A Appendix Tables

Table A.1: Sentence type and entrepreneurship: alternative specifications and samples

	M1	M2	M3
Community Service	-0.024***	-0.016***	-0.017***
	(0.007)	(0.004)	(0.004)
Age	0.007***	0.002*	0.003***
	(0.002)	(0.001)	(0.001)
Age^2	0.000**	0.000	0.000*
	(0.000)	(0.000)	(0.000)
Male	0.020	0.025***	0.021***
	(0.016)	(0.008)	(0.005)
High education	0.005	0.005	0.003
	(0.008)	(0.005)	(0.003)
Married	-0.002	0.006	0.008
	(0.010)	(0.007)	(0.005)
Foreigner	0.058***	0.025***	0.035***
	(0.014)	(0.009)	(0.005)
Criminal Past	-0.023	-0.003	0.003
	(0.020)	(0.010)	(0.006)
Entrepreneur in t-1	0.767***	0.716***	0.741***
	(0.021)	(0.020)	(0.010)
Major unemployment in t-1	0.051**	0.016	0.003
	(0.025)	(0.014)	(0.008)
Income in t-1 (log)	-0.024***	-0.008***	-0.005***
	(0.003)	(0.002)	(0.002)
Share population < 30 (m)	-1.099*	-0.043	-0.100
	(0.641)	(0.181)	(0.109)
Crimes per 100,000 inh. (m)	-0.001	0.000	0.000
	(0.002)	(0.000)	(0.000)
Mean unemployment index (m)	0.000	0.000	0.000
	(0.001)	(0.000)	(0.000)
Share of entrepreneurs (m)	0.054	0.234	0.029
	(1.330)	(0.424)	(0.264)
Constant	0.584***	0.045	0.039
	(0.221)	(0.073)	(0.048)
Crime-Year FEs	YES	YES	YES
District Court-Year FEs	YES	NO	NO
Municipality FEs	YES	YES	YES
Observations	7,004	11,087	20,991

M1 extends the baseline specification in Table 3 by including District Court × Year fixed effects. In M2, the dependent variable is recoded to include offenders who were unemployed in either $T0$ or $T1$ but appeared as entrepreneurs in at least one of these two years. M3 repeats the estimation of M2 on the full (non-matched) sample of offenders, prior to implementing CEM. (m) denote municipality-level time-varying control variables. Values in parentheses are standard errors clustered at the municipality level. *** p<0.01, ** p<0.05, * p<0.1.

Table A.2: Sentence type and labor market trajectories: multinomial logit results

	Entrepreneur	Paid Employee
Community Service	0.252*	0.661***
	(0.151)	(0.126)
Age	-0.065	-0.108***
	(0.041)	(0.034)
Age^2	0.001	0.001**
	(0.001)	(0.000)
Male	0.885***	0.499
	(0.249)	(0.312)
High education	0.505***	0.339***
	(0.148)	(0.120)
Married	0.400*	0.218
	(0.210)	(0.173)
Foreigner	-0.194	-0.700***
	(0.235)	(0.166)
Criminal Past	-0.455	-0.328
	(0.335)	(0.247)
Entrepreneur in t-1	3.485***	-1.097***
	(0.351)	(0.320)
Major unemployment in t-1	-1.377***	-1.534***
	(0.378)	(0.250)
Income in t-1 (log)	-0.082***	0.045
	(0.032)	(0.029)
Share population < 30 (m)	5.186	5.900
	(5.781)	(4.099)
Crimes per 100,000 inh. (m)	0.008	0.007
	(0.022)	(0.017)
Mean unemployment index (m)	-0.044**	-0.041***
	(0.018)	(0.014)
Share of entrepreneurs (m)	11.307	8.445
	(12.914)	(10.048)
Constant	-0.492	3.222*
	(2.271)	(1.746)
Municipality FEs	YES	YES
Crime-Year FEs	YES	YES
Observations	11,652	11,652

Multinomial logit model where the baseline category consists of offenders with no employment (unemployed or inactive). Values in parentheses are standard errors clustered at the municipality level. A Wald test comparing the two coefficients on *Community Service* confirms that they are statistically different from each other (Chi-square = 19.47, p-value = 0.000). (m) denote municipality-level time-varying control variables. *** p<0.01, ** p<0.05, * p<0.1.

