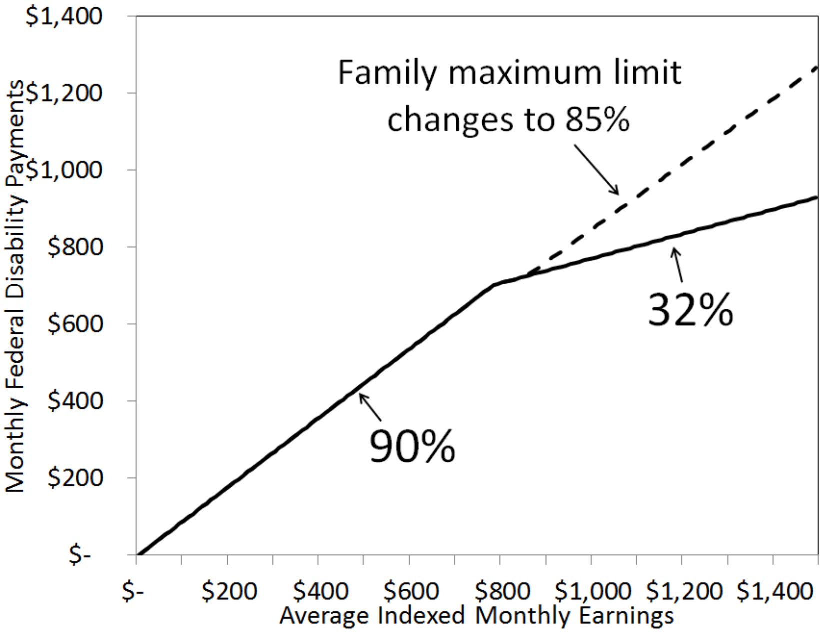
Appendix Figures

Appendix Figure A1. *Interactions of DI Payments with Other Transfers near Lower Bend Point*

A: Interaction of DI Payments with SSI for those Dually Eligible

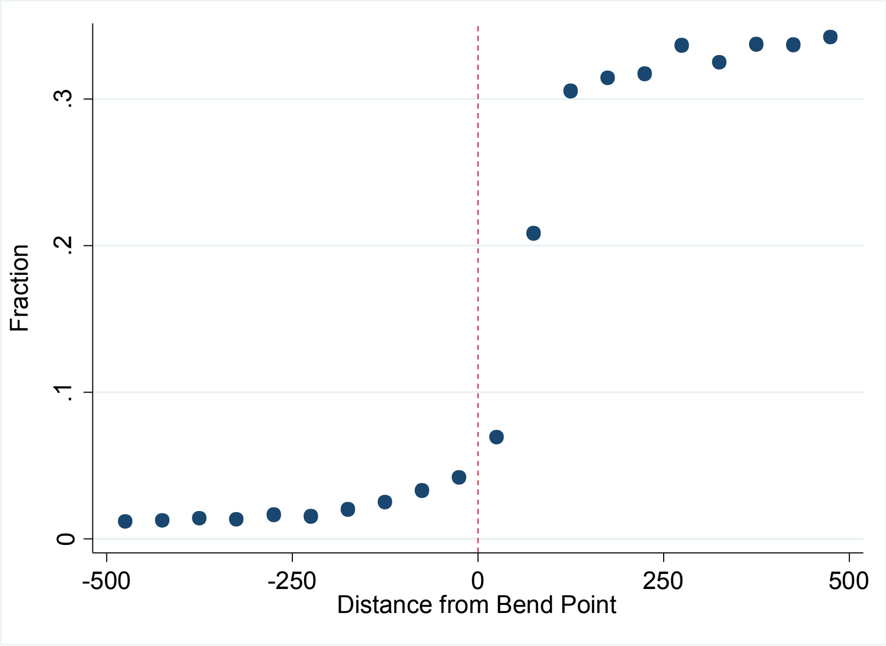


B: Interaction of Bend Point with "Family Maximum" Limits



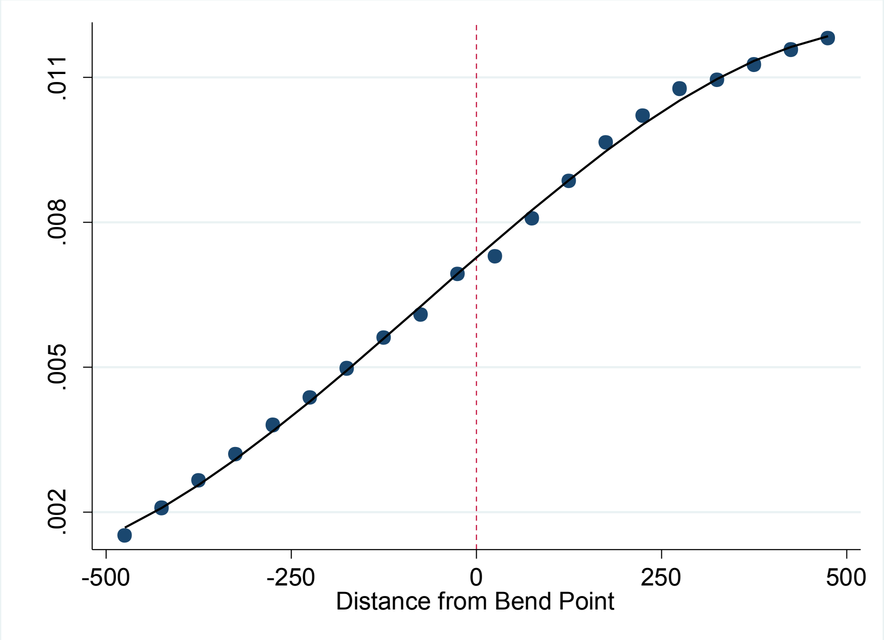
Notes: The solid lines represent the primary DI payment. The dashed lines represent total federal disability payments including possible SSI payments (Panel A) and auxiliary payments to dependents (Panel B). The maximum SSI payment levels could be higher if state supplements or an eligible spouse are present. This would change where the marginal replacement rate changes from 0 to 32 percent.

Appendix Figure A2. *Number of Beneficiaries with Reported Dependents at Lower Bend Point*



Notes: The figure shows that the number of beneficiaries with reported dependents rises sharply above the lower bend point, precisely where there are increased incentives to report additional dependents. The figure shows the number of reported dependents in each $50 bin around the lower bend point.

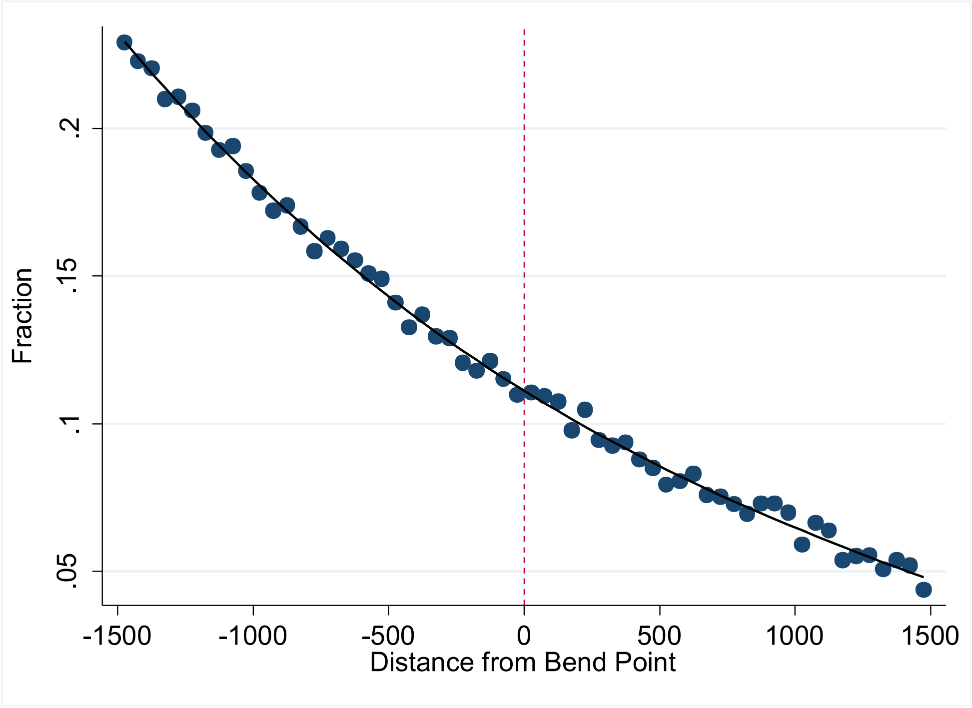
Appendix Figure A3. *Initial Density around the Lower Bend Point*



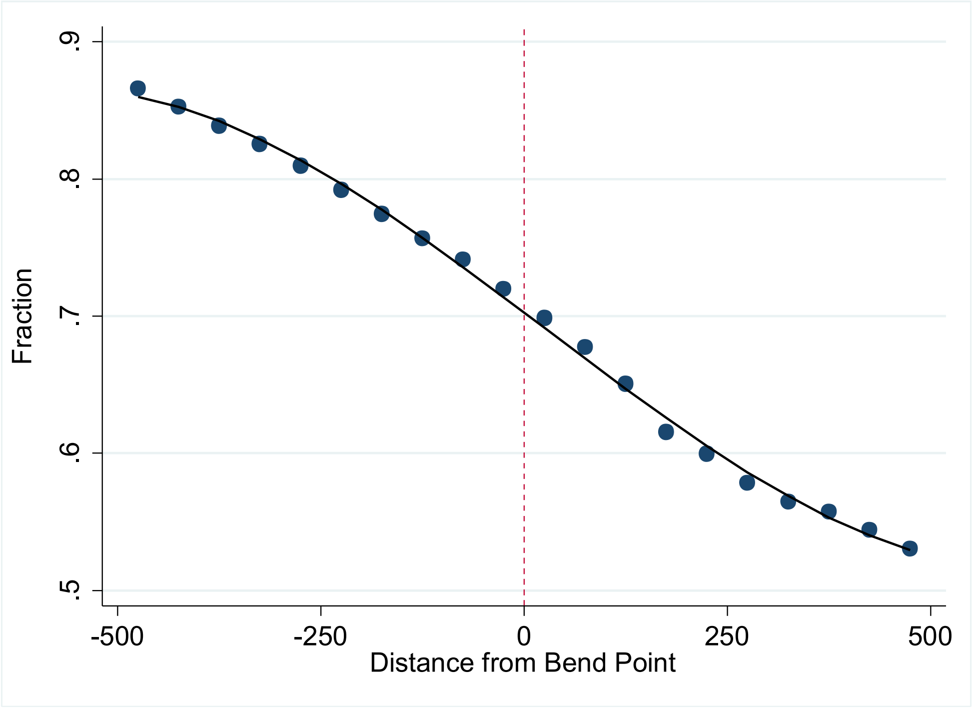
Notes: The figure shows the density in $50 bins as a function of distance from the bend point. The figure shows that the number of observations appears smooth through this bend point. The sample includes DI beneficiaries within $500 of the lower bend point. The AIME of $791 constrains the bandwidth to a value less than that (given that we seek to use a bandwidth that is symmetric on both sides of the bend point). In practice, there are almost no observations below an AIME of $200, as beneficiaries with such low earnings are unlikely to have sufficient quarters of coverage to qualify for DI. Therefore, we use a baseline bandwidth of $500. The best-fit line is a cubic polynomial. See other notes to Figure 3.

