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Abstract

This article measures the effect of establishing private prisons on incarceration-related outcomes in the United States. We test two plausible mechanisms by which private prisons may influence the rate of receiving a prison sentence over probation: a corrupt enforcement authority and capacity constraints from overcrowding in public prisons. We develop a model to show that enforcement authorities faced with capacity constraints or are more susceptible to bribes set non-optimal sanction levels which increase total number of incarcerated individuals and each individual's sentence length. Using instrumental variables regressions at the state and individual levels, we find evidence consistent with the corruption-based mechanism for crime types when there is more sentencing leeway such as public order, drug or property crimes.

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Introduction

Private prisons have proliferated since the mid-1980s.[1] In 1984, Corrections Corporation of America (CCA, now CoreCivic) established the first privately-owned and -operated incarceration facility in Hamilton County, Tennessee (Mattera et al. 2001). The private prison industry experienced substantial growth through the late-1980s and early-1990s where annual industry revenues rose from $14 million in 1984 to $120 million in 1994 (Mattera et al., 2001). The capacity of private incarceration facilities increased from 3,000 beds in 1984 to 20,000 beds in 1990, followed by annual increases of 50% until 1994 where it slowed to an annual increase of 25% for the latter half of the decade (Mattera et al., 2001). The Department of Justice (DOJ) announced a phase out of private prisons at the federal level (US Department of Justice, 2016), sparking a decline in CoreCivic's stocks. However, Donald Trump's victory spurred a 47% increase in CoreCivic stocks and Attorney General Jeff Session scrapped the DOJ's phase-out plan (Surowiecki, 2016).

One hypothesis raised concerns the impact of private prisons on American incarceration rates. The American Civil Liberties Union asserts that private prisons significantly increased the incarceration rate in the U.S. since the mid-1980s (Shapiro, 2011). This may have occurred through lobbying and direct contributions to politicians and officials in exchange for favorable policies that increase incarceration rates (Ashton and Petteruti, 2011).

Two prominent examples illustrate the plausibility of this mechanism. First, in the "Kids for Cash" scandal in Luzerne, Pennsylvania, two judges received money from two private juvenile detention centers in exchange for harsh judgements on juvenile offenders to increase the number of residents in the centers (May, 2014). The judges sentenced minors convicted of

[1] Private prisons in this context are defined as privately-owned institutions contracted by the government that incarcerate individuals.

misdemeanors such as mocking their principal on a social network platform and trespassing in a vacant building to internment in private youth correctional facilities in exchange for $2.6 million in kickbacks. Second, lobby groups for private prisons supported California's three-strikes rule and Arizona's anti-illegal immigration law for harsher penalties on crimes and longer sentences (Cohen, 2015). CoreCivic lobbied for increased appropriation measures from the Office of Federal Detention Trustee and for Immigrations and Customs Enforcement (ICE) to maintain or increase the "bed quota," a policy mandating a minimum of 34,000 inmates at any given time regardless of illegal immigration levels (Ashton and Petteruti, 2011).[2]

This lobbying-induced mechanism is not the only plausible way private prisons might increase incarceration rates. Public prisons often suffer from overcrowding (Wilson, 2014), which might dissuade judges from assigning marginal convicts to prison. Private prisons may reduce this capacity constraint, leading to more incarcerations. Whether either of these mechanisms hold in practice remains unstudied, as do the specific channels by which they might influence incarceration levels such as incentivizing arrest rates, influencing guilty verdicts, or changing the likelihood an individual receives a prison sentence over probation.

This article explores the effect of establishing private prisons on incarceration rates in the United States. First, we build a model on sentencing to illustrate how sanctions are skewed in favor of owners of private prisons to increase incarceration rates at the extensive margin (aggregate number of prisoners) and the intensive margin (sanction level per prisoner). Next, we empirically estimate the effect of the number of private prisons on incarceration rates for different types of crimes. We examine two mechanisms to test our theoretical prediction:

[2] The Trump Administration requested Congressional approval to increase the bed quota to 51,000 in 2018.

capacity constraints of public prisons and corruption of enforcement authorities.[3] We instrument for the number of private prisons with a proxy for privatization ideology of state policymakers. Last, we decompose the impact of these mechanisms through their effect on three channels: number of trials, guilty sentences, and the likelihood of receiving a prison sentence conditional on conviction. This is the first study that provides a theoretical mechanism by which private prisons influence incarceration rates and empirically test the theoretical results.

We contribute to the public law enforcement and sentencing literature in three ways. Our main contribution is in the empirical literature on private prisons. There is very little empirical evidence related to the determinants and effects of private prisons. Most empirical work related to private prisons focuses on comparing the public versus private prison cost differential to see if savings exist in the latter compared to the former. Private prisons have lower construction and operating costs but there is poor management quality because of moral hazard, asymmetric information or incomplete contracting issues (Kish and Lipton 2013). We have not come across any empirical estimation that analyzes the impact of private prisons on incarceration rates.

Next, we contribute to the relatively small literature that analyzes the determinants of incarceration rates.[4] Incarceration rates across U.S. states depend on a variety of socio-economic, legal and political factors. Race and income inequality are significant indirect factors that affect incarceration rates (Arvanites and Asher, 1998; Yates, 1997). Political factors such as partisan control of the legislature, voting cycles and partisan control of the executive office contribute significantly to incarceration rates (Smith, 2004). Ideological orientations of enforcement

[3] There are other mechanisms, such as political preferences, that may exist that we leave for future work. For example, The Trump Administration's 2018 "zero tolerance" immigration policy provided a boon to the private prison industry. Nine of the ten largest ICE detention facilities are privately owned and houses 65% of immigration detainees (Urban and Allison, 2018; Homeland, 2016).

[4] There is a larger literature on incarceration effects on recidivism (Levitt, 1996; Chen and Shapiro, 2007), human capital (Alzer and Doyle, 2015), criminal deterrence (Lofstrom and Raphael, 2016) and fertility (Mechoulan, 2011).

authorities (Percival, 2010) and a country's legal origin (D'Amico and Williamson, 2015) also affect incarceration rates. None of these studies consider the role of private prisons.

Finally, we contribute to the theoretical literature on public law enforcement choice and sentencing.[5] Polinsky and Shavell (1982, 1984) show that the optimal sanction imposed by the enforcement to maximize welfare is equal to the harm caused by the individual. Andreoni (1991) found that equilibrium-derived penalties are superior to uniform penalties, which could encourage crime due to interdependence between penalties and conviction probabilities. Daugherty and Reinganum (2000) model sentencing decisions by a court which Bayesian updates its priors based on defendant appeal decisions and their expectations about higher court interpretations to minimize the chances of being overruled. Lundberg (2016) finds juries and judges issue "compromise verdicts" with a guilty verdict and relatively light sentence when confronted with uncertainty. In all these models, the enforcement authority does not take bribes and there are no prison capacity constraints.

We model how capacity constraints and lobbying affect sentencing lengths of an enforcement authority. We adapt Polinsky and Shavell (1984) by incorporating prison capacity constraints and use a common agency model to illustrate how owners of private prisons influence the sanction levels imposed by the enforcement authority. We find that enforcement authorities that are more susceptible to corruption or face less capacity constraints set non-optimal sanctions leading to higher incarceration rates at the extensive and intensive margins.

We collect data on incarceration rates by state for different crimes types from the National Archive of Criminal Justice Data and at the individual level from the United States

[5] The earliest contemporary work on public law enforcement was from Becker (1968) who models the supply and demand for criminal activity to derive the determinants of crime and predict the equilibrium value and quantity of such activities. Wittman (1974) builds a social welfare function to derive optimal sanctions based on the principle of retributive fairness, while Ehrlich (1982) expands this framework to include alternative theories of justice.

Sentencing Commission. We match this data with private prison numbers across states, demographic variables, and measures of capacity constraints and lobbying susceptibility. We use an instrumental variable regression to estimate the effect of private prisons on incarceration rates.

Simultaneity bias is likely where higher incarceration rates leads to more demand for private prisons. The proliferation of private prisons started in 1984 during the Reagan administration. The Reagan administration embraced privatization as a "strategy for minimalist government and deficit reduction" (Tingle, 1988). Studies from think tanks and academic institutions were significant factors in influencing policies that led to smaller governments, free market and trade and deregulation (Hacker and Pierson, 2017; Ravitch, 2017; Komlos, 2018). We proxy the rise in the privatization ideology by compiling the number of economic studies on privatization by state and using the data to construct a knowledge stock index similar to Popp (2002) as an instrument for the number of private prisons. This instrument is likely to influence a state policymaker's decision to allow private prisons but it has no direct effect on incarceration rates. Our Stock-Yogo test results show that our instrument is not weak.

We show that the initial adoption of private prisons spurs an increase in incarceration outcomes. Afterward, if the state has private prisons and is more corrupt, the incarceration rate at the extensive margin increases for some crimes such as public order crimes, drug related offenses and property crimes at a much greater rate than for all crimes in general. The effect is not significant for crime types where a guilty verdict virtually assures incarceration such as violent crimes. There is minimal evidence of private prisons influencing rates of guilty sentences or sentence length. However, we do find evidence of private prisons influencing the rate of trial cases, especially for immigration crimes, and individual-level incarceration likelihood for several crime types, most notably for public order crimes.

I. Model of Sentencing Enforcement

We present a model that illustrates the effect of private prisons on incarceration rates.

2.1 Theoretical Assumptions and Set up

There are three agents in the economy. The enforcement authority decides sanction levels, *S*, to impose on guilty criminals given an exogenously determined range of sanctions. Owners of private prisons influence the enforcement authority's sanction level. Finally, there is a population of individuals normalized to 1. Individuals draw from a probability distribution function, $f(g)$, to derive a gain from committing a harmful act, g. A high draw implies greater gains from committing a harmful act. The proportion of criminals is defined as $C(g^c) \equiv \int_{g^c}^{\infty} f(g)\, dg$, where g^c is a criminal cutoff gain such that an individual is indifferent between committing and not committing a harmful act.

Individuals receive disutility from incurring sanction, *d(S)*, where disutility is increasing in the sanction level at an increasing rate, i.e. $d_S>0$ and $d_{SS}>0$. Before committing the criminal act, the individual does not know the sanction level, only the possible range from $\underline{S}$ to $\bar{S}$.[6] The average sanction that the criminal expects is $\hat{S}$.

The incarceration rate is defined as,

(1) $I(g^I) = \int_{g^I}^{\infty} S(g)\, dg,$

where g^I is an endogenously-determined incarceration cutoff gain such that the enforcement authority is indifferent between sentencing the individual to probation and incarceration. The incarceration rate is based on an extensive effect—changes in the incarceration cutoff gain g^I—determining the aggregate number of individuals, and an intensive effect — changes in sanction

[6] For misdemeanor crimes, $\underline{S}$ may be 0 which implies probation. For felonies, $\bar{S}$ may be a life sentence.

level $S(g)$ —determining the length of an individual's incarceration. A reduction in g^I or an increase in $S(g)$ increases the incarceration rate.

The utility society receives from an incarcerated individual depends on the criminal gain draw they receive, as well as the sanction level, $U(S;g)$.[7] We assume that individuals that are incarcerated for a more severe act will yield a higher utility level for society, $U_g > 0$. Longer sanction levels increase utility at a decreasing rate, $U_S > 0$ and $U_{SS} < 0$, and the marginal utility for a sanction is higher for an individual who commits a more severe criminal act, $U_{Sg} > 0$.

2.2 Sentencing Model with a Capacity Constraint

The optimal sanction level is chosen between a sanction range to maximize societal welfare, W^n, which is comprised of the utility society receives from incarcerating the individual, the cost of incarceration and the disutility individuals receive from incarceration,

(2) $W^n = U(S;g) - d(S) - pS$ subject to $0 \leq S \leq \bar{S}$,

where *p* is the price paid to the private prison owner per unit of sanction level for an incarcerated individual. For an interior solution, the first order condition is,

(3) $U_S(S^*;g) = d_S(S^*) + p$.

