# Private Prison Blues: The Effect of Private Prisons on Recidivism Rates and State Outcomes

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## Abstract

First adopted in the mid-1980s, private prisons offered a solution to states scrambling to house their growing prison population. Private prisons affect more than just the individuals incarcerated within them; contracting with private affects the whole prison system through reduced prison populations and spillover effects from private prisons' cost-saving measures. My paper explores how state use of private prisons between 2000-2019 affects state prison systems.

To estimate the impact of private prison openings on state recidivism rates and prison admissions, I use a generalized form of the traditional event study, the multiple event event study. I find that states that opened private prisons saw increased recidivism compared to their pre-adoption periods. Interestingly, the increased recidivism is not driven by a change in crime; it appears that the rise in prison admissions are increasingly the result of parole or probation violations. While private prisons may offer states short-run savings, my results suggest that they cause more churn through the criminal justice system, potentially costing the state more in the medium to long run.

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# 1  Introduction

Mass incarceration affects millions of people and costs the United States over \$81 billion dollars (Wagner and Rabuy, 2017). In 2019 the federal government and states incarcerated over 2 million people and supervised conditional release[1] for over 6 million people (Bureau of Justice Statistics, 2011). The United States' extensive incarceration rate results from the last forty years' substantial change to criminal justice policy. Since 1980, incarceration has increased 500 percent (Sentencing Project, 2019). Federal and state prison systems were unable to keep up with the rising level of incarceration and were quickly overwhelmed by the need for rapid expansion of prison capacity. Private prisons offer a solution to states grappling with rampant prison overcrowding. They bill themselves as providing the same prison services for a lower price and with the added benefit of eliminating the need to finance and construct new prisons.

Despite decades of use, private prisons are still a highly polarizing topic. Critics depict private prisons as willing to compromise quality and cut corners in the name of their bottom line. News articles detail harsh conditions where incarcerated people are frequently subjected to abuse and assault, sometimes resulting in death (Bauer, 2016; Davidson, 2016; NPR, 2016; Pauly, 2011; Williams, 2018). Cutting corners on prison services puts both incarcerated individuals and prison employees at risk. Private prisons have been accused of not hiring enough guards and poorly training the ones they do employ, resulting in more dangerous working and living conditions (Bauer, 2016). In this setting, incarcerated individuals may be less able to engage in rehabilitative programming geared toward helping them re-enter society. Subsequently, post-release, they may be less able to find employment and instead engage in criminal activity resulting in re-admission to prison.

Proponents of private prisons, however, praise the corporations' increased financial efficiency and argue that federal and state oversight ensures private prisons maintain prison quality, despite the reduced expenditures. Private prisons' main appeal continues to be their

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[1]Conditional release under the requirement of parole or probation

ability to supply prison services cheaply. Contracting with a private prison allows states to rapidly expand prison capacity without issuing new bonds or leveraging debt to fund a new prison facility's construction (Austin and Coventry, 2001; Kim, 2012). With more prison capacity available, states can be more responsive to crime and do not risk prison overcrowding when sending people to prison. With prisons less likely to be overcrowded, they are better equipped to provide services to incarcerated individuals, potentially reducing recidivism.

The history of private prisons in the United States is the history of mass incarceration in the United States. The rise of private prisons results from increasingly punitive policies, reduced rehabilitative efforts, and pressure to reduce government expenditures. Private prisons act as a shock to the state prison system and can potentially allow the prison system to operate more efficiently or inefficiently. Private prison adoption reduces the demands on and capacity of public prisons, allowing states to be more responsive to incarcerated individuals' needs and crime, potentially reducing recidivism and crime. However, if private prisons' cost-cutting behavior affects public prisons, the public prisons could be made worse, resulting in worse outcomes for recidivism and state crime rates. In this scenario, states would be sacrificing long-run financial benefits for short-term expenditure reductions. This paper evaluates how private prisons have affected state prison systems, not just the people who serve their time in private prison. By looking at how private prisons affect "churn" through the criminal justice system, we gain a greater understanding of the systems at play in creating and maintaining mass incarceration in the United States.

To evaluate how private prisons affect the state prison systems, I consider three outcomes, the state's 1-year recidivism rate, the number of prison admissions, and the crime rate. I built a panel of prisons and state' incarceration characteristics from the Census of State and Federal Faculties, a data from private prisons' 10-k filings[2], scraped state Department of Corrections data, the National Corrections Reporting Program Data, and the

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[2]This data was created by Anna Gunderson and featured in Gunderson (2020)

National Prison Statistics data. Employing an increasingly used[3], multiple event event study research design, I estimate the impact of private prison openings on states' 1-year recidivism rates.

The multiple event event study is a generalized form of the canonical event study from public and labor economics. The canonical event study only allows the researcher to estimate the effect of one event per unit of observation. Whereas the multiple event event study enables the researcher to leverage more variation by allowing for multiple events to occur per treated unit. In my context, the multiple event event study allows for states to open more than one private prison during my time frame. Due to data limitations[4], I cannot observe the first private prison opening in treated states. Under these limitations, the canonical event study estimates the impact of the first private prison opening since 2000 on state prison systems. However, the multiple event event study design enables me to estimate how the expansion of state private prison usage impacts state prison systems.

I find that private prison openings have increased recidivism among states that open private prisons in the last 19 years. This effect grows over time. Six to nine years after a private prison opens, 1-year recidivism rates are 8.6 percentage points larger than if a state had not opened a private prison. Interestingly, the increased recidivism is not driven by a change in crime; it appears that the rise in prison admissions are increasingly the result of parole or probation violations. These results suggest that private prisons systematically change state prison systems, making individuals less able to meet their parole or probation requirements. As more people "churn" through the criminal justice system and recidivate more frequently, the long-run cost to states increases.

By addressing private prisons on a larger scale than previously studied, I provide substantial contributions to the economics of crime. Prior work on private prisons evaluates them within one state and compares people incarcerated within private prisons to those in-

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[3](Abman and Lundberg, 2019; Allcott and Rafkin, 2021; Dube et al., 2011; Gnocato et al., 2020; Mayo, 2021; Romeo and Sandler, 2021; Sandler and Sandler, 2014; Sandler, 2017)

[4]The NCRP only connects individuals across stays in prison from 2000-2019, which I use to calculate recidivism

carcerated in public prisons (Bales et al., 2005; Bayer and Pozen, 2005; Lanza-Kaduce et al., 1999; Mukherjee, 2021; Spivak and Sharp, 2008). Rather than assessing how private prisons affect the individuals incarcerated in them, my paper assesses how private prisons affect state prison systems. States contract with private prisons to reduce overcrowding within a public prison; therefore, opening a private prison affects both individuals incarcerated in public and private prisons. My paper fills the gap in the literature by providing a quantitative estimate of the impact private prisons have on the prison system overall.

Finally, my work builds on the extensive literature on public-private partnerships within public economics. Private prisons provide a unique context to study the private provision of public goods and the principle agent problem. Compared to other applications within the literature, private prisons affect highly vulnerable populations, are subject to frequent information asymmetries, and experience high transaction costs. Understanding the relationship between the state, private prisons, and incarcerated peoples' outcomes provides insight into a complicated public-private partnership. If private prisons reduce rehabilitation and increase recidivism rates, they risk increasing the long-run stock of incarcerated individuals and cost the state more overtime. However, if they act as a release valve to an over-burdened prison system, they offer potential long-run benefits and save states even more money. By pinpointing the contract failure endemic in the private prison partnership problem, we gain a more nuanced understanding of public-private partnerships.

My paper offers a novel contribution to the existing literature by comparing public and private prisons in multiple states. Understanding the relationship between the states, private prisons, and incarcerated persons' outcomes provides insight into an unusual public-private partnership. My results suggest that the negative spillovers to the state prison system outweigh the benefits states receive in terms of additional capacity and lower prison populations. After a private prison opens, states overall recidivism rates increase in the medium to long run. The increased recidivism does not appear to be driven by a significant increase in crime or new commitments; instead, the increased prison admissions appear to

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result from higher rates of technical violations[5]. By increasing the churn of people through the prison system, private prisons are increasing the long-run cost of prisons for the state.

# 2 Background

## 2.1 The Rise of Prison Populations

The use of private prisons by the United States criminal justice system is intrinsically tied to mass incarceration and the rapid expansion in prison populations in the late 20th century. Before the explosion in prison populations, incarceration and the criminal justice system in the United States were dramatically different from their modern counterparts. The total state and federal prison populations were consistently below 200,000 incarcerated individuals, and a significant focus of incarceration was rehabilitation.

By the early 1980s, attitudes increasingly shifted to focus on a tough on crime, punishment-based approach to criminal justice, setting the stage for the United States' current crisis over mass incarceration. Between 1925-1981, prison populations grew at a rate of 2.4 percent (Bureau of Justice Statistics, 1982). Since 1980, the United States prison population has increased by over 500%, peaking in the mid-2000s at over 1.6 million incarcerated people (Bureau of Justice Statistics, 2011; Sentencing Project, 2021).

As the number of people admitted to prison rose, incarcerated individuals stayed in prison longer (Neal and Rick, 2016; Travis et al., 2014). The expansion of policing and convictions coincided with significant changes to legal ramifications for criminal offenses under the harsher sentencing policies of the 1980s-1990s. Sentencing reform increased sentence lengths, reduced the degree of judicial discretion in sentencing, and increased the degree of punishment for repeat offenders (Alexander, 2012; Gertner, 2020; Hinton, 2017; Ireland and Prause, 2005; Neal and Rick, 2016; Shepherd, 2002; Travis et al., 2014; Weinstein, 2003).

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[5]Technical violations are when an individual on parole or probation returns to prison or jail because they failed to comply with a parole/probation requirement. The specific violations that would result in returning to jail or prison depend highly on the state-assigned parole/probation officer's judgment.

The increasingly punitive criminal justice system directly contributed to the unprecedented increase in prison populations.

At the same time that prison systems were inundated with massive levels of overcrowding, they were also under increasing pressure to cut expenditures. To reduce government spending, the Reagan Administration prioritized privatizing public services. The 1988 President's Commission on Privatization recommended using private prisons to address prison overcrowding and rising incarceration costs (President's Comission on Privatization, 1988). Private prisons appealed to more than just the Presidential Commission. Their promise of cheap prison services and low-cost prison capacity appealed to states overwhelmed by rapidly increasing prison populations.

Private prisons counted on federal and state need to alleviate overcapacity prisons while attempting to reduce expenditures. Correctional Services Corporation[6] based the market analysis in their 10-K filings with the Security and Exchange Commission on federal and states' growing need for prison capacity due to the increasingly punitive sentencing practices (Securities and Exchange Comission, 2001).

## 2.2   Private Prisons

Four decades after the initial adoption of private prisons, they have contracted with all levels of correctional services. Thirty-one states, U.S. Immigration and Customs Enforcement, the Federal Bureau of Prisons, and numerous local governments have contracted with private prisons (Gunderson, 2020; Sentencing Project, 2019). Private prisons have served as immigrant detention centers, correctional facilities, pre-trial detention centers, jails, and halfway houses.

From an industrial organization perspective, the private prison market provides a unique setting for the private provision of public goods. Private prison providers operate in an oligopoly with two firms, CoreCivic (formerly Corrections Cooperation of America) and GEO

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[6]GEO Group went on to purchase Correctional Services Corporation (Tamapa Bay Business Journal, 2005)

Group, dominating the market. Two smaller providers, Management Training Company (MTC) and LaSalle Corrections operate in far fewer locations than CoreCivic and GEO Group [7]. The limited number of private prison providers creates a high degree of market concentration in the market for prison services. States, especially states that MTC and LaSalle do not operate in, have limited options in contracting for private prison services granting the private operates a high level of market power. While entering the private prison market for private providers requires the construction of costly physical infrastructure, they can re-contract with multiple government agencies when the prison's initial contract ends[8]. While states are constrained in the number of private providers they can contract with, the providers can continue to profit off their physical infrastructure as they re-contract with repeated government agencies.

Among the thirty-one states that contract with private prisons, reliance on private prison services varies widely. Reliance on private prisons varies widely among states. In 2017 among the states that contracted with private prisons, 14% of their prison populations were housed in private prisons. Some states, like New Mexico, rely on private prisons for 50% of their incarceration needs, while others only use one or two private prisons (Bureau of Justice Statistics, 2019; Sentencing Project, 2019).

Over decades of use, private prisons continue to appeal to budget-constrained states and government agencies. Compared to public prisons, private prisons are able to leverage cost-saving measures through a variety of channels for both prison construction and prison operation. Private prison providers leverage capital from investors, whereas raising funding for a new public prison requires legislative approval or a lengthy bond issue process (Austin and Coventry, 2001; Kim, 2012). Due to their ability to circumvent bureaucratic red tape

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[7]MTC operates in Arizona, California, Florida, New Mexico, Ohio, and Texas. They operate seven correctional centers and focus on providing medical services in prisons (Management Training Company, 2022). LaSalle Corrections operates in Louisiana, Texas, and Georgia, with only five correctional centers. Most of their services are contracted with local governments for jail services or county detention centers (LaSalle corrections, 2022)

[8]For example, Anna Gunderson's Private Prison 10-K filings data shows that the California City Correctional Center Contracted with the Bureau of Prisons from 2001-2009, then the Office of Federal Detention Trustees 2010-2012, and then began contracting with California Department of Corrections beginning in 2013.

and access investor capital, private providers construct prisons more quickly. It can take the government 5-6 years to construct a prison, while private providers may take less than three years (Austin and Coventry, 2001). Since the burden to finance the new prison construction falls on the private provider, governments can expand their prison capacity more quickly and fund the contract through their operations budget.

In addition, to their quick and low-cost construction, private prisons bill themselves as significantly cheaper to operate compared to their public counterparts. One of prisons largest expenditures is on staffing. Private prisons rely on non-union labor, which allows them to pay lower wages and provide less overall compensation, compared to public prisons (Austin and Coventry, 2001). Private prisons are, again, able to avoid bureaucratic red tape, when contracting for non-labor prison services, like food, supplies, etc. allowing them to further drive down the cost of prison operations. While, in a public prison the cost-savings would be re-invested in the prisons or services, in a private prison the cost-saving increase the firms profit.

Critics are concerned about the incentive for private prisons to maximize profits by cutting corners on the quality of prison services. Private providers have a history of attempting to maximize profits resulting in dangerous conditions for prison employees and prisoners alike (ACLU, 2011; Austin and Coventry, 2001). Private prisons across several states have had incidents where staffing shortages, limited resources, and a lack of oversight resulted in the deaths of people incarcerated in them, (Williams, 2018; Pauly, 2011; NPR, 2016). The critics contend that a lack of government oversight and profit-focused providers has resulted in dangerous conditions and no focus on the rehabilitative programming required for re-entry (ACLU, 2011).

Contracts between private prison providers and states highlight the incentive system that characterizes the principal-agent problem associated with private prison use. Private prisons are paid a base rate multiplied by the daily number of people incarcerated in their prisons. From that amount, the private prison must provide specific services to the indi-

viduals housed in their facilities (Morris, 2012). Services like building maintenance, guards, or medical care, constitute a fixed cost to the private prison in the short run. This system incentivizes private prisons to maximize the daily number of incarcerated people housed in their facilities. An empty bed does not generate revenue.

While maximizing the number of people in their custody maximizes revenues, to maximize the profits, private prisons need to minimize the variable costs associated with incarceration. Evidence shows that the cost-cutting measures taken by private prisons affect their quality. Hart et al. (1997) approaches private prisons theoretically, finding that the contract failure results in lower quality prisons with more violence and less focus on rehabilitation. More recent reporting private prisons support their conclusions (Williams, 2018; Pauly, 2011; NPR, 2016). Private prisons contracting with the Bureau of Prisons have more escapes and higher rates of illegal drugs found within the prisons (ACLU, 2011). In a qualitative study of Minnesota prisons, Greene (1999) found that individuals incarcerated in private prisons received lower rates of services, like educational programming or chemical dependency counseling. She finds that private classes and services are often offered only part-time, compared to the full-time offerings at public facilities.

In private prisons, cost minimization does not just mean minimizing expenditures on services; it means housing lower-cost individuals and transferring higher-cost individuals to public prisons. Over private prisons' tenure, there has been consistent evidence that private prisons use transfers to curate a lower-cost prison population (Morris, 2012; Kettl, 1988; Richard A. Oppel, 2011; Southern Poverty Law Center, 2017). Contracts specify a formal system by which the private prison operator may request a transfer to remove someone from their prison. However, the more widely used provision is a mandatory transfer resulting from an administrative change to custody level made by the private prison. Such a change can result from "disciplinary infractions or other behavior in the Facility; medical and psychiatric transfers" (Florida Bureau of Private Prison Monitoring, 2014). Several studies find evidence that private prisons use these provisions to 'cream skim' the lowest cost and least troublesome

people (Morris, 2012; Kettl, 1988; Richard A. Oppel, 2011; Southern Poverty Law Center, 2017). A person could be considered 'costly' in several regards: they could have higher medical needs or be more troublesome or violent. The adoption of private prisons, therefore, has the potential to shift the equilibrium composition of prison populations. Private prisons end up with lower cost, less troublesome populations, while the state prisons are left with higher cost, more troublesome or violent individuals.

Previous research on private prisons focuses on individual experiences (Bales et al., 2005; Bayer and Pozen, 2005; Lanza-Kaduce et al., 1999; Mukherjee, 2021; Spivak and Sharp, 2008). Private prisons appear to differ regarding access to services and programming. However, all of the prior studies evaluating private prisons' impact on recidivism compare individuals housed in private prisons to individuals housed in public prisons. Using individuals incarcerated in a public prison as the counterfactual for the treatment effect of a private prison may seem reasonable on the surface. However, this approach misses how private prisons affect public prisons.

The effect of a private prison on state prison systems and recidivism goes beyond the effect on the individuals incarcerated within the private prison. Opening a private prison shifts budget allocations, increases the state's total prison capacity, addresses overcrowding in state prisons, and systematically changes the type of person incarcerated in state prisons. Reducing the number of overcrowded public prisons may reduce the recidivism rate within state prisons. As public prisons are safer and provide services to a more manageable number of people, public prisons may see less recidivism. However, by changing the characteristics of public prison populations, the private prisons' cost-cutting behavior may spill over, eroding the benefits of less overcrowding. As private prisons transfer more costly or disruptive people to public prisons, the prisons may have to devote more resources to medical care or prison security rather than other services or rehabilitative programming.

# 3 Data

I rely on a panel of state prison systems from the Census of State and Federal Facilities, private prisons data from their financial reports[9], data pulled from states' Department of Corrections websites, the National Prisoner Statistics, and the National Corrections Reporting Program. Due to data limitations, my panel only runs from 2000-2019[10]. The panel contains indicators for the opening of a new private prison and the new private prison's capacity[11].

In my data set, I observe three types of states – states which opened a private prison between 2000-2019, i.e., treated states, states that have never used private prison services (i.e., never-takers), and states that opened private prisons before 2000, but not since (i.e., already-takers)[12]. Figure 1 contains a map depicting state's treatment status. Table 1 reports descriptive statistics about states' population and economic characteristics by treatment type and table 2 reports descriptive statistics about prison conditions by treatment type. Treated states have larger overall populations and prison populations than non-treated states. Treated state prisons have more capacity, admissions, and releases. While the sentences of people incarcerated in treated states are shorter than those incarcerated in never-taker and already-taker states, the time served is longer on average for those incarcerated in treated states. The final two columns in each table report the difference in means and p-test results for treated states versus never-taker states and treated states versus already-taker states. In both table 1 and table 2 treated states appear to be systematically different from never-takers and already-takers.

