Prison release and community spread of COVID-19

Team A-009 Final Presentation

Research Question & Hypothesis

Research Question: What is the impact of prison population reduction policies on COVID-19 infection rates in the surrounding county population?

Hypotheses:

A. County-level COVID-19 rates are related to local prison populations

B. Counties with greater reductions in prison population will have lower COVID-19 infection rates

Background

Problem: Overcrowding, rapid turnover of inmates, and high daily foot traffic in jail and prison facilities may exacerbate spread

Policies to reduce incarcerated population:

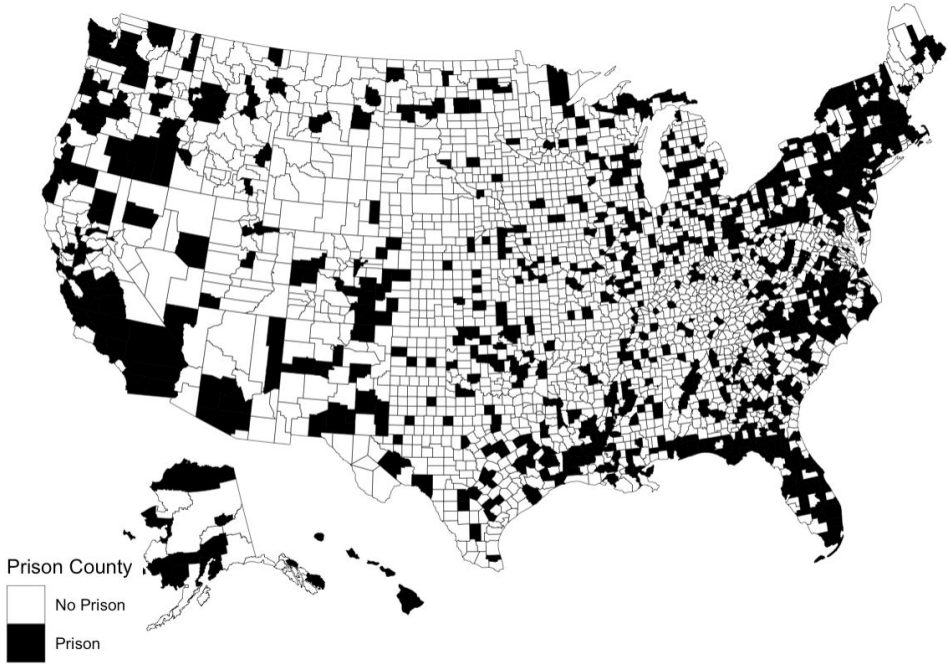
- Reduce admissions
- Release currently incarcerated (e.g. people who are medically vulnerable or nearing the end of their sentence)

Reducing the jailed population could be an effective way to minimize COVID-19 infection rates within jails and in the surrounding communities (Lofgren et. al., 2020)

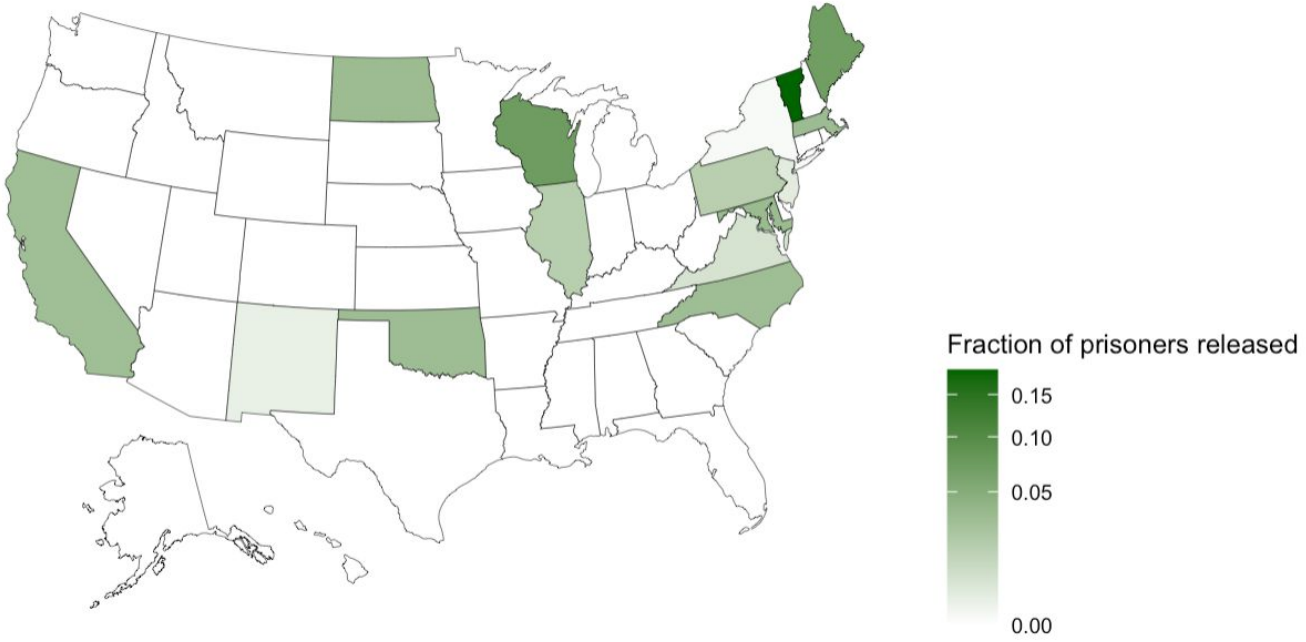
> "We can **save as many as 23,000 people in jail and 76,000 in the broader community** if we stop arrests for all but the most serious offenses and double the rate of release for those already detained."
>
> - The American Civil Liberties Union (ACLU)