Table A.3: Sentence type and entrepreneurship: IV estimates (alternative samples)

	Excluding former entrepreneurs		Including offenders with unemployment spells in $T0$ or $T1$	
	First stage CS	Second stage E-ship.	First stage CS	Second stage E-ship.
CS Ratio (instrument)	1.438***		1.435***	
	(0.071)		(0.055)	
Community Service (instrumented)		-0.041*		-0.030*
		(0.025)		(0.017)
Age	-0.004	0.006***	-0.006**	0.002
	(0.004)	(0.002)	(0.003)	(0.001)
Age^2	0.000	0.000**	0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Male	-0.055**	0.027**	-0.015	0.024***
	(0.025)	(0.012)	(0.016)	(0.008)
High education	-0.058***	0.007	-0.055***	0.004
	(0.013)	(0.007)	(0.009)	(0.005)
Married	-0.054***	-0.001	-0.038***	0.006
	(0.019)	(0.009)	(0.015)	(0.007)
Foreigner	0.019	0.050***	0.026	0.025***
	(0.020)	(0.010)	(0.019)	(0.009)
Criminal Past	-0.033	-0.023	-0.015	-0.003
	(0.032)	(0.016)	(0.019)	(0.010)
Entrepreneur in t-1			-0.056**	0.715***
			(0.023)	(0.020)
Major unemployment in t-1	0.005	0.057***	-0.015	0.015
	(0.034)	(0.017)	(0.017)	(0.014)
Income in t-1 (log)	0.004	-0.024***	0.004	-0.008***
	(0.006)	(0.003)	(0.003)	(0.002)
Share population < 30 (m)	0.146	-0.258	-0.174	-0.050
	(0.516)	(0.255)	(0.366)	(0.184)
Crimes per 100,000 inh. (m)	-0.002	0.000	-0.002*	0.000
	(0.002)	(0.001)	(0.001)	(0.000)
Mean unemployment index (m)	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.000)
Share of entrepreneurs (m)	-1.046	0.529	-0.101	0.221
	(1.529)	(0.757)	(0.979)	(0.427)
F-test (instrument relevance)	405.35	–	733.15	–
Crime-Year FEs	YES	YES	YES	YES
Municipality FEs	YES	YES	YES	YES
Observations	6,340	6,340	11,087	11,087

Two-stage least squares (2SLS) models estimated on the matched sample of ex-offenders sentenced to community service versus prison. The first set of IV estimates excludes offenders with any entrepreneurial experience in the five years prior to the focal sentence. The second set of IV models includes offenders who were unemployed in either $T0$ or $T1$ but appeared as entrepreneurs in at least one of these two years. (m) denote municipality-level time-varying control variables. Values in parentheses are standard errors clustered at the municipality level. *** p<0.01, ** p<0.05, * p<0.1.

Table A.4: Effect of the instrument on pre-sentence entrepreneurship

	M1 (Matched sample)	M2 (Non-matched sample)
CS Ratio (instrument)	-0.004	0.012
	(0.016)	(0.014)
Age	0.007***	0.006***
	(0.001)	(0.001)
Age^2	0.000***	0.000***
	(0.000)	(0.000)
Male	0.020***	0.025***
	(0.005)	(0.003)
High education	0.012***	0.006***
	(0.003)	(0.002)
Married	0.008	0.014***
	(0.006)	(0.005)
Foreigner	0.009**	0.004*
	(0.004)	(0.003)
Criminal Past	0.009	0.006**
	(0.006)	(0.003)
Major unemployment in t-1	0.002	0.004
	(0.007)	(0.004)
Income in t-1 (log)	-0.006***	-0.005***
	(0.001)	(0.001)
Share population < 30 (m)	0.039	0.039
	(0.128)	(0.079)
Crimes per 100,000 inh. (m)	0.001	0.000
	(0.000)	(0.000)
Mean unemployment index (m)	-0.001	0.000
	(0.000)	(0.000)
Share of entrepreneurs (m)	0.702*	0.413**
	(0.388)	(0.199)
Constant	-0.117*	-0.100***
	(0.059)	(0.036)
Crime-Year FEs	YES	YES
Municipality FEs	YES	YES
Observations	17,267	33,194

Linear probability models estimating the effect of the instrument on pre-sentence entrepreneurship. The dependent variable equals 1 if the offender appears as an entrepreneur prior to the focal sentence, and 0 otherwise. Values in parentheses are standard errors clustered at the municipality level. (m) denote municipality-level time-varying control variables. *** p<0.01, ** p<0.05, * p<0.1.

