Online Appendix

for

Does Re-Imprisonment for Technical Violations Prevent Crime?

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A Appendix Figures

Sentencing Grid for Class D Offenses—MCL 777.65

Includes Ranges Calculated for Habitual Offenders (MCL 777.21(3)(a)-(c))

OV Level	PRV Level												Offender Status
	A 0 Points		B 1-9 Points		C 10-24 Points		D 25-49 Points		E 50-74 Points		F 75+ Points		
I 0-9 Points	0	6*	0	9*	0	11*	0	17*	5	23	10	23	
		7*		11*		13*		21		28		28	HO2
		9*		13*		16*		25		34		34	HO3
		12*		18*		22		34		46		46	HO4†
II 10-24 Points	0	9*	0	11*	0	17*	5	23	10	23	19	38	
		11*		13*		21		28		28		47	HO2
		13*		16*		25		34		34		57	HO3
		18*		22		34		46		46		76	HO4†
III 25-34 Points	0	11*	0	17*	5	23	10	23	19	38	29	57	
		13*		21		28		28		47		71	HO2
		16*		25		34		34		57		85	HO3
		22		34		46		46		76		114	HO4†
IV 35-49 Points	0	17*	5	23	10	23	19	38	29	57	34	67	
		21		28		28		47		71		83	HO2
		25		34		34		57		85		100	HO3
		34		46		46		76		114		134	HO4†
V 50-74 Points	5	23	10	23	19	38	29	57	34	67	38	76	
		28		28		47		71		83		95	HO2
		34		34		57		85		100		114	HO3
		46		46		76		114		134		152	HO4†
VI 75+ Points	10	23	19	38	29	57	34	67	38	76	43	76	
		28		47		71		83		95		95	HO2
		34		57		85		100		114		114	HO3
		46		76		114		134		152		152	HO4†

Figure (A1) Grid for crimes in class D - Michigan Sentencing Guidelines

Notes: In the example grid D, intermediate cells are marked with asterisks, straddle cells are shaded, and prison cells are unmarked. The links to the manuals containing all grids can be found here: https://mjieducation.mi.gov/felony-sentencing-online-resources. In this particular grid, we use OV levels (rows) I, II and III and include in the sample offenders with PRV scores within the cells marked with an asterisk and those with grey shading. We only use the first row of those cells, which corresponds to the non-habitual status offenders (blank in the offender status column). Despite OV level IV having a potential discontinuity, we do not use it because the cutoff is at zero points, so there is no support of the running variable to the left of this discontinuity.

