Do Privately-Owned Prisons Increase Incarceration Rates?

Abstract

This article measures the effect of establishing private prisons on incarceration-related outcomes in the United States. 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 showing that a rise in private prison beds per capita increases the number of incarcerated individuals per capita and average sentencing lengths. The effect is more likely for crime types when there is more sentencing leeway such as fraud, regulatory, drug or weapons crimes. The effect of private prisons is more pronounced in states where prison capacity constraints are met or exceeded.

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I. Introduction

Private prisons 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).[2]

One hypothesis raised concerns the impact of private prisons on American incarceration rates, which is highest in the world (Walmsley, 2018). The American Civil Liberties Union asserts that private prisons significantly increased the incarceration rate in the U.S. since the mid-1980s (Shapiro, 2011). Stringent crime laws along with the private prisons may have contributed to the rise in incarceration rates. For example, the Violent Crime Control and Law Enforcement Act of 1994 (1994 Crime Bill) is a federal law that increased funding for law enforcement and expanded a variety of new crimes defined in statutes relating to weapons crimes, immigration law, hate crimes, sex crimes, and gang-related crime. Such laws can facilitate underlying mechanisms that causally relate the increase in private prisons to incarceration rates.

One such mechanism is through lobbying and direct contributions to politicians and officials in exchange for favorable policies that increase incarceration rates (Ashton and

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

[2] The Department of Justice (DOJ) announced a phase out of private prisons at the federal level (US DOJ, 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).

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 misdemeanors 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).

Another mechanism is overcrowding in public prisons (Wilson, 2014), which might dissuade judges from assigning marginal convicts to prison. Private prisons may reduce this capacity constraint, leading to more incarcerations. The role of these mechanisms remains unstudied. There is also gap in the literature in understanding the channels by which private prisons influence incarceration levels such as incentivizing arrest rates leading to more trials, influencing guilty verdicts, or changing the individual likelihood of incarceration 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:

capacity constraints of public prisons and corruption of enforcement authorities.[3] We also test whether the 1994 Crime Bill had any significant impact. 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 on private prisons compares the public and 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). A recent study by Mukherjee (2019) showed that sentences of inmates in private prisons in Mississippi were significantly larger than their public prison counterparts for the same crime. We have not come across any empirical estimation that analyzes the impact of private prisons on aggregate incarceration rates.

Next, we contribute to the relatively small literature that analyzes the determinants of incarceration rates. 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

[3] Other mechanisms 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).

control of the legislature, voting cycles and partisan control of the executive office contribute significantly to incarceration rates (Smith, 2004). Ideological orientations of enforcement 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.[4]

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

[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).
[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.

that are more susceptible to corruption or face capacity constraints set non-optimal sanctions leading to higher incarceration rates at the extensive and intensive margins.

We collect data on individual-level trial outcomes from the United States Sentencing Commission which we aggregate by state to form incarceration rate data. We match this data with private prison numbers across states, demographic variables, measures of capacity constraints and a proxy for 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 private prisons have a significant effect on aggregate state incarceration levels. Furthermore, if the state has private prisons, the incarceration rate at the extensive margin increases for some crimes such as public order crimes, regulatory, drug offenses, property crimes and weapons crimes. Private prisons also have an effect on incarceration at the intensive margin on sentencing length for violent crimes, fraud, drug offenses, regulatory crimes and weapons

crimes. We do find evidence for the capacity constraint mechanism where the presence of private prisons in states where public prisons are at full capacity will increase in incarceration. The corruption mechanism yields mixed results. Finally, the likely channel of increased incarceration rates is from more guilty verdicts and an increase in incarceration likelihood for the individual.

II. 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.

We assume that individuals have disutility from incurring sanction, *d(S)*, where disutility is increasing in the sanction level at an increasing rate, i.e. $d_S>0$ and $d_{SS}>0$. This may occur if the disutility refers to the opportunity cost of lost labor and human capital accumulation. Lost time from prison, especially in later years, is likely to have a larger impact on the ability to earn income compared to the same time but during the beginning of incarceration.[6] Before

[6] Note that there may also concave relationships that may occur if we focus on the welfare felt by the prisoner themselves. Here, the marginal disutility from staying in a prison environment may be lower when the individual is more acclimated to the surrounding area, i.e. when they have stayed a longer time.

committing the criminal act, the individual does not know the sanction level, only the possible range from $\underline{S}$ to $\bar{S}$.[7] 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 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, $U(S; g)$.[8] 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 $0 \leq S \leq \bar{S}$,

[7] For misdemeanor crimes, $\underline{S}$ may be 0 which implies probation. For felonies, $\bar{S}$ may be a life sentence.
[8] 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.

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

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 people if $\lambda > 0$ (See Appendix for proof). 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) $W^{\ell} = U(S; g) - d(S) - pS + \alpha B,$

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 incarceration (See Appendix for 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 (See Appendix for proof).

2.4 Implications and Limitations of the Model

There are three important notes regarding our model. First, the introduction of stringent laws such as the 1994 Crime Bill will increase the average sanction level and the expected sanction level that the criminal expects from committing a crime. If the former factor outweighs the latter factor, we expect an increase in incarceration rates from more stringent laws. Second, 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. Finally, our theory focuses only on 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 the private prison and incarceration rate relationship. We also examine how all three channels –trials, verdicts, and individual incarceration likelihood - contribute to incarceration rates.

III. Empirical Model

We outline our empirical model to examine how private prisons affect incarceration rates.

3.1 Relating Mechanisms and Channels Between Private Prisons and Incarceration

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

$$(9) \quad I_{st} = \gamma_0 + \gamma_1 N_{st} + \mathbf{Z_{st}A} + \mathbf{X_{st}B} + \vartheta_s + \rho_t + \epsilon_{st},$$

where I_{st} is log of new prisoners incarcerated per capita in state *s* at year *t*, N_{st} is the log of private prison beds per capita in state *s* at year *t*, $\mathbf{Z_{st}}$ is a vector of state crime characteristics, $\mathbf{X_{st}}$ is a vector of state characteristics 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. For state crime characteristics, we include the log of total guilty sentences per capita, the log of federal prison beds per capita and democratic party proportion in the state legislature. Guilty sentences represents a supply factor affecting new prisoners while federal prisons and political composition are likely affecting the demand of new prisoners into private prisons since they potentially account for public prison capacity. For state characteristics, we include a measure of gender, race, real income and unemployment rate which impact the demand for committing crimes.

This model tests the two mechanisms in our theory by which private prisons may affect incarceration rates: corruption levels and prison occupancy levels. We conduct subsample regressions where we rank corruption levels by state from low to high and run equation (9) for

these two subsample groups. We use two measures of corruption as described in the data section. We then compare γ_1 in both regressions. If corruption induces incarceration rates, we expect γ_1 to be larger in the high corruption subsample compared to the low corruption subsample results.

We conduct subsample regressions when testing the capacity constraint mechanism by ranking states from highest capacity prison to lowest capacity prison. 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 to increase incarceration rates leading to a larger and positive γ_1 in capacity constrained states compared to non-capacity constrained states. In other words, the presence of private prisons may cause judges to become stricter in sentencing marginal convicts to prison knowing that the overcrowding of inmates is reduced. However, if society's marginal utility for increasing the capacity constraint is positive, the opposite occurs. Here, the fact that public prisons have over 100% capacity may suggest that fewer inmates need to go to private prisons.

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 sentence length. Similar to the extensive margin model, we expect $\gamma_1 > 0$.

We also test the influence of private prisons on incarceration rates through three channels: 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 log of total trials per capita by state and log of total guilty verdicts per capita 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 (9) 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 leads 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 per capita, $\beta_1$is the decay rate of privatization knowledge and $\beta_2$is the diffusion rate.[9] This measure proxies for the rise of a privatization ideology in each state over time. Note that this measure only shows aggregate privatization ideology but it does not tell us if those studies are in favor or against ideology. Thus, our measure may increase the number of private prisons if most of the studies are in favor of the ideology and decrease it if those studies are against it.

Academic studies on privatization are plausibly exogenous with respect to prison sentences as publication lag and our index formulation renders contemporaneous reverse

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

causality highly unlikely. Exclusion can be plausibly maintained as there is no clear link between such literature and sentencing except through private prisons. An alternative pathway may be that the privatization ideology also induces more tough-on-crime policies which affect incarceration. We find this explanation does not hold in the data because the correlation between average state papers on privatization per capita and a dummy variable indicating the implementation of state-level three-strikes laws during 1989-2008 was only -0.0083 and the correlation of average papers per capita with average prison sentence length was only -0.0054. Also, recent criminal justice reform measures to lower incarceration have found just as much, if not more, support in conservative states and among conservative activists (Dagan and Teles, 2013; Dagan and Teles, 2015; Thielo et al., 2015; Garrett, 2017).[10] These facts all suggest minimal relationship between privatization ideology and harsher crime laws.

