The Spillover Effects of Prisoner Releases

Evidence from Ecuador

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UBC

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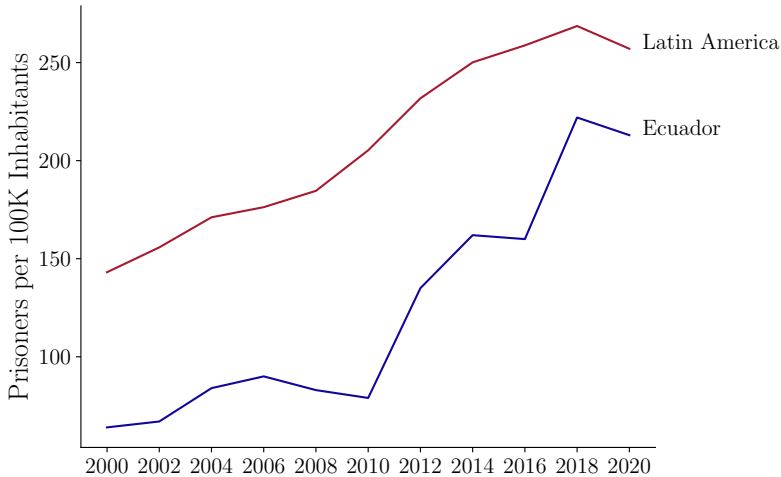
Prison Population Rate, 2000 - 2020



Source: World Prison Brief (2024)

Motivation

- **Recidivism** is a primary policy concern about prisoner releases.
  - Reoffending contributes to higher crime rates.
  - The one-year recidivism rate is 39% in Latin America and 44% in the US (Doleac, 2023; Yukhnenko, et al., 2020).

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- Criminal traits can spread through **social connections**.
  - Criminal peer effects are observed among individuals in shared environments (Stevenson, 2017; Billings et al., 2019; Bayer et al., 2009).

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Do released offenders influence the criminal behavior of individuals in the neighborhoods they rejoin?

Theoretically, the Effect is Ambiguous

- Released offenders may **discourage criminal involvement**.
  - Rehabilitated offenders can share knowledge of the negative consequences of crime.
  - Examples of NGOs: Canada (Unlocking the Gate), US (Prison Fellowship), Ecuador (Vida en Libertad).

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  - Examples of NGOs: Canada (Unlocking the Gate), US (Prison Fellowship), Ecuador (Vida en Libertad).
- Former inmates may also **increase crime rates**.
  - Prison exposes inmates to hardened peers, gang recruitment, and deteriorates their human capital (Sviatschi, 2022; Aizer & Doyle, 2015; Mueller-Schmidt, 2015).

Empirical Challenges

Data Requirement: Records on prison releases, arrests, and the residence of **all potentially affected individuals**.

- Existing studies focus on interactions between released offenders and individuals with prior criminal experience (Billings and Schnepel, 2022; Kirk, 2015).

This Paper

Presents the first estimation of criminal spillover effects from released offenders to their neighbors.

- Builds a **novel dataset** covering the universe of arrests, prison releases, and places of residence for all men (18+) in Ecuador.

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- Builds a **novel dataset** covering the universe of arrests, prison releases, and places of residence for all men (18+) in Ecuador.
- Uses a **mass pardon** (February, 2022) in an event-study design to compare the likelihood of arrest between individuals in neighborhoods that received an offender and those that did not.

This Paper

- Released offenders **increase the likelihood of arrest** of their neighbors by 0.005 p.p. (6.8% of the mean).
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- Released offenders **increase the likelihood of arrest** of their neighbors by 0.005 p.p. (6.8% of the mean).
  - Individuals without prior criminal experience account for 42% of the main effect.
- **Mechanisms**:
  1. *Peer effects:* Direct contagion to peers and family members.
  2. *Incarceration:* i) Potential criminogenic effects of incarceration, ii) access to rehabilitation programs can mitigate the effects.

Contributions to the Literature

1. Add to the knowledge about **prisoner reentry and neighborhood crime** by studying all potentially affected individuals.
    - The existing literature studies the behavior of releasees (Billings and Schnepel, 2022; Kirk, 2015)

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3. Complement the knowledge of **spillover effects of incarceration** following prisoner reentry.
    - Existing work concentrates on removal of criminal (Norris et al., 2021; Arteaga, 2021; Dobbie et al. 2019; Bhuller et al., 2018; Huttunen et al., 2019)

Roadmap

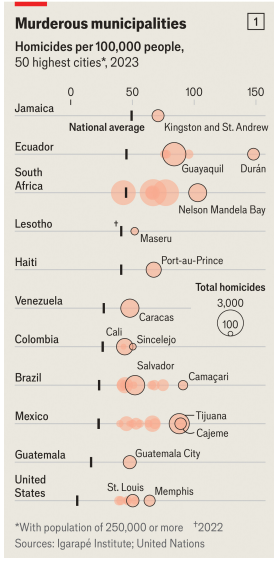
Setting and Data

Empirical Strategy and Results

Mechanisms

Conclusions

Institutional Background



NEWS

Ecuadorian authorities concerned about overcrowding in prisons

ECUADOR >

From barbarism to abuse: The ongoing problem of Ecuador's prisons

Inmates at Guayaquil's Litoral penitentiary, the country's most notorious prison, recount the humiliations they have been subjected to since the military took control of the facility

How Ecuador went from tourist haven to a nation in the grip of gangs

10 April 2024

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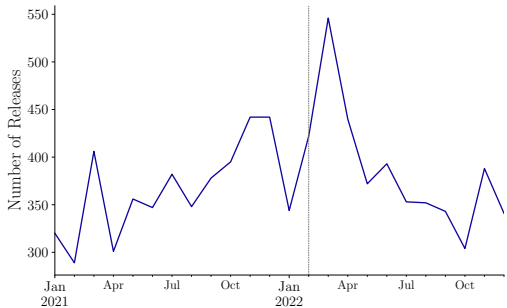
Ana María Roura, Daniel Wittenberg & Blanca Moncada
BBC News Mundo, Guayaquil

Homicides in 2021

Ecuador’s 2022 Mass Pardon

- Signed in February 2022 to reduce prison overcrowding.
- Targeted individuals convicted of robbery, theft, and fraud who had served at least 40% of their sentence.
- Reduced the prison population by 17% within two months.



Data Sources

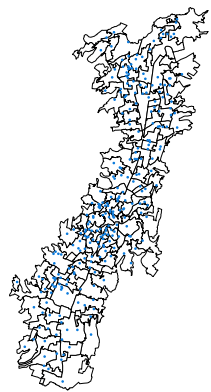
1. Universe of released offenders (2016 - 2022) Website
   - Information: Name, ID number, crime, time served, date of release, and type of release.
   - Data extracted from unstructured text using OpenAI's LLM optimized with RAG. Example
2. Universe of arrests at the individual level (2010 - 2022)
   - Information: Name, ID number, date, and offense. Example
   - Excludes: Minors, sexual crimes, violence against women, and crimes against national security.

Data Sources

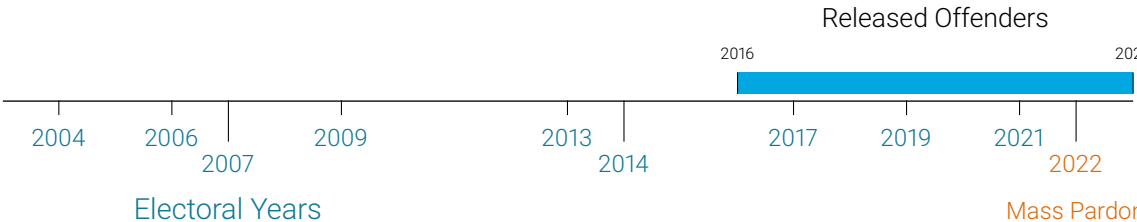
3. National Electoral Registry (2002 - 2021) Description
    - Voting is compulsory for people between 18 and 65 years old.
    - People vote in the closest school to their *registered* address.
    - Information: Name, ID number, voting location, date of birth, and gender.

Sample: Men between 18 and 40 years old living in urban areas.

Neighborhoods in Quito



Data Matching



- I assume individuals remain in the same place within each electoral cycle.
- I use the residence at the time of arrest to match released offenders.
  - 95% of released offenders return to the same neighborhood between 2016 and 2021.

Summary Statistics

	Mean	SD	p50	N
Age	28.242	6.33	27.87	30,574,516
Previous Arrest = 1	0.065	0.25	0.00	30,574,516
Pr(Arrest) $\times$ 1000	0.739	27.18	0.00	30,574,516
Number of Arrests $\times$ 1000	0.766	28.74	0.00	30,574,516

Notes: Unit of observation, person-by-month between September 2021 and August 2022.

- All individual variables Table
- Released offenders summary statistics Pardon Sample All Releases
- Neighborhood characteristics Table

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Empirical Strategy

TWFE model with neighborhood and month fixed effects

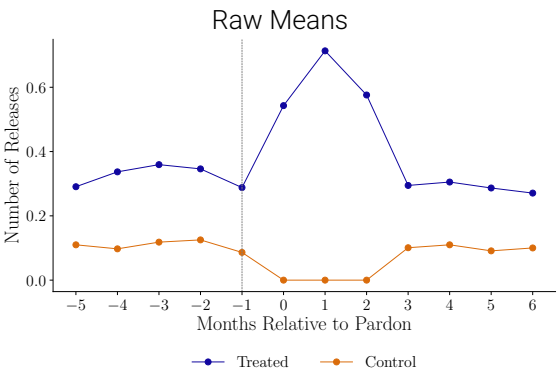
$$y_{int} = \sum_{k=-5}^{6} \boldsymbol{\beta_k} \mathbf{1}\{t = t^* + k\} \times \textit{With Offender}_n + \alpha_n + \delta_t + \mu_{int}$$

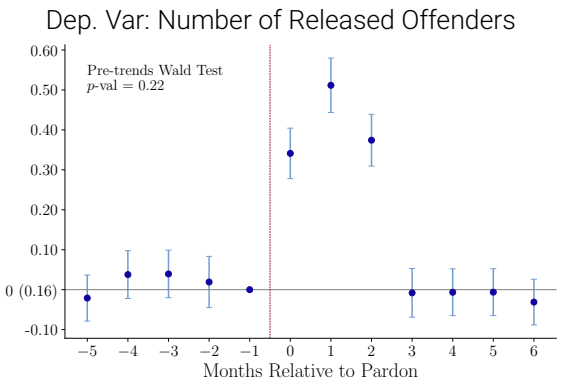
where,

- y: probability of arrest (multiplied by 1,000) for individual i, residing in neighborhood n, at month t.
- *With Offender*$_{nt}$: indicator equal to one if neighborhood n has a released offender within two months of the pardon ($t \in [0, 2]$).
- $\mathbf{1}\{t = t^* + k\}$: event-time dummies relative to the date of the pardon (t^*).
- α_i and δ_t: are neighborhood and time fixed effects.