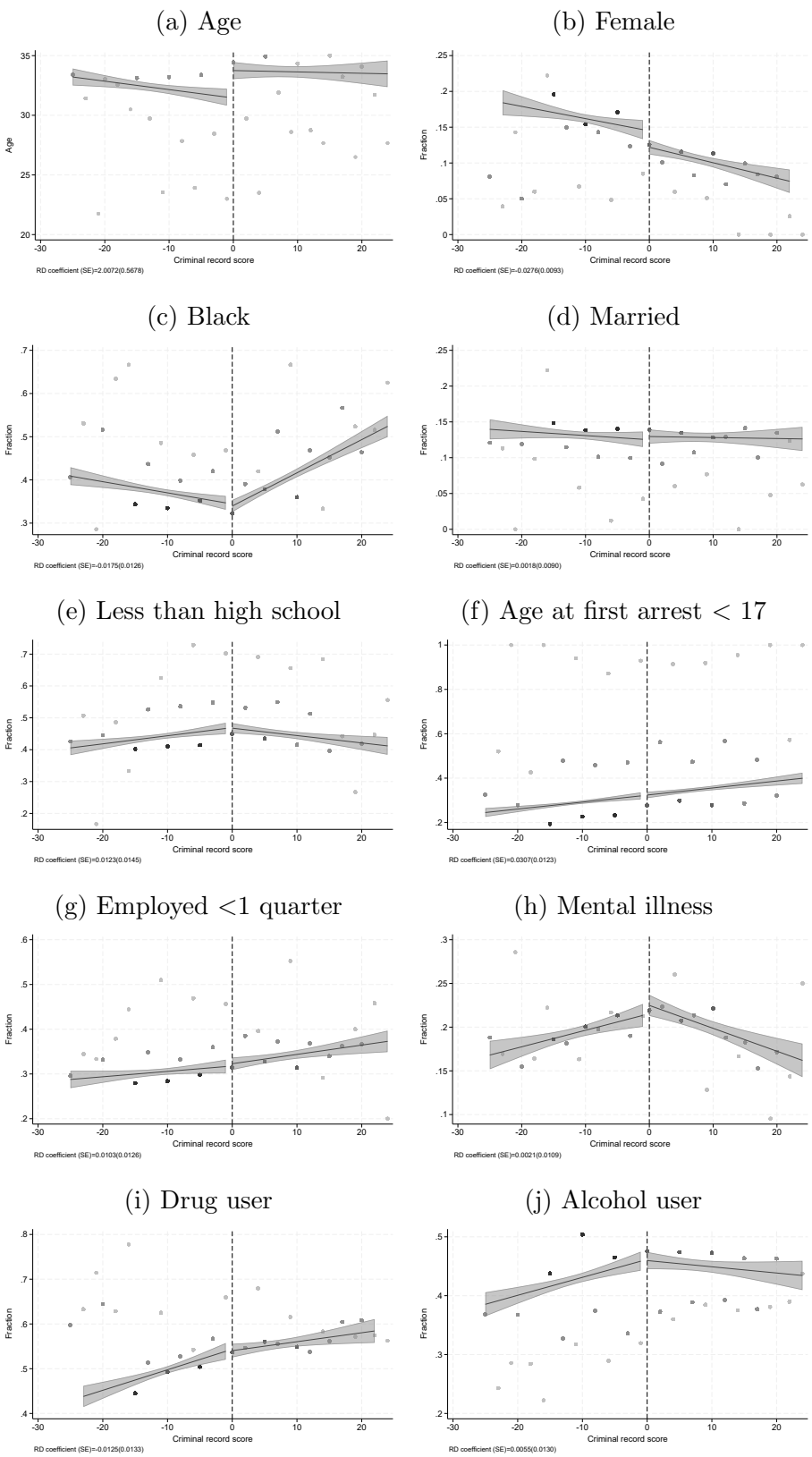


Figure (A2) Covariates around the discontinuity

The figures show the scatter plot of the raw data along with the OLS fit and confidence bands to visually see whether the covariate means jump discontinuously at the cutoff. The formal test of this is show at the bottom of every plot. The color of the dot reflects the fraction of observations relative to the whole sample.

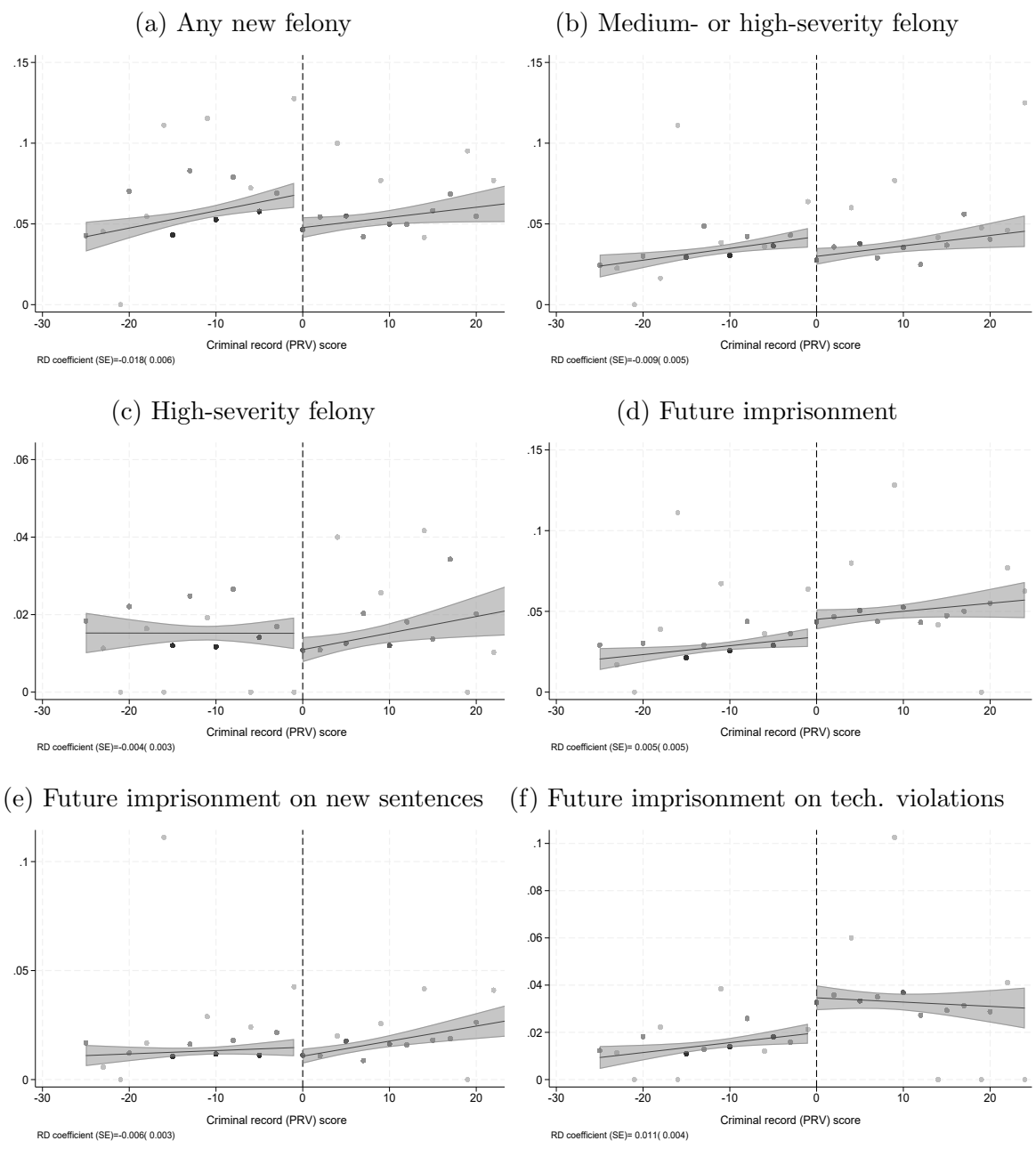


Figure (A3) Reduced form plots - one year after sentence

Notes: Reduced form plots and estimates following Equation **??**. The color of the dot reflects the fraction of observations relative to the whole sample. Dots in the lightest grey have fewer than 1% of observations, while dots is the darkest grey have over 10% of the total sample observations.