The second important issue is that our subsample analysis approach to understanding how the corruption or illicit influence mechanism and the occupancy rate mechanisms influence the relationship between private prisons and incarceration rates may still have an endogeneity issue. This is because the groupings of high and low occupancy rates and the ranking of high and low corruption states may also be affected by the number of incarcerated individuals in the state. This source of endogeneity is difficult to remove with the available data. Given that private prisons influencing incarceration rates through the corruption mechanism leads to different policy conclusions than through the capacity constraint mechanism, we believe this question is of vital importance and should be investigated even with a second-best approach. To support our findings, we will consider two alternative proxies for the corruption and capacity constraint

[10] At the federal level, the 1994 Crime Bill, which strengthened criminal penalties, received bipartisan support when voted on by Congress, but received more support from Democratic representatives than Republican whereas privatization policies tended to find more favor from Republicans than Democrats.

mechanisms: campaign contributions and court filings for overcrowding, respectively. These measures are also second-best, but together they may serve to provide further evidence for or against the findings of the corruption and occupancy mechanisms. We view any mechanism results as invitations for further research, not as final words on the issue.

IV. Data

Three key measures form the foundation of our analysis: a measure of private prison size, the volume of academic literature on privatization, and criminal trial outcomes. We compiled a panel dataset at the state level and repeated cross sections at the individual levels from 1989 to 2008. This period was chosen due to data availability. Table 1 displays summary statistics and Appendix A summarizes data definitions and sources.

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 1980 to 2008. On average, a state had 4 such institutions in a given year, peaking with 71 in Texas in 2008. Figure 1 maps these facilities, with the size of each facility's circle representing the number of inmates each facility is capable of housing. Our main measure of private prison size is private prison beds per capita. The average state had 35 private prison beds per 100,000 people. New Mexico scored highest in this measure, peaking in 2003, with Oklahoma, Texas, Arizona, and Tennessee rounding out the top five. Figure 2 plots the non-linear relationship between private prison capacity per capita and prison sentences per capita, finding a convex relationship.

An index of privatization knowledge using academic studies serves as our instrument. Figure 3 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 stock index averages 6.80 and peaks at 89.64 in Florida in 2008.

Trial outcomes were aggregated by state, year, and into eight categories as used by the Bureau of Justice Statistics’ Federal Criminal Case Processing Statistics through the mid-1990s: (1) violent crimes such as murder, sexual misconduct, and assault; (2) property crimes including burglary and arson; (3) fraud; (4) drug crimes; (5) public order crimes including prostitution, perjury, and public intoxication; (6) regulatory violations such as antitrust lawsuits, mail crimes, and traffic offenses; (7) weapons crimes not including violent crimes such as trafficking, illegal manufacture, and registration violations; and (8) immigration crimes. Major trial outcomes include not guilty, a suspended sentence, a sentence of probation or a fine, and a prison sentence. This data is supplemented with data on total trials, which only started in 1998.

Our measure of the extensive margin of incarceration is the total number of new incarcerated individuals per capita by crime type in a state. The measure of the intensive margin of incarceration is the average sentence length by month 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 prison rates between 94%-97%, property crimes 60%, public order crimes 78%,

fraud crimes 70%, and regulatory crimes 41% across all state-years. Average sentence length also varied by crime type, with violent and drug crimes receiving the longest sentences. Regulatory crimes had the shortest average sentence length.

Individual-level data on federal criminal trial outcomes and defendant demographics comes from the United States Sentencing Commission's Monitoring of Federal Criminal Sentences series as deposited on ICPSR. The data starts from 1989 and includes the type of crime committed, the nature of their sentence, and 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 36% involved a Hispanic convict and 25% involved a black convict. Drug crimes comprise 39% of cases, of which 74% were non-white convicts. The vast majority of cases involved men, with low education and repeat offenders.

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 4 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. In 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. In response to the second criticism, the conviction rate of public officials is not correlated with U.S. attorneys working hours, number of Federal state judges or district court caseloads which measure law enforcement ability (Liu and Mikesell, 2014).

As an alternative measure of private prison industry influence, we consider campaign contributions made by the private prison industry to members of Congress within a state-year. This data comes from the Federal Election Commission as aggregated and reported by OpenSecrets and begins in 1990. The mean state-year saw $1,445 in campaign contributions from the industry to federal Representatives and Senators, with a maximum of $95,000 in 2004 Utah. Contributions were highly skewed, with over 76% of state-years seeing zero contributions. Average contributions in states with a private prison were $2,544 per state-year, but only $212 per state-year in states without private prisons. This collinearity suggests campaign contributions may suffer similar endogeneity problems as the private prison variable itself.

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%.

An alternative measure of capacity constraint is the quantity of prison overcrowding litigation filed, a measure first proposed as an instrument by Levitt (1996). Data on the volume of overcrowding litigation per thousand prisoners comes from Schlanger (2015). The average state-year saw 19.1 overcrowding-related civil rights filings in federal district court per 1,000 prisoners. The District of Columbia saw the highest average number of filings per prisoner at 60.1, followed by Iowa, Arkansas, Delaware, and Missouri. Massachusetts was the lowest state at 5.2, followed by North Dakota, Ohio, Minnesota, and Rhode Island.

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

V. Results

First, we investigate whether there exists a detectable change in incarceration outcomes when a state's first private prison becomes operational. Figure 5 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. 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 one in the year of the initial private prison's opening. We estimate a statistically significant 4% increase in the change in prison proportion at the time of private prison adoption.[11] These findings warrant further investigation.

We establish baseline results using aggregate data and then show aggregate incarceration effects before delving into the mechanism and channels by which private prisons affect

[11] We also estimate 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. Results are available from the authors upon request.

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 Baseline Effects of Private Prisons on Incarceration Rates

Table 2 reports Fixed Effects (FE) regressions which estimate the effect of private prison beds per capita on the number of new prison sentences per capita. A positive and statistically coefficient is found for private prisons using all years under specifications (1) to (3). The inclusion of guilty sentences per capita reduces significance for our variable of interest which may be because the two variables are highly correlated. In general, there is some correlation that warrants further investigation to see if such effects are causal.

We estimate an Instrumental Variables Two-Way Fixed Effect (IV-FE) regression using our measure of privatization ideology as our main instrument. [12] The first four columns of Table 3 reports first stage results demonstrating that our instrument is a statistically significant predictor of private prisons and not weak. We find that a higher stock of privatization literature per capita leads to a higher number of private prison beds per capita which may be explained by the stock literature coming out in favor of privatization supporting the ideology. The Stock-Yogo test results in the bottom of Table 3 indicate our instrument is not weak and reduces bias compared to FE by over 90%.

The last four columns of Table 3 presents our second stage results for all crimes.[13] The effect of private prisons is statistically significant with an elasticity of 0.03 to 0.11. A standard

[12] We also tried instrumenting private prison beds with the number and rate of filing overcrowding litigation similar to Levitt (1996). Instrumental variable results were similar but a weak instrument problem exists. Results are available from the authors upon request.

[13] One potential concern in our analysis is that our measure of private prisons is capturing prison capacity in general. We conduct a placebo test where we use federal prison capacity as our variable of interest and remove our private prison variable while controlling for total trials and other regressors. We find that the federal prison capacity

deviation increase in private prison beds per capita leads to an additional increase in the number of new incarcerations by 5 to 18 per million population per year given an average increase of 178 new prisoners per million population per year during our sample period. With a median sentence length of nearly 4 years, a mean state population of 3.3 million, and a per diem rate of $60 per prisoner, this equates to allocating an additional $1.4 million to $5 million state expenditure per year, if all additional prisoners were housed in private prisons. [14]

Comparing the FE results in Table 2 to the IV FE estimates in Table 3, the simultaneity attenuation bias is seen especially with the full specification. 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 private prison beds per capita explaining the same level of incarceration, thereby generating a larger marginal effect of private prison beds per capita on incarceration rates.

5.2 Differential Effect of Private Prisons Across Time and Types of Crime

There is a differential effects across crime type as shown in Table 4. Private prisons have no statistically significant effects on incarceration for violent crimes. One plausible explanation for the non-significance is that violation of violent crimes have prison rates greater than 90% given sentencing guidelines leaving very little leeway for probation. In contrast, private prison beds per capita have a statistically significant effect and positive on incarceration rates for property, fraud, drug, public order, regulatory and weapons crimes. The largest effect of private prison beds per capita is on incarceration for fraud where an increase in the average number of

variable is no longer significant which illustrates that our private prison variable is capturing something other than general prison capacity. These results are available from the authors upon request.

[14] The per diem rate of $60 was chosen as a reference based on a sample 2014 contract between the state of Tennessee and the Corrections Corporation of America's Trousdale County facility which is publicly available (State of Tennessee, 2014). Per diem rates vary widely, but are not well publicized nor easily available. Total state expenditure would be higher if housed in public prisons. Per diem rates averaged $95-100 in federal prisons in 2016 (Bureau of Prisons, 2018).

private prison beds per capita by one standard deviation leads to an increase in incarceration from fraud crimes by 19 new prisoners per million population per year given the average prison sentences of 1069 per million per year for such crimes. Interestingly, the effect of private prison beds per capita on immigration crimes is negative and significant. This may be because sentences for immigration crimes increasingly lead to deportation and not incarceration.

The Crime Bill specifically targets violent, drug, weapons and immigration crimes. Table 5 separates the effect of such crimes before and after the implementation of the Crime Bill. We find that incarcerations from weapons crimes increased after the implementation of the Crime Bill given an increase in private prison beds per capita. Thus, the effect that we found in the previous table for weapons related crimes may be attributed to the Crime Bill. There was no significant effect on the other three crime categories after the Crime Bill was implemented.

