Something Works:
Misconduct and Recidivism Effects of the IGNITE Program

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Motivation

- The U.S. has the highest incarceration rate across all developed nations Map
  - The incarcerated are disproportionately male, Black, and **low literacy** Rates
  - Recidivism is common post-release: ≈70% for state prisoners, mostly within one year (Schanzenbach et al., 2016, Bureau of Justice Statistics, 2021). Risk since release

- Incarceration rates grew sharply in the 1980s, following a shift in correctional policy: from principles of rehabilitation to focus on deterrence/incapacitation
  - Popular view: **"nothing works"** when it comes to rehabilitation (Martinson 1974)

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  - Popular view: **"nothing works"** when it comes to rehabilitation (Martinson 1974)

Does "Nothing Work" for Rehabilitation?

What works?
—questions and answers about prison reform

ROBERT MARTINSON

With these caveats, it is possible to give a rather bald summary of our findings: *With few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism.* Studies that have been done since our survey was completed do not present any major grounds for altering that original conclusion. What follows is an attempt to answer the questions and challenges that might be posed to such an unqualified statement.

- Harsher prison conditions are associated with deterrence (Katz et al. 2003)
- A recent review on recidivism in *JEL* notes: "The evidence on other interventions (such as education, vocational training, and occupational licenses) is thin." (Doleac 2023).
- But recent quasi-experimental studies outside of the U.S. challenge this view (Bhuller et al., (2020) in Norway; Mastrobuoni and Terlizzese (2022) in Italy).

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Evolving Law Enforcement Perspectives

> *So we are releasing your neighbour. If we treat inmates like animals in prison, then we will release animals on to your street.*

– Are Hoidal, Governor of Halden Prison, Norway

> *County jails across America are filled with people where 90% are going back to the community... so our question, as a Sheriff, is: how do you want us to prepare them to come back to your neighborhoods?*

– Chris Swanson, Sheriff of Genessee County, Michigan

- Rigorous causal evidence that rehabilitation works in the U.S. is lacking

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This Paper

- Estimates the effects of a novel inmate rehabilitation program (IGNITE), launched September 2020 in the Genessee County Jail (serving Flint, MI)
  - Tailored educational programs, offered to nearly all inmates
  - "Law enforcement led": repurposed space, same staff w/new mandate
  - High levels of participation ($\approx 85\%$), incentivized with tablets
- **Policy relevance**: IGNITE is currently being scaled up around the country by the National Sheriffs' Association (NSA)
- **Novel setting**: A U.S. County Jail (most papers study prisons)
- **Rich data**: Detailed administrative records (Jail Management System + Messaging Service), linked to court records
- **Novel identification strategy**: Quasi-experimental variation in court delays as an instrument for IGNITE exposure
  - "Difference-in-IVs" design separates IGNITE effects from time-in-jail effects

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Preview of Results

- A month of IGNITE exposure reduces 3-month recidivism by 9.3 and for crimes involving firearms by 1.6 percentage points.
  - Effects grow over time (furthest window: one year)
  - Consistent across demographic and crime-type subgroups
  - Conservative estimates suggest a month of IGNITE exposure reduces 3-month social costs of crime by $\approx$ \$3,200
- A month of IGNITE exposure reduces major misconduct in jail (*e.g.*, selling contraband, violence) by 9.4 ppt
  - Net -3.8 ppt effect, given 5.6ppt effect of additional jail time pre-IGNITE
  - No effect on medical events

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Connection to Literature

- Large literature in economics on effects of time in prison/jail, with mixed evidence on whether incarceration is *criminogenic* or *preventive*
  - Kuziemko (2013) Rose and Shem-Tov (2021) finds longer prison time ↓ recidivism
  - Norris et al., (2021) find null effects of incarceration on criminogenic behavior
  - Dobbie et al., (2018) incapacitation effects offset by increases in crime post-release
  - Mueller-Smith (2015) find incapacitation effect offset by post-release increase in criminality leading to net ↑ in recidivism and public dependency
  - Chen and Shapiro (2007) and Camp and Gaez (2004) document being sentenced to higher security prison does not affect recidivism

- We find incarceration decreases misconduct and recidivism post-IGNITE, despite finding null or increasing effects pre-IGNITE
  - It's the *type* of time in jail that seems to matter...

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Outline

Institutional Background

Data

Identification Strategy

Results

Setting: Genesee County, MI

- Seat of County: Flint
  - 57% Black, 33% NH White, 5% Hispanic
- Hit hard by automation/globalization Crises
  - Declining population Age structure
  - One-third of households in poverty
- Flint consistently ranks as one of the highest crime cities in the US
  - FBI crime rate: 1,817 vs 381 (US) per 100k
  - Homicide rate: 67 vs 7.8 (US) per 100k



Inmate Growth Naturally and Intentionally via Education (IGNITE)

- Launched September 2020 Pre-IGNITE
- Offered to all inmates that are not immediately released
- Tailored to level of education Tailor
- Includes two hours instruction via chrome books daily Schedule
- Programs include GED, CDL, Servsafe, Masonry Graduation
- Incentivized to participate with time on tablet; 85% take-up Take-up
- Mt. Morris Education and Community Center made available post-release



Novel Setting: County Jail

- Jails admit approximately 10 million people each year
  - $\approx$ 600,000 people in jail on any given day (2$^{\text{nd}}$ to state prisons)
  - $\approx$ 90% individuals return to community (94% in Genesee County)
- Misconception that time in jail is very short (e.g., hours to days)
  - Those who are not charged are released, but some jail sentences exceed a year
  - Average length of stay in Genesee County Jail: 1.5 months (s.d. 4 months)
- Stay length has been recently increasing. Contributing factors:
  - State prison crowding
  - **Court delays**
- Many inmates are pre-trial; court capacity has a direct effect on length of stay

The Michigan Court System

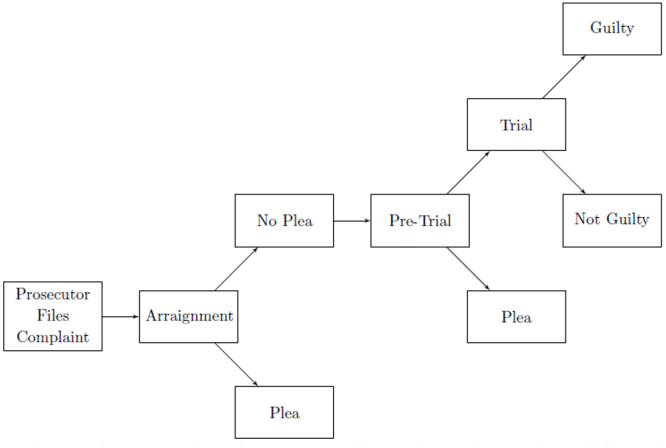
- Misdemeanors: minor violations of the criminal code with a maximum sentence of a year or less in jail
- Misdemeanor cases are adjudicated (ADJ) from start to finish—from arraignment to sentencing—in District Court
- Felonies: serious crimes that have a maximum possible sentence of more than a year in prison
- Felony cases start out in District Court but are tried in Circuit Court

67th District Courts

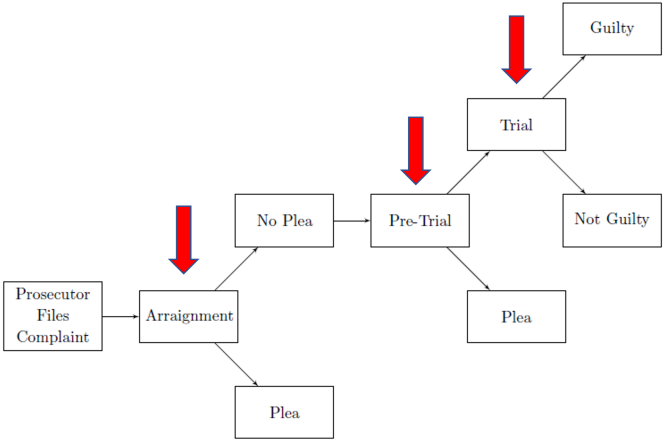


Notes: Assignment to District Court depends on where arrest made: Flushing, Fenton, Davison, Grand Blanc, Mount Morris, Burton, City of Flint, Central.

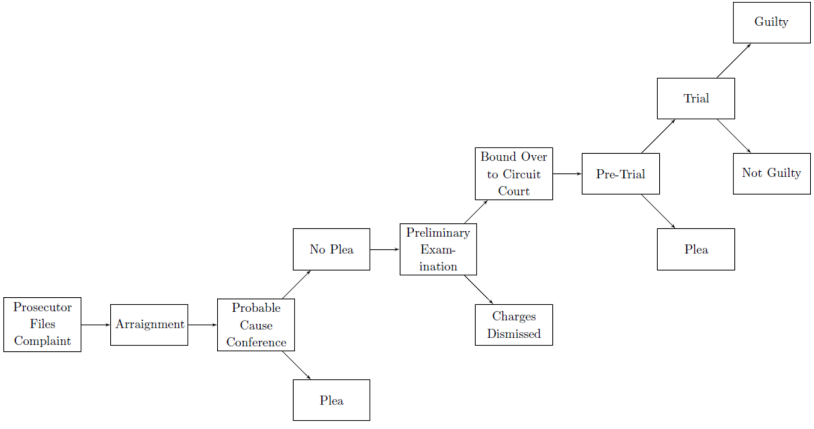
Misdemeanor Processing



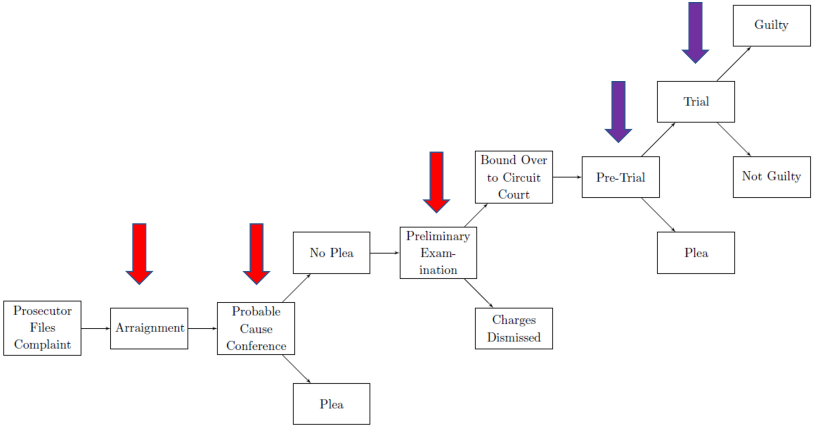
Misdemeanor Court Appearances



Felony Processing



Felony Court Appearances



Court Date Rescheduling

- Rescheduling is very common Rescheduling Histograms
- Reasons for rescheduling:
  - Court starting late/running over: beginning and end of day more likely to be rescheduled Time of Day
  - Crises: Covid/fiscal Crises
  - Idiosyncratic: Delays in evidence, judge absence etc.
- Delays appear random conditional on: District Court assignment (*e.g.,* some courts more congested/efficient than others) number, type of charges (*e.g.,* higher chance of any District court delay for felonies), and day of week hearing is scheduled Day of Week
  - Focus on District Court rescheduling events
  - Add Circuit Court dates in robustness checks