Remove neighborhoods that never received a released offender. Map

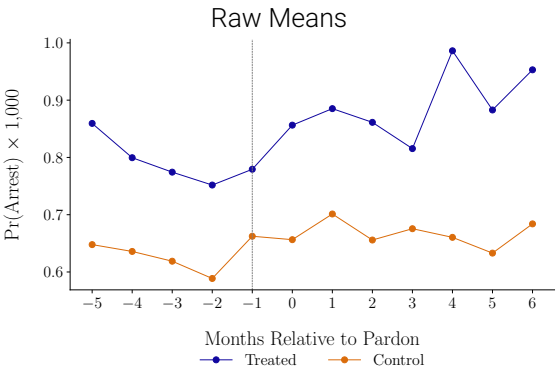
Pardon and Number of Released Offenders

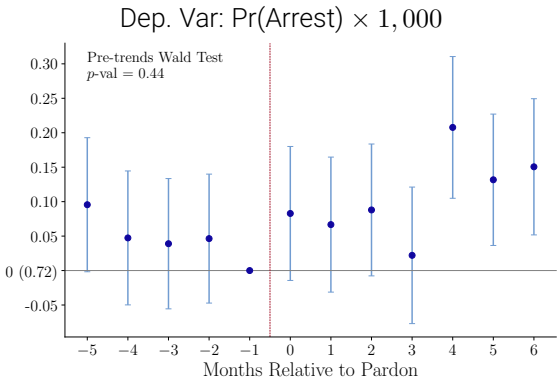




On average, the number of released offenders in treated neighborhoods increased by **0.14 (78% relative to the mean)** compared to control neighborhoods. Release Rate

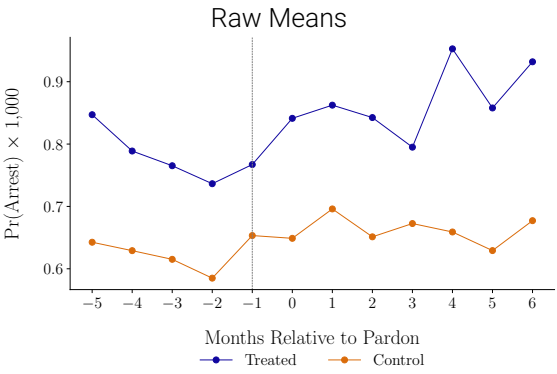
Impact of the Mass Pardon on Arrests - All Individuals

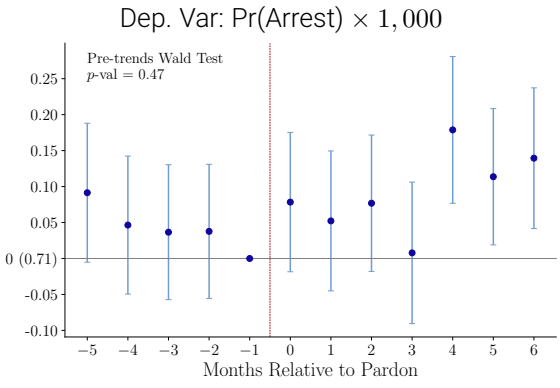




On average, the likelihood of arrest for individuals in treated neighborhoods increased by **0.006 p.p.** **(8.2% relative to the mean)** compared to people in control. Table

Impact of the Mass Pardon on Arrests - Without Recidivism





On average, the likelihood of arrest for individuals in treated neighborhoods increased by **0.005 p.p.** **(6.8% relative to the mean)** compared to people in control. Table

Making Sense of the Magnitude of the Effect

- The coefficients imply a monthly **elasticity** of arrests with respect to releases of **0.18**.

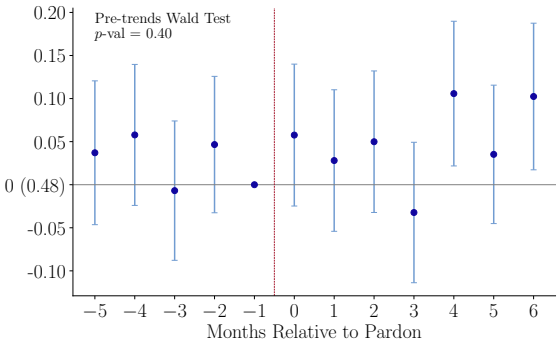
$$\epsilon = \frac{\Delta\%N.\ Arrests}{\Delta\%N.\ Releases} = \frac{0.14}{0.78}$$

- On average, **one additional** released offender generates **0.85 new monthly arrests**.

Effects by Criminal Experience

Without Criminal Records

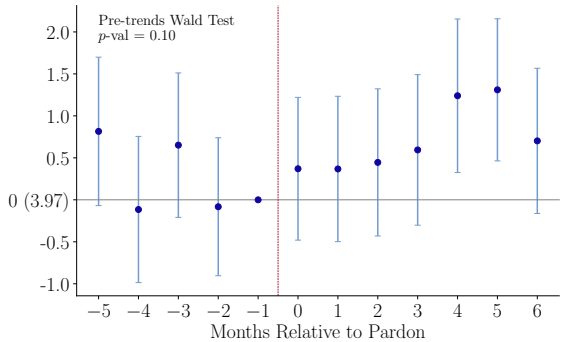
Dep. Var: Pr(Arrest) $\times$ 1,000



$\beta = 0.02\ (0.01).\ N = 28,587,505$

With Criminal Records

Dep. Var: Pr(Arrest) $\times$ 1,000



$\beta = 0.42\ (0.19).\ N = 1,987,011$

Individuals **without criminal records made 42%** of the overal increase in the probability of arrest.

Heterogeneous Effects & Robustness

Heterogeneity

- Same effects between pardoned and non-pardoned releasees Results
- No differences with age Results
- Neighborhood's characteristics Results

Robustness

- Effect not driven by police stations Results
- Matching difference-in-difference Figures
- Staggered Treatment Results
- Continuous treatment Results

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What is Driving the Effects?

Summing up: Released offenders increase the probability of arrest for individuals in neighborhoods they rejoin.

- The elasticity of arrests with respect to releases is 0.18.

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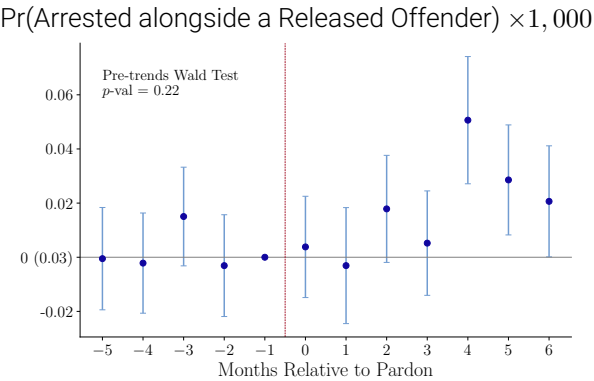
What is driving these effects?

1. *Peer Effects:* i) Increase in criminal partnerships, ii) higher arrest rates among offenders' family members, and iii) indirect evidence.
2. *Incarceration:* i) Stronger effects with longer time served, and ii) possible mitigating effects from job training programs.

Criminal Partnerships

- The most direct way of measuring peer effects is by observing joint arrests.
- Focus on:
  1. Criminal partnerships: indicator for a joint arrest
  2. Criminal partnerships with a released offender: indicator for arrest with a former offender released within the last year

Criminal Partnerships with Released Offenders



- Magnitude of the effect: $\sim$ 49% of the mean
- New criminals represent 47% of the total effect Figure
- Recidivism rate among released offenders Figure

Family Connections

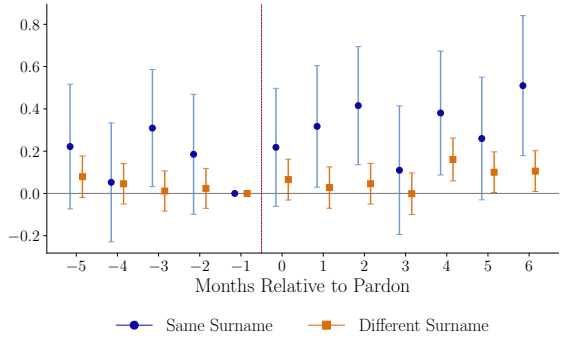
Use Spanish naming structure to approximate family ties:

$$\textit{Daniel Dario}\ \underbrace{\textit{Jaramillo}}_{\text{Father's Surname}}\ \underbrace{\textit{Calderon}}_{\text{Mother's Surname}}$$

- Both last names in common: brothers.
- One common last name: parents, grandparents, cousins, uncles, aunts, ...
- **Hypothesis:** Spillovers transmit more easily with closer connections.
- On average, less than 3% of individuals in a neighborhood are related to the released offender.

Family Connections

Dep Var: Pr(Arrest) $\times$ 1,000



β_S: 0.16 (0.01) $\rightarrow$ 23% mean; β_D: 0.04 (0.06) $\rightarrow$ 6% mean
p-value of interaction: 0.002

Family Connections

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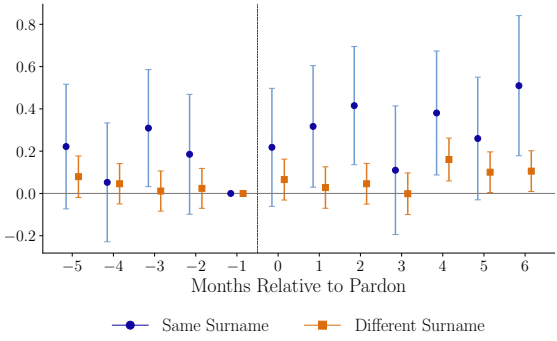

β_S: 0.16 (0.01) $\rightarrow$ 23% mean; β_D: 0.04 (0.06) $\rightarrow$ 6% mean
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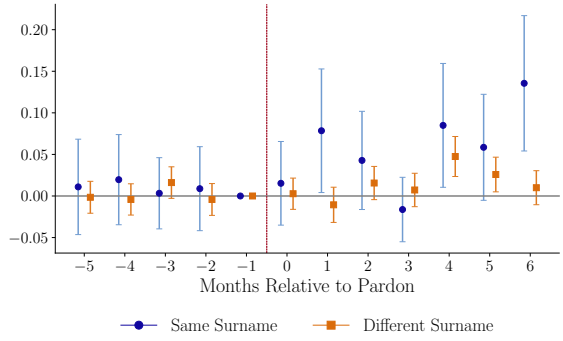
Dep Var: Pr(Arrest with Released Offender) $\times$ 1,000



β_S: 0.05 (0.00) $\rightarrow$ 157% mean; β_D: 0.01 (0.00) $\rightarrow$ 42% mean
p-value of interaction: 0.01

Family Connections

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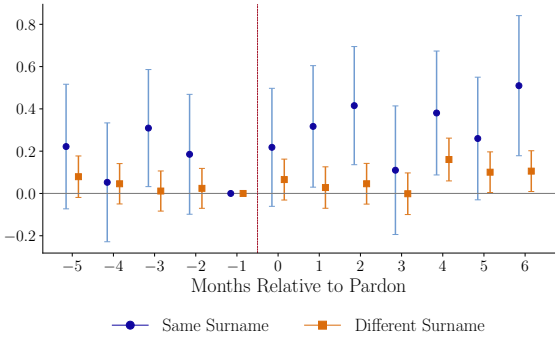