Table 6 tests the illicit influence mechanism and the capacity constraint mechanism. In states with an above-median level of corruption convictions per capita, the effect of private prisons is positive and significant, but the effect is insignificant in states with below-median levels of corruption which support our theory. The second test of the corruption mechanism uses campaign contributions to separate states. The effect of private prisons on prison sentences in the top and bottom half are positive but it is only significant for the bottom half states for campaign contributions. Our results for the illicit influence mechanism are mixed. The corruption convictions data directly support our theory but campaign contributions may not.[15]

We obtain a more definitive results when testing the occupancy mechanism. States with greater than 100% of rated prison capacity filled and those with less than 100% occupancy both

[15] Our campaign contribution results may still support this mechanism if lobby group donations exhibit diminishing marginal returns. A lobby group may see a higher return from donating their marginal dollar to politicians in states without many private prisons relative to states which already have large private prison industries and extant high levels of influence.

saw positive and statistically significant estimates but the former states have a magnitude that is almost double the latter states. Similarly, the overcrowding litigation subsampling finds that states in the top half of the litigation filings, those with more crowded prisons, are more likely to find a positive and significant effect of private prison beds per capita on incarceration rates. There is no significant effect for the bottom half of states experiencing with few overcrowding litigation. While potential endogeneity may limit how definitive we can make our conclusion, the evidence here suggests that we cannot rule out either mechanism, especially the capacity constraint mechanism, as the source of private prison influence on incarceration rates. Further studies are needed to investigate the robustness in these results.

Table 7 examines the effect of private prisons on the intensive effect of incarceration through sentencing length. There is an overall positive effect of private prison beds per capita on sentence lengths. Here, a one standard deviation increase in private prison beds per capita results in an increase in average sentencing length by 6.5 months. This is a significant increase given that the average sentence length is 49 months across all crime types. Interestingly, Mukherjee (2019) recently estimated that individuals sentenced to private prisons in Mississippi serve 3 additional months relative to similar prisoners in public prisons for the same type of crime due to conduct violations while incarcerated. This suggests the cumulative effect of private prisons on actual time served by inmates may be greater than our estimates show.

Our results show that the average sentence length for violent crimes, fraud, drug crimes, regulatory and weapons crimes were positively affected by private prison beds per capita. Regulatory related crimes have the most significant positive elasticity but since the average sentence length is the lowest among all crime types, the overall impact of a standard deviation increase in private prison beds per capita is also low. The largest effect on the level of average

sentencing is violent crimes where a one standard deviation increase in private prison beds per capita leads to an increase in violent crime sentencing length by 14 months which is a significant increase from an average of 88 months for violent crimes.

Our results indicate private prisons have a significant impact at the extensive margin of incarceration – total number of new incarcerated individuals per capita – as well as the intensive margin – average sentencing length for an incarcerated individual. There is a more significant effect of private prisons on both the number of incarcerated individuals and the sentencing length for types of crime which exhibit more leeway in sentencing: property, fraud, regulatory, drug and public order crimes. For crimes which have less leeway on the initial incarceration decision, such as violent crimes, private prisons have a significant effect on only sentencing length. Furthermore, the 1994 Crime Bill had a differential impact on weapons crimes where private prisons increase incarceration rates for this crime.

5.3 The Channels Affected by Private Prisons

We examine three channels by which private prisons may lead to more incarceration in Table 8: total trials, total guilty verdicts, and individual likelihood of prison sentencing conditional on conviction. Private prisons may affect incarceration rates through the number of individuals put on trial—perhaps by influencing arrest rates or plea bargain negotiations—and the proportion of guilty sentences handed out. We find that private prisons may increase the guilty verdicts at the state level as shown in column 2, but there is no evidence that it affects total trials at the state level as shown in column 1. Note that the latter analysis has less statistical power than the former channel as data on total trials was only available from 1998 onward. The last column examines the impact of private prisons on individual-level incarceration likelihood conditional on conviction. This analysis strips away any aggregate effects, which allows us to

examine how individual characteristics interact with private prison effects. Private prisons have a positive and significant effect on the likelihood of incarceration for all individuals.

These results could arise from several plausible mechanisms. First, if the capacity constraint mechanism holds, then private prisons may lower the cost to individuals of being incarcerated, which may increase willingness of juries to convict or judges to issue prison sentences. Second, if the illicit influence mechanism holds, private prisons may influence the decision-making of prosecutors in the types of crimes they take to trial. Increased guilty sentences may occur without an increase in trials if the prosecutors become more willing to bring strong cases to trial and more willing to offer plea bargains to weaker cases. By bringing these cases to trial, longer sentence lengths can be issued upon conviction than would have been agreed to in plea bargaining, an outcome which may be rewarded by private prisons. Third, it may be that total trials do increase, but our short panel is unable to detect this effect.

Finally, Table 9 reports heterogeneity in the effect of private prisons on incarceration by demographic subgroup. American citizens saw strongly significant positive estimates while non-citizens saw no significant impact. Individuals with no criminal history saw a positive and statistically significant result while those with past offenses did not. Finally, white males with low education saw much larger and more significant effects than other racial or ethnic groups. Understanding the causes of the differential effects by individual characteristics may be an interesting avenue for future research.

VI. Conclusion

Our objective is to determine the link between private prisons and incarceration at the extensive and intensive margins. Our secondary goal 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. We test our theoretical 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.

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 on new prison incarceration levels is significant. The influence of private prisons also vary by crime type. The most strongly influenced crime types at the extensive margin are those that tend to have more flexibility in incarceration such as property, fraud, and public order crimes. The effect of private prisons on the intensive margin is also significant especially for violent, fraud, drug, regulatory and weapons crimes. We find some evidence consistent with a capacity relief mechanism driving a positive relationship between private prisons and incarceration and mixed results with the corruption mechanism. Finally, we find evidence for private prisons affecting overall incarceration levels through increases in guilty sentences and increases in individual incarceration likelihood but no changes in total trials.

Our results have important policy and social implications. Our baseline results suggest states which have high levels of incarceration may exacerbate this upon adopting prison privatization policies, especially if doing so lifts capacity constraints or if officials are more corrupt. States with overcrowding issues may inadvertently "induce demand" for incarceration by authorizing private prisons similar to how building more lanes on highways may increase traffic congestion. Policymakers interested in relieving capacity constraints may be better served

by reducing the flow of new inmates through sentencing reforms rather than by increasing the stock of prison facilities. These results also suggest prison privatization may increase the pro-incarcerative effects of policies such as the 1994 Crime Bill. The mechanism results also serve to underline further the importance of anti-corruption policies to the efficacy and fairness of judicial outcomes. Finally, we find that the increase in incarceration likelihood falls primarily on young, childless, less educated white men without criminal histories. This may impact future levels of recidivism, radicalization, political polarization, labor force non-participation, social stratification and resentment. It is important for policymakers and researchers to study these and other adverse effects of prison privatization.

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Tables

Table 1. Summary Statistics

Variables	*Number of observations*	Mean	Standard Deviation	Minimum	Maximum
State-Level Variables					
Total In-State Private Prisons	1,020	3.02	6.91	0	67
Total In-State Private Prison Beds	1,020	1,836.49	4,599.24	0	47,534
Total In-State Private Prison Beds Per Capita (in thousands)	1,020	0.32	0.61	0	4.74
In-State Papers	1,020	1.61	3.10	0	32
Cumulative In-State Papers Per Economist Per Capita	1,003	0.93	2.60	0	22.97
Stock of Privatization Literature Per Economist Per Capita	1,003	1.12	2.04	0	15.84
Economists Per Capita (per thousand)	1,004	0.11	0.18	0	1.67
Total Population (in thousands)	1,020	5,391.24	6,003.37	453	36,580.37
State Price Index	1,020	104.86	25.30	57.7	233.94
Corruption Convictions Per Capita (per hundred thousand)	1,020	0.76	1.23	0	14.16
Occupancy Rate of Public Prisons	1,020	107.10	20.44	10	206
Campaign Contributions to In-State Federal Politicians	969	1,559	6,601	0	95,000
Prison Overcrowding Litigation Filed (per thousand prisoners)	1,020	19.18	16.76	1.33	203.34
Total Trials	550	1,553.81	2,231.70	42	16,744
Total Guilty Sentences	1,020	1,015.13	1,605.09	24	16,064
Total Guilty Sentences Per Capita (per hundred thousand)	1,020	20.75	16.95	2.17	147.02
Total Prison Sentences	1,020	886.43	1,490.62	23	15,284
Total Prison Sentences Per Capita (per hundred thousand)	1,020	17.85	15.66	2.01	144.71
Total Trials of Violent Crimes	550	51.89	52.33	0	313
Total Guilty Sentences for Violent Crimes	1,020	46.56	49.86	0	414
Total Guilty Sentences for Violent Crimes Per Capita (per hundred thousand)	1,020	1.31	1.67	0	14.92
Total Prison Sentences for Violent Crimes	1,020	44.61	48.29	0	405
Total Prison Sentences for Violent Crimes Per Capita (per hundred thousand)	1,020	1.25	1.58	0	13.69
Total Trials of Property and Fraud Crimes	550	307.60	358.08	10	1,950
Total Guilty Sentences for Property Crimes	1,020	64.15	74.94	0	427
Total Guilty Sentences for Property Crimes Per Capita (per hundred thousand)	1,020	1.40	1.21	0	11.91
Total Prison Sentences for Property Crimes	1,020	39.05	49.26	0	282
Total Prison Sentences for Property Crimes Per Capita (per hundred thousand)	1,020	0.81	0.66	0	7.94
Total Guilty Sentences for Fraud Crimes	1,020	148.90	181.19	1	1,202
Total Guilty Sentences for Fraud Crimes Per Capita (per hundred thousand)	1,020	3.05	2.46	0.09	32.53
Total Prison Sentences for Fraud Crimes	1,020	106.94	138.30	0	1,004
Total Prison Sentences for Fraud Crimes Per Capita (per hundred thousand)	1,020	2.11	1.54	0	18.16
Total Trials of Drug Crimes	550	550.84	825.12	13	5,837
Total Guilty Sentences for Drug Crimes	1,020	399.11	623.89	7	5,250

