

## SPECIAL ISSUE ARTICLE

## TACKLING DISPARITY IN THE CRIMINAL JUSTICE SYSTEM

# Effect of sentencing reform on racial and ethnic disparities in involvement with the criminal justice system: The case of California's proposition 47

Magnus Lofstrom<sup>1</sup> | Brandon Martin<sup>1</sup> | Steven Raphael<sup>2</sup>

<sup>1</sup> Public Policy Institute of California

<sup>2</sup> Goldman School of Public Policy,  
University of California, Berkeley

**Correspondence**

Magnus Lofstrom, Public Policy Institute  
of California.

Email: [lofstrom@ppic.org](mailto:lofstrom@ppic.org)

This research was supported by a grant  
from the Arnold Ventures.

**Abstract**

We analyze the disparate effects of a recent California sentencing reform on the arrest, booking, and incarceration rates experienced by California residents from different racial and ethnic groups. In November 2014, California voters passed state Proposition 47 that redefined a series of felony and “wobbler” offenses (offenses that can be charged as either a felony or misdemeanor) as straight misdemeanors, causing an immediate 15% decline in total drug arrests, an approximate 20% decline in total property crime arrests, and shifts in the composition of arrests away from felonies towards misdemeanors. Using microdata on the universe of arrests in the state in conjunction with demographic data from the American Community Survey, we document a substantial narrowing in interracial differences in overall arrest rates and arrest rates by offense type, with very large declines in the interracial arrest rate gaps for felony drug offenses. We see declines in bookings rates for all groups (conditional on being arrested), though we find a larger decrease for white arrestees. This relatively greater decline for white arrests is largely explained by differences in the distribution of arrests across recorded offenses. Despite the widening of racial gaps in the

conditional booking rate, we observe substantial declines in overall booked arrests that are larger for African Americans and Hispanics relative to Whites and Asians. For some offenses (felony drug offenses), interracial disparities in jail booking rates narrow by nearly half. Finally, we use data from the American Community Survey to analyze changes in the proportion incarcerated on any given day and how these changes vary by race and ethnicity. For these results, we present trends for the time period spanning the larger set of policy reforms that have been implemented in the state since 2011. We observe sizable declines in the overall incarceration rate for African Americans, with the largest declines observed for African American males. The one quarter decline in total correctional populations in the state coincided with sizable narrowing in interracial differences in incarceration rates.

**KEYWORDS**

arrests, criminal justice, incarceration, Proposition 47, racial disparity, reform

African Americans are heavily overrepresented at all stages of involvement with the U.S. criminal justice system. While comprising only 13% of the U.S. population, African Americans account for almost one third of arrests (Snyder 2012) as well one third of the population on some form of community corrections supervision (Kaeble et. al., 2015). African Americans are also more likely to be detained pretrial, face a much higher lifetime likelihood of serving time in prison relative to other racial and ethnic groups, and comprise a disproportionate share of the currently incarcerated (Bonczar, 2003; Raphael & Stoll, 2013).

Given this disproportionality in involvement, one would expect changes in criminal justice policy that impact the nature and degree of punitiveness of the criminal justice system to have clear disparate impacts by race. That is to say, a move towards stiffer sentencing and greater punitiveness should disparately impact those groups with relatively high levels of involvement in the criminal justice system. Such disparate impacts are entirely predictable and independent of any differential treatment that may accompany a shift towards more punitive practices.

Between the late 1970s and the first decade of the 21<sup>st</sup> century, nearly all criminal justice reforms at both the federal and state levels tended towards greater punitiveness. In recent years, however, several states as well as the federal government have enacted policy moving in the reverse direction. At the federal level, the 2010 Fair Sentencing Act greatly narrowed the disparity in federal sentences for crack cocaine relative to powder cocaine. The 2018 First Step Act made the provisions of the 2010 Fair Sentencing Act retroactive, further reduced the scope of mandatory minimums for

relatively less serious offenses, and increased the use of good time credits with an eye on reducing actual time served. At the state level, 39 states have increased the value threshold defining the difference between misdemeanor and felony larceny (Horowitz & Fuhrmann, 2018). In addition, 33 states have actively engaged in an attempt to reduce the use of incarceration through the Justice Reinvestment Initiative, and have indeed observed declines in their prison and jail populations (PEW Charitable Trust, 2016).

Motivated by a 2009 federal court order to reduce overcrowding in the state's prisons, California has implemented the most far ranging and impactful criminal justice reforms. After decades of explosive growth in the state's prison population, California's prisons held twice as many inmates in 2006 as they were designed to hold. The severe overcrowding and poor prison conditions led to several lawsuits filed against the California Department of Corrections and Rehabilitation (CDCR) for providing inadequate mental health care and medical care. As a result, in 2007 a three-judge panel was appointed to oversee the situation. The panel determined that excessive crowding in the state's prisons prevented improved conditions and ordered the state in 2009 to reduce its institutional population to 137.5% of design capacity—at the time equivalent to a reduction by almost 40,000 prisoners. The state appealed but the U.S. Supreme Court upheld the federal court order in 2011, forcing the state to implement a number of measures and reforms to reduce its prison population.

The reforms in response to this litigation include changes in parole practice, limits on who can be sent to prison, shifts in the definition of what constitutes a felony offense, moderation of a particularly punitive three-strikes law, as well as increased use of good time credits and rehabilitation incentives for incarcerated individuals (Lofstrom, Bird, & Martin, 2016). As a consequence of these reforms, California has reduced its incarcerated population by more than a quarter since late 2011.