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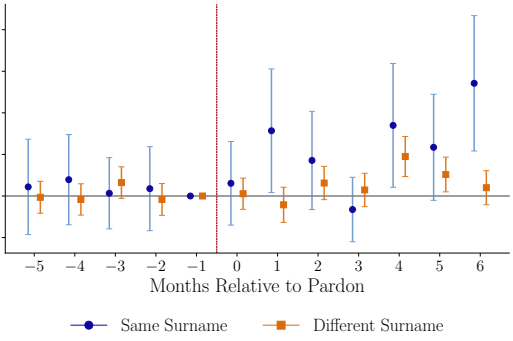


β_S: 0.05 (0.00) $\rightarrow$ 157% mean; β_D: 0.01 (0.00) $\rightarrow$ 42% mean
p-value of interaction: 0.01

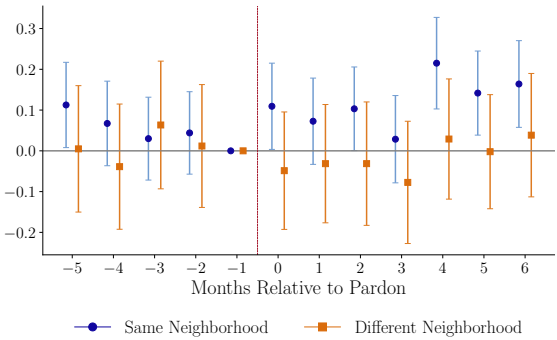
- Transmission through family networks explains 25% of the effects. It explains 41% of the increase for people with no criminal experience, and 19% for those with arrest records. Figure

Longer Exposure to One Neighborhood

- Individuals appear in the electoral registry for the first time at age 16.
- I compare individuals who were arrested while still living in the same neighborhood as when they first appeared in the registry.
- **Hypothesis:** Longer exposure to a community fosters stronger social connections.

Lived Always in Same Neighborhood

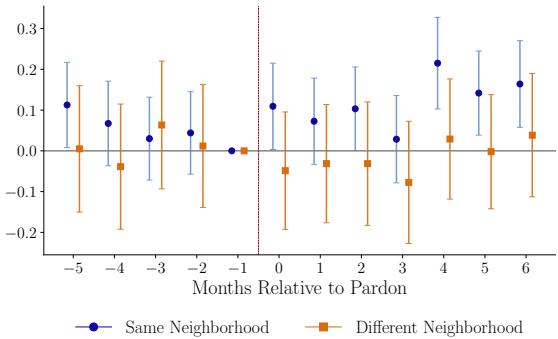
Dep Var: Pr(Arrest) $\times$ 1,000



β_{SN}: 0.07 (0.004) $\rightarrow$ 9% of mean; β_{DN}: -0.02 (0.37)
p-value of interaction: 0.004

Lived Always in Same Neighborhood

Dep Var: Pr(Arrest) $\times$ 1,000



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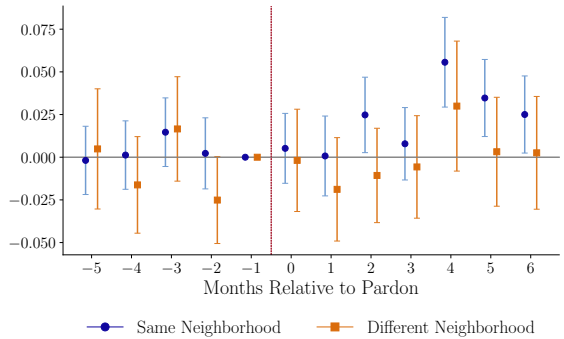
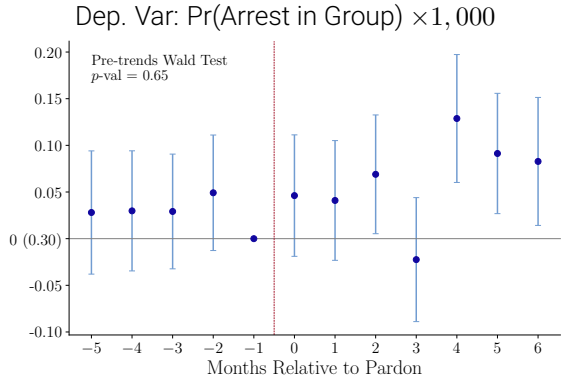
Dep Var: Pr(Arrest with Released Offender) $\times$ 1,000



β_{SN}: 0.02 (0.00) → 56% of mean; β_{DN}: 0.003 (0.55)
p-value of interaction: 0.04

Criminal Partnerships



- Magnitude of the effect: $\sim$ 11% of the mean
- New criminals represent 65% of the total effect

Prison Experience

What we know so far:

1. Released offenders increase the probability of arrest for individuals in neighborhoods they rejoin.
    - The elasticity of arrests with respect to releases is 0.18.
2. Criminal partnerships and family networks explain **40%** of the increase in arrests.

Prison Experience

What we know so far:

1. Released offenders increase the probability of arrest for individuals in neighborhoods they rejoin.
    - The elasticity of arrests with respect to releases is 0.18.
2. Criminal partnerships and family networks explain **40%** of the increase in arrests.

What about the role of incarceration?

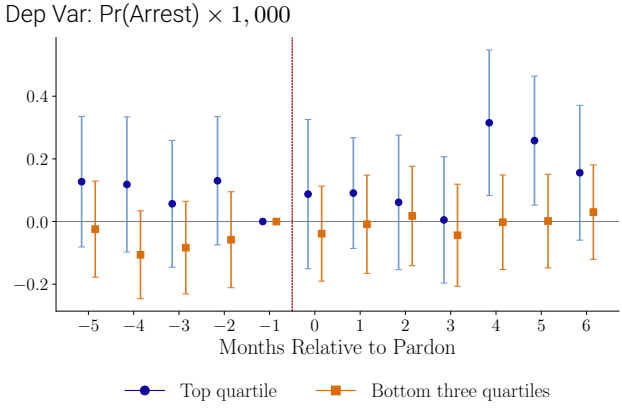
- Time in prison is criminogenic.
- Access to rehabilitation programs can mitigate the effects.

Time Served in Prison

Compare outcomes for individuals exposed to **pardoned** inmates who served different sentence lengths.

- Directly comparing inmates by time served can confound incarceration effects with offender's characteristics.
- The time effectively served by pardoned individuals depends on the timing of their arrest, not on their prior criminality.
- Distribution of time served in prison Figure

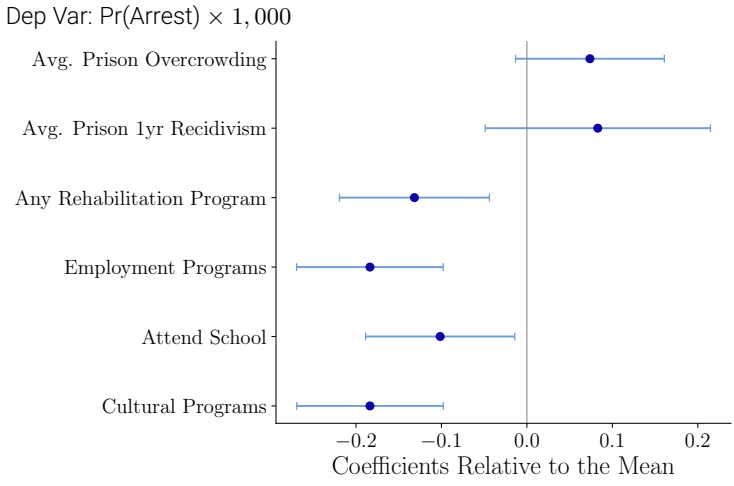
Time Served in Prison



Wait test: $\beta_{k\in[0,6]}$, p-value $= 0.15$. $\beta_{k\in[4,6]}$, p-value $= 0.08$

- Magnitude of effect ($t \in [4, 6]$): $\sim$ 30% of the mean
- No difference on number of previous arrests Figure

Prison Characteristics



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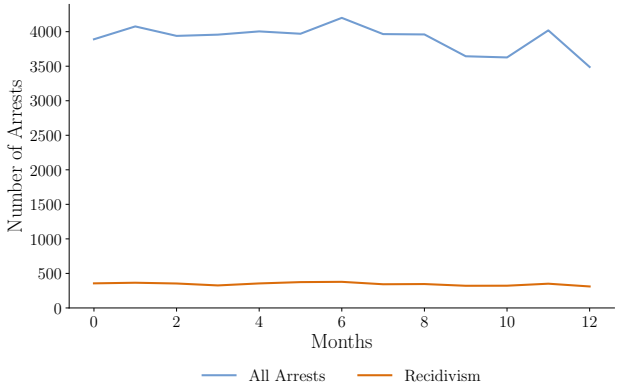
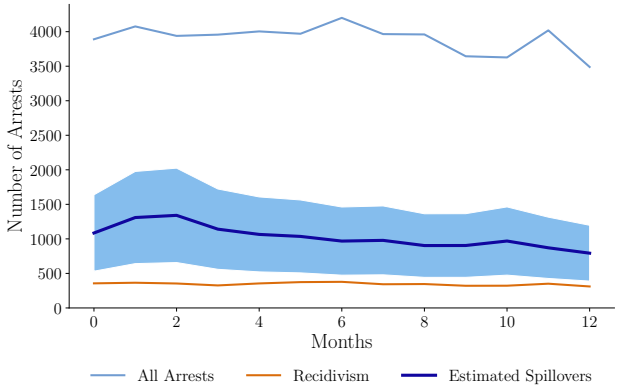
What Did We Learn?



Recidivism represents 9% of all reported arrests.

What Did We Learn?



Recidivism represents 9% of all reported arrests. **Released offenders' spillovers account for approximately one-quarter of all arrests.**

Conclusions

- The findings reveal an overlooked cost of incarceration: negative spillovers through released offenders.
- The results are a lower bound. The real impact can be larger due to the inclusion of minors.
- These results may extend to other Latin American countries with similar contexts of violence and incarceration policies.
- Policy implication: Increase access to rehabilitation programs to reduce negative spillovers from released offenders.

Thanks!

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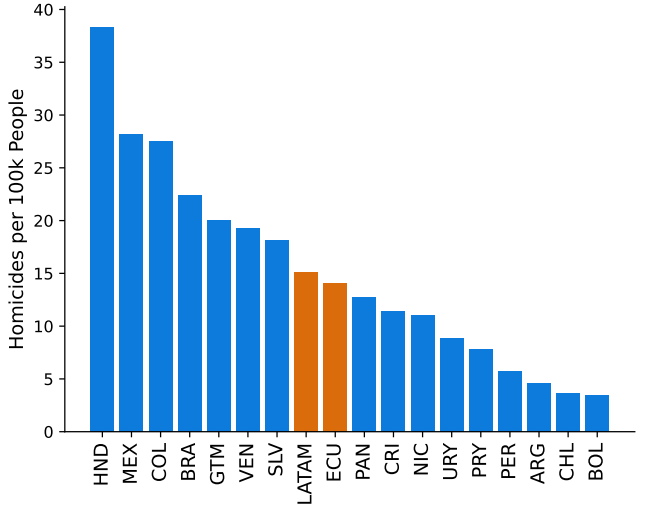
Homicide Rate in Latin America, 2021

Back



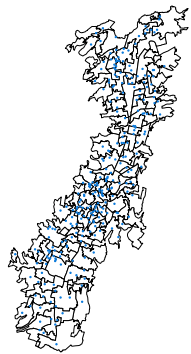
Source: World Bank (2023)

Where do People Live?