The optimal sanction, S^*, for an individual with gain g is such that society's marginal utility from the sanction equals the marginal disutility of the incarcerated individual plus the price of incarceration. When W^n is concave and $U_{Sg} > 0$, individuals that impose more severe damages from their crime because of a higher draw g face a higher sanction level, i.e. $\frac{dS^*}{dg} > 0$. The enforcement authority chooses probation when the following condition holds,

(4) $U_S(0;g) \leq d_S(0) + p$.

[7] Even though the gain individuals receive is not directly observable by an enforcement authority, the severity of the damages or harm from the criminal actions is assumed to be correlated with such a draw.

Here, society's marginal utility from incarcerating the individual is less than the marginal costs to society for incarceration for any $S > 0$. When equation (4) holds with equality, we find the incarceration cutoff gain, $g^I = g^n(p)$, leading to an incarceration level $I(g^n) = \int_{g^n}^{\infty} S^*(g)\, dg$.

Maximization of equation (2) requires the absence of a prison capacity constraint such that $(N + M)C > \int_{g^I}^{\infty} S(g)\, dg$ where N is the number of private prisons, M is the number of public prisons and C is the capacity per prison. If the constraint is binding, this yields the following first order condition for an individual with draw g,

(5) $U_S(S; g) - \lambda = d_S(S) + p$,

where λ is the marginal welfare from an increase in prison capacity. The sanction level for every individual with a capacity constraint is lower than the optimal sanction level, S^*, and there are fewer incarcerated individuals if $\lambda > 0$.[8] The results are reversed when $\lambda < 0$.

2.3 Sentencing Model with Corrupt Enforcement Authority

The sanction level in the presence of lobbying by owners of private prisons is solved through a two-stage complete information game. First, owners of private prisons present a bribe-sanction schedule to the enforcement authority where they promise to provide an amount of money to the enforcement authority if a particular sanction level is instituted. Second, the enforcement authority chooses the sanction level by maximizing the weighted sum of society's welfare and the bribes they receive. We solve the model recursively.

In the second stage, the enforcement authority maximizes the following welfare function adapted from Grossman and Helpman (1994),

(6) $W^{\ell} = U(S; g) - d(S) - pS + \alpha B$,

[8] See Appendix for detailed proof.

where B is the bribe received and α is the weight on the bribe. Here, α is a corruption proxy because a larger value implies more selfish behavior and less concern for societal welfare (Damania et al., 2003; Damania and Fredriksson, 2003; Fredriksson and Svensson, 2003).

In the first stage, the private prison owners receive revenues from the payment for incarcerating individuals and revenues from the production of goods using incarcerated individuals as inputs. The costs include the cost of incarcerating inmates and the bribe paid to the enforcement authority. The welfare of private prison owners from an individual with draw g is,

(7) $L = (p - c)S + vY\left(N, I\left(S, g^{\ell}\right)\right) - B$

where v is a competitive output price of a good produced in prison, c is the per unit cost of incarceration and $Y\left(N, I\left(S, g^{\ell}\right)\right)$ is a production function. We assume the production function is increasing in each input at a decreasing rate and both inputs are complements, $Y_{NI} > 0$.

Bernheim and Whinston (1986) show that the optimal solution to this common agency framework is derived by maximizing aggregate welfare for all agents such that,

(8) $U_S(S^{**}; g) + \alpha((p - c) + vY_I) = d_S(S^{**}) + p.$

Note that when the weight placed by the enforcement authority on bribes is zero, the condition reverts back to equation (3), which illustrates a socially optimal level of enforcement authority.

Bribes distort sanctions chosen by the enforcement authority as well as the incarceration cutoff gain. The sanction-bribe schedule increases the marginal benefits of the sanctions for the enforcement authority leading to more stringent sanctions relative to the socially optimal level to increase incarceration at the intensive margin. At the extensive margin, the corruption level also affects the incarceration cutoff gain leading to more criminals incarcerated.[9]

[9] See Appendix for detailed proof.

The number of private prisons also has an extensive and intensive effect on total incarceration. An increase in the number of private prisons will increase the sanction level for each individual as well as the total number of individuals incarcerated if there is some positive corruption level by the enforcement authority.[10]

2.4 Implications and Limitations of the Model

There are two important notes regarding our model. First, if most convicted criminals are sentenced to the maximum sanction level, the intensive margin cannot increase with more private prisons but incarceration rates can still rise through the extensive margin. On the other hand, if most convicted criminals are incarcerated given the severity of their crime, the extensive margin does not change but incarceration can still increase through the intensive margin. Second, our theory focuses only on the final sentencing. However, the capacity constraint and corruption mechanisms may also affect three channels prior to sentencing which are taken as given in our model: the choice to go on trial, the verdict of the trial, and the likelihood an individual is incarcerated. We empirically test how the two mechanisms in our theory – the capacity constraint and corruption mechanism – affect all three channels contributing to aggregate incarceration rates – total trials, verdicts, and likelihood of individual incarceration.

II. Empirical Model

We outline our empirical model to examine how the two mechanisms link private prisons and incarceration rates as well as the channels the mechanisms operate through.

3.1 Relating Mechanisms and Channels Between Private Prisons and Incarceration

To test the effect of private prisons on aggregate incarceration rates at the extensive margin, we estimate the following reduced form model,

[10] See Appendix for detailed proof.

(9) $I_{st} = \gamma_0 + \gamma_1 N_{st} + \gamma_2 \bar{p}_{st} + \gamma_3 \alpha_{st} + \gamma_4 \alpha_{st} N_{st} + \gamma_5 C_{st} + \gamma_6 C_{st} N_{st} + \gamma_7 P_{st} + \vartheta_s + \rho_t + \epsilon_{st}$,

where I_{st} is total incarcerated individuals in state *s* at year *t*, N_{st} is the number of private prisons in state *s* at year *t*, $\bar{p}_{st}$ is a price index in state *s* at year *t* that captures all output prices and incarceration payments in the state economy, α_{st} is a measure of corruption in state *s* at year *t*, C_{st} is a measure of capacity constraints in public prisons, P_{st} is population in state *s* at year *t*, ϑ_s is a state fixed effect, ρ_t is a year fixed effect and ϵ_{st} is a random disturbance term.

This model tests the two mechanisms by which private prisons affect incarceration rates. If corruption is necessary to induce incarceration rates to increase as private prisons rise, we expect $\gamma_4 > 0$. Our theory points to ambiguity relating private prisons to incarceration rates via capacity constraints. If society's marginal utility for increasing the capacity constraint is negative, we expect an additional private prison through this mechanism to increase incarceration rates, $\gamma_6 > 0$. However, if society's marginal utility for increasing the capacity constraint is positive, then we expect $\gamma_6 < 0$. There may be other mechanisms by which private prisons affect aggregate incarceration rates that we do not consider which is captured through the private prison coefficient such that $\gamma_1 > 0$ when γ_4 and γ_6 are both insignificant.

To estimate the effect of private prisons on the intensive margin of incarceration, we run a similar specification as equation (9), but we replace the dependent variable with average sentencing length. Similar to the extensive margin model, we expect $\gamma_4 > 0$ and γ_6 is ambiguous if the two mechanisms we outlined significantly affected the average sentencing length.

We also test how private prisons influence three channels leading to incarceration: total trials, guilty verdicts, and individual likelihood of incarceration. We use a similar specification to equation (9) to test the former two channels by replacing the dependent variables with total trials by state and total guilty verdicts by state, respectively. To test the third channel, we estimate a

similar model to equation (9) but use a repeated cross section at the individual level. Our dependent variable is a dummy which is 1 if the individual is incarcerated and 0 otherwise.

3.2 Estimation Issues and Identification

One important issue regarding the estimation of equation (10) is endogeneity of the number of private prisons. Simultaneity bias is likely to occur since more incarcerated individuals require more prisons. A fixed effects model lead to estimates which are biased toward attenuation as an inflated number of private prisons would be explaining the same number of prison sentences, similar to the simultaneity issue between police hiring and crime rates (Levitt, 1997). We estimate this model by incorporating an instrumental variable.

The rise in the number of private prisons started during the Reagan administration which embraced an ideology of privatization (Tingle, 1988). Prior to these years, think tanks and academic institutions published articles arguing for smaller governments, less regulations and privatization of firms (Hacker and Pierson, 2017; Ravitch 2017, Komlos 2018). Privatization ideology likely influenced the proliferation of privatizing correction facilities. We created an index of the rise of such an ideology using Popp's (2002) index of knowledge stock, $K_{st} = \sum_{i=0}^{t} A_{si} e^{-\beta_1(t-i)}\left(1 - e^{-\beta_2(t-i)}\right)$ where K_{st} is the stock of privatization knowledge in state *s* during year *t*, *A* is the amount of academic studies on privatization, $\beta_1$is the decay rate of privatization knowledge and $\beta_2$is the diffusion rate.[11] This measure proxies for the rise of a privatization ideology in each state over time. Academic studies on privatization are plausibly exogenous with respect to prison sentences as publication lag and our index formulation renders contemporaneous reverse causality highly unlikely. Exclusion can be plausibly maintained as there is no clear link between such literature and sentencing except through private prisons.

[11] We use Popp's (2002) estimates of $\beta_1 = 0.353$ and $\beta_2 = 0.00199$ in the creation of our index.

We require an additional instrument to identify the model whenever interaction terms with our endogenous variable are included in the specification. We use the index on the knowledge of privatization multiplied by the interacted exogenous variable, be it the corruption index or the capacity variable, as an added instrument leading to a just identified model. Doing so adds a valid instrument as proven in Balli and Sorensen (2013).

There are other issues with the estimation that we consider. First, there may be other state characteristics that create an environment where privatization of prisons is more acceptable than other states. We include proxies for political ideology, wealth, economic conditions and population to control for these factors at the state level and cluster standard errors at the state level. The second issue is the unobserved fixed state characteristics or time varying unobserved variables that affect all states. We use state-level fixed effects and year dummies to account for both. Finally, we include individual level characteristics on top of the state variables and fixed effects when estimating individual-level regressions.

III. Data

Three key measures form the foundation of our analysis: the quantity of private prisons, the volume of academic literature on privatization, and criminal trial outcomes. We compiled a panel dataset for three of these variables at the state level and repeated cross sections at the individual levels from 1998 to 2008. This period was chosen due to data availability. Table 1 displays summary statistics and Appendix A summarizes data definitions and sources.

4.1 State-Level Data

Our measure of private prisons is from the Human Rights Defense Center which includes an inventory of prisons, jails, detention centers, juvenile and women's facilities, halfway houses, boot camps, and immigration enforcement contractors from 1993 to 2008. On average, a state

had 4 such institutions in a given year, peaking with 71 in Texas in 2008. On a per capita basis, the average in a given year was 1 institutions per one million residents across all observations, peaking at 10 in Alaska in 1999. Figure 1 maps these facilities, with the size of each facility's circle representing the number of inmates each facility is capable of housing.

An index of privatization knowledge using academic studies serves as our instrument. Figure 2 shows the rise in private prisons in the United States and it follows a similar but time-lagged trend as a weighted stock of academic literature on privatization. Our measure was curated from the EconLit database using all search results for the keywords "privatization" or "neoliberalism" over the period of 1980 to 2008. The results were categorized by the state of the author's affiliated institution. These academic knowledge stocks were weighted by time since publication in accordance with Popp (2002). This measure was adjusted by the number of "top publishing" economists per 100,000 people in that state-year, as measured by the Research Papers in Economists Project, to capture the intensity of privatization ideation within the research community of the state. Over 7,200 matching papers were identified. Relevant papers per-capita economists averages 0.82 in a given state-year, peaking at 7.11 in Florida in 2000. The private knowledge index averages 6.80 and peaks at 89.64 in Florida in 2008.