Due to the systematic differences between treated and non-treated categories, my anal-

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[9]Anna Gunderson created this data set using private prison providers SEC 10-K reports (Gunderson, 2020)

[10]The National Corrections Reporting Program data that connects individuals across repeated incarcerations is not available for all states before 2000

[11]My analysis focuses on private prison openings that would affect the average incarcerated adult, i.e., major adult correctional facilities. The private prison openings reflect the opening of all major privately owned facilities that house incarcerated adults.

[12]The following states do not report to the National Corrections Reporting Program from 2000-2019: Alaska, Arkansas, Connecticut, Hawaii, Idaho, Vermont, Virginia

ysis will consist of only treated states using variation in the timing of private prison opening for counterfactual analysis[13]. The treated states sample consists of eleven states that opened, on average, 1.7 private prisons from 2000-2019. Figure 2 contains panels illustrating the different variation types among treated states' private prison openings. Where panel A plots, the number of private prisons treated states open over my panel. One state, Arizona, opens three private prisons, while the remaining states are evenly distributed between one or two new private prison openings. Panel B is a cumulative distribution of all treated states' private prison openings from 2000-2019. States consistently opened new prisons starting in 2003, with the last prison opening in 2015. Panel C is a histogram of the new private prison capacity, and panel D scales the private prison capacity by the state's public prison capacity when the private prison opened. On average, the new private prisons reported a capacity of 1560 beds, representing an average of 5.8% of the current public capacity.

The treated states in my sample provide a unique context for an event study because multiple events occur, and I do not observe the first event for any state. The private prison openings from 2000-2019 reflect subsequent expansions of states' private prison capacity. Figure 3 illustrates the different circumstances surrounding a private prison opening. In figure 3, each panel captures a different aspect of prison characteristics for two states, Arizona and Florida. The vertical lines in each panel reflect a new private prison opening. Panels A and B contain Arizona's and Florida's yearly total prison admissions. Notably, admissions seem to trend differently, while Arizona's yearly prison admissions generally increase and Florida admission rates generally decrease. However, when we look at two measures of each state's incarcerated populations, panels C and D, both measures are trending upwards. The fact that both states' prison populations are increasing despite different admission trends illustrates the complicated stocks and flows associated with prisons. Decreasing admissions does not necessarily mean lower rates of incarceration. If states are increasingly punitive and

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[13]I run robustness checks in the main results section and appendix 2 to explore further using never-taker and already-taker states as control groups.

are less likely to release incarcerated people, admissions are reduced due to an incapacitation effect.

Figure 3 provides a case study to demonstrate the variation that would be lost in a canonical event study relying on only the first or largest observed prison opening in my time frame. Following the first private prison opening in Florida, yearly admissions increased; however, admissions decreased after the last private prison opening. If I only evaluated the impact of the first (observed) private prison opening, I would miss the impact the later private prison opening had on Florida's prison system. By using every private prison opening I observe from 2000-2019, I garner more variation and can comment more comprehensively on the impact private prisons have on state correctional services.

# 4    Research Design

The extensive history of private prisons' use provides a unique setting to estimate their impact. Private prison openings began in the mid-1980s, with the most recent private prison opening in 2015. However, my panel is limited from 2000-2019 by the National Corrections Reporting Program dataset. By 2000, every treated state had already opened its first private prison. While not the ideal setting to estimate the impact of a state's beginning to use private prisons, I can still evaluate how opening each subsequent private prison affects state prison systems. I use a generalized version of a canonical event study from public and labor economics that allows each unit of observation to experience multiple events. .

$$y_{st} = \sum_{p=-P, p\neq-1}^{P} \beta_p E_{st}^p + \alpha_s + \gamma_t + \epsilon_{st} \qquad (1)$$

$$i. \sum_s \alpha_s = 0$$

$$ii. \sum_{p=-9, p\neq-1}^{9} \beta_p E_{st}^p$$

Equation one lays out my main specification of the multiple event event study and the constraints built into the regression. In equation one, s indexes state, t indexes time, $E_{st}^p$ is an indicator equal to one in the p periods away from treatment and equal to zero otherwise, event

time $p$ runs from $[-9, 9]$ (i.e. 9 years before and 9 years after each private prison opening), $\alpha_s$ builds in state fixed effects, and $\gamma_t$ is time fixed effects. Constraint $i. \sum_s \alpha_s = 0$ normalizes the sum of the state fixed effect coefficients' to 0 and constraint $ii. \sum_{p=-9, p \neq -1}^{9} \beta_p E_{st}^p$ omits the period before the event (i.e. t=-1) for counterfactual interpretation. Under common event study assumptions, $\beta_p$ for $p >= 0$ estimates a dynamical causal effect of private prison openings $p$ periods after opening. Standard errors are bootstrapped[14].

Equation one is an extension of the typical two-way fixed effects event-study model from public and labor economics. The typical model allows for event timing and location variation but only allows one event per unit of observation. The generalization I use is increasingly used in applied economics literature (Abman and Lundberg, 2019; Allcott and Rafkin, 2021; Dube et al., 2011; Gnocato et al., 2020; Mayo, 2021; Romeo and Sandler, 2021; Sandler and Sandler, 2014; Sandler, 2017).

The multiple-event event-study model allows the event dummy variables to 'turn on' at multiple points. Essentially, an event time dummy can be 'on' (i.e., set to one) two periods before an event at the same time an event dummy is 'on' for four periods after a separate event. The dummies reflect simultaneously two periods before an event occurs and four periods after a different event occurs.

The assumptions for causal interpretation of the $\beta_p$ coefficients follow the traditional event study and difference-in-differences assumptions. There should not be any unobserved cofounders affecting recidivism rates when a private prison opens. Like the difference-in-differences parallel trend assumption, this means that absent the opening of a private prison, recidivism rates should not deferentially change for treated and untreated states. Similarly, there should not be anticipatory behavior affecting states resulting in changes to recidivism rates before the private prison opens.

Underlying my data are the three types of states: treated states, never-takers, and already-takers. Never-taker states have abstained from opening private prisons for the last

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[14]I do not cluster standard errors to the small cluster problem ?

forty years, while already-takers have not opened new private prisons in the last twenty years. Their actions suggest a systematic difference in either philosophy or needs from their prison services. Table 1 and 2 from the data section illustrates how never-taker or already-taker states are ill-suited control groups for treated states. Treated states are significantly larger than the non-treatment groups and have substantially larger prison systems.

Additionally, people incarcerated in treated states are sentenced for less time than those incarcerated in non-treated states. However, they spend more time in prison than individuals incarcerated in non-treated states. In the results section, Figure 6 illustrates the lack of pre-trends when using either never-takers or already-takers as a control group.

Instead of leveraging the counterfactual variation from a non-treated control group, my main specification uses states that have opened private prisons over the last 20 years. My economic and causal identification comes from time-based variation. Compared to variation, which includes a control group, statistical identification of a timing-based event study model without a control group, requires more restrictions to meet the matrix rank condition (Miller, 2022; Schmidheiny and Siegloch, 2020; Borusyak et al., 2022). To meet the matrix rank condition, I implement the following constraints: drop the constant, set sum of the state fixed effects, $\alpha_s$, to 0, set $E_{st}^{-1}$ to zero, and, following Schmidheiny and Siegloch (2020) the maximum lag and leads are binned. Figure 4 illustrates the pre-trends for the treated sample, where pre-event coefficients remain close to zero and indicate strong pre-trends before a private prison opening. In Appendix 2, I implement additional constraints to estimate pre-trends as suggested in Miller (2022).

Using a standard event study model[15] would reduce the variation available to me and affect the interpretation of my results. Between 1986 and 2019, 61 private major adult correction facilities opened; however, my data consists of only 19 openings. Of the 19 openings, six states opened more than one private prison. If I constrained myself to either the first opening after 2000 or the largest opening after 2000, I would be left with 11 openings.

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[15]I cannot use difference-in-difference estimation, because all of my treated states have been treated prior to my period

Furthermore, choosing to use only the first or largest openings affects the interpretation of results. Using the first private prison openings in my data is not the same as using the first private prison opening in the state. In this context, the estimates reflect the impact of states' first private prison opening since the 2000s. Using the largest private prison opening in my data instead results in a similar interpretation, i.e., the impact of opening the largest private prison since 2000 on state prison services.

Some researchers attempt a 'stacking' method where they create a new unit of observation for each event. For example, Georgia would be in my data twice, on Georgia for the first private prison opening and a second Georgia for the second private prison opening. The 'stacking' method embeds the assumption that the events are unrelated, which, while reasonable in some situations, it is not reasonable to assume private prisons open independently of each other. (Sandler and Sandler, 2014) show through monte carlo simulation that a 'stacking' method creates trends in both pre- and post-event outcomes, resulting in higher than the needed rejection of parameter estimates. The alternative, a multiple event event study design, allows me to take advantage of each private prison opening for treatment, embeds a connection between states' private prison openings, and uses the variation in event timing for a counterfactual identification.

## 5  Results

The main results for equation (1) are reported in figure 4 and table 3. The horizontal axis in figure 4 represents event time, with the vertical line intersecting the year before the event occurred at event-time p=-1. Each $\beta_p$ estimates the impact of being p periods away from a private prison opening on the rate at which people released from prison that year return to prison within a year. Prior to the private prison opening, there is limited evidence of pre-trends. Estimates hover around zero and have large confidence intervals. After the private prison opens, $\beta_p$ slowly increases with event time.

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When the private prison opens at event-time zero, $\beta_0$ is positive but statistically insignificant. Three years after a private prison opens, the estimates have increased and are statistically significant. At this point, $\beta_3 = 0.065$, meaning three years after a private prison opens, a state's one-year recidivism rates are 6.5 percentage points larger than if the private prison had not opened. This effect continues to grow with time until nine years after a private prison opens 1-year, recidivism rates have increased by 13 percentage points.

Calculating recidivism rates requires a lag in time proportional to the number of years for individuals to return. For example, calculating the 5-year recidivism rate for 2015 requires data on the number of people who return to prison from 2016 to 2020. To take full advantage of the data available, I report my results for 1-year recidivism rates. Appendix 1 contains results for event studies, which use 2, 3, and 5-year recidivism rates. Notably, the results look similar to figure 4; however, the results become less precise with each subsequent year of data needed.

Table 4 reports the results for the event study where years are binned to estimate short and medium-run average treatment effects. The years before the private prison opens are binned into one category (except the omitted year before the private prison opens). The immediate effects are measured from the year the private prison opens to two years after the private prison opens. As with table 3, the first two years following the opening of a private prison are economically and statistically insignificant. Again, as with the main specification, the results are statistically significant by year three. The short-run estimates of table 4 depict a 4.5 percentage point increase in recidivism rates over the 3 to 5 years following a private prison opening. The results, again, grow so that six to nine years after a private prison opens, recidivism has increased by 8.6 percentage points.

Another potential interpretation for the results is multiplying them by the number of people released each year following a private prison opening to calculate how many additional people return to prison due to the opening. Table 5 calculates the number of people released in event time for treated states and the one-year recidivism rate for the states in event time.

The estimated coefficients from table 5 are multiplied by the number of people released, resulting in the estimated number of people in a state that return to prison in 1 year due to a private prison opening. The 6.5 percentage point increase from table 5 translates to an additional 1,327 people returning to prison in the state three years after a private prison opens. The sum of the nine years following a private prison opens comes to an additional 15,809 people returning to prison within a year from their release.

Figure 5 takes table 5 one step further and illustrates observed recidivism and the estimated counterfactual recidivism in event-time. Observed recidivism is the average of the treated states ' one-year recidivism over event-time. Counterfactual recidivism subtracts the estimated coefficients from table 3, from the observed recidivism rate to estimate what recidivism would have been without a private prison opening. Notably, recidivism decreases before opening a private prison, but after opening a private prison, recidivism stops decreasing. The counterfactual recidivism plots show that absent a private prison opening, recidivism would have continued decreasing.

## 5.1 Specification and Robustness

As discussed in the data section, the sample used to estimate the main results consists of only states that opened private prisons during the observed time frame 2000-2018. In figure 6, already taker and never taker states are incorporated into the analysis. Panel A uses both already taker states and treated states to estimate the event study. Compared to figure 4, the pre-trends are dramatically different. Estimates are substantially higher than the coefficients estimated on only treated states. Estimates before and after treatment are much noisier and are never statistically significant. Panel B repeats the same analysis on never-taker and treated states. The pre-trends again are noticeably worse than treated states alone. Pre-trends are further tested in appendix 2, where the analysis is run with the added constraint that all pre-trends must average to zero. Notably, the pre-trends are worse when the never-takers or already-takers states are included in the calculations. Providing further

evidence that timing variation for treated only states serves as better controls than either never taker or already taker states.

To further verify the validity of figure 4's estimates, equation one is run on treated states using randomly generated private prison openings. Figure 7 plots the estimates from the placebo private prison openings. Estimates for both pre- and post-private prison opening lack any discernible trends. The placebo test provides further evidence that the estimates in figure 4 are not the product of unobserved aspects of the data because they are not reproduced with randomly generated events.

## 5.2   Heterogeneous Effects

Private prisons are a product of an overburdened and underfunded correctional system created by increasingly punitive criminal justice policies. To understand the nuanced impact of private prisons on recidivism, figure 8 plots the event-study analysis of state subgroups based on their criminal justice policies from 1999 and 2000. The estimates point to the results mainly being driven in states with harsher criminal justice policies. Suggesting that not only are the states more punitive in their policies, but the adoption of private prisons affects their prison systems more dramatically than states that have not adopted harsh policies.

Panels A and B separate states based on average sentences and average time served relative to the state medians. The panels diverge from the subsequent measures, as the relatively 'lenient' states have higher recidivism rates. However, the 'lenient' sentences and less time served also correspond to an increased churn through the prison system, allowing more frequent chances to recidivate. The subsequent panels illustrate a more cohesive picture, where the states with more punitive policies in 2000 have higher recidivism rates after opening a new private prison.

Sentencing reform affected the length of time individuals were incarcerated and their eligibility for parole. Previously incarcerated people were granted 'discretionary parole' on a highly individualized basis (Huges et al., 2001; Ireland and Prause, 2005). Decisions made

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by the parole board[16] did not follow a systematic approach, changing from parole board to parole board. Mandatory parole policies and Truth in Sentencing laws attempted to systematize the parole system by reducing parole board discretion and standardizing the portion of a sentence incarcerated people were required to serve in prison.

Panels C and D separate states based on their standardization of parole procedures. Panel C separates states based on their use of discretionary parole. In the states that eliminated discretionary parole, incarcerated people are granted parole based on a time specified in their initial sentence. Panel D separates states based on 'Truth in Sentencing' legislation, which removes judicial discretion by requiring incarcerated people to serve at least 85% of their sentence in prison. Panels C and D illustrate that states, where incarcerated people serve more of their sentence in prison, see higher recidivism rates due to private prison adoption.

Another element of sentencing reform's increasingly punitive policies is depicted in panel E, where states are separated based on their adoption of Three Strike Laws by 2000. Three Strike Laws aimed to increase detention and incapacitation of 'career criminals' who habitually committed violent crimes by triggering mandatory harsh sentences upon a third violent offense (Prison Policy Initiative, 1998)[17]. Like panels C and D, panel E illustrates that private prison openings strongly affect the recidivism rate for states that had adopted Three Strike Laws by 2000.

Panel F summarizes the analysis by creating an aggregate measure of criminal justice severity. States that belong to three or more of the previous five 'harsh' sub-groups[18] are categorized as 'More Overall Punitive', and states belonging to two or less of the sub-groups

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[16]Objections to discretionary parole were two-fold; first, critics argued that the high degree of control granted to the parole board could result in unfair decisions. Concerns specifically referenced potential violations of the 14th Amendment's Equal Protection Clause if Black parole applicants were systematically granted parole differently than White parole applicants (Ireland and Prause, 2005). Critics' second concern stemmed from the increasing frequency with which incarcerated people served small portions of their full sentences. Ireland and Prause (2005) cite individuals as serving as little as 30% of their sentence.

[17]The actual contents of the laws varied significantly by state. Different laws consisted of variations in qualifying offenses, mandatory sentence lengths, and degree of judicial discretion.

[18]Higher than average sentences, higher than average time served, eliminated discretionary parole, enacted Truth-in-Sentencing Laws, or enacted Three strike Laws

are 'Less Overall Punitive'. The panel shows that the more punitive states have far larger reactions to private prison adoption, while the less punitive states have no reaction. Appendix 5 contains detailed plots of each sub-group with confidence intervals. The results suggest that private prison adoption has the largest effect on states that incarcerated people the longest.

# 6    Discussion

Private prisons take time to affect the prison system fully. On the private prison side, at year zero, private prisons will still be working up to their equilibrium population (Securities and Exchange Comission, 2001). Very few people will have been housed in the new prison, and even fewer will have been released the same year. A similar story plays out for recidivism one year after a private prison opens. The average sentence in my sample is around 64 months or 5 years. For someone to be considered in the recidivism rate for one year after a private prison opens, they must have been released that year. Most people released that year will have been incarcerated for more than a year and will have served a minority of their sentence in a private prison at release. As such, it makes sense that we do not see notable effects for the year a private prison opens and the year after.

By the second and third year, more people will not only have spent time at a private prison before release, but the amount of time they can have spent at the prison will be longer. The farther away from event time, the more likely an individual being released will have not only served time at a private prison, but served a larger proportion of time in a private prison. For example, suppose an individual serves five years in prison but is released three years after a private prison opens. In that case, the maximum time the private prison could have housed them is three years, whereas if they are released seven years after a private prison opens, they could have served their full sentence at the private prison. The growing

trend is two-fold due to the larger number of released from a private prison and the increased amount of time they can have spent in a private prison.

This scenario illustrated above only considers people housed in a private prison, but adopting a private prison also affects conditions in a public prison. Private prisons have a strong incentive to curate a prison population of lower-cost individuals. Opening a new private prison affects public prison populations by reducing overcrowding and altering the composition of individuals incarcerated within the public prison, leaving the state to house more costly individuals.

A similar dynamic effect to the private prison occurs for individuals incarcerated in public prisons. The new equilibrium population composition may not have entirely shifted one year after a private prison opens. The individuals released that year will only have been exposed to the new system for one year out of the entire time they have spent incarcerated. Whereas five years after a private prison opens, a new equilibrium will likely have been reached. Individuals incarcerated in public prisons will have served a more significant portion of their time under these conditions. As discussed in the background section and demonstrated by the event study results, the systematic changes after a private prison opens require dynamic analysis to appreciate the changing landscape of prison services.

## 6.1 Mechanisms

My paper demonstrates that private prison adoption results in higher rates of recidivism. While an interesting result, higher recidivism does not provide a clear direction for policymakers. If the high rates of recidivism result from a more efficient or responsive criminal justice system, the increase may reflect an improvement in the prison system. However, if the recidivism results from higher rates of crime induced by lower quality prisons, the high recidivism reflects a less efficient prison system. Similarly, lower-quality prisons may induce higher rates of recidivism if formerly incarcerated people are less prepared to meet the conditions of their parole.