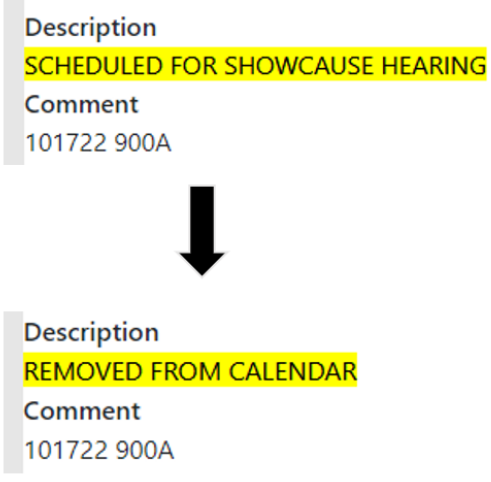
Data

Jail Management System

- Electronic records from 2015 to 2022 Summary stats Consort diagram
  - Inmate-episode level data includes major and minor incidents as well as suicide and medical incidents
  - Recidivism outcomes measured by inmate re-booking
- Major incidents include:
  - Threatening another with bodily harm, or any offense against another person
  - The attempt or act of introducing or distributing any contraband in the jail
  - Inflicting bodily injury upon another person
  - Engaging in or encouraging a disruptive demonstration or activity
  - Refusing to follow instructions given by a staff member
- Minor incidents include: Disorderly conduct that disrupts security, insolence towards staff members, being in an unauthorized area, possession of unauthorized items, lying or providing false statements

Register of Actions (ROA)

- ROA generated by court for each case; if not charged not generated
- Linked by case number to JMS
- ROA typically includes: judge identifier, attorneys' identifying information, lists all charges and disposition of case Example
- Importantly, ROA records if hearing was **removed from calendar** (e.g., pretrial was rescheduled)



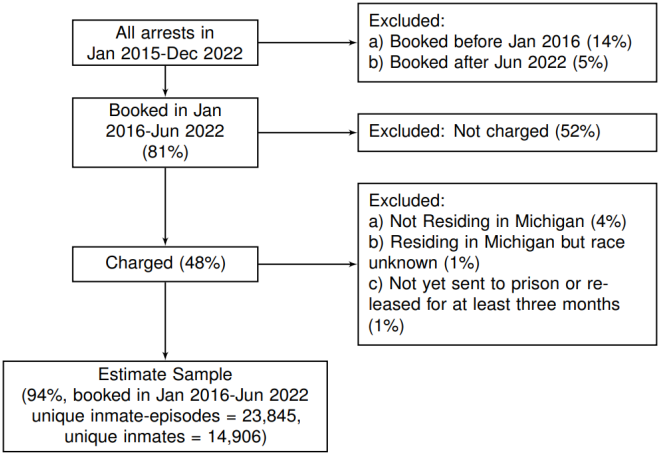
Kites

- Generic term for any written communication in jail
- Electronic system used to message between inmates and staff
  - Record both inmate request and staff response
  - 9,881 messages available for evaluation
- Kite kiosks placed throughout the facility

Other Data

- Geocoded home address of inmate (available from JMS)
- Merged to census tract level variables, include information:
  - Lead exposure
    - % with Elevated Blood Lead Levels (EBLL) in 2017 (level above 4.5 micrograms of lead per deciliter)
    - Collected by Michigan Department of Health and Human Services
  - Demographics, education attainment, median household income (ACS)
- Awaiting education data and data possibly from other counties

Sample Construction



JMS overview

Summary Statistics

	Mean (1)	SD (2)	N (3)
Panel A: Inmate Characteristics			
Female	0.241	(0.427)	23845
Age 25-34	0.378	(0.485)	23845
Age 35-44	0.226	(0.418)	23845
Age 45-54	0.123	(0.328)	23845
Age 55-64	0.058	(0.234)	23845
Age 65+	0.008	(0.092)	23845
Black	0.532	(0.499)	23845
Booked in Past Year	0.433	(0.496)	23845
Felony	0.535	(0.499)	23845
Number of Charges	1.387	(0.869)	23845
Panel B: Crime Characteristics			
Crimes against Persons	0.387	(0.487)	23845
Crimes against Property	0.223	(0.416)	23845
Crimes against Public Order	0.100	(0.299)	23845
DUI	0.026	(0.159)	23845
Drug Crimes	0.170	(0.375)	23845
Weapons Crimes	0.148	(0.355)	23845
Other Traffic	0.261	(0.439)	23845
Other Crimes	0.166	(0.372)	23845
Panel C: Census Tract Characteristics			
Share with Elevated Blood Lead Level	0.031	(0.028)	22538
Share Black	0.428	(0.354)	22540
Share Bachelor's Degree or Higher	0.128	(0.092)	22540
Log Median Household Income	10.323	(0.426)	22538

JMS overview

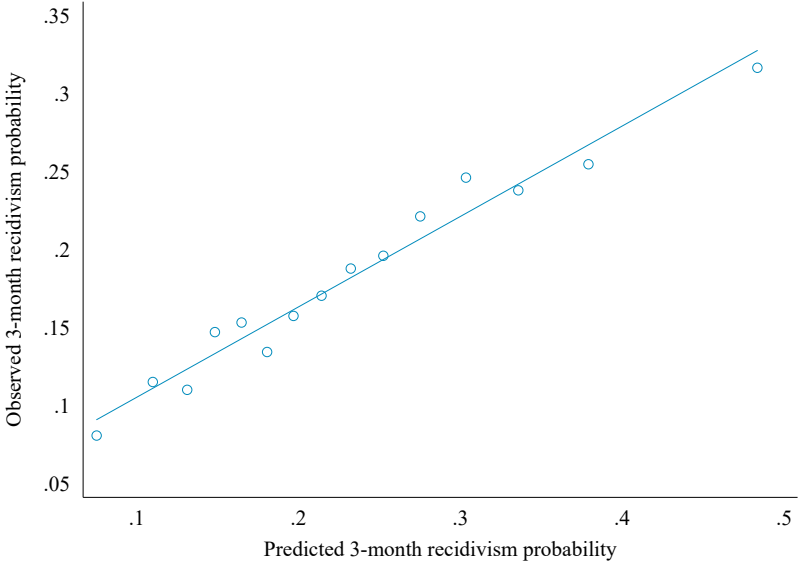
instrument and outcomes

Date Integrity: Reporting Bias

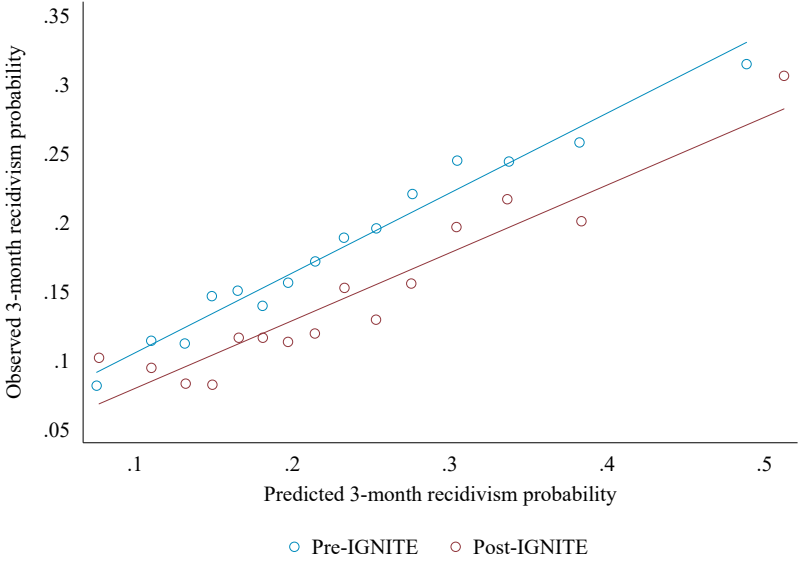
Concern for **reporting bias** whenever using administrative data recorded by individuals within system (e.g., doctors, officers, etc.,)

- Selection into jail: Arresting officers (township police departments) differ from correctional officers
- Reporting of Recidivism: Arresting officers (township police departments) generally differ from correctional officers
- Reporting of Jail Incidents: Share of *major* incidents is constant over time
  Share major misconduct
- Reporting of Medical events: Medical staff generally separate from correctional staff Share suicide
- Can verify incidents with Kites data

Observed vs. Predicted Recidivism, Pre IGNITE



Observed vs. Predicted Recidivism, Pre vs. Post IGNITE



Identification Strategy

Estimating IGNITE Exposure Effects

- We leverage the quasi-experimental variation in court date rescheduling to estimate the effects of IGNITE exposure
  - Delays increase an individual's time in jail, both pre- and post-IGNITE.
  - IV for additional time in jail with rescheduling in the pre-IGNITE and post-IGNITE period.
  - Differencing the two IVs yields an estimate of the effect of IGNITE exposure, **holding fixed time in jail**

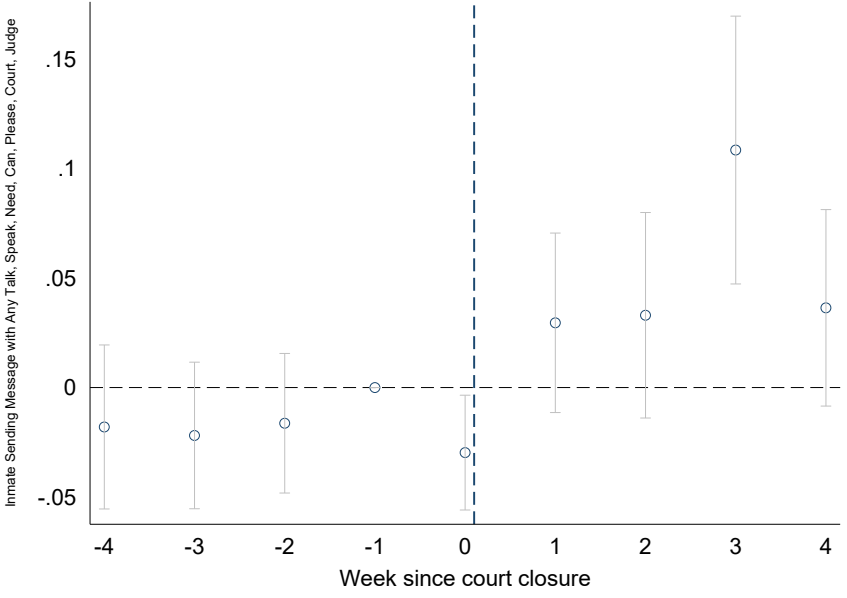
- Two key assumptions:
  1. Rescheduling is conditionally as-good-as-random
  2. If not for IGNITE, rescheduling IV estimates would not have changed in Sep. '20