Appendix Figure A4. *Fraction of DI Beneficiaries who are also SSI Recipients*

A: Upper Bend Point

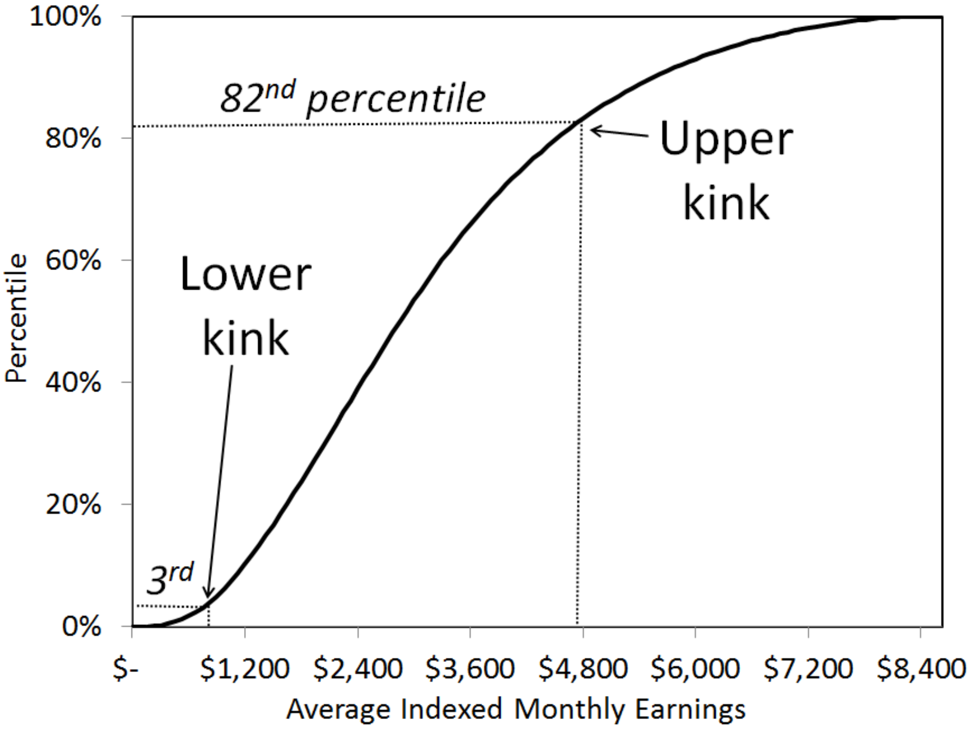


B: Lower Bend Point



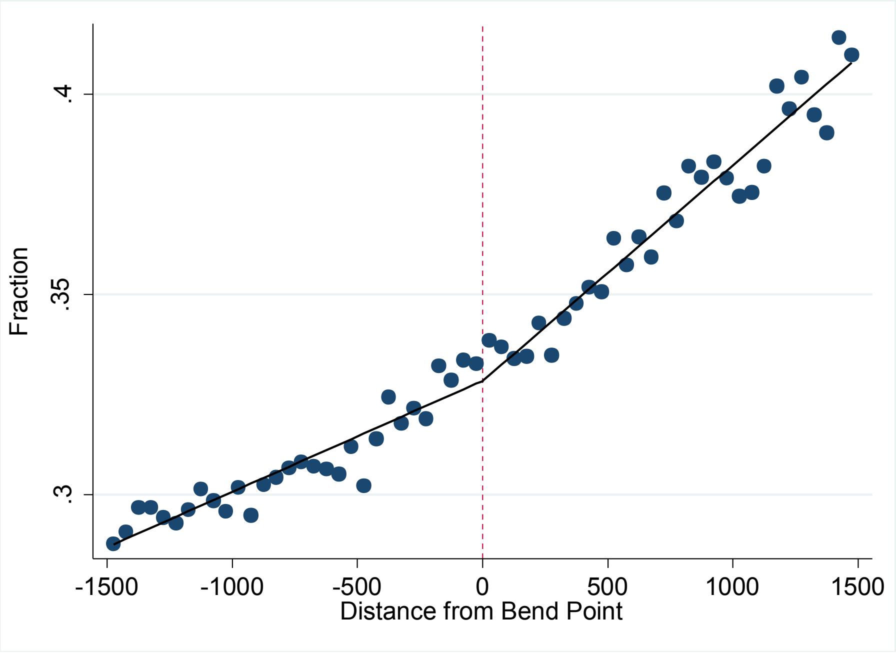
Notes: The figure shows that the fraction of DI beneficiaries who are also SSI recipients within our data extract, as a function of the distance from the bend point. SSI recipients are removed from the main sample, although as a robustness check we also estimate income effects when we include these individuals. The figure shows that this fraction is smooth around the bend points. The best-fit lines are cubic polynomials. See other notes to Figure 3.

Appendix Figure A5. *Cumulative Distribution Function of the Average Indexed Monthly Earnings of new Disability Insurance Beneficiaries, 2001 to 2007*



Notes: The source is SSA administrative records on new DI beneficiaries from 2001 to 2007. See the text for sample restrictions and Table 1 for the characteristics of this full sample.

Appendix Figure A6. *Fraction with Positive Earnings in Any of the Four Years after DI Allowance*

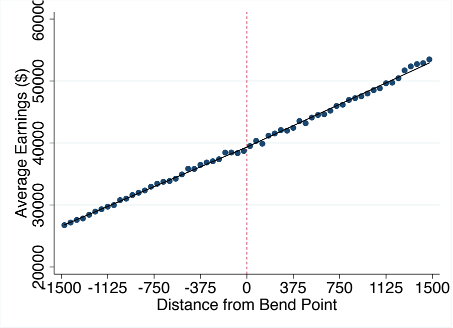


Notes: The figure shows the fraction of individuals with any earnings over all four years after DI allowance, in $50 bins, as a function of distance from the bend point. The figure shows that the probability of positive earnings appears to slope upward more steeply above the upper bend point than below it. See other notes to Figure 5.

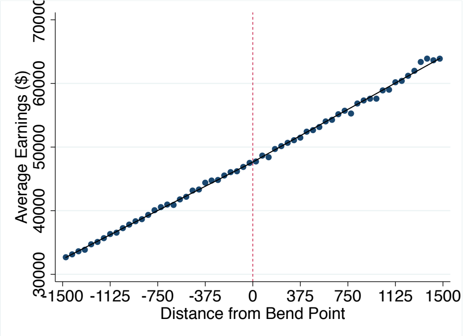
Appendix Figure A7. *Average Monthly Earnings Before and After DI Allowance*