State-level data on federal criminal trial outcomes is from the Bureau of Justice Statistic's Federal Criminal Case Processing Statistics, which breaks down trial outcomes by type of crime and sentence received within each of the 94 judicial districts in the U.S. The type of crimes are aggregated into six categories: violent crimes such as murder, sexual misconduct, and assault; property crimes including burglary, arson, and fraud; drug crimes; public order crimes including prostitution, perjury, public intoxication, and regulatory violations; weapons crimes not including violent crimes such as trafficking, illegal manufacture, and registration violations; and

immigration crimes. Major trial outcomes include not guilty, a suspended sentence, a sentence of probation or a fine, and a prison sentence.

Our measure of the extensive margin of incarceration is the total number of incarcerated individuals by crime type in a state. The measure of the intensive margin of incarceration is the average sentence length for a type of crime in a state. Prison sentence rates for the guilty varied across crime types. Violent, drug, weapons, and immigration crimes saw between 94%-97% prison rates, with property crimes much lower at 61% and public order crimes the lowest at 55% across all state-years. Significant variation exists across states. Average sentence length also varied by crime type, with violent and weapon crimes receiving the longest sentences. Property crimes had the shortest average sentence length followed by immigration crimes.

To examine our hypothesized mechanisms, we obtained proxies for corruption and capacity constraint. We proxy corruption with the number of public officials convicted in violation of federal corruption laws as reported by the DOJ's Public Integrity Section, adjusted by total state population. A larger value of total convicted public officials per capita indicates a more corrupt state. Other empirical studies on corruption used similar corruption proxies (Adserà et al., 2003; Alt and Lassen, 2008, 2014; Glaeser and Saks, 2006; Liu and Mikesell, 2014; Meier and Holbrook, 1992). The most corrupt state in our sample is North Dakota at an average of 0.85 corruption convictions per 100,000 people per year. The least corrupt is Oregon with an average of 0.09 corruption convictions per 100,000 people per year. Figure 3 suggests a slight negative relationship between this corruption measure and the likelihood a convicted criminal receives a prison sentence, implying no confounding increases in incarceration in highly corrupt states.

Our corruption measure has two potential criticisms: the number of convicted public officials may not embody the true level of state corruption and the measure may not reflect

corruption but show the effect of law enforcement ability. As a response to the first criticism, the state's public official conviction rankings match the general perception of state corruption (Meier and Holbrook 1992; Glaeser and Saks 2006). The five most corrupt states in our sample are Alaska, Illinois, Louisiana, Mississippi, and North Dakota while the five least corrupt states are Colorado, Minnesota, Nebraska, New Hampshire, and Oregon which matches general perception of state corruption rankings. As a response to the second criticism, the conviction rate of public officials is not correlated with working hours of U.S. attorneys, number of Federal state judges or district court caseloads which are measures of the degree of law enforcement or availability of court resources (Liu and Mikesell, 2014).

Our capacity constraint proxy is represented by the occupancy rate of public prisons. The average state-year saw 102% of total public prison design capacity occupied by inmates according to the Bureau of Justice Statistics' *Prisoners Series*. Illinois had the highest average occupancy rate at 135.1% of capacity, while Wyoming had the lowest average rate at 86.4%. The presence of private prisons may cause judges to become more strict in sentencing margin convicts to prison knowing that the overcrowding of inmates will be reduced. Conversely, the very fact that public prisons are carrying over 100% capacity may suggest that fewer inmates need to go to private prisons. Thus, our variable captures the potential ambiguity effect of capacity constraints on incarceration rates that we outline in out theory.

Other control variables culled from various sources include population, a constructed state-level price index, median age, median household income, proportion of race and gender, unemployment rate, proportion of Democrats in the state legislature, and total federal prisons.

4.2 Individual-Level Data

The United States Sentencing Commission (USSC) compiles individual-level data on federal criminal trials. Their data includes the type of crime committed, whether defendants were found guilty, the nature of their sentence if convicted (probation or prison sentence length), and selected personal demographics of the defendant. We collect different demographic attributes including age, sex, race and ethnicity, education level, citizenship status, and criminal history.

The demographics of the individuals involved in these cases skews heavily from overall national population dynamics. Only 31% of cases involved a white convict, while 40% involved a Hispanic convict and 25% involved a black convict. Drug crimes comprise 37% of cases and 73% were non-white convicts. The vast majority of cases involved men, with women only making up 14% of the sample. The sample also skewed toward less educated individuals where 45% of convicts never graduated high school and only 6% had a college degree. Here, 73% of convicts were repeat offenders.

Incarceration likelihood and average sentence length varied by demographic subgroup. Men were substantially more likely to be given a prison sentence and receive longer sentence lengths than women. Hispanics saw the highest incarceration likelihood while blacks received the most time. Incarceration likelihood was strictly decreasing in education level, although average sentence length peaked among those with a high school diploma. Criminal history increased both prison likelihood and sentence length.

IV. Results

We first establish baseline results using aggregate data and then show aggregate incarceration effects before delving into the mechanism and channels by which private prisons affect incarceration. Our main specification is a two-stage IV approach. All regressions have

state and year fixed effects. State-level regressions use state level clustered standard errors while individual-level regressions cluster standard errors at the state-year level.

5.1 The Effect of Establishing the First Private Prison

First, we investigate whether there exists a detectable change in incarceration outcomes when a state's first private prison becomes operational. We construct a panel consisting of states that opened their first private prison during the window of the study and assign an indicator variable equal to unity only in the year of this initial private prison's opening. In order to control for a fluctuating size of the prisoner population as state inclusion changes, we consider the proportion of all guilty verdicts receiving a prison sentence.

Figure 4 demonstrates a statistically significant uptick in the prison proportion at the time of initial private prison opening based on non-linear Epanechnikov-kernel regressions on either side of the structural break. This effect is demonstrated by linear regression results in Table 2. We estimate a statistically significant 4% increase in the change in prison proportion at the time of adoption. We also report placebo tests for both the year before and after adoption showing statistical insignificance indicating that a uniquely pro-incarcerative effect occurs at the time of adoption not confounded by local trends. These findings warrant further investigation.

5.2 Aggregate Effects of Private Prisons at the Extensive and Intensive Margins of Incarceration

Table 3 reports FE regressions which estimate the effect of the number of private prisons on the number of prison sentences. A positive and statistically significant coefficient is found for private prisons. The coefficient on the interaction of private prisons and corruption convictions per capita is also positive and significant while the coefficient on the interaction of private prisons and public prison occupancy rate is insignificant. The inclusion of additional state-level

controls does not produce any qualitatively distinct results. This correlation raises the question of causality and whether any such causality is generated by corruption or capacity relief.

We estimate an Instrumental Variables Two-Way Fixed Effect (IV-FE) regression using our measure of privatization ideology as our main instrument.[12] Table 4 reports first stage results demonstrating that our instrument is a statistically significant predictor of private prisons and not likely weak. We present Stock-Yogo test results to formally determine instrument strength in our second stage results. The Stock-Yogo test results in the bottom of Table 4 indicate our instrument is not weak and reduces bias compared to FE by over 90%. This strength is diluted as more interaction terms are included to evaluate our mechanisms.

The first column of Table 5 presents our second stage results for all crimes. The effect of private prisons is no longer statistically significant nor their interaction with either mechanism when considered jointly.[13] One explanation for the non-significance of our result is that we lump together different crime types. The marginal effect of private prisons may differ depending on the severity of the criminal act.

The next six columns of Table 5 explore IV-FE effects for crime types of varying severity. Private prisons have no statistically significant effects on incarceration for violent, weapon, and immigration crimes. One plausible explanation is that violation of such crimes have prison rates greater than 90% given sentencing guidelines leaving very little leeway for the possibility of probation. In contrast, private prisons have strong statistically significant effects on incarceration rates for property and drug crimes. The effects appear roughly equivalent for the

[12] Since we include the interaction between our corruption measure and private prisons in our specification, we also show a specification where the corruption measure is interacted with our index of privatization knowledge as an added instrument. Note that using the interaction between our index of privatization knowledge and corruption measure is also a valid instrument as proven in Balli and Sorensen (2013).

[13] Although not reported here, the corruption mechanism is statistically significant when the occupancy mechanism is not considered while the occupancy mechanism does not become significant when corruption is excluded. Results are available from the authors upon request.

two crime types where one more private prison institution increases the number of incarcerated individuals convicted of these crimes by 20. An additional positive and statistically significant coefficient is recorded for the interaction of corruption and private prisons for these crime types when this mechanism is solely considered.[14] Finally, for public order crimes, the interaction of corruption and private prisons increase incarceration rates. This implies that enforcement authorities may be more likely to send individuals to jail for public order crimes instead of probation only when there are more private prisons *and* if the enforcement authority is corrupt. Drug, property and public order crimes demonstrating sensitivity to private prisons can be partially explained by their naturally lower level of incarceration and wider sentencing latitude.

Across all crime types, the occupancy mechanism is either statistically insignificant or reports a significant negative coefficient. Based on our theory, this could be explained by a negative marginal utility of private prisons implying a reduction in the need for private prisons when public prisons are used to capacity. On the other hand, the corruption mechanism is consistently present for public order crimes and property and drug crimes when they are the sole mechanism investigated in the specification. Thus, between the two hypothesized mechanisms, the corruption mechanism is most likely driving the effect of private prisons on incarceration rates especially for crimes when probation is a likely option.[15]

Comparing the Fixed Effects results in Table 3 and Appendix Table B to the IV estimates in Table 5, the simultaneity attenuation bias can be seen in the non-IV estimates across statistically significant variables. The increased estimates stem from IV estimates employing exogenous variation independent of incarceration levels, which removes the feedback effect increased incarceration has on the demand for private prisons. This reduces the number of

[14] Results for these particular specifications are available from the authors upon request.
[15] Given results for property and drug crimes, there may also be other mechanism in play that we did not consider.

private prisons explaining the same level of incarceration, thereby generating a larger marginal effect of private prisons on incarceration rates.

Table 6 examines the effect of private prisons on the intensive effect of incarceration through sentencing length. There are no statistically significant effects identified with the exception of a positive corruption-interaction effect for the average sentence length from drug crimes. This estimate suggests drug-related sentences increase by an additional month for each additional private prison in North Dakota relative to an additional private prison in Oregon.

Our results indicate that private prisons have a more significant effect at the extensive margin of incarceration – total number of incarcerated individuals – rather than the intensive margin – sentencing length per incarcerated individual. The effect is more significant for crimes where there is more leeway for enforcement authorities in granting probation rather than incarceration. Even though we identified an overall effect linking private prisons to incarceration rates, it is important to further examine the channels by which private prisons lead to more incarceration via total trials, guilty verdicts and individual likelihood of sentencing.

5.3 The Channels Affected by Private Prisons

One channel by which private prisons may affect incarceration rates is through the number of individuals put on trial, perhaps by influencing arrest rates or plea bargain negotiations. Table 7 reports IV-FE estimates relating private prisons to total trials. We find strong statistical significance and positive coefficients for the effect of private prisons on violent, drug, and immigration trials. The private prison parameter estimates related to immigration and drug crimes are far larger than violent crimes where one more private prison increases total trials for the two former crimes by 80 and 89 individuals, respectively while it only increases the latter crime by 19 trials. Interestingly, the corruption interaction effect is positive and significant for

immigration crimes which implies lobbying is a factor at this stage of the incarceration process. This increase in immigration arrests could relate to ICE's bed quota, which may incentivize lowered thresholds for detainment (Sinha, 2017).

Another channel is the proportion of guilty sentences handed out. From Table 8, there is no evidence that private prisons increase guilty sentences in the absence of corruption. In the presence of a corrupt enforcement authority, only property crimes see a statistically significant and positive coefficient estimate. The difference between North Dakota's and Oregon's responses to an additional private prison is 4 more property crime convictions per year.

The final channel we examine relating private prisons to incarceration rates is the individual-level incarceration likelihood conditional on conviction. This analysis strips away any aggregate effects due to the changes in the number of trials and convictions which allows us to examine how individual characteristics interact with private prison effects. Table 9 reports individual-level IV-FE regression results which cluster standard errors at the state-year level. Private prisons have a positive and significant effect on the likelihood of incarceration for individuals committing drug and immigration crimes. The interaction of private prisons and corruption is also positive and significant for public order and weapons crimes.