- First pass: look at "reduced-form" effects of rescheduling on misconduct and recidivism, pre- and post-IGNITE, then move to IV

Inmate Texts: Week post-Court Closure



Related Word Usage in Messages Sent Before and After Court Closure



Rescheduling Balance Tests

	Mean	Diff. Mean	S.E.
Panel A: Inmate Characteristics			
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Black	0.532	-0.013	(0.008)
Booked in Past Year	0.433	-0.000	(0.007)
Public Defender	0.119	0.005	(0.005)
Panel B: Census Tract Characteristics			
Share with Elevated Blood Lead Level	0.031	-0.004	(0.004)
Share Black	0.428	-0.011	(0.008)
Share Bachelor's Degree or Higher	0.128	0.001	(0.005)
Log Median Household Income	10.323	-0.011	(0.044)
Missing Census Tract Information	0.055	0.003	(0.004)
F-Statistic for Joint Test		1.289	
p-value		0.151	
Panel C: First Stage			
Months in Jail	1.549	0.388***	(0.061)
Design Controls		Yes	
Observations		23845	

Notes: Design controls: assignment (court division FE, DOW for 1st sched. hearing, month FE) & criminality (# charges, crime type FE)

First stage margins

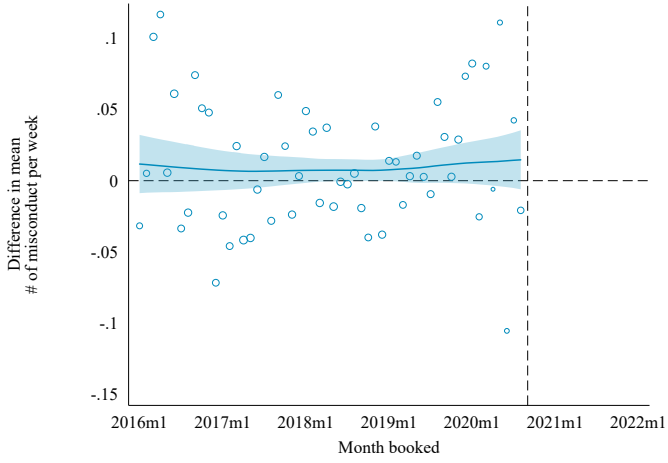
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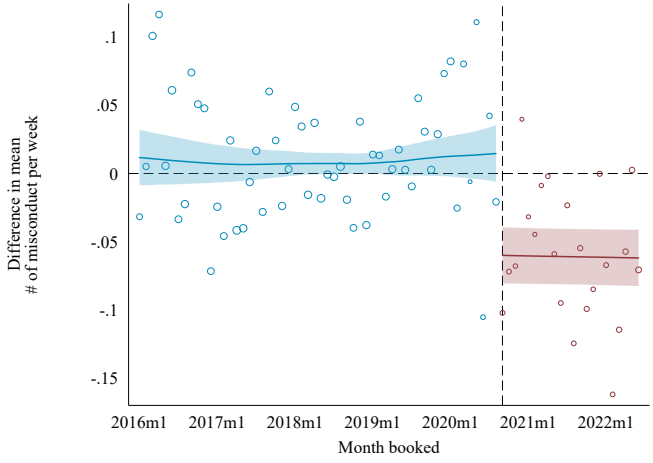
First stage margins

Rescheduling Effects on Misconduct in Jail – Reduced Form



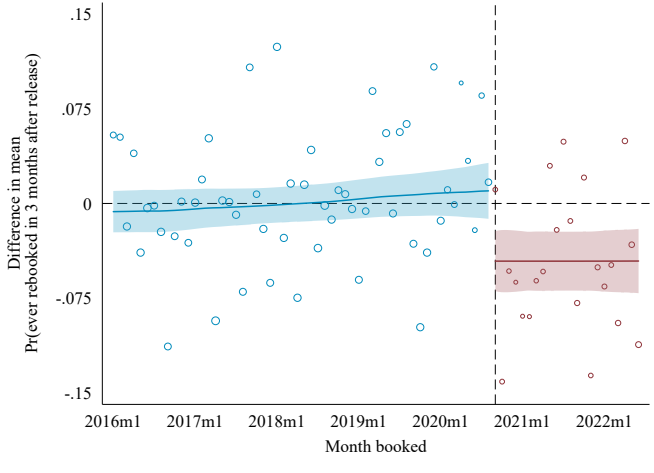
Notes: dots indicate rescheduling effects on major misconduct rates for each booking month. The vertical dashed line indicates the beginning of IGNITE. Design controls are included.

Rescheduling Effects on Misconduct in Jail – Reduced Form



Notes: dots indicate rescheduling effects on major misconduct rates for each booking month. The vertical dashed line indicates the beginning of IGNITE. Design controls are included.

Rescheduling Effects on 3-Month Recidivism – Reduced Form



Notes: dots indicate rescheduling effects on 3-month recidivism rates for each booking month. The vertical dashed line indicates the beginning of IGNITE. Design controls are included.

Binscatter - First Stage

Difference-in-IV Intuition

- For each individual i, let:
  - $Z_i \in \{0, 1\}$ indicate rescheduling
  - M_i^J count months in jail; M_i^I count months exposed to IGNITE
  - $P_i \in \{0, 1\}$ indicate post-IGNITE booking
  - Y_i be an outcome of interest (e.g. recidivism)

  Suppose (to start) that nobody booked pre-IGNITE was exposed: $M_i^I = M_i^J P_i$

- Simple causal model: $Y_i = Y_i(0) + \gamma M_i^J + \beta M_i^I$
  - $Y_i(0)$: potential outcome of individual i without additional time in jail
  - γ: effect of increased time in jail (pre-IGNITE)
  - β: IGNITE effect, holding fixed time in jail

- When Z_i is as-good-as-randomly assigned (i.e. independent of Y_i^0):

$$\beta = \underbrace{\frac{Cov(Z_i, Y_i \mid P_i = 1)}{Cov(Z_i, M_i^J \mid P_i = 1)}}_{\text{Post-IGNITE Rescheduling IV}} - \underbrace{\frac{Cov(Z_i, Y_i \mid P_i = 0)}{Cov(Z_i, M_i^J \mid P_i = 0)}}_{\text{Pre-IGNITE Rescheduling IV } (= \gamma)}$$

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  - β: IGNITE effect, holding fixed time in jail

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$$\beta = \underbrace{\frac{Cov(Z_i, Y_i \mid P_i = 1)}{Cov(Z_i, M_i^J \mid P_i = 1)}}_{\text{Post-IGNITE Rescheduling IV}} - \underbrace{\frac{Cov(Z_i, Y_i \mid P_i = 0)}{Cov(Z_i, M_i^J \mid P_i = 0)}}_{\text{Pre-IGNITE Rescheduling IV } (= \gamma)}$$

Difference-in-IV Intuition

- For each individual i, let:
  - $Z_i \in \{0, 1\}$ indicate rescheduling
  - M_i^J count months in jail; M_i^I count months exposed to IGNITE
  - $P_i \in \{0, 1\}$ indicate post-IGNITE booking
  - Y_i be an outcome of interest (e.g. recidivism)

  Suppose (to start) that nobody booked pre-IGNITE was exposed: $M_i^I = M_i^J P_i$

- Simple causal model: $Y_i = Y_i(0) + \gamma M_i^J + \beta M_i^I$
  - $Y_i(0)$: potential outcome of individual i without additional time in jail
  - γ: effect of increased time in jail (pre-IGNITE)
  - β: IGNITE effect, holding fixed time in jail

- When Z_i is as-good-as-randomly assigned (i.e. independent of Y_i^0):

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Difference-in-IV Approach

Maintaining as-good-as-random assignment of Z_i (conditional on controls), we can relax other assumptions in the "diff-in-IV" approach

- *Heterogeneous effects*: an average causal effect of IGNITE is identified when:
  - Rescheduling weakly increases time in jail for all inmates (monotonicity)
  - "Compliers" are similar pre- and post-IGNITE (indirectly testable). Compliers
- *Exclusion*: rescheduling can affect Y_i through other channels (*e.g.*, frustration) as long as exclusion violations are similar pre- and post-IGNITE
  - IGNITE effect estimate is then still causal, but pre-IGNITE IV is not simply effect of additional time
- *Fuzzy exposure*: Individuals booked before IGNITE may be partly exposed
  - Motivates a two-treatment, two-instrument IV specification

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Instrumental Variables Specification

- Second and first-stage equations for outcome Y_i:

$$Y_i = \alpha + \beta M_i^I + \gamma M_i^J + X_i'\delta + \varepsilon_i \tag{1}$$

$$M_i^I = \mu^I + \pi^I Z_i + \phi^I Z_i P_i + X_i'\lambda^I + \eta_i^I \tag{2}$$

$$M_i^J = \mu^J + \pi^J Z_i + \phi^J Z_i P_i + X_i'\lambda^J + \eta_i^J \tag{3}$$

  - M_i^I: Number of months i is exposed to IGNITE within jail
  - M_i^J: Number of months i is in jail (either pre- or post-IGNITE)
  - X_i: Design controls, other case/individual characteristics
  - Z_i: rescheduling indicator
  - P_i: post-IGNITE indicator

- Parameter of interest β: IGNITE effect, holding fixed jail time

- Two key assumptions:
  1. Rescheduling is conditionally as-good-as-random
  2. If not for IGNITE, rescheduling IV estimates would not have changed in Sep. '20

Results

First Stage

	Months in IGNITE		Months in Jail	
	(1)	(2)	(3)	(4)
Any Rescheduling × Post-IGNITE	0.504***	0.503***	0.099	0.095
	(0.091)	(0.091)	(0.115)	(0.115)
Any Rescheduling	0.125***	0.127***	0.390***	0.397***
	(0.029)	(0.029)	(0.073)	(0.073)
Control Mean	0.103	0.103	1.312	1.312
SW *F*-Any Rescheduling × Post-IGNITE	85.728	85.030	85.728	85.030
SW *F*-Any Rescheduling	55.365	56.578	55.365	56.578
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	23845	23845

Notes: Table reports first stage estimates for months in IGNITE (columns (1) and (2)) and months in Jail (columns (3) and (4)). *Any Rescheduling* is an indicator for a rescheduling event in the ROA for District Court. *Design controls* include assignment (court division FE, DOW for 1st sched. hearing, month FE) & criminality (# charges, crime type FE). *Auxiliary controls* include demographics (gender, age, race), whether booked in past year, whether has a public defender and census tract characteristics (lead exposure, share Black, education attainment, income). Standard errors clustered at inmate level.