In this article we specifically analyze the disparate effects of a 2014 California sentencing reform—Proposition 47 (henceforth, Prop 47)—on the arrest, booking, and incarceration rates experienced by California residents from different racial and ethnic groups. The primary objective of Prop 47 was not to address racial disparity in the criminal justice system but to reduce the state's reliance on costly incarceration and overcrowding in jails and prisons.<sup>1</sup> By 2014, even though the state had reduced its prison population by 27,000 inmates as a result of the 2011 realignment reform (which shifted correctional responsibilities from the state to the counties), the prison population still exceeded the court-ordered mandate, and in fact was slowly growing again. Additionally, many county jails were now experiencing overcrowding as a result of realignment and the state spent more on corrections than it ever had before. Proponents of Prop 47, which redefined a number of drug and property offenses from felonies or “wobbler” offenses (offenses that can be charged as either a felony or misdemeanor) to straight misdemeanors, argued that the proposition would reduce the state's reliance on costly incarceration and bring the state prison population below the court-ordered target. The reform intended to achieve these goals with early release of inmates serving time for one of the reclassified offenses as their main term, and shorter sentences for new convictions. Furthermore, given that the requirements for a misdemeanor arrest are stricter than those for felonies and that, with a few exceptions, California's penal code directs law enforcement to cite and release suspects arrested for misdemeanor offenses, arrests and bookings could be expected to drop, relieving pressure on county jails.<sup>2</sup>

Prop 47 was implemented immediately after it was approved by voters on November 4, 2014. Its passage led to an immediate 15% decline in total drug arrests and an approximate 20% decline in total property crime arrests. Moreover, within these offense categories the proportion of arrests that were defined as felonies declined discretely (Dominguez-River et al., 2018; Lofstrom et. al.,

2018). The proposition also caused a discrete decrease in jail bookings and a sizable and immediate decline in the state's jail population. Within a few months after the proposition's implementation, the state's prison population dropped below the court-ordered mandate for the first time.

We use data from multiple sources to document the disparate impacts of this reform on several criminal justice outcomes. Reproducing the analysis by Mooney et. al. (2018), we begin by documenting the disparate impacts of the reform on racial and ethnic disparities in overall arrest rates and arrest rates by type of offense and severity. We document a substantial narrowing of inter-group differences in overall arrest rates and arrest rates by offense type, especially felony drug and property offenses.

Next, we analyze the disparate impact of the reforms on the likelihood that arrests are booked conditional on an arrest being made. Since the reform effectively converted many arrests from felony to misdemeanor, the overall likelihood of a street citation in lieu of a jail booking increases. While the conditional booking rate declines for all groups, we somewhat surprisingly find a larger decrease for white arrestees. This relatively greater decline for white arrests that are booked is largely explained by racial difference in the distribution of arrests across recorded offenses.

We then analyze how the overall jail booking rates change by race and ethnicity. Despite the widening of racial gaps in the conditional booking rates, we observe substantial declines in booked arrests (and, by extension, pretrial detention) that are larger for African Americans and Hispanics relative to Whites. For some offenses (felony drug offenses), interracial disparities in jail booking rates narrow by nearly half.

Finally, we use data from the American Community Survey to analyze change in the proportion incarcerated on any given day and how these changes vary by race and ethnicity. For these results, we present trends for the time period spanning the larger set of policy reforms that have been implemented in the state since 2011. We observe sizable declines in the overall incarceration rate for African Americans, with the largest declines observed for African American males.

## 1 | SENTENCING REFORM AND RACIAL DISPARITIES IN ARRESTS, BOOKINGS, AND JAIL POPULATIONS

Racial disparities in U.S. criminal justice outcomes are ubiquitous. African Americans are arrested at higher rates than Whites and are starkly overrepresented among jail (Minton & Zeng, 2015) and prison (Carson & Anderson, 2016) inmates.<sup>3</sup> There are also large racial disparities in the likelihood of becoming a crime victim. The rate of non-homicide violent victimization for African Americans in 2015 was 30% higher than the rate for Whites (Truman & Morgan, 2016). In 2015, African Americans comprised 52% of homicide victims and were murdered at a rate nearly seven times that for White Americans.

Racial and ethnic differences in criminal justice involvement are the result of some combination of (1) differences in offending patterns, (2) differences in treatment by agents of the criminal justice system, and (3) disparate impacts across groups of policies and practices applied in a race-neutral manner. Several researchers have documented racial disparities in offending levels (Bureau of Justice Statistics, 2008; Hindelang, 1978; O'Flaherty, 2015; Sampson & Lauritsen, 1997; Tonry, 1995), with the findings suggesting relatively higher rates of offending among African Americans relative to whites. Racial disparities in offending appear to be particularly large for robbery and homicide (O'Flaherty, 2015). However, there is also ample research documenting disparities in treatment by the criminal justice system that cannot be explained by observable aspects of the underlying criminal incident. For example, after accounting for differences in the arrest charges recorded by

the U.S. Marshal's Service, Rehavi and Starr (2014) find that U.S. Attorneys are more likely to file charges triggering mandatory minimum sentences for cases involving Black defendants.

There are many examples of policies that may be implemented in a race-neutral manner yet have racially disparate impacts. The most salient example in U.S. federal sentencing policy concerns the stiffer sentences meted out for crack cocaine offenses relative to powder cocaine offenses introduced by sentencing reforms during the 1980s. In the same manner that these enhanced penalties for crack offenses disproportionately impacted African Americans, the recent partial reversal of the crack powder cocaine sentencing difference should have disparate impacts in the reverse direction.

A further disparate impact example comes from the growing body of quasi-experimental research finding that pretrial detention increases the likelihood of conviction (Dobbie, Goldin, & Yang, 2018; Donnelly & MacDonald, 2018; Heaton, Mayson, & Stevenson, 2017), may increase the likelihood of future offending (Heaton et al., 2017), and contributes to racial disparities in case outcomes (Donnelly & MacDonald, 2018; MacDonald & Raphael, 2019). Racial differences in average income and wealth lead to racial disparities in the ability to make bail. Even a race-neutral process, determining pretrial detention may result in a disparate impact in detention and the likelihood of conviction in the face of such differences.