I. Upper Bend Point in Single Years

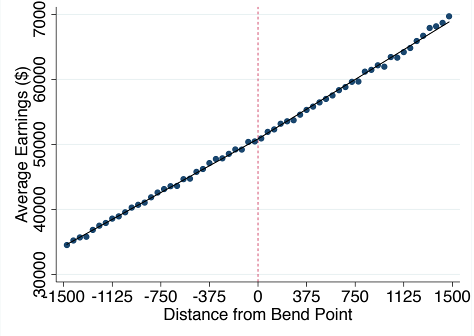
A: One Year before Applying for DI



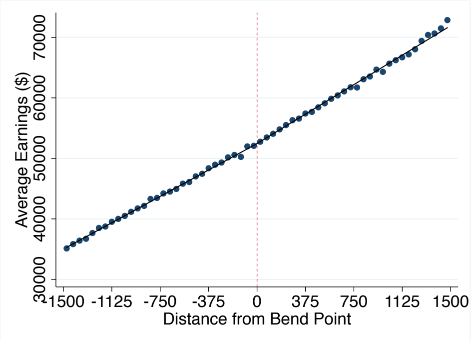
B: Two Years before Applying for DI



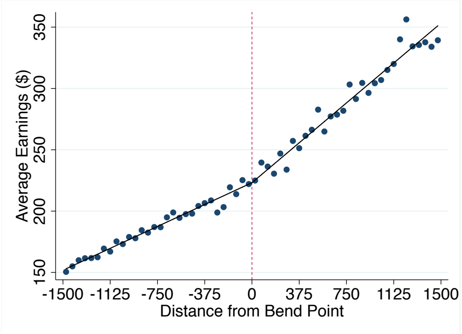
C: Three Years before Applying for DI



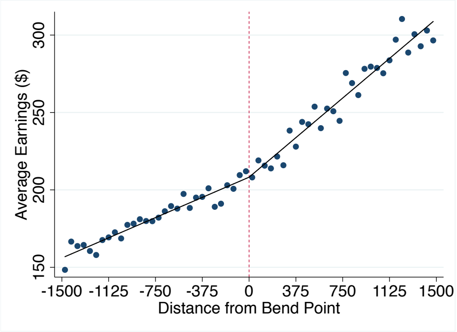
D: Four Years before Applying for DI



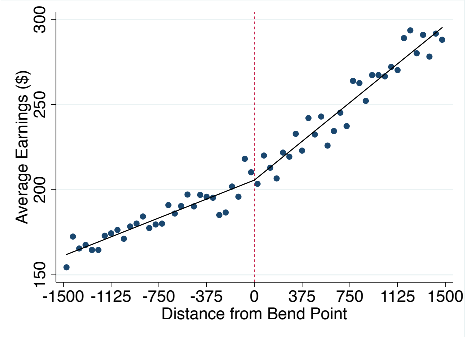
E: One Year after Receiving DI



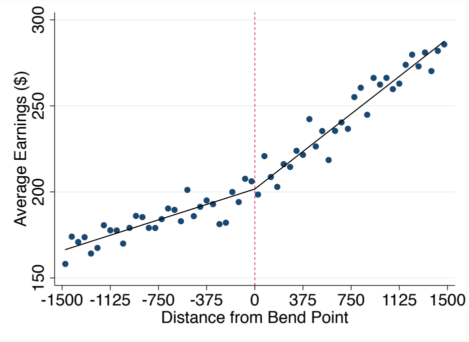
F: Two Years after Receiving DI



G: Three Years after Receiving DI

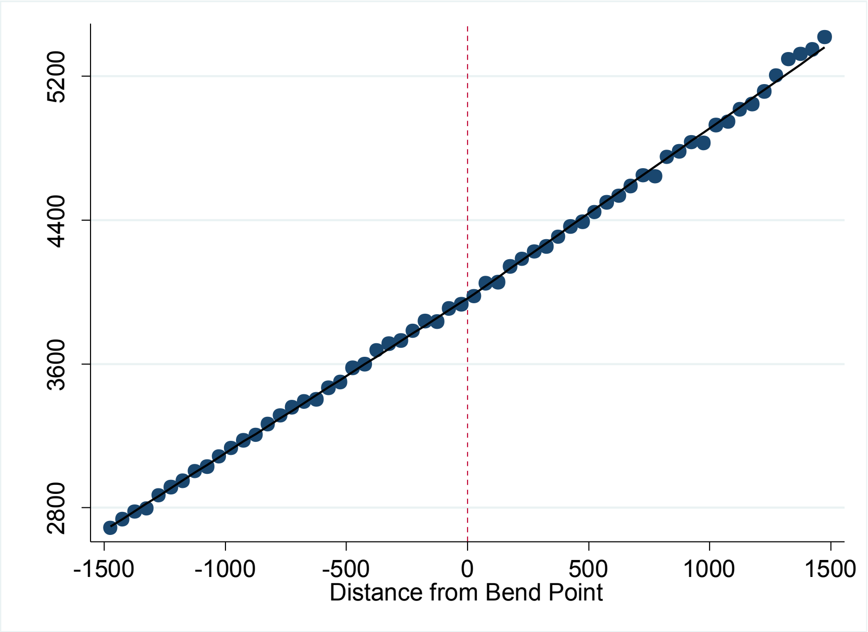


H: Four Years after Receiving DI

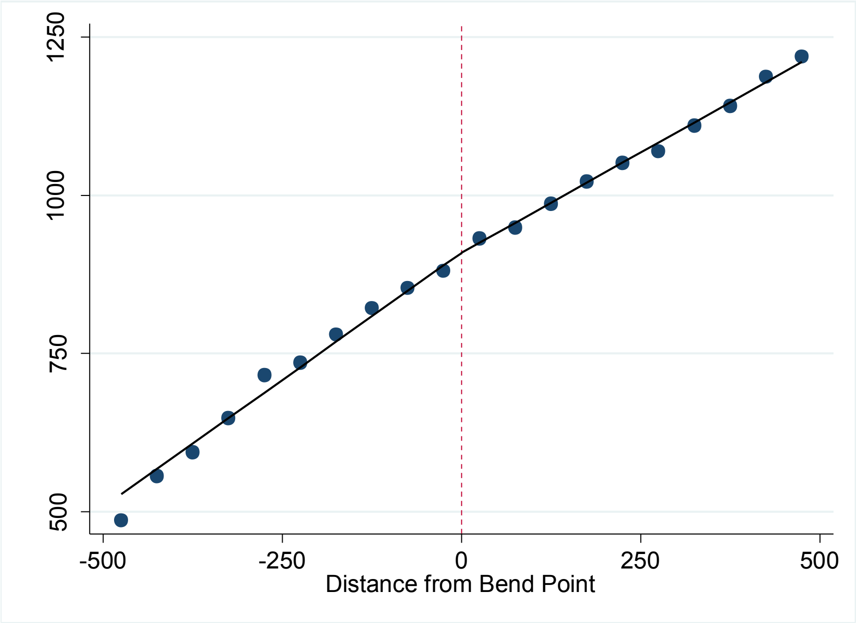


Appendix Figure A7. *II. Average Monthly Earnings in the Four Years before Applying for DI, Aggregating over all Four Years, Upper and Lower Bend Points*

A: Upper Bend Point

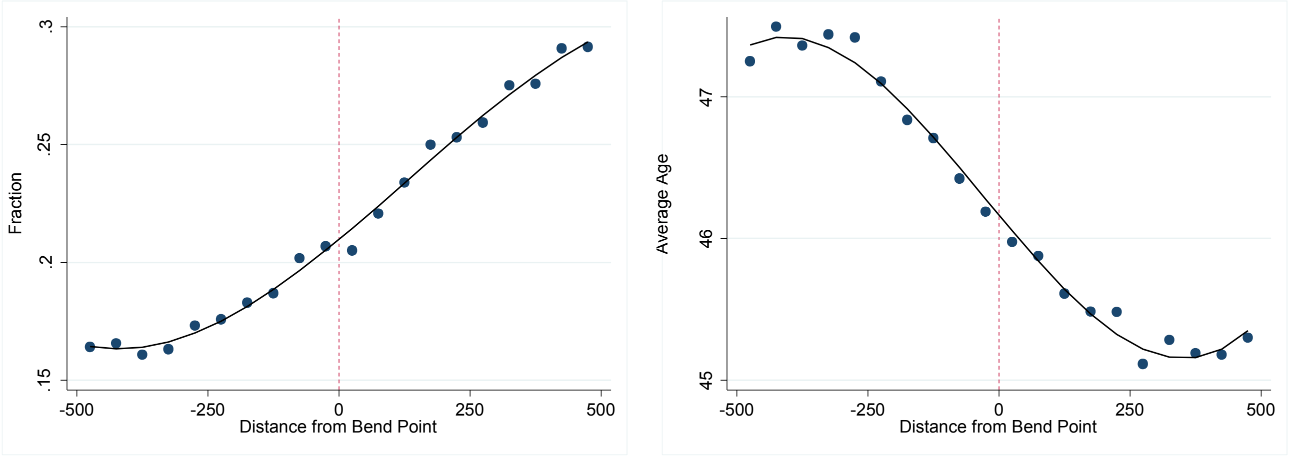


B: Lower Bend Point

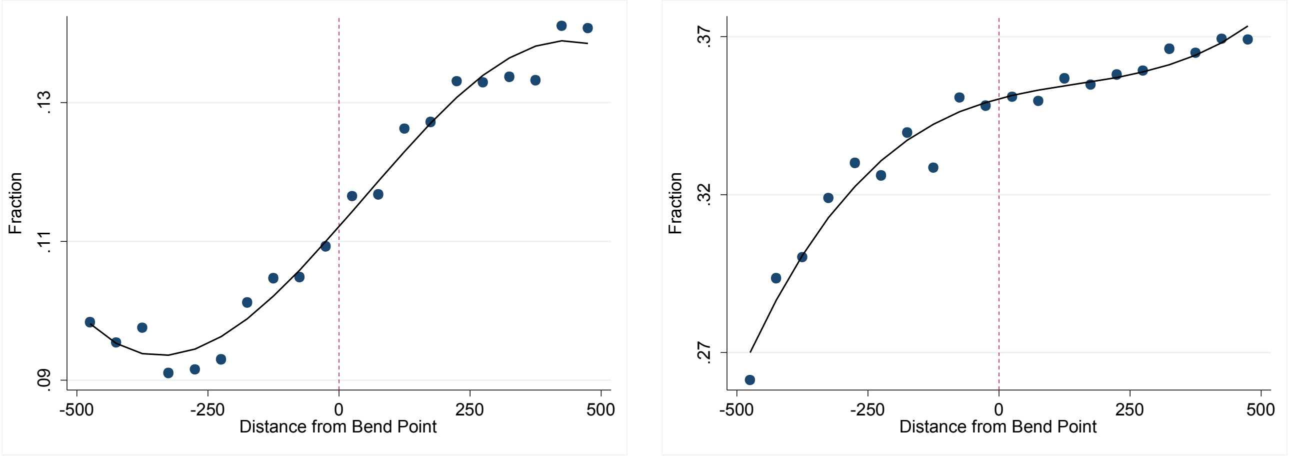


Notes: Panel A of the figure is identical to Figure 4 but uses the same formatting as elsewhere in the paper, *i.e.* with \$50 bins. Panel B shows mean monthly earnings over all four calendar years prior to applying to DI, in \$50 bins, as a function of distance from a bend point. At the lower bend point in Panel B there appears to be a slight decrease in slope at the bend point, though this is not statistically robust as we show in the appendix table estimates of the placebo effects at the lower bend point. See notes to Figure 3.