Total Guilty Sentences for Drug Crimes Per Capita (per hundred thousand)	1,020	8.11	6.84	0.43	61.53
Total Prison Sentences for Drug Crimes	1,020	378.82	603.11	5	5,048
Total Prison Sentences for Drug Crimes Per Capita (per hundred thousand)	1,020	7.61	6.41	0.27	56.81
Total Trials of Public Order and Regulatory Crimes	550	231.36	328.47	5	2,396
Total Guilty Sentences for Public Order Crimes	1,020	64.91	85.92	0	537
Total Guilty Sentences for Public Order Crimes Per Capita (per hundred thousand)	1,020	1.29	0.90	0	7.84
Total Prison Sentences for Public Order Crimes	1,020	51.44	70.11	0	433
Total Prison Sentences for Public Order Crimes Per Capita (per hundred thousand)	1,020	1.03	0.77	0	6.99
Total Guilty Sentences for Regulatory Crimes	1,020	23.80	46.30	0	472
Total Guilty Sentences for Regulatory Crimes Per Capita (per hundred thousand)	1,020	0.55	0.85	0	8.14
Total Prison Sentences for Regulatory Crimes	1,020	10.04	16.87	0	136
Total Prison Sentences for Regulatory Crimes Per Capita (per hundred thousand)	1,020	0.23	0.34	0	4.01
Total Trials of Weapons Crimes	550	131.68	136.25	0	909
Total Guilty Sentences for Weapons Crimes	1,020	87.38	103.99	1	818
Total Guilty Sentences for Weapons Crimes Per Capita (per hundred thousand)	1,020	2.18	2.28	0.01	24.49
Total Prison Sentences for Weapons Crimes	1,020	82.39	100.68	0	797
Total Prison Sentences for Weapons Crimes Per Capita (per hundred thousand)	1,020	2.04	2.21	0	24.32
Total Trials of Immigration Crimes	550	280.44	891.72	0	8,352
Total Guilty Sentences for Immigration Crimes	1,020	177.00	660.79	0	8,712
Total Guilty Sentences for Immigration Crimes Per Capita (per hundred thousand)	1,020	2.78	8.29	0	107.76
Total Prison Sentences for Immigration Crimes	1,020	169.06	641.10	0	8,380
Total Prison Sentences for Immigration Crimes Per Capita (per hundred thousand)	1,020	2.66	8.22	0	107.26
Average Sentence Length for All Crimes (in months)	1,020	49.47	14.80	14.2	97.75
Average Sentence Length for Violent Crimes (in months)	1,016	87.60	32.65	6	352.75
Average Sentence Length for Property Crimes (in months)	1,018	16.35	12.76	0	257.71
Average Sentence Length for Fraud Crimes (in months)	1,020	12.02	5.36	0	40.37
Average Sentence Length for Drug Crimes (in months)	1,020	76.35	23.67	15.5	151.10
Average Sentence Length for Public Order Crimes (in months)	1,016	33.48	27.95	0	384.66
Average Sentence Length for Regulatory Crimes (in months)	897	7.20	9.27	0	183.14
Average Sentence Length for Weapons Crimes (in months)	1,020	61.13	25.72	0	186.71
Average Sentence Length for Immigration Crimes (in months)	988	21.18	12.73	0	153.40
Real GDP Per Capita, base year 2000 (in thousands)	1,020	122.89	131.25	7.03	1,155.47
Hispanic Population Proportion	1,020	0.08	0.09	0	0.46
Male Proportion	1,020	0.49	0.01	0.46	0.54
Unemployment Rate	1,020	0.05	0.01	0.02	0.11
Democratic Party Proportion in State Legislature	1,020	0.51	0.10	0.16	0.99
In-State Federal Prisons	1,020	1.73	2.34	0	13
In-State Federal Prison Beds	1,020	2,132.27	2,972.05	0	17,091
In-State Federal Prison Beds Per Capita	1,020	0.35	0.46	0	3.69

Individual-Level Variables					
Prison Sentenced Issued	1,072,849	0.85	0.35	0	1
Prison Sentence Length (in months)	1,061,535	48.54	73.57	0	11,520
Violent Crime Committed	1,066,712	0.05	0.21	0	1
Property Crime Committed	1,066,712	0.06	0.24	0	1
Fraud Crime Committed	1,066,712	0.15	0.35	0	1
Drug Crime Committed	1,066,712	0.39	0.49	0	1
Public Order Crime Committed	1,066,712	0.06	0.24	0	1
Regulatory Crime Committed	1,066,712	0.02	0.15	0	1
Weapons Crime Committed	1,066,712	0.08	0.28	0	1
Immigration Crime Committed	1,066,712	0.18	0.38	0	1
Age	1,052,196	34.51	10.83	16	103
Female	1,055,124	0.14	0.35	0	1
White	1,035,213	0.31	0.46	0	1
Black	1,035,213	0.25	0.43	0	1
Hispanic	1,045,694	0.36	0.48	0	1
Asian	1,035,213	0.02	0.14	0	1
Less than High School Completion	1,050,580	0.41	0.49	0	1
High School Diploma	1,050,580	0.29	0.45	0	1
Some College	1,050,580	0.16	0.37	0	1
College Graduate	1,050,580	0.06	0.24	0	1
U.S. Citizen	1,020,294	0.65	0.48	0	1
Legal Alien	955,971	0.08	0.27	0	1
Illegal Alien	955,971	0.23	0.42	0	1
Has Criminal History	1,020,670	0.69	0.46	0	1
Number of Dependents	935,942	1.57	1.74	0	30

Table 2. Determinants of Log of New Prison Sentences per Year per State Population using Fixed Effects

VARIABLES	(1)	(2)	(3)	(4)
Log of Private Prison Beds per capita	0.086	0.079	0.080	0.007
	(0.049)*	(0.046)*	(0.045)*	(0.007)
Log of Total Guilty Sentences per capita				0.980
				(0.020)***
Male Proportion		0.316	0.586	0.092
		(0.842)	(0.832)	(0.143)
Hispanic Proportion		0.310	0.224	0.008
		(0.507)	(0.474)	(0.096)
Real GDP per capita		-0.0003	-0.0003	0.00004
		(0.0001)***	(0.0001)***	(0.00001)**
Unemployment Rate		-0.368	-0.478	-0.064
		(0.496)	(0.526)	(0.074)
Democratic Party Proportion in State Legislature		-0.034	-0.065	0.010
		(0.066)	(0.065)	(0.010)
Log of Federal Prison Beds per capita			-0.075	-0.003
			(0.040)*	(0.006)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020
R-squared	0.819	0.835	0.839	0.993

Note: Standard errors are clustered in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Table 3. Determinants of Log of New Prison Sentences per Year per State Population using IV with Fixed Effects

	First Stage				Second Stage			
VARIABLES	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Log of Private Prison Beds per capita					0.107	0.078	0.076	0.027
					(0.013)***	(0.017)***	(0.016)***	(0.003)***
Log of Total Guilty Sentences per capita				1.035				0.957
				(0.261)***				(0.020)***
Male Proportion		-4.154	-4.341	-4.575		0.315	0.579	0.148
		(4.403)	(4.367)	(4.154)		(0.817)	(0.799)	(0.134)
Hispanic Proportion		2.547	2.606	2.174		0.311	0.233	-0.038
		(1.630)	(1.572)*	(1.216)*		(0.545)	(0.515)	(0.099)
Real GDP per capita		-0.0001	-0.0001	0.0002		-0.0003	-0.0003	0.00003
		(0.0002)	(0.0002)	(0.0002)		(0.0001)***	(0.0001)***	(0.00001)**
Unemployment Rate		-2.681	-2.599	-1.961		-0.369	-0.486	-0.024
		(1.399)*	(1.539)*	(1.435)		(0.574)	(0.604)	(0.082)
Democratic Party Proportion in State Legislature		-0.670	-0.647	-0.520		-0.034	-0.067	0.019
		(0.270)**	(0.228)***	(0.221)**		(0.065)	(0.065)	(0.013)
Log of Federal Prison Beds per capita			0.054	0.126			-0.075	-0.006
			(0.228)	(0.227)			(0.038)*	(0.009)
Stock of Literature per Capita	958.728	1028.681	1030.046	974.977				
	(61.867)***	(83.399)***	(83.827)***	(75.076)***				
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
R-squared					0.522	0.568	0.579	0.980
Cragg-Donald F-statistic					94.63^{+++}	112.2^{+++}	112.5^{+++}	108.9^{+++}
Excluded Instrument F-statistic					240.1$^{\wedge\wedge\wedge}$	152.1$^{\wedge\wedge\wedge}$	151$^{\wedge\wedge\wedge}$	168.7$^{\wedge\wedge\wedge}$

Note: Standard errors are clustered in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25. Excluded instrument F-statistic: $^{\wedge\wedge\wedge}$ F>10, $^{\wedge\wedge}$ p<0.01, $^{\wedge}$ p<0.05.