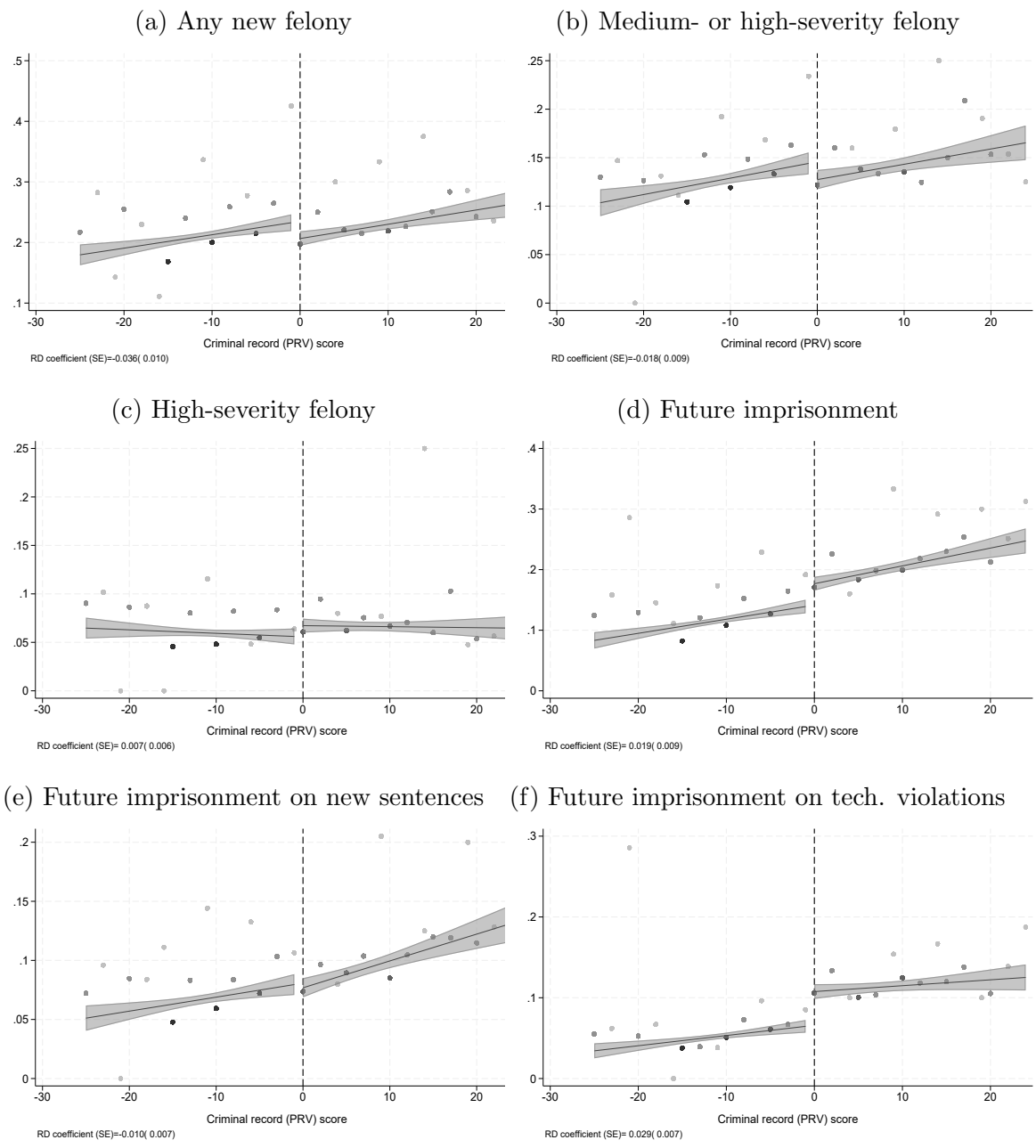


Figure (A4) Reduced form plots - three years after sentence

Notes: Reduced form plots and estimates following Equation **??**. The color of the dot reflects the fraction of observations relative to the whole sample. Dots in the lightest grey have fewer than 1% of observations, while dots is the darkest grey have over 10% of the total sample observations. The equivalent plots for recidivism outcomes measured three and five years after sentence are in the appendix.