Beyond the disparate impact of otherwise race-neutral policies, the decentralized nature of law enforcement in the United States and interagency differences in implementation and local practice may also widen racial disparities. For example, one of the key findings in Rehavi and Starr (2014) is that U.S. Attorneys covering federal districts with larger minority populations prosecute otherwise similar cases more aggressively, causing worse outcomes for African American defendants when outcomes are averaged across districts. Raphael and Roza (2019) find large cross-agency differences in the propensity to book youth arrest, with law enforcement agencies serving cities with proportionally large minority populations booking youth arrests at the highest rates. Feigenberg and Miller (2018) find substantial heterogeneity in the punitiveness of local charging practices, with more diverse jurisdictions (neither majority White nor majority Black) seeking the most severe sanctions relative to more homogenous jurisdictions.

California's recent onslaught of criminal justice reforms have likely had disparate impacts by race. African Americans comprise a disproportionate share of arrests and are overrepresented among prison and jail inmates as well as community corrections populations. Hence, one would suspect that this flurry of legislative and initiative-driven reform has likely had a particular large impact on the extent of criminal justice involvement among racial and ethnic minorities.

This article focuses on the distributional effects ushered in by one specific California voter initiative. The passage of Prop 47 in November 2014 redefined a subset of felony and "wobbler" offenses as straight misdemeanors offenses. Regarding property offenses, the proposition redefined shoplifting, forgery, crimes involving insufficient funds, petty theft, and receiving stolen property as misdemeanors for offenses involving \$950 or less. The proposition also eliminated the offense of petty theft with a prior. Regarding drug offenses, a subset of possession offenses was redefined as misdemeanors. These new charging protocols went into effect immediately, and with the exception of instances where the individual in question has certain prior convictions, they apply to all new cases.<sup>4</sup>

Prop 47 immediately impacted the volume and composition of arrests. Figure 1 displays trends in monthly arrest totals for felony and misdemeanor person, property, drug, and other offenses for roughly three years preceding the proposition and 15 months following (November 2014 is set to zero along the horizontal axis). We observe several notable patterns. First, arrests for person offenses and other offenses are essentially stable. Felony drug offenses, however, decline sharply,

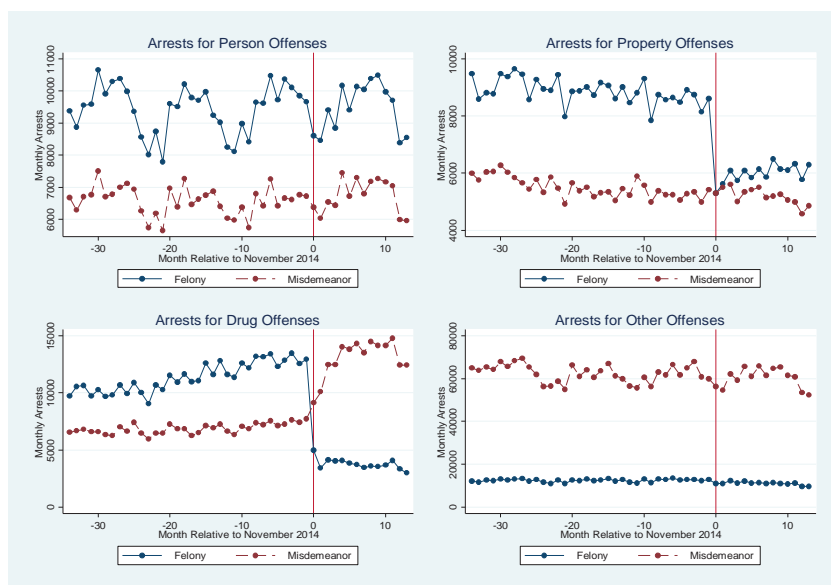


FIGURE 1 Pre-Post Prop 47 trends in monthly arrest by offense type [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

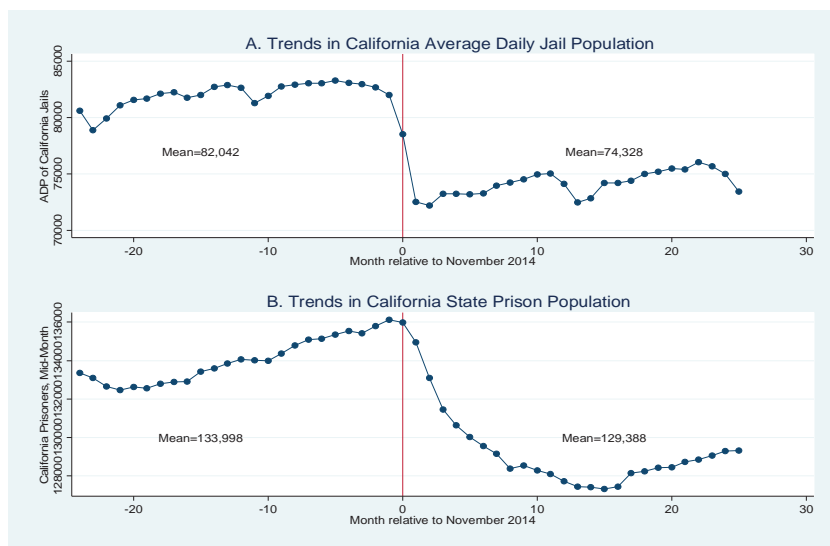
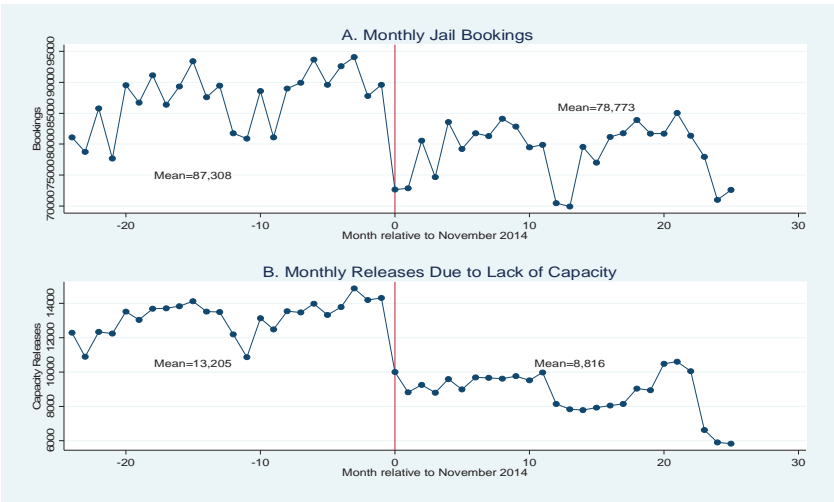