Table 4. Determinants of Log of New Prison Sentences per Year per State Population using IV with Fixed Effects by Crime Type

VARIABLES	Violent	Property	Fraud	Drug	Public Order	Regulatory	Weapons	Immigration
Log of Private Prison Beds per capita	0.0002	0.003	0.020	0.005	0.004	0.002	0.007	-0.004
	(0.0001)	(0.0005)***	(0.002)***	(0.003)*	(0.001)***	(0.001)*	(0.0004)***	(0.0003)***
Log Guilty Sentences of Type per capita	0.958	0.474	0.701	0.933	0.799	0.278	0.969	1.008
	(0.013)***	(0.050)***	(0.039)***	(0.031)***	(0.026)***	(0.075)***	(0.008)***	(0.002)***
Male Proportion	-0.001	-0.018	0.059	0.015	-0.005	0.019	-0.013	0.007
	(0.010)	(0.029)	(0.067)	(0.063)	(0.043)	(0.024)	(0.016)	(0.012)
Hispanic Proportion	-0.003	-0.014	-0.044	-0.034	-0.030	-0.020	-0.023	-0.006
	(0.003)	(0.011)	(0.052)	(0.033)	(0.020)	(0.011)*	(0.011)**	(0.009)
Real GDP per capita	-0.00004	0.00002	0.00003	0.00003	0.00001	-0.00003	0.00001	0.00004
	(0.00004)	(0.00003)	(0.00004)	(0.00003)	(0.00002)	(0.00002)	(0.00002)	(0.0001)
Unemployment Rate	-0.009	0.029	0.017	0.019	-0.016	0.006	0.010	-0.015
	(0.006)	(0.011)**	(0.035)	(0.042)	(0.015)	(0.007)	(0.012)	(0.011)
Democratic Party Proportion in State Legislature	0.0003	0.001	0.004	0.006	-0.001	0.002	0.003	-0.003
	(0.0005)	(0.002)	(0.006)	(0.004)	(0.002)	(0.002)	(0.002)	(0.001)**
Log of Federal Prison Beds per capita	-0.001	-0.0002	-0.002	0.001	-0.001	0.0001	0.001	0.0003
	(0.0004)	(0.001)	(0.005)	(0.004)	(0.001)	(0.001)	(0.002)	(0.001)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,020	1,020	1,020	1,020	1,020	1,020	1,020	1,020
R-squared	0.980	0.678	0.756	0.984	0.898	0.669	0.988	0.998
Cragg-Donald F-statistic	119.1^{+++}	110.3^{+++}	101.7^{+++}	100.5^{+++}	102.5^{+++}	107.1^{+++}	112.5^{+++}	127.8^{+++}
Excluded Instrument F-statistic	204.6$^{\wedge\wedge\wedge}$	159.7$^{\wedge\wedge\wedge}$	114.5$^{\wedge\wedge\wedge}$	156.7$^{\wedge\wedge\wedge}$	61.67$^{\wedge\wedge\wedge}$	118.6$^{\wedge\wedge\wedge}$	144.4$^{\wedge\wedge\wedge}$	182.3$^{\wedge\wedge\wedge}$

Note: Standard errors are clustered in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25. Excluded instrument F-statistic: $^{\wedge\wedge\wedge}$ F>10, $^{\wedge\wedge}$ p<0.01, $^{\wedge}$ p<0.05.

Table 5. Determinants of Log of New Prison Sentences per State Population using IV with Fixed Effects by Crime Type by Year

VARIABLES	Violent 1989-1994	Violent 1995-2008	Drug 1989-1994	Drug 1995-2008	Weapons 1989-1994	Weapons 1995-2008	Immigration 1989-1994	Immigration 1995-2008
Log of Private Prison Beds per capita	-0.017	-0.0002	-0.038	-0.002	0.033	0.004	0.040	-0.001
	(0.025)	(0.001)	(0.079)	(0.003)	(0.055)	(0.001)***	(0.064)	(0.001)
Log Guilty Sentences of Type per capita	0.941	0.980	0.838	0.936	0.863	0.972	0.678	1.008
	(0.034)***	(0.018)***	(0.020)***	(0.035)***	(0.038)***	(0.007)***	(0.176)***	(0.003)***
Male Proportion	-0.026	-0.007	0.327	-0.036	0.149	-0.014	0.096	0.008
	(0.111)	(0.008)	(0.318)	(0.059)	(0.264)	(0.010)	(0.292)	(0.010)
Hispanic Proportion	0.028	-0.019	0.040	-0.029	-0.094	-0.001	-0.012	-0.003
	(0.057)	(0.012)	(0.152)	(0.044)	(0.118)	(0.009)	(0.164)	(0.011)
Real GDP per capita	-0.00001	0.00001	-0.00001	0.00003	0.00003	0.00001	0.00001	0.00002
	(0.00001)	(0.00001)	(0.00003)	(0.00005)	(0.00002)	(0.00001)	(0.00002)	(0.00002)
Unemployment Rate	-0.024	-0.014	-0.003	-0.007	0.038	0.007	0.060	-0.020
	(0.037)	(0.009)	(0.126)	(0.041)	(0.082)	(0.009)	(0.102)	(0.011)*
Democratic Party Proportion in State Legislature	0.001	0.001	0.004	0.003	-0.004	0.001	-0.003	-0.002
	(0.003)	(0.001)	(0.010)	(0.004)	(0.007)	(0.001)	(0.007)	(0.002)
Log of Federal Prison Beds per capita	-0.0003	-0.001	-0.005	-0.0004	0.003	0.001	-0.001	0.001
	(0.002)	(0.001)*	(0.004)	(0.002)	(0.003)	(0.001)	(0.004)	(0.001)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	306	714	306	714	306	714	306	714
R-squared	0.913	0.964	0.941	0.983	0.771	0.995	0.395	0.998
Cragg-Donald F-statistic	0.925	24.04	1.109	27.77^{+++}	1.245	24.43^{+++}	0.599	25.41
Excluded F-Statistic	0.428	6.426	0.418	8.063$^{\wedge\wedge}$	0.497	6.688$^{\wedge}$	0.324	6.495

Note: Standard errors are clustered in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25. Excluded instrument F-statistic: $^{\wedge\wedge\wedge}$ F>10, $^{\wedge\wedge}$ p<0.01, $^{\wedge}$ p<0.05.

Table 6. Determinants of Log of New Prison Sentences per State Population using IV with Fixed Effects by Possible Mechanisms

	Illicit Influence Mechanism				Capacity Constraint Mechanism			
	Corruption Convictions		Campaign Contributions		Occupancy Rates		Overcrowding Filings	
VARIABLES	Top Half	Bottom Half	Top Half	Bottom Half	Over 100%	Under 100%	Top Half	Bottom Half
Log of Private Prison Beds per capita	0.040	0.019	0.019	0.031	0.054	0.030	0.021	0.031
	(0.006)***	(0.031)	(0.033)	(0.006)***	(0.026)**	(0.005)***	(0.002)***	(0.024)
Log of Total Guilty Sentences per capita	0.857	0.983	0.975	0.941	0.941	0.957	0.941	0.966
	(0.036)***	(0.037)***	(0.035)***	(0.059)***	(0.037)***	(0.023)***	(0.014)***	(0.038)***
Male Proportion	0.265	0.129	0.239	0.063	0.372	-0.021	0.140	0.074
	(0.154)*	(0.100)	(0.215)	(0.078)	(0.391)	(0.116)	(0.102)	(0.369)
Hispanic Proportion	-0.570	0.098	0.032	-0.139	-0.262	0.108	0.113	-0.121
	(0.244)**	(0.190)	(0.186)	(0.106)	(0.186)	(0.110)	(0.061)*	(0.130)
Real GDP per capita	0.00003	0.00001	0.00003	0.00006	0.00003	0.00004	0.00004	0.0001
	(0.00002)	(0.00001)	(0.00002)	(0.00003)	(0.00002)*	(0.00003)	(0.0001)	(0.00001)***
Unemployment Rate	-0.182	0.050	-0.163	0.111	0.020	-0.002	-0.175	0.068
	(0.142)	(0.104)	(0.105)	(0.117)	(0.108)	(0.146)	(0.097)*	(0.111)
Democratic Party Proportion in State Legislature	0.043	-0.005	0.024	-0.001	0.025	0.030	0.009	0.034
	(0.016)**	(0.018)	(0.015)	(0.018)	(0.027)	(0.017)*	(0.013)	(0.030)
Log of Federal Prison Beds per capita	-0.028	0.009	-0.003	0.0003	-0.023	0.006	-0.007	-0.013
	(0.015)*	(0.006)	(0.011)	(0.007)	(0.015)	(0.013)	(0.009)	(0.018)
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	520	500	520	500	620	400	520	500
R-squared	0.954	0.995	0.984	0.976	0.944	0.988	0.984	0.979
Cragg-Donald F-statistic	78.91^{+++}	3.848	7.340^{+}	250.7^{+++}	8.707^{++}	64.06^{+++}	122.1^{+++}	3.438
Excluded F-Statistic	90.57$^{\wedge\wedge\wedge}$	2.432	3.209	144.3$^{\wedge\wedge\wedge}$	8.051$^{\wedge\wedge}$	100.4$^{\wedge\wedge\wedge}$	104.1$^{\wedge\wedge\wedge}$	3.066

Note: Standard errors are clustered in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25.
Excluded instrument F-statistic: $^{\wedge\wedge\wedge}$ F>10, $^{\wedge\wedge}$ p<0.01, $^{\wedge}$ p<0.05.