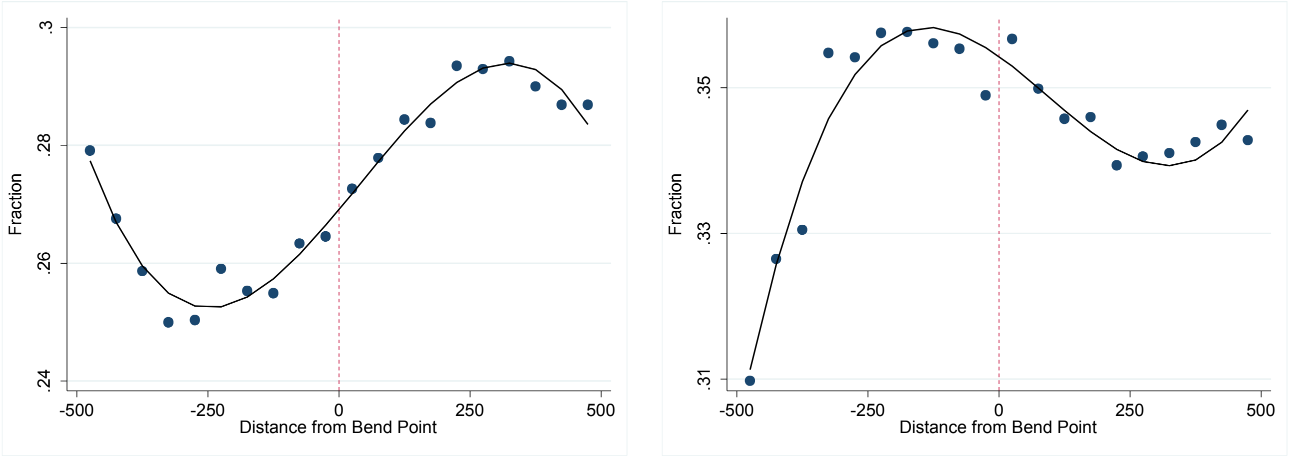
Appendix Figure A8. *Distribution of Predetermined Covariates around the Lower Bend Point*


A: Fraction Male

B: Average Age at Filing for DI


C: Fraction Black

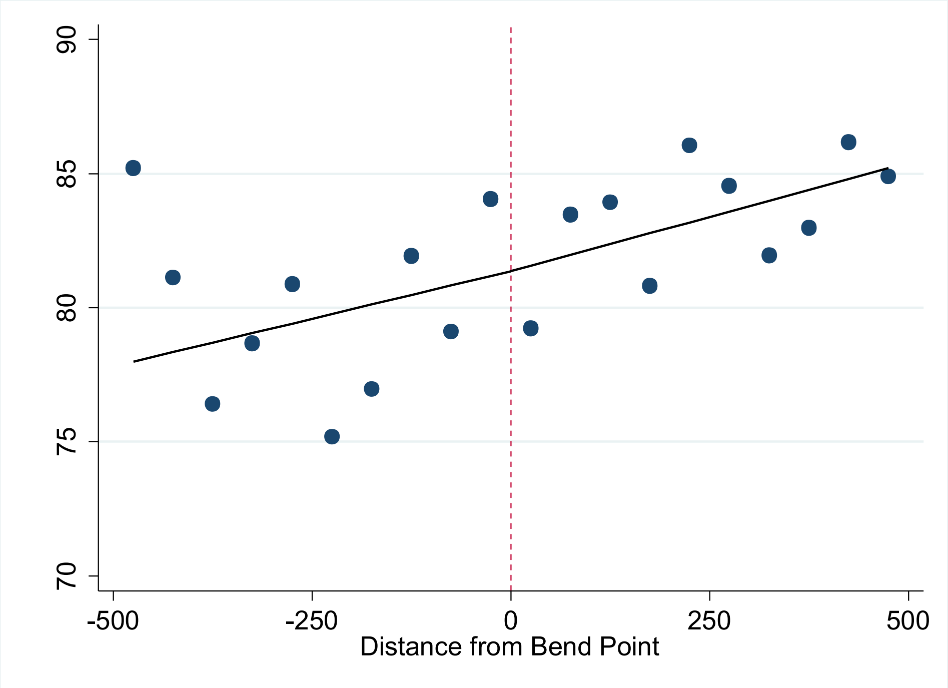
D: Fraction of Hearings Allowances


E: Fraction with Mental Disorders

F: Fraction with Musculoskeletal Conditions

Notes: These figures show the distributions of predetermined covariates in $50 bins as a function of distance from the bend point. They show that these distributions are smooth in the region of the bend point. The best-fit lines are cubic polynomials. See notes to Figure 3.

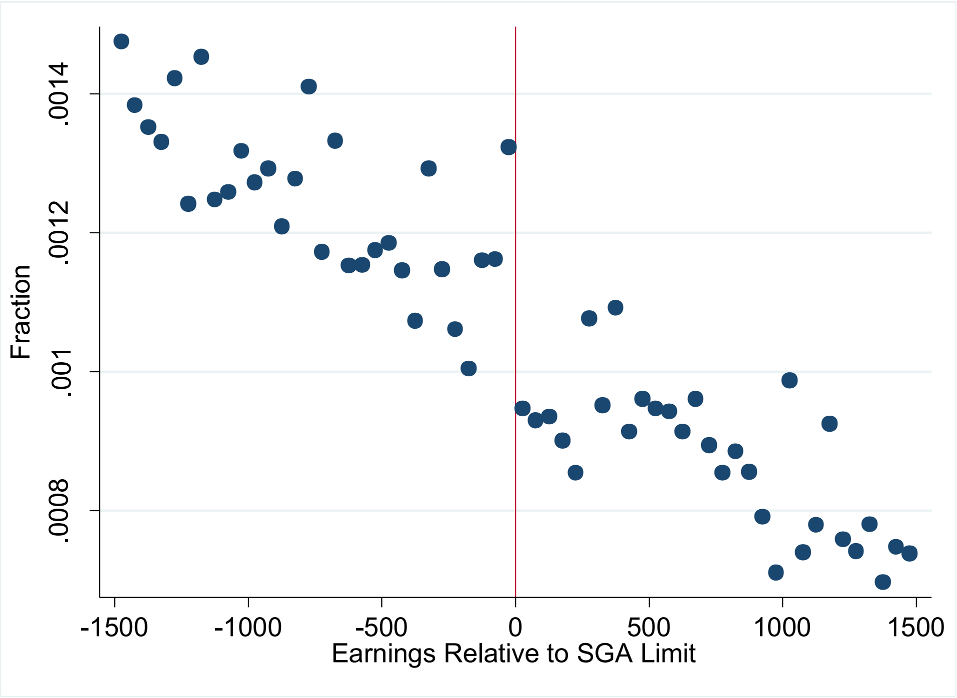
Appendix Figure A9. *Average Monthly Earnings in the Four Years after DI Allowance around the Lower Bend Point*



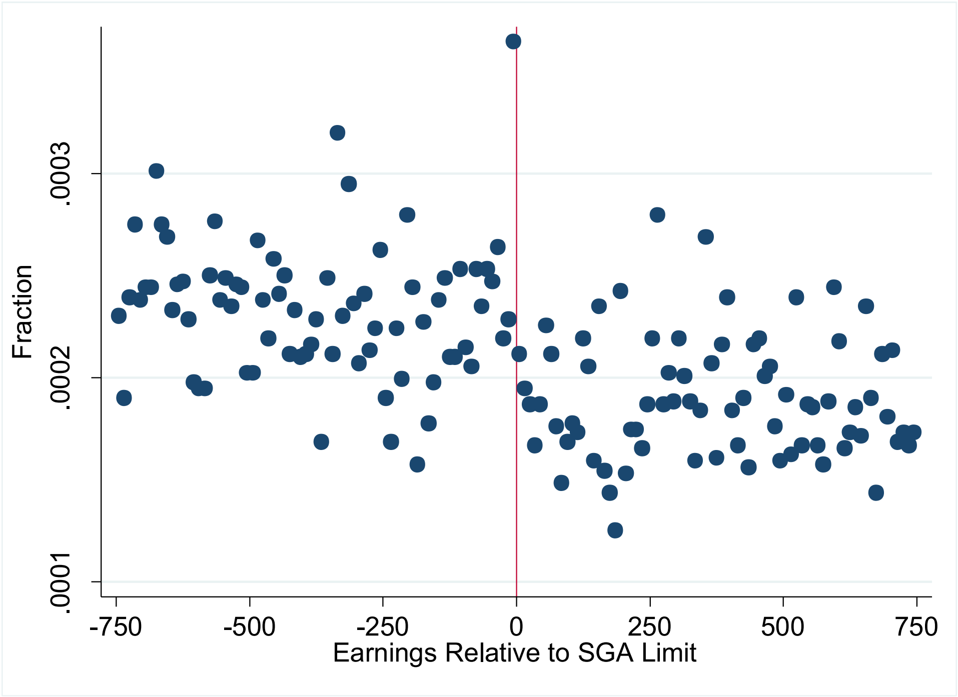
Notes: The figure shows mean monthly earnings in the four years after going on DI, in $50 bins, as a function of distance from the bend point. The figure shows that there is little change in the slope of mean earnings above the upper bend point compared to below it. See other notes to Figure 3.