We calculate the marginal change in incarceration likelihood for one additional private prison at varying levels of state corruption and for different types of convicts in Table 10. At the highest level of corruption observed in the dataset, each additional private prison corresponds to a 0.3% increase in incarceration likelihood overall, a 2.4% increase for public order crimes, and a 0.7% increase for weapons crimes. Black convicts see a statistically significant 0.5% increase for each additional private prison at high corruption levels, while whites and Hispanics do not experience a statistically significant increase. Women experience a 0.9% increase per private

prison compared to 0.2% for men in high corruption cases. High school graduates, American citizens, and those under age 40 also exhibit more responsiveness with the private prison-corruption interaction term.

We also investigate the effect of private prisons on the intensive margin of incarceration where we use average sentencing length at the state level and actual sentence length received at the individual level as the dependent variable. Private prisons have no significant effect on the intensive margin at the individual level which is very similar to our results at the state level.[16]

Our empirical results examining the channels by which private prisons affect incarceration rates show several consistent features with our aggregate incarceration results by crime type. Private prisons may affect the total number of trials for certain crimes. However, private prisons do not have a wide range of significant effects on the trial outcome itself. We only find that it is significant with respect to property crimes in states that are corrupt. Finally, private prisons have a significant effect on the individual likelihood of incarceration especially for drugs, property, weapons and immigration crimes.

Understanding the channels by which private prisons affect incarceration rates can explain our aggregate incarceration results by crime type. For example, the positive estimate of private prisons on incarceration rates from drug crimes can be explained by an increase in overall trials as well as the individual likelihood of incarceration but not guilty verdicts. Also, while immigration crimes see a large increase in trials and the individual likelihood of incarceration, there is some reduction in conviction rates from suspended sentences and deportations. The combination may explain an overall positive but insignificant effect of private prisons on incarceration rates for immigration crimes. For property crimes, there are no significant effects

[16] Results are available from the authors upon request.

through trials and the likelihood of individual incarceration but there is an effect through convictions which may contribute to the overall positive effect of private prisons on aggregate incarceration rates for this crime type. Finally, for public order crimes, the only significant channel is through the interaction effect of private prisons and corruption in the individual likelihood of incarceration which is also borne out on the aggregate data results.

V. Conclusion

The objective of this study is to determine if there is any link between private prisons and incarceration rates or sentence lengths. Our secondary objective is to determine a plausible mechanism explaining such a relationship and understanding the channels that transmit private prison influence into incarceration outcomes. We develop a theoretical model that shows how enforcement authorities constrained by prison capacities or are susceptible to corruption skew sanctions leading to more incarcerated individuals with longer sentences. Using our theoretical model, we test our results using a panel dataset at the state level and a repeated cross section at the individual level. To identify our empirical results, we use a unique instrumental variable: a measure of privatization ideology based on an index of the number of economic studies related to the topic. The number of economic studies on privatization is likely only to affect incarceration rates through the number of private prisons established.

We demonstrate the existence of increased incarceration when a state initially opens its first private prisons. Our empirical results show that our instrument is not weak based on the Stock-Yogo test. Our main estimates show that after instrumenting for private prisons, the effect of private prisons varies by crime severity and works through a variety of channels including the number of trials, rate of guilty sentences, and individual-level incarceration likelihood. We find little evidence consistent with a capacity relief mechanism driving a positive relationship

between private prisons and incarceration. In most cases of statistical significance, the influence of additional private prisons increasing incarcerative outcomes is through the corruption mechanism. The most strongly influenced crime types tend to be those with more available upward flexibility to incarcerate such as property, drug and public order crimes. Finally, different crimes are affected by private prisons through different channels. We find more evidence for private prisons affecting overall incarceration levels through total trials and individual incarceration likelihood than guilty sentences.

Our results have important policy implications. We find a causal link relating private prisons to increased incarceration rates, but it seems associated with whether a state has a judicial institution susceptible to corruption, and it is dependent on the nature of the crime. We find the presence of private prisons by itself may not increase incarcerations. A corrupt enforcement authority and/or laws favoring more incarceration seem to be important factors determining whether private prisons have a positive influence on incarceration rates.

References

Adserà, A., C. Boix, and M. Payne. 2003. "Are You Being Served? Political Accountability and Governmental Performance." Journal of Law, Economics, and Organization, 19(2), 445–490.

Alt, J. E., and D. D. Lassen. 2014. "Enforcement and Public Corruption: Evidence from the American States 2014." Journal of Law, Economics, and Organization, 3(2), 306–338.

Alzer, A. and J.J. Doyle. 2015. "Juvenile Incarceration, Human Capital, and Future Crime: Evidence from Randomly Assigned Judges." Quarterly Journal of Economics, 130(2) 759-803.

Andreoni, J. 1991. "Reasonable Doubt and the Optimal Magnitude of Fines: Should the Penalty Fit the Crime?" The RAND Journal of Economics. 22(3): 385-95.

Arvanites, T.H. and M.A. Asher. 1998. "State and County Incarceration Rates: The Direct and Indirect Effects of Race and Inequality." American Journal of Economics and Sociology. 57(2): 207–222.

Ashton, P. and A. Petteruti. 2011. Gaming the System: How the Political Strategies of Private Prison Companies Promote Ineffective Incarceration Policies. Justice Policy Institute report. Available at: http://www.justicepolicy.org/uploads/justicepolicy/documents/gaming_the_system.pdf

Balli, H.O. and B.E. Sorensen. 2013. "Interaction effects in econometrics." Empirical Economics. 45(1): 583-603.

Bernheim, B. D., and M. D. Whinston. 1986. "Menu Auctions, Resource Allocation, and Economic Influence." Quarterly Journal of Economics, 101(1): 1–31.

Chen, M. K., and J. Shapiro. 2007. "Do Harsher Prison Conditions Reduce Recidivism? A Discontinuity-Based Approach." American Law and Economic Review, 9(1): 1-29.

Cohen, M. 2015. "How private prisons have become the biggest lobby no one is talking about." Washington Post. Available at: https://www.washingtonpost.com/posteverything/wp/2015/04/28/how-private-prisons-have-become-the-biggest-lobby-no-one-is-talking-about/

D'Amico, D. and C. Williamson. 2015. "Do Legal Origins Affect Cross-Country Incarceration Rates?" Journal of Comparative Economics, v. 43, iss. 3, pp. 595-612.

Daugherty, A. and J. Reinganum. 2000. "Appealing Judgments." The RAND Journal of Economics, 31(3): 502-525.

Ehrlich, I. 1982. "The Optimal Enforcement of Laws and the Concept of Justice: A Positive Analysis." International Review of Law and Economics, 2(1), 3-27.

Glaeser, E. L., and R. E. Saks. "Corruption in America." Journal of Public Economics, 90(6-7), 2006, 1053–1072.

Grossman, G. M., and E. Helpman. 1994. “Protection for Sale.” American Economic Review, 84(4): 833–50.

Hacker, J.S. and P. Pierson. 2017. American Amnesia: How the War on Government Led Us to Forget What Made America Prosper. Simon & Schuster.

Homeland Security Advisory Council. “Report of the Subcommittee on Privatized Immigration Detention Facilities.” United States Department of Homeland Security, 2016.

Komlos, J. 2018. “The Economic Roots of the Rise of Trumpism.” CESIFO Working Papers 6868-2018. Avialable at: http://www.cesifo-group.de/DocDL/cesifo1_wp6868.pdf

Kish, R.J. and A.F. Lipton. 2013. “Do Private Prisons Really Offer Savings Compared with Their Public Counterparts?” Economic Affairs (Institute of Economic Affairs), 33(1): 93-107.

Levitt, S. 1996. “The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation.” Quarterly Journal of Economics 111(2): 319–52.

Levitt, S. 1997. “Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime.” American Economic Review 87(3): 270-290.

Liu, C., and J. L. Mikesell. “The Impact of Public Officials’ Corruption on the Size and Allocation of U.S. State Spending.” Public Administration Review, 74(3), 2014, 346–359.

Lofstrom, M. and S. Raphael. 2016. “Crime, the Criminal Justice System, and Socioeconomic Inequality.” Journal of Economic Perspectives, v. 30, iss. 2, pp. 103-26.

Lundberg, A. 2016. “Sentencing discretion and burdens of proof.” International Review of Law and Economics, 46: 34-42.

Mattera, P., M. Khan, G. LeRoy and K. Davis. 2001. “Jail Breaks: Economic Development Subsidies Given to Private Prisons.” Institute of Taxation and Economic Policy. Available at: http://www.goodjobsfirst.org/sites/default/files/docs/pdf/jailbreaks.pdf.

May, R. 2014. Kids for Cash. Documentary. Available at: http://www.democracynow.org/2014/2/4/kids_for_cash_inside_one_of

Mechoulan, S. 2011. “The External Effects of Black Male Incarceration on Black Females.” Journal of Labor Economics, 29, iss. 1, pp. 1-35.

Meier, K. J., and T. M. Holbrook. “I Seen My Opportunities and I Took 'Em: Political Corruption in the American States.” Journal of Politics, 54(1), 1992, 135–155.

Merryman, S.E. 2001. “An econometric study of private prisons : cost, quality, and efficiency.” Ph. D. Dissertation. University of Oregon 2001.

Percival, G. 2010. “Ideology, Diversity, and Imprisonment: Considering the Influence of Local

Politics on Racial and Ethnic Minority Incarceration Rates." Social Science Quarterly, 91(4): 1063-1082.

Polinsky, A. M. and S. Shavell. 1982. "Pigouvian Taxation with Administrative Costs." Journal of Public Economics, v. 19, iss. 3, pp. 385-94.

Polinsky, A. M. and S. Shavell. 1984. "The Optimal Use of Fines and Imprisonment." Journal of Public Economics, v. 24, iss. 1, pp. 89-99.

Popp, D. 2002. "Induced Innovation and Energy Prices." American Economic Review, 92(1), 160-180.

Ravitch, D. "Big Money Rules." The New York Review of Books. Available at: http://www.nybooks.com/articles/2017/12/07/big-money-rules/

Shapiro, D. 2011. Banking on Bondage: Private Prisons and Mass Incarceration. ACLU report. Available at: https://www.aclu.org/files/assets/bankingonbondage_20111102.pdf.

Sinha, A. 2017. "Arbitrary Detention? The Immigration Detention Bed Quota." Duke Journal of Constitutional Law and Public Policy 12(2): 77-121.

Smith, Kevin B. 2004. ''The Politics of Punishment: Evaluating Political Explanations of Incarceration Rates.'' Journal of Politics 66(3): 925–38.

Surowiecki, J. 2016. "Trump Sets Private Prisons Free." The New Yorker. Available at: http://www.newyorker.com/magazine/2016/12/05/trump-sets-private-prisons-free.

Tingle, M.L. 1988. "Privatization and the Reagan Administration: Ideology and Application," Yale Law & Policy Review: Vol.6: Iss. 1, Article 12.

Urban, R., and B. Allison. "Prison Operators Could Cash In on Trump's 'Zero Tolerance' Immigration Policy." Bloomberg. Available at: https://www.bloomberg.com/news/articles/2018-06-28/prison-operators-gain-as-u-s-immigration-detentions-surge

US Department of Justice. 2016. Phasing out our Use of Private Prisons. Justice Blogs. Available at: https://www.justice.gov/opa/blog/phasing-out-our-use-private-prisons

Wittman, D. 1974. "Punishment as Retribution." Theory and Decision. 4(3):209-37.

Wilson, R. 2014. "Prisons in these 17 states are over capacity." Washington Post. Available at: https://www.washingtonpost.com/blogs/govbeat/wp/2014/09/20/prisons-in-these-17-states-are-filled-over-capacity

Yates, Jeff. 1997. ''Racial Incarceration Disparity Among the States.'' Social Science Quarterly. 78(4):1001–11.