Table 7. Determinants of Log of Sentencing Length per Year using IV with Fixed Effects

VARIABLES	All	Violent	Property	Fraud	Drug	Public Order	Regulatory	Weapons	Immigration
Log of Private Prison Beds per capita	0.145	0.179	0.046	0.316	0.194	-0.439	13.122	0.615	-0.239
	(0.063)**	(0.075)**	(0.100)	(0.116)***	(0.087)**	(0.286)	(1.091)***	(0.083)***	(0.110)**
Log Guilty Sentences of Type per capita	-0.468	3.645	-3.458	-1.406	-0.486	6.244	-40.212	-3.008	-0.402
	(0.351)	(3.177)	(5.702)	(2.064)	(0.825)	(6.738)	(31.648)	(1.351)**	(0.429)
Male Proportion	5.577	2.633	-2.658	2.376	4.056	21.125	7.440	-1.528	-5.079
	(1.998)***	(3.174)	(7.797)	(3.662)	(3.756)	(4.882)***	(25.328)	(3.844)	(5.400)
Hispanic Proportion	-4.252	-1.524	0.545	-1.804	-4.569	-1.786	-45.826	-4.192	2.305
	(1.777)**	(1.316)	(1.981)	(1.875)	(1.935)**	(3.113)	(18.401)**	(1.954)**	(2.810)
Real GDP per capita	-0.0004	0.0004	0.001	0.0002	0.0002	-0.001	0.007	-0.0002	0.001
	(0.0002)*	(0.0004)	(0.0004)**	(0.0004)	(0.0002)	(0.0004)	(0.007)	(0.001)	(0.0004)**
Unemployment Rate	1.312	-1.147	4.140	1.310	2.798	4.284	6.663	0.453	3.220
	(1.627)	(1.577)	(2.702)	(2.289)	(1.633)*	(3.337)	(20.516)	(2.767)	(3.477)
Democratic Party Proportion in State Legislature	-0.131	0.168	0.075	0.133	-0.086	-1.222	6.874	0.047	-0.683
	(0.217)	(0.206)	(0.395)	(0.240)	(0.236)	(0.439)***	(4.036)*	(0.454)	(0.610)
Log of Federal Prison Beds per capita	0.151	-0.058	0.035	-0.121	0.149	-0.463	-0.229	0.347	0.504
	(0.149)	(0.112)	(0.201)	(0.181)	(0.175)	(0.243)*	(2.319)	(0.329)	(0.291)*
State Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,020	1,016	1,013	1,018	1,020	1,011	808	1,019	982
R-squared	0.329	0.048	0.157	0.502	0.147	0.440	-0.700	0.397	0.418
Cragg-Donald F-statistic	108.9^{+++}	117.1^{+++}	110.1^{+++}	100.7^{+++}	100.5^{+++}	100.2^{+++}	87.45^{+++}	112.4^{+++}	118.7^{+++}
Excluded Instrument F-statistic	168.7$^{\wedge\wedge\wedge}$	201.7$^{\wedge\wedge\wedge}$	164.3$^{\wedge\wedge\wedge}$	113$^{\wedge\wedge\wedge}$	156.7$^{\wedge\wedge\wedge}$	59.13$^{\wedge\wedge\wedge}$	101.1$^{\wedge\wedge\wedge}$	144.1$^{\wedge\wedge\wedge}$	161.8$^{\wedge\wedge\wedge}$

Note: Standard errors are clustered in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25. Excluded instrument F-statistic: $^{\wedge\wedge\wedge}$ F>10, $^{\wedge\wedge}$ p<0.01, $^{\wedge}$ p<0.05.

Table 8. Examining the channels by which Private Prisons Influence Incarceration using IV with Fixed Effects

VARIABLES	Trials	Guilty	Incarceration Likelihood
State Characteristics			
Log of Private Prison Beds per capita	-0.393	0.052	0.055
	(2.772)	(0.016)***	(0.024)**
Male Proportion	1.263	0.450	-0.878
	(2.611)	(0.792)	(0.221)***
Hispanic Proportion	-0.290	0.283	-1.005
	(0.987)	(0.573)	(0.143)***
Real GDP per capita	-0.001	-0.0003	0.0001
	(0.001)	(0.0001)***	(0.0001)
Unemployment Rate	-0.639	-0.483	0.180
	(2.121)	(0.614)	(0.125)
Democratic Party Proportion in State Legislature	0.090	-0.089	0.067
	(0.558)	(0.065)	(0.030)**
Log of Federal Prison Beds per capita	-0.056	-0.073	-0.003
	(0.189)	(0.035)**	(0.014)
Individual Characteristics			
Age			0.0001
			(0.0005)
Female			-0.089
			(0.003)***
Black			0.018
			(0.001)***
Hispanic			0.018
			(0.002)***
Asian			-0.022
			(0.005)***
Native			-0.005
			(0.005)
Other Race			-0.025
			(0.012)**
Legal Alien			0.037

			(0.002)***
Illegal Alien			0.067
			(0.004)***
High School Grad			-0.013
			(0.001)***
Some College Education			-0.019
			(0.001)***
College Graduate			-0.006
			(0.002)**
Number of Dependents			-0.001
			(0.0002)***
Has a Criminal History			0.097
			(0.003)***
Observations	550	1,020	874,686
R-squared	-0.321	0.553	0.243
Cragg-Donald F-statistic	0.332	112.5^{+++}	$38{,}233^{+++}$
Excluded Instrument F-statistic	0.072	$151^{\wedge\wedge\wedge}$	$47.47^{\wedge\wedge\wedge}$

Note: The data for trials is only available from 1998 onwards. Trials and Guilty regressions are at the state level and State and Year Fixed Effects are included. Standard errors are clustered at the state level in parentheses. Incarceration likelihood regressions are at the individual level. State-year clustered standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: $^{+++}$ B<0.1, $^{++}$ B<0.15, $^{+}$ B<0.25. Excluded instrument F-statistic: $^{\wedge\wedge\wedge}$ F>10, $^{\wedge\wedge}$ p<0.01, $^{\wedge}$ p<0.05.

Table 9. Subgroup Heterogeneity in the Effect of Private Prisons on Individual-Level Prison Sentences Conditional on Conviction using IV-Two Way Fixed Effects

Subgroup	Log PP Beds per Capita	*N*	R^2	Cragg-Donald *F*-statistic	Excluded *F*-statistic
All	0.055	874,686	0.243	38,233^{+++}	47.47$^{\wedge\wedge\wedge}$
	(0.024)**				
Male	0.071	747,394	0.214	32,942^{+++}	45.49$^{\wedge\wedge\wedge}$
	(0.026)***				
Female	-0.051	127,292	0.234	5,395^{+++}	59.59$^{\wedge\wedge\wedge}$
	(0.034)				
White	0.084	289,532	0.223	17,676^{+++}	44.23$^{\wedge\wedge\wedge}$
	(0.040)**				
Black	0.001	230,002	0.273	14,262^{+++}	54.09$^{\wedge\wedge\wedge}$
	(0.022)				
Hispanic	0.014	294,379	0.173	7,112^{+++}	33.94$^{\wedge\wedge\wedge}$
	(0.047)				
Asian	0.132	15,940	0.258	1,330^{+++}	43.99$^{\wedge\wedge\wedge}$
	(0.095)				
Under 35	0.085	489,750	0.263	18,862^{+++}	52.30$^{\wedge\wedge\wedge}$
	(0.022)***				
35 and over	0.014	384,936	0.224	19,478^{+++}	43.14$^{\wedge\wedge\wedge}$
	(0.031)				
Less than HS	0.072	370,463	0.206	10,302^{+++}	45.35$^{\wedge\wedge\wedge}$
	(0.032)**				
HS Graduate	0.076	273,588	0.262	13,887^{+++}	49.98$^{\wedge\wedge\wedge}$
	(0.036)**				
Some College	0.013	150,979	0.225	7,128^{+++}	46.75$^{\wedge\wedge\wedge}$
	(0.044)				
College Graduate	0.007	56,330	0.165	5,761^{+++}	43.61$^{\wedge\wedge\wedge}$
	(0.046)				
US Citizen	0.052	631,338	0.244	34,164^{+++}	49.64$^{\wedge\wedge\wedge}$
	(0.025)**				
US Legal Alien	0.109	69,604	0.199	2,238^{+++}	37.22$^{\wedge\wedge\wedge}$
	(0.044)**				
US Illegal Alien	-0.129	173,744	0.071	1,021^{+++}	6.244$^{\wedge}$

	(0.166)				
Criminal History	0.017	621,360	0.167	23,111^{+++}	55.44$^{\wedge\wedge\wedge}$
	(0.024)				
No Criminal History	0.091	253,326	0.266	15,298^{+++}	38.45$^{\wedge\wedge\wedge}$
	(0.039)**				
Has Dependents	0.041	543,735	0.248	22,376^{+++}	42.79$^{\wedge\wedge\wedge}$
	(0.028)				
No Dependents	0.074	330,951	0.238	15,987^{+++}	56.33$^{\wedge\wedge\wedge}$
	(0.021)***				

Each line represents a separate regression conditioning on the displayed demographic, all of which include all regressors from Table 9 as appropriate. State-year clustered standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Cragg-Donald bias compared to OLS: +++ B<0.1, ++ B<0.15, + B<0.25. Excluded instrument F-statistic: ^^^ F>10, ^^ p<0.01, ^ p<0.05.