National Electoral Registry Back

General Population Residence

- Voting is compulsory for people between 18 and 65 years old
- People vote in the closest school to their *registered* home address
- The first voting place is tied to school records or parents' address at birth
- People can change their voting location by providing a proof of address
- Neighborhood = polling station area

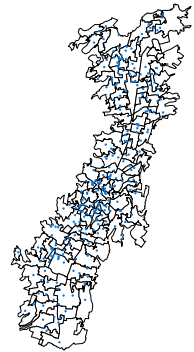


Where do People Live?

National Electoral Registry Back

General Population Residence

- Voting is compulsory for people between 18 and 65 years old
- People vote in the closest school to their *registered* home address
- The first voting place is tied to school records or parents' address at birth
- People can change their voting location by providing a proof of address
- Neighborhood = polling station area



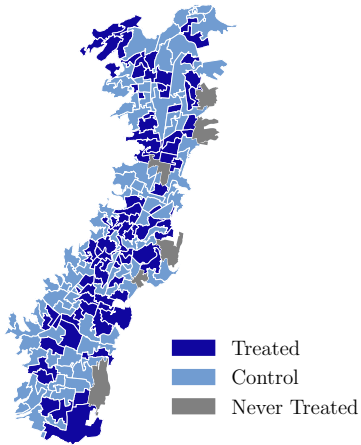
Released Offenders' Residence

- I assign offenders to their registered neighborhood before imprisonment, i.e. where they lived when arrested. Description

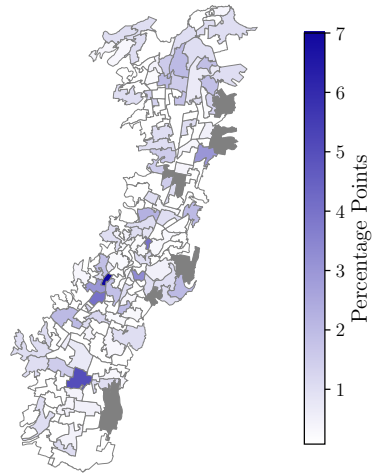
Spatial Distribution of Releases and Arrests

Back

Neighborhoods with Released Offenders

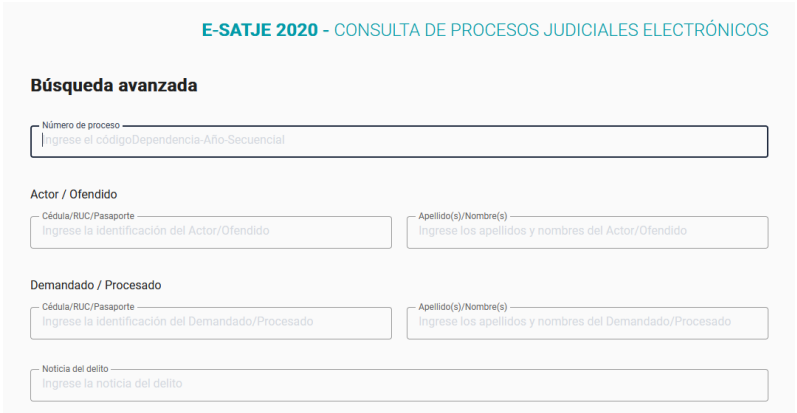


Variation in Arrest Rate



SATJE - Search Portal Back

$$\underbrace{03282}_{CourtID} - \underbrace{2020}_{Year} - \underbrace{00189}_{Seq.Num.}$$



Text Extraction

Back

N. 15 del COIP. SEIS. RESOLUCIÓN: Para el cumplimiento integral de la pena privativa de libertad impuesta al ahora PPL CARLOS AUGUSTO MALDONADO RODRIGUEZ, con C.I.N. 0301198131, se desprende que ha sido sancionado mediante sentencias emitidas por los órganos de justicia en primera instancia, han sido acumuladas a trece meses de prisión correccional, pues en materia del Garantías Penitenciarias y en razón de anteceder a esta mediante resolución de ACUMULACIÓN de pena y el COMPUTO DE PENA, se tiene la fecha en la que recobraría la libertad el sentenciado, por las sanciones impuestas en las causas penales N. 03281-2019-00349 y 03281-2019-0351. Por las consideraciones expuestas, el Suscrito Juez de la Unidad Judicial Penal Multicompetente del Cantón Cañar, con competencia para resolver asuntos relacionados con Garantías Penitenciarias, dispone que CARLOS AUGUSTO MALDONADO RODRIGUEZ, hasta el 20 de junio del año 2020 cumpliría en su totalidad la pena a él impuesta, y en atención a lo indicado en el Art. 72 N. 1 del COIP, por el cumplimiento integral de la pena se declara a partir de la fecha antes indicada EXTINGUIDO la misma, por lo que se emitirá la respectiva boleta de excarcelación al tiempo del cumplimiento de la pena y por consiguiente se procederá a ponerse inmediatamente en libertad a CARLOS AUGUSTO MALDONADO RODRIGUEZ en la fecha antes indicada; esto únicamente en lo que refiere a las causas por las que se deja indicado, sin perjuicio de que pueda continuar privado de su libertad en caso de que hubieren otras órdenes de privación de libertad en su contra, por lo que previamente deberá verificarse el particular el funcionario que corresponde en el CPLPAC. Para que surta efecto se librará la correspondiente Boleta de Excarcelación, la misma que será dirigida al señor Coordinador del Centro de Privación de Libertad de Personas Adultas en Conflicto con la Ley de la ciudad de Cañar. Tómese nota de esta resolución para los libros físicos respectivos. NOTIFIQUESE.

NAME

ID NUMBER

SENTENCE

RELEASE DATE

Arrest Information Back

E-SATJE 2020 - CONSULTA DE PROCESOS JUDICIALES ELECTRÓNICOS

← Regresar

Filtros de búsqueda

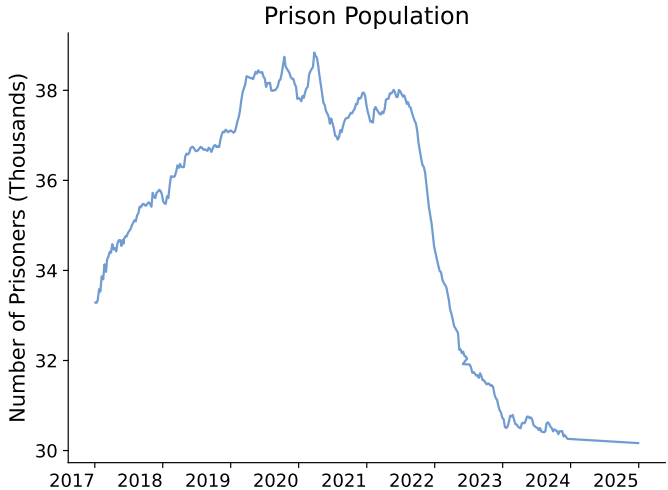
Nombres y Apellidos del Demandado/ Procesado: GLAS ESPINEL JORGE

Datos generales

Número de proceso	17721201900033G	**Fecha ingreso**	25/07/2019 07:38
Materia	PENAL COIP	**Tipo de acción**	ACCIÓN PENAL PÚBLICA
Delito/Asunto	278 PECULADO	**Judicatura**	SALA ESPECIALIZADA DE LO PENAL, PENAL MILITAR, PENAL POLICIAL, TRÁNSITO, CORRUPCIÓN Y CRIMEN ORGANIZADO DE LA CORTE NACIONAL DE JUSTICIA
Actor/Ofendido:	Consejo De Participación Ciudadana Y Control Social, , Contraloría General Del Estado, Procuraduría General Del Estado, Fiscalía General Del Estado, Cardenas Aguilar Priscila Vanessa	**Demandado/Procesado:**	Pablo Ernesto Ortiz Hidalgo, Glas Espinel Jorge David, Solis Valarezo Walter Hipolito, Bernal Alvarado Carlos Andres

Number of Incarcerated Individuals

Mass Pardon in Ecuador Back



Source: SNAI (2024)

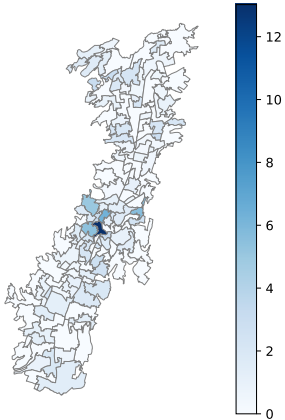
Prisoners' Residence

Back

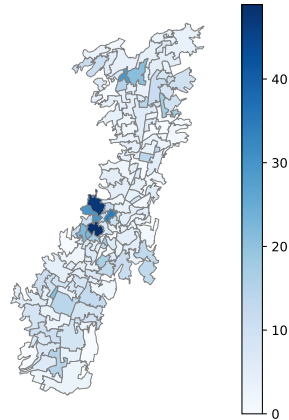
- While at prison they vote inside the jail
- Upon release they are assigned a place to vote based on their new registered address
  - Conditional Release: They have to live at a known place with family support.
  - Served Sentence: Free to live wherever they want

Release and Arrest Rates in Quito

Release Rate per 1,000 people



Arrest Rate per 1,000 people



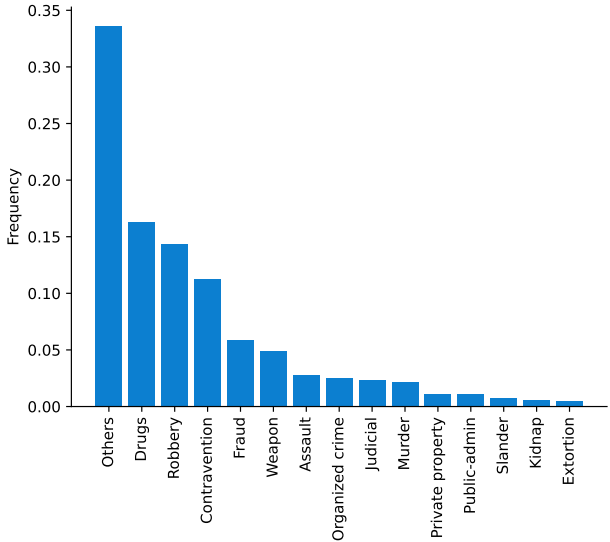
Summary Statistics

Men between 18 and 40 years old, living in urban areas Back

	Mean	SD	Min	p50	Max	N
Age	28.090	6.344	18.000	27.600	40.000	19,655,082
Previous Arrest = 1	0.066	0.248	0.000	0.000	1.000	19,655,082
Last Name Freq. in Neighborhood	0.029	0.048	0.000	0.012	1.216	19,655,082
Same cohort as RO	0.188	0.391	0.000	0.000	1.000	19,655,082
Same Last Name as RO	0.066	0.248	0.000	0.000	1.000	19,655,082
Same Criminal Network as RO	0.000	0.005	0.000	0.000	1.000	19,655,082
Pr(Arrest) $\times$ 1000	0.778	27.889	0.000	0.000	1,000.000	19,655,082
N. Arrests $\times$ 1000	0.807	29.592	0.000	0.000	9,000.000	19,655,082
Pr(Group Arrest) $\times$ 1000	0.261	16.160	0.000	0.000	1,000.000	19,655,082
Pr(Arrest with 1yr RO) $\times$ 1000	0.037	6.044	0.000	0.000	1,000.000	19,655,082

Notes: Unit of observation, person-by-month between September 2021 and August 2022.