Tables

Table 1. Summary Statistics

Variable	N	Mean	Std. Dev.	Min	Max
State-Level Variables					
Total In-State Private Prisons	800	3.95	8.20	0	71
In-State Papers	800	1.54	2.55	0	17
Cumulative In-State Papers Per Economist Per Capita	800	7.97	11.85	0	81.71
Stock of Privatization Literature Per Economist Per Capita	800	6.80	12.27	0	89.64
Economists Per Capita (per hundred thousand)	800	2.01	2.44	0.11	16.77
Total Population (in hundred thousand)	800	5.61	61.48	4.69	36.6
State Price Index	800	82.67	9.90	56.05	118.22
Corruption Convictions Per Capita (per hundred thousand)	798	0.33	0.30	0	2.55
Occupancy Rate of Public Prisons	699	102.14	12.48	75	177
Total Trials	550	1553.81	2231.70	42	16744
Total Guilty Sentences	550	1289.57	1958.98	42	14469
Total Prison Sentences	550	1083.15	1762.87	38	13440
Total Trials of Violent Crimes	550	51.89	52.33	0	313
Total Guilty Sentences for Violent Crimes	550	48.19	46.50	0	290
Total Prison Sentences for Violent Crimes	550	46.49	43.59	0	277
Total Trials of Property Crimes	550	307.60	358.08	10	1950
Total Guilty Sentences for Property Crimes	550	247.98	296.89	10	1694
Total Prison Sentences for Property Crimes	550	150.04	188.05	7	1223
Total Trials of Drug Crimes	550	550.84	825.12	13	5837
Total Guilty Sentences for Drug Crimes	550	484.94	747.65	13	5444
Total Prison Sentences for Drug Crimes	550	453.46	712.45	13	5139
Total Trials of Public Order Crimes	550	231.36	328.47	5	2396
Total Guilty Sentences for Public Order Crimes	550	136.18	156.67	4	684
Total Prison Sentences for Public Order Crimes	550	74.18	92.24	0	508
Total Trials of Weapons Crimes	550	131.68	136.25	0	909
Total Guilty Sentences for Weapons Crimes	550	119.20	123.11	0	836
Total Prison Sentences for Weapons Crimes	550	114.32	117.20	0	803
Total Trials of Immigration Crimes	550	280.44	891.72	0	8352
Total Guilty Sentences for Immigration Crimes	550	253.08	811.46	0	7104
Total Prison Sentences for Immigration Crimes	550	244.65	781.42	0	6752
Average Sentence Length for Violent Crimes (in months)	550	81.30	29.00	6.00	283.50
Average Sentence Length for Property Crimes (in months)	550	22.07	12.14	6.84	115.05
Average Sentence Length for Drug Crimes (in months)	550	78.50	24.23	23.69	149.05
Average Sentence Length for Public Order Crimes (in months)	550	31.78	21.57	1.20	205.53

Average Sentence Length for Weapons Crimes (in months)	550	65.77	23.45	6.25	186.71
Average Sentence Length for Immigration Crimes (in months)	550	28.88	18.75	2.11	281.63
Median Age	550	36.24	2.15	26.54	41.50
Real GDP Per Capita, base year 2000 (in thousands)	550	44.42	8.10	28.84	69.63
Hispanic Population Proportion	550	0.08	0.09	0.01	0.44
Male Proportion	550	0.49	0.01	0.48	0.52
Unemployment Rate	550	0.05	0.01	0.02	0.08
Democratic Party Proportion in State Legislature	550	0.50	0.17	0	0.89
In-State Federal Prisons	550	1.97	2.45	0	12
Individual-Level Variables					
Prison Sentenced Issued	697,714	0.91	0.29	0	1
Prison Sentence Length (in months)	695,583	49.76	77.48	0	11,520
Violent Crime Committed	701,074	0.04	0.19	0	1
Property Crime Committed	701,074	0.21	0.41	0	1
Drug Crime Committed	701,074	0.37	0.48	0	1
Public Order Crime Committed	701,074	0.07	0.25	0	1
Weapons Crime Committed	701,074	0.09	0.29	0	1
Immigration Crime Committed	701,074	0.22	0.41	0	1
Age	683,763	34.53	10.79	16	103
Female	687,848	0.14	0.35	0	1
White	668,565	0.31	0.46	0	1
Black	668,565	0.25	0.43	0	1
Hispanic	639,895	0.42	0.49	0	1
Asian	668,565	0.02	0.15	0	1
Less than High School Completion	632,520	0.46	0.50	0	1
High School Diploma	632,520	0.31	0.46	0	1
Some College	632,520	0.17	0.37	0	1
College Graduate	632,520	0.06	0.24	0	1
U.S. Citizen	670,965	0.65	0.48	0	1
Has Criminal History	663,207	0.73	0.44	0	1
Number of Dependents	628,656	1.56	1.72	0	30

Table 2. Effect of Initial Private Prison on Change in Percent of Guilty Given Prison Sentence

	FE	Lag Placebo	Lead Placebo
Dummy for Year with Initial Private Prison	0.044**	-0.011	-0.016
	(0.021)	(0.017)	(0.010)
Total Guilty Sentences (in hundreds)	-0.002	-0.001	-0.001
	(0.003)	(0.003)	(0.003)
Total Trials (in hundreds)	0.002	0.002	0.002**
	(0.001)	(0.001)	(0.001)
Population	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Corruption Convictions Per Capita	-0.009	-0.006	-0.011
	(0.018)	(0.018)	(0.018)
Occupancy Rate of Public Prisons	0.000	0.000	0.000
	(0.000)	(0.001)	(0.001)

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. Includes state fixed effects. Standard errors are clustered at the state level. Total observations is 219. “Lag placebo” tests for an effect the year prior to the first private prison while “lead placebo” tests for an effect the year after the first private prison.

Table 3. The Determinants of Aggregate Prison Sentences using OLS with Fixed Effects, 1998-2008.

	FE	FE	FE
Private Prisons	11.092***	22.794**	20.755*
	(2.6447)	(10.679)	(11.258)
Private Prisons x Corruption Convictions Per Capita		5.672*	5.711*
		(3.289)	(3.039)
Private Prisons x Occupancy Rate		-0.124	-0.099
		(0.095)	(0.099)
Corruption Convictions Per Capita		-12.587	-15.301
		(10.710)	(11.292)
Occupancy Rate		0.216	0.023
		(0.712)	(0.579)
Total Guilty Sentences	1.053***	1.025***	1.034***
	(0.043)	(0.037)	(0.038)
Total Trials	-0.064***	-0.045*	-0.050*
	(0.021)	(0.025)	(0.026)
Population	0.054***	0.076***	0.065***
	(0.015)	(0.017)	(0.022)
Median Age			9.682
			(8.361)
Real GDP Per Capita			0.421
			(0.441)
Hispanic Proportion			0.545
			(895.313)
State Price Index			0.628
			(1.544)
Unemployment Rate			209.888
			(449.696)
Democratic Party Proportion in State Legislature			-72.715
			(55.714)
In-State Federal Prisons			23.170
			(22.368)
R-squared	0.983	0.982	0.983

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Total observations is 547.

Table 4. First Stage Results Predicting Private Prisons using IV-Two Way Fixed Effects, 1998-2008.

	(1)	(2)		(3)		(4)		
	Private Prisons	Private Prisons	PP x Corruption	Private Prisons	PP x Occupancy	Private Prisons	PP x Corruption	PP x Occupancy
Stock of Literature	0.383**	0.405**	0.027	0.219	-31.084	0.207	-0.124	-34.086
	(0.151)	(0.192)	(0.092)	(0.335)	(23.406)	(0.341)	(0.139)	(21.777)
Stock of Literature x Corruption Conv. Per Cap.		0.018	0.190***			0.029	0.198***	6.969
		(0.057)	(0.061)			(0.064)	(0.065)	(5.732)
Stock of Literature x Occupancy Rate				0.001	0.384***	0.001	0.001	0.430***
				(0.001)	(0.083)	(0.001)	(0.001)	(0.097)
Corruption Convictions Per Capita	-0.226	-0.270	2.586***	-0.229	-13.229	-0.300	2.563***	-30.300
	(0.193)	(0.196)	(0.904)	(0.190)	(20.056)	(0.204)	(0.908)	(19.058)
Occupancy Rate	-0.042**	-0.042**	0.000	-0.051**	0.308	-0.053**	-0.009	-0.093
	(0.018)	(0.019)	(0.012)	(0.021)	(3.185)	(0.022)	(0.012)	(2.985)
Total Guilty Sentences	0.004***	0.004***	0.001***	0.004***	0.428***	0.004***	0.001***	0.435***
	(0.001)	(0.001)	(0.000)	(0.001)	(0.098)	(0.001)	(0.000)	(0.100)
Total Trials	-0.002***	-0.002***	-0.001	-0.002***	-0.163***	-0.002***	-0.001	-0.170***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.040)	(0.000)	(0.000)	(0.043)
Population	0.000	0.000	-0.000	0.000	0.071	0.000	-0.000	0.067
	(0.001)	(0.001)	(0.000)	(0.001)	(0.076)	(0.001)	(0.000)	(0.078)
Excluded Instrument *F*-statistic	6.47**	3.40**	17.87***	4.00**	25.99***	3.16**	10.25***	20.71***
Cragg-Donald *F*-statistic	23.10^{+++}	9.59^{+++}		6.14^{++}			3.72^{+}	

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25.
All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Total observations is 547.

Table 5. Determinants of Aggregate Prison Sentences by Crime Type using IV-Two Way Fixed Effects, 1998-2008.

	Overall	Violent	Weapon	Property	Drug	Public Order	Immigration
Private Prisons	22.826	1.444	-1.022	20.457***	20.944**	-7.095	6.291
	(33.152)	(1.936)	(2.890)	(7.647)	(10.154)	(4.763)	(8.035)
Private Prisons x Corruption Conv. Per Cap.	10.729	-0.501	0.703	3.973	2.562	5.033**	1.301
	(7.063)	(0.586)	(1.222)	(3.835)	(5.372)	(2.241)	(1.675)
Private Prisons x Occupancy Rate	-0.225	-0.009	-0.005	-0.088*	-0.100	0.031	-0.062*
	(0.141)	(0.006)	(0.019)	(0.051)	(0.073)	(0.031)	(0.035)
Corruption Convictions Per Capita	-29.273	1.049	-2.929	-7.469	-2.786	-16.290**	-2.597
	(19.949)	(1.529)	(3.695)	(12.539)	(16.206)	(8.012)	(3.866)
Occupancy Rate	0.902	-0.006	-0.0000	0.961	1.163*	-0.551	0.354
	(2.319)	(0.105)	(0.221)	(0.661)	(0.659)	(0.379)	(0.552)
Total Guilty Sentences of Type	1.044***	0.985***	1.071***	0.696***	0.895***	0.553***	1.022***
	(0.102)	(0.037)	(0.125)	(0.122)	(0.153)	(0.085)	(0.051)
Total Trials of Type	-0.049*	-0.094	-0.124	0.037	0.036	-0.034***	-0.043
	(0.029)	(0.058)	(0.116)	(0.127)	(0.149)	(0.009)	(0.037)
Population	0.097***	-0.004	0.004	0.020	-0.002	0.030***	0.008**
	(0.027)	(0.004)	(0.006)	(0.021)	(0.024)	(0.010)	(0.004)
R-squared	0.981	0.954	0.990	0.770	0.970	0.681	0.999
Cragg-Donald *F*-statistic	3.72^{+}	2.222	6.338^{++}	7.404^{+++}	7.395^{+++}	7.294^{+++}	4.905^{++}
Private Prisons Excluded *F*-statistic	3.16**	0.57	1.64	1.80	1.81	1.60	2.28*
PP x Corruption Excluded *F*-statistic	10.25***	9.20***	8.16***	8.69***	9.17***	7.04***	7.74***
PP x Occupancy Excluded *F*-statistic	20.71***	3.01**	2.65*	2.67*	3.71**	2.11	21.60***

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25.

All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Total observations is 547.

Table 6. The Determinants of Sentence Length using IV-Two Way Fixed Effects, 1998-2008.