Figures

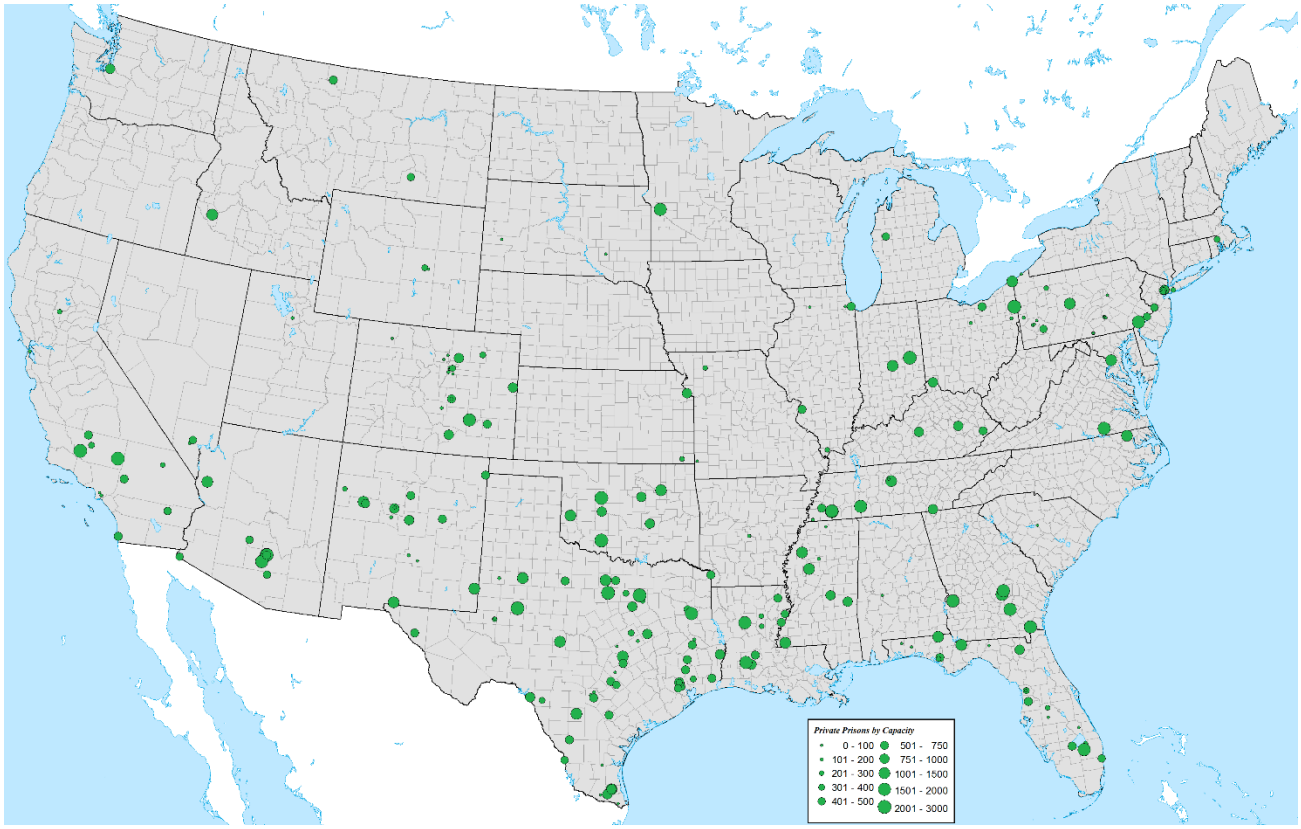

Figure 1. Private prisons mapped by inmate capacity

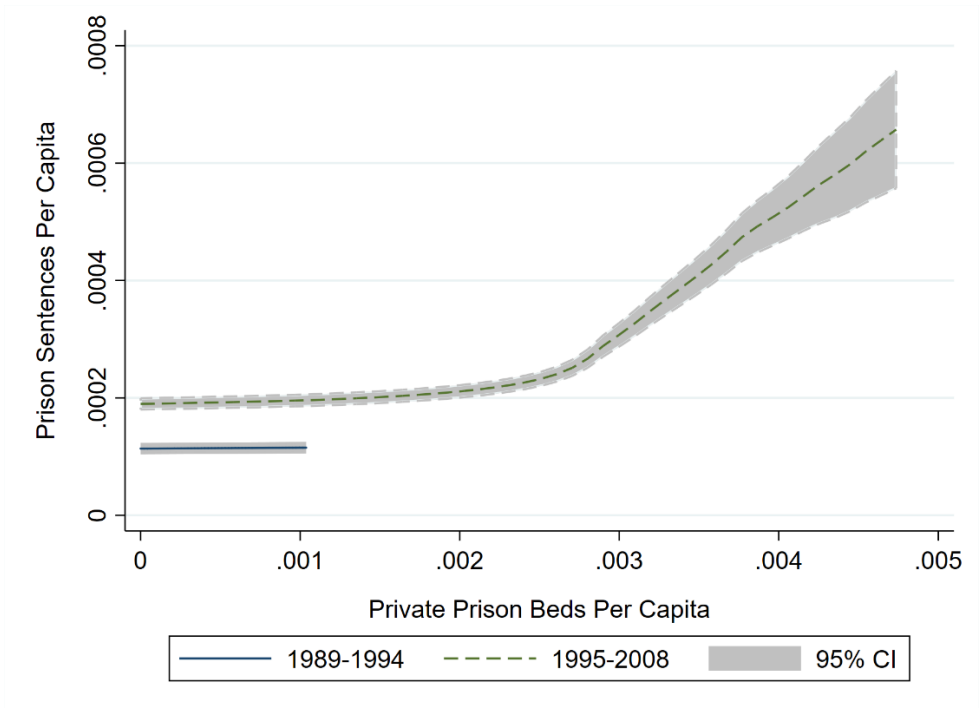

Figure 2. Non-linear relationship between new prison sentences per capita and private prisons per capita

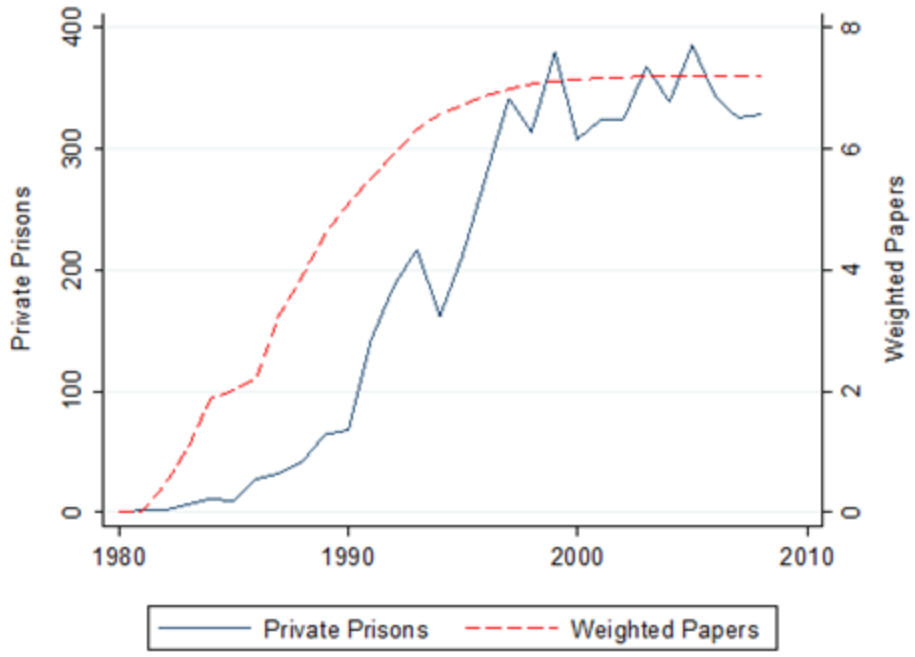

Figure 3. National weighted papers related to privatization and national private prisons by year