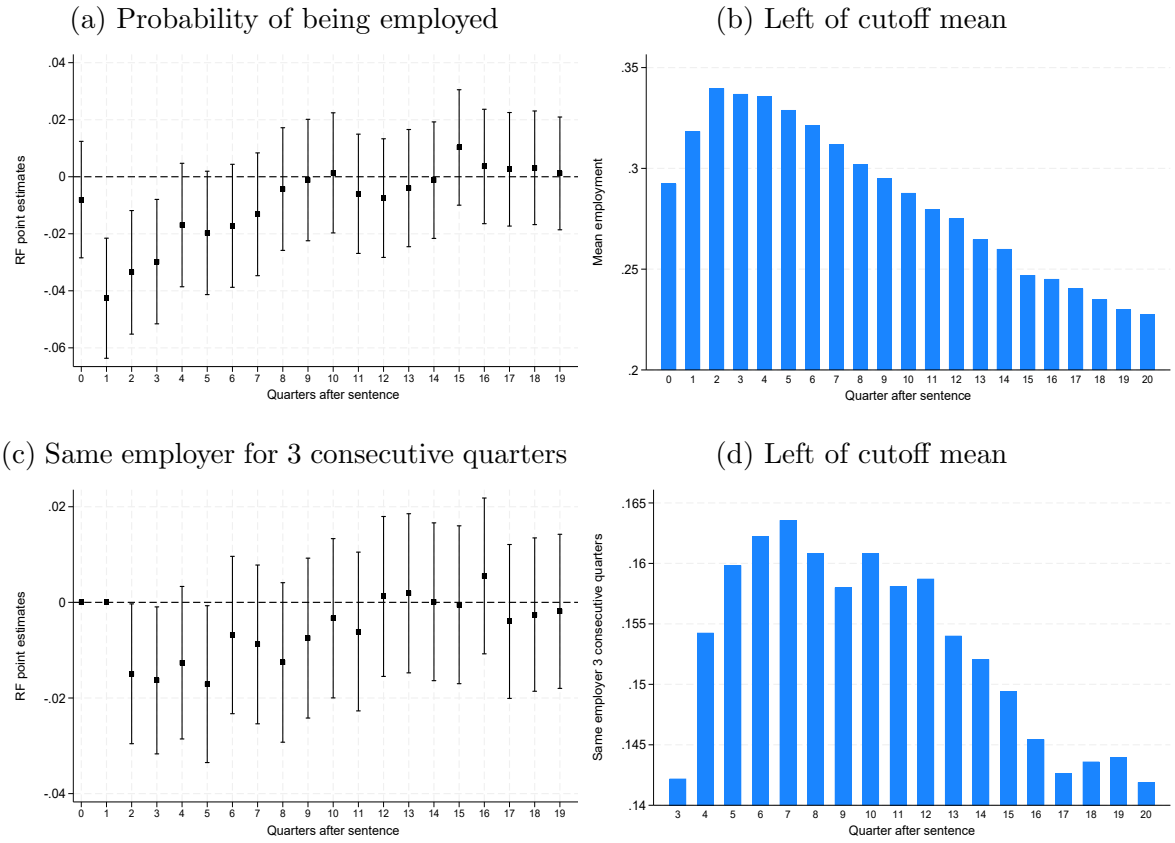
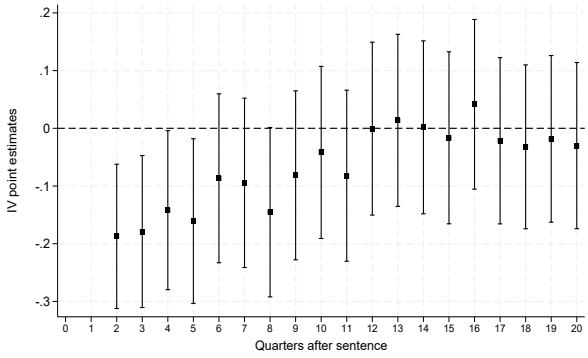


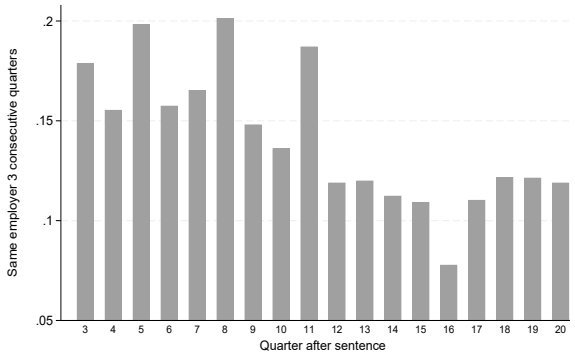
Figure (A5) Reduced form plots - after sentence

Notes: Reduced form effects for employment outcomes and 95% confidence intervals up to 5 years after sentence on the left-hand side. Means of employment variables for offenders to the left of the cutoff on the right-hand side.

(a) Same employer for 3 consecutive quarters



(b) Mean of compliers



(c) Mean of non-prison sentences

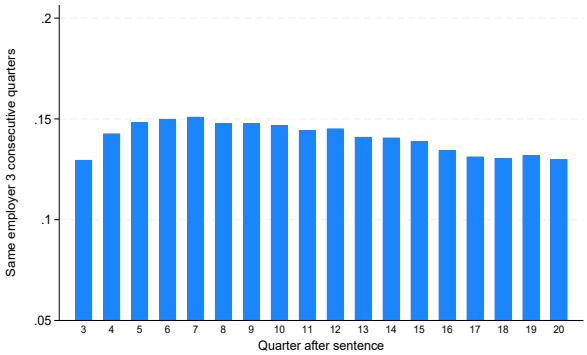
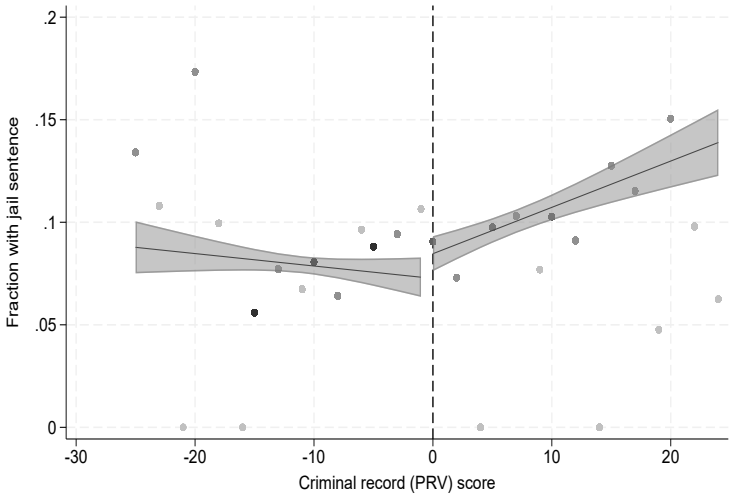