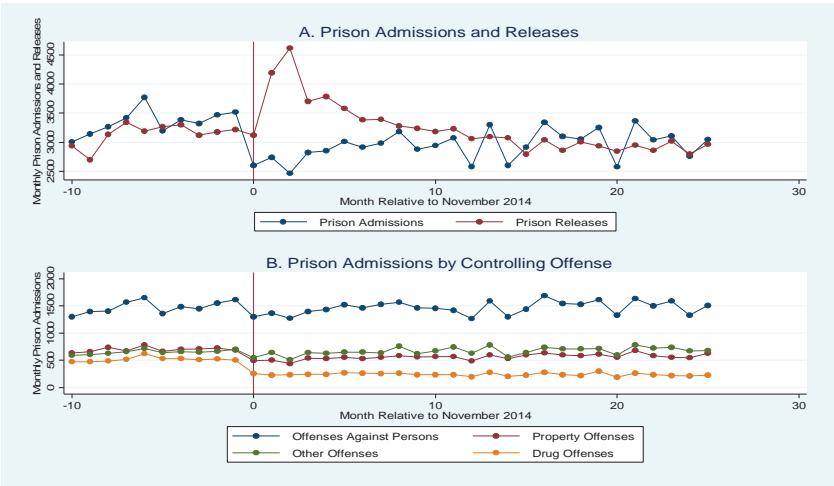
FIGURE 2 Pre-Post Prop 47 Trends in monthly California jail and prison populations [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

while misdemeanor drug arrests increase. Property arrests also decline discretely, due entirely to a decline in felony arrests and no apparent offsetting increase in misdemeanor property offense arrests.

The proposition also impacted prison and jail populations. Figure 2 presents the average daily population of county jails as well as state prisons for the 26 months preceding and the 26 months



**FIGURE 3** Pre-Post Prop 47 Trends in monthly jail bookings and releases due to capacity constraints [Color figure can be viewed at [wileyonlinelibrary.com](#)]



**FIGURE 4** Pre-Post Prop 47 Trends in monthly prison admissions and releases [Color figure can be viewed at [wileyonlinelibrary.com](#)]

following the passage of Prop 47. There is a sharp, immediate decline in the average daily jail population of nearly 8,000 inmates (a 9.4% decrease) between October and December. We also observe a gradual decrease in the state prison population of 4,570 inmates (a 3.4% decline) by late 2015. Figure 3 shows a sharp and sudden decline in jail bookings coincident with the passage of Prop 47. The figure also reveals a discrete decrease in early releases from jail due to capacity constraints.

Figure 4 shows the factors driving the decline in the state's prison population. First, we observe a notable decrease in prison admissions overall (displayed in the top half of the figure) driven principally by a reduction in admissions for property and drug offenses (displayed in the bottom half of the figure). Second, there is a temporary spike in releases driven by resentencing petitions



as well as other population reduction measures coincidentally implemented by the California Department of Corrections and Rehabilitation (CDCR) to comply with a federal court order to reduce prison overcrowding.<sup>5</sup>

To date, most research on California's criminal justice reforms has focused on crime rates (Bartos & Kubrin, 2018; Dominguez Rivera, Lofstrom, & Raphael, 2019; Lofstrom & Raphael 2016a, 2016b; Sundt et al., 2016), recidivism (Bird & Grattet 2016; Bird, Lofstrom, Martin, Raphael, & Nguyen, 2018), criminal justice systems and expenditures (Lofstrom & Martin, 2015; Petersilia, 2014), and jail and prison population pressure and overcrowding (Grattet et al. 2016; Lofstrom & Martin, 2014, 2015). Despite the intense nationwide interest in racial criminal justice disparities, there is surprisingly little discussion of how these major reforms may have impacted racial and ethnic minorities, and to date only a few studies assess the potential disparate impacts of policy reforms intended to moderate sentencing. Most relevant to the findings below, Mooney et al. (2018) present an analysis of California arrest rates before and after the passage of Prop 47. They demonstrate a sharp decline in felony drug arrest rates for African Americans, Whites, and Hispanics, with the larger decline for African Americans narrowing the disparity relative to Whites. They also find comparable declines and narrowing racial disparities for other offenses reclassified as result of the proposition. MacDonald and Raphael (2019) study administrative data on criminal cases processed by the San Francisco District Attorney before and after the passage of Prop 47. The authors find a narrowing of racial disparities in case outcomes largely attributable to lessening of the adverse effects of pretrial detention and criminal history on case outcomes.

In what follows, we build on the work of Mooney et. al. (2019) to assess the effect of Prop 47 on arrest rates, the likelihood of being booked conditional on an arrest, unconditional booking rates (a proxy for pretrial detention), and incarceration rates by race/ethnicity.

## 2 | EMPIRICAL STRATEGY AND DATA DESCRIPTION

We investigate whether the sentencing reforms embodied in Prop 47 disparately impacted gauges of criminal justice involvement among California residents from different racial/ethnic groups. We study four outcomes: arrests, bookings conditional on arrests, overall bookings, and overall incarceration rates. Here we describe measures of racial disparity and the data used, and provide a brief overview of our research strategy.

While we present both absolute and relative changes, we employ comparisons of pre-post changes in race/ethnicity specific arrest and booking rates as our preferred measure (compared to changes in ratios of rates, or percentage changes in rates), as it provides a measure of how many fewer/more individuals are arrested or booked (per 100,000 residents) as a result of the reform. To illustrate, let us examine a hypothetical example (close to some of the observed estimates presented below). Suppose we observe a change in the arrest rate from 4,000 arrests per 100,000 African American residents to 3,000 (a drop in the arrest rate of 1,000 fewer arrests per 100,000 residents) compared to a decrease from 1,000 arrests per 100,000 White residents to 750 (a decline of 250). Both the before and after African American/White ratios are 4, and both groups experienced a 25% decrease in their respective arrest rate, suggesting no change in racial disparity. However, 1,000 fewer African Americans are arrested per 100,000 African American residents compared to 250 fewer Whites arrested per 100,000 White residents, with the arrest rate gap dropping from 3,000 to 2,250. The latter, we argue, correctly points towards substantially decreased disparity.