Table A.5: No different pre-trends in entrepreneurship between municipalities with high and low CS ratios before 2000

	Share of entrepreneurs in the municipality-year	Share of offenders with prior entrepreneurship experience
1991 × High-CS Municipality	-0.001	0.012
	(0.003)	(0.018)
1992 × High-CS Municipality	-0.002	0.020
	(0.003)	(0.018)
1993 × High-CS Municipality	-0.002	0.015
	(0.003)	(0.018)
1994 × High-CS Municipality	-0.002	0.013
	(0.003)	(0.018)
1995 × High-CS Municipality	-0.001	-0.002
	(0.003)	(0.018)
1996 × High-CS Municipality	-0.002	-0.004
	(0.003)	(0.018)
1997 × High-CS Municipality	-0.001	0.016
	(0.003)	(0.018)
1998 × High-CS Municipality	-0.001	0.016
	(0.003)	(0.018)
1999 × High-CS Municipality	-0.001	0.003
	(0.003)	(0.018)
Constant	0.084***	0.046***
	(0.000)	(0.001)
Municipality & Year FEs	YES	YES
Observations	2,661	2,661

Unit of analysis is municipality-year. The table reports event-study estimates for the interaction between year indicators (1991–1999) and an indicator for municipalities with high community service (CS) ratios, using only pre-2000 data. Values in parentheses are standard errors. *** p<0.01.

Table A.6: Ex-offenders' outcomes by type of sentence and entrepreneurship after sentence, excluding former entrepreneurs

	M1: Income	M2: Recidivism	M3: Unemployment subsidies
Community Service (CS)	0.030**	-0.117***	-0.002
	(0.012)	(0.005)	(0.004)
Entrepreneurship after sentence	-0.374***	0.088***	-0.007
	(0.034)	(0.009)	(0.008)
CS × Entrepreneurship after sentence	0.045	-0.033***	0.026**
	(0.047)	(0.012)	(0.010)
Age	0.051***	-0.017***	0.000
	(0.005)	(0.001)	(0.001)
Age^2	-0.001***	0.000***	0.000
	(0.000)	(0.000)	(0.000)
Male	0.037*	0.037***	0.002
	(0.019)	(0.007)	(0.006)
High education	0.139***	-0.030***	0.015***
	(0.013)	(0.004)	(0.004)
Married	0.034	0.011*	0.021*
	(0.024)	(0.007)	(0.011)
Foreigner	-0.155***	0.019**	0.012**
	(0.028)	(0.008)	(0.005)
Criminal Past	0.030	0.022*	0.015
	(0.034)	(0.013)	(0.010)
Major unemployment in $t-1$	-0.062**	0.023**	0.047**
	(0.031)	(0.011)	(0.020)
Unemp. periods in t	-0.070***	0.033***	0.240***
	(0.011)	(0.005)	(0.007)
Income in $t-1$ (log)	0.094***	-0.002	0.003***
	(0.013)	(0.002)	(0.001)
Years since crime	0.016***	-0.042***	0.003**
	(0.004)	(0.001)	(0.001)
Share population < 30 (m)	-0.937***	0.311***	0.031
	(0.200)	(0.074)	(0.109)
Crimes per 100,000 inh. (m)	0.001	0.000	0.000
	(0.001)	(0.000)	(0.000)
Mean unemployment index (m)	0.000	0.000	0.000
	(0.001)	(0.000)	(0.001)
Share of entrepreneurs (m)	-0.032	-0.372**	0.351*
	(0.520)	(0.187)	(0.181)
Constant	9.887***	0.555***	-0.129***
	(0.164)	(0.044)	(0.047)
Observations	35,491	35,786	35,401
Crime-Year FE	YES	YES	YES
Municipality FE	YES	YES	YES

Models, sample, and variable definitions are the same as in Table 5, but excluding former entrepreneurs (prior to the sentence) from the estimation. (m) denotes municipality-level time-varying controls. Values in parentheses are standard errors clustered at the individual level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.7: Ex-offenders' outcomes by type of sentence and current entrepreneurship