Figure (A6) 2SLS estimates same employer for three consecutive quarters - after sentence

Notes: LATE effects for employment outcomes and 95% confidence intervals up to 5 years after sentence in Panel (a). Means of compliers and individuals in non-prison sentences in Panels (b) and (c).

(a) Jail sentence



(b) Sentence length

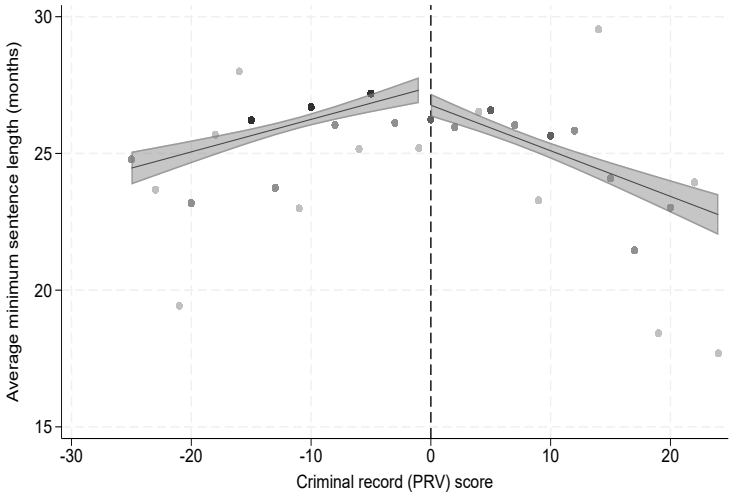


Figure (A7) First stage for jail sentences and sentence length

Notes: In panel (a) we plot the likelihood of receiving a jail sentence on wither side of the cutoff. Panel (b) plots the average minimum sentence length in months for all sentence types assigned on either side of the cutoff. The color of the dot reflects the fraction of observations relative to the whole sample. Dots in the lightest grey have fewer than 1% of observations, while dots is the darkest grey have over 10% of the total sample observations.

B Appendix Tables

B.1 Characteristics of individuals in different RV mass points

Table (B1) Differences between observations in different mass points

Variable	(1) Large	(2) Medium	(3) Small	(4) Difference large vs. med	(5) Difference large vs. small
Age at sentence	32.65	28.11	22.81	4.55***	9.84***
	(10.65)	(9.47)	(5.41)	(0.14)	(0.28)
Female	0.15	0.11	0.06	0.03***	0.09***
	(0.35)	(0.32)	(0.23)	(0.00)	(0.01)
Black	0.36	0.44	0.49	-0.08***	-0.12***
	(0.48)	(0.50)	(0.50)	(0.01)	(0.03)
Married	0.14	0.11	0.05	0.03***	0.09***
	(0.35)	(0.31)	(0.21)	(0.00)	(0.01)
Less than high school	0.42	0.53	0.64	-0.11***	-0.22***
	(0.49)	(0.50)	(0.48)	(0.01)	(0.03)
Age at 1st arrest < 17	0.25	0.49	0.93	-0.24***	-0.68***
	(0.43)	(0.50)	(0.26)	(0.01)	(0.01)
Employed < 1 quarter	0.30	0.36	0.45	-0.06***	-0.15***
	(0.46)	(0.48)	(0.50)	(0.01)	(0.03)
Mental health flag	0.20	0.19	0.19	0.01	0.01
	(0.40)	(0.39)	(0.39)	(0.01)	(0.02)
Drug user	0.52	0.55	0.62	-0.03***	-0.10***
	(0.50)	(0.50)	(0.49)	(0.01)	(0.02)
Alcohol user	0.46	0.36	0.33	0.10***	0.13***
	(0.50)	(0.48)	(0.47)	(0.01)	(0.02)
Minimum sentence length (months)	26.07	25.17	24.16	0.90***	1.91***
	(14.62)	(13.62)	(11.73)	(0.21)	(0.59)
Controlled substance	0.15	0.16	0.20	-0.01	-0.05**
	(0.36)	(0.37)	(0.40)	(0.01)	(0.02)
Against person	0.18	0.27	0.28	-0.09***	-0.10***
	(0.38)	(0.44)	(0.45)	(0.01)	(0.02)
Against property	0.31	0.32	0.31	-0.01	-0.00
	(0.46)	(0.47)	(0.46)	(0.01)	(0.02)
Public order	0.07	0.06	0.02	0.01***	0.05***
	(0.26)	(0.23)	(0.15)	(0.00)	(0.01)
Public safety	0.29	0.20	0.19	0.09***	0.10***
	(0.45)	(0.40)	(0.39)	(0.01)	(0.02)
Observations	20,809	5,800	400	26,609	21,209

Notes: Means and standard deviations in Columns 1 and 2. Means and standard errors in parentheses for the difference in characteristics in Column 3. * p<0.1, ** p<0.05, *** p<0.01. The PRV score (runnung variable) is a summation of seven different components, most of which are multiples of 5. High-mass points refer to individuals whose score is a multiple of 5 (77% of the observations). Individuals in other mass points has a 1 or 2 in one or more PRV subcomponents. In the Sentencing Guidelines, subcomponents equal to 1 are assigned to low severity juvenile adjudication and misdemeanor conviction or juvenile misdemeanor adjudication.