To explore this issue, I use equation one to estimate the effect of private prison openings on state homicide rates. A notable change in the state homicide rate would indicate that private prisons are either increasing the criminality of the formerly incarcerated, or a decreasing rate may indicate that private prisons allow for increased incarceration of individuals prone to violent crime. Figure 9 plots the estimated effects of private prisons on homicide, where Panel A estimates the effects on the number of homicides and Panel B estimates the effects on homicides per 100,000 state residents. Panel A shows no statistically significant change in the homicide rate following privet prison adoption. Towards the end of the panel, there is a slight increase in the coefficients. However, the estimates are not statistically significant and revert to near zero nine years after a private prison opens.

Similarly, except for the tails, Panel B's estimates are not statistically significant. The one statistically significant estimate nine years after a private prison opens is not economically significant. Nine years after a private prison opened, fewer than one person per 100,000 residents dies by homicide. These estimates suggest that the increased recidivism caused by private prison adoption has not meaningfully reduced violent crime, nor is it the result of higher rates of violent crime.

To dig deeper into the cause of increased recidivism, I turn to how private prison adoption affects the reason for admission to prison. The reason for admission to prison can be broken down into broad categories: new commitment[19], return a conditional release[20] or rarer issues, like returning on bond or escape. Return from a conditional release can be broken down into two additional categories, return with a new sentence or return on the same sentence. A new sentence can indicate that a new crime was committed, and a return with the same sentence indicates a return for a technical violation, i.e., a return for violating the terms of the conditional release. A technical violation often results in a re-admission to prison for something someone not on conditional release could not be incarcerated for.

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[19]A new sentence unrelated to a previous stay in prison

[20]return from parole, probation, or another conditional release with Department of Corrections oversight while not incarcerated

Conditional release requirements can include an employment or education condition or a curfew. A technical violation would result in a formerly incarcerated person returning to prison not for committing a new crime but due to an inability to find employment.

Figure 10 contains the plots for the results of private prison adoption on the reason for admission to prison. Panel A plots the number of people entering prison for new commitments unrelated to a previous incarceration, panel B plots the number of people returning to prison from conditional release, and panel C plots the number of people returning to prison from conditional release with a new sentence, and panel A plots the number of people returning to prison from conditional release with the same sentence. There is a slightly positive trend for panel A; however, the coefficient estimates are statistically insignificant. Panel B shows a positive trend in returns from conditional release following a private prison adoption; however, the estimates are not statistically significant until six years after a private prison opens. Six years following a private prison adoption, slightly over 10,000 additional people return to prison from conditional release. Panel A estimates suggest that of those additional 10,000 people returning from conditional release, almost 2,000 of them are returning on a new sentence. Panel B's estimates explain that a little over 8,000 individuals are returning to prison from conditional release on the same sentence.

Appendix 4 contains additional insight into the changes in the state prison system, where I regress the private prison opening on issues related to prison conditions. Private prisons appear to be a mechanism to control overcrowding. Figure A4.6 demonstrates that following a private prison opening, the rate of people in public custody to public capacity falls. Figure A4.5 shows that the number of people in private custody increases as expected following a private prison's opening. We see an initial leveling off of people in public custody. However, three to six years following a private prison opening, the number of people in public custody increases again. However, figure A4.4 shows that the increase in people in public custody does not increase the overcrowding in public prisons. Overall, private prisons do not

appear to affect the number of people the state sends to prison, as the number of individuals under state jurisdiction increases before and after a private prison opening.

# 7 Conclusion

Two elements characterize the debate over private prisons, their effectiveness at saving the state money and their impact on the incarcerated individuals. Central to both questions is the ability of the formerly incarcerated to re-enter society successfully. Recidivism rates speak to the long-run costs to states in terms of their future prison populations and the quality of services individuals receive while incarcerated. In contrast with previous work evaluating private prison quality relative to state prisons, I focus on how private prison openings affect all people incarcerated within a state. My results demonstrate that not only do private prison openings increase recidivism rates, but recidivism does not appear to be driven by more crime. Instead, I find evidence that the the higher rates of recidivism are due to more formerly incarcerated people returning to prison due to technical violations.

The mechanism behind the increase in recidivism speaks directly to the question of cost-effectiveness and individual experience. If state adoption of private prisons is a product of either financial or capacity constraints, then in the short-run private prions appear to offer a simple solution. However, in the long-run, private prisons do not provide long-term benefits to states. Private prison openings induce higher aggregate levels of recidivism for all prisons, increasing the number of people admitted to prisons and the number of people admitted to prison from supervised release without a new sentence. More people churning through the criminal justice system will directly increase the cost to the state. Rather than saving the states' money, private prisons increase the churn of offenders through the prison system.

The high recidivism rates directly affect incarcerated individuals, inflating incarceration's collateral cost. Formerly incarcerated people face tremendous obstacles when leaving

prison. Increasingly, they leave prison under 'correctional control', i.e., parole, where actions that do not typically result in incarceration can for the formerly incarcerated on parole. While parole requirements vary from state to state and person to person, requirements, like repayment plans for debt accumulated due to incarceration[21], curfews, or mandatory educational programming are common for community supervision (Klingele, 2013). The difficulty that the formerly incarcerated face when trying to find employment is well documented in all strains of the literature (Harm and Phillips, 2001; Holzer et al., 2006; Lindsay, 2022; Pager, 2003; Western and Sirois, 2019). Despite the challenges in finding employment, formerly incarcerated individuals are expected to begin paying back debt immediately. Returning to prison, even for a short period, can alienate potential employers and upset an already delicate family structure.

Incarceration and re-entry also affect the families of the incarcerated person. The negative effect of incarceration on families is well documented in the literature (McCauley, 2020; Wakefield and Wildeman, 2013; Wildeman, 2009). In terms of economic consequences, the incarcerated parent no longer contributes financially to the family, and in many states, incarceration pauses child support payments (National Conference of State Legislatures, 2022). Additionally, the incarceration of a loved one is incredibly costly to families. In addition to costs associated with visiting an incarcerated loved one, families or the incarcerated must pay to communicate. Phone calls, emails, and video calls are priced per minute (Wagner and Jones, 2019). To send an incarcerated person money to cover the cost of phone calls, emails, and video calls also comes with a fee. Prison Policy Initiative estimates JPay[22] takes an average 10% fee on money transfers (Raher and Herring, 2021). In 2015, they made 53 million dollars in fees. Every time someone returns to prison, the family of the incarcerated pays the costs all over again.

The cost of incarceration and the profit to private companies go beyond state contracts

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[21]Formely incarcerated people often leave prison with criminal justice financial obligations (CJOs). CJOs serve both to recoup the costs of trial and incarceration but also to serve as additional punishment for the offender (Martin et al., 2017).

[22]The company that manages money transfers to incarcerated people, among other services.

with private prisons. I show the systematic effect of a private prison opening ripples through the entire state carceral system. High recidivism is more costly to the state, and the higher incarceration rates increase the financial cost to the families of incarcerated people. For all the increased costs, it appears that the increased recidivism is primarily due to more people returning to prison on technical violations, not increased criminality.

The United States incarcerates more people per capita than any other country in the world, with the low-end estimates of the criminal justice system costing over 80 billion dollars a year (Wagner and Rabuy, 2017; Sentencing Project, 2021). Compared to the previous forty years, 'tough on crime' approach to criminal justice, society is increasingly looking for long-term solutions to mass incarceration. In contrast to the 1994 Violent Crime Control and Law Enforcement Act, which provided federal funding to states that adopted Truth in Sentencing laws, President Biden's 2023 budget included federal funding for states implementing programs that reduce reliance on police and prisons (Eisen and Stroud, 2022). A product of the 'tough on crime' criminal justice system, private prisons fail to reduce the long-term costs of incarceration and state reliance on prisons.

# References

Abman, R. and C. Lundberg (2019). Does free trade increase deforestation? the effects of regional trade agreements. *Journal of the Association of Environmental and Resource Economists 7*(1).

ACLU (2011). Banking on bondage: Private prisons and mass incarceration. https://www.aclu.org/banking-bondage-private-prisons-and-mass-incarceration.

Alexander, M. (2012). *The New Jim Crow: Mass Incarceration in the Age of Colorblindness*. The New Press.

Allcott, H. and C. Rafkin (2021). Optimal regulation of e-cigarettes: Theory and evidence. *NBER*.

Austin, J. and G. Coventry (2001). Emerging issues on private prisons. Technical report, National Council on Crime and Delinquency.

Bales, W. D., L. E. Bedard, S. T. Quinn, D. T. Ensley, and G. P. Holley (2005). Recidivism of public and private state prison inmates in florida. *Criminology and Public Policy 4*(1), 57–82.

Bauer, S. (2016). My four months as a private prison guard. https://www.motherjones.com/politics/2016/06/cca-private-prisons-corrections-corporation-inmates-investigation-bauer/.

Bayer, P. and D. E. Pozen (2005). The effectiveness of juvenile correctional facilities: Public versus private management. *The Journal of Law and Economics 48*(2), 549–589.

Borusyak, K., X. Jaravel, and J. Spiess (2022). Revisting event study designs: Robust and efficient estimation.

Bureau of Justice Statistics (1982). Prisoners 1925-1982. Technical report, Bureau of Justice Statistics.

Bureau of Justice Statistics (2011). Prisoners 2009. Technical report, Bureau of Justice Statistics.

Bureau of Justice Statistics (2019). Prisoners 2017. Technical report, Bureau of Justice Statistics.

Davidson, J. (2016). Private federal prisons – less safe, less secure. https://www.washingtonpost.com/news/powerpost/wp/2016/08/12/private-federal-prisons-less-safe-less-secure/?utm_term=.a992bc7cc16e.

Dube, A., E. Kaplan, and S. Naidu (2011). Coups, corporations, and classified information. *The Quarterly Journal of Economics 136*(3), 1375–1409.

Eisen, L.-B. and H. D. Stroud (2022). Securing public safety without mass incarceration or deepening racial injustice.

Florida Bureau of Private Prison Monitoring (2014). Operations and management service contract bay correctional facility.

Gertner, N. (2020). A short history of american sentencing: Too little law, too much law, or just right. *Journal of Criminal Law and Criminology 100*(3).

Gnocato, N., F. Modena, and C. Tomasi (2020). Labor market reforms and allocative efficiency in italy. *Labour Economics 67*.

Greene, J. (1999). Comparing private and public prison services and programs in minnesota: Findings from prisoner interviews. *Currrent Issues in Criminal Justice 11*(2), 202–232.

Gunderson, A. (2020). Why do states privatize their prisons? the unintended consequences of inmate litigation.

Harm, N. J. and S. D. Phillips (2001). You can't go home again: Women and criminal recidivism. *Journal of Offender Rehabilitation 32*(3), 3–21.

Hart, O., A. Shleifer, and R. W. Vishny (1997). The proper scope of government: theory and an application to prisons. *The Quarterly Journal of Economics 112*(4), 1127–1161.

Hinton, E. (2017). *From the War on Poverty to the War on Crime: The Making of Mass Incarceration in America*. Harvard University Press.

Holzer, H. J., S. Raphael, and M. A. Stoll (2006). Perceived criminality, criminal background checks, and the racial hiring practices of employers. *The Journal of Law and Economics 49*(2), 451–480.

Huges, T. A., D. J. Wilson, and A. J. Beck (2001). Trends in state parole, 1990-2000. Technical report, Bureau of Justice Statistics.

Ireland, C. S. and J. Prause (2005). Discretionary parole release: Length of imprisonment, percent of sentence served, and recidivism. *Journal of Crime and Justice 28*(2), 27–49.

Kettl, D. F. (1988). *Government by Proxy: (Mis)managing Federal Programs*.

Kim, Y. (2012). Local, state, and federal prison privatization. In B. E. Price and J. C. Morris (Eds.), *Prison Privatization: The many Facets of a Controversial Industry. Volume 1: The Environment of Private Prisons*, pp. 23–41. ABC-CLIP, LLC.

Klingele, C. (2013). Rethinking the use of community supervision. *Journal of Criminal Law and Criminology 103*(4).

Lanza-Kaduce, L., K. F. Parker, and C. W. Thomas (1999). A comparative recidivism analysis of releasees from private and public prisons. *Crime and Delinquency 45*(1), 28–47.

LaSalle corrections (2022). Our locations. https://lasallecorrections.com/locations/.

Lindsay, S. L. (2022). Damned if you do, damned if you don't: How formely incarcerated men navigate the labor market with prison credentials. *Criminology*, 1–25.

Management Training Company (2022). Where we help people. https://www.mtctrains.com/corrections-medical-services/#division-map.

Martin, K. D., S. S. Smith, and W. Still (2017). Shackled to debt: Criminal justice financial pbligations and the barriers to re-entry they create. Technical report, National Institute of Justice.

Mayo, J. (2021). How do big gifts affect rival charities and their donors? *Journal of Economic Behavior and Organization 191*, 575–597.

McCauley, E. (2020). Beyond the classroom: The intergenerational effect of incarceration on children's academic and nonacadmic school-related outcomes in high school. *Socius: Sociological Research for a Dynamic World 6*, 1–13.

Miller, D. (2022). An introductory guide to event study models.

Morris, J. C. (2012). Government and market pathologies of privatization: The case of private prisons. In B. E. Price and J. C. Morris (Eds.), *Prison Privatization: The many Facets of a Controversial Industry. Volume 1: The Environment of Private Prisons*, pp. 23–41. ABC-CLIP, LLC.

Mukherjee, A. (2021). Impacts of private prison contracting on inmate time served and recidivism. *American Economic Journal: Economic Policy 13*(2), 408–438.

National Conference of State Legislatures (2022). Child support and incarceration. Technical report.

Neal, D. and A. Rick (2016). The prison boom and sentencing policy. *Journal of Legal Studies 45*.

NPR (2016). Investigation into private prisons reveals crowding, under-staffing and inmate deaths. https://www.npr.org/2016/08/25/491340335/investigation-into-private-prisons-reveals-crowding-under-staffing-and-inmate-de.

Pager, D. (2003). The mark of a criminal record. *American Journal of Sociology 108*(5), 937–985.

Pauly, M. (2011). A brief history of america's private prison industry. https://www.motherjones.com/politics/2016/06/history-of-americas-private-prison-industry-timeline/.

President's Comission on Privatization (1988). Privatization: Towards more effective government.

Prison Policy Initiative (1998). 'three strike' laws: Five years later.

Raher, S. and T. Herring (2021). Show me the money: Tracking the companies that have a lock on sending funds to incarcerated people.

Richard A. Oppel, J. (2011). Private prisons found to offer little in savings. `https://www.nytimes.com/2011/05/19/us/19prisons.html?_r=2&ref=us`.

Romeo, C. and R. Sandler (2021). The effect of debt collection laws on access to credit. *Journal of Public Economics 195*.

Sandler, D. (2017). Externalities of public housing: The effect of public housing demolitions on local crime. *Regional Science and Urban Economics 62*, 24–35.

Sandler, D. and R. Sandler (2014). Multiple event studies in public finance and labor economics: A simulation study with applications. *Journal of Economic and Social Measures 39*, 31–57.

Schmidheiny, K. and S. Siegloch (2020). On event studies and distributed-lags in two-way fixed effects models: Identiffcation, equivalence, and generalization.

Securities and Exchange Comission (2001). Correctional services corporation - form 10-k. `https://www.sec.gov/Archives/edgar/data/914670/000107261302000573/form10-k_11125.txt`.

Sentencing Project (2019). Private prisons in the united states. Technical report, The Sentencing Project.

Sentencing Project (2021). Private prisons in the united states. Technical report, The Sentencing Project.

Shepherd, J. M. (2002). Police, prosecutors, criminals, and determinate sentencing: The truth about truth-in-sentencing laws. *Journal of Law and Economics 54*(2).

Southern Poverty Law Center (2017). Private prisons: The wrong choice for alabama. Technical report, The Southern Poverty Law Center.

Spivak, A. and S. Sharp (2008). Inmate recidivism as a measure of private prison performance. *Crime and Delinquency 54*(3), 482–508.

Tamapa Bay Business Journal (2005). Juvenile correctional services business acquired.

Travis, J., B. Western, and S. Redburn (2014). *The Growth of Incarceration in the United States: Exploring Causes and Consequences*. National Academies Press.

Wagner, P. and A. Jones (2019). State of phone justice: Local jails, state prisons, and private phone providers. `https://www.prisonpolicy.org/phones/state_of_phone_justice.html#:~:text=The`.

Wagner, P. and B. Rabuy (2017). Following the money of mass incarceration. `https://www.prisonpolicy.org/reports/money.html`.

Wakefield, S. and C. Wildeman (2013). *Children of the Prison Boom: Mass Incarceration and the Future of American Inequality.* Oxford University Press.

Weinstein, I. (2003). Fifteen years after the federal sentencing revolution.

Western, B. and C. Sirois (2019). Racialized re-entry: Labor market inequality after incarceration. *Social Forces 97*(4), 1517–1542.

Wildeman, C. (2009). Parental imprisonment, the prison boom, and the concentration of childhood disadvantage. *Demography 46*(2), 265–280.

Williams, T. (2018). Inside private prison: Blood, suicide and poorly paid guards. https://www.nytimes.com/2018/04/03/us/mississippi-private-prison-abuse.html.