Crime Distribution by Categories



Summary Statistics by Neighborhood

All Neighborhoods in Sample Back

	Mean	SD	Min	p50	Max	N
N. Men (18-40)	1,060.657	917.268	50.000	853.000	8,402.000	29,592
Any Release	0.133	0.339	0.000	0.000	1.000	29,592
N. Releases	0.165	0.470	0.000	0.000	5.000	29,592
Release Rate	0.139	0.534	0.000	0.000	16.393	29,592

Summary Statistics by Released Offenders

All Releases between 2016-2022 Back

	N	Mean	SD	Min	p50	Max
Male	50,270	0.883	0.321	0.000	1.000	1.000
Age at Release	50,279	33.902	10.035	18.096	32.085	64.995
Age at Entry	50,279	31.585	9.718	18.011	29.636	64.975
Time in Jail (months)	50,279	28.188	30.782	0.033	19.100	400.300
Conditional Release=1	50,279	0.501	0.500	0.000	1.000	1.000
Same Neighborhood	33,724	0.954	0.208	0.000	1.000	1.000
Nh Release = 1st Neighborhood	33,967	0.735	0.441	0.000	1.000	1.000

Summary Statistics by Released Offenders

Releases between Sept 2021- August 2022 Back

	N	Mean	SD	Min	p50	Max
Male	4,552	0.893	0.309	0.000	1.000	1.000
Age at Release	4,552	33.103	9.899	18.164	31.012	64.953
Age at Entry	4,552	30.909	9.608	18.033	28.790	64.230
Time in Jail (months)	4,552	26.691	25.610	0.033	20.267	266.100
Conditional Release=1	4,552	0.363	0.481	0.000	0.000	1.000
Nh Release = 1st Neighborhood	4,460	0.745	0.436	0.000	1.000	1.000

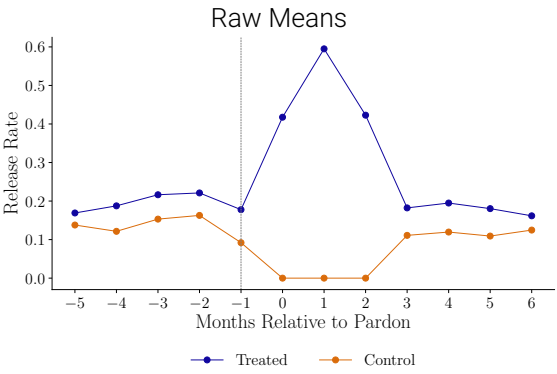
Mean Comparison between treatment and control

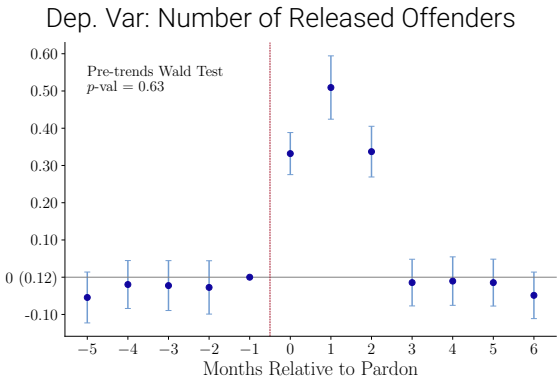
Back

	Treated		Control		t-stat
	Mean	SD	Mean	SD	T - C
Age	27.857	6.344	28.919	6.278	-6.936
Previous Arrest = 1	0.067	0.250	0.062	0.241	7.335
Last Name Freq. in Neighborhood	0.026	0.042	0.038	0.065	-7.781
Pr(Arrest) $\times$ 1000	0.831	28.821	0.590	24.291	2.177
N. Arrests $\times$ 1000	0.861	30.456	0.615	26.288	-1.215
Pr(Group Arrest) $\times$ 1000	0.286	16.920	0.172	13.102	4.195
Pr(Arrest with 1yr RO) $\times$ 1000	0.042	6.484	0.017	4.113	2.443

Pardon and Release Rate

Back





On average, the number of released offenders by 1,000 residents in treated neighborhoods increased by **0.17 (113% relative to the mean)** compared to control neighborhoods.

Effect of Mass Pardon on Releases

TWFE Estimation Back

$$y_{nt} = \beta Mass\ Pardon_{nt} + \alpha_n + \delta_t + \mu_{nt}$$

	Release Rate	Number of Releases	Any Release
	(1)	(2)	(3)
Mass Pardon	0.1217***	0.1051***	0.0930***
	(0.0100)	(0.0120)	(0.0078)
N. Neighborhoods	1,665	1,665	1,665
Mean Dep. Var	0.1214	0.1759	0.1356
Observations	19,980	19,980	19,980

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Effect of Mass Pardon on Releases

All Neighborhoods Back

	Release Rate (1)	Number of Releases (2)	Any Release (3)
After Feb-2022	0.0258**	0.0469***	0.0269***
	(0.0111)	(0.0097)	(0.0072)
N. Neighborhoods	2,466	2,466	2,466
Mean Dep. Var	0.1395	0.1649	0.1329
Observations	29,592	29,592	29,592

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Matched Neighborhoods - Balance Test

Back

	Treated		Control		T - C	
	Mean	SD	Mean	SD	Diff	p-value
	(1)	(2)	(3)	(4)	(5)	(6)
Release Rate ($t = [-11, -6]$)	1.05	1.34	1.01	2.02	0.04	0.74
Arrest Rate ($t = [-11, -6]$)	7.95	4.56	7.61	5.09	0.34	0.29
Number of People	8,025	7,429	8,075	6,591	-51	0.80
Share of Formal Employment	0.20	0.07	0.21	0.07	-0.00	0.47
Share of Men	0.48	0.01	0.48	0.01	0.00	0.97
Years of Education	4.06	0.15	4.04	0.15	0.02	0.11
Access to Public Services	0.11	0.86	0.18	0.73	-0.07	0.21
N. Neighborhoods	775		775			

Impact of the Mass Pardon on Arrests

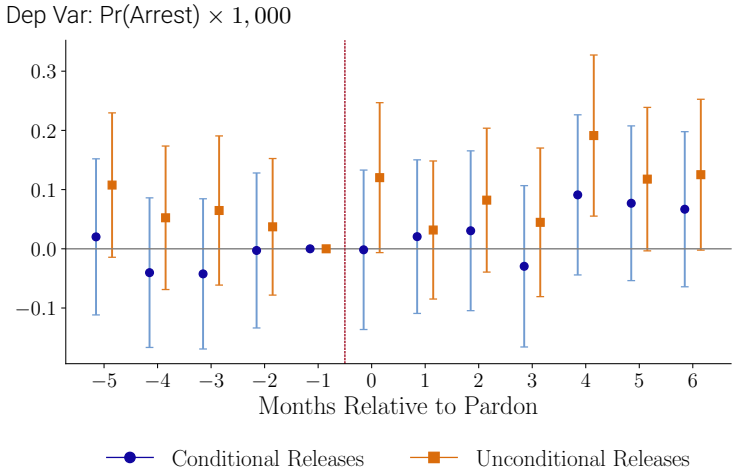
Back

	P(Arrest) x 1000		N. Arrests x 1000	
	(1)	(2)	(3)	(4)
Treated & Post Pardon = 1	0.0616***	0.0502**	0.0621***	0.0506**
	(0.0215)	(0.0212)	(0.0228)	(0.0225)
Neighborhood FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
Includes Offenders	Yes	No	Yes	No
N. Neighborhoods	2,195	2,195	2,195	2,195
Mean Dep. Var.	0.7506	0.7390	0.7780	0.7661
Observations	30,591,926	30,574,516	30,591,926	30,574,516

Notes: The unit of observation is an individual-by-month pair. The time span goes between September 2021 and August 2022. Robust standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Heterogeneity by Type of Release

Back

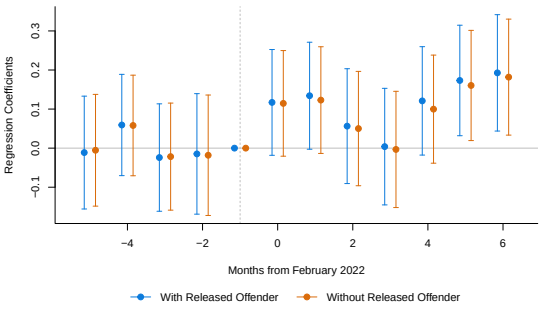


Walt test: $\beta_{k\in[0,6]}$, p-value $= 0.85$. $\beta_{k\in[4,6]}$, p-value $= 0.70$

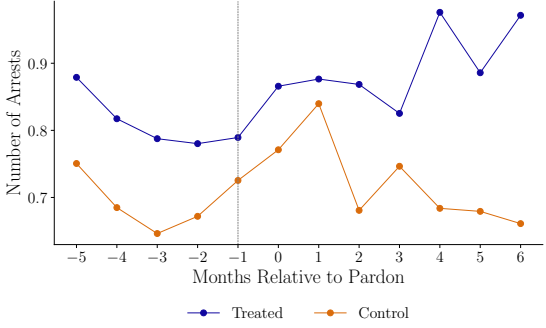
Impact of the Mass Pardon on Arrests

Back

Dep. Var: Probability of Arrest (x 1000)



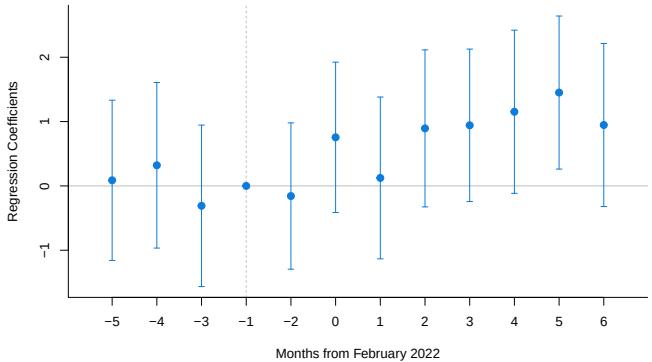
Raw Means - Only Spillovers



Heterogeneity by Criminal Records

Back

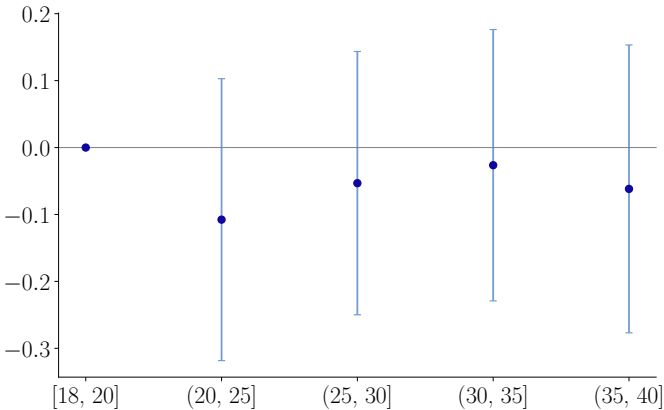
$$y_{int} = \beta Criminal\ Record_i \times Mass\ Pardon_{nt} + X'_{int}\gamma + \alpha_n + \delta_t + \mu_{int}$$