We expand on existing research by looking at the relationship between reducing populations in *prisons* and the incidence of COVID-19 cases in surrounding counties.

Background: Prisons by county



Background: Fraction of prisoners released by state



Data Sources on incarceration population are limited

Jail and Prison Data

- Incarcerated COVID-19 rates
  - **The Marshall Project** data relies on testing availability, limited to some states
- Jail and prison population and release data
  - **UCLA Law Covid-19** Behind Bars Data Project - release rates over the entire state and among limited states*
  - **Vera Institute of Justice** (jail only)

State and County Data

- Rates of COVID-19 infection
  - **New York Times** Covid-19 Data (county level)
- **Census** tract data
  - County demographics, population density
- Indicator of a prison within county boundaries
  - **Homeland Infrastructure** Foundation Level Data

Relationship between infection rates and presence of local prisons

$$\Delta C \sim I_{prison\ county} + \rho + N$$

ΔC: Weekly county-level change in COVID-19 cases

$I_{prison\ county}$: indicator variable for prison county

ρ : population density

N: total county population

VARIABLES	(1) diff_cases
prison_county	10.400*** (3.396)
population_density	0.103*** (0.006)
tot_population	0.000*** (0.000)
Constant	-11.042*** (1.115)
Observations	111,865

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Empirical Model

Covariate controls in a generalized linear model (GLM)

$$\Delta C \sim r + p + d$$

ΔC: Weekly change in COVID-19 cases in prison county

r: Fraction of prisoners released statewide

p: Population controls (total population, population density, etc.)

d: Demographic controls (age, race, gender, etc.)

Results: Fraction released and county infection rates, with covariate controls

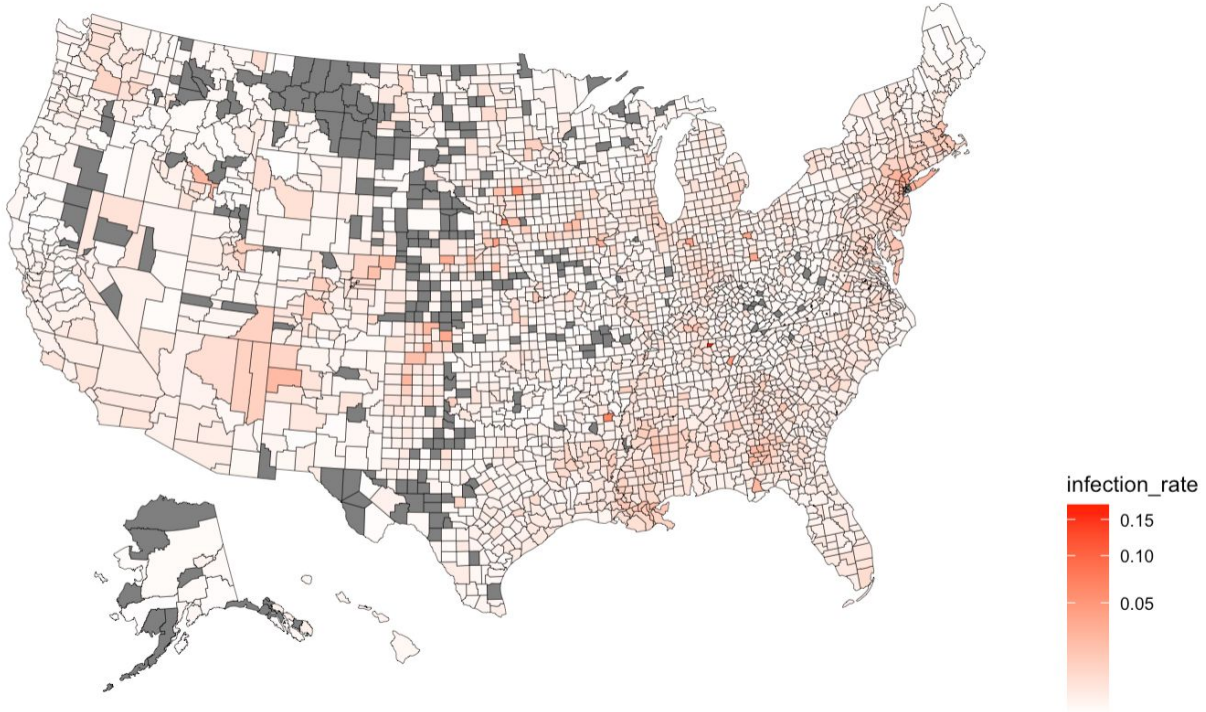
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)
VARIABLES	diff_cases	diff_cases	diff_cases
frac_released	-342.242***	-457.922***	-476.597***
	(48.482)	(51.594)	(52.383)
population_density	0.157***	0.157***	0.158***
	(0.007)	(0.007)	(0.007)
tot_pop	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)
prison_pop		0.006***	0.007***
		(0.002)	(0.002)
highrisk_agegroup_perc			277.201***
			(45.005)
Constant	-2.908	-9.075**	-61.013***
	(3.306)	(3.863)	(11.469)
AIC	14.64017	14.69915	14.6983
Observations	37,772	33,790	33,790