# Tables

## Table 1: State Characteristics by Treatment Type

| | All States | Treat | Never-Taker | Already-Taker | Private - Never-Taker | Private - Already-Taker |
|---|---|---|---|---|---|---|
| Population | 6,739,363 | 11,906,536 | 7,079,695 | 3,591,289 | 6,868,966*** | 8,315,246*** |
| | (7,157,186) | (10,314,949) | (7,450,026) | (861,386) | (0.00) | (0.00) |
| | [779] | [209] | [703] | [76] | | |
| Percent Black | 11.59 | 11.66 | 10.47 | 21.90 | 1.69** | -10.23*** |
| | (9.76) | (7.72) | (8.59) | (13.39) | (0.03) | (0.00) |
| | [574] | [154] | [518] | [56] | | |
| Percent White | 83.20 | 81.67 | 84.18 | 74.11 | -3.57*** | 7.56*** |
| | (9.47) | (6.64) | (8.61) | (12.01) | (0.00) | (0.00) |
| | [574] | [154] | [518] | [56] | | |
| State Minimum Wage | 6.62 | 6.48 | 6.64 | 6.41 | -0.23* | 0.07 |
| | (1.44) | (1.42) | (1.47) | (1.13) | (0.06) | (0.68) |
| | [779] | [209] | [703] | [76] | | |
| Median Household Income (2017 Dollars) | 57,289 | 54,674 | 58,257 | 48,334 | -5,099*** | 6,340*** |
| | (8,431) | (6,359) | (7,998) | (6,968) | (0.00) | (0.00) |
| | [697] | [187] | [629] | [68] | | |
| Unemployment rate | 5.65 | 5.92 | 5.54 | 6.62 | 0.54*** | -0.70** |
| | (2.02) | (1.99) | (1.98) | (2.09) | (0.00) | (0.01) |
| | [779] | [209] | [703] | [76] | | |
| Poverty Rate | 12.68 | 14.38 | 12.24 | 16.73 | 3.05*** | -2.35*** |
| | (3.37) | (2.83) | (3.01) | (3.82) | (0.00) | (0.00) |
| | [779] | [209] | [703] | [76] | | |
| Democratic Governor | 0.42 | 0.32 | 0.43 | 0.30 | -0.16*** | 0.01 |
| | (0.49) | (0.47) | (0.50) | (0.46) | (0.00) | (0.83) |
| | [779] | [209] | [703] | [76] | | |
| Fraction of State House that is Democrat | 0.49 | 0.45 | 0.48 | 0.57 | -0.04*** | -0.12*** |
| | (0.16) | (0.11) | (0.16) | (0.10) | (0.00) | (0.00) |
| | [760] | [209] | [684] | [76] | | |
| Fraction of State Senate that is Democrat | 0.47 | 0.43 | 0.47 | 0.48 | -0.06*** | -0.04*** |
| | (0.17) | (0.14) | (0.18) | (0.10) | (0.00) | (0.01) |
| | [760] | [209] | [684] | [76] | | |
| Homicide Rate | 390.50 | 725.49 | 397.83 | 323.33 | 468.00*** | 402.16*** |
| | (435.89) | (605.18) | (455.44) | (160.72) | (0.00) | (0.00) |
| | [773] | [209] | [697] | [76] | | |
| Homicides per 100,000 pop | 5.35 | 6.35 | 4.97 | 8.87 | 1.98*** | -2.51*** |
| | (2.69) | (1.38) | (2.34) | (3.14) | (0.00) | (0.00) |
| | [773] | [209] | [697] | [76] | | |

(Std. Dev), [N]

Last two columns' ttests use $***p < 0.01, **p < 0.05, *p < 0.1$

State Minimum Wage, Unemployment, Democratic Gov, Democratic Senate, Democratic House is from University of Kentucky Poverty Center for Poverty Research. Population and Race from NIH Surveillance, Epidemiology, and End Results Program. Homicides are from CDC Underlying Cause of Death on WONDER Online Database.

Table 2: State Carceral Characteristics by Treatment Type

| | All States | Treat | Never-Taker | Already-Taker | Private - Never-Taker | Private - Already-Taker |
|---|---|---|---|---|---|---|
| Jurisdiction | 29,432 | 59,958 | 17,566 | 22,613 | 423,912*** | 37,345*** |
| | (35,564) | (52,826) | (16,197) | (9,244) | (0.00) | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Public Custody | 25,699 | 51,351 | 16,828 | 12,818 | 34,523*** | 38,533*** |
| | (32,144) | (48,425) | (16,030) | (2,293) | (0.00) | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Public Capacity | 25,467 | 51,700 | 15,809 | 16,100 | 35,890*** | 35,600*** |
| | (31,164) | (46,369) | (14,949) | (4,668) | (0.00) | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Public Custody/Capacity | 1.01 | 0.95 | 1.06 | 0.85 | -0.11*** | 0.10*** |
| | (0.21) | (0.24) | (0.17) | (0.23) | (0.00) | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Private Capacity | 1,438 | 4,586 | | 2,123 | | 2,463*** |
| | (2,464) | (2,636) | | (1,414) | | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Admission | 13,929 | 28,218 | 8,317 | 11,111 | 19,901*** | 17,107*** |
| | (19,368) | (30,891) | (8,145) | (4,915) | (0.00) | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Releases | 13,907 | 28,020 | 8,389 | 10,956 | 19,631*** | 17,064*** |
| | (19,239) | (30,626) | (8,265) | (4,975) | (0.00) | (0.00) |
| | [779] | [209] | [494] | [76] | | |
| Sentence (Months) | 71.90 | 64.09 | 74.54 | 81.32 | -10.45*** | -17.23*** |
| | (35.46) | (27.81) | (40.22) | (8.75) | (0.00) | (0.00) |
| | [585] | [180] | [356] | [49] | | |
| Time Served (Months) | 16.86 | 18.08 | 16.39 | 15.81 | 2.26** | 1.69*** |
| | (6.31) | (6.22) | (6.43) | (8.75) | (0.01) | (0.00) |
| | [585] | [180] | [356] | [49] | | |
| 1 Year Recidivism Rate | 0.22 | 0.19 | 0.23 | 0.20 | -0.04*** | -0.01 |
| | (0.10) | (0.12) | (0.10) | (0.05) | (0.00) | (0.51) |
| | [580] | [178] | [353] | [49] | | |
| 2 Year Recidivism Rate | 0.33 | 0.31 | 0.35 | 0.31 | -0.04*** | 0.00 |
| | (0.11) | (0.12) | (0.11) | (0.06) | (0.00) | (0.94) |
| | [539] | [167] | [327] | [45] | | |
| 3 Year Recidivism Rate | 0.39 | 0.37 | 0.41 | 0.37 | -0.03*** | 0.00 |
| | (0.11) | (0.11) | (0.10) | (0.06) | (0.01) | (0.72) |
| | [498] | [156] | [301] | [41] | | |
| 5 Year Recidivism Rate | 0.46 | 0.46 | 0.47 | 0.43 | -0.01 | 0.02* |
| | (0.10) | (0.10) | (0.10) | (0.06) | (0.23) | (0.09) |
| | [384] | [124] | [230] | [30] | | |

(Std. Dev), [N]

Last two columns' ttests use $***p < 0.01, **p < 0.05, *p < 0.1$

## Table 3: Event Study 1-Year Recidivism Results

| Before: Private Prison Opens | | Private Prison Opens | | After: Private Prison Opening | |
|---|---|---|---|---|---|
| 9 Years Before | -0.008 | 0 Year | 0.019 | 1 Year After | 0.036 |
| | (0.039) | | (0.032) | | (0.025) |
| 8 Years Before | -0.017 | | | 2 Years After | 0.049 |
| | (0.042) | | | | (0.034) |
| 7 Years Before | -0.022 | | | 3 Years After | 0.065** |
| | (0.046) | | | | (0.030) |
| 6 Years Before | -0.008 | | | 4 Years After | 0.063* |
| | (0.043) | | | | (0.032) |
| 5 Years Before | 0.005 | | | 5 Years After | 0.087** |
| | (0.043) | | | | (0.036) |
| 4 Years Before | 0.018 | | | 6 Years After | 0.116*** |
| | (0.038) | | | | (0.030) |
| 3 Years Before | 0.006 | | | 7 Years After | 0.123*** |
| | (0.039) | | | | (0.037) |
| 2 Years Before | 0.0009 | | | 8 Years After | 0.127*** |
| | (0.030) | | | | (0.037) |
| | | | | 9 Years After | 0.130*** |
| | | | | | (0.039) |
| Observations | 157 | | | Mean 1 Year Recidivism Rate | 0.22 |

(Std Er), $***p < 0.01, **p < 0.05, *p < 0.1$

Recidivism rates are measured as the incarcerated individual returning within the 1-year of release at event time. The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year $= -1$ are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

Table 4: Joint Event-Study 1-Year Recidivism Results

|  | 1-Year Recidivism Rate |
|---|---|
| Before Private Prison Opens | |
| 9 to 2 Years Before | 0.010 |
|  | (0.027) |
|  | |
| Short-Run Post-Private Prison Opening | |
| 0 to 2 Years After | 0.015 |
|  | (0.018) |
|  | |
| 3 to 5 Years After | 0.045** |
|  | (0.021) |
|  | |
| Medium-Run Post-Private Prison Opening | |
| 6 to 9 Years After | 0.086*** |
|  | (0.022) |
|  | |
|  | |
| Mean 1 Year Recidivism Rate | 0.22 |
|  | |
| Observations | 157 |

(Std Er), $***p < 0.01, **p < 0.05, *p < 0.1$

Recidivism rates are measured as the incarcerated individual returning within the 1-year of release at event time. The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

Table 5: Average Releases and 1-Year Recidivism in Event Time with Estimated Effects

| | Release | Return Rate | Number Return | Coef. Est. | Est. Number Return |
|---|---|---|---|---|---|
| **Before Private Prison Opens** | | | | | |
| 9 Years Before | 34,803 | 0.23 | 7,843 | -0.01 | -293 |
| 8 Years Before | 30,866 | 0.23 | 7,020 | -0.02 | -518 |
| 7 Years Before | 31,890 | 0.21 | 6,681 | -0.02 | -710 |
| 6 Years Before | 31,177 | 0.22 | 6,747 | -0.01 | -248 |
| 5 Years Before | 30,268 | 0.22 | 6,658 | 0.00 | 149 |
| 4 Years Before | 28,890 | 0.22 | 6,391 | 0.02 | 523 |
| 3 Years Before | 25,112 | 0.21 | 5,259 | 0.01 | 159 |
| 2 Years Before | 25,336 | 0.19 | 4,805 | 0.00 | 23 |
| 1 Year Before | 21,368 | 0.17 | 3,739 | 0.00 | 0 |
| **Private Prison Opens** | | | | | |
| 0 Years | 19,039 | 0.17 | 3,259 | 0.02 | 370 |
| **After Private Prison Opening** | | | | | |
| 1 Year After | 20,173 | 0.18 | 3,537 | 0.04 | 732 |
| 2 Years After | 20,716 | 0.18 | 3,828 | 0.05 | 1,017 |
| 3 Years After | 20,529 | 0.18 | 3,690 | 0.06 | 1,327 |
| 4 Years After | 20,534 | 0.17 | 3,580 | 0.06 | 1,300 |
| 5 Years After | 20,747 | 0.18 | 3,723 | 0.09 | 1,808 |
| 6 Years After | 19,393 | 0.19 | 3,688 | 0.12 | 2,248 |
| 7 Years After | 19,261 | 0.20 | 3,833 | 0.12 | 2,360 |
| 8 Years After | 19,987 | 0.20 | 4,079 | 0.13 | 2,547 |
| 9 Years After | 18,982 | 0.21 | 3,936 | 0.13 | 2,470 |
| N = 157 | | | | Total Increase over 9 Years | 15,809 |

(Std Er), $***p < 0.01, **p < 0.05, *p < 0.1$

# Figures

Figure 1: States by Treatment Status
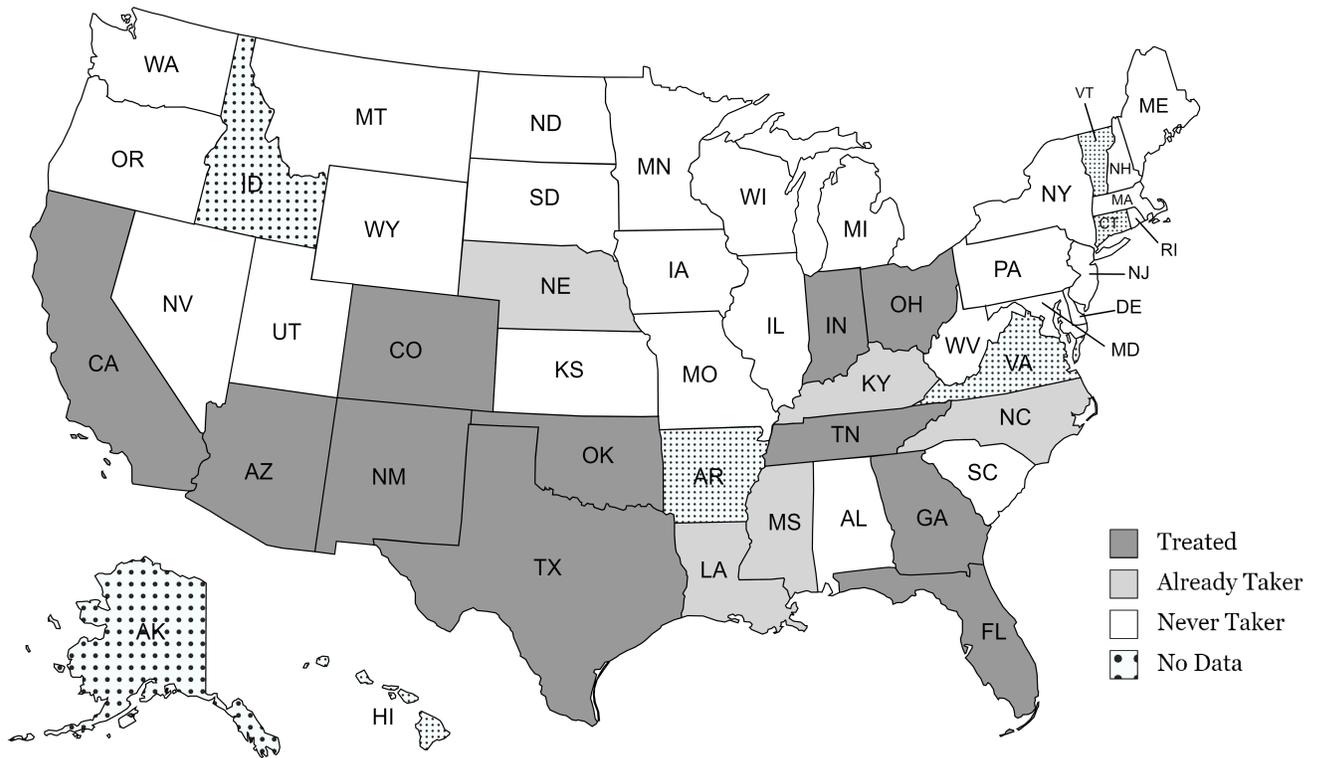
Figure 2: Private Prison Opening Characteristics

(a) Private Prison Openings
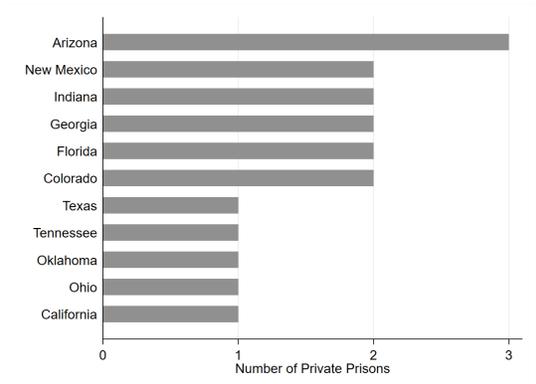


(b) Private Prison Openings overtime
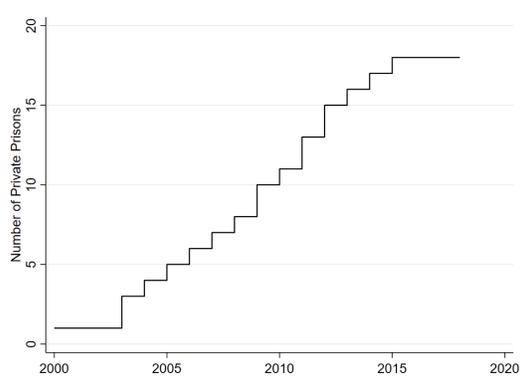


(c) Private Prisons by Capacity
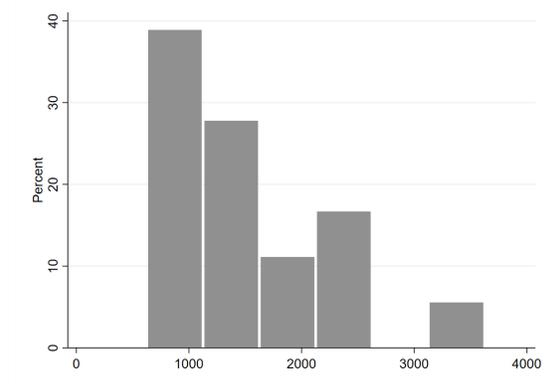
(d) Private Prison Capacity as a share of Total Public Prison Capacity
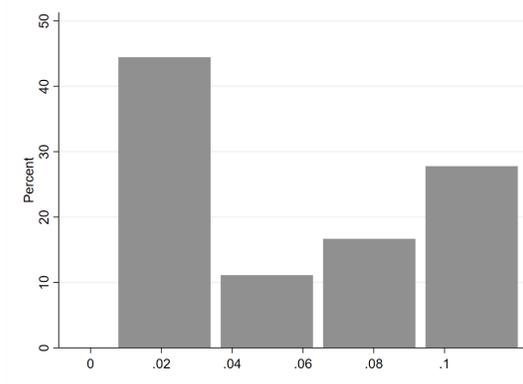
Figure 3: Case study of Two State Prison Characteristics

(a) Arizona: Yearly Admissions



(b) Florida: Yearly Admissions



(c) Arizona: Yearly Public Custody



(d) Florida: Yearly Public Custody



(e) Arizona: Yearly Jurisdiction



(f) Florida: Yearly Jurisdiction
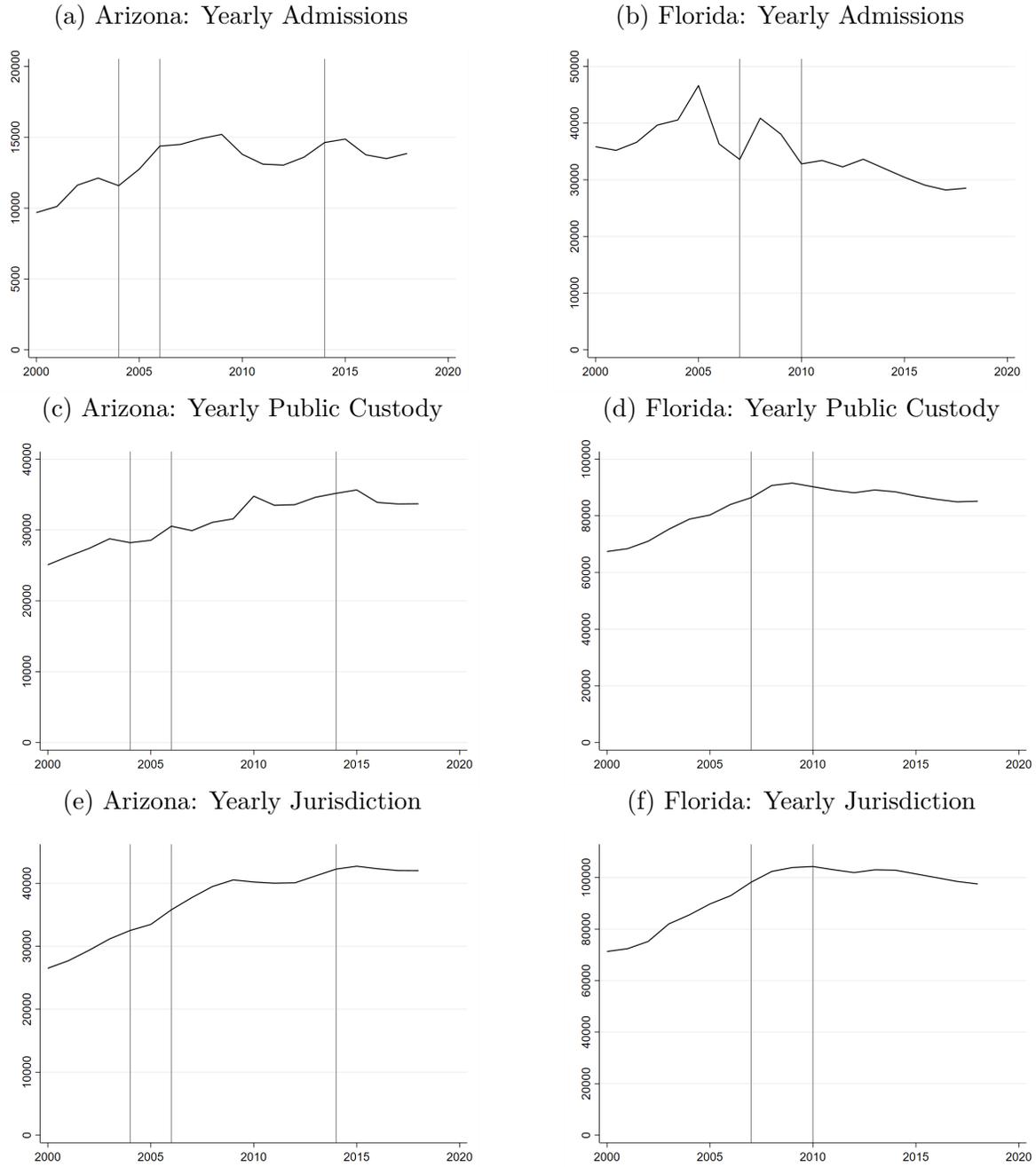


*Notes:* Horizontal lines denote private prison openings.