We rely on two principal data sources: the Monthly Arrest and Citation Register (MACR), and microdata from the American Community Survey (ACS). The MACR data include micro-level records on all recorded arrests and citations occurring in the state of California. The dataset includes the arrest date, arrest status (booked, cited, or other), arrest disposition, and various demographic characteristics of the arrestee, the most serious charge, and the arresting agency.

The ACS is a large household survey conducted each year by the U.S. Census Bureau. The survey collects information on both noninstitutionalized as well as institutionalized residents of the state. We use the ACS to generate group-specific population estimates as well as group- and year-specific incarceration rates.

## 2.1 | Effect of prop 47 on arrest rates by race

We begin our analysis by analyzing how Prop 47 impacted arrest rates by race, gender, and age. We use the 2014 and 2015 ACS to generate population estimates for various demographic subgroups. These estimates serve as the denominator for arrest rates for the pre- and post-proposition periods, respectively. Next, we use the MACR data to generate arrest totals for the 12-month period preceding the proposition's passage (November 2013 through October 2014) and the 12-month period following passage of the proposition (November 2014 through October 2015). Combined these data permit calculation of an arrest rate (expressed as annual arrests per 100,000 state residents) for the pre and post periods. Our basic strategy is to present pre-post Prop 47 comparisons of overall arrests rates by racial/ethnic group, by race/ethnicity within gender, and by race/ethnicity within single year of age. We aggregate arrests into person, property, drug, and the catch-all "other arrests" crossed with whether the arrests are felony or misdemeanor.

There is a key difference in how race and ethnicity are measured in the two data sets. The MACR presents race as perceived by the arresting officer, and combines ethnicity and race into one set of mutually exclusive categories. The ACS, on the other hand, asks individuals to describe themselves, asks about ethnicity separately from race, and allows people to identify multiple race categories. Our strategy for matching population totals from the ACS to arrest totals tabulated from the MACR is as follows. With the ACS data, we create a mutually exclusive race category whereby anyone who indicates they are only one race are placed into one of the following categories: White, Black, Asian, or other. For biracial individuals, anyone who indicates that they are African American is classified as African American. Of the remaining biracial observations, anyone who indicates that they are Asian is classified as Asian. The remaining observations along with individuals who indicate three or more racial groups are classified as other.<sup>6</sup> We then combine this single race variable with the Hispanic ethnicity variable to identify people who are non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, non-Hispanic other, and Hispanic. Finally, we restrict the ACS data to individuals who self-identify as non-Hispanic White, non-Hispanic Black, non-Hispanic Asian, or Hispanic (the groups that we focus on in the analysis below).<sup>7</sup>

Next, using the MACR data we restrict the arrest data to individuals defined by the arresting officer as either White, Black, Asian, or Hispanic, and we presume that those described by officers as White, Black, or Asian are non-Hispanic. We use this classification schema, sometimes interacted with gender and age, to generate group-specific arrest totals (with the MACR data) and corresponding population totals (from the ACS).

## 2.2 | Effect of prop 47 on bookings conditional on arrest

The handling of an actual arrest varies based largely on the severity of the underlying offense, but also to some degree on the discretion exercised by the arresting officer. A booked arrest results in a jail admission. Individuals may bail out immediately or at a later date or be released via some other avenue (for example, nonfinancial release, or based on a risk assessment). Prop 47 certainly impacted the number of bookings (as is evidenced in Figure 3). The extent to which changes in bookings varies by race will depend on how Black, Hispanic, Asian, and White arrests are distributed across offense categories, and the degree to which each group's arrests are reclassified from felony to misdemeanor as a result of the proposition.

We test for differential impacts of Prop 47 on the likelihood that an arrest is booked. We define  $Booked_{ijk}$  as a dummy variable equal to one if arrest  $i$ , made by law enforcement agency  $j$ , for offense  $k$  is booked. We define  $Prop47_{ijk}$  as equal to one for arrests occurring in November 2014 or later and zero otherwise. Using arrests between November 2013 and December 2016, we estimate various versions of the following model:

$$Booked_{ijk} = \alpha + \beta' Race_{ijk} + \gamma Prop47_{ijk} + \delta' Race_{ijk} Prop47_{ijk} + \theta_j + \lambda_k + \eta_{ijk} \quad (1)$$

where  $Race_{ijk}$  is a vector of race/ethnicity dummies with conforming parameter vector  $\beta$ ,  $\gamma$  measures the pre-post Prop 47 change in booking rates for the racial group omitted from the race dummy vector,  $\delta$  is a parameter vector measuring the differential effect of Prop 47 for the different racial/ethnic groups contained in the vector  $Race_{ijk}$ ,  $\theta_j$  and  $\lambda_k$  are jurisdiction (county or law enforcement agency) and offense fixed effects, respectively, and  $\eta_{ijk}$  is a mean-zero error term.<sup>8</sup>

We focus on two key specifications of equation (1): the model without offense fixed effects and the model inclusive of offense fixed effects. Beginning with the first specification, suppose that a dummy variable for African Americans is the first element of the vector  $Race_{ijk}$  and that Whites are the omitted racial/ethnic category. The estimate of the corresponding parameter  $\beta_1$  measures the Black-White difference in booking rates for the pre-Prop 47 period. The sum of the parameters  $\beta_1$  and  $\delta_1$  measures the Black-White difference in booking rate in the post-Prop 47 period. Thus,  $\delta_1$  represents the pre-post Prop 47 change in the Black-White disparity in booking rates. Estimating the model omitting the offense fixed effects provides an overall assessment of the effect of the policy change on relative bookings rates for different groups.

