

Minimal Impact: State Sentencing Reforms and Racial Disparities in Selected State Prison Populations

Methodology and Data Notes

The analysis, entitled [Minimal Impact: State Sentencing Reforms and Racial Disparities in Selected State Prison Populations](#), examines the impact of sentencing law changes on racial disparity between non-Hispanic Black and non-Hispanic White (“Black” and “White) adultsⁱ in 12 states from 2000 to 2020. The analysis consists of 12 individual state briefs and a multi-state synthesis identifying trends across study states. This supplemental methodology report describes how states and sentencing laws were selected for analysis and details the data sources used to generate analyses in the 12 individual state briefs as well as in the multi-state synthesis. Review the individual state briefs [here](#).

STUDY PERIOD

The primary observation period—the period covered by trend and contextual data—was from 2000 to 2020, whereas the study period—the period covered by the analyses of sentencing law changes and disparity—was from 2010 to 2020.

STATE SELECTION

The 12 states chosen for analysis were selected to vary across region, the political party in power in the executive and legislative branches, sentencing structure, data availability, and whether the state had engaged in organized criminal justice reform efforts. Key considerations included:

- A state’s history of sentencing reform to ensure that it had relevant law changes during the study period;
- Availability of stakeholders in a state for interviews;
- Availability of data;
- Sentencing structure (e.g., determinate or indeterminate sentencing);
- Geographic diversity;
- Political party diversity among executive and legislative bodies; and
- Incarceration rates, both high and low.

ⁱ All references to Black and White people refer to non-Hispanic Black and non-Hispanic White individuals, even though the “non-Hispanic” modifier is not used.

State Selection did not Influence Imprisonment Disparity Results

Conceivably, these factors may have influenced Black-White disparity in imprisonment throughout the study period, therefore analyses were conducted to examine average levels of racial disparity between 2010 and 2020. Only small differences were detected; for example, Southern states had lower disparity in overall imprisonment (about a one-unit difference compared to states in other regions), and states with mostly Democratic governors had higher disparity in overall imprisonment and imprisonment for violent crimes (about a four-unit difference compared to states with mostly Republican governors).

The analysis indicates that factors beyond region, political party, sentencing structure, and participation in organized reform efforts drive observed differences in imprisonment disparity (both overall and for specific offense categories).

DATA SOURCES

Statute Tracking

The qualitative analysis included examining state statutes, agency policy and practices, electoral shifts in key policy-making roles, leadership transitions in key agencies, notable incidents that may have influenced practice changes, and conducting interviews with relevant stakeholders across the justice system spectrum in all study states.

The statutes analyzed considered an extensive list of criteria designed to identify the laws adopted during the 2010 to 2020 study period that could have impacted the state's prison population. These criteria were grouped into five categories and were accompanied by an analysis of other characteristics that could have impacted the state's prison population during this period. Statutory categories and criteria included:

- **Drug Offense Laws**
 - Offense definitions and classification
 - Crack and powder disparity changes
 - Drug courts (e.g., creation of or expansion, or changes to criteria)
 - Cannabis (e.g., legalizing recreational use)
- **Sentencing Laws**
 - Reclassifying offenses, generally
 - Sentence enhancements (e.g., mandatory minimums, 3-strikes, and habitual)
 - Sentencing commission (e.g., establishment, requirements, and authority)
 - Sentencing guidelines (e.g., range adjustments, history and offense severity changes, or changes to aggravating and mitigating factors)
 - Property offense reclassification and changes to property value threshold
 - Diversion from incarceration (e.g., presumptions and criteria)

- **Judicial and Prosecutorial Discretion**
 - Expansion or restriction of discretion
 - Changes in presumptions
- **Prison Release and Reentry**
 - Parole board (e.g., membership, and decision-making criteria)
 - Parole hearing process and eligibility criteria
 - Earned discharge/compliance credits
- **Supervision Laws**
 - Mandatory post-release supervision
 - Restrictions on incarceration after revocations
 - Graduated sanctions

The statutory analysis was conducted using LexisNexis, FiscalNote, and each states' legislature website. The analysis was conducted by two staff members with the support of a third and all findings underwent review and verification by two additional staff members not involved in the initial search. This examination involved assessing both old and new laws within each category to understand the changes that occurred as well as any relevant impacted by these changes. For example, if a law changed wording from "may" to "shall" when referencing a judge's discretion to divert a defendant to drug court, an examination of the criteria for drug court acceptance and the penalties for failing drug court was performed and recorded when appropriate. More than 700 bills and hundreds more laws were reviewed. Case law was examined when new information arose in stakeholder interviews to indicate that a law had been clarified by the court. Each states' findings were recorded and reviewed internally.