Figure 4: Event Study 1-Year Recidivism Results
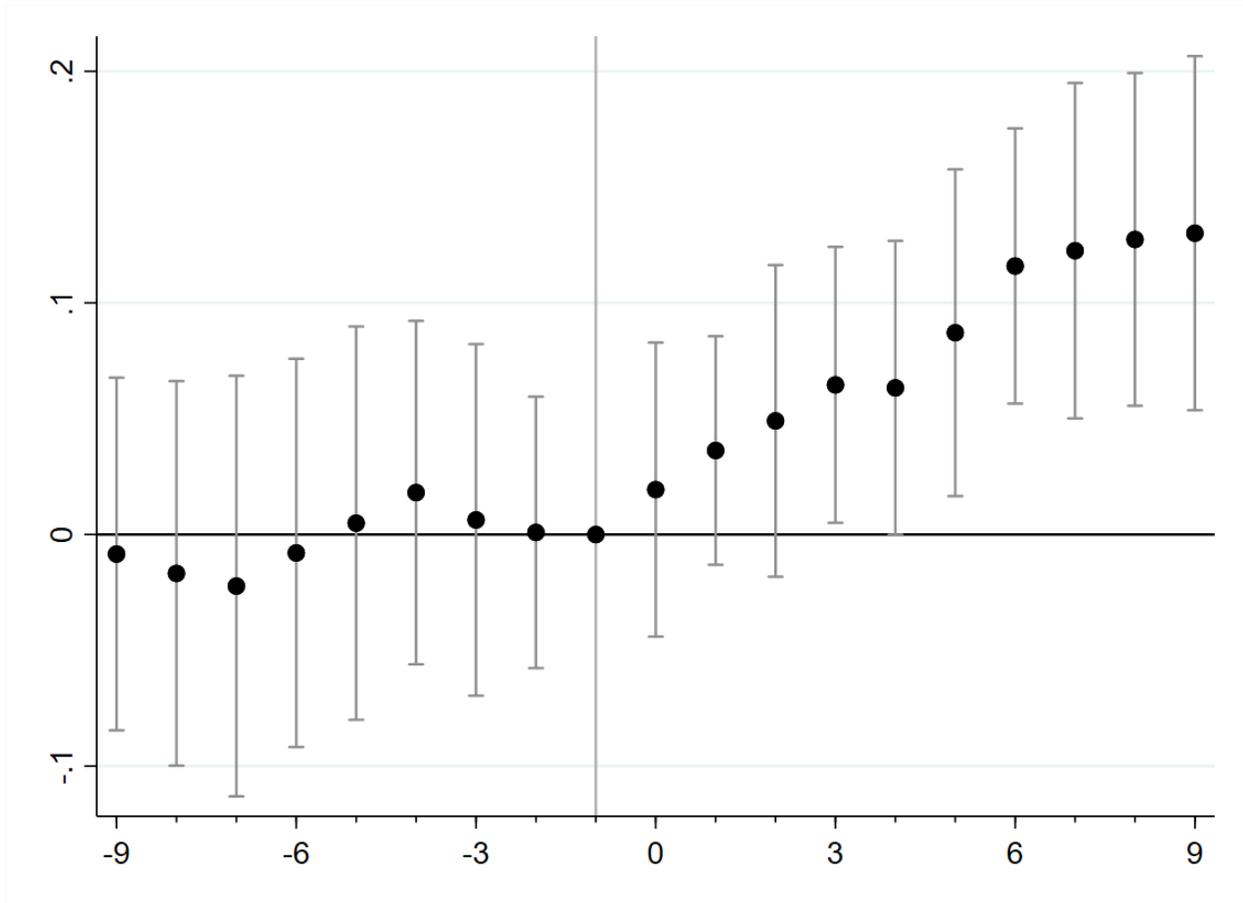


*Notes:* Recidivism rates are measured as the incarcerated individual returning within the 1-year of release at event time. The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

Figure 5: Event Study Results Counterfactual 1-Year Recidivism

(a) Recidivism Rate

(b) Detrended Recidivism Rate

(c) Number of People Returning to Prison

(d) Detrended Number of People Returning to Prison
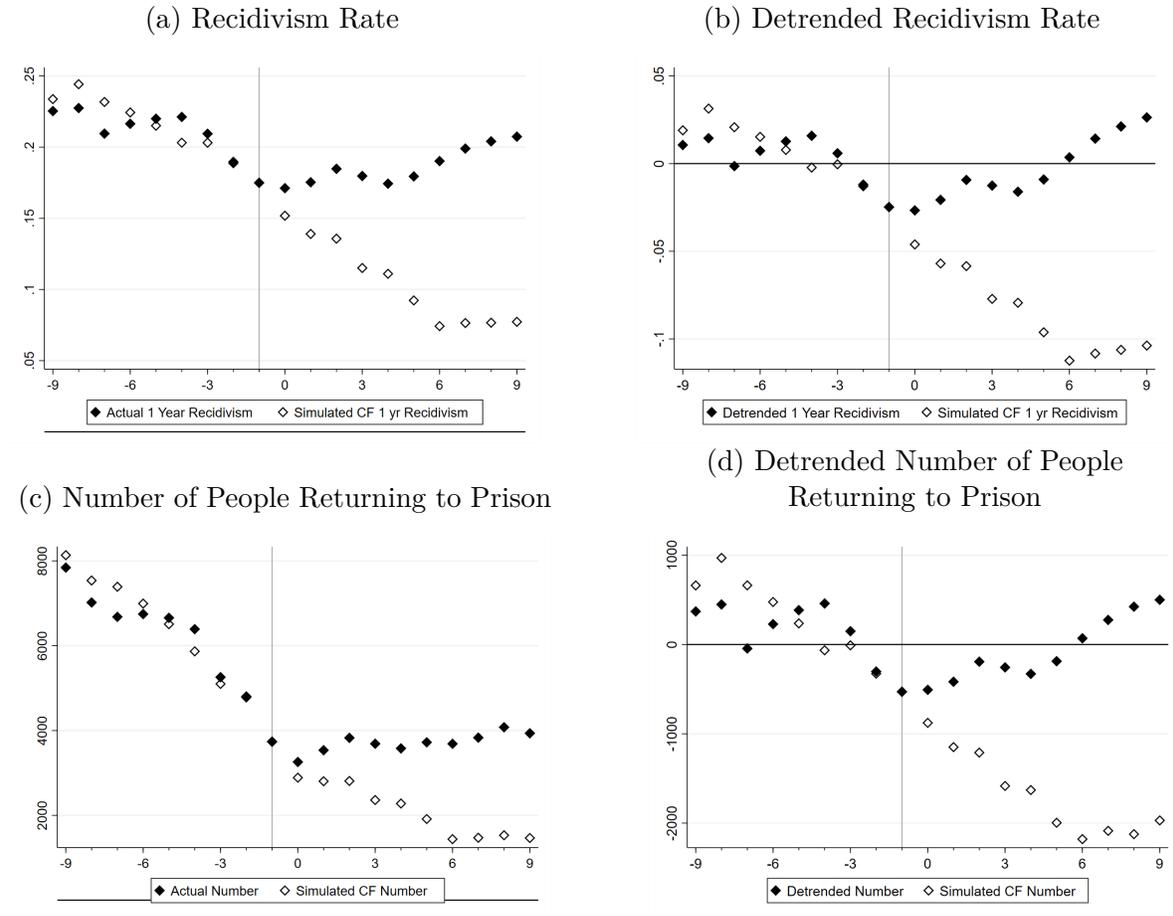


*Notes:* Panel A and B's estimated impact of a private prison opening on 1 year recidivism rate. Panel A plots $\hat{Y}_{st}$ vs $\hat{Y}_{st} - \beta_p \hat{E}_{st}^P$, Panel B plots the detrended $\hat{Y}_{st}$ vs $\hat{Y}_{st} - \beta_p \hat{E}_{st}^P$. Panels C and D scale panel A and B's estimates by the number of people who return to prison within 1 year from release in event-time.

Figure 6: Event Study 1-Year Recidivism Results using Alternative Control Groups

(a) Main Sample and Already-Takers
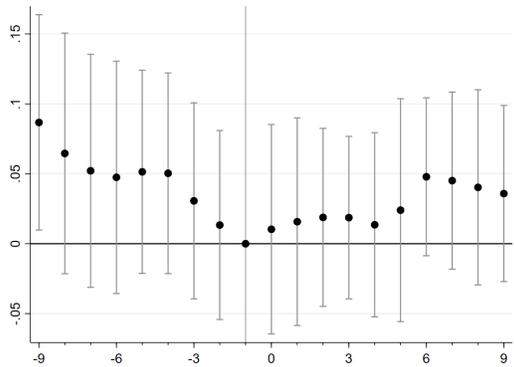
(b) Main Sample and Never-Takers
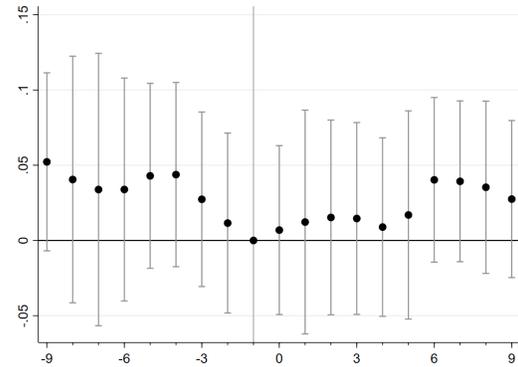


*Notes:* Panel A adds adds the already-taker states to the analysis. Panel B adds the never-taker states to the analysis. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

Figure 7: Event Study 1-Year Recidivism Results for Placebo Private Prison Openings
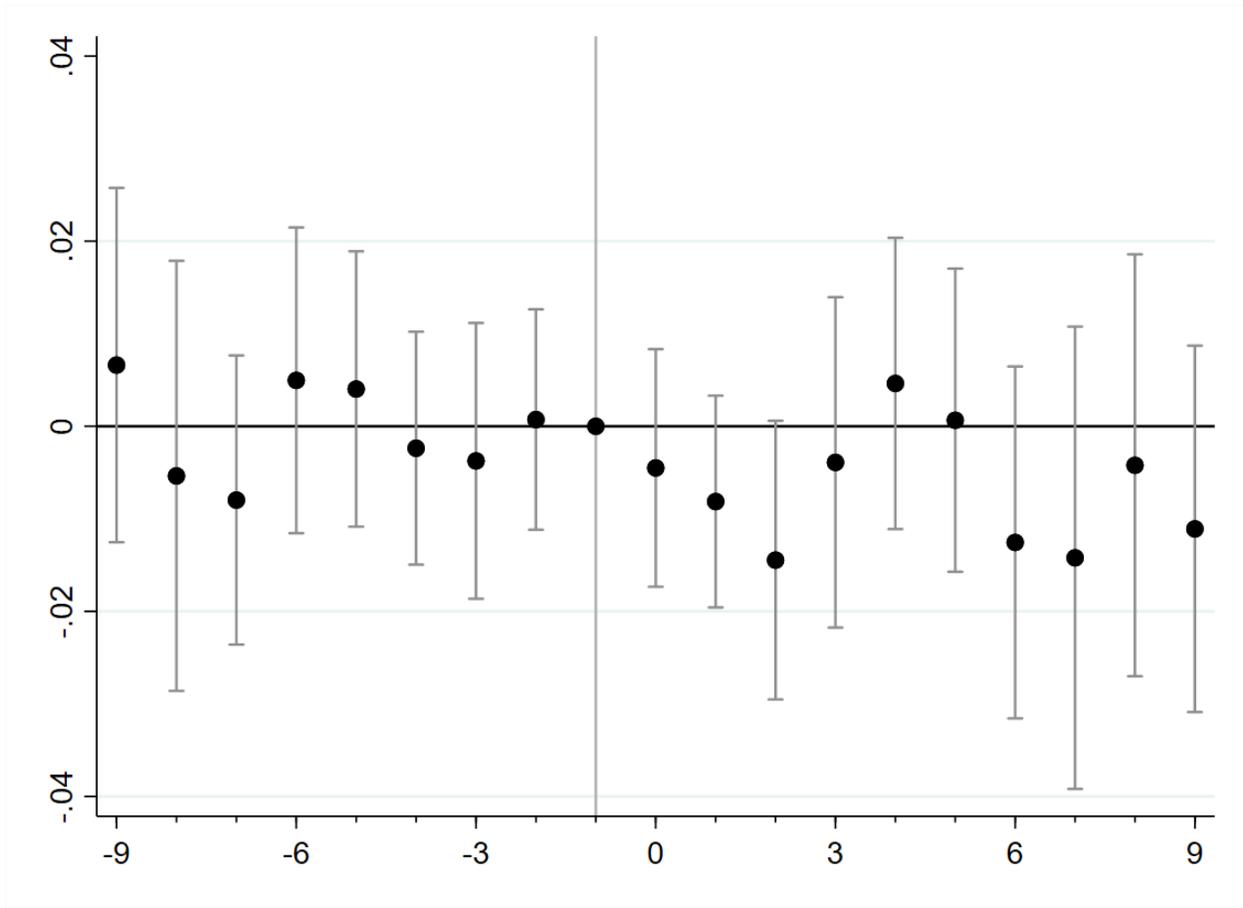


*Notes:* Figure plots the estimated impact of placebo private prison openings on 1 year recidivism rates. Placebo private prison openings are randomly assigned to states in the treated sample for years 2000-2018. The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

Figure 8: Event Study 1-Year Recidivism Results by States Criminal Justice Policies

(a) Average Sentence Length in 2000

(b) Average Time Served for 1999 Release

(c) Discretionary Parole Policies in 2000

(d) Truth-in-Sentencing Laws in 2000

(e) Three Strike Laws in 2000

(f) Aggregate Measure of Punitive Criminal Justice Policies
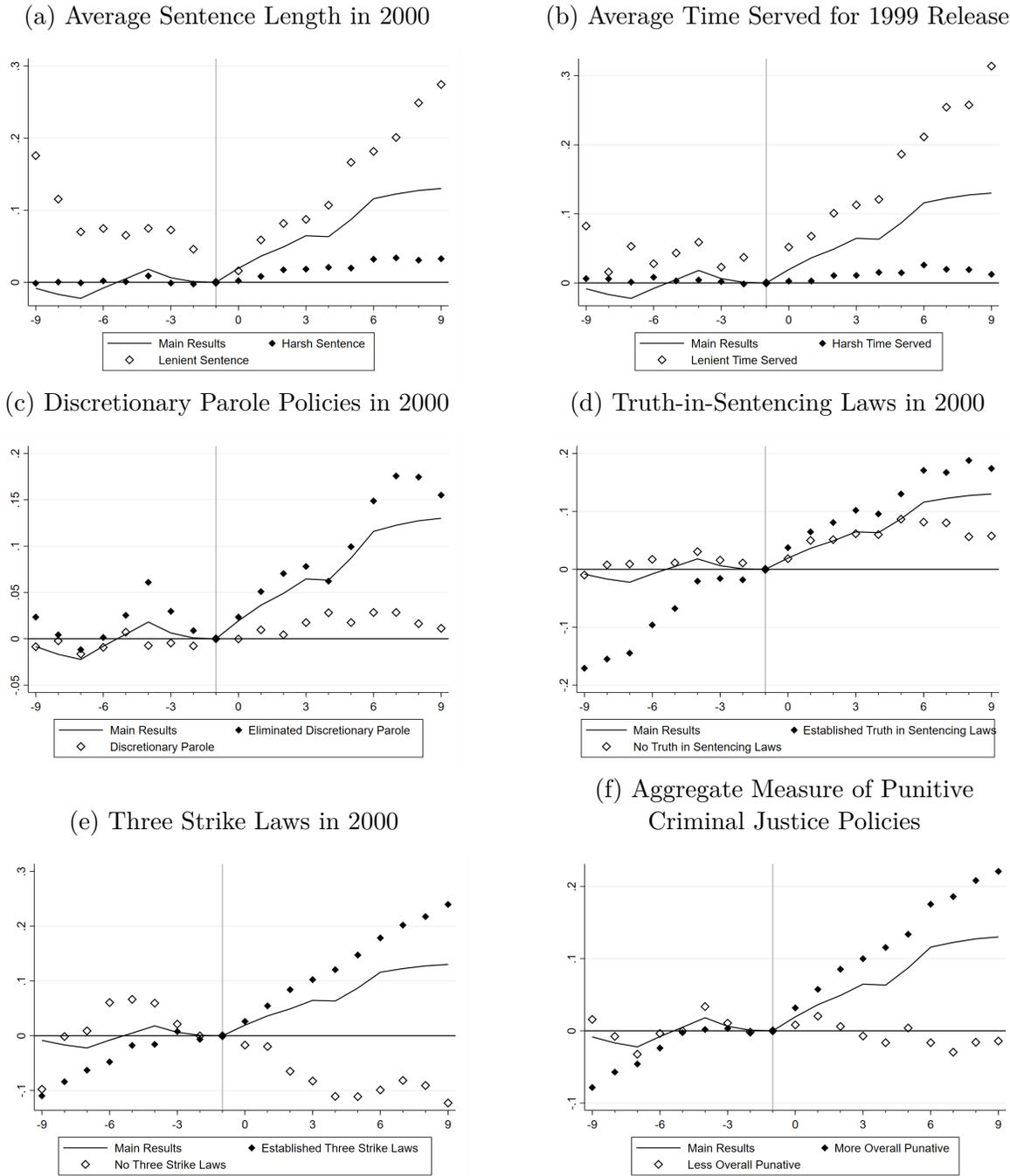


*Notes:* Panel A compares states that have higher or lower average sentences relative to the median state sentence in 2000, panel B compares states where higher or lower average time served relative to the median time served for treated states in 1999, panel C compares states that had and had not banned discretionary sentencing in 2000 (note: Tennessee is include in no discretionary sentencing, but only bans discretionary sentencing for violent offenders), panel D compares states that had and had not adopted Truth in Sentencing laws by 2000, panel E compares states that had and had no adopted Three Strikes laws by 2000, panel F compares states across an aggregate measure how punitive the states' sentencing policy is. States relative punitiveness is measured as having adopted 3 or more of the previous five policies.