B.2 2SLS using a single pooled instrument

Table (B2) 2SLS regressions: Recidivism

	(1) 1 year	(2) 3 years	(3) 5 years
Panel A: Any new felony			
Prison	-0.191***	-0.380***	-0.247**
	(0.063)	(0.113)	(0.124)
Control complier mean	0.188	0.448	0.461
Mean non-prison	0.067	0.254	0.362
Observations	27117	27117	27117
Panel B: Medium and high-severity felony			
Prison	-0.092*	-0.188**	-0.137
	(0.050)	(0.093)	(0.107)
Control complier mean	0.088	0.215	0.256
Mean non-prison	0.044	0.157	0.222
Observations	27117	27117	27117
Panel C: High-severity felony			
Prison	-0.042	0.072	0.055
	(0.032)	(0.067)	(0.078)
Control complier mean	0.042	-0.039	0.038
Mean non-prison	0.018	0.076	0.103
Observations	27117	27117	27117

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. The outcome variables are indicated in the panel titles in the time frame specified in the headings of columns 1 to 3 (e.g. any new felony within 1 year after sentence). Each entry in the table is the coefficient on receiving a prison sentence relative to probation. See Section **??** for details about the econometric specification. The first-stage F statistic corresponds to the Kleibergen - Paap test and equals 87.81.

Table (B3) 2SLS regressions: Future imprisonment

	(1) 1 year	(2) 3 years	(3) 5 years
Panel A: Future imprisonment			
Prison	0.056	0.202**	0.206*
	(0.052)	(0.099)	(0.110)
Control complier mean	-0.053	-0.093	-0.011
Mean non-prison	0.061	0.208	0.272
Observations	27049	27049	27049
Panel B: Future imprisonment due to new sentences			
Prison	-0.068**	-0.108	-0.133
	(0.033)	(0.075)	(0.091)
Control complier mean	0.064	0.103	0.188
Mean non-prison	0.021	0.102	0.157
Observations	27049	27049	27049
Panel C: Future imprisonment due to technical violations			
Prison	0.123***	0.317***	0.348***
	(0.043)	(0.078)	(0.086)
Control complier mean	-0.116	-0.198	-0.201
Mean non-prison	0.041	0.114	0.141
Observations	27049	27049	27049

Notes: Robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01. The outcome variables are indicated in the panel titles in the time frame specified in the headings of columns 1 to 3 (e.g. future imprisonment within 1 year after sentence). Each entry in the table is the coefficient on receiving a prison sentence relative to probation. See Section **??** for details about the econometric specification. The first-stage F statistic corresponds to the Kleibergen - Paap test and equals 87.26.

B.3 Robustness of IV Results

Table (B4) Robustness checks: Outcomes one year after sentence

	(1) Base	(2) No covariates	(3) Heaping	(4) Clustered SEs	(5) Quadratic	(6) Tri. kernel	(7) Plea barg.	(8) No women
Panel A: Any new felony								
Prison	-0.142***	-0.147***	-0.108*	-0.188***	-0.107*	-0.128**	-0.195**	-0.147***
	(0.050)	(0.049)	(0.056)	(0.050)	(0.056)	(0.052)	(0.079)	(0.054)
Panel B: Medium and high-severity felony								
Prison	-0.070*	-0.073*	-0.048	-0.093***	-0.017	-0.066	-0.126**	-0.086**
	(0.040)	(0.039)	(0.046)	(0.026)	(0.046)	(0.041)	(0.064)	(0.043)
Panel C: High-severity felony								
Prison	-0.033	-0.033	-0.020	-0.036	-0.020	-0.015	-0.056	-0.030
	(0.027)	(0.027)	(0.031)	(0.028)	(0.030)	(0.027)	(0.046)	(0.030)
Panel D: Future imprisonment								
Prison	0.077*	0.071*	0.129**	0.079**	0.076	0.091**	0.022	0.075
	(0.044)	(0.043)	(0.052)	(0.036)	(0.048)	(0.046)	(0.064)	(0.047)
Panel E: Future imprisonment due to new sentences								
Prison	-0.016	-0.015	0.037	-0.066*	-0.051	-0.016	-0.045	-0.015
	(0.026)	(0.026)	(0.030)	(0.036)	(0.032)	(0.027)	(0.043)	(0.029)
Panel F: Future imprisonment due to technical violations								
Prison	0.093***	0.086**	0.097**	0.141***	0.122***	0.106***	0.062	0.087**
	(0.036)	(0.035)	(0.042)	(0.025)	(0.038)	(0.038)	(0.049)	(0.037)

Notes: Column 1 presents the base estimates presented in the main paper for outcomes measured one year after sentence. Column 2 eliminates the covariates and grid-OV level fixed effects. Column 3 considers the heaping of the running variable and presents estimates using observations in the large heaps (multiples of 5) only. Column 4 clusters the standard errors at the PRV level. Columns 5 adds a quadratic polynomial on the PRV scores. Column 6 weighs the observations using a triangular kernel. * p<0.1, ** p<0.05, *** p<0.01.