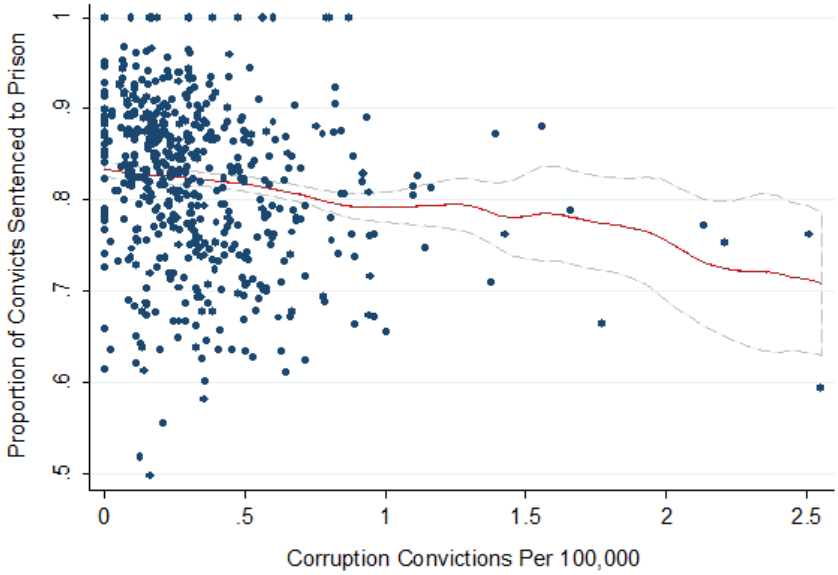

Figure 4. Proportion of guilty sentenced to prison and corruption convictions per hundred thousand

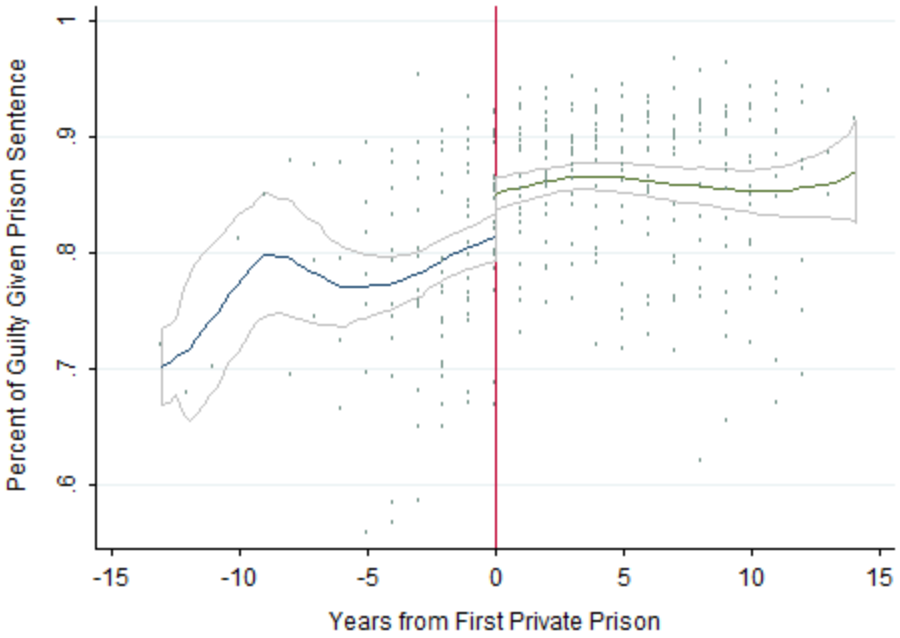

Figure 5. Percent of guilty individuals given a prison sentence by years before and after opening of first private prison

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^ℓdecreases 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	1989-2008
Total In-State Private Prisons	Total Corrections-Related Private Institutions Operating with a State-Year	Human Rights Defense Center	1989-2008
In-State Papers	Total Privatization-Related Academic Papers Curated from EconLit's Database Originating from an Institution in a State-Year	EconLit	1989-2008
In-State Papers Per Economist Per Capita	In-State Papers Divided by Economists Per Capita	EconLit and U.S. Census Bureau	1989-2008
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	1989-2008
Economists Per Capita (per hundred thousand)	Total "Top Publishing" Economists at a Publishing Institution within a State-Year	RePEc/IDEAS	1989-2008
Total Population (in hundred thousand)	Total Persons Residing within a State-Year Divided by 100,000	U.S. Census Bureau	1989-2008
State Price Index	Base year: 2000	Bureau of Economic Analysis	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008

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	1989-2008
Total Guilty Sentences for Fraud Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Fraud Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1989-2008
Total Prison Sentences for Fraud Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Fraud Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008
Total Guilty Sentences for Regulatory Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Regulatory Crime Resulting in a Guilty Verdict	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1989-2008
Total Prison Sentences for Regulatory Crimes	Total Federal Criminal Trials in a District Court within a State-Year for a Regulatory Crime Resulting in a Prison Sentence	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1989-2008
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	1989-2008
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	1989-2008
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	1989-2008

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	1989-2008
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	1989-2008
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	1989-2008
Average Sentence Length for Fraud Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Fraud Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1989-2008
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	1989-2008
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	1989-2008
Average Sentence Length for Regulatory Crimes	Mean Number of Months for All Prison Sentences Assigned in a District Court within a State-Year for a Regulatory Crime	Bureau of Justice Statistics, Federal Criminal Case Processing Statistics	1989-2008
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	1989-2008
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	1989-2008
Median Age	Median Age of Population in a State-Year	U.S. Census Bureau	1989-2008
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	1989-2008
Hispanic Population Proportion	Proportion of the Population Identifying as Hispanic Ethnicity in a State-Year	U.S. Census Bureau	1989-2008
Male Proportion	Proportion of the Population Identifying as Male in a State-Year	U.S. Census Bureau	1989-2008
Unemployment Rate	Proportion of the Labor Force without Employment	Bureau of Economic Analysis	1989-2008
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	1989-2008
In-State Federal Prisons	Total Federal Prisons Operational in a State-Year	Bureau of Justice Statistics	1989-2008
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	1989-2008

Campaign Contributions	Total Dollars in Campaign Contributions Given by the Private Prison Industry to Members of the United States Congress from a State within a Year	OpenSecrets and the Federal Election Commission	1990-2008
Overcrowding Litigation Rate	Overcrowding-Related Civil Rights Lawsuits Filed in Federal District Court in a State-Year Per Thousand Prisoners Housed In-State	Schlanger (2015)	1989-2008
Prison Sentence Issued	Indicator Variable which is One if Convict Received a Prison Sentence and Zero Otherwise	United States Sentencing Commission	1989-2008
Prison Sentence Length	Length in Months of Prison Sentence Given, If Any	United States Sentencing Commission	1989-2008
Violent Crime Committed	Indicator Variable which is One if Convict Committed a Violent Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Property Crime Committed	Indicator Variable which is One if Convict Committed a Property Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Fraud Crime Committed	Indicator Variable which is One if Convict Committed a Fraud Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Drug Crime Committed	Indicator Variable which is One if Convict Committed a Drug Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Public Order Crime Committed	Indicator Variable which is One if Convict Committed a Public Order Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Regulatory Crime Committed	Indicator Variable which is One if Convict Committed a Regulatory Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Weapons Crime Committed	Indicator Variable which is One if Convict Committed a Weapons Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Immigration Crime Committed	Indicator Variable which is One if Convict Committed an Immigration Crime and Zero Otherwise	United States Sentencing Commission	1989-2008
Age	Age in Years of Convict	United States Sentencing Commission	1989-2008
Female	Indicator Variable which is One if Convict is Female and Zero Otherwise	United States Sentencing Commission	1989-2008
White	Indicator Variable which is One if Convict is White and Zero Otherwise	United States Sentencing Commission	1989-2008
Black	Indicator Variable which is One if Convict is Black and Zero Otherwise	United States Sentencing Commission	1989-2008
Hispanic	Indicator Variable which is One if Convict is Hispanic and Zero Otherwise	United States Sentencing Commission	1989-2008
Asian	Indicator Variable which is One if Convict is Asian and Zero Otherwise	United States Sentencing Commission	1989-2008
Less than High School Completion	Indicator Variable which is One if Convict Did Not Graduate High School and Zero Otherwise	United States Sentencing Commission	1989-2008

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	1989-2008
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	1989-2008
College Graduate	Indicator Variable which is One if Convict Graduated College and Zero Otherwise	United States Sentencing Commission	1989-2008
U.S. Citizen	Indicator Variable which is One if Convict is an American Citizen and Zero Otherwise	United States Sentencing Commission	1989-2008
Legal Alien Resident	Indicator Variable which is One if Convict is a Legal Resident Non-Citizen and Zero Otherwise	United States Sentencing Commission	1989-2008
Illegal Alien Resident	Indicator Variable which is One if Convict is an Illegal Resident Non-Citizen and Zero Otherwise	United States Sentencing Commission	1989-2008
Has Criminal History	Indicator Variable which is One if Convict has Prior Criminal History and Zero Otherwise	United States Sentencing Commission	1989-2008
Number of Dependents	Number of Dependents in Convict's Care	United States Sentencing Commission	1989-2008