Figure 9: Event Study Homicide Results

(a) Number of Homicides        (b) Homicides per 100,000 Population
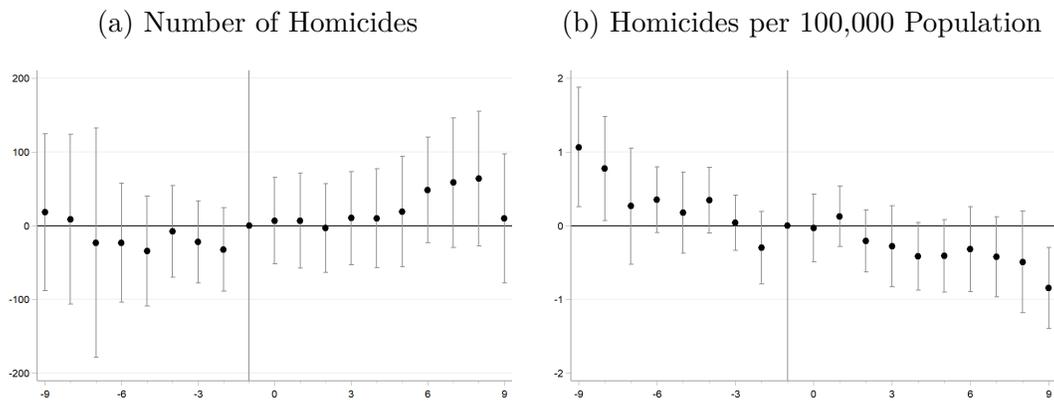


*Notes:* Panel A uses the crude homicide rate from the CDC Underlying Cause of Death on WONDER Online Database. Panel B uses homicide rate per 100,000 state residents. The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

Figure 10: Event Study Prison Admission Type Results

(a) New Commitment

(b) Return from Conditional Release

(c) Return from Conditional Release with New Sentence

(d) Return from Conditional Release Same Sentence
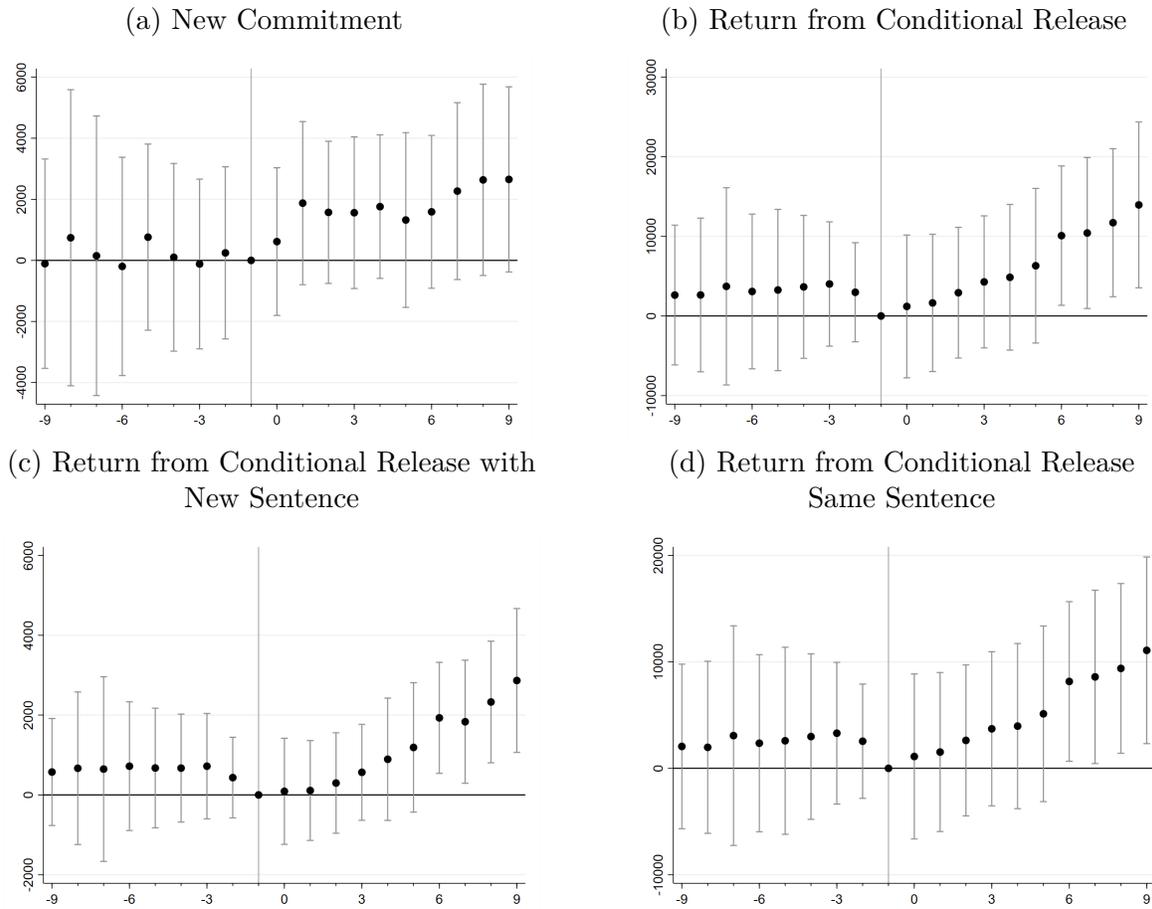
*Notes:* The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

# Appendix 1: All Recidivism Rates

Figure A1.1: Event Study 1-5 Year Recidivism Rate Results
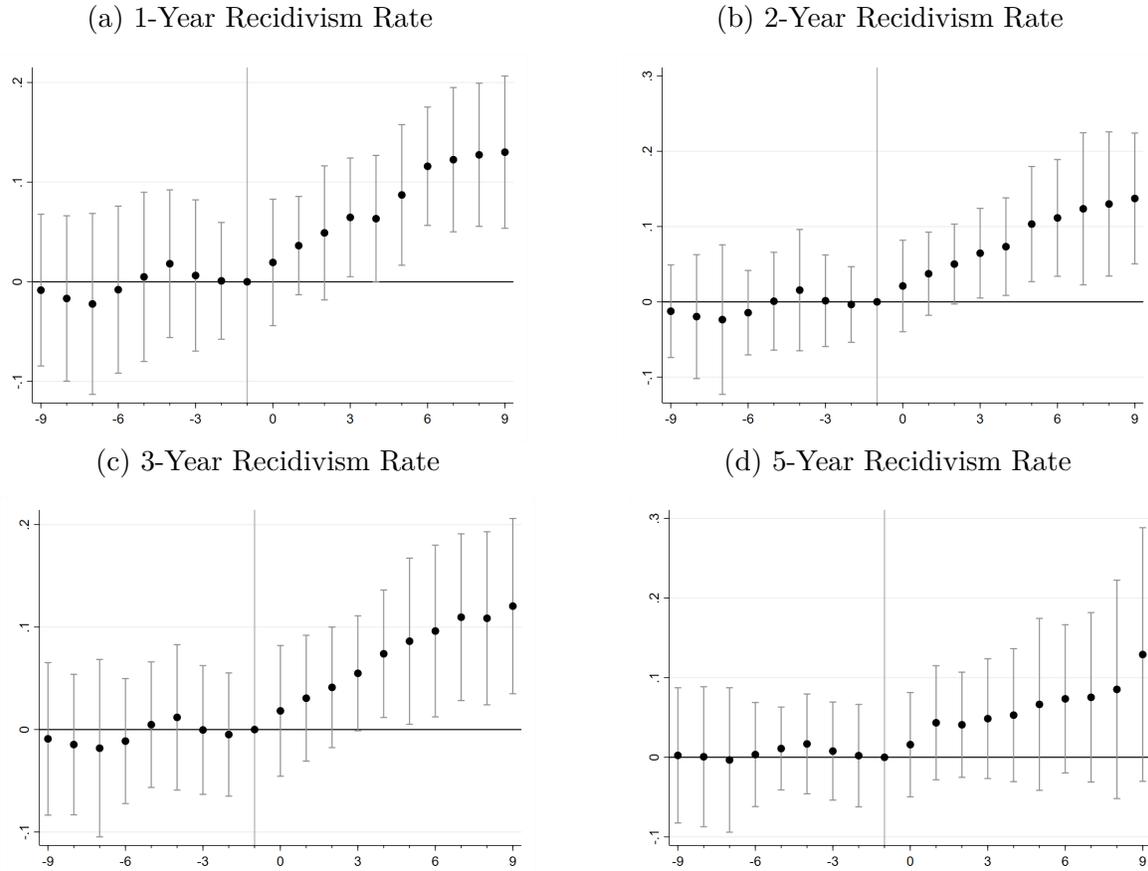
(a) 1-Year Recidivism Rate

(b) 2-Year Recidivism Rate

(c) 3-Year Recidivism Rate

(d) 5-Year Recidivism Rate

*Notes:* Recidivism rates are measured as the incarcerated individual returning within the specified year of release at event time. The sample includes treated states: Arizona, California, Colorado, Florida, Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, and Texas. All states are included in the state fixed effects. The state fixed effects coefficients are constrained to average to zero. All year fixed effects are included. The constant and year before the private prison opens (i.e. event year = -1 are dropped). Endpoints (event-time -9 and event-time 9) are binned in accordance with Schmidheiny and Siegloch 2020. Standard errors are bootstrapped.

# Appendix 2: Robustness and Specification

Figure A2.1: Event Study 1-Recidivism Results with Constrained Pretrends

(a) All pre-trends averaged to zero, Treated States, event-year -1 dropped
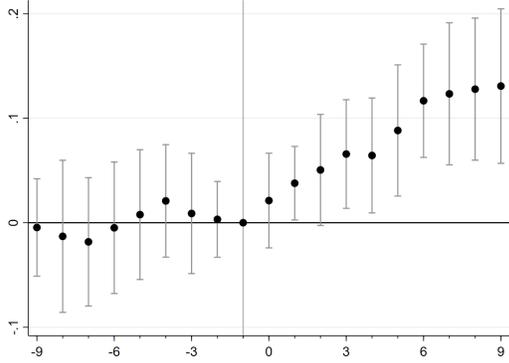
(b) All pre-trends averaged to zero, Treated States, event-year -5 dropped
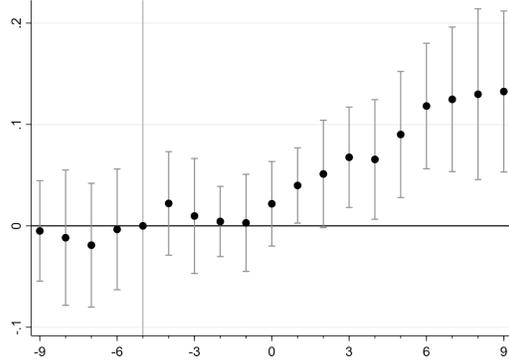
(c) All pre-trends averaged to zero, Already-Takers and Treated States, event-year -1 dropped
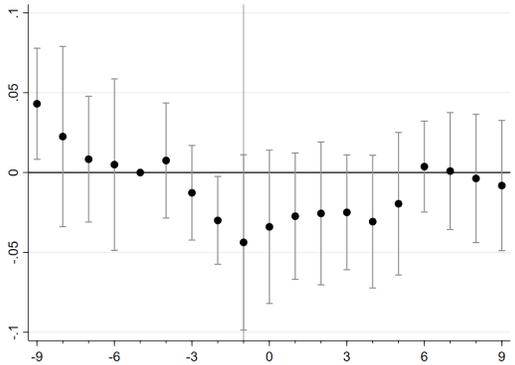
(d) All pre-trends averaged to zero, Never-Takers and Treated States, event-year -5 dropped
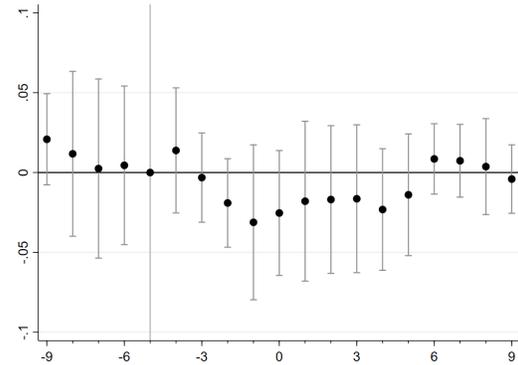
*Notes:* Pre-trends (all years before event-time 0) in each plot are constrained to averaged to zero. Panels A uses only the main sample (treated states) for analysis and drops one year before the event (i.e. event-time -1) as a reference period. Panels B uses only the main sample (treated states) for analysis and drops five years before the event (event-time -5) as a reference period. Panel C adds the already-taker states to the analysis and drops one year before the event (i.e. event-time -1) as a reference period. Panel D adds the never-taker states to the analysis and drops one year before the event (i.e. event-time -1) as a reference period.

# Appendix 3: Heterogeneous Effects

Figure A3.1: Event Study 1-Year Recidivism Results by State Poverty Rate in 2000

(a) High Poverty States

(b) Low Poverty States



(c) Combined
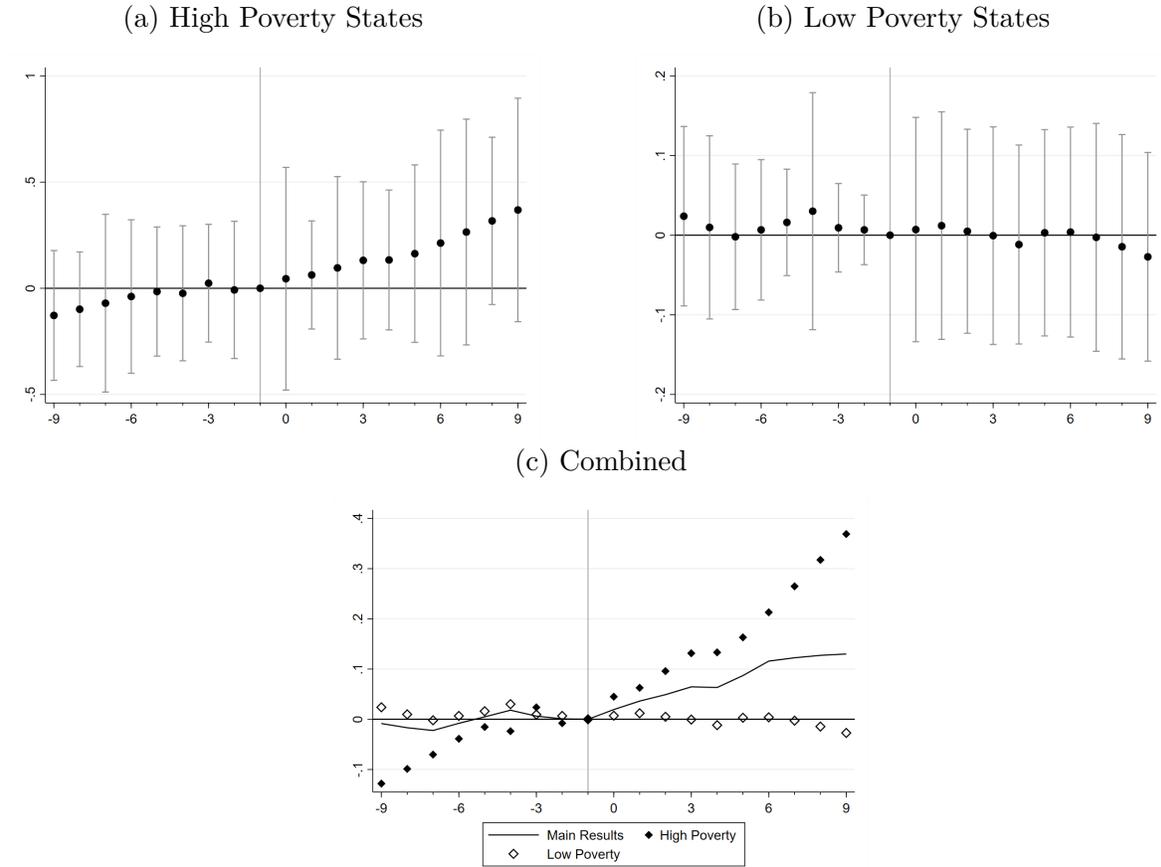


*Notes:* High poverty sample includes states above the treated states median poverty level in 2000, 12 percent. High poverty states include California, Georgia, New Mexico, Oklahoma, Tennessee, and Texas. The low poverty sample includes states below the median poverty line for treated states in 2000. Low poverty states include Arizona, Colorado, Florida, Indiana, Ohio.

Figure A3.2: Event Study 1-Year Recidivism Results by State Sentence Lengths in 2000

(a) Long Sentence States

(b) Shorter Sentence States

(c) Combined
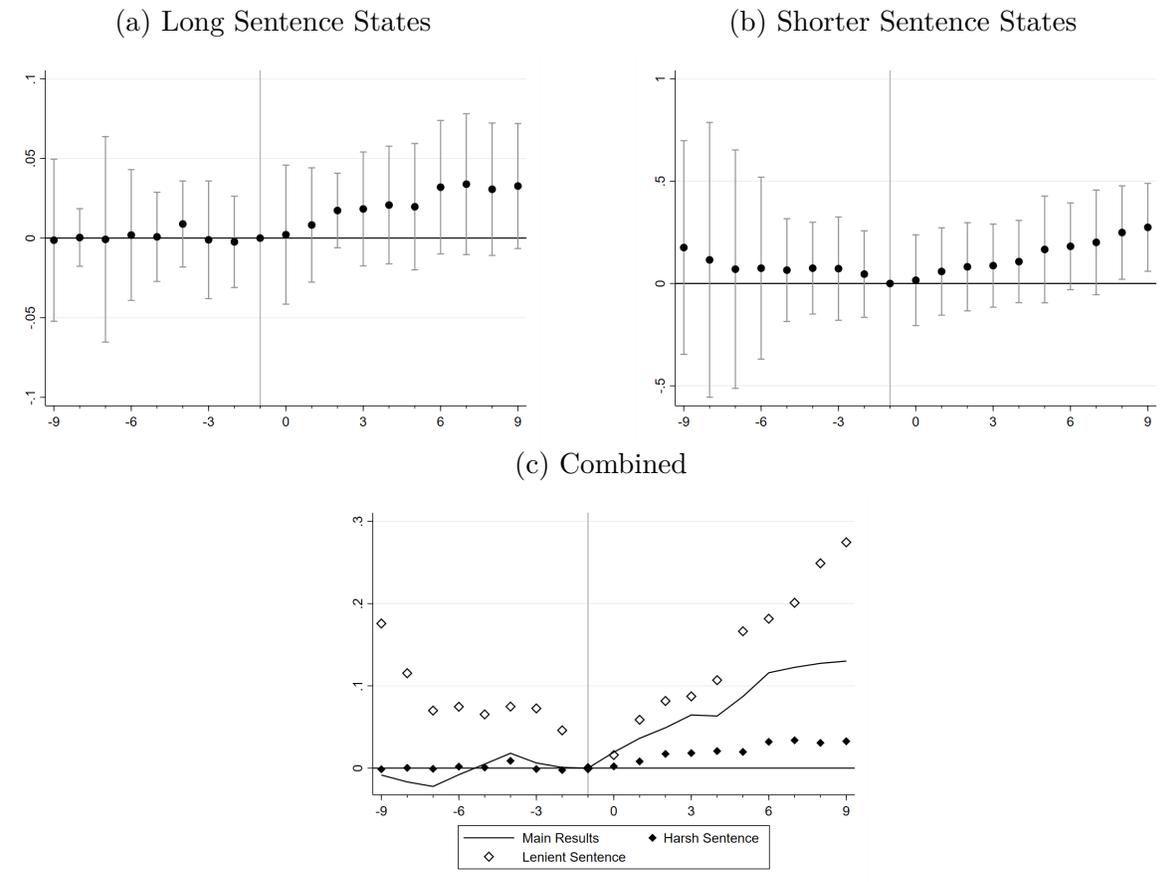


*Notes:* The figures compare states that have higher or lower average sentences relative to the median sentence length of 56 months among treated states in 2000. Higher than average states include Georgia, Indiana, New Mexico, Ohio, Oklahoma, Tennessee, Texas. Lower than average states include Arizona, California, Colorado, Florida.