	M1: Income	M2: Recidivism	M3: Unemployment subsidies
Community Service (CS)	0.025**	-0.134***	0.001
	(0.011)	(0.005)	(0.002)
Entrepreneurship in year t	-0.791***	0.031**	0.023**
	(0.092)	(0.013)	(0.011)
CS $\times$ Entrepreneurship in year t	0.127	0.013	0.010
	(0.103)	(0.015)	(0.012)
Age	0.037***	-0.017***	0.001
	(0.008)	(0.001)	(0.002)
Age^2	0.000***	0.000***	0.000
	(0.000)	(0.000)	(0.000)
Male	0.043**	0.034***	0.004
	(0.021)	(0.008)	(0.004)
High education	0.127***	-0.021***	0.006*
	(0.015)	(0.004)	(0.003)
Married	0.037	0.021***	0.011
	(0.031)	(0.006)	(0.010)
Foreigner	-0.103***	0.014*	0.007*
	(0.032)	(0.008)	(0.004)
Criminal Past	-0.010	0.027**	0.010
	(0.036)	(0.012)	(0.007)
Entrepreneur in $t-1$	0.176**	0.002	-0.025***
	(0.084)	(0.013)	(0.009)
Major unemployment in $t-1$	-0.045	0.032***	0.030**
	(0.036)	(0.012)	(0.012)
Unemp. periods in t	-0.073***	0.031***	0.191***
	(0.013)	(0.005)	(0.007)
Income in $t-1$ (log)	0.100***	-0.003*	0.001
	(0.023)	(0.002)	(0.001)
Years since crime	0.040***	-0.045***	-0.001
	(0.005)	(0.001)	(0.001)
Share population $<$ 30 (m)	-0.738***	0.226***	0.128
	(0.202)	(0.077)	(0.111)
Crimes per 100,000 inh. (m)	0.000	0.000	0.000
	(0.001)	(0.000)	(0.000)
Mean unemployment index (m)	0.000	0.000	0.000
	(0.001)	(0.000)	(0.001)
Share of entrepreneurs (m)	0.121	-0.403**	0.148
	(0.532)	(0.196)	(0.151)
Constant	10.040***	0.593***	-0.088*
	(0.188)	(0.046)	(0.049)
Observations	30,918	31,223	30,832
Crime-Year FE	YES	YES	YES
Municipality FE	YES	YES	YES

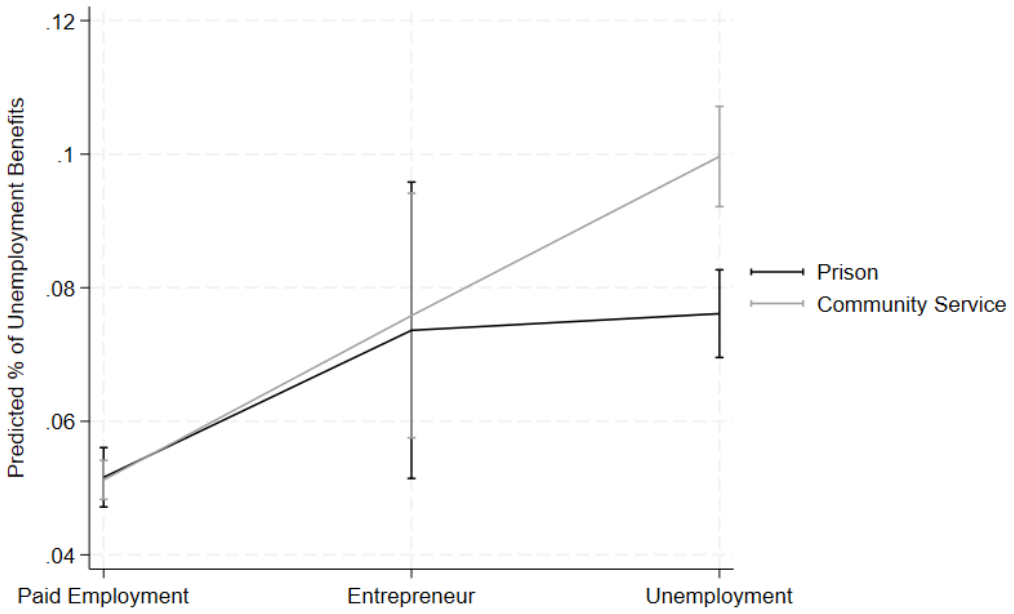
High-dimensional fixed effects OLS models estimated on the matched sample of offenders (1990–2019), conditional on securing some form of employment in year t (wage employment or entrepreneurship). (m) denotes municipality-level time-varying controls. Values in parentheses are standard errors clustered at the individual level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.8: Ex-offenders' income, by type of sentence and entrepreneurship post-sentence: Alternative income measures