To the extent that the reclassification of offenses drives relative changes in booking rates, adding offense-specific fixed effects to the specification should knock out the race-specific estimates of Prop 47 – i.e.,  $\gamma$  for Whites, and  $\gamma + \delta_1$  for African Americans. Specifically, the legislation should cause a shift in distribution of offenses across categories. For example, some felony larceny arrests will now be classified as misdemeanor larceny arrests. In addition, many felony drug arrests will be classified as misdemeanor drug arrests. To the extent that such changes in the composition of arrest differ by race and ethnicity, controlling for offenses should drive the parameter estimates in the vector  $\delta$  to zero. On the other hand, the shift in the distribution of offenses away from offenses where the discretion to book is lesser, towards offenses where the discretion to book is greater may alter disparities by race and ethnicity to the extent that officers exercise discretion in a manner that favors one group over another.

Below we estimate various specifications of equation (1) with the key contrast being the specifications with and without offense fixed effects. We present model estimates for all offenses, as well for specific offense types.

## 2.3 | Effect of prop 47 on unconditional booking rates

Changes in arrest rates and changes in the rates at which arrests are booked will generate changes in unconditional booking rates and jail admissions. Moreover, changes in overall (unconditional) booking rates will generate changes in overall levels of pretrial detention. Using the ACS data to generate population estimates as a denominator and the MACR data to generate booked arrest totals by group, we estimate race-specific booking rates for the 12-month periods preceding and following the passage of Prop 47. This relatively simple exercise provides us with an assessment of the extent to which the change in jail bookings depicted in Figure 3 differentially impacted members of different racial/ethnic groups.

## 2.4 | Effect of prop 47 on overall incarceration in the state by race and ethnicity

We have seen that Prop 47 reduced the average daily population of jails and had a modest effect on the state's prison population. Unfortunately, the publicly available summary data for jail and prison populations in the state do not include sufficiently disaggregated information by race and ethnicity to assess whether the reforms have disparate impacts.<sup>9</sup> For this reason, we use the ACS data to calculate the proportion of various subgroups that are institutionalized on any given day. The ACS includes information on whether the individual resides in institutionalized group quarters. For adults between 18 and 55, most of these individuals are either in prison or jail. We document long-term trends in overall institutionalization rates by race/ethnicity, gender, age, and education. We assess the degree to which interracial/ethnic differences narrow with the passage of Prop 47. We also compare the overall effect of Prop 47 relative to the comparable effects from earlier corrections reforms occurring within the state.

# 3 | EMPIRICAL RESULTS

## 3.1 | Prop 47 and racial disparities in arrest rates

Table 1 summarizes overall arrest trends by race/ethnicity and type of arrest. Panel A presents arrest rate tabulations for felony and misdemeanor arrests combined, panel B presents results for felony arrests, while Panel C presents results for misdemeanor arrests. Within each panel and for each racial/ethnic group, we present arrests per 100,000 residents for the 12-month period preceding Prop 47 (November 2013 through October 2014), the 12-month period following Prop 47 (November 2014 through October 2015), and the change in arrest rates between these two periods. The table presents rates for all arrests as well as arrests involving an offense against a person, property crime arrests, drug offense arrest, and other arrests.<sup>10</sup>

Beginning with the patterns in panel A for the pre-Prop 47 period, African Americans have the highest arrest rate (9,884 per 100,000), followed by Hispanics (4,082 per 100,000), Whites (3,594 per 100,000), and Asians (742 per 100,000). The largest proportional disparities in arrest rates between African Americans and Whites is for person offenses (with African Americans arrested at a rate 4.21 times that of Whites) and property offenses (with African Americans arrested at a rate 3.51 times that of Whites). While Hispanic arrest rates are higher than those for Whites,

**TABLE 1** Arrests per 100,000 by race and offense type for the 12-month period preceding prop 47 and the 12-month period following prop 47

<b>Panel A: Felony and Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	3,594	397	389	679	2,129
After	3,448	410	318	596	2,124
Change	-146	13	-71	-83	-5
Black					
Before	9,884	1,672	1,364	1,247	5,602
After	9,314	1,714	1,064	1,006	5,530
Change	-570	42	-300	-241	-72
Hispanic					
Before	4,082	526	428	624	2,503
After	3,832	540	345	523	2,424
Change	-250	14	-83	-101	-79
Asian					
Before	742	105	100	112	425
After	661	102	78	94	387
Change	-81	-3	-22	-18	-38
<b>Panel B: Felony Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1,232	221	238	414	359
After	820	227	158	116	320
Change	-412	6	-80	-298	-39
Black					
Before	4,048	1,030	909	882	1,227
After	3,085	1,033	586	323	1,143
Change	-963	3	-323	-559	-84
Hispanic					
Before	1,382	319	265	401	397
After	993	323	195	122	353
Change	-389	4	-70	-279	-44
Asian					
Before	259	63	53	75	69
After	181	60	35	27	58
Change	-79	-3	-18	-48	-11
<b>Panel C: Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	2,362	176	151	265	1770
After	2,628	184	160	481	1804
Change	266	8	9	216	34

(Continues)

TABLE 1 (Continued)

Panel C: Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
Black					
Before	5,836	642	455	364	4375
After	6,229	682	478	683	4387
Change	393	40	23	319	12
Hispanic					
Before	2,700	206	163	223	2107
After	2,839	216	149	402	2071
Change	139	10	−14	179	−36
Asian					
Before	482	42	46	37	357
After	480	42	43	67	329
Change	−2	0	−3	30	−28

Note. Rates tabulated from the 2013–2015 MACR combined with the 2014 and 2015 ACS public use files.

the differences are modest by comparison, with ratios of Hispanic to White arrests rates of 1.14 for all arrests, 1.32 for person arrest, 1.10 for property arrests, 0.92 for drug arrests, and 1.18 for other arrests. Arrests rates for Asians are considerably lower than those for other groups for all categories.