	Overall	Violent	Property	Drug	Public Order	Weapon	Immigration
Private Prisons	-3.231	6.305	-0.924	-2.528	-6.659	3.218	7.623
	(2.863)	(7.505)	(1.463)	(2.455)	(5.099)	(3.039)	(7.694)
Private Prisons x Corruption Conv. Per Cap.	0.271	-3.465	0.687	1.404*	0.037	0.211	1.533
	(0.828)	(2.346)	(0.647)	(0.792)	(2.104)	(2.177)	(1.174)
Private Prisons x Occupancy Rate	0.015	-0.030	-0.001	0.013	0.023	-0.001	-0.043
	(0.012)	(0.026)	(0.011)	(0.018)	(0.041)	(0.024)	(0.034)
Corruption Convictions Per Capita	-2.498	13.866	-2.518	-5.863	-1.437	0.257	-3.886
	(2.877)	(10.963)	(3.031)	(3.624)	(7.563)	(7.414)	(4.203)
Occupancy Rate	-0.302	0.465	-0.140	-0.250	-0.503	0.040	0.738
	(0.217)	(0.503)	(0.195)	(0.319)	(0.424)	(0.389)	(0.544)
Cragg-Donald *F*-statistic	4.905^{++}	2.222	7.404^{+++}	7.395^{+++}	7.294^{+++}	6.338^{++}	4.905^{++}

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25. All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Controls include total trials, total guilty sentences, and state population. Total observations is 547.

Table 7. Determinants of Aggregate Total Trials using IV-Two Way Fixed Effects, 1998-2008.

	Overall	Violent	Property	Drug	Public Order	Weapon	Immigration
Private Prisons	459.138***	19.262***	11.146	88.703***	80.699	21.945	237.385***
	(170.210)	(6.590)	(47.553)	(23.410)	(118.154)	(15.124)	(67.154)
Private Prisons x Corruption Convictions Per Capita	30.495	3.493	1.223	-9.831	-6.305	7.219	34.696**
	(86.067)	(4.948)	(22.959)	(13.865)	(45.500)	(6.025)	(17.660)
Private Prisons x Occupancy Rate	-1.682	-0.064	0.317	-0.389	0.410	-0.304***	-1.652***
	(1.407)	(0.063)	(0.382)	(0.266)	(0.881)	(0.110)	(0.631)
Corruption Convictions Per Capita	-17.593	-6.627	4.654	34.069	20.467	-15.100	-55.056
	(262.366)	(14.682)	(66.835)	(43.480)	(134.857)	(19.449)	(68.274)
Occupancy Rate	26.689*	0.705	0.219	3.175	5.442	1.193	15.955**
	(13.700)	(0.501)	(3.472)	(2.231)	(7.905)	(1.305)	(8.083)
Population	-0.157	-0.029	-0.147	-0.124	-0.316	0.106**	0.352
	(0.601)	(0.018)	(0.127)	(0.081)	(0.418)	(0.046)	(0.232)

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Total observations is 547. Private prisons excluded *F*-statistic is 1.30, private prisons-corruption is 7.52, and private prisons-occupancy is 1.91.

Table 8. Determinants of Aggregate Guilty Sentences using IV-Two Way Fixed Effects, 1998-2008.

	Overall	Violent	Property	Drug	Public Order	Weapon	Immigration
Private Prisons	-79.655	-1.214	7.901	10.079	-6.487	1.245	-7.916
	(239.382)	(2.639)	(13.965)	(6.760)	(5.589)	(1.693)	(15.739)
Private Prisons x Corruption Convictions Per Capita	7.259	-1.044	5.272*	-6.443	1.526	-0.845	4.234
	(47.746)	(1.637)	(3.137)	(3.925)	(3.149)	(0.794)	(3.291)
Private Prisons x Occupancy Rate	-0.546	-0.009	-0.082*	-0.125**	0.0339	-0.003	-0.060
	(0.686)	(0.015)	(0.046)	(0.062)	(0.0429)	(0.010)	(0.067)
Corruption Convictions Per Capita	-18.334	2.734	-13.343	23.443**	-3.9709	3.276	-12.641
	(142.806)	(4.814)	(11.744)	(11.600)	(9.6966)	(2.410)	(10.515)
Occupancy Rate	-3.461	-0.081	1.137	0.962	-0.7316	0.150	0.420
	(13.005)	(0.170)	(0.976)	(0.778)	(0.5804)	(0.208)	(1.117)
Population	0.309	0.002	-0.013	0.022	0.0141	-0.003	0.006
	(0.460)	(0.008)	(0.029)	(0.030)	(0.0099)	(0.003)	(0.018)
Total Trials of Type	0.984**	0.937***	0.876***	0.916***	0.1309***	0.914***	0.965***
	(0.444)	(0.097)	(0.043)	(0.026)	(0.0187)	(0.021)	(0.042)
R-squared	0.519	0.871	0.888	0.951	0.391	0.986	0.989
Cragg-Donald *F*-statistic	1.381	2.079	6.983^{++}	5.951^{++}	7.466^{+++}	6.409^{++}	4.230^{+}
Private Prisons Excluded *F*-statistic	0.27	0.54	1.34	1.52	1.60	1.52	1.54
PP x Corruption Excluded *F*-statistic	10.45***	9.25***	8.96***	7.62***	7.01***	7.73***	10.65***
PP x Occupancy Excluded *F*-statistic	7.72***	2.98**	2.45*	2.02	2.10	2.62*	15.16***

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25.

All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Total observations is 547.

Table 9. The Determinants of Individual-Level Prison Sentences Conditional on Conviction using IV-Two Way Fixed Effects, 1998-2008.

	Overall	Violent	Property	Drug	Public Order	Weapon	Immigration
Private Prisons	0.002*	-0.002	0.001	0.002*	-0.001	0.001	0.004**
	(0.001)	(0.003)	(0.003)	(0.001)	(0.005)	(0.001)	(0.002)
Private Prisons x Corruption Conv. Per Cap.	0.002**	-0.001	0.003	0.0004	0.0010**	0.003***	0.0002
	(0.001)	(0.001)	(0.002)	(0.001)	(0.004)	(0.001)	(0.001)
Private Prisons x Occupancy Rate	-0.00003***	-0.00001	-0.00001	-0.00004***	0.00001	-0.00001	-0.00003**
	(0.00001)	(0.00003)	(0.00002)	(0.00001)	(0.00005)	(0.00001)	(0.00002)
Corruption Convictions Per Capita	-0.013**	0.013	-0.026*	-0.003	-0.065**	-0.009	-0.004
	(0.005)	(0.008)	(0.014)	(0.005)	(0.029)	(0.008)	(0.009)
Occupancy Rate	0.0004*	0.0001	0.0002	0.0003	0.001	0.0002	0.001**
	(0.0002)	(0.001)	(0.001)	(0.0002)	(0.001)	(0.0002)	(0.0002)
Age	0.0001**	-0.001***	0.001***	0.0004***	-0.001***	-0.001***	-0.00003
	(0.0001)	(0.0001)	(0.0001)	(0.000)	(0.0002)	(0.0001)	(0.0001)
Female	-0.098***	-0.123***	-0.097***	-0.055***	-0.208***	-0.175***	-0.092***
	(0.003)	(0.015)	(0.006)	(0.004)	(0.011)	(0.022)	(0.009)
Hispanic	0.030***	0.004	-0.003	0.048***	0.019*	0.019***	0.068***
	(0.002)	(0.006)	(0.007)	(0.003)	(0.010)	(0.004)	(0.008)
Black	0.009***	0.008***	-0.019***	0.036***	-0.013	0.025***	-0.001
	(0.002)	(0.003)	(0.004)	(0.003)	(0.008)	(0.003)	(0.011)
Asian	-0.012**	-0.001	0.004	0.017***	-0.089***	0.011	-0.033***
	(0.005)	(0.010)	(0.008)	(0.004)	(0.017)	(0.009)	(0.012)
Less than High School Completion	0.018***	0.016***	-0.005	0.034***	0.006	0.020***	0.066***
	(0.002)	(0.004)	(0.005)	(0.003)	(0.009)	(0.003)	(0.008)
High School Diploma	0.004***	0.009***	-0.014***	0.013***	-0.001	0.008***	0.018***
	(0.002)	(0.003)	(0.003)	(0.001)	(0.006)	(0.003)	(0.004)
College Graduate	0.011***	-0.007	0.021***	-0.011***	0.005	-0.016	-0.030***
	(0.003)	(0.008)	(0.004)	(0.003)	(0.008)	(0.010)	(0.011)
Not a U.S. Citizen	0.083***	0.063***	0.094***	0.061***	0.071***	0.129***	0.118***
	(0.004)	(0.015)	(0.011)	(0.004)	(0.021)	(0.012)	(0.013)
Has Criminal History	0.090***	0.065***	0.137***	0.046***	0.125***	0.130***	0.094***
	(0.002)	(0.005)	(0.004)	(0.002)	(0.007)	(0.007)	(0.009)
Number of Dependents	-0.0004**	-0.002***	0.001	0.001***	-0.015***	-0.001***	-0.0001
	(0.0002)	(0.001)	(0.001)	(0.0002)	(0.002)	(0.0004)	(0.0002)
State Price Index	-0.0003	0.002***	-0.002	0.0003	-0.0002	-0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.0004)	(0.002)	(0.0004)	(0.001)
Democratic Party Prop. in State Legislature	-0.010	-0.023	-0.033	-0.033**	0.193***	-0.017	-0.037

	(0.017)	(0.027)	(0.042)	(0.017)	(0.071)	(0.020)	(0.027)
In-State Federal Prisons	0.003**	0.004	-0.001	0.006***	0.003	0.006***	-0.001
	(0.001)	(0.003)	(0.003)	(0.002)	(0.007)	(0.002)	(0.002)
Real GDP Per Capita	-0.0001	-0.000002	-0.0002	-0.0002*	-0.0003	-0.0001	0.0004**
	(0.0001)	(0.0001)	(0.0002)	(0.0001)	(0.0004)	(0.0001)	(0.0002)
N	600,121	25,620	133,466	237,389	35,072	59,043	109,412
R-squared	0.151	0.077	0.062	0.067	0.087	0.101	0.135
Private Prisons Excluded *F*-statistic	27.49***	15.69***	12.12***	22.07***	19.77***	22.29***	47.46***
PP x Corruption Excluded *F*-statistic	27.40***	23.47***	28.90***	27.41***	21.31***	25.86***	23.86***
PP x Occupancy Excluded *F*-statistic	28.19***	15.76***	14.04***	22.55***	21.93***	26.51***	42.65***

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01. All estimates include state and yearly fixed effects. Standard errors are clustered at the state-year level. Overall specification also controls for crime type.