	M1: Wealth	M2: Income excl.	M3: Income incl.	M4: Business income
Community Service (CS)	0.027	0.044***	0.067***	1.604***
	(0.020)	(0.016)	(0.019)	(0.215)
Entrepreneurship after sentence	-0.120***	-0.489***	-0.738***	
	(0.026)	(0.040)	(0.056)	
CS × Entrepreneurship after sentence	0.013	0.099*	0.135*	
	(0.035)	(0.054)	(0.075)	
Age	-0.045***	0.050***	0.032***	-0.002
	(0.005)	(0.008)	(0.009)	(0.060)
Age^2	0.001***	-0.001***	0.000***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.001)
Male	0.105***	0.056**	-0.019	1.942***
	(0.028)	(0.026)	(0.034)	(0.542)
High education	0.127***	0.151***	0.147***	1.610***
	(0.016)	(0.019)	(0.026)	(0.218)
Married	0.058**	0.080**	0.130***	1.305***
	(0.026)	(0.035)	(0.045)	(0.285)
Foreigner	0.174***	-0.207***	-0.208***	-1.719***
	(0.027)	(0.040)	(0.047)	(0.311)
Criminal Past	-0.002	0.003	0.042	0.178
	(0.052)	(0.038)	(0.061)	(0.558)
Entrepreneur in $t-1$	0.237***	-0.107	-0.194	0.912***
	(0.048)	(0.080)	(0.129)	(0.304)
Major unemployment in $t-1$	0.019	-0.056	-0.076	-0.711
	(0.037)	(0.036)	(0.053)	(0.486)
Unemp. periods in t	-0.096***	-0.084***	0.053***	-0.690***
	(0.013)	(0.016)	(0.019)	(0.186)
Income in $t-1$ (log)	0.009**	0.130***	0.147***	0.318***
	(0.004)	(0.021)	(0.022)	(0.051)
Years since crime	-0.010***	0.021***	0.014**	0.100**
	(0.003)	(0.006)	(0.007)	(0.047)
Share population < 30 (m)	-0.448*	-1.003***	-1.319***	-9.561***
	(0.239)	(0.289)	(0.387)	(3.085)
Crimes/100,000 inh. (m)	0.003**	0.002	0.001	0.021
	(0.001)	(0.002)	(0.002)	(0.015)
Mean unemployment index (m)	-0.004***	0.000	0.000	-0.028*
	(0.001)	(0.001)	(0.002)	(0.016)
Share of entrepreneurs (m)	0.776	-0.846	-0.605	8.666
	(0.623)	(0.738)	(0.969)	(7.652)
Constant	0.097	9.887***	10.129***	5.677***
	(0.150)	(0.216)	(0.275)	(1.910)
Observations	37,310	34,220	39,830	10,997
Crime-Year FE	YES	YES	YES	YES
Municipality FE	YES	YES	YES	YES

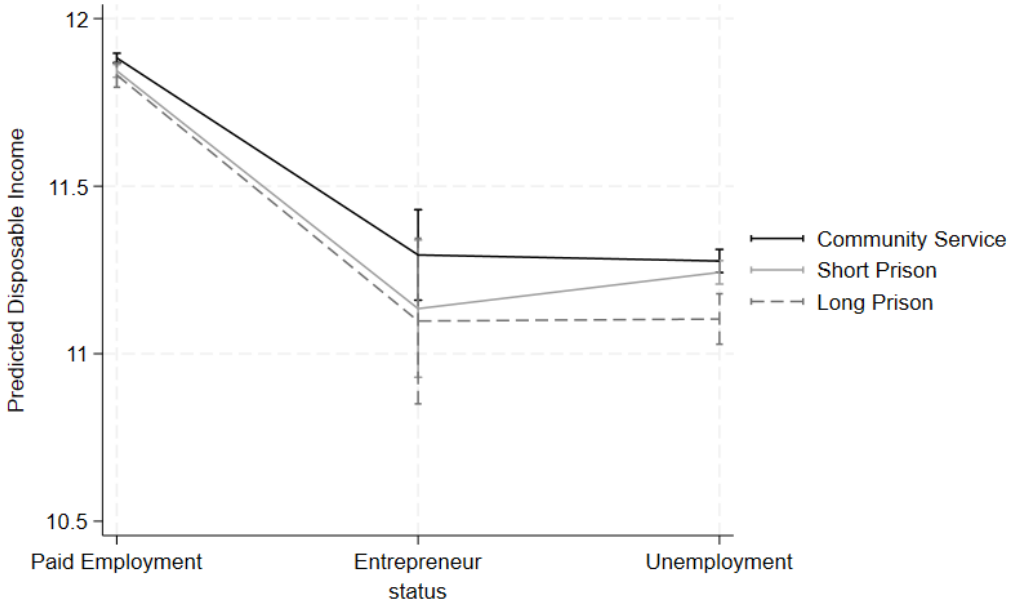
The first model uses the inverse hyperbolic sine transformation of wealth to accommodate negative values. All other dependent variables are log-transformed. Model 2 (3) considers total income including calculated rental value minus deductible interest expenses in the tax assessment (total personal income excluding property income, and before deduction of labor market contributions and special pension contributions). Model 4 is estimated on the subsample of offenders that pursue entrepreneurship after sentence. (m) denotes municipality-level time-varying controls. Values in parentheses are standard errors clustered at the individual level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Figure A.1: Predicted unemployment/total income ratio, by sentence type and labor market trajectory