Figure A3.3: Event Study 1-Year Recidivism Results by Time Served for Individuals Released in 1999

(a) More Time Served States

(b) Less Time Served States

(c) Combined
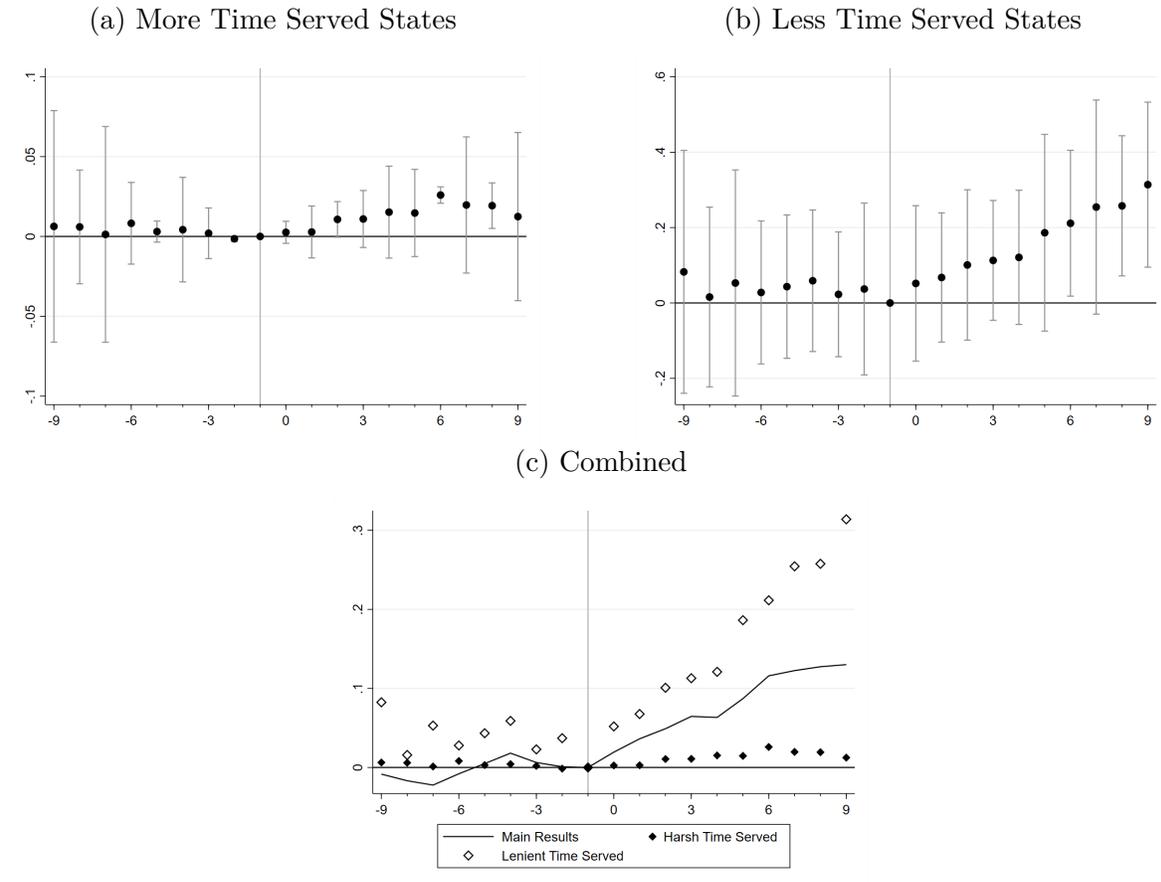
*Notes:* The figures compare states where incarcerated individuals serve more or less time on average relative to 53 months, the median time served for individuals released from prison in 1999. The higher than average states include Florida, Georgia, New Mexico, Ohio, Tennessee, and Texas. The lower than average states include Arizona, California, Colorado, and Indiana.

Figure A3.4: Event Study 1-Year Recidivism Results by Discretionary Parole Policies in 2000

(a) Eliminated Discretionary Parole

(b) Had Discretionary Parole

(c) Combined
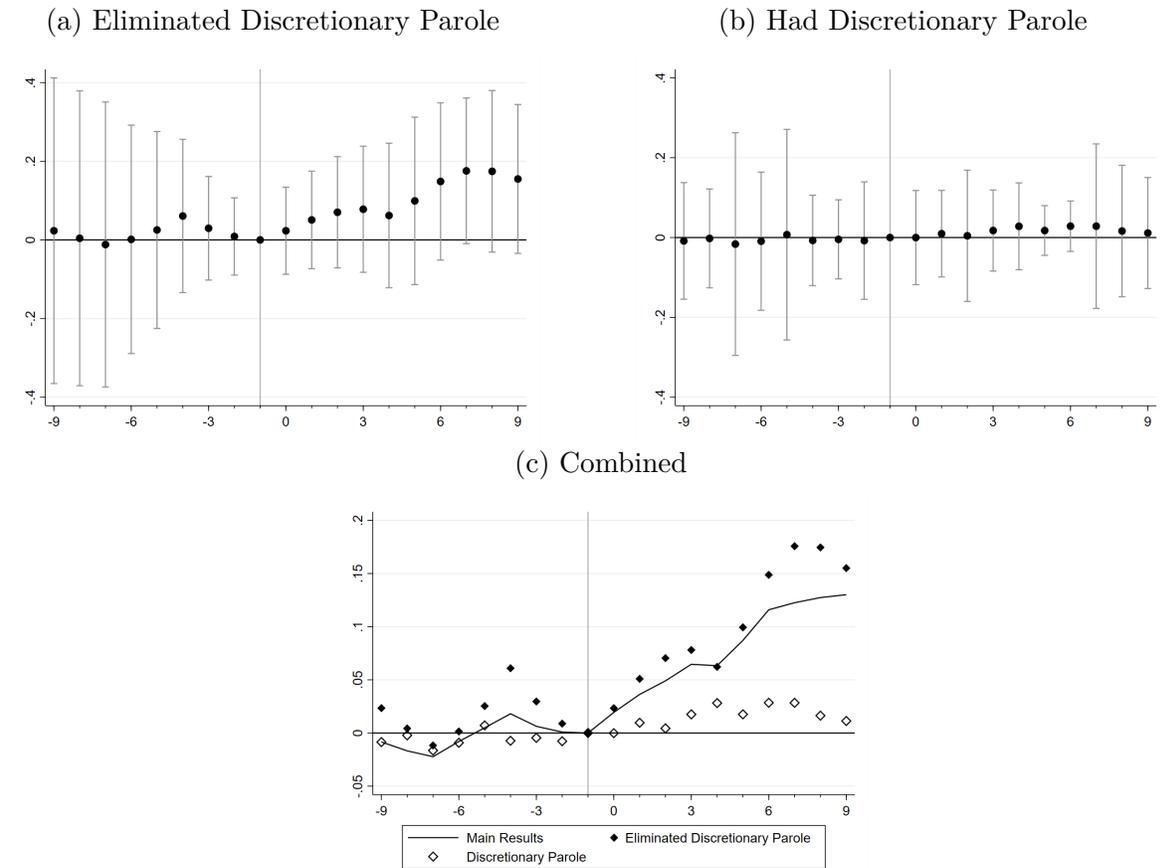


*Notes:* The figures compare states that eliminated discretionary parole by 2000, to those that had not eliminated it. Tennessee is included in panel A, because it had eliminated discretionary parole for violent offenders. States that eliminated discretionary parole include Arizona, California, Florida, Indiana, Ohio, and Tennessee. States that still used discretionary parole include Colorado, Georgia, New Mexico, Oklahoma, Tennessee, and Texas.

Figure A3.5: Event Study 1-Year Recidivism Results by Truth in Sentencing Law Adoption in 2000

(a) Adopted Truth-in-Sentencing

(b) No Truth-in-Sentencing

(c) Combined
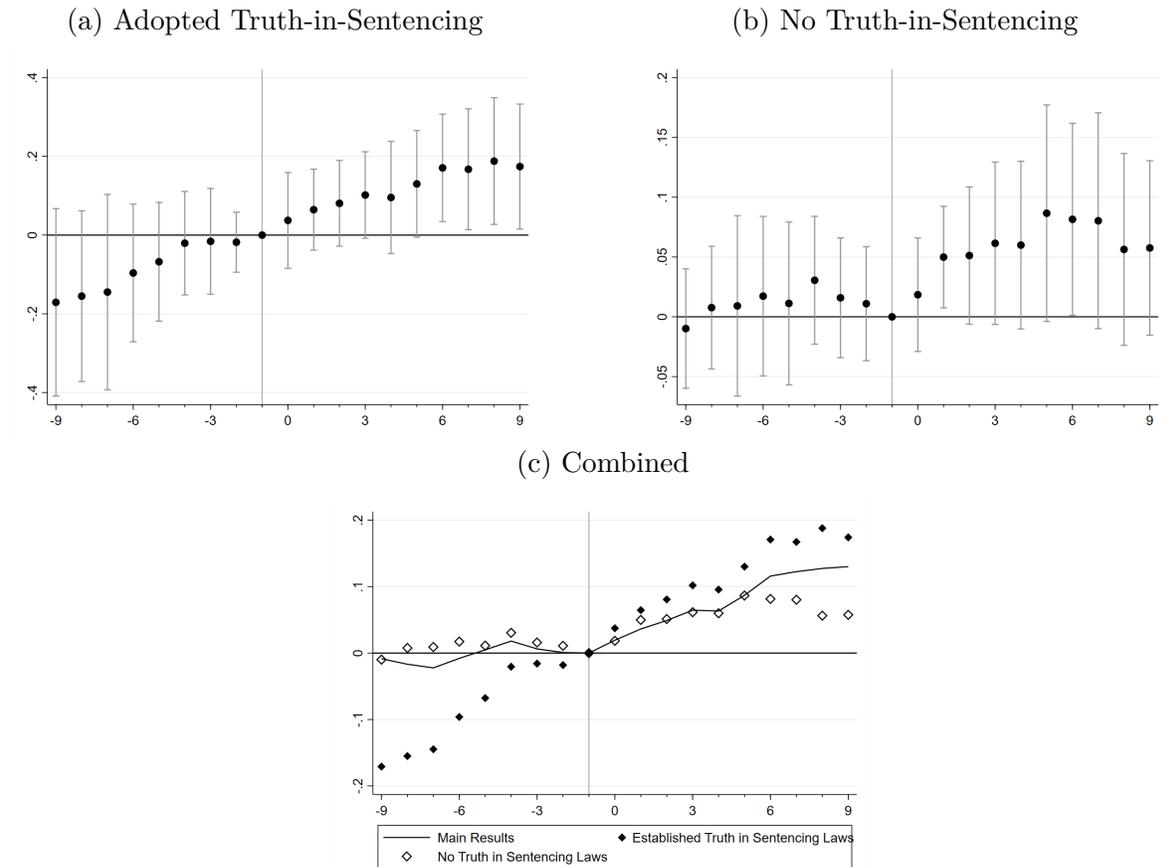


*Notes:* The figures compare states that enacted Truth in Sentencing Laws by 2000, to those that had not. States with Truth in Sentencing Laws Arizona, California, Florida, Georgia, New Mexico, Ohio, and Tennessee states. States without Truth in Sentencing Laws Colorado, Indiana, Oklahoma, and Texas.

Figure A3.6: Event Study 1-Year Recidivism Results by Three Strike Law Adoption in 2000

(a) Adopted 3 Strike Laws

(b) No 3 Strike Laws

(c) Combined
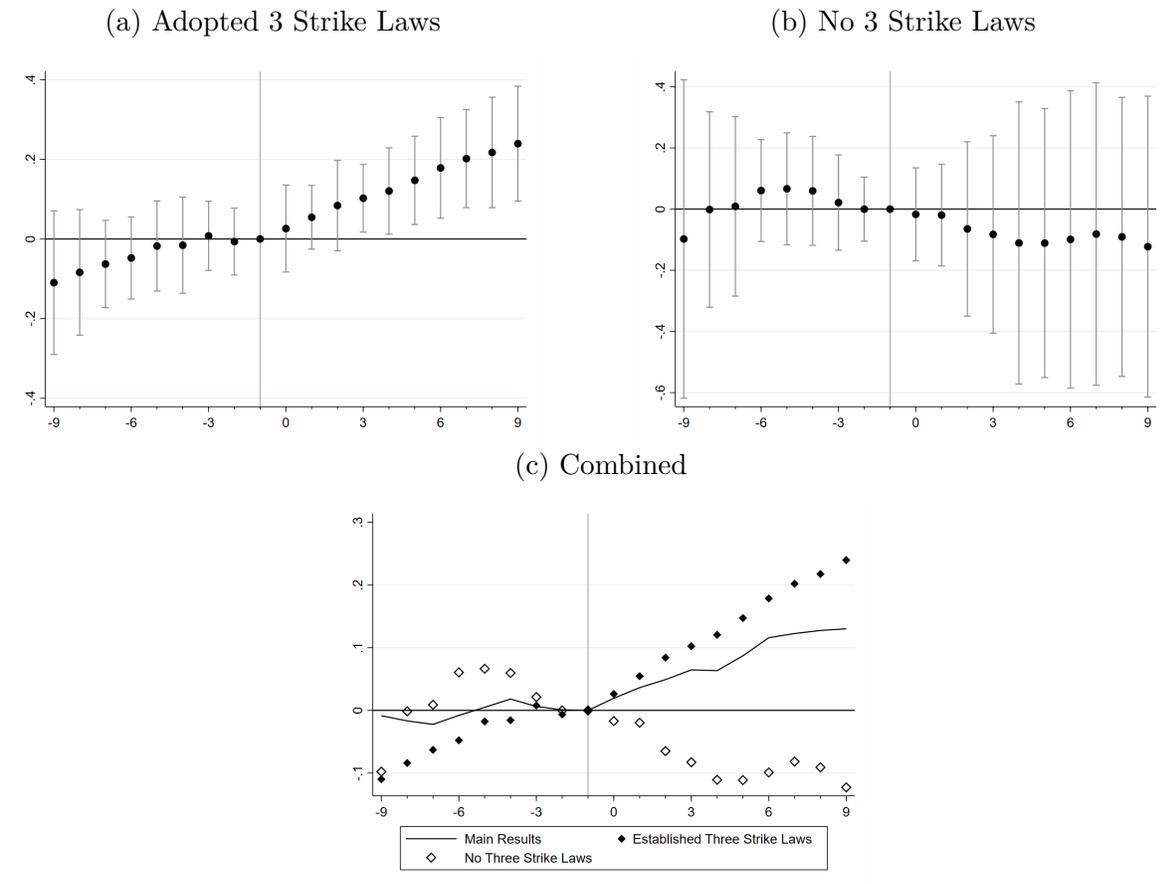
*Notes:* The figures compare states that enacted Three Strike Laws by 2000, to those that had not. States with Three Strike Laws include California, Colorado, Florida, Georgia, Indiana, Tennessee, and Texas. States without Three Strike Laws include Arizona, New Mexico, Ohio, and Oklahoma.

Figure A3.7: Event Study 1-Year Recidivism Results by State Carceral Punitiveness

(a) More Punitive



(b) Less Punitive

(c) Combined
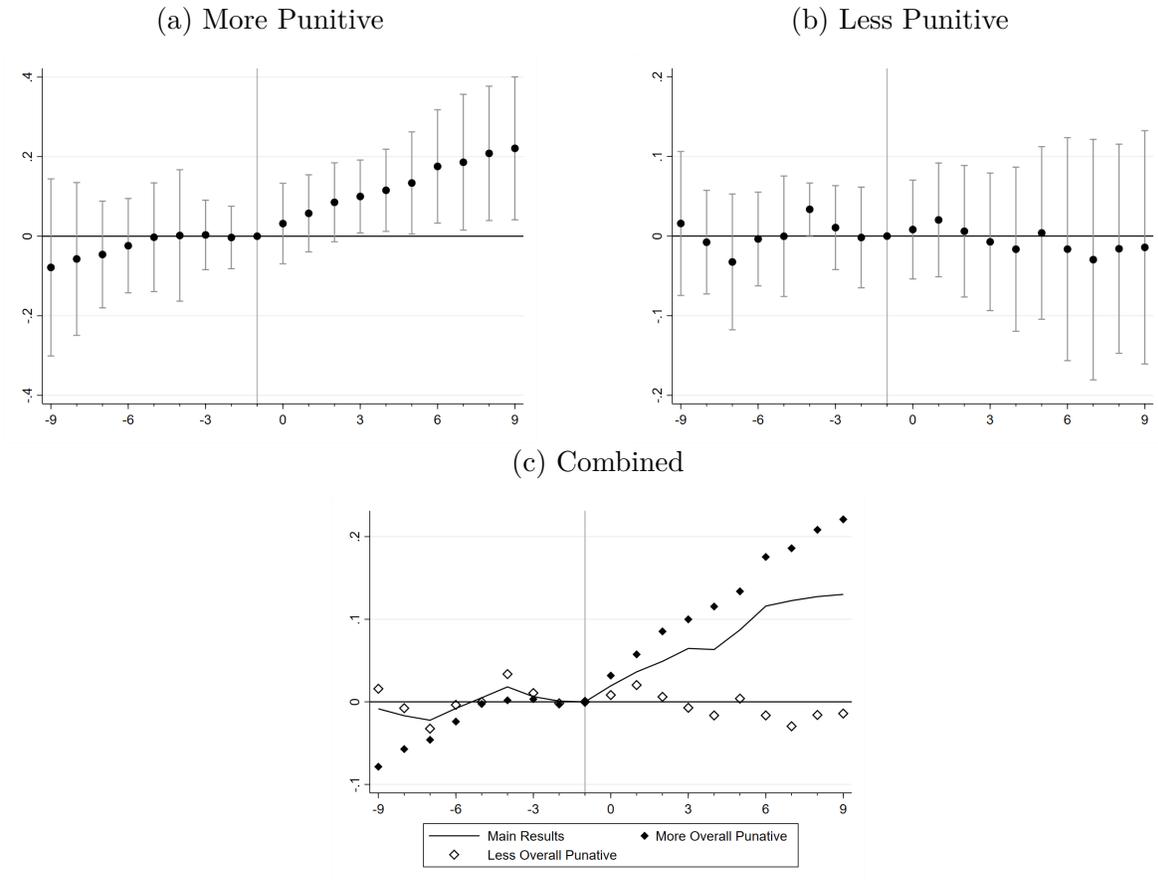


*Notes:* The figures compare states with a relatively more punitive carceral system to those with relatively less punitive carceral system. States are considered more punitive belong to three of the previous five punitive categories. More punitive states include California, Florida, Georgia, Indiana, New Mexico, Ohio, Tennessee, and Texas. Less punitive states include Arizona, Colorado, and Oklahoma.