Appendix Figure A10. *Distribution of Annual Earnings Relative to Annualized Substantial Gainful Activity Limit for Beneficiaries Completing a Trial Work Period*

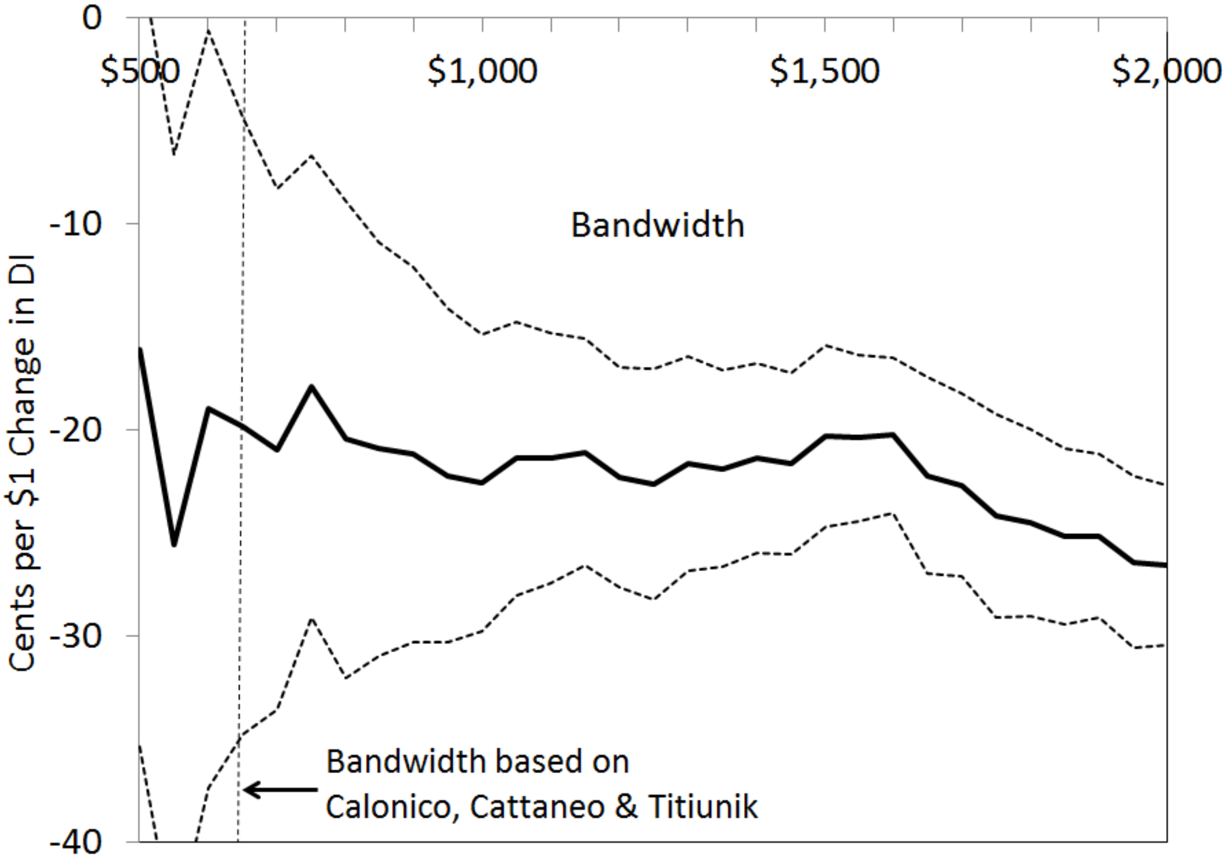
A: Using $50 bins within $1,500 of Annualized SGA



B: Using $10 bins within $750 of Annualized SGA

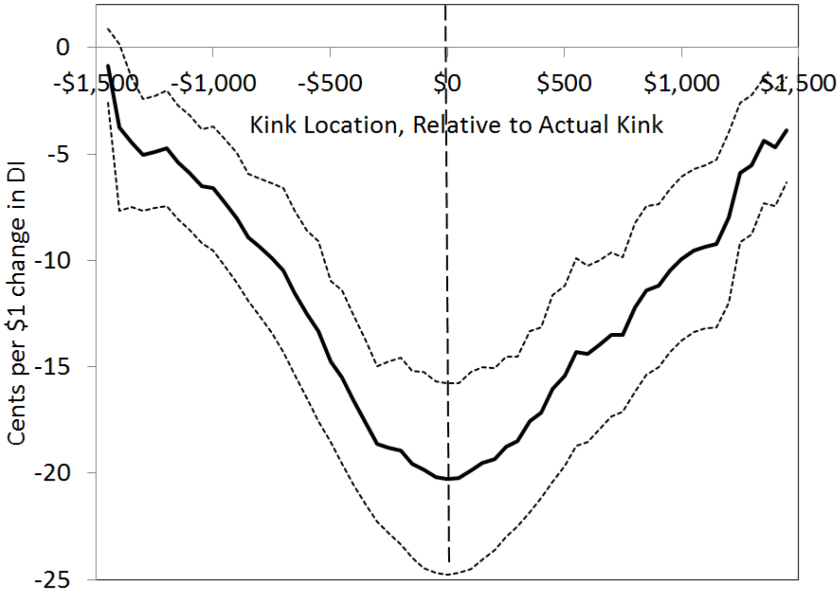


Appendix Figure A11. *Earnings Estimates at Upper Bend Point with Varying Bandwidths*



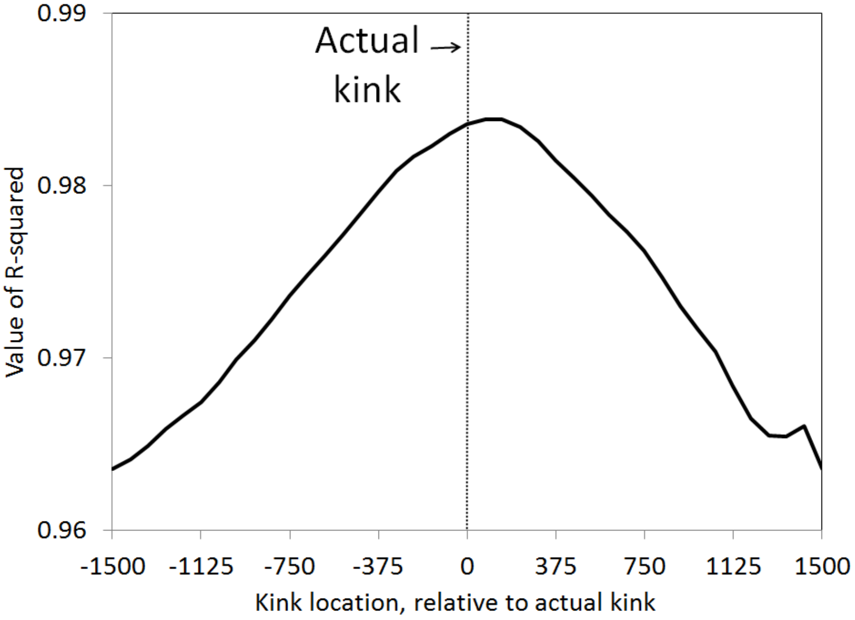
Notes: The figure shows the point estimates and 95 percent confidence intervals (on the *y*-axis) for the effect of a $1 increase in yearly DI payments on mean yearly earnings in the first four years after going on DI that is implied by regression kink design model (2), using bandwidths between $500 and $2,000 (on the *x*-axis). The figure shows that the absolute value of the point estimate is robustly around 20 cents (or higher), regardless of the bandwidth chosen. Above a $500 bandwidth, the estimate is significantly different from zero at the five percent level. The vertical line at $650 shows the bandwidth recommended by the bandwidth selection procedures in Calonico, Cattaneo and Titiunik (2014a, b). We use the baseline linear specification without controls.

Appendix Figure A12. *Earnings Estimates at Placebo Kink Locations near Upper Bend Point*



Notes: The figure show the point estimates and 95 percent confidence intervals for the effect of a $1 increase in yearly DI payments on mean yearly earnings in the first four years on DI that is implied by replacing the true kink in model (2) with "placebo" kink locations at other locations of AIME relative to the true location (normalized to zero). We use the baseline linear specification without controls. The figure shows that the absolute value of the coefficient is maximized at the actual bend point (*i.e.* the coefficient itself is minimized at the actual bend point), supporting the contention that there is in fact a change in slope occurring at the true bend point.

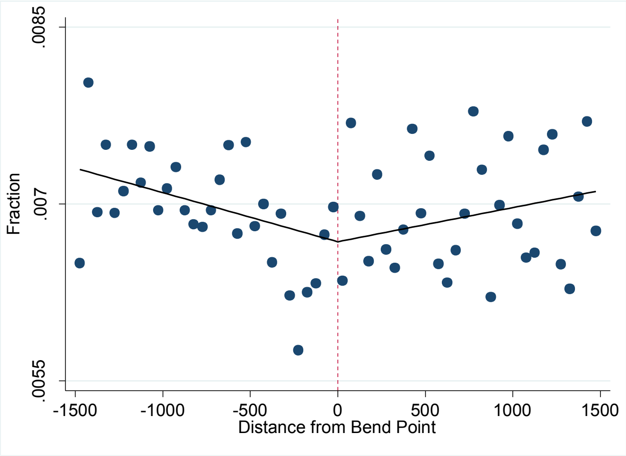
Appendix Figure A13. *R-squared as a Function of "Placebo" Kink Locations around the Upper Bend Point*



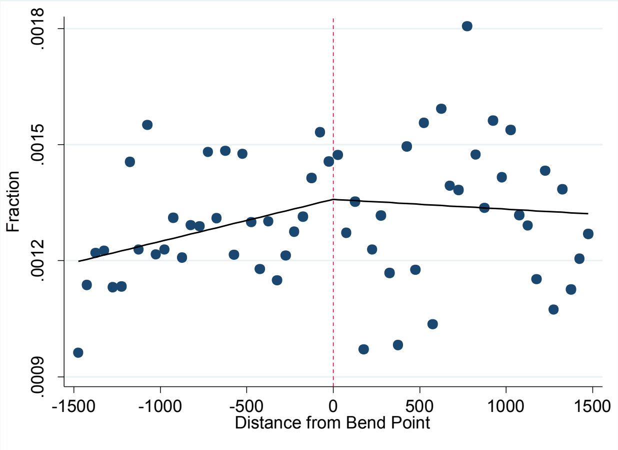
Notes: Following Landais (2015), we show the R-squared of the baseline model when the kink is placed at "placebo" locations around the upper bend point. The R-squared is maximized close to the actual bend point, suggesting that we are estimating a true kink in the outcome.