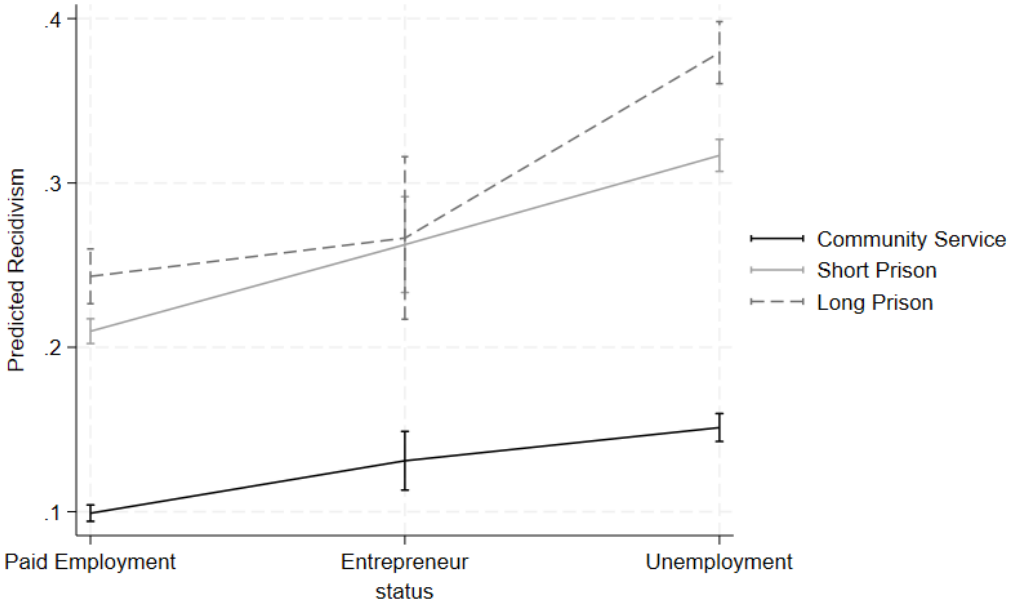
Note. This figure is constructed by re-estimating model 3 of Table 5 with an extended sample that includes ex-offenders who are unemployed (i.e. neither employed nor in entrepreneurship) at any time within 5 years of sentencing.

Figure A.2: Predicted disposable income, by sentence type and labor market trajectory



Note. This figure is constructed by re-estimating model 1 of Table 5 with an extended sample that includes ex-offenders who are unemployed (i.e. neither employed nor in entrepreneurship) at any time within 5 years of sentencing, and by distinguishing between three types of sentence (community service, short prison sentences (below sample average length: ca. 4 months), and longer prison sentences (above sample average length)).

Figure A.3: Predicted recidivism, by sentence type and labor market trajectory



Note. This figure is constructed by re-estimating model 2 of Table 5 with an extended sample that includes ex-offenders who are unemployed (i.e. neither employed nor in entrepreneurship) at any time within 5 years of sentencing, and by distinguishing between three types of sentence (community service, short prison sentences (below sample average length: ca. 4 months), and longer prison sentences (above sample average length)).