- Table with estimates Table
- Event study plots by sub-sample Figures

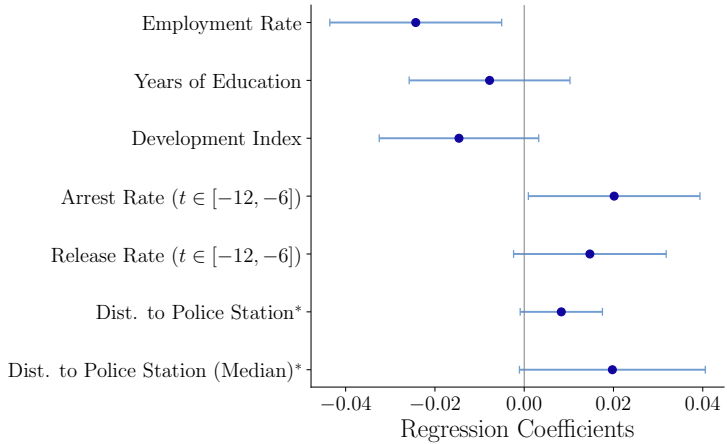
Arrests by Residents' Age

Back



Neighborhoods' Characteristics

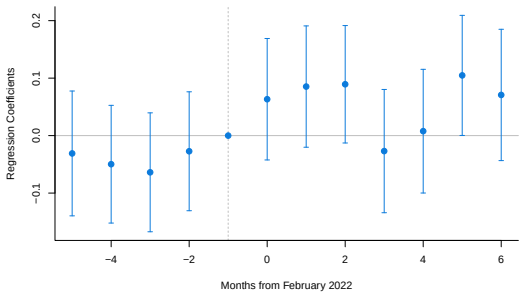
Back



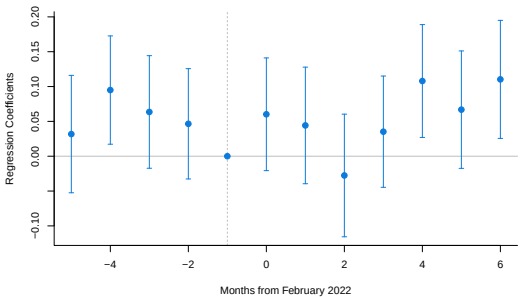
Effects by Type of Crime

Back

Economic Motivated Crimes

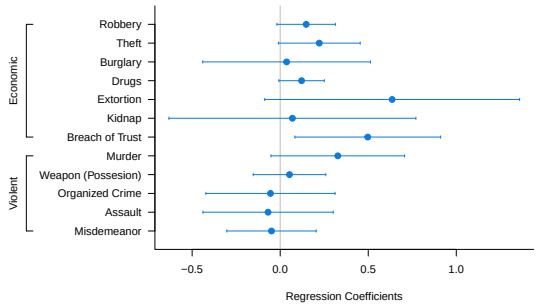


Violent Crimes



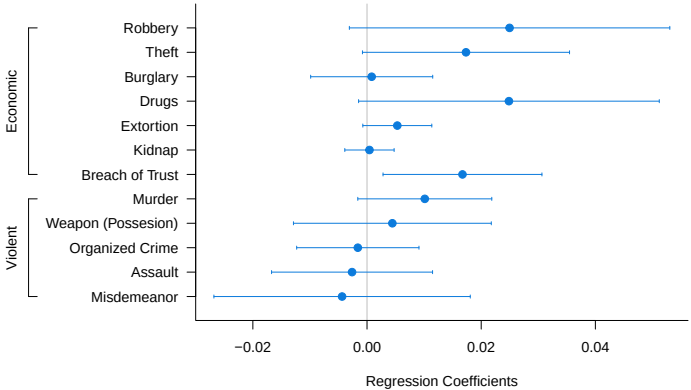
Effects by Type of Crime Relative to the Mean

Back



What Crimes responded?

Dependent Variables: Pr(Arrest by Crime) × 1000 Back



- Event-Study plots for economic and violent crimes Figures
- Effects relative to the mean Figure

Heterogeneity by Criminal Experience

Back

	P(Arrest)	P(Group Arrest)	P(Arrest RO) - 1yr
	(1)	(2)	(3)
Post Feb22 × Criminal Experience	-0.3841*	0.0780	-0.1486**
	(0.1979)	(0.1240)	(0.0656)
Criminal Experience × treated = 1	0.7401***	0.5220***	-0.0197
	(0.2193)	(0.1158)	(0.0649)
Criminal Experience	3.218***	0.7436***	0.3189***
	(0.1840)	(0.0956)	(0.0586)
Mass Pardon	0.0474*	0.0500***	0.0056**
	(0.0249)	(0.0139)	(0.0028)
Mass Pardon × Criminal Experience	0.9053***	0.2266	0.2932***
	(0.2430)	(0.1505)	(0.0772)
Neighborhood-Event FEs	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550
Mean Dep. Var	0.7784	0.2612	0.0365
Observations	19,655,082	19,655,082	19,655,082

Mass Pardon's Effects on Arrests

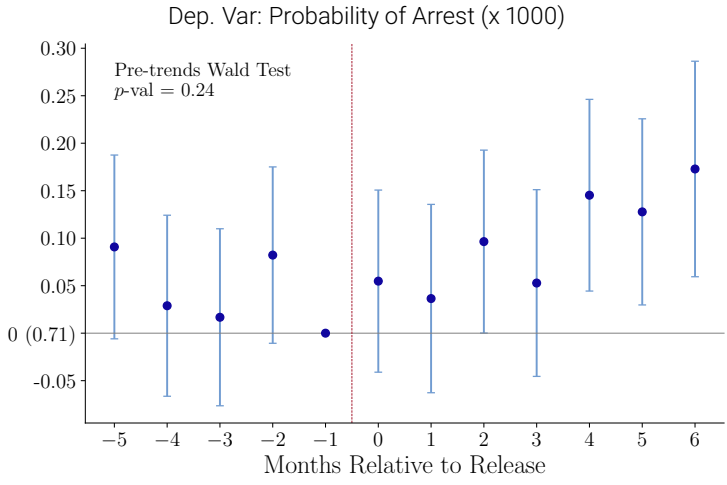
Staggered Treatment Back

	P(Arrest) x 1000		N. Arrests x 1000	
	(1)	(2)	(3)	(4)
Mass Pardon	0.1053***	0.1166***	0.1061***	0.1177***
	(0.0303)	(0.0306)	(0.0327)	(0.0329)
Neighborhood-Event FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
Includes Offenders	No	Yes	No	Yes
N. Neighborhoods	1,550	1,550	1,550	1,550
Mean Dep. Var	0.7932	0.7932	0.8219	0.8219
Observations	18,821,329	18,833,967	18,821,329	18,833,967

Notes: The unit of observation is an individual-by-time pair. The time span goes between August 2021 and August 2022, a bandwidth of six months around the pardon date. Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Effect size: $\sim$ 13% of the mean

Mass Pardon's Effects on Arrests - Staggered Outcome



Back

Mass Pardon's Effects on Arrests

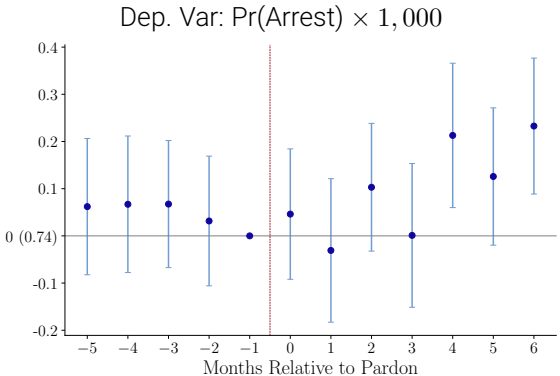
Matching to Any Neighborhood Back

	P(Arrest) x 1000		N. Arrests x 1000	
	(1)	(2)	(3)	(4)
Mass Pardon	0.0543**	0.0644**	0.0487*	0.0590**
	(0.0265)	(0.0267)	(0.0283)	(0.0284)
Neighborhood FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
Includes Offenders	No	Yes	No	Yes
N. Neighborhoods	1,550	1,550	1,550	1,550
Mean Dep. Var	0.7713	0.7713	0.7984	0.7984
Observations	20,791,129	20,804,234	20,791,129	20,804,234

Notes: The unit of observation is an individual-by-time pair. The time span goes between August 2021 and August 2022, a bandwidth of six months around the pardon date. Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Effect size: $\sim$ 8% of the mean

Mass Pardon's Effects on Arrests - Matched Sample

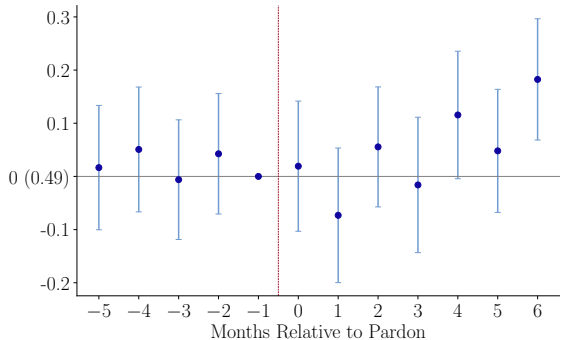


Back

Effects by Criminal Experience - Matched Sample

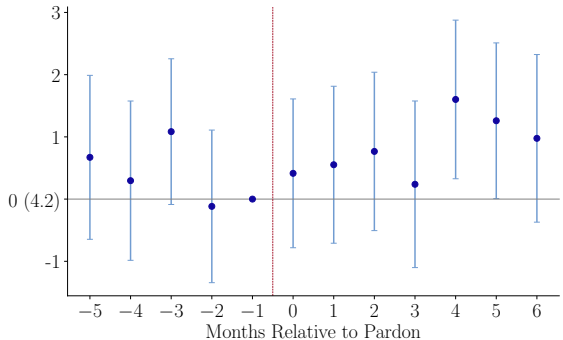
Without Criminal Records

Dep. Var: Pr(Arrest) $\times$ 1,000



With Criminal Records

Dep. Var: Pr(Arrest) $\times$ 1,000



Back

Mass Pardon's Effects on Arrests

Matching to Neighborhood Outside City Back

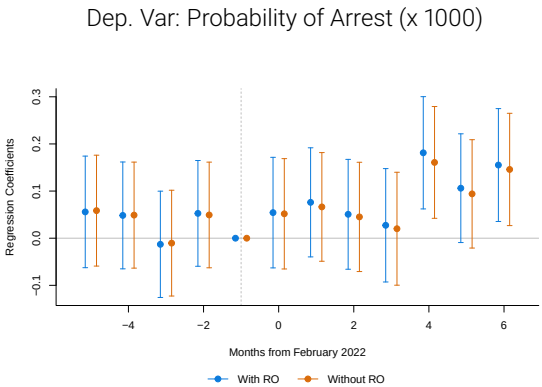
	P(Arrest) x 1000		N. Arrests x 1000	
	(1)	(2)	(3)	(4)
Mass Pardon	0.0542**	0.0643**	0.0485*	0.0588**
	(0.0255)	(0.0257)	(0.0272)	(0.0273)
Neighborhood FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
Includes Offenders	No	Yes	No	Yes
N. Neighborhoods	1,665	1,665	1,665	1,665
Mean Dep. Var	0.7599	0.7599	0.7864	0.7864
Observations	21,363,345	21,376,461	21,363,345	21,376,461