Prop 47 caused notable declines in arrest rates that are largest in absolute value for African Americans. Between the two periods depicted, arrests per 100,000 decline by 570 for African Americans, 250 for Hispanics, 146 for whites, and 81 for Asians. These constitute percentage declines of 6.1%, 5.8%, 4.1%, and 10.9% for Hispanics, African Americans, Whites, and Asians, respectively. Nearly all of the changes are concentrated in the property and drug offense categories. Overall, the Black-White arrest rate gap shrank from 6,290 to 5,866 (a 6.7% decline). The comparable Hispanic-White gap shrank from 488 to 384 (a 21% decline).

We observe more dramatic changes for felony arrest rates in panel B. The overall felony arrest rate for African Americans declines by 24%, while the gap in felony arrests relative to Whites declines by 20%. The most pronounced changes are observed for felony drug arrests. While all groups experience declines, the decline in the felony drug arrest rate for African Americans is the largest (from 882 per 100,000 to 323 per 100,000). While African Americans are still more likely to be arrested for a felony drug offense relative to Whites, it is notable that in the post-Prop 47 period the felony drug arrest rate for African Americans is lower than the comparable rate observed for Whites in the pre-Prop 47 period.

In panel C, we see that the declines in felony arrests are partially offset by an increase in misdemeanor arrests, though for drug offenses only. We observe misdemeanor drug arrests increase by 216 for Whites, 319 for African Americans, 178 for Hispanics, and 29 for Asians. There is little evidence of offsetting increases in misdemeanor property crime offenses.

Table 2 presents comparable arrest rate for males only. The patterns in Table 2 mirror those in Table 1 yet are magnified. The overall arrest rate for African American males declines by 719 (a 4.8% decline). The absolute declines for Whites, Hispanics, and Asians are smaller (200, 362, and 130 respectively). However, given the lower overall arrest rates in the pre-Prop 47 period for these groups, the changes are proportionally similar to those for African Americans.

**TABLE 2** Male Arrests per 100,000 by race and offense type for the 12-month period preceding prop 47 and the 12-month period following prop 47

<b>Panel A: Felony and Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	5,203	593	492	968	3,150
After	5,003	609	412	868	3,114
Change	-200	16	-80	-100	-36
Black					
Before	15,120	2,625	1,820	2,084	8,591
After	14,401	2,672	1,488	1,723	8,519
Change	-719	47	-332	-361	-72
Hispanic					
Before	6,460	842	559	1,015	4,044
After	6,097	861	471	859	3,908
Change	-363	19	-89	-156	-136
Asian					
Before	1,164	164	123	188	689
After	1,034	160	99	162	613
Change	-130	-4	-24	-26	-76
<b>Panel B: Felony Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1,818	340	331	598	549
After	1,251	346	229	177	499
Change	-567	6	-102	-421	-50
Black					
Before	6,595	1,665	1,338	1,504	2,089
After	5,121	1,659	923	579	1,960
Change	-1,474	-6	-415	-925	-129
Hispanic					
Before	2,249	526	396	662	666
After	1,643	529	305	207	602
Change	-606	3	-91	-455	-64
Asian					
Before	427	101	81	126	119
After	301	96	55	48	102
Change	-126	-5	-26	-78	-17
<b>Panel C: Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	3,385	253	161	370	2,601
After	3,752	263	183	691	2,615
Change	367	10	22	321	14

(Continues)

TABLE 2 (Continued)

Panel C: Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
Black					
Before	8,525	960	483	580	6,502
After	9,280	1,012	564	1,145	6,558
Change	755	52	81	565	56
Hispanic					
Before	4,211	316	164	353	3,378
After	4,454	331	166	652	3,305
Change	243	15	2	299	−73
Asian					
Before	736	64	42	61	569
After	733	63	44	114	512
Change	−3	−1	2	53	−57

Note. Rates tabulated from the 2013–2015 MACR combined with the 2014 and 2015 ACS public use files.

Again, we see the most drastic declines in arrest rate for felony drug offenses. Felony drug arrests for African American males decline by 62%, from 1,504 arrests per 100,000 in the pre-Prop 47 period to 579 arrests per 100,000 in the post-Prop 47 period, for an absolute decline of 925 arrests per 100,000. Felony drug arrest rates for Whites and Hispanics decline by 70% and 69%, respectively, relative to prereform levels, and by 63% for Asians. However, the absolute values of the pre-post Prop 47 decline are small, less than half, compared to the decline for African Americans (a decline of 421 for White, 455 for Hispanics, and 79 for Asians). The Black-White gap in annual felony drug arrests per 100,000 declines from 906 in the pre-Prop 47 period to 402 in the post-Prop 47, period (a 56% drop in this disparity). While smaller in magnitude, the Hispanic-White arrest rate differential for felony drug offenses declines by roughly one half, from 64 per 100,000 to 30 per 100,000.

Regarding other patterns in the table, we see large declines in felony property arrests for all groups, with the largest decline observed for African American men (declines of 102, 414, and 91 for Whites, lacks, and Hispanics, respectively). Here, we see some evidence of offsetting increases in misdemeanor property offenses, especially for African American men.

Table 3 presents comparable results for women. If the arrest rate patterns for men appear to be magnified, the results for women are similar, yet muted. African American women are arrested at a rate pre-Prop 47 that is more than double the rate for White women. Hispanic women are arrested at rates that are roughly 84% the rate of White women. Asian women are arrested at the lowest rate. We observe the largest absolute decline in arrest rates post-Prop 47 for Black women (a decline of 397 per 100,00), followed by Hispanic women (134 per 100,000), white women (96 per 100,000), and Asian women (36 per 100,000). While there is a small Black-White disparity in overall drug arrests in the pre-Prop 47 period (a Black-White gap of 43 per 100,000), Black women are slightly less likely to be arrested for a drug offense relative to White women in the post-Prop 47 period. There is also a substantial narrowing in the Black-White gap for women in overall property arrests, from a gap of 634 per 100,000 in the pre-Prop 47 period to 431 per 100,000 in the post-Prop 47 period.