The analysis of agency policy, practices and changes in leadership focused on changes that may have impacted the size of the prison population. Changes to parole board or corrections department leadership could impact decision-making that leads to changes in how long an incarcerated person could spend in prison as well as whether to use incarceration in response to misconduct while a person is being supervised in the community. Changes in practices related to supervision and the use of treatment and services to support individuals on supervision could impact whether these individuals return to at-risk behavior and return to incarceration.

Lastly, an examination of notable incidents occurring during this examination period was conducted to determine whether the occurrence of such incidents could have impacted the use of prison or the length of incarceration. For instance, a homicide committed by someone who had been diverted from incarceration changed diversion practices and the commission of a serious crime by someone under parole supervision changed parole decisions. In both instances, there were no changes in leadership or law.

All the information examined was recorded by state on a spreadsheet. The items on the spreadsheet were subsequently shared with stakeholders during the interviews with individuals in each state to ensure accuracy and gauge the perspective on the possible impact of the change. An assessment of the likely impact of each item was conducted among the team to identify

whether the change had an impact that might increase the prison population (+1), decrease the prison population (-1) or had no impact (0).

Interviews with Key Stakeholders

The goals of the stakeholder interviews were to gain insight from people who experienced changes in the study period and to have those people and others verify the information collected.

During the initial stages of the project, staff identified individuals in each state who could provide background information relevant to the overall examination. Stakeholders in leadership roles at agencies or organizations during the 20-year period from 2000 to 2020 or who were in key positions in the executive, legislative or judicial branches were targeted for inclusion. In addition, researchers, members of advocacy organizations, and national leaders in criminal justice and correctional policy and practice were also targeted.

After identification, initial contact was made with leaders in departments of corrections, supervision agencies, parole boards, and law enforcement; public defenders and defense attorneys; prosecutors; judges; legislators and legislative staff for judiciary or public safety committees; staff at advocacy and research organizations were also identified.

Individual interviews gathered background information on changes to policy and practice and explored information on other relevant stakeholders who could speak to factors that may have influenced the size of the state prison population and/or racial disparities in the prison population. More than 70 initial interviews occurred across the 12 states. The interviews focused on:

- Policy or practice changes that were intended to or may have influenced prison admissions including sentencing changes, offense classification changes, responses to violations of probation and parole conditions, and availability of specialty courts;
- Characteristics of the prison system including prison crowding, availability of programming, changes to the disciplinary process, and the ability of incarcerated people to earn sentence credits;
- Policy or practice changes that were intended to or may have influenced releases from prison including sentence enhancements, parole eligibility criteria, parole board composition, and use of pardons and clemency;
- Political leadership in the governor's office and leadership of the legislature chambers and key committees;
- Changes in leadership at corrections agencies, parole and probation departments, prosecutors' office, judiciary, sheriffs, and police chiefs; and
- Intentional efforts to address racial disparities in the justice system.

Concurrent to these interviews, statutory review was conducted as well as analysis of the political leadership in the state and high-profile incidents that may have impacted prison

populations outside of statutory changes. As the qualitative analysis was occurring, the quantitative analysis in each of the 12 states was being conducted and as the initial stages of these two efforts concluded, the combined results led to the next phase of the qualitative analysis.

With a more complete picture of each states' prison population trends combined with a merged timeline of the policies, political shifts and incidents that occurred between 2010 and 2020, a second round of interviews was conducted. Most of these interviews were conducted in-person and included the stakeholder's review of the merged timeline and snapshots of initial data findings so that they could overlay the timeline and the prison population trend lines. During this phase, stakeholders provided information that filled in some of the gaps in understanding why certain trends occurred despite limited evidence of a policy, political or incidental reason.