Margins

IV Estimates

	Major Misconduct		Recidivism	
	(1)	(2)	(3)	(4)
Months in IGNITE	-0.163***	-0.162***	-0.095***	-0.094***
	(0.040)	(0.040)	(0.036)	(0.035)
Months in Jail	0.078***	0.077***	0.010	0.005
	(0.030)	(0.029)	(0.031)	(0.030)
Months in IGNITE+Months in Jail	-0.085***	-0.085***	-0.084***	-0.089***
	(0.025)	(0.025)	(0.024)	(0.024)
Control Mean	0.054	0.054	0.175	0.175
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	22372	22372

OLS Estimates | Robust Instrument | COVID Delays
Robust Covid | Frustration | Continuous Outcome

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	(1)	(2)	(3)	(4)
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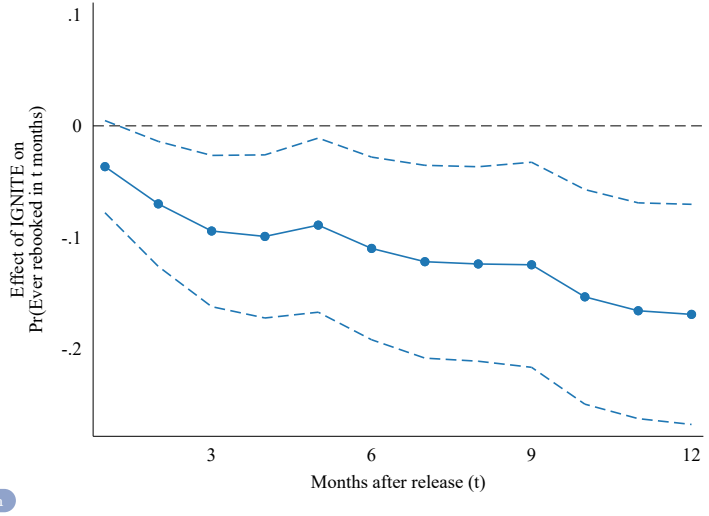
OLS Estimates | Robust Instrument | COVID Delays
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Complier Characteristics, Pre- and Post-IGNITE

	Compliers			
	Pre-IGNITE (1)	*Post-IGNITE* (2)	*Pre − Post* (3)	*Full Sample* (4)
Panel A: Inmate Characteristics				
Female	0.152	0.111	0.041	0.240
	(0.067)	(0.053)	(0.083)	
Age 25-34	0.224	0.289	-0.065	0.378
	(0.117)	(0.097)	(0.147)	
Age 35-44	0.237	0.120	0.117	0.226
	(0.092)	(0.085)	(0.123)	
Age 45-54	0.165	0.217	-0.052	0.123
	(0.085)	(0.072)	(0.109)	
Age 55-64	0.015	0.144	-0.129*	0.058
	(0.048)	(0.052)	(0.068)	
Age 65+	0.061	0.044	0.017	0.008
	(0.035)	(0.027)	(0.042)	
Black	0.589	0.447	0.141	0.532
	(0.117)	(0.104)	(0.152)	
Booked in Past Year	0.408	0.321	0.086	0.433
	(0.119)	(0.099)	(0.150)	
Panel B: Crime Characteristics				
Crimes against Persons	0.842	0.768	0.074	0.388
	(0.101)	(0.088)	(0.131)	
Crimes against Property	0.307	0.081	0.226*	0.223
	(0.104)	(0.092)	(0.135)	
Crimes against Public Order	0.050	0.009	0.041	0.100
	(0.060)	(0.045)	(0.073)	
Drug Crimes	0.132	0.128	0.004	0.170
	(0.083)	(0.073)	(0.107)	
Weapons Crimes	0.323	0.338	-0.016	0.148
	(0.118)	(0.099)	(0.151)	
Traffic Crimes	0.096	0.169	-0.073	0.278
	(0.071)	(0.066)	(0.094)	
Other Crimes	0.250	0.123	0.126	0.166
	(0.107)	(0.095)	(0.139)	
Panel C: Census Tract Characteristics				
Share with Elevated Blood Lead Level	0.038	0.032	0.006	0.031
	(0.009)	(0.006)	(0.011)	
Share Black	0.485	0.365	0.121	0.428
	(0.094)	(0.091)	(0.128)	
Share Bachelor's Degree or Higher	0.139	0.110	0.029	0.128
	(0.023)	(0.020)	(0.030)	
Log Median Household Income	10.325	10.299	0.025	10.323
	(0.108)	(0.093)	(0.141)	
Missing Census Tract Information	0.171	0.205	-0.035	0.055
	(0.063)	(0.064)	(0.088)	

Back

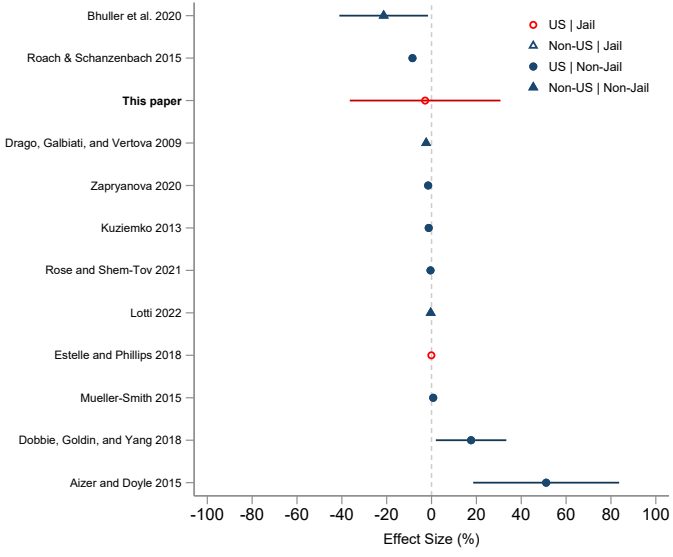
Recidivism Over Different Time Horizons



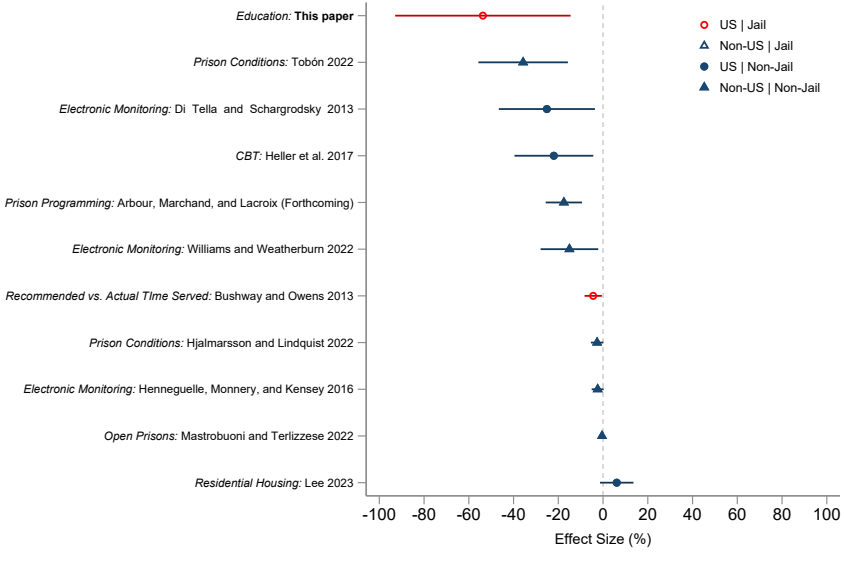
differential attrition

misconduct

Comparing to the Literature: Incarceration Papers



Comparing to the Literature: Non-Incarceration Papers



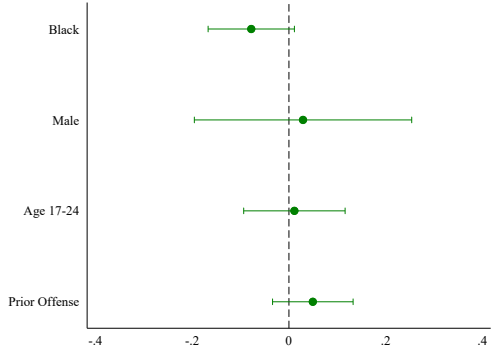
More work

Prison and Medical Outcomes

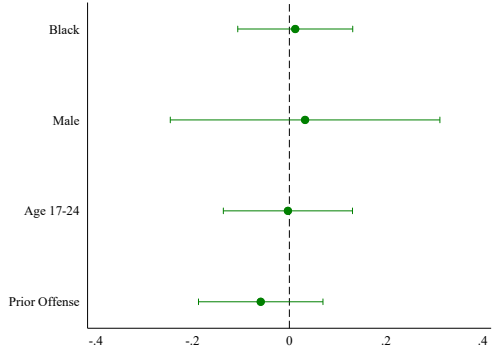
	Sentenced to Prison	Convicted	Released to Rehab. Centers	# of Suicide Attempt per Week	# of Other Medical Incident per Week
	(1)	(2)	(3)	(4)	(5)
Panel A: Reduced Form					
Any Rescheduling × Post-IGNITE	0.002	-0.004	-0.001	-0.003	-0.017
	(0.007)	(0.016)	(0.005)	(0.013)	(0.012)
Any Rescheduling	-0.009**	0.069***	-0.001	-0.009	0.002
	(0.004)	(0.008)	(0.002)	(0.006)	(0.004)
Panel B: TSLS Estimates					
Months in IGNITE	0.008	-0.044	-0.002	-0.002	-0.037
	(0.020)	(0.059)	(0.010)	(0.029)	(0.026)
Months in Jail	-0.027	0.188***	-0.002	-0.023	0.016
	(0.017)	(0.054)	(0.008)	(0.022)	(0.016)
Months in IGNITE+Months in Jail	-0.019	0.144***	-0.004	-0.025	-0.022
	(0.012)	(0.033)	(0.006)	(0.019)	(0.017)
Control Mean	0.060	0.475	0.018	0.046	0.021
Design Controls	Yes	Yes	Yes	Yes	Yes
Auxiliary Controls	Yes	Yes	Yes	Yes	Yes
Observations	23845	23845	23845	23845	23845