Appendix Figure A14. *DI Work-related Outcomes around Upper Bend Point in the Four Years after DI Allowance*

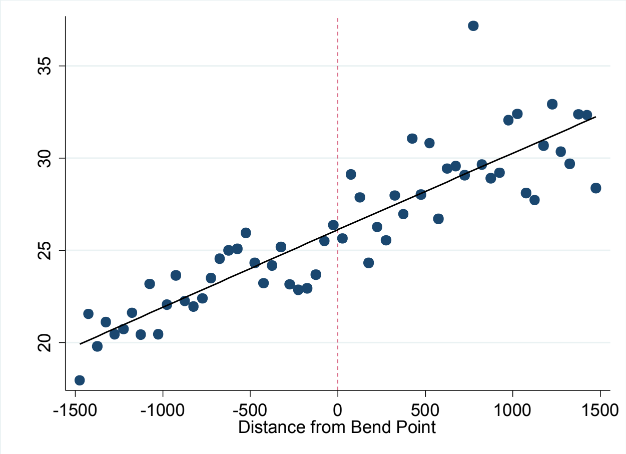
A: Fraction Suspended for Work



B: Fraction Terminated for Work

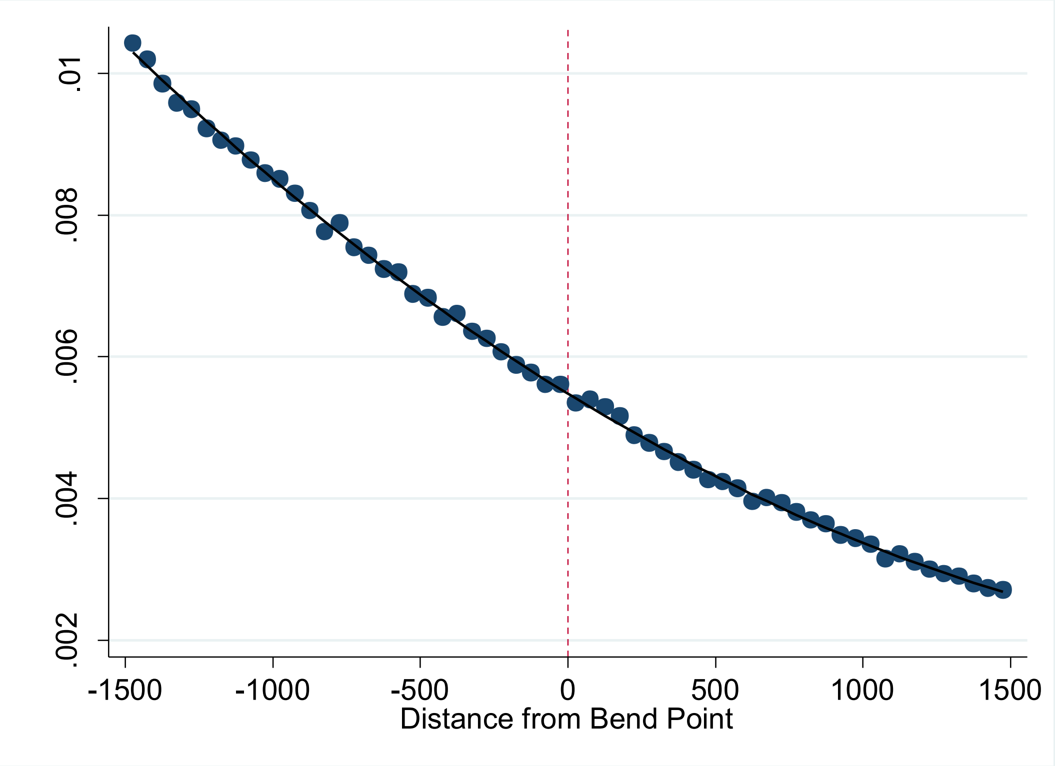


C: Foregone DI Pay due to Work



Notes: These program outcomes are averaged over the first four years on DI, so that the figure shows annualized means. See the notes to Figure 3 and the text for more details.

Appendix Figure A15. *Final Density around the Upper Bend Point*



Notes: The figure shows that the density of *final AIME* is smooth around the upper bend point. This demonstrates that substitution effects are not evident; if substitution effects were operating, we should see bunching in final AIME at the bend point. The fraction of the sample in each bin is calculated by dividing the number of beneficiaries in each bin by the total number of beneficiaries whose final AIME is within $1,500 of the upper bend point. Final AIME represents AIME after having been on DI for four years. The best-fit line is a cubic polynomial. Note that this figure is subtly different than Figure 3.

Appendix Table A1. *Income Effect of DI Benefits on Earnings around the Upper Bend Point Reporting the Full Set of Covariates*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
β_2 (x100)	3.448	3.434	3.272	4.148	4.185	4.567	4.295	4.282	4.654
	(0.381)	(0.384)	(0.652)	(1.403)	(1.445)	(1.453)	(1.485)	(1.492)	(1.561)
AIME (x100)	3.397	3.372	3.341	3.043	2.979	3.425	3.043	3.020	3.257
	(0.187)	(0.240)	(1.317)	(0.688)	(0.761)	(1.284)	(0.696)	(0.802)	(1.516)
AIME^2 (x10,000)				-0.023	-0.025	-0.057	-0.029	-0.029	-0.058
				(0.044)	(0.046)	(0.055)	(0.047)	(0.048)	(0.057)
AIME^3 (x1,000,000)							-0.001	-0.000	-0.001
							(0.002)	(0.002)	(0.002)
Discontinuity		0.625			0.887			0.309	
		(3.323)			(3.447)			(4.616)	
Age at filing			-2.972			-8.251			-7.734
			(6.826)			(8.587)			(8.614)
Fraction male			88.397			72.108			90.347
			(155.00)			(144.85)			(172.88)
Fraction black			99.679			161.24			159.06
			(243.37)			(266.77)			(271.31)
Fraction allowed at hearings level			32.271			17.346			17.937
			(189.04)			(190.79)			(193.74)
Constant	209.67	209.41	274.56	208.78	208.34	547.08	208.68	208.54	507.98
	(1.643)	(2.220)	(368.41)	(2.535)	(3.231)	(452.64)	(2.582)	(3.481)	(470.38)
R-squared	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983	0.983
AICc	377.56	379.73	386.29	379.46	381.67	387.75	381.62	383.99	390.33
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes
Cents per $1 more DI	-20.284	-20.199	-19.248	-24.400	-24.618	-26.867	-25.268	-25.185	-27.376

Notes: The table contains the full results of model (2) run within $1,500 of the upper bend point for all nine specifications. β_2 refers to the change in slope at the bend point, from regression (2) in the main text. The estimates in the last row are equal to β_2 scaled by the 17 percentage point decrease in the slope of PIA as a function of AIME at the upper bend point, when it moves from 32 to 15 percent. The "AICc" is the corrected Akaike Information Criterion. For more information, see notes to Tables 1 and 3.

Appendix Table A2. *Effects on the Probability of Any Employment in the First Four Years on DI around the Upper Bend Point*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
p.p. change per	-1.28	-1.27	-0.76	0.44	0.43	0.36	**0.24**	0.18	0.21
$1,000 more DI	(0.17)	(0.17)	(0.29)	(0.48)	(0.49)	(0.52)	**(0.53)**	(0.56)	(0.57)
AICc	-459.08	-457.03	-455.82	-466.53	-464.26	-457.69	**-468.01**	-466.34	-459.29
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table shows the effect on the probability of any employment in the first four years. See notes to Tables 1 and 3.

Appendix Table A3. *Placebo Tests using Annual Earnings in the Four Years before Applying for DI at the Upper Bend Point*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Earnings in Four Years Before Applying for DI									
Cents per $1 more DI	-50.85	-54.65	-66.10	-27.50	-20.09	5.40	**10.88**	11.40	28.73
	(8.46)	(8.38)	(11.42)	(25.02)	(27.78)	(28.46)	**(24.24)**	(24.92)	(25.31)
AICc	534.07	528.75	539.03	535.53	529.16	533.49	**512.27**	514.63	514.49
First Year Before									
Cents per $1 more DI	-33.90	-37.69	-51.74	-22.19	-14.97	-0.93	**17.56**	18.94	21.11
	(9.93)	(10.19)	(18.22)	(34.14)	(39.55)	(34.57)	**(34.96)**	(34.20)	(35.69)
AICc	551.42	548.11	553.50	553.49	549.82	552.99	**536.43**	538.67	542.60
Second Year Before									
Cents per $1 more DI	-43.30	-47.81	-57.11	-29.44	-20.85	-0.49	**4.54**	1.22	20.22
	(9.42)	(9.43)	(11.96)	(28.42)	(28.65)	(34.03)	**(32.39)**	(33.96)	(37.12)
AICc	553.54	548.08	559.75	555.56	549.56	558.85	**544.88**	546.55	551.31
Third Year Before									
Cents per $1 more DI	-59.45	-64.14	-78.43	-26.73	-17.51	20.07	**15.08**	13.52	44.15
	(9.69)	(9.37)	(13.25)	(30.08)	(31.98)	(33.17)	**(29.08)**	(29.41)	(29.34)
AICc	552.77	546.49	555.06	553.89	546.22	545.47	**534.53**	536.72	529.69
Fourth Year Before									
Cents per $1 more DI	-66.77	-68.97	-77.11	-31.63	-27.02	2.96	6.35	11.92	**29.45**
	(10.61)	(10.49)	(14.42)	(35.11)	(37.94)	(40.32)	(34.89)	(33.72)	**(31.79)**
AICc	553.84	554.33	559.39	554.82	554.81	554.77	540.16	540.33	**538.22**
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table shows that there is no robust significant change in the slope of earnings in "placebo" years *before* individuals go on DI in the four years prior to going on DI (either combined or separately), paralleling the visual patterns shown in Figure 6 and Appendix Figure A7. In particular, there is no effect that is robust and significant across all nine specifications, in contrast to the main results shown in Table 3. The "AICc" is the corrected Akaike Information Criterion, and the bolded estimates minimize the AICc within each row. See notes to Tables 1 and 3. The estimates from the period prior to going on DI are much noisier than the main estimates by year in Table 4 because mean earnings fall substantially from before to after going on DI. Thus, the mean of the dependent variable is much larger in the period before going on DI, so when the earnings regressions are specified in levels (as in Table A3), the estimates are naturally much noisier before going on DI than after.