The findings from this phase of the project led to further statutory analysis and examination of practice changes at the agency and court level. Drafts of the qualitative analysis for each state were presented and discussed with the full team. Questions surfaced when data showed a change in population but without a policy, political, or incidental explanation. These questions led to further analysis of policies and decision makers as well as further questions for stakeholders to fill in these gaps.

After internal verification, final qualitative notes were assembled and reviewed by the full team. Multiple discussions with the team occurred to gain clarity and identify additional gaps in knowledge.

National Corrections Reporting Program

The Bureau of Justice Statistics' (BJS's) National Corrections Reporting Program (NCRP) data, a collection of individual-level data on admissions into and releases from state prison facilities during a year and individuals held in state prisons at year-end (i.e., the prisoner stock), were used to measure racial differences in states' prison population size, admissions into and releases from state prisons. These data include measures of race and Hispanic origin of individuals in prison as defined and reported in the states' administrative systems. NCRP data were obtained from the National Archive of Criminal Justice Data.

Two NCRP datasets were used, one open-accessⁱⁱ and one with restricted access.ⁱⁱⁱ NCRP data were used to generate offense-specific distributions of individuals in state prisons by race, as

ⁱⁱ Bureau of Justice Statistics. *National corrections reporting program, 1991-2020: Selected variables*. Inter-university Consortium for Political and Social Research [distributor], 2022-11-28. <https://doi.org/10.3886/ICPSR38492.v1>

ⁱⁱⁱ Bureau of Justice Statistics. *National corrections reporting program, [United States], 2000-2020*. Inter-university Consortium for Political and Social Research [distributor], 2022-11-28. <https://doi.org/10.3886/ICPSR38491.v1>
These data are restricted access data that provided detailed information on state statutes of all people admitted into

well as estimates of admissions, releases, and length of stay by offense and race. To identify those affected by the statutes included in the analysis, detailed, state-specific offense codes were connected to the statutes included in the review. For other, descriptive analyses of major offense categories (e.g., violent, property, drug, and public order), BJS offense codes were used.

The timing of the effects of statutes was generated using detailed data on the month and year of prison admissions and releases in the 12 study states. Admission and release data were used to identify and separate new court commitments from admissions due to violations of conditions of community supervision. Offenses were classified by the most serious offense sentenced for analyses of impacts on sentence length imposed. NCRP information was used to identify the number of charges and attributes of a sentence (whether it was determinate, a mandatory minimum, or fell under truth-in-sentencing).

Bridged-Race Population Estimates

The National Center for Health Statistics' Bridged-Race Population Estimates (BRPE) data were used to generate population denominators to calculate race-specific imprisonment rates.^{iv} Specifically, estimates of the state-level adult residential populations of non-Hispanic Black, non-Hispanic White, and Hispanic (of any race) individuals were generated.^v These were used as denominators when calculating adult imprisonment rates and resident-population based admissions rates. The BRPE provides annual estimates of the U.S. adult residential population by race and Hispanic origin as of July 1 of each year. These estimates "bridge" the 31 race categories used in Census 2000, as specified by the 1997 Office of Management and Budget (OMB) standards for the collection of data on race and ethnicity, to the four race categories used prior to 2000 (i.e., Asian or Pacific Islander, Black or African American, American Indian or Alaska Native, and White).^{vi} The race information in the BRPE align more closely with the race information in the NCRP. Estimates of race-specific imprisonment rates may differ from those published by BJS.

Arrests

the respective states' prison systems. Access to these data was approved by Georgia State University's Internal Review Board (IRB) Review, IRB Number H19082.

^{iv} National Center for Health Statistics. (2022). *Bridged-race population estimates, United States July 1st resident population by state, county, age, sex, bridged-race, and Hispanic origin*. CDC WONDER.

http://www.cdc.gov/nchs/nvss/bridged_race.htm

^v The 2010 to 2020 (Vintage 2020) [postcensal estimates](#) of the July 1 resident population by year, county, single-year of age groups, bridged-race, sex, and Hispanic origin [released by the National Center for Health Statistics on September 22, 2021](#) were used.