OLS estimates

Heterogeneity: Demographics and Prior Offense



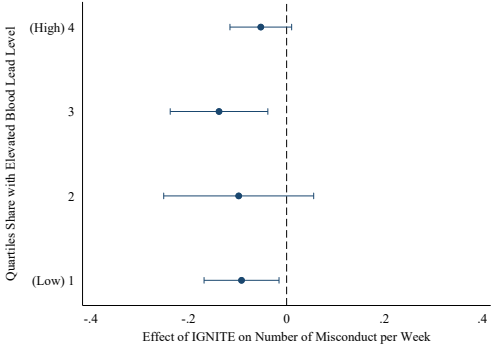
(a) Misconduct



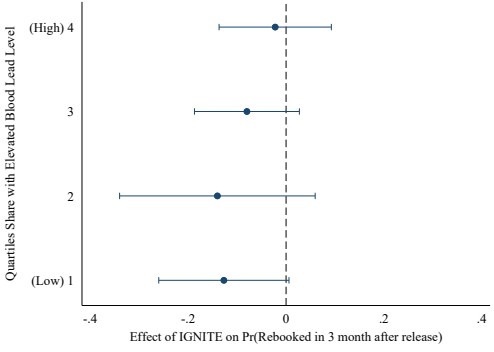
(b) Recidivism

Notes: Figure plots the point estimate and 95% CI for the interaction of the IV IGNITE exposure with the covariate listed (*e.g.,* Black, Male).

Heterogeneity: Lead Exposure

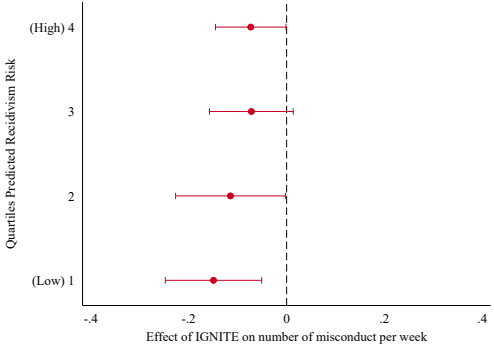


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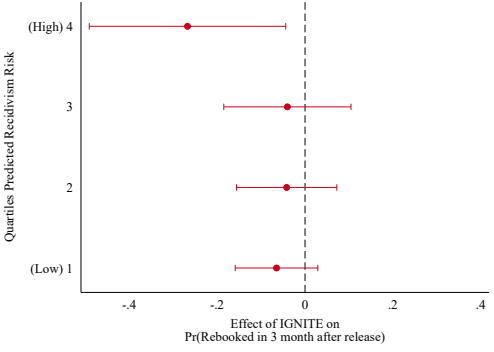


(b) Recidivism

Heterogeneity: Predicted Recidivism Probability



(a) Misconduct



(b) Recidivism

Social Cost of Crime

	Costs from Future Crimes			
	3 Months	**6 Months**	**9 Months**	**12 Months**
	(1)	(2)	(3)	(4)
Months in IGNITE	-3077.411**	-3895.300**	-4960.740**	-5334.518**
	(1201.157)	(1597.685)	(1979.242)	(2342.620)
Control Mean	2033.478	3478.998	4473.081	5418.256
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	Yes	Yes	Yes	Yes
Observations	22372	21639	21004	20109

Notes: To calculate social costs of crime, we divide crimes into the following categories: DUIs, drug offenses, motor vehicle offenses, persons offenses, property offenses, public order offenses, weapons offenses, and other offenses. Within each of these crime types, we take the lowest social cost estimate from Miller et al. (2021) to provide the most conservative estimate possible (*e.g.,* we use the cost estimate for assault instead of murder for persons offenses). We then use use the total social cost (sum of frequency of crime * cost crime) and instrument for IGNITE using the usual procedure to produce the estimtes.

Costs

Mechanisms for Recidivism Effects

- Activities (education/entertainment) while in jail plausibly lowers misconduct. What explains post-release recidivism? Sociological Mechanisms Case Outcomes
- Currently collecting data from chromebooks and pre- and post-incarceration assessments.
  - Education/skills likely to play some role but perhaps not solely education → employment for recidivism
- Jail culture shift potential driver
- Currently in the field collecting original survey data from the Flint community and returning citizens to further explore mechanisms

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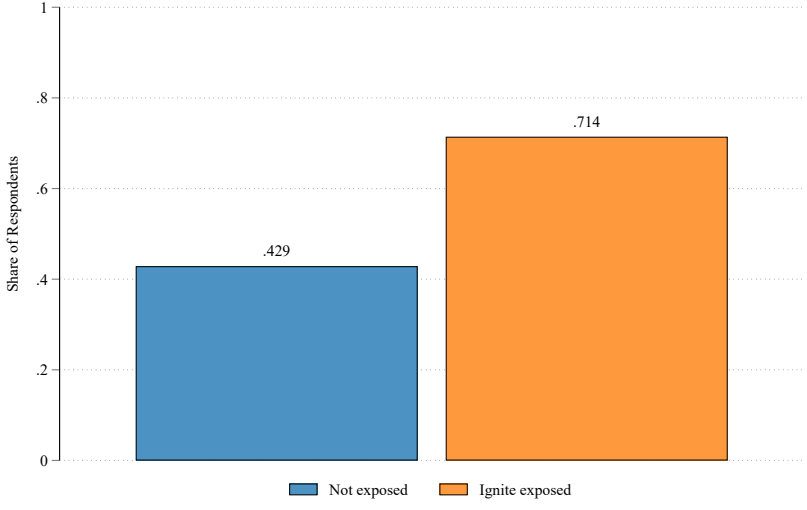
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(Preliminary) Survey Results

Previously incarcerated individuals who are more hopeful about the future



Conclusion

- Find robust evidence that "something works" in inmate rehabilitation in U.S.
- An approach that focuses on education and culture shift can reduce recidivism and major misconduct
- Jails often *overlooked* but the vast majority of jail inmates will return to community so intervening on future neighbors
  - High level of illiteracy and oftentimes low level offense.
- Possible that better programming in jails also improves citizenship, employment and community views of law enforcement $\rightarrow$ future work

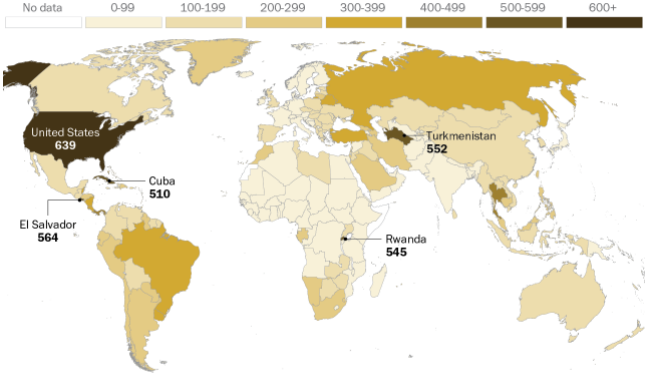
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- Possible that better programming in jails also improves citizenship, employment and community views of law enforcement → future work
- Thank you!

Appendix

International Comparison

Incarceration rate per 100,000 people of any age



Note: Figures reflect most recent available data for each country. Territories are counted separately.
Data accessed Aug. 10, 2021.
Source: World Prison Brief, Institute for Crime & Justice Policy Research.

PEW RESEARCH CENTER

Incarceration and Literacy (Ability to Read and Write)

- 1 in 10 Americans do not complete high school; half read below a sixth grade level (Barbara Bush Foundation for Family Literacy, 2020).
- 22% of Americans cannot read simple instructions.
- 67% of state inmates cannot write a brief letter explaining a billing error, read a map, or understand a bus schedule (The National Assessment of Adult Literacy – Prison Component, 2003).
- In Genesee County: About half of jail inmates are illiterate.

Newsletters *The Atlantic*

An Urban Myth That Should Be True

By John Hudson

JULY 2, 2012 SHARE SAVED STORIES SAVE

U.S. prison planners don't use local third-grade reading scores to predict future inmate populations. But maybe they should.



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Inmates' and Deputies' Literacy

Variable	(1) Deputy N	(1) Deputy Mean/SE	(2) Inmate N	(2) Inmate Mean/SE	T-test Difference (1)-(2)
Automated Readability Index	3123	3.579	4240	4.829	-1.250***
		(0.078)		(0.085)	
Share Misspellings	3123	0.033	4240	0.107	-0.074***
		(0.001)		(0.002)	
F-test of joint significance (F-stat)					305.833***
F-test, number of observations					7363

Notes: This table shows a mean comparison between inmates and deputies of the readability and correctness of messages send using kites. The *Automated Readability Index (ARI)* assesses the U.S. grade level required to read a piece of text. The higher the value of the index, the higher the level needed to understand the text. *Share Misspellings* is the number of misspelled words in the message over the total number of words.

Predicted Risk of Recidivism Since Release - Yang (2017)

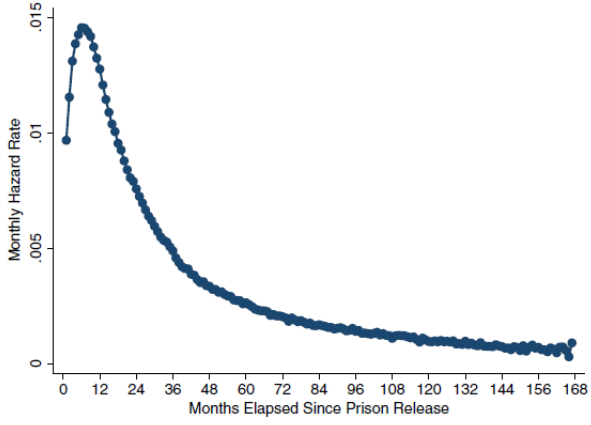


Fig. 1. Hazard for probability of returning to prison. Notes: Data are from the NCRP for prisoners released from 2000–2013. This figure calculates the unconditional probability of returning to prison in each month post-release conditional on having not yet returned to prison.