Appendix Table A4. *Testing for a Discontinuity in the Number of Observations per Bin*

	Linear (1)	Quadratic (2)	Cubic (3)
		A: Upper Bend Point	
Estimated discontinuity	39.52	**39.52**	23.48
	(322.72)	**(66.91)**	(93.67)
AICc	807.58	**753.06**	755.36
		B: Lower Bend Point	
Estimated discontinuity	864.01	864.01	**-259.16**
	(491.47)	(467.64)	**(235.32)**
AICc	307.96	302.67	**270.63**

Notes: The table shows that there is no robust discontinuity in the *level* of the number of observations per bin, considered as a function of AIME distance to the bend point, under linear, quadratic, or cubic specifications, at either bend point. The "AICc" is the corrected Akaike Information Criterion, and the bolded estimates minimize the AICc within each row. See notes to Tables 1, 2, and 3.

Appendix Table A5. *Smoothness of the Densities and Predetermined Covariates around the Lower Bend Point*

Dependent variable	Polynomial minimizing AICc (1)	Estimated kink (2)	Fraction of statistically significant [p=0.05] kinks for polynomials of order 3-12 (3)
Number of observations	12	-14.2	10 percent
		(34.4)	
Fraction male (x 1,000)	12	-0.264	0 percent
		(0.803)	
Average age when filing for DI (x 1,000)	12	3.84	10 percent
		(15.6)	
Fraction black (x 1,000)	12	-0.431	0 percent
		(0.336)	
Fraction of hearings allowances (x 1,000)	12	-0.127	0 percent
		(0.945)	
Fraction with mental disorders (x 1,000)	12	0.421	0 percent
		(0.483)	
Fraction with musculo. conditions (x 1,000)	12	-0.272	0 percent
		(0.641)	
Fraction SSI Recipients (removed from main sample) (x 1,000)	12	0.711	30 percent
		(0.377)	

Notes: The table shows that pre-determined variables (*i.e.* demographics and number of observations) are smooth around the bend points. For each of the dependent variables, the table shows: the order of the polynomial that minimizes the corrected Akaike Information Criterion (AICc) (Column 1); the estimated change in slope at the bend point and standard error (Column 2) under the specification with the AIC-minimizing polynomial; and the fraction of the regressions with polynomial orders between 3 and 12 that show a change in slope that is statistically significant at the five percent level (Column 3). See other notes to Table 2.

Appendix Table A6. *Effect of DI Benefit on Earnings in the Four Years after Entering DI, Lower Bend Point*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Average Earnings Over the First Four Years									
Cents per $1 more DI	**-0.17**	-0.24	4.45	3.17	3.40	6.09	6.97	7.88	7.41
	(1.35)	(1.55)	(4.24)	(5.79)	(6.44)	(6.30)	(6.19)	(4.91)	(7.67)
AICc	**93.78**	96.54	100.27	96.02	99.04	104.89	95.45	97.79	110.29
First Year									
Cents per $1 more DI	-2.21	-2.61	3.66	5.95	6.88	9.48	**11.26**	11.33	11.78
	(1.43)	(1.66)	(3.18)	(5.24)	(6.60)	(4.25)	**(5.53)**	(5.24)	(5.25)
AICc	97.44	99.17	97.62	97.28	98.02	98.59	**92.93**	96.54	102.82
Second Year									
Cents per $1 more DI	-0.89	-1.19	**6.78**	0.07	0.61	5.37	5.44	6.30	5.99
	(1.59)	(1.76)	**(4.08)**	(6.71)	(7.90)	(6.33)	(7.34)	(6.14)	(7.97)
AICc	103.24	105.62	**102.26**	106.01	108.68	106.97	104.54	107.44	112.66
Third Year									
Cents per $1 more DI	**0.24**	0.28	2.08	-0.45	-0.53	0.29	2.38	3.53	2.20
	(1.53)	(1.46)	(6.09)	(6.72)	(6.96)	(7.75)	(6.87)	(5.54)	(9.63)
AICc	**101.02**	103.81	112.63	103.80	106.96	117.34	105.64	108.03	122.70
Fourth Year									
Cents per $1 more DI	**2.18**	2.56	5.27	7.13	6.63	9.20	8.79	10.34	9.68
	(1.59)	(1.86)	(5.54)	(6.97)	(6.01)	(8.96)	(7.42)	(5.54)	(9.76)
AICc	**93.64**	95.30	106.21	95.17	97.59	110.00	97.64	97.72	115.72
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: See notes to Table 1. The table reports coefficients and standard errors showing the estimated effect of a one-dollar increase in yearly DI payments on yearly earnings. “AICc” is the corrected Akaike Information Criterion. The estimates are based on regression model (2) in the text, which is a regression kink design based on relating earnings to the distance between a beneficiary’s AIME and the bend point of the formula transforming AIME into PIA. The data are from SSA administrative records. The “AICc” is the corrected Akaike Information Criterion, and the bolded estimates minimize the AICc within each row. See notes to Table 3.

Appendix Table A7. *Income Effects on Earnings when including Self-Employment Earnings*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Over First Four Years after DI Allowance									
Cents per $1	-21.09	-21.05	-19.30	-23.93	-24.04	-26.88	-24.56	-24.58	-27.08
more DI	(2.33)	(2.37)	(4.09)	(8.63)	(8.86)	(8.75)	(9.23)	(9.32)	(9.45)
AICc	382.55	384.76	391.07	384.63	386.90	392.63	386.86	389.24	395.28
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table is parallel to Appendix Table A6, except that here the dependent variable is mean yearly total earnings (including both self-employment and non-self-employment earnings) over the first four years after DI allowance. The "AICc" is the corrected Akaike Information Criterion, and the bolded estimates minimize the AICc within each row. See other notes to Table 3 and Appendix Table A6.

Appendix Table A8. *Effects on the Percent of the First Four Years with Any Earnings when including Self-Employment Earnings around the Upper Bend Point*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Over First Four Years after DI Allowance									
p.p. change per	-1.30	-1.31	-0.93	-0.28	-0.25	-0.41	**-0.31**	-0.36	-0.41
$1,000 of DI	(0.12)	(0.12)	(0.21)	(0.38)	(0.38)	(0.38)	**(0.42)**	(0.43)	(0.42)
AICc	-494.53	-492.36	-491.19	-498.47	-496.57	-490.30	**-498.51**	-497.26	-490.31
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table is parallel to Appendix Table A6, except that here the dependent variable is the percent of the first four years after DI allowance with any earnings, including both self-employment and non-self-employment earnings. See other notes to Table 3 and Appendix Table A6.

Appendix Table A9. *Income Effects on Self-Employment Earnings*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cents per $1	**-0.39**	-0.38	-0.10	0.04	0.04	-0.22	0.06	0.08	-0.05
more DI	**(0.18)**	(0.19)	(0.31)	(0.62)	(0.64)	(0.67)	(0.70)	(0.71)	(0.70)
AICc	**90.60**	92.77	93.35	92.40	94.68	95.89	92.39	94.63	94.54
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table is parallel to Appendix Table A6, except that here the dependent variable is mean yearly self-employment earnings over the first four years after DI allowance. The "AICc" is the corrected Akaike Information Criterion, and the bolded estimates minimize the AICc within each row. See other notes to Table 3 and Appendix Table A6.

Appendix Table A10. *Effects on the Average Fraction of the First Four Years with Self-Employment Earnings around the Upper Bend Point*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Over First Four Years after DI Allowance									
p.p. change per	-0.04	-0.04	-0.00	0.04	0.03	-0.01	0.04	0.05	**0.02**
$1,000 of DI	(0.03)	(0.03)	(0.05)	(0.09)	(0.09)	(0.10)	(0.10)	(0.10)	**(0.10)**
AICc	-665.52	-663.58	-667.07	-666.10	-664.06	-667.07	-666.11	-664.29	**-668.80**
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table is parallel to Appendix Table A6, except that here the dependent variable is the percent of the first four years after DI allowance with self-employment earnings. The "AICc" is the corrected Akaike Information Criterion, and the bolded estimates minimize the AICc within each row. See other notes to Table 3 and Appendix Table A6.

Appendix Table A11. *Income Effects on Earnings at Upper Bend Point: Robustness Checks*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sample Change 1 – Including SSI Recipients									
Cents per $1	**-20.44**	-20.21	-17.39	-19.72	-20.13	-21.15	-21.04	-20.76	-21.95
more DI	**(1.94)**	(1.94)	(3.59)	(6.98)	(7.29)	(7.00)	(7.67)	(7.67)	(7.68)
AICc	**358.23**	360.08	365.06	360.43	362.38	367.25	362.39	364.69	369.57
Sample Change 2 – Removing Beneficiaries with Payments to Dependents									
Cents per $1	**-21.25**	-21.18	-21.65	-24.21	-24.37	-21.72	-25.38	-25.51	-23.20
more DI	**(2.50)**	(2.50)	(3.86)	(9.51)	(9.89)	(10.40)	(10.68)	(10.73)	(10.96)
AICc	**232.51**	235.56	241.29	235.46	238.51	244.44	238.37	241.46	246.65
Sample Change 3 – Estimates including Decedents as Zero Earnings after Death									
Cents per $1	**-17.91**	-17.86	-15.45	-19.14	-19.26	-22.28	-19.83	-19.87	22.04
more DI	**(1.75)**	(1.82)	(3.22)	(6.41)	(6.49)	(6.60)	(6.80)	(6.97)	(6.90)
AICc	**348.44**	350.63	356.39	350.61	352.87	357.53	352.76	355.14	360.14
Estimates using Fuzzy Regression Kink Design									
Cents per $1	**-20.62**	-20.57	-20.14	-23.81	-23.93	-25.19	-24.37	-24.35	-25.56
more DI	**(1.81)**	(1.83)	(3.21)	(6.15)	(6.30)	(6.01)	(6.38)	(6.43)	(6.39)
AICc	**677.24**	681.06	690.77	680.64	684.36	692.19	682.32	686.25	694.00
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table shows that the basic results are robust to adding SSI recipients to the main sample; to removing beneficiaries with payments to dependents; to adding beneficiaries with many changes in their AIME; and to running a fuzzy RKD. In the case of a fuzzy RKD, we report β_2/α_2, where these refer to the key coefficients of interest in the reduced form and first stage models (2) and (3), respectively. Over the first four years on DI, cumulative mortality is 19.5 percent of the sample. See notes to Tables 1 and 3.