^{vi} Office of Management and Budget. (1997). Revisions to the standards for classification of federal data on race and ethnicity. *OMB Statistical Policy Directive 15*. Federal Register Notice.

https://obamawhitehouse.archives.gov/omb/fedreg_1997standards

In the state-specific briefs, annual estimates of arrests by offense category and race for each state were generated using Uniform Crime Report (UCR) arrest data.^{vii} The UCR arrest data may under-report all arrests within a state. To account for this, reported arrests were adjusted by a weight that was equal to the ratio of a state's total population to the population covered by the arrest reports to generate state-level arrest counts.

METHODS

Measures

The reports included measures of rates and disparity ratios defined as the ratio of Black-to-White rates. These included adult resident population imprisonment and population-based admissions rates, defined as the race-specific number of persons in prison or admitted divided by the race-specific number of adult persons (multiplied by 100,000); and adult arrest rates, similarly defined. Racial disparity ratios were defined as the ratio of rates for Black persons to the rates for White persons. A new court commitment per arrest rate was defined as the race-specific number of adult persons admitted into prison during a year divided by the number of arrests.

Race-specific measures used in these reports may differ from those published by the Bureau of Justice Statistics. In these reports, the data on race as reported in the NCRP were used, whereas the BJS adjusts these administrative data by self-report survey data to align its estimates with federal standards for reporting on race and ethnicity. Separate analyses show alignment on racial disparity trends between BJS published data and data published by the Council on Criminal Justice. Length of stay was estimated by the reciprocal of the release rate, the number of persons released during a year divided by the number in prison at year end. In examining the relationship between growth rates in prison populations and length of stay, large changes in growth rates in 2020 due to responses to the COVID-19 pandemic were identified. As these changes affected estimates of length of stay, length of stay was not reported for 2020.

Analysis of Statutory Changes

Each statutory change was analyzed for timing and content to determine inclusion in the analysis. Statutory changes were excluded if they:

- Had effective dates before 2010 or after 2018 (to allow time to measure any changes that might have occurred after the law was implemented);
- Were not directly applicable to sentencing or release from prison;
- Did not affect offense classification or offense levels, sentence length or time served, prison release decisions, or other elements of a prison sentence;

^{vii} Kaplan, J. (2023). *Uniform Crime Reporting (UCR) program data: Arrests by age, sex, and race, 1974-2021*. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. <https://doi.org/10.3886/E102263V15>

- Primarily addressed stages of the criminal justice system other than imprisonment;
- Covered populations beyond the scope of this analysis, such as juveniles, persons who were immune from prosecution due to drug overdoses, and reductions of felony levels for misdemeanors or persons serving time in the community; or
- Affected 10 or fewer people per year.

To characterize statutory reforms, Walt & Gilson's (1994)^{viii} policy triangle formulation (PTF) to classify the content of the policy reforms was used. According to this model, statute formulation reflects complex interactions between the content, the actors involved, context, and processes. The PTF helps identify the contextual elements of legislative changes, including statutes' substantive aspects and objectives, people and processes behind the statute formulation, and the people and practices impacted by the law changes. The emergent themes are identified in each of the state briefs. The text of each statute was analyzed to make classifications.

Analysis of the Contribution of Statutory Reforms to Changes in Imprisonment Disparity

Whether statutory reforms affected the race-specific new court commitment prison admissions rates and sentences imposed for new court commitments were examined. The primary focus was to determine if statutory reforms were associated with "breaks" in the series of admissions and sentences and if so whether there were racial differences in the breaks. The core evaluation issue was whether the post-law change patterns in sentencing differed between racial groups. The effects of reforms on patterns of prisoner movements comes from comparing race-specific interrupted-time series of measures of prison admissions and sentences to determine if post-law change patterns differed between race and ethnic groups. The main post-law change patterns are (a) the level and (b) the slope (or rate) of prison use. The main comparisons between groups are between Black and White populations.