Table (B5) Robustness checks: Outcomes three years after sentence

	(1) Base	(2) No covariates	(3) Heaping	(4) Clustered SEs	(5) Quadratic	(6) Tri. kernel	(7) Plea barg.	(8) No women
Panel A: Any new felony								
Prison	-0.292***	-0.314***	-0.197*	-0.383***	-0.259***	-0.277***	-0.313**	-0.349***
	(0.090)	(0.090)	(0.101)	(0.078)	(0.100)	(0.095)	(0.135)	(0.097)
Panel B: Medium and high-severity felony								
Prison	-0.140*	-0.155**	-0.087	-0.217***	-0.153*	-0.114	-0.216*	-0.187**
	(0.076)	(0.076)	(0.086)	(0.045)	(0.084)	(0.080)	(0.115)	(0.082)
Panel C: High-severity felony								
Prison	0.087	0.077	0.112*	0.028	0.017	0.108*	0.062	0.079
	(0.057)	(0.056)	(0.062)	(0.024)	(0.063)	(0.061)	(0.088)	(0.061)
Panel D: Future imprisonment								
Prison	0.202**	0.184**	0.262***	0.197***	0.133	0.206**	0.279**	0.177**
	(0.083)	(0.083)	(0.096)	(0.055)	(0.093)	(0.088)	(0.123)	(0.090)
Panel E: Future imprisonment due to new sentences								
Prison	-0.054	-0.062	-0.014	-0.124***	-0.107	-0.048	-0.024	-0.085
	(0.061)	(0.061)	(0.068)	(0.025)	(0.070)	(0.064)	(0.092)	(0.067)
Panel F: Future imprisonment due to technical violations								
Prison	0.254***	0.243***	0.279***	0.335***	0.231***	0.258***	0.280***	0.255***
	(0.066)	(0.065)	(0.076)	(0.062)	(0.073)	(0.070)	(0.093)	(0.071)

Notes: Column 1 presents the base estimates presented in the main paper for outcomes measured three years after sentence. Column 2 eliminates the covariates and grid-OV level fixed effects. Column 3 considers the heaping of the running variable and presents estimates using observations in the large heaps (multiples of 5) only. Column 4 clusters the standard errors at the PRV level. Columns 5 adds a quadratic polynomial on the PRV scores. Column 6 weighs the observations using a triangular kernel. * p<0.1, ** p<0.05, *** p<0.01.

Table (B6) Robustness checks: Outcomes five years after sentence

	(1) Base	(2) No covariates	(3) Heaping	(4) Clustered SEs	(5) Quadratic	(6) Tri. kernel	(7) Plea barg.	(8) No women
Panel A: Any new felony								
Prison	-0.159	-0.195*	-0.057	-0.184**	-0.042	-0.144	-0.129	-0.211**
	(0.100)	(0.101)	(0.114)	(0.090)	(0.114)	(0.106)	(0.149)	(0.107)
Panel B: Medium and high-severity felony								
Prison	-0.089	-0.110	-0.009	-0.126*	-0.043	-0.068	-0.071	-0.156
	(0.088)	(0.088)	(0.101)	(0.068)	(0.099)	(0.094)	(0.132)	(0.095)
Panel C: High-severity felony								
Prison	0.080	0.068	0.103	0.026	0.061	0.074	0.097	0.061
	(0.066)	(0.065)	(0.072)	(0.025)	(0.074)	(0.070)	(0.102)	(0.070)
Panel D: Future imprisonment								
Prison	0.210**	0.186**	0.256**	0.261**	0.237**	0.225**	0.246*	0.198**
	(0.092)	(0.092)	(0.106)	(0.107)	(0.105)	(0.098)	(0.136)	(0.100)
Panel E: Future imprisonment due to new sentences								
Prison	-0.031	-0.044	0.039	-0.099	-0.028	-0.024	0.043	-0.058
	(0.075)	(0.075)	(0.084)	(0.066)	(0.086)	(0.078)	(0.114)	(0.082)
Panel F: Future imprisonment due to technical violations								
Prison	0.259***	0.244***	0.268***	0.378***	0.258***	0.272***	0.250**	0.259***
	(0.073)	(0.071)	(0.083)	(0.054)	(0.083)	(0.077)	(0.102)	(0.078)

Notes: Column 1 presents the base estimates presented in the main paper for outcomes measured five years after sentence. Column 2 eliminates the covariates and grid-OV level fixed effects. Column 3 considers the heaping of the running variable and presents estimates using observations in the large heaps (multiples of 5) only. Column 4 clusters the standard errors at the PRV level. Columns 5 adds a quadratic polynomial on the PRV scores. Column 6 weighs the observations using a triangular kernel. * p<0.1, ** p<0.05, *** p<0.01.