Appendix Table A12. *Estimates of the Earnings Effects in the Four Years after DI Allowance using Individual-level Data, Different Bin Sizes, or an Expanded Sample*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Main – Using $50 bins									
Cents per $1	**-20.28**	-20.20	-19.25	-24.40	-24.62	-26.87	-25.27	-25.19	-27.38
more DI	**(2.24)**	(2.26)	(3.83)	(8.25)	(8.50)	(8.55)	(8.73)	(8.78)	(9.18)
AICc	**377.56**	379.73	386.29	379.46	381.67	387.75	381.62	383.99	390.32
Using individual-level data									
Cents per $1	-20.20	-20.09	**-15.00**	-23.64	-23.88	-28.55	-24.47	-24.32	-27.88
more DI	(2.36)	(2.46)	**(2.32)**	(8.51)	(8.58)	(8.35)	(9.40)	(9.57)	(9.21)
AICc	7815095.6	7815098.5	**7792125.3**	7815098.4	7815101.3	7792125.4	7815101.3	7815104.3	7792128.3
Using $25 bins									
Cents per $1	**-20.21**	-20.10	-19.03	-23.85	-24.11	-27.92	-24.80	-24.68	-27.66
more DI	**(2.34)**	(2.42)	(3.52)	(8.48)	(8.51)	(9.25)	(9.07)	(9.37)	(9.70)
AICc	**853.15**	855.19	855.26	855.05	857.08	856.15	857.04	859.21	858.44
Using $100 bins									
Cents per $1	**-20.41**	-20.35	-20.45	-23.89	-24.06	-25.63	-24.78	-24.80	-26.10
more DI	**(2.37)**	(2.27)	(4.44)	(8.32)	(9.02)	(10.40)	(9.24)	(8.96)	(11.14)
AICc	**167.05**	169.49	177.68	169.27	171.88	180.60	171.77	174.67	180.45
Including Beneficiaries with More than Four AIME Changes									
Cents per $1	**-21.25**	-21.18	-21.65	-24.21	-24.37	-21.72	-25.38	-25.51	-23.20
more DI	**(2.50)**	(2.50)	(3.86)	(9.51)	(9.89)	(10.40)	(10.68)	(10.73)	(10.96)
AICc	**337.08**	339.25	345.64	338.76	340.95	346.56	340.29	342.57	348.77
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table shows that the basic results are robust to choosing other bin sizes or to running the regressions at the individual level (rather than the bin level). In the individual-level regressions, we cluster by $50 bin; the standard errors are also similar when we cluster at other bin sizes. The standard errors are smaller when we do not cluster, reinforcing our conclusion that the estimates are precise. "AICc" is the corrected Akaike Information Criterion. See notes to Tables 1 and 3.

Appendix Table A13. *Effect on DI Program Outcomes in the Four Years after Allowance*

	Linear models			Quadratic models			Cubic models		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	A: Annual Probability of Suspended DI Payments due to Working								
Upper bend point									
p.p. change per	-0.035	-0.031	-0.028	-0.081	-0.088	-0.123	-0.085	-0.073	**-0.128**
$1,000 more DI	(0.016)	(0.016)	(0.024)	(0.062)	(0.063)	(0.058)	(0.060)	(0.062)	**(0.058)**
AICc	-753.99	-753.81	-752.19	-754.88	-755.23	-756.62	-754.97	-756.20	**-756.86**
Lower bend point									
p.p. change per	**-0.011**	-0.012	-0.024	-0.082	-0.083	-0.061	-0.087	-0.087	-0.061
$1,000 more DI	**(0.022)**	(0.022)	(0.049)	(0.073)	(0.079)	(0.081)	(0.089)	(0.087)	(0.110)
AICc	**-252.64**	-249.86	-243.47	-251.09	-247.93	-239.13	-251.12	-247.95	-239.13
	B: Annual Probability of Termination from DI due to Working								
Upper bend point									
p.p. change per	0.007	0.005	0.002	-0.033	-0.031	-0.038	**-0.031**	-0.034	-0.038
$1,000 more DI	(0.004)	(0.005)	(0.007)	(0.019)	(0.019)	(0.020)	**(0.020)**	(0.020)	(0.021)
AICc	-877.76	-877.27	-873.70	-883.09	-881.93	-879.59	**-883.19**	-882.16	-879.59
Lower bend point									
p.p. change per	-0.002	0.001	0.037	-0.006	-0.011	0.022	-0.013	-0.005	**0.017**
$1,000 more DI	(0.009)	(0.007)	(0.014)	(0.035)	(0.031)	(0.017)	(0.042)	(0.032)	**(0.022)**
AICc	-290.40	-290.17	-290.89	-290.42	-290.43	-291.79	-288.05	-287.52	**-292.05**
	C: Foregone DI Payments due to Working								
Upper bend point									
Cents per $1 more	0.04	0.18	-0.004	-4.60	-4.93	-5.81	**-5.46**	-5.16	-6.48
DI	(0.60)	(0.60)	(1.113)	(2.42)	(2.39)	(2.27)	**(2.62)**	(2.68)	(2.45)
AICc	233.15	233.90	239.21	230.72	230.40	233.87	**229.02**	230.28	231.65
Lower bend point									
Cents per $1 more	**-0.65**	-0.61	1.25	0.90	0.88	2.04	1.41	1.63	2.14
DI	**(0.38)**	(0.40)	(1.14)	(1.70)	(1.81)	(1.88)	(2.05)	(1.69)	(2.33)
AICc	**39.24**	41.84	46.21	40.10	43.24	50.21	42.27	44.79	55.93
Discontinuity	--	Yes	--	--	Yes	--	--	Yes	--
Covariates	--	--	Yes	--	--	Yes	--	--	Yes

Notes: The table shows estimates of model (2) when the dependent variable is a dummy for whether the beneficiary had suspended DI payments due to working (Panel A); a dummy for termination of DI due to working (Panel B); and the value of foregone DI payments due to sufficiently high non-DI earnings (Panel C). We run linear probability models in Panels A and B. "AICc" is the corrected Akaike Information Criterion. See notes to Tables 1 and 3.

Appendix Table A14. *Estimates of Final Excess Mass in AIME*

	Baseline (1)	Covariates (2)	Alternative bandwidth (3)	8^{th}-degree polynomial (4)	Excluded region $200 (5)
γ (x 10,000)	-0.091	-0.26	-0.54	-0.35	0.036
	[-1.01, 0.83]	[-1.18, 0.66]	[-1.65, 0.56]	[-1.24, 0.55]	[-0.68, 0.75]

Notes: The table shows the point estimates and 95 percent confidence interval for γ, the coefficient on the dummy for being near the kink, defined in terms of final AIME, from regression (4) (reflecting the excess mass per bin near the kink), which is multiplied by 10,000 for the reader's ease. The mean density per bin (multiplied by 10,000) in the two bins immediately outside those nearest to the kink is 57.68. The table shows that the estimated values of γ are negligible relative to the underlying density (on the order of 0.1 percent as large), indicating that there is no evidence of excess bunching at this kink and therefore no evidence of a substitution effect. "Baseline" refers to estimating a seventh-degree polynomial through the earnings distribution using a bandwidth of $1,500 and estimating the kink from a region within $100 of the bend point. We take bin means of variables in 60 equally-sized bins of $50 width around the upper bend point, so that each regression has 60 observations. "Covariates" (Column 2) refers to a specification controlling for covariates within each bin (mean age, percent male, percent black, and percent allowed at the hearings stage). "Alternative bandwidth" (Column 3) refers to using a bandwidth of $650—the bandwidth selected by the procedure of Calonico, Cattaneo and Titiunik (2014a, b)—rather than $1,500. "Eighth-degree polynomial" (Column 4) estimates an eighth-order polynomial through the density rather than a seventh-order. "Excluded region $200" (Column 5) refers to estimating the kink from a region of $200 around the bend point, rather than $100. Appendix Table A14 shows the implied elasticities, estimated using the model of Saez (2010), which require more assumptions and should be viewed as illustrative of the relevant range of the elasticity. In these estimates, the estimated elasticities cluster near zero, with confidence intervals that rule out elasticities larger than a moderate level (0.36 or smaller).

Appendix Table 15. *Estimates of Initial Excess Mass in AIME*

	Baseline (1)	Covariates (2)	Alternative bandwidth (3)	8^{th}-degree polynomial (4)	Excluded region $200 (5)
γ (x 10,000)	0.064	-0.016	-0.55	-0.22	0.28
	[-1.05, 1.18]	[-1.18, 1.15]	[-1.81, 0.71]	[-1.32, 0.88]	[-0.59, 1.15]

Notes: The table shows the point estimates and 95 percent confidence interval on γ, the coefficient on the dummy for being near the kink in initial AIME from regression (4) (reflecting the excess mass per bin near the kink). For readability, the reported value of γ is the true value multiplied by 10,000. The mean density of the two bins immediately outside those nearest to the kink is 0.0057 (or 57.27 when multiplied by 10,000). This is relevant for interpreting estimates of the coefficient γ, as it is always a tiny percentage of 57.27 (on the order of 0.1 percent). The column headings show the different specifications. "Baseline" refers to estimating a seventh-degree polynomial through the earnings distribution within a bandwidth of $1,500 of the bend point and estimating the kink from a region within $100 of the bend point. We use bin means of variables in 60 equally-sized bins of $50 width around the upper bend point, so that each regression has 60 observations. "Covariates" (Column 2) refers to a specification controlling for the mean value of covariates within each bin (mean age, percent male, percent black, and percent allowed at the hearings stage). "Alternative bandwidth" (Column 3) refers to using a bandwidth of $650—the bandwidth selected by the procedure of Calonico, Cattaneo and Titiunik (2014a, b)—rather than $1,500. "Eighth-degree polynomial" (Column 4) estimates an eighth-order polynomial through the density rather than a seventh-order. "Excluded region $200" (Column 5) refers to estimating the kink from a region of $200 around the bend point, rather than $100.