Table 10. Marginal Effect on Incarceration Likelihood of an Additional Private Prison by Corruption Level

	No Corruption	Mean Corruption	Max State Average	Max State-Year
Overall	-0.001***	-0.001*	0.0002	0.003*
	(0.0003)	(0.0003)	(0.001)	(0.002)
By Crime Type				
Violent Crime	-0.002***	-0.003***	-0.003**	-0.004
	(0.001)	(0.001)	(0.001)	(0.003)
Property Crime	-0.0001	0.001	0.002	0.006
	(0.001)	(0.001)	(0.002)	(0.004)
Drug Crime	-0.002***	-0.001***	-0.001**	-0.001
	(0.0004)	(0.0004)	(0.001)	(0.001)
Public Order Crime	-0.001	0.002	0.007**	0.024**
	(0.002)	(0.002)	(0.003)	(0.010)
Weapon Crime	-0.0001	0.001	0.002**	0.007***
	(0.001)	(0.001)	(0.001)	(0.003)
Immigration Crime	0.0002	0.0003	0.0004	0.001
	(0.001)	(0.001)	(0.001)	(0.003)
By Demographic				
White	-0.002***	-0.001*	-0.0003	0.003
	(0.001)	(0.001)	(0.001)	(0.003)
Black	-0.0003	0.0004	0.001*	0.005**
	(0.001)	(0.001)	(0.001)	(0.002)
Hispanic	-0.0002	0.0001	0.0004	0.002
	(0.0003)	(0.0004)	(0.001)	(0.001)
Male	-0.001***	-0.001***	-0.0002	0.002
	(0.0003)	(0.0003)	(0.001)	(0.001)
Female	-0.001	0.0004	0.002	0.009**
	(0.001)	(0.001)	(0.002)	(0.005)
Less than High School Completion	-0.001*	-0.001*	-0.001	-0.0003
	(0.0003)	(0.0003)	(0.001)	(0.001)
High School Diploma	-0.001**	0.0001	0.002**	0.008***
	(0.001)	(0.001)	(0.001)	(0.003)
College Graduate	-0.003**	-0.002	-0.001	0.006
	(0.002)	(0.002)	(0.002)	(0.007)
Has Criminal History	-0.001***	-0.001**	-0.0002	0.002
	(0.0003)	(0.0003)	(0.0001)	(0.001)
No Criminal History	-0.001*	-0.001	0.001	0.006
	(0.001)	(0.001)	(0.001)	(0.004)
U.S. Citizen	-0.001**	-0.0004	0.001	0.004*
	(0.0004)	(0.001)	'(0.001)	(0.002)
Not a U.S. Citizen	-0.001*	0.0004	0.0001	0.002
	(0.0004)	(0.001)	(0.001)	(0.002)
Age 40 and Over	-0.001*	-0.0004	0.0003	0.003
	(0.001)	(0.001)	(0.001)	(0.002)
Under Age 40	-0.001***	-0.001**	0.0001	0.003*
	(0.0003)	(0.0003)	(0.001)	(0.002)

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01.

Figures

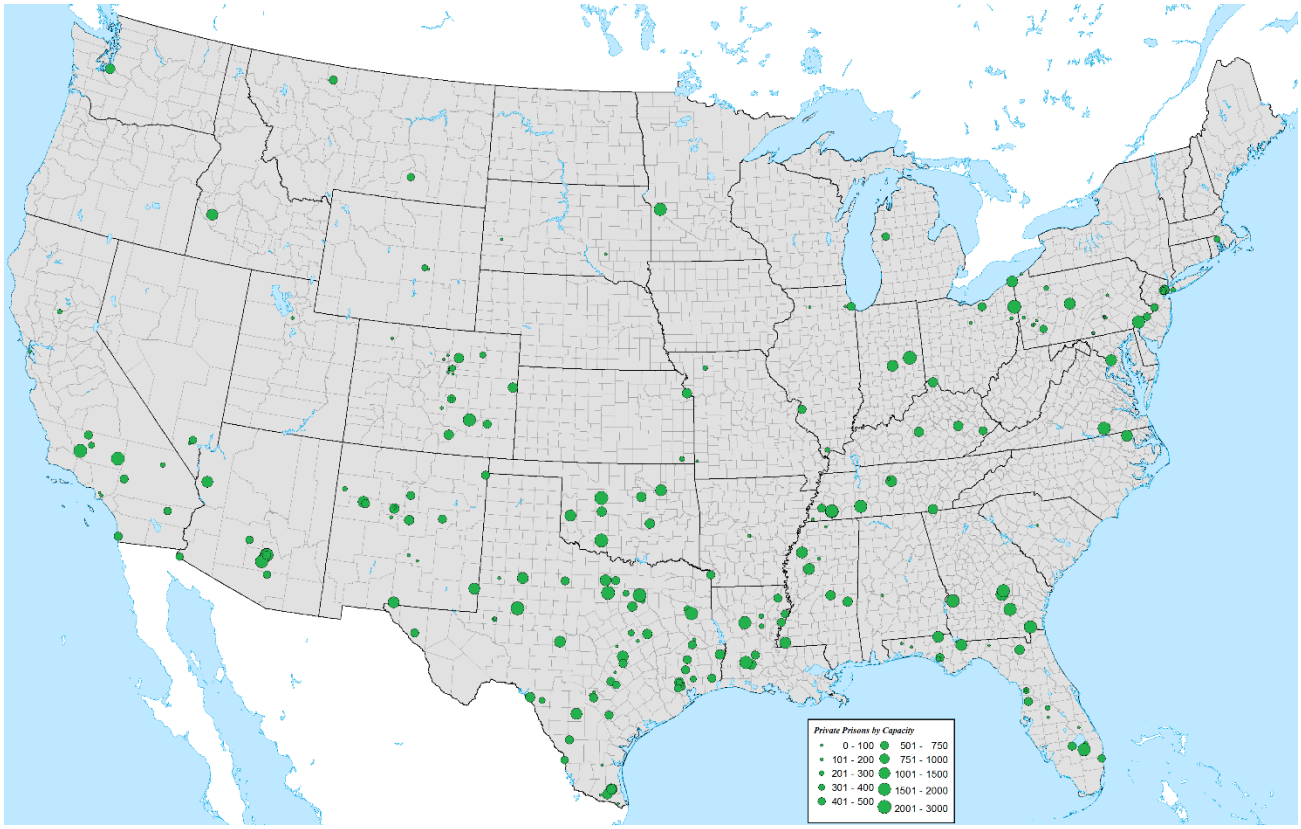

Figure 1. Private prisons mapped by inmate capacity

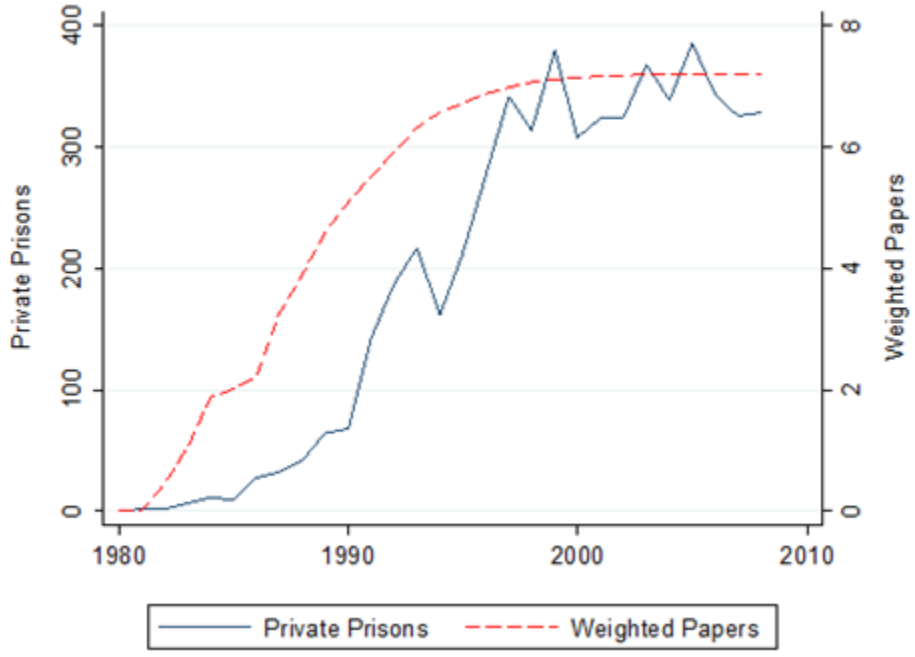

Figure 2. National weighted papers related to privatization and national private prisons by year

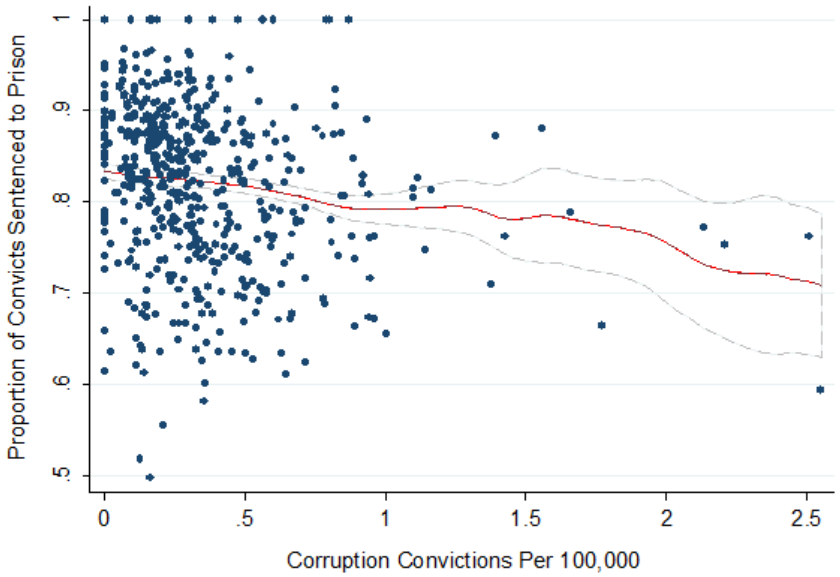

Figure 3. Proportion of guilty sentenced to prison and corruption convictions per hundred thousand

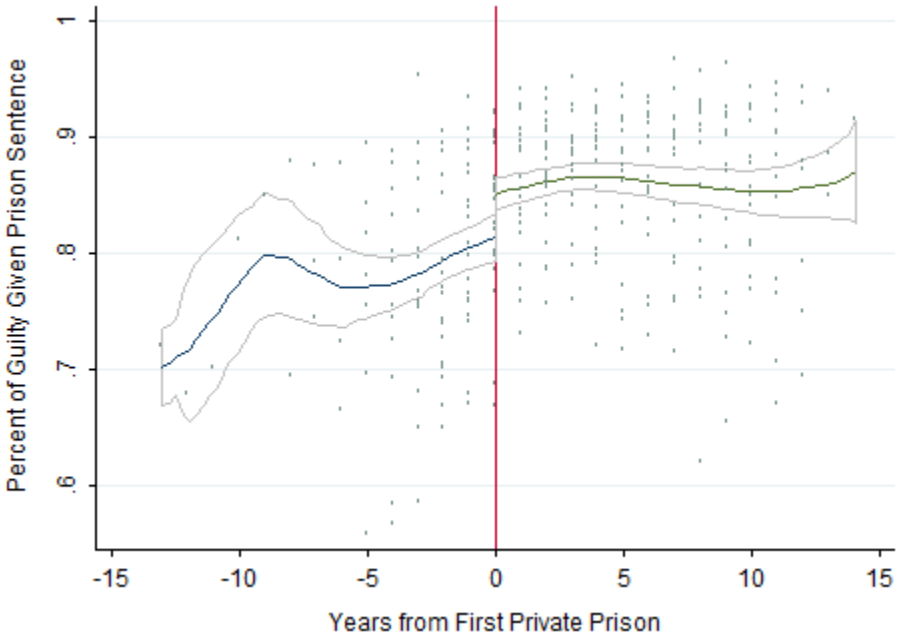

Figure 4. Percent of guilty individuals given a prison sentence by years before and after opening of first private prison

Appendix. Proof of Theoretical Results

I. *Sentencing Model with a Constrained Enforcement Authority*

To derive the effect of occupancy capacity constraints on the sanction levels, we compare the solution from Equation (3) and (5). Equating the price paid to the private prison owners,

(A1) $U_S(S^{**};g) - \lambda - d_S(S^{**}) = U_S(S^{*};g) - d_S(S^{*})$.

Re-arranging, we find,

(A2) $(U_S(S^{**};g) - d_S(S^{**})) - \left(U_S(S^{*};g) - d_S(S^{*})\right) = \lambda$.

If $\lambda > 0$, the following condition holds $U_S(S^{**};g) - d_S(S^{**}) > U_S(S^{*};g) - d_S(S^{*})$. Since we assume U is concave in S and d is convex in S, this inequality will only hold if $S^{**} < S^{*}$. Note that the opposite holds if $\lambda < 0$.

To derive the effect of capacity constraints on the extensive margin, we derive the incarceration cutoff gain with and without the capacity constraint using Equation (3) and Equation (5), respectively. The incarceration cutoff gain without the constraint is $U_S(0;g) = d_S(0) + p$ while with the constraint, it is $U_S(0;g) - \lambda = d_S(0) + p$. Setting the two equations equal to each other we find,

(A3) $U_S(0;g^{*}) = U_S(0;g^{**}) - \lambda$.