Table (B7) Comparison of characteristics of missing values in arrests data

Variable	(1) Non-missing	(2) Missing	(3) Difference
Age at sentence	30.67	32.81	2.14***
	(10.41)	(10.65)	(0.13)
Female	0.15	0.12	-0.02***
	(0.35)	(0.33)	(0.00)
Black	0.41	0.35	-0.05***
	(0.49)	(0.48)	(0.01)
Married	0.12	0.14	0.02***
	(0.33)	(0.35)	(0.00)
Less than high school	0.46	0.42	-0.04***
	(0.50)	(0.49)	(0.01)
Age at 1st arrest < 17	0.33	0.28	-0.05***
	(0.47)	(0.45)	(0.01)
Employed < 1 quarter	0.33	0.31	-0.02***
	(0.47)	(0.46)	(0.01)
Mental health flag	0.20	0.20	0.00
	(0.40)	(0.40)	(0.00)
Drug user	0.54	0.50	-0.04***
	(0.50)	(0.50)	(0.01)
Alcohol user	0.39	0.51	0.12***
	(0.49)	(0.50)	(0.01)
Controlled substance	0.18	0.12	-0.05***
	(0.38)	(0.33)	(0.00)
Against person	0.22	0.17	-0.06***
	(0.42)	(0.37)	(0.00)
Against property	0.36	0.23	-0.13***
	(0.48)	(0.42)	(0.01)
Public order	0.06	0.08	0.02***
	(0.24)	(0.27)	(0.00)
Public safety	0.17	0.40	0.22***
	(0.38)	(0.49)	(0.01)
Observations	16,168	11,024	27,192

Notes: Around 30% of the observations in our sample do not appear in the arrests data. From the crime listed at arrest we identify the grid, OV level and cell type based on the crime codes listed in our main dataset. For an additional 10% we could not merge the grid, OV level and cell type because the crime codes at arrest were not represented in the crimes codes in our main dataset. Because we find differences in most of these observable characteristics between those who could and could not be matched with the arrests data, we must interpret the resuts from the amnipulation exercise with caution. However, there does not seem to be a clear pattern as to whether lack of data may be correlated with a specific individual type that at the same time would be more susceptiible to manipulation in the plea bargaining process.

Table (B8) Change of crime code (PACC) from arrest to sentence periods

	PACC change		Missing arrest data	
	(1) No covariates	(2) Covariates	(3) No covariates	(4) Covariates
Right of cutoff	0.006	0.004	0.005	-0.000
	(0.014)	(0.014)	(0.012)	(0.012)
Mean below cutoff	0.254	0.254	0.406	0.406
Observations	17689	17689	27192	27192

Notes: These estimates present the reduced-form coefficient comparing the proxies for manipulation in the column titles across individuals with PRV scores at or to the right of the cutoff with those to the left.

Table (B9) Grid and OV level changes from arrest to sentence

	Grid change		OV level change	
	(1) No covariates	(2) Covariates	(3) No covariates	(4) Covariates
Right of cutoff	0.001	-0.002	-0.002	-0.004
	(0.013)	(0.013)	(0.012)	(0.012)
Mean below cutoff	0.219	0.219	0.180	0.180
Observations	17689	17689	17689	17689

Notes: These estimates present the reduced-form coefficient comparing the proxies for manipulation in the column titles across individuals with PRV scores at or to the right of the cutoff with those to the left.

Table (B10) Changes in cell type from arrest to sentence

	Prison cell at arrest Straddle cell at sentence		Straddle cell at arrest Interm. cell at sentence	
	(1) No covariates	(2) Covariates	(3) No covariates	(4) Covariates
Right of cutoff	0.073***	0.073***	-0.004**	-0.004**
	(0.006)	(0.006)	(0.002)	(0.002)
Mean below cutoff	0.001	0.001	0.005	0.005
Observations	16199	16199	16199	16199

Notes: These estimates present the reduced-form coefficient comparing the proxies for manipulation in the column titles across individuals with PRV scores at or to the right of the cutoff with those to the left.

C Variable appendix

Table (B11) Outcomes definitions and sources

Variable	Possible values	Description	Source
Panel A. Recidivism			
Any new felony	0,1	1 if individual was sentenced with a new felony conviction	MDOC
Medium- and high-severity new felony	0,1	1 if the statutory maximum sentence is 49 months or more, 0 if low-severity felony or no felony	MDOC
High-severity new felony	0,1	1 if the statutory maximum sentence is 73 months or more, 0 if medium-severity, low-severity felony, or no felony	MDOC
Future imprisonment	0,1	1 if new felony conviction is prison	MDOC
Future imprisonment due to new sentence	0,1	1 if individual is imprisoned on a new sentence, 0 if not imprisoned or imprisoned on a technical violation	MDOC
Future imprisonment due to technical violation	0,1	1 if individual is imprisoned on a technical violation, 0 if not imprisoned or imprisoned on a new sentence	MDOC
Count of new felonies	≥ 0	Number of new felonies	MDOC
Primary incapacitation days	≥ 0	Number of days in prison from original prison sentence	MDOC
Secondary incapacitation days	≥ 0	Number of days in prison from subsequent prison sentence(s)	MDOC
Panel B. Employment			
Employed in any given quarter	0,1	1 if employed	Michigan UI Agency
Same employer for three consecutive quarters	0,1	1 if employer is the same in last three quarters	Michigan UI Agency

Notes: All outcomes are measured in three time periods after sentence and after release: 1, 3, and 5 years. To obtain quarterly employment records, all social security numbers (SSNs) available in MDOC databases were sent to the Michigan Unemployment Insurance Agency and Workforce Development Agency for matching. After clearning duplicates, only 1.25% of the sample could not be matched and these individuals are excluded from the analysis.