# Appendix 4: Additional Outcomes

Figure A4.1: Event Study Admissions and Releases Results

(a) Prison Admissions
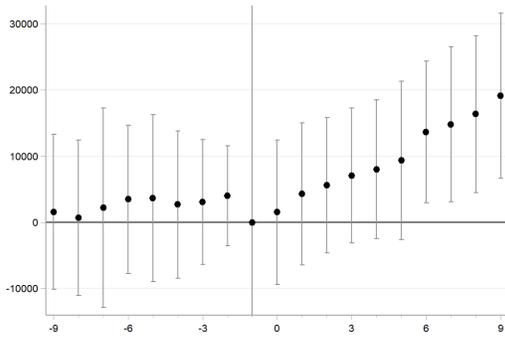
(b) Log Prison Admissions
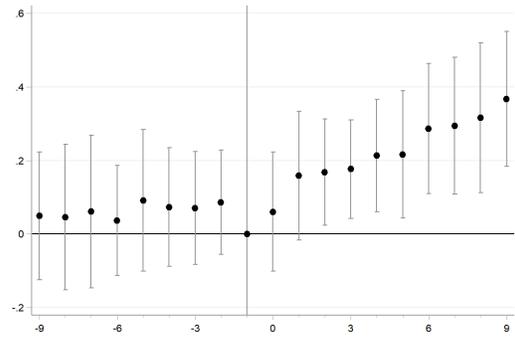
(c) Prison Releases
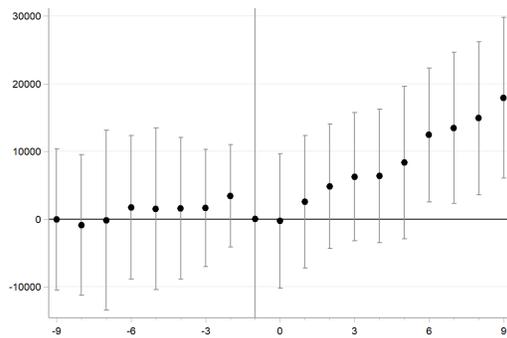
(d) Log Prison Releases
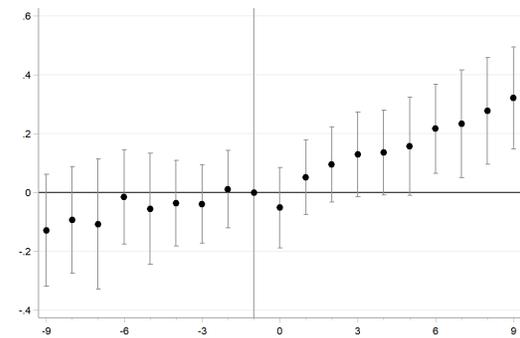
Figure A4.2: Event Study Prison Release Type Results

(a) End of Sentence
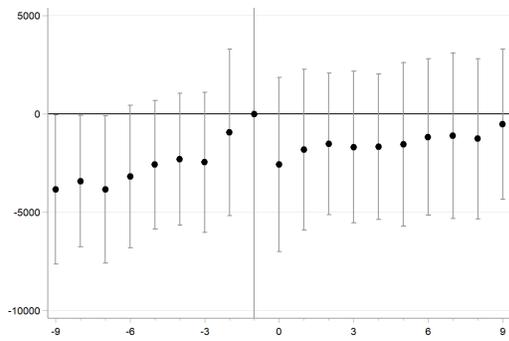
(b) Conditional Release
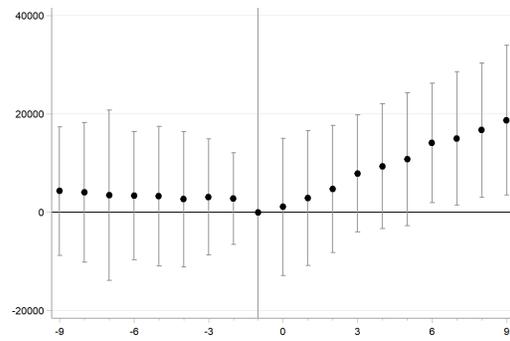
(c) Released on Mandatory Parole
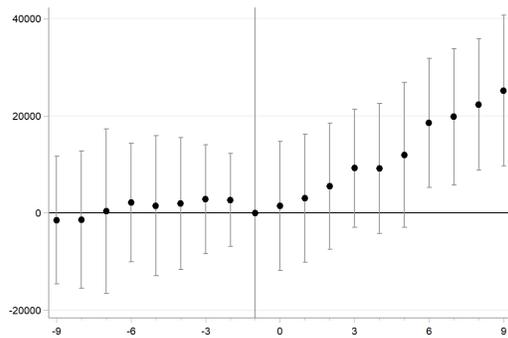
(d) Released on Discretionary Parole



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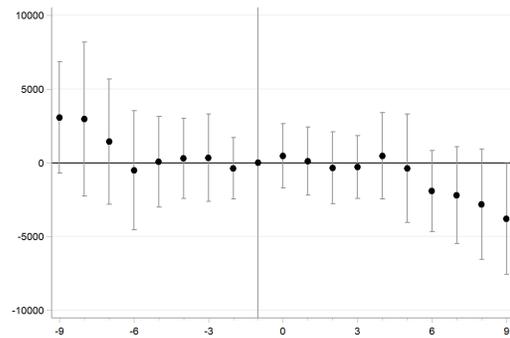
Figure A4.3: Event study Prison Overcrowding Results
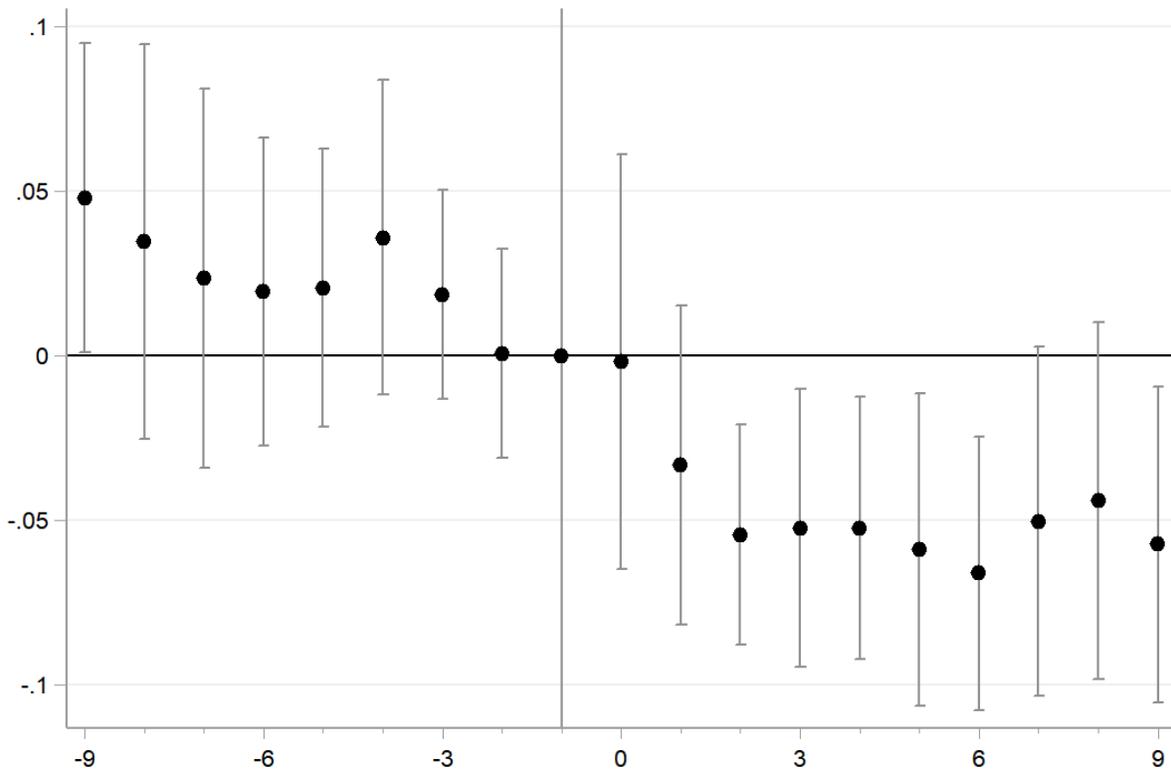
*Notes:* Overcrowding is measured as total persons in public custody over the total public capacity. Any value over 1 is a sign of overcrowding.

Figure A4.4: Event Study Prison Populations Results

(a) State Jurisdiction
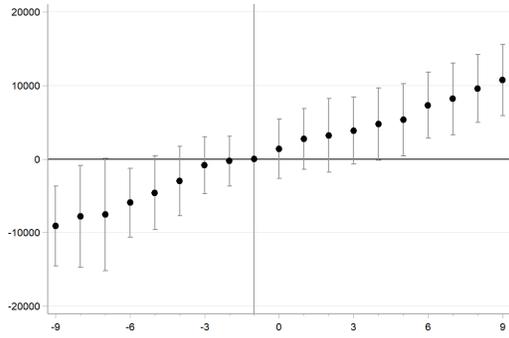


(b) Log Jurisdiction
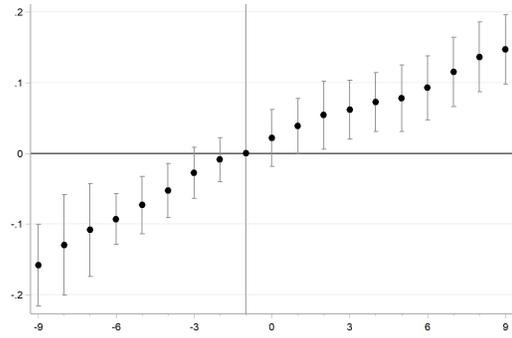


(c) Public Custody
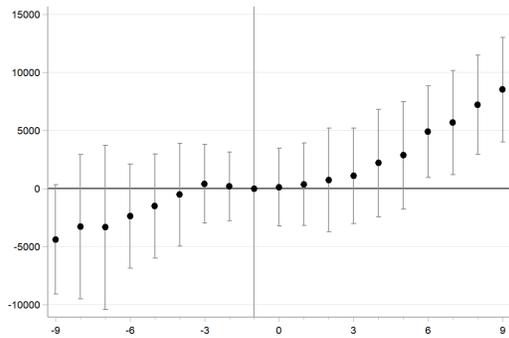


(d) Log Public Custody
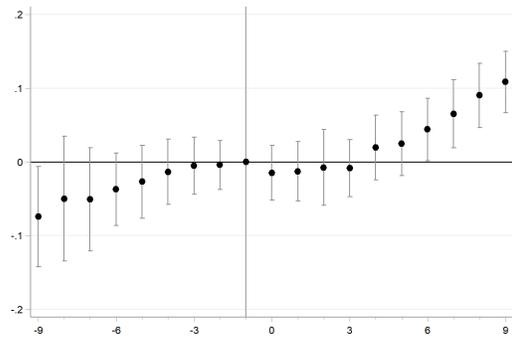


(e) Private Custody (in-state)
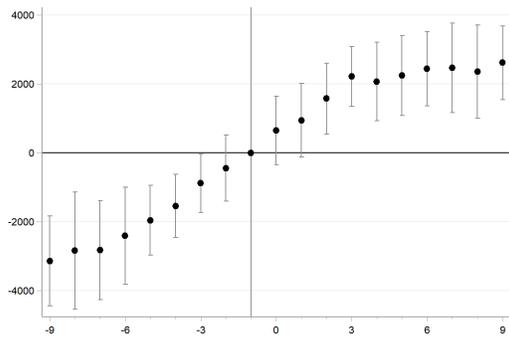


(f) Log Private Custody (in-state)
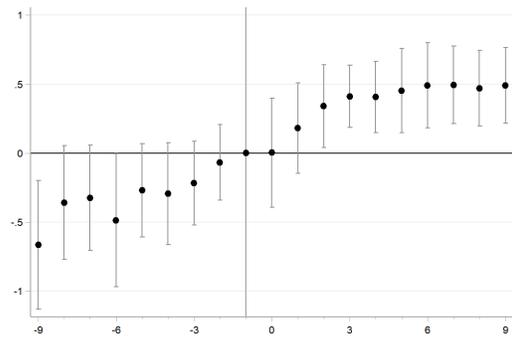
## Figure A4.5: Probability of Private Prison Experience Event Study Results

### (a) Probability Incarcerated in Private Prison
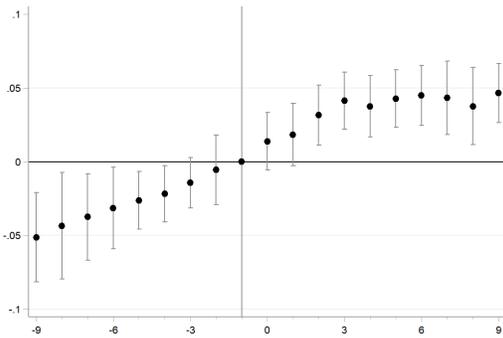
### (b) Probability Incarcerated in Public Prison
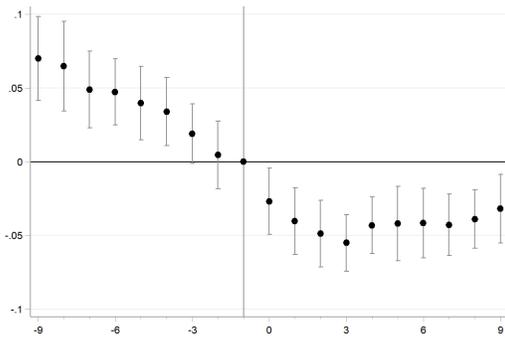
*Notes:* Figure plots the estimated effect of private prison openings on measures on the probability incarcerated individuals are housed in a private or public facility. Panel A's dependent variable is total persons in private custody over the total number of persons under state jurisdiction. Panel B's dependent variable is total persons in public custody over the total number of persons under state jurisdiction.

## Figure A4.6: Event Study Sentencing and Time Served Results

### (a) Sentence (Months)
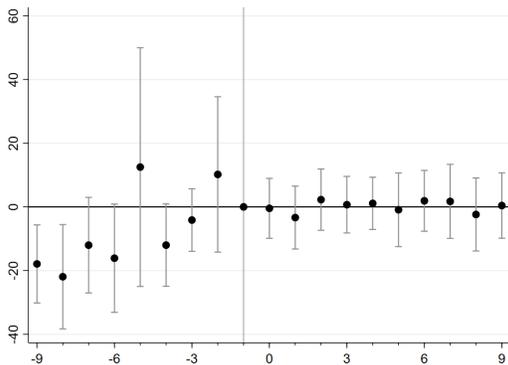
### (b) Time Served (Months)
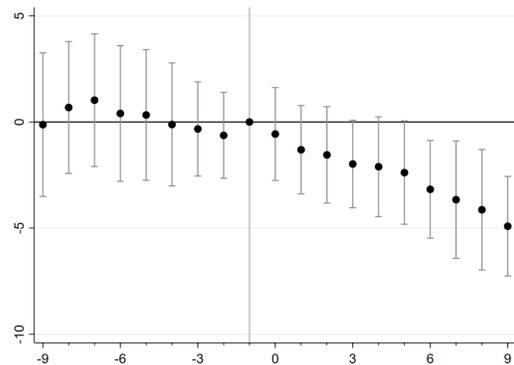
*Notes:* Sentences are measured upon admission to prison and time served in measured upon release from prison

Table A4.1: Racial Characteristics of Treated States

|  | Overall | Black | White | Black - White |
|---|---|---|---|---|
| Sentence (Months) | 64.09 | 69.08 | 61.73 | 7.35** |
|  | (27.81) | (27.48) | (28.41) | (0.01) |
|  | [180] | [180] | [180] |  |
| Time Served (Months) | 23.78 | 26.02 | 22.86 | 3.16*** |
|  | (6.14) | (7.28) | (6.00) | (0.00) |
|  | [180] | [180] | [180] |  |
| 1 Year Recidivism Rate | 0.19 | 0.21 | 0.19 | 0.02 |
|  | (0.12) | (0.14) | (0.12) | (0.15) |
|  | [178] | [178] | [178] |  |
| 2 Year Recidivism Rate | 0.31 | 0.34 | 0.30 | 0.04** |
|  | (0.12) | (0.14) | (0.13) | (0.02) |
|  | [167] | [167] | [167] |  |
| 3 Year Recidivism Rate | 0.37 | 0.41 | 0.37 | 0.05*** |
|  | (0.11) | (0.13) | (0.12) | (0.00) |
|  | [156] | [156] | [156] |  |
| 5 Year Recidivism Rate | 0.46 | 0.51 | 0.44 | 0.07*** |
|  | (0.10) | (0.12) | (0.11) | (0.00) |
|  | [124] | [124] | [124] |  |
| Treated Prisons |  |  |  |  |
| Admissions | 28,218 |  | Jurisdiction | 59,958 |
|  | (30,891) |  |  | (52,826) |
|  | [209] |  |  | [209] |
| Perc. Black | 32.14 |  | Perc. Black | 34.22 |
|  | (14.48) |  |  | (15.70) |
|  | [180] |  |  | [209] |
| Perc. White | 48.80 |  | Perc. White | 41.62 |
|  | (12.73) |  |  | (11.17) |
|  | [180] |  |  | [209] |

(Std. Dev), [N]

Last columns' ttests use $***p < 0.01, **p < 0.05, *p < 0.1$

Average Total Sentence measured at time of admission while Average Time Served measured as release.

Figure A4.7: 1-Year Recidivism Rates by Race Event Study Results

(a) 1-Year Recidivism Rate for Black People
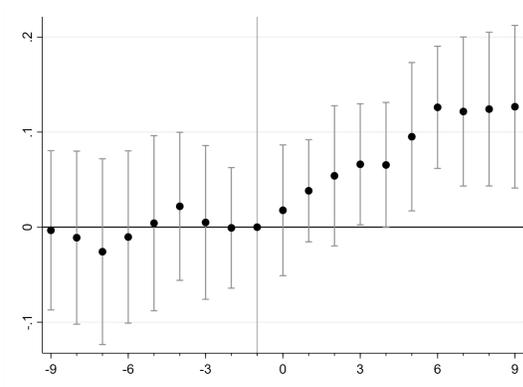


(b) 1-Year Recidivism Rate for White People
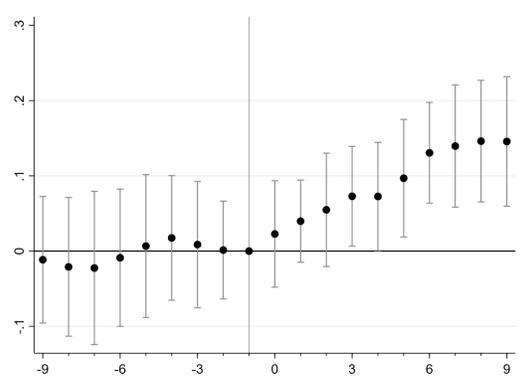


(c) 1-Year Recidivism Rate by Race