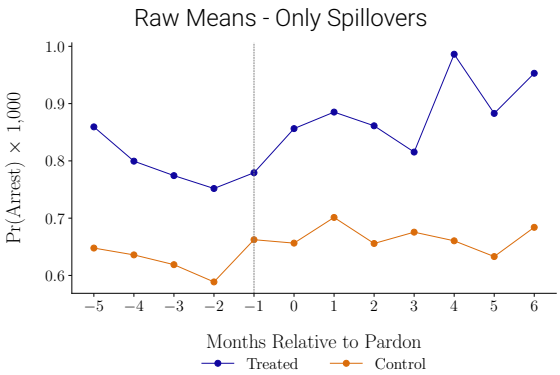
Notes: The unit of observation is an individual-by-time pair. The time span goes between August 2021 and August 2022, a bandwidth of six months around the pardon date. Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Effect size: $\sim$ 7% of the mean

Mass Pardon's Effects on Arrests

Matching to Neighborhood Outside City Back





Mass Pardon's Effects on Arrests

All crimes Back

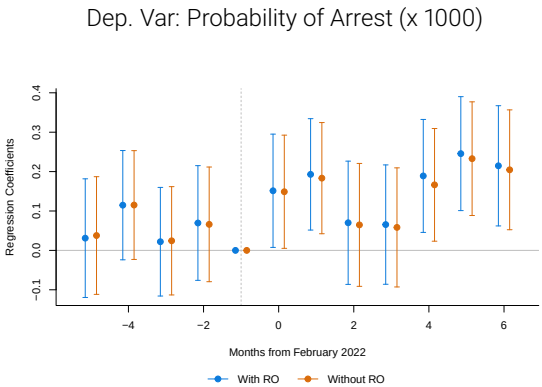
	P(Arrest) x 1000		N. Arrests x 1000	
	(1)	(2)	(3)	(4)
Mass Pardon	0.1027***	0.1139***	0.0994***	0.1107***
	(0.0315)	(0.0317)	(0.0338)	(0.0339)
idgroup FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
Includes Offenders	No	Yes	No	Yes
N. Neighborhoods				
Mean Dep. Var	0.8604	0.8604	0.8919	0.8919
Observations	19,655,082	19,668,186	19,655,082	19,668,186

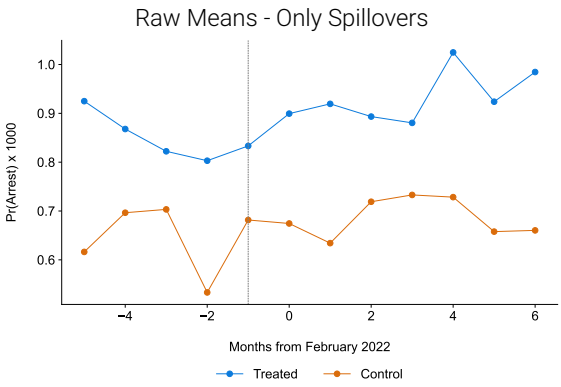
Notes: The unit of observation is an individual-by-time pair. The time span goes between August 2021 and August 2022, a bandwidth of six months around the pardon date. Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Effect size: $\sim$ 12% of the mean

Mass Pardon's Effects on Arrests

All crimes Back





Mass Pardon's Effects on Arrests

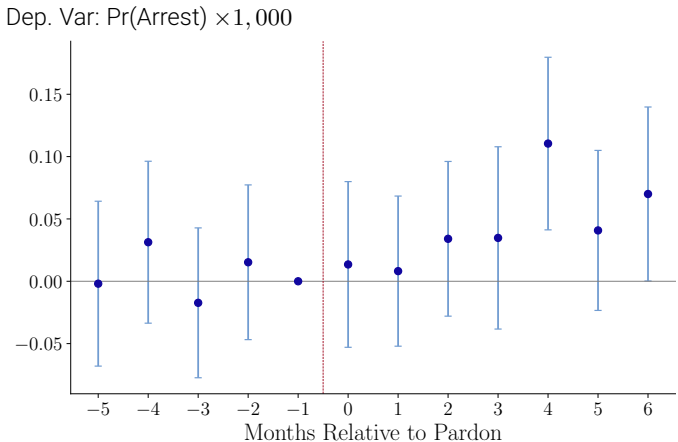
Continuous Treatment Back

	P(Arrest) x 1000		N. Arrests x 1000	
	(1)	(2)	(3)	(4)
Mass Pardon	0.0511***	0.0646***	0.0575***	0.0716***
	(0.0175)	(0.0181)	(0.0186)	(0.0191)
idgroup FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
Includes Offenders	No	Yes	No	Yes
N. Neighborhoods				
Mean Dep. Var	0.7926	0.7926	0.8213	0.8213
Observations	19,655,082	19,668,186	19,655,082	19,668,186

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

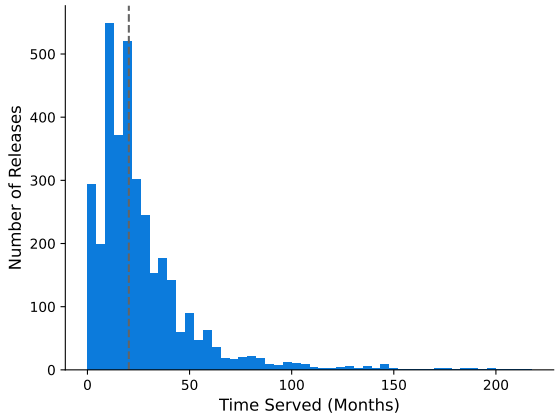
Effect size: $\sim$ 6% of the mean

Treatment: Release Rate per $1,000$ People



Back

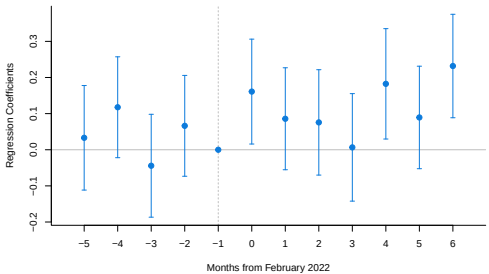
Distribution of Time Served in Prison

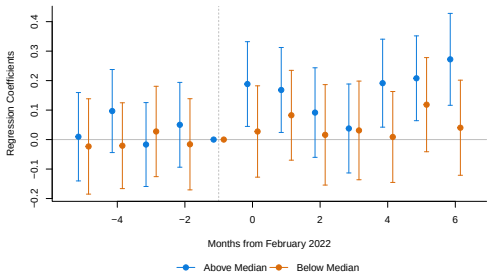


Back

Pr(Arrests) by Time in Prison

Sum of Tenure Across Released Offenders Back





Pr(Arrests) by Time in Prison

Sum Tenure of Released Offenders Back

	Arrest	Group Arrest	With RO (1yr)
	(1)	(2)	(3)
Mass Pardon	0.0529	0.0573***	0.0259***
	(0.0342)	(0.0197)	(0.0068)
edad	-0.0335***	-0.0142***	-0.0029***
	(0.0015)	(0.0008)	(0.0003)
prev_arrest	4.105***	1.352***	0.3614***
	(0.0829)	(0.0430)	(0.0192)
Mass Pardon × Above Median	0.0846**	0.0120	-0.0027
	(0.0331)	(0.0191)	(0.0070)
Neighborhood-Event FEs	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550
Mean Dep. Var	0.7784	0.2612	0.0365
Observations	19,655,082	19,655,082	19,655,082

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Pr(Arrests) by Time in Prison

Max Tenure of Released Offenders Back

	Arrest	Group Arrest	With RO (1yr)
	(1)	(2)	(3)
Mass Pardon	0.0510	0.0448**	0.0277***
	(0.0346)	(0.0197)	(0.0069)
edad	-0.0335***	-0.0142***	-0.0029***
	(0.0015)	(0.0008)	(0.0003)
prev_arrest	4.105***	1.352***	0.3614***
	(0.0829)	(0.0430)	(0.0192)
Mass Pardon × Above Median	0.0921***	0.0344*	-0.0060
	(0.0334)	(0.0191)	(0.0071)
Neighborhood-Event FEs	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550
Mean Dep. Var	0.7784	0.2612	0.0365
Observations	19,655,082	19,655,082	19,655,082

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Family Connections

Back

	Dep. Var.: Prob(Arrest) x 1000				
			With a Released Offender		
	Any	In Group	1 year	6 moths	3 months
	(1)	(2)	(3)	(4)	(5)
Same Surname	0.2744***	0.1438***	0.0348***	0.0096	0.0073*
	(0.0408)	(0.0289)	(0.0111)	(0.0066)	(0.0038)
Treated Nh × Same Surname	-0.1604**	-0.0970*	-0.0215	-0.0076	-0.0020
	(0.0737)	(0.0517)	(0.0164)	(0.0125)	(0.0057)
Mass Pardon	0.0941***	0.0599***	0.0212***	0.0130***	0.0073***
	(0.0297)	(0.0164)	(0.0057)	(0.0038)	(0.0024)
Mass Pardon × Same Surname	0.1178*	0.0561	0.0370***	0.0073	0.0048
	(0.0625)	(0.0424)	(0.0141)	(0.0096)	(0.0057)
Neighborhood FEs	Yes	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550	1,550	1,550
Mean Dep. Var.	0.7784	0.2612	0.0365	0.0163	0.0078
Observations	19,655,082	19,655,082	19,655,082	19,655,082	19,655,082

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Family Connections

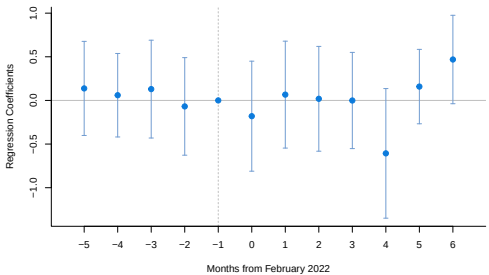
Input Surnames to Matched Controls Back

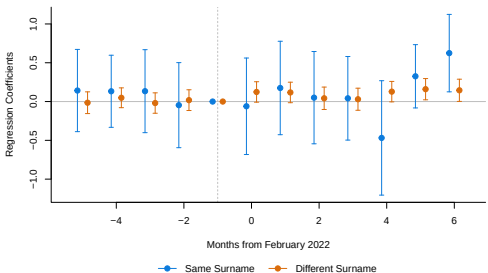
	Dep. Var.: Prob(Arrest) x 1000				
			With a Released Offender		
	Any	In Group	1 year	6 moths	3 months
	(1)	(2)	(3)	(4)	(5)
Same Surname	0.2744***	0.1438***	0.0348***	0.0096	0.0073*
	(0.0408)	(0.0289)	(0.0111)	(0.0066)	(0.0038)
Treated Nh × Same Surname	-0.1604**	-0.0970*	-0.0215	-0.0076	-0.0020
	(0.0737)	(0.0517)	(0.0164)	(0.0125)	(0.0057)
Mass Pardon	0.0941***	0.0599***	0.0212***	0.0130***	0.0073***
	(0.0297)	(0.0164)	(0.0057)	(0.0038)	(0.0024)
Mass Pardon × Same Surname	0.1178*	0.0561	0.0370***	0.0073	0.0048
	(0.0625)	(0.0424)	(0.0141)	(0.0096)	(0.0057)
Neighborhood FEs	Yes	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550	1,550	1,550
Mean Dep. Var.	0.7784	0.2612	0.0365	0.0163	0.0078
Observations	19,655,082	19,655,082	19,655,082	19,655,082	19,655,082