Back

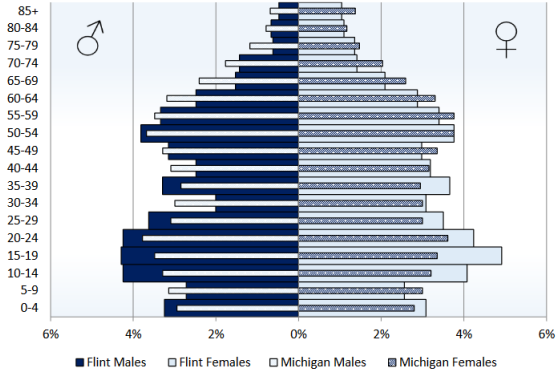
Flint Crises: Brief Timeline

- Birthplace of United Auto Workers, sit-down strike 1930s.
- GM moves to suburbs in 1940s, city tax base shrinks.
- GM layoff 36,000 workers in late 1980s.
- City finances worsen in Great Recession – receivership (again).
- Lead Water Crisis in 2014 (switch from Detroit to Flint River in cost-cutting measure)
  - Further declines in housing prices (>500mil USD per Christensen et al., 2023.)
  - Continued health and mental health issues for children *and* adults(Ezell and Chase 2021; Reuben et al., 2022).

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Age Structure in Flint, MI – "Missing" Men

Figure 3: Population Distribution by Age and Sex, 2014



Source: U.S. Census Bureau, American Community Survey, 2014 1-year Estimates

- The Flint population pyramid (Figure 3) also shows some unexpectedly low populations in the male side in the 30-34 and 40-44 age groups. There may be some gaps in the younger ages that are masked by the university presence mentioned earlier. Further research will be required to understand the reasons for the reduction in those age groups, but a possible explanation might be increased incarceration related to the high levels of crime and poverty that will be discussed later. In 2013 and

Back

Incarceration, Recidivism, and Employment

Bhuller, Dahl, Loken and Mogstad, JPE (2020)

- Using judges design, Bhuller et al., and data from 2005–2014; estimate effect of incarceration on recidivism.
  - Reoffense probabilities fall by 29 ppt over a 5-year period.
  - Decline driven by individuals *not* employed prior to incarceration.
  - Purported mechanism is programming while incarcerated.
  - Average annual prisoner cost: $93,000 in Norway (vs. $45,000 in US).

- Norway and U.S. on opposite ends of specturm re: incarceration
  - However, in 1990s, Nowary had similar recidivism rates as U.S.



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Tailored to inmate education level

Inmate A	Inmate B	Inmate C
Has high school diploma	No high school diploma/GED	Limited grade school education
Goal: begin an associates degree or specialty field	Goal: Obtain a GED and learn about opportunities	Goal: Learn to read and write
Enrolls in:	Enrolls in:	Enrolls in:
College-level classes	GED program	Reading, Writing, Math
CDL program	Trade School/VR Simulator	Health & Wellness
Serve safe program	Financial Literacy	

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Schedule

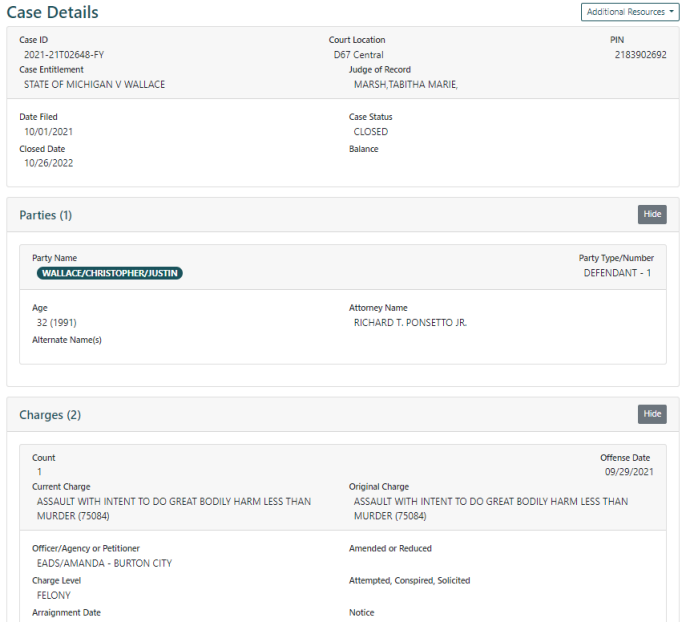
		3rd floor	4th floor	5th floor	Reminders
6am		shift change	shift change	shift change	
6:30am		Breakfast	Breakfast	Breakfast	trays off floor by 7:15
8am		IGNITE	Mandatory Cleaning	Mandatory Cleaning	
9am		Cleaning/ Hour out's	Dayroom open to all	IGNITE	
10am		Dayroom open to all	IGNITE	Dayroom open to all	
11am		IGNITE	Dayroom open to all	Dayroom open to all	
noon		Lunch	Lunch	Lunch	trays off floor by 12:45
1p		Dayroom open to all	Dayroom open to all	IGNITE	
2p		Dayroom open to all	Dayroom open to all	Dayroom open to all	
3p		Dayroom open to all	IGNITE	Dayroom open to all	
4pm		Dinner	Dinner	Dinner	trays off floor by 4:45
5p-5:30p		Mandatory Cleaning	Mandatory Cleaning	Mandatory Cleaning	
5:30p-6:30p		Shift change	Shift change	Shift change	
6:30p		Dayroom open to all	Dayroom open to all	Dayroom open to all	Dayroom open no later than 6:30pm
8p		Dayroom open to all	Dayroom open to all	Dayroom open to all	
9p		Dayrooms Closed	Dayrooms Closed	Dayrooms Closed	Dayroom open until 9pm
Service such as Laundry, Commissary, Medical, PO visits are not allowed on housing units during IGNITE time					

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Graduation



Example ROA



Case Details

Additional Resources

Case ID	Court Location	PIN
2021-21T02648-FY	D67 Central	2183902692
Case Entitlement	**Judge of Record**	
STATE OF MICHIGAN V WALLACE	MARSH,TABITHA MARIE,	
Date Filed	**Case Status**	
10/01/2021	CLOSED	
Closed Date	**Balance**	
10/26/2022		

Parties (1)

Hide

Party Name	Party Type/Number
WALLACE/CHRISTOPHER/JUSTIN	DEFENDANT - 1
Age	**Attorney Name**
32 (1991)	RICHARD T. PONSETTO JR.
Alternate Name(s)	

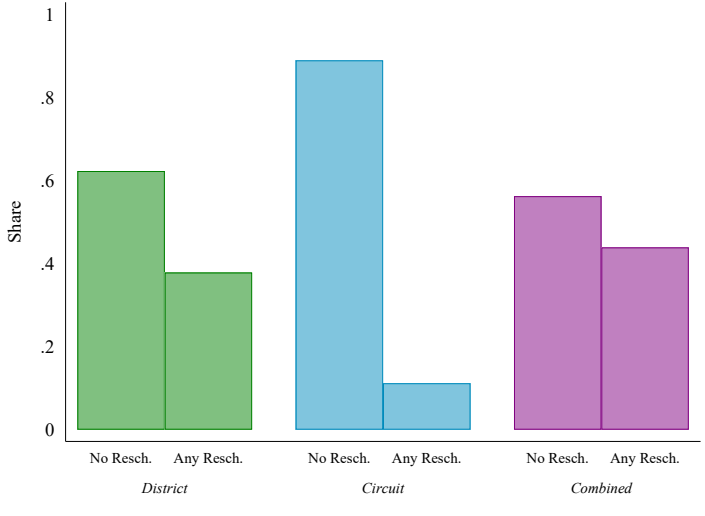
Charges (2)

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Count	Offense Date
1	09/29/2021
Current Charge	**Original Charge**
ASSAULT WITH INTENT TO DO GREAT BODILY HARM LESS THAN MURDER (75084)	ASSAULT WITH INTENT TO DO GREAT BODILY HARM LESS THAN MURDER (75084)
Officer/Agency or Petitioner	**Amended or Reduced**
EADS/AMANDA - BURTON CITY	
Charge Level	**Attempted, Conspired, Solicited**
FELONY	
Arraignment Date	**Notice**

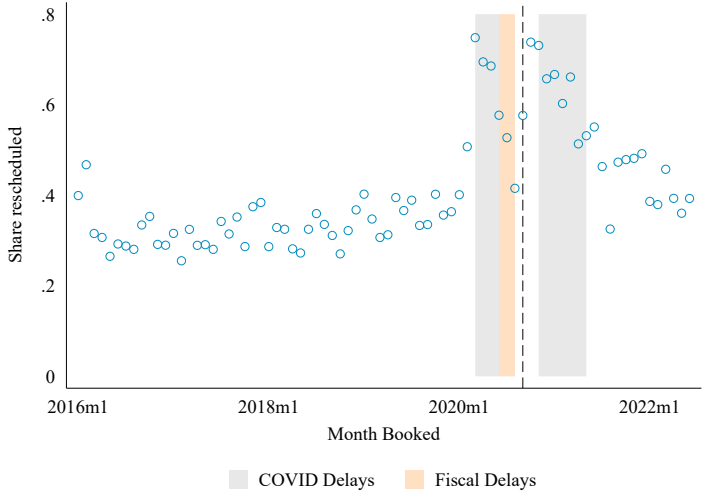
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Rescheduling Frequency



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Crises Delays



Notes: Figure plots monthly share rescheduled by month booked, where the gray shaded areas indicate court closures due to COVID, and the yellow shaded areas are periods with fiscal crises. The vertical dashed line indicates the beginning of IGNITE.

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Contextualizing Results

- RAND (2014) literature review of correctional education found $\sim 45\%$ reduction in recidivism among state prisoners.
- MAT has not shown strong evidence but still evolving.

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Before IGNITE

"From all that I've known being in this field for a long time, every facility has a floor, a pod that teaches GED and diplomas. But, for an entire model to be education over incarceration, I don't know of another that's done that," Swanson said.