Re-arranging, we find,

(A4) $U_S(0;g^{**}) - U_S(0;g^{*}) = \lambda$.

If $\lambda > 0$, the following condition holds $U_S(0;g^{**}) > U_S(0;g^{*})$. Since we assume that $U_{Sg} > 0$, it must be the case that $g^{**} > g^{*}$. Thus the cutoff gain with the constraint is higher leading to fewer incarcerated individuals. The opposite holds if $\lambda < 0$.

II. Sentencing Model with Corrupt Enforcement Authority

To derive the effect of corruption on the sanction level, we assume that the welfare function is strictly concave which implies that $\frac{d^2W^\ell}{dS^2} < 0$. Differentiating equation (6), we find that

(A5) $\frac{dS}{d\alpha} = -\frac{\frac{d^2W^\ell}{dSd\alpha}}{\frac{d^2W^\ell}{dS^2}} = -\frac{(p-c)+vY_I}{\frac{d^2W^\ell}{dS^2}}$.

The numerator is positive leading to $\frac{dS}{d\alpha} > 0$.

To determine the extensive effect of corruption, we examine the value of the incarceration cutoff gain with and without lobbying. Using the first order condition from equation (6) and equating the left hand side when equation (4) holds with equality, we arrive at the following,

(A6) $\alpha((p-c)+vY_I) = U_S(0; g^n) - U_S(0; g^\ell)$.

The order of the two incarceration cutoff gains, g^n and g^ℓ, depend on the effect of the sanction level on the bribe received, $\alpha((p-c)+vY_I)$, which affect the extensive margin determining the total number of individuals incarcerated. Assuming that $U_{Sg} > 0$ along with the result that $(p-c)+vY_I > 0$, we find that $g^n > g^\ell$ from equation (A6). As the corruption level increases, the left hand side of equation (A6) is larger which can only happen if g^ℓ decreases even further. This implies that more corruption increases the number of individuals incarcerated.

To derive the effect of the total number of private prisons on sanction levels in the presence of corruption, we totally differentiate the welfare function to obtain the following comparative static,

(A7) $\frac{dS}{dN} = -\frac{\frac{d^2W^\ell}{dSdN}}{\frac{d^2W^\ell}{dS^2}} = -\frac{\alpha vY_{IN}}{\frac{d^2W^\ell}{dS^2}} > 0.$

As the number of private prisons increase, g^ℓ decreases even further,

(A8) $\frac{dg^\ell}{dN} = -\frac{\alpha vY_{IN}}{U_{Sg}} < 0.$

More private prisons reduce the incarceration cutoff gain only if $\alpha > 0$.

Taking the derivative of equation (1), the total effect of the private prisons on incarceration rate is,

(A9) $\frac{dI}{dN} = -\frac{dg^{\ell}}{dN}\int_{g^{\ell}}^{\infty} S^{*}(g)\,dg + \int_{g^{\ell}}^{\infty}\frac{dS^{*}(g)}{dN}dg,$

where the first term is the extensive margin and the second term is the intensive margin. From equation (A7) and (A8), the total effect is positive which implies that more private prisons leads to more incarcerated individuals conditional on a positive corruption level, i.e. $\alpha > 0$.

Table A. Data Sources

Variable	Def.	Source	Time Range
Corruption Convictions Per Capita	Number of Local, State, and Federal Public Officials Convicted of Federal Corruption Charges in a State-Year Divided by Population	US Department Justice Public Integrity Section and U.S. Census Bureau	1993-2008
Total In-State Private Prisons	Total Corrections-Related Private Institutions Operating with a State-Year	Human Rights Defense Center	1993-2008
In-State Papers	Total Privatization-Related Academic Papers Curated from EconLit's Database Originating from an Institution in a State-Year	EconLit	1993-2008
In-State Papers Per Economist Per Capita	In-State Papers Divided by Economists Per Capita	EconLit and U.S. Census Bureau	1993-2008
Cumulative In-State Papers Per Economist Per Capita	Sum of In-State Papers Per Economist Per Capita from 1980 through Relevant Year	EconLit and U.S. Census Bureau	1993-2008
Economists Per Capita (per hundred thousand)	Total "Top Publishing" Economists at a Publishing Institution within a State-Year	RePEc/IDEAS	1993-2008
Total Population (in hundred thousand)	Total Persons Residing within a State-Year Divided by 100,000	U.S. Census Bureau	1993-2008
State Price Index	Base year: 2000	Bureau of Economic Analysis	1993-2008
State Corruption Convictions Per Capita (per hundred thousand)	Elected Officials Convicted in Violation of Federal Corruption Statutes within a State-Year	U.S. Department of Justice and U.S. Census Bureau	1993-2008
Total Trials	Total Federal Criminal Trials in a District Court within a State-Year	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences	Total Federal Criminal Trials in a District Court within a State-Year Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Prison Sentences	Total Federal Criminal Trials in a District Court within a State-Year Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Trials of Violent Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Violent Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences for Violent Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Violent Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Prison Sentences for Violent Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Violent Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Trials of Property Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Property Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences for Property Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Property Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008

Total Prison Sentences for Property Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Property Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Trials of Drug Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Drug Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences for Drug Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Drug Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Prison Sentences for Drug Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Drug Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Trials of Public Order Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Public Order Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences for Public Order Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Public Order Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Prison Sentences for Public Order Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Public Order Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Trials of Weapons Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Weapons Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences for Weapons Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Weapons Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Prison Sentences for Weapons Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Weapons Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Trials of Immigration Crimes	Total Federal Criminal Trials in a District Court within a State-Year for an Immigration Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Guilty Sentences for Immigration Crimes	Total Federal Criminal Trials in a District Court within a State-Year for an Immigration Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Total Prison Sentences for Immigration Crimes	Total Federal Criminal Trials in a District Court within a State-Year for an Immigration Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Average Sentence Length for Violent Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Violent Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Average Sentence Length for Property Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Property Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Average Sentence Length for Drug Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Drug Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008

Average Sentence Length for Public Order Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Public Order Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Average Sentence Length for Weapon Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Weapon Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Average Sentence Length for Immigration Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Immigration Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1998-2008
Median Age	Median Age of Population in a State-Year	U.S. Census Bureau	1998-2008
Real GDP Per Capita, base year 2000 (in thousands)	Total Gross Domestic Product Produced in a State-Year Divided by the State Price Index	Bureau of Economic Analysis	1998-2008
Hispanic Population Proportion	Proportion of the Population Identifying as Hispanic Ethnicity in a State-Year	U.S. Census Bureau	1998-2008
Male Proportion	Proportion of the Population Identifying as Male in a State-Year	U.S. Census Bureau	1998-2008
Unemployment Rate	Proportion of the Labor Force without Employment	Bureau of Economic Analysis	1998-2008
Democratic Party Proportion in State Legislature	Proportion of the All State-Level Legislative Bodies Comprised of Democratic Party Members	Dr. Carl Klarner, former Professor of Political Science at Indiana State University	1998-2008
In-State Federal Prisons	Total Federal Prisons Operational in a State-Year	Bureau of Justice Statistics	1998-2008
Occupancy Rate	Total Inmates in Public Prisons Divided by the "Number of Inmates that Planners or Architects Intended for the Facility" when Constructed	Bureau of Justice Statistics	1998-2008
Prison Sentence Issued	Indicator Variable which is One if Convict Received a Prison Sentence and Zero Otherwise	United States Sentencing Commission	1998-2008
Prison Sentence Length	Length in Months of Prison Sentence Given, If Any	United States Sentencing Commission	1998-2008
Violent Crime Committed	Indicator Variable which is One if Convict Committed a Violent Crime and Zero Otherwise	United States Sentencing Commission	1998-2008
Property Crime Committed	Indicator Variable which is One if Convict Committed a Property Crime and Zero Otherwise	United States Sentencing Commission	1998-2008
Drug Crime Committed	Indicator Variable which is One if Convict Committed a Drug Crime and Zero Otherwise	United States Sentencing Commission	1998-2008
Public Order Crime Committed	Indicator Variable which is One if Convict Committed a Public Order Crime and Zero Otherwise	United States Sentencing Commission	1998-2008
Weapons Crime Committed	Indicator Variable which is One if Convict Committed a Weapons Crime and Zero Otherwise	United States Sentencing Commission	1998-2008
Immigration Crime Committed	Indicator Variable which is One if Convict Committed an Immigration Crime and Zero Otherwise	United States Sentencing Commission	1998-2008

Age	Age in Years of Convict	United States Sentencing Commission	1998-2008
Female	Indicator Variable which is One if Convict is Female and Zero Otherwise	United States Sentencing Commission	1998-2008
White	Indicator Variable which is One if Convict is White and Zero Otherwise	United States Sentencing Commission	1998-2008
Black	Indicator Variable which is One if Convict is Black and Zero Otherwise	United States Sentencing Commission	1998-2008
Hispanic	Indicator Variable which is One if Convict is Hispanic and Zero Otherwise	United States Sentencing Commission	1998-2008
Asian	Indicator Variable which is One if Convict is Asian and Zero Otherwise	United States Sentencing Commission	1998-2008
Less than High School Completion	Indicator Variable which is One if Convict Did Not Graduate High School and Zero Otherwise	United States Sentencing Commission	1998-2008
High School Diploma	Indicator Variable which is One if Convict Graduated High School But Did Not Pursue a College Education and Zero Otherwise	United States Sentencing Commission	1998-2008
Some College	Indicator Variable which is One if Convict Pursued a College Education But Did Not Complete One and Zero Otherwise	United States Sentencing Commission	1998-2008
College Graduate	Indicator Variable which is One if Convict Graduated College and Zero Otherwise	United States Sentencing Commission	1998-2008
U.S. Citizen	Indicator Variable which is One if Convict is an American Citizen and Zero Otherwise	United States Sentencing Commission	1998-2008
Has Criminal History	Indicator Variable which is One if Convict has Prior Criminal History and Zero Otherwise	United States Sentencing Commission	1998-2008
Number of Dependents	Number of Dependents in Convict's Care	United States Sentencing Commission	1998-2008

Table B. Determinants of Aggregate Prison Sentences by Crime Type using Fixed Effects, 1998-2008.

	Violent	Weapon	Property	Drug	Public Order	Immigration
Private Prisons	0.236	1.049	11.905**	6.743***	-1.029	3.868**
	(0.324)	(0.639)	(5.624)	(2.163)	(1.554)	(1.831)
Private Prisons x Corruption Conv. Per Cap.	0.237	0.424	1.582	1.220	0.905	1.091**
	(0.168)	(0.370)	(1.203)	(0.767)	(0.836)	(0.475)
Private Prisons x Occupancy Rate	-0.004	-0.006	-0.078	-0.047**	0.013	-0.030*
	(0.003)	(0.005)	(0.052)	(0.022)	(0.015)	(0.015)
Corruption Convictions Per Capita	-1.386**	-1.797	-0.471	-0.211	-2.945	-2.079**
	(0.658)	(1.145)	(3.577)	(1.925)	(3.049)	(1.025)
Occupancy Rate	-0.078	0.130	0.299	-0.024	-0.151	0.055
	(0.056)	(0.096)	(0.309)	(0.265)	(0.183)	(0.094)
Total Guilty Sentences of Type	0.989***	1.016***	0.614***	1.055***	0.561***	1.018***
	(0.026)	(0.101)	(0.132)	(0.044)	(0.093)	(0.041)
Total Trials of Type	-0.082***	-0.083	0.094	-0.107**	-0.034***	-0.039
	(0.028)	(0.099)	(0.089)	(0.044)	(0.009)	(0.037)
Population	-0.002***	-0.000	0.034***	0.014***	0.021***	0.005
	(0.001)	(0.002)	(0.009)	(0.005)	(0.009)	(0.003)
R-squared	0.958	0.992	0.815	0.984	0.734	0.999

Note: P-values: * p<0.1 , ** p<0.05 , *** p<0.01.

All estimates include state and yearly fixed effects. Standard errors are clustered at the state level. Total observations is 547.