For all states, time-series regressions were conducted to determine if there was an abrupt change in pre- and post-reform patterns in the variables under analysis (e.g., admissions, and sentences imposed). Interrupted time-series analyses and graphs of the series were used to show patterns and trends. All regressions were estimated separately by race. Although an interrupted time-series may be a relatively weak design for measuring policy effects, it provides an estimate of the maximum effect of a reform. If there were no racial differences in post-reform outcomes, then the conclusion was that the reforms did not contribute to disparity. If the pre- and post-reform trends differed, then the magnitude of the differences on disparity were assessed.

^{viii} Walt, G., & Gilson, L. (1994). Reforming the health sector in developing countries: The central role of policy analysis. *Health Policy & Planning*, 9(4), 353-370.

Borrowing from Rhodes et al.'s (2021)^{ix} effort to evaluate impacts of federal policy, a linear (or quadratic) regression for the pre-reform period and a second linear (or quadratic) regression for the post-reform period were estimated. Where the time series exhibit autocorrelation, it was corrected for using a Prais-Winston estimator.^x

The general form of the regressions follows. Using monthly data wherever feasible, Y_t^j is defined as the dependent variable, e.g., the monthly number of prison admissions for a specific type of offense for race-Hispanic origin group j (e.g., non-Hispanic Black people, etc.). For the entire period that encompasses both pre- and post-reform months, T is a counter of months over the period; T begins with 1 and runs through the last month of the study period. For the post-reform period, S is defined as a counter of the months post reform. S begins with 1 for the month of reform and is incremented by one unit for each subsequent month; for all pre-reform months S takes on the value of 0. The race-specific regressions are:

$$Y_t^j = \alpha_0^j + \alpha_1^j T_t + \beta_0^j + \beta_1^j S_t + e_t^j \quad \text{where } j \text{ identifies each race/ethnic group.}$$

Not shown in the preceding equation, but in the analysis, linear and quadratic forms of the time counter variables and in all regressions were estimated to address seasonality in the series. Further, 11 monthly dummy variables (excluding January) were introduced as control variables to account for regularity in monthly patterns.

The interpretation of the coefficients are as follows:

β_0^j is the constant for the post-reform period. This measures whether there was an immediate impact of a reform on the series under investigation. After testing $\beta_0^j = 0$, and if the null hypothesis is rejected, the conclusion is that the reforms were associated with a change in the level of the prisoner-movement series for the j^{th} race group.

β_1^j measures the post-reform trend for the j^{th} race group. After testing $\beta_1^j = 0$, and if the null hypothesis is rejected, the conclusion is that the reform period was associated with a break in the pre-existing trend in the series under investigation for the j^{th} race group.

If pre-existing trends would have persisted in the absence of a reform, then the effect of a reform on the size of a population for the j^{th} group at any point in time during the reform period can be calculated. This effect equals $\beta_0^j + \beta_1^j S_t$, where S is an identified month during the post-reform period.

^{ix} Rhodes, W., Gaes, G., Kling, R., Luallen, J., & Rich, T. (2021). *The NCRP data as a research platform: Evaluation design considerations* (NCJ 252677). Bureau of Justice Statistics. <https://www.ojp.gov/pdffiles1/bjs/grants/252677.pdf>

^x Analyses were implemented using Stata versions 15 and 17. The Prais-Winston estimator employs the Cochrane-Orcutt adjustment that estimates the autocorrelation parameter and uses it in estimation.

The preceding tests are tests for differences within a race group's series. For tests of differences of specific coefficients between race groups, we followed Paternoster et al. (1998) and conducted a z-test for differences using:

$$z = \frac{(\beta_i^b - \beta_i^w)}{\sqrt{\{(SE\beta_i^b)^2 + (SE\beta_i^w)^2\}}}$$

Where β_i^b and β_i^w are the parameters of interest between, in this example, the Black and White regressions, and SE are the respective standard errors of each parameter. For example, racial differences in the post-reform intercepts and in post-reform slopes were tested.

When differences between groups were observed, there was limited information available in the NCRP to explain the reasons for these differences. Where data existed (e.g., number of charges, prior felony convictions, age, and sex), these were used as control variables when estimating race-specific outcomes.