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IGNITE Participation High and Representative

Variable	(1) Not in Name List N	(1) Not in Name List Mean/SE	(2) In Name List N	(2) In Name List Mean/SE	T-test Difference (1)-(2)
Female	35	0.171	192	0.115	0.056
		(0.065)		(0.023)	
Age when booked	35	35.914	192	33.464	2.450
		(1.764)		(0.852)	
Black	35	0.486	192	0.568	-0.082
		(0.086)		(0.036)	
Booked in Past Year	35	0.457	192	0.458	-0.001
		(0.085)		(0.036)	
Public Defender	35	0.171	192	0.214	-0.043
		(0.065)		(0.030)	
Census Tract Share with EBLL	35	0.030	192	0.031	-0.001
		(0.084)		(0.036)	
Census Tract Share High School Graduate or Higher	35	0.837	192	0.839	-0.002
		(0.022)		(0.009)	
Census Tract Log Median Household Income	35	10.267	192	10.817	-0.550
		(0.879)		(0.357)	
Census Tract Share Black	35	0.455	192	0.428	0.027
		(0.055)		(0.022)	
Missing Census Tract Controls	35	0.400	192	0.339	0.061
		(0.084)		(0.034)	
F-test of joint significance (p-value)					0.321
F-test, number of observations					227

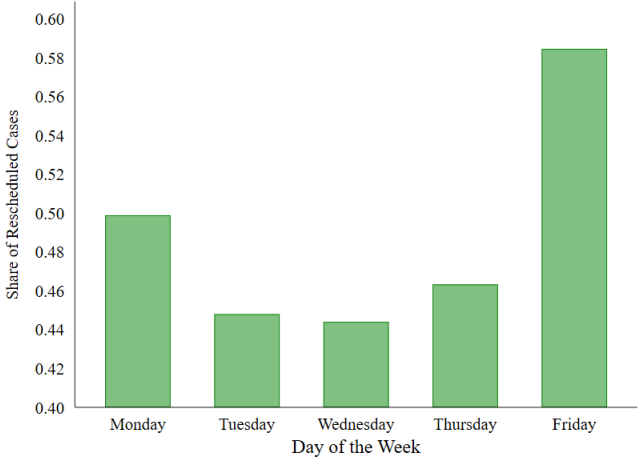
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Summary Statistics for IV and Outcomes

	Mean (1)	SD (2)	N (3)
Instrument and Outcomes			
Any Rescheduling	0.382	(0.486)	23845
Months in IGNITE	0.438	(2.084)	23845
Months in Jail	1.549	(4.192)	23845
Ever Rebooked in 3 Months after Release	0.175	(0.380)	22372
Convicted	0.495	(0.500)	23845
Sentenced to Prison	0.060	(0.237)	23845
Any Major Misconduct	0.092	(0.289)	23845
Any Medical or Suicidal Incident	0.061	(0.240)	23845
Any Incident	0.159	(0.366)	23845

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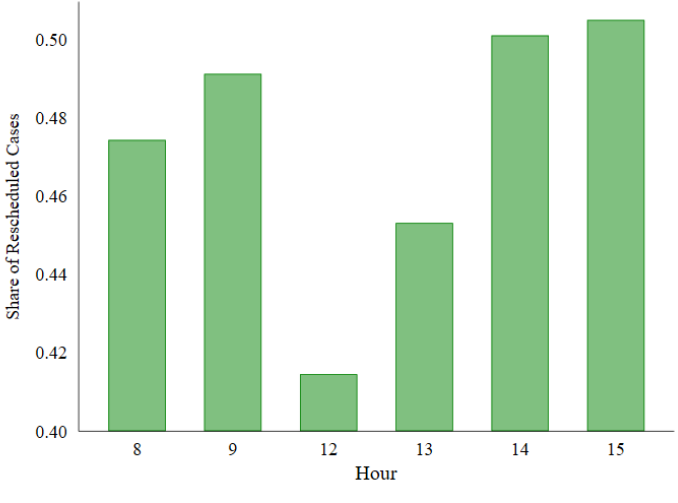
Delays by Day of Week



Notes: share of rescheduled cases that were scheduled on each day of the week.

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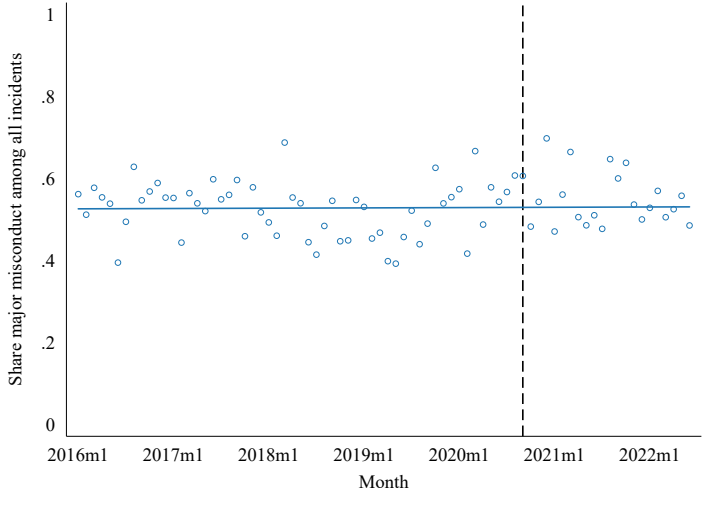
Delays by Time of Day



Notes: share of rescheduled cases that were scheduled at each time of day.

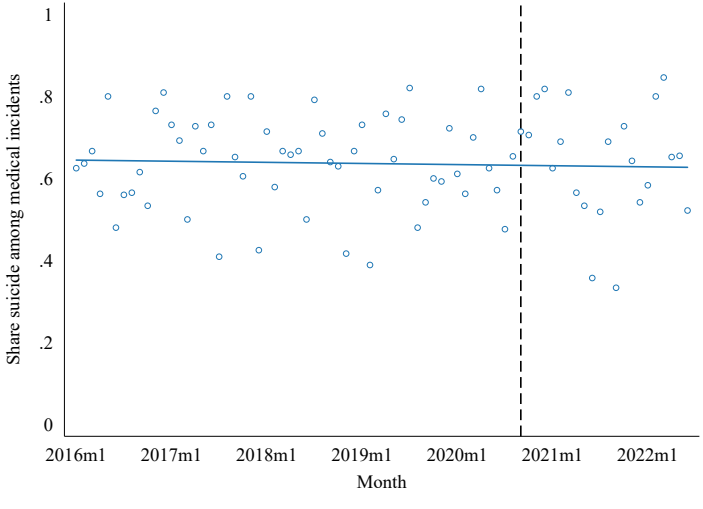
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Share Major Misconduct among All Incidents



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Share Suicide among Medical Incidents



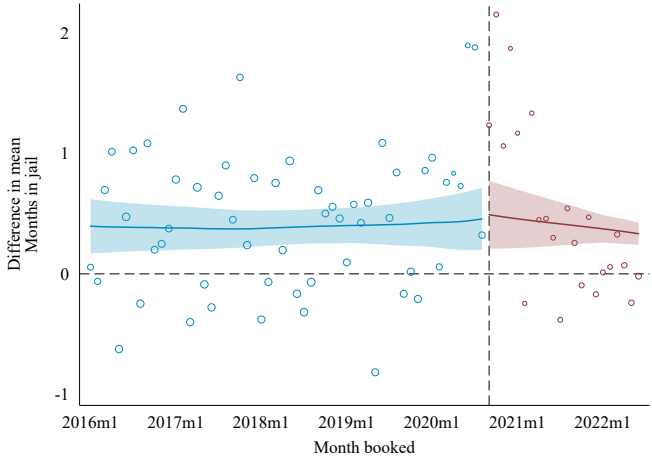
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Example of Deputy Messages with the Word "Detective"

- "i have forwarded this to the detective bureau"
- "i will forward this to the detective bureau"
- "i have let the detectives know that you are requesting to speak with them"
- "is there a specific detective you want to speak to? or a specific police agency? that will help me to know who to send to speak with you"
- "do you have a crime tip? or need to speak to a detective?"
- "all i can do is forward the information to the detective bureau"

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Rescheduling Effects on Months in Jail – First Stage



Notes: dots indicate rescheduling effects on incarceration length for each booking month. The vertical dashed line indicates the beginning of IGNITE. Design controls are included.

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OLS Estimates: Main Outcomes

	# of Major Misconduct per Week		Ever Rebooked in 3 Months	
	(1)	(2)	(3)	(4)
Months in IGNITE	-0.001	-0.000	0.002	0.002
	(0.001)	(0.001)	(0.002)	(0.002)
Months in Jail	-0.002***	-0.002***	-0.006***	-0.007***
	(0.000)	(0.000)	(0.001)	(0.001)
Control Mean	0.054	0.054	0.175	0.175
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	22372	22372

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Robustness to Instrument Definition

	# of Major Misconduct per Week	Observations	Ever Rebooked in 3 Months	Observations
	(1)	(2)	(3)	(4)
Combined Circuit Court Resch.	-0.213*	23845	-0.140**	22372
	(0.120)		(0.070)	
>1 Resch. Per Day	-0.159***	23845	-0.094***	22372
	(0.040)		(0.035)	
>3 Resch. Per Day	-0.163***	23845	-0.094***	22372
	(0.043)		(0.035)	
>5 Resch. Per Day	-0.143***	23845	-0.081**	22372
	(0.041)		(0.034)	

Notes: Table reports second-stage estimates of coefficient on Months in IGNITE from the main specification with outcomes being *# of Major Misconduct per Week* (column 1) and *Ever Rebooked in 3 Months after Release* (column 2). Alternative instrument definitions include *Combined Circuit Court Resch.*, where we combined the IV with Circuit Court Rescheduling that were not requested by defendant or attorney; *> X Resch. Per Day* sets the instrument to 1 if any District Court Rescheduling appeared on a day when more than X cases received rescheduling in the District Court, and 0 otherwise. All controls are included in estimates.