Notes: Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Family Connections

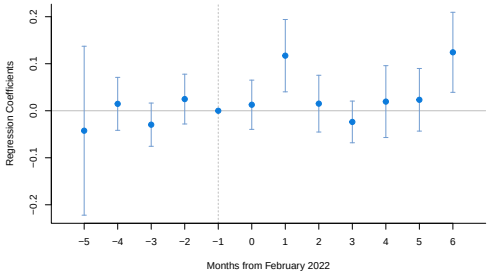
Input Surnames to Matched Controls Back

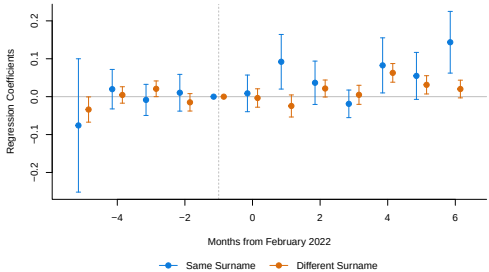




Family Connections

Input Surnames to Matched Controls Back





Lived Always in the Same Neighborhood

Back

	Arrest	Group Arrest	With RO (1yr)
	(1)	(2)	(3)
Mass Pardon	0.0264	0.0177	0.0122*
	(0.0355)	(0.0209)	(0.0072)
edad	-0.0335***	-0.0142***	-0.0029***
	(0.0015)	(0.0008)	(0.0003)
prev_arrest	4.105***	1.352***	0.3614***
	(0.0829)	(0.0430)	(0.0192)
Mass Pardon × Same Neighborhood	0.0965***	0.0584***	0.0151**
	(0.0324)	(0.0195)	(0.0070)
Neighborhood-Event FEs	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550
Mean Dep. Var	0.7784	0.2612	0.0365
Observations	19,655,082	19,655,082	19,655,082

Notes: The unit of observation is an individual-by-time pair. The time span goes between September 2021 and August 2022. Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Likelihood of Group Arrests

Back

	Arrest with a Released Offender			
	No	1 year	6 months	3 months
	(1)	(2)	(3)	(4)
Mass Pardon	0.0646***	0.0243***	0.0136***	0.0077***
	(0.0163)	(0.0057)	(0.0038)	(0.0024)
Neighborhood-Event FEs	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550	1,550
Mean Dep. Var. Dep	0.2612	0.0365	0.0163	0.0078
Observations	19,655,082	19,655,082	19,655,082	19,655,082

Notes: The unit of observation is an individual-by-time pair. The time span goes between September 2021 and August 2022. Standard errors clustered by neighborhood in parenthesis. *** $p < 0.01$, ** $p < 0.05$, and * $p < 0.1$.

Neighborhoods' Characteristics

Back

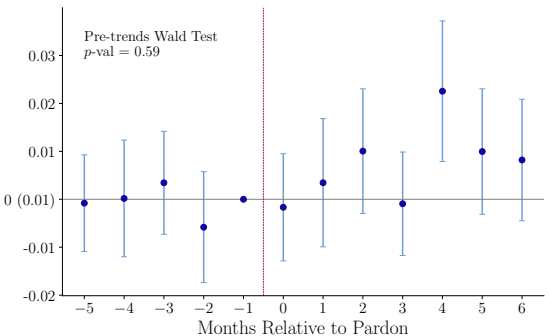
	Pr(Arrests) × 1000				
	(1)	(2)	(3)	(4)	(5)
Dev. Index	0.0274				
	(0.0292)				
Years of Education		0.0284			
		(0.0290)			
Any Employment			-0.0147		
			(0.0307)		
Formal Employment				0.0010	
				(0.0272)	
Dist. Police (ln+1)					-0.0592***
					(0.0176)
Neighborhood-Event FEs	Yes	Yes	Yes	Yes	Yes
Time FEs	Yes	Yes	Yes	Yes	Yes
N. Neighborhoods	1,550	1,550	1,550	1,550	474
Mean Dep. Var	0.7784	0.7784	0.7784	0.7784	0.7784
Observations	19,655,082	19,655,082	19,655,082	19,655,082	8,716,201

Criminal Partnerships

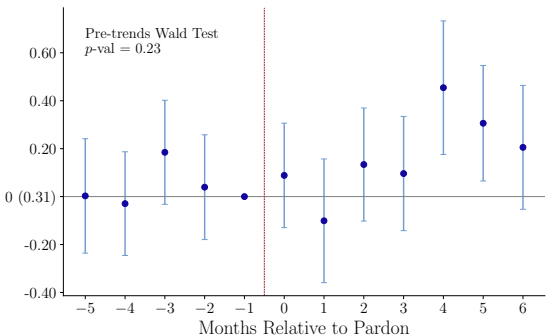
Back

Outcome: Pr(Arrested with a Released Offender)

Without Criminal Experience

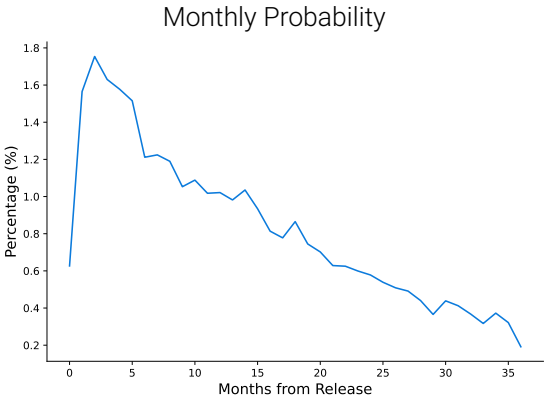


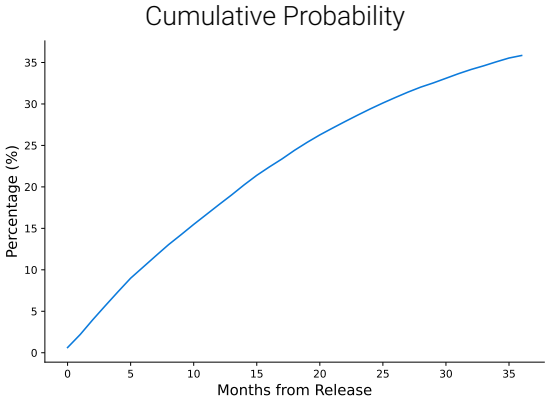
With Criminal Experience



Recidivism among Released Offenders

Back

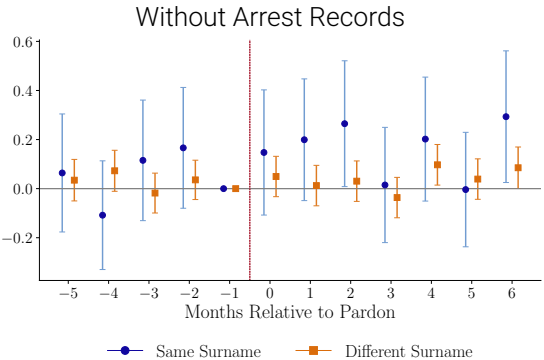


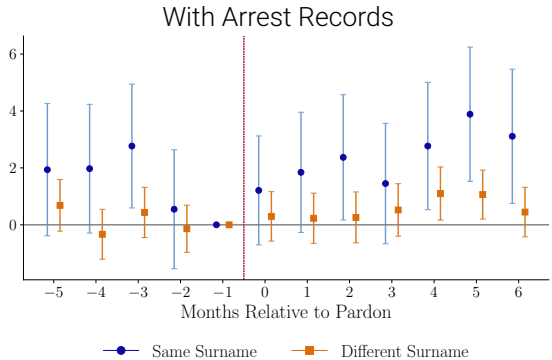


Are people committing crimes together with released offenders?

Family Networks

Dep. Var: Pr(Arrest) $\times 1,000$

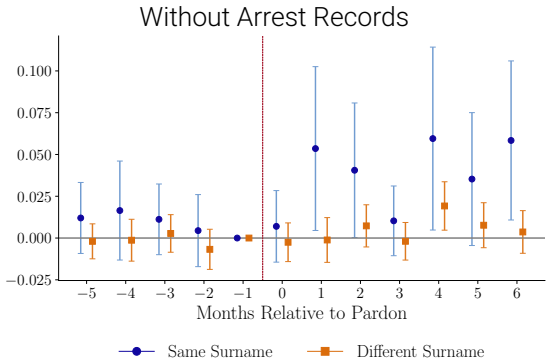


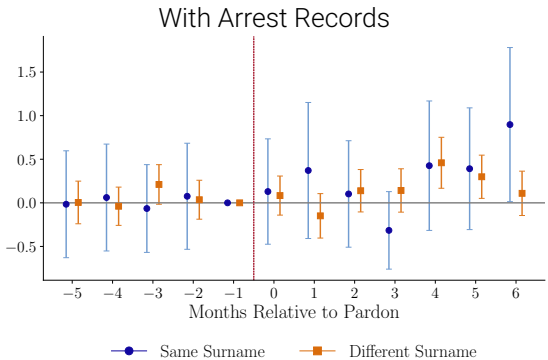


Back

Family Networks

Dep. Var: Pr(Arrest with Released Offender) $\times 1,000$

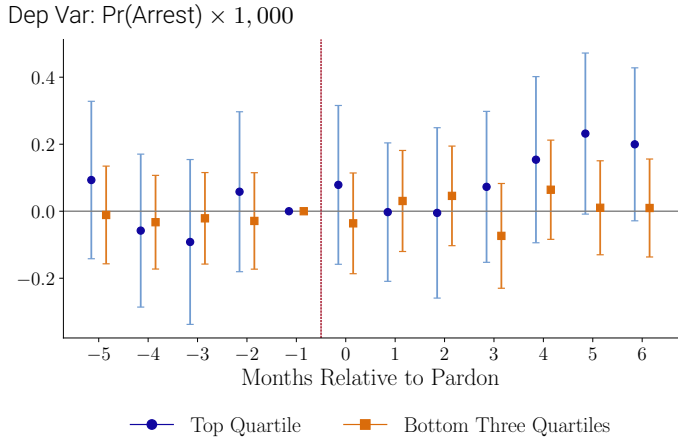




Back

Number of Previous Arrests

Back



Walt test: $\beta_{k\in[0,6]}$, p-value $= 0.24$. $\beta_{k\in[4,6]}$, p-value $= 0.25$