Limitations

Missingness

- General population COVID infection data
- Prison infection rates due to limited testing
- County-level or prison-level release information



Policy implications & areas for future research

Policy Implications

A better understanding of the relationship between prison release on population health may:

- Support policymakers to take the necessary measures to protect communities proximate to prisons
- Equip advocacy groups such as the Vera Institute and the ACLU to continue to advocate for policies to reduce the size of prison populations
- Help states better manage future disease outbreaks

Areas for Future Research

- Dig deeper into the nuances of release policies within states to isolate which policies most effectively reduce incarcerated populations in prisons
- Better understand the cost of policies and predict cost-benefit estimates

Sources: Github https://github.com/CindyXin97/MIT_COVID-19_Datathon

1. ACLU Analytics and Researchers from Washington State University, University of Pennsylvania, and University of Tennessee. COVID-19 Model Finds Nearly 100,000 More Deaths Than Current Estimates, Due to Failures to Reduce Jails. (2020). Retrieved from https://www.aclu.org/report/flattening-curve-why-reducing-jail-populations-key-beating-covid-19?redirect=covidinjails
2. (2020). Census Population Land Area. [Data file]. Available from https://github.com/ykzeng/covid-19/tree/master/data
3. (2020). Enriched Covid19 Data. [Data file]. Available from https://github.com/ringhilterra/enriched-covid19-data
4. Homeland Infrastructure Foundation Level Data. (2020). Prison Boundaries. [Data file]. Available from https://hifld-geoplatform.opendata.arcgis.com/datasets/2d6109d4127d458eaf0958e4c5296b67_0/data
5. Initiative, P. P. (2020). Prison Policy Initiative COVID-19 resources. Retrieved from https://www.prisonpolicy.org/virus/
6. Lofgren, E., Lum, K., Horowitz, A., Madubuonwu, B., & Fefferman, N. (2020). The Epidemiological Implications of Incarceration Dynamics in Jails for Community, Corrections Officer, and Incarcerated Population Risks from COVID-19. MedRxiv. doi: 10.1101/2020.04.08.20058842

Sources

7. New York Times. (2020). US Counties. [Data file]. Available from https://github.com/nytimes/covid-19-data.
8. Park, K., Meagher, T., & Li, W. (2020, April 24). Tracking the Spread of Coronavirus in Prisons. Retrieved from https://www.themarshallproject.org/2020/04/24/tracking-the-spread-of-coronavirus-in-prisons
9. The Marshall Project. (2020). Covid Prison Data. [Data file]. Available From https://github.com/themarshallproject/COVID_prison_data/tree/master/data
10. UCLA Law. (2020). Covid-19 Behind Bars Data Project. [Data file]. Available from https://law.ucla.edu/centers/criminal-justice/criminal-justice-program/related-programs/covid-19-behind-bars-data-project/
11. Vera Institute of Justice. (2020). Jail Population Data. [Data file]. Available from https://github.com/vera-institute/jail-population-data