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Robustness Covid Pandemic

- U.S. jails reduced census initially during COVID, as did Flint; yet those that remained were more serious offenders, potentially harder to rehabilitate.
  - Moreover, compliers are same complier charateristics
- Covid court delays occurred before and after IGNITE
- Similar results of IGNITE in 2021 and 2022 robust sample

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Robustness Covid Pandemic: Drop March 2020-June2021

	# of Major Misconduct per Week		Ever Rebooked in 3 Months	
	(1)	(2)	(3)	(4)
Panel A: Reduced Form				
Any Rescheduling × Post-IGNITE	-0.046***	-0.047***	-0.042***	-0.043***
	(0.011)	(0.011)	(0.015)	(0.015)
Any Rescheduling	0.004	0.004	-0.000	-0.001
	(0.004)	(0.004)	(0.007)	(0.007)
Panel B: Second Stage				
Months in IGNITE	-0.109***	-0.108***	-0.107**	-0.103**
	(0.075)	(0.073)	(0.082)	(0.081)
Months in Jail	0.048**	0.046**	0.009	0.003
	(0.021)	(0.020)	(0.032)	(0.030)
Months in IGNITE+Months in Jail	-0.061	-0.061	-0.098*	-0.100*
	(0.062)	(0.060)	(0.078)	(0.077)
Control Mean	0.063	0.063	0.180	0.180
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	20893	20893	19644	19644

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Individual FE

	# of Major Misconduct per Week		Ever Rebooked in 3 Months	
	(1)	(2)	(3)	(4)
Panel A: Reduced Form				
Any Rescheduling × Post-IGNITE	-0.034*	-0.034**	-0.067***	-0.062**
	(0.017)	(0.017)	(0.024)	(0.024)
Any Rescheduling	0.011	0.011	0.012	0.012
	(0.007)	(0.008)	(0.012)	(0.012)
Panel B: Second Stage				
Months in IGNITE	-0.062*	-0.062*	-0.132**	-0.127*
	(0.034)	(0.033)	(0.065)	(0.066)
Months in Jail	0.049*	0.051*	0.081	0.085
	(0.030)	(0.030)	(0.089)	(0.093)
Months in IGNITE+Months in Jail	-0.013	-0.011	-0.051	-0.042
	(0.024)	(0.025)	(0.048)	(0.050)
Control Mean	0.072	0.072	0.261	0.261
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	13783	13783	12725	12725

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Frustration Control: Rescheduled more than Once

	# of Major Misconduct per Week		Ever Rebooked in 3 Months	
	(1)	(2)	(3)	(4)
Panel A: Reduced Form				
Any Rescheduling × Post-IGNITE	-0.043***	-0.043***	-0.043***	-0.044***
	(0.009)	(0.009)	(0.013)	(0.012)
Any Rescheduling	0.005	0.005	0.001	0.000
	(0.004)	(0.004)	(0.007)	(0.007)
Panel B: Second Stage				
Months in IGNITE	-0.098***	-0.098***	-0.086**	-0.088**
	(0.028)	(0.028)	(0.037)	(0.036)
Months in Jail	0.006	0.006	-0.031	-0.032
	(0.023)	(0.023)	(0.047)	(0.044)
Months in IGNITE+Months in Jail	-0.092***	-0.092***	-0.117***	-0.120***
	(0.035)	(0.035)	(0.043)	(0.042)
Control Mean	0.060	0.060	0.175	0.175
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	22372	22372

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Controlling for Peers Recidivism Predicted Risk

	# of Major Misconduct per Week		Ever Rebooked in 3 Months	
	(1)	(2)	(3)	(4)
Panel A: Reduced Form				
Any Rescheduling × Post-IGNITE	-0.042***	-0.042***	-0.044***	-0.045***
	(0.009)	(0.009)	(0.013)	(0.012)
Any Rescheduling	0.006	0.006	-0.002	-0.003
	(0.004)	(0.004)	(0.007)	(0.006)
Peer Pred. Rec. Risk	0.524***	0.495***	0.330*	0.481***
	(0.113)	(0.111)	(0.170)	(0.166)
Panel B: 2SLS Estimates				
Months in IGNITE	-0.092***	-0.093***	-0.094***	-0.095***
	(0.023)	(0.023)	(0.035)	(0.034)
Months in Jail	0.041***	0.041***	0.007	0.003
	(0.016)	(0.016)	(0.031)	(0.030)
Peer Pred. Rec. Risk	2.297**	2.251**	-0.551	-0.684
	(1.107)	(1.095)	(1.650)	(1.580)
Months in IGNITE+Months in Jail	-0.052***	-0.052***	-0.087***	-0.092***
	(0.016)	(0.016)	(0.025)	(0.025)
Control Mean	0.060	0.060	0.175	0.175
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	22372	22372

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Notes: Main effect controlling for the culture of peers. *Peer Pred. Rec. Risk* is the predicted recidivism of the j inmates in jail when inmate i was booked.

Continuous Measures

	Number of Major Misconduct		Number of Rebookings in 3 Months	
	(1)	(2)	(3)	(4)
Panel A: Reduced Form				
Any Rescheduling × Post-IGNITE	-0.070**	-0.068**	-0.044***	-0.045***
	(0.030)	(0.030)	(0.013)	(0.013)
Any Rescheduling	0.042***	0.041***	0.000	-0.001
	(0.013)	(0.013)	(0.007)	(0.007)
Panel B: 2SLS Estimates				
Months in IGNITE	-0.168**	-0.162**	-0.098***	-0.098***
	(0.068)	(0.068)	(0.037)	(0.036)
Months in Jail	0.158***	0.152***	0.017	0.012
	(0.044)	(0.042)	(0.033)	(0.031)
Months in IGNITE+Months in Jail	-0.010	-0.010	-0.081***	-0.086***
	(0.046)	(0.046)	(0.025)	(0.024)
Control Mean	0.125	0.125	0.183	0.183
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	22372	22372

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COVID Delay Instrument

	# of Major Misconduct per Week		Ever Rebooked in 3 Months	
	(1)	(2)	(3)	(4)
Panel A: Reduced Form				
Any Rescheduling × Post-IGNITE	-0.028**	-0.028**	-0.045***	-0.035***
	(0.012)	(0.012)	(0.012)	(0.012)
Any Rescheduling	0.013	0.007	0.002	-0.000
	(0.008)	(0.009)	(0.017)	(0.017)
Panel B: 2SLS Estimates				
Months in IGNITE	-0.089*	-0.078*	-0.083*	-0.091*
	(0.054)	(0.047)	(0.049)	(0.050)
Months in Jail	0.066	0.055	0.067	0.047
	(0.046)	(0.049)	(0.083)	(0.077)
Months in IGNITE+Months in Jail	-0.023*	-0.022**	-0.016	-0.44
	(0.012)	(0.011)	(0.058)	(0.040)
Control Mean	0.067	0.067	0.184	0.184
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	No	Yes	No	Yes
Observations	23845	23845	22372	22372

Notes: Table reports reduced form and second-stage estimates with the instrument defined by Any District Court Rescheduling during March 2020-June 2021. The mean of this instrument is 0.099.

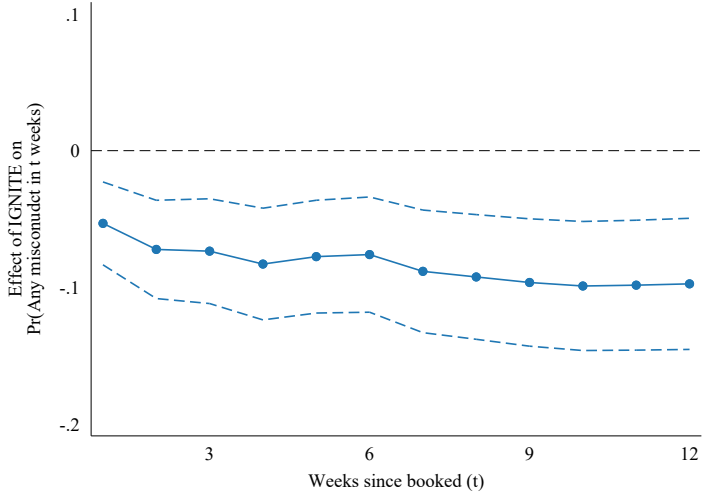
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OLS Estimates: Prison and Medical Outcomes

	Sentenced to Prison	Convicted	Released to Rehab. Centers	# of Suicide Attempt per Week	# of Other Medical Incident per Week
	(1)	(2)	(3)	(4)	
Months in IGNITE	-0.005**	0.004***	-0.000	0.000	-0.001
	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
Months in Jail	0.025***	-0.013***	0.001***	-0.003***	-0.001***
	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Control Mean	0.060	0.475	0.018	0.046	0.021
Design Controls	Yes	Yes	Yes	Yes	Yes
Auxiliary Controls	Yes	Yes	Yes	Yes	Yes
Observations	23845	23845	23845	23845	23845

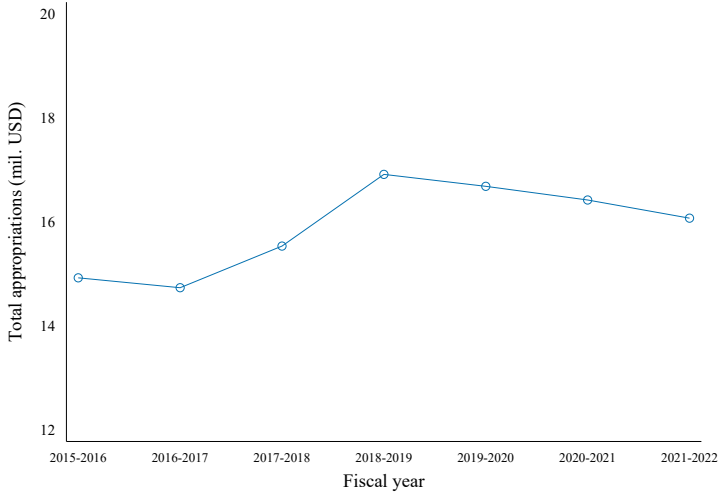
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Misconduct Weekly Rate



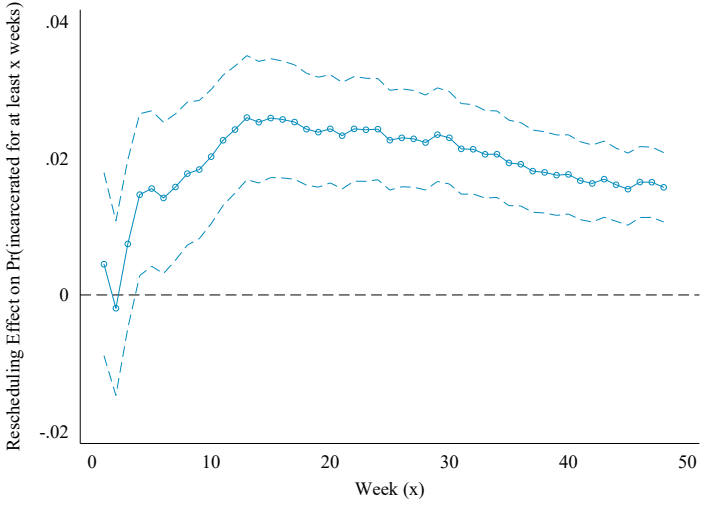
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Genesee County Corrections Dept. Budget



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Characterizing First Stage Margins



Balance

First stage table

Attrition over Different Recidivism Time Horizons

	Not Observed for 3 Months after Release	Not Observed for 6 Months after Release	Not Observed for 9 Months after Release	Not Observed for 12 Months after Release
	(1)	(2)	(3)	(4)
Any Rescheduling	0.001	0.002	0.007***	0.015***
	(0.001)	(0.002)	(0.002)	(0.003)
Control Mean	0.001	0.003	0.012	0.033
Design Controls	Yes	Yes	Yes	Yes
Auxiliary Controls	Yes	Yes	Yes	Yes
Observations	23845	23845	23845	23845

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