**TABLE 3** Female Arrests per 100,000 by race and offense type for the 12-month period preceding prop 47 and the 12-month period following prop 47

<b>Panel A: Felony and Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1992	202	286	391	1112
After	1895	212	224	326	1134
Change	-97	10	-62	-65	22
Black					
Before	4801	747	920	434	2701
After	4404	790	655	314	2646
Change	-397	43	-265	-120	-55
Hispanic					
Before	1674	206	295	229	944
After	1540	215	217	184	924
Change	-134	9	-78	-45	-20
Asian					
Before	360	51	79	43	187
After	324	50	59	33	182
Change	-36	-1	-20	-10	-5
<b>Panel B: Felony Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	648	103	145	232	169
After	390	107	87	54	141
Change	-258	4	-58	-176	-28
Black					
Before	1576	414	492	279	390
After	1120	428	261	76	355
Change	-456	14	-231	-203	-35
Hispanic					
Before	504	111	132	137	124
After	336	115	84	36	101
Change	-168	4	-48	-101	-23
Asian					
Before	107	28	29	28	23
After	72	28	17	9	19
Change	-35	0	-12	-19	-4
<b>Panel C: Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1344	99	142	160	943
After	1505	105	137	271	993
Change	161	6	-5	111	50

(Continues)

TABLE 3 (Continued)

Panel C: Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
Black					
Before	3225	333	428	155	2310
After	3285	362	394	238	2291
Change	60	29	−34	83	−19
Hispanic					
Before	1170	95	162	92	820
After	1204	100	133	149	823
Change	34	5	−29	57	3
Asian					
Before	252	22	50	16	164
After	252	23	42	24	163
Change	0	1	−8	8	−1

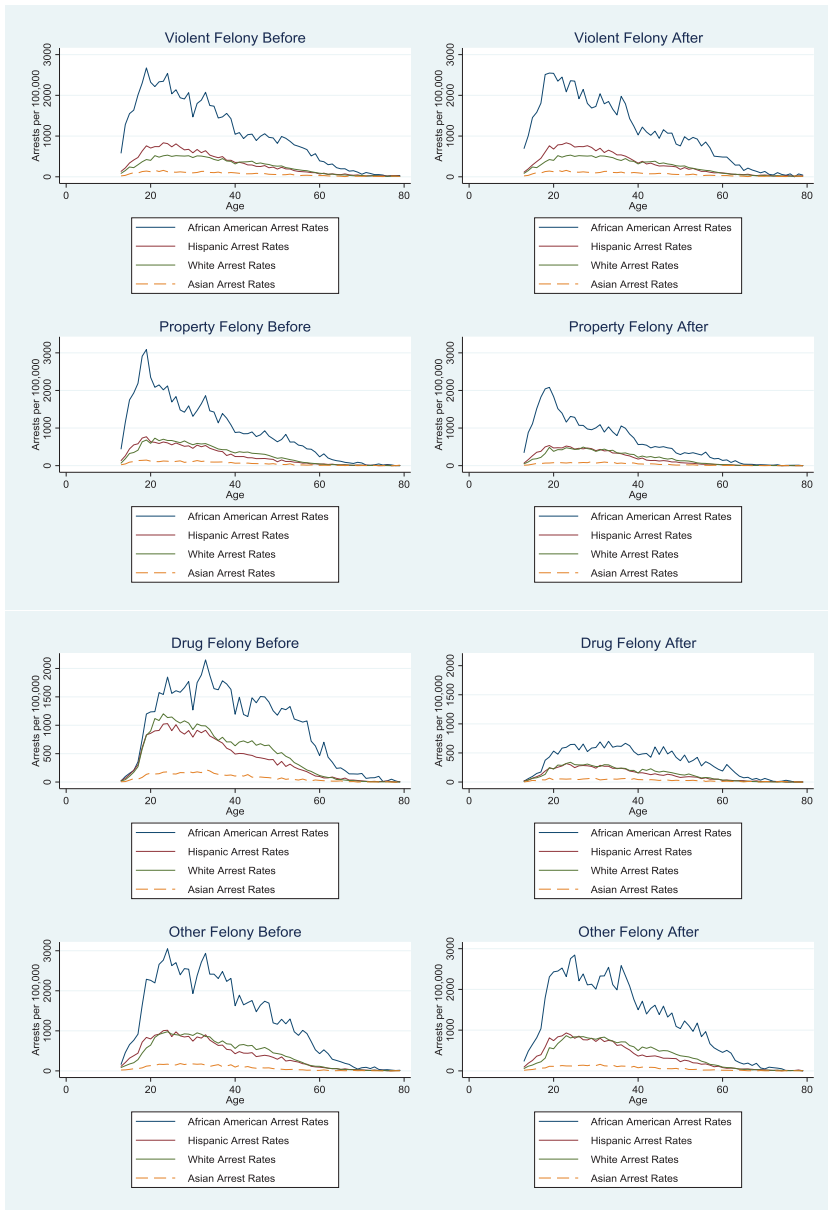
Note. Rates tabulated from the 2013–2015 MACR combined with the 2014 and 2015 ACS public use files.

Similar to the results for men, we observe the largest proportional declines in felony drug arrests. For White women, the number of felony drug arrests per 100,000 declines from 232 in the pre-Prop 47 period to 54 in the post-Prop 47 period. The comparable rates for Black women are 279 and 76, respectively, while the comparable rates for Hispanic women are 137 and 36, respectively. Regarding property offenses, African American women experience the largest absolute declines in felony property arrest rates, from 492 per 100,000 pre-Prop 47 to 261 per 100,000 post-Prop 47 (a decline of 231). The changes are much smaller for White, Hispanic, and Asian women. We see no evidence of increases in misdemeanor property arrests offsetting the declines in felony property arrests.

Finally, Figures 5 and 6 graphically display the arrest age profiles by race for the 12 months preceding Prop 47 and the 12 months following the proposition’s passage. Figure 5 presents results for felony arrests for our four categories (violent, property, drug, and other), while Figure 6 presents comparable figures for misdemeanor arrest rates. In each panel, the figure on the left shows arrest rate-age profiles for the pre-Prop 47 period by race ethnicity while the figure on the right shows comparable rates for the post-Prop 47 period. We restrict the arrest profiles to individuals who are 13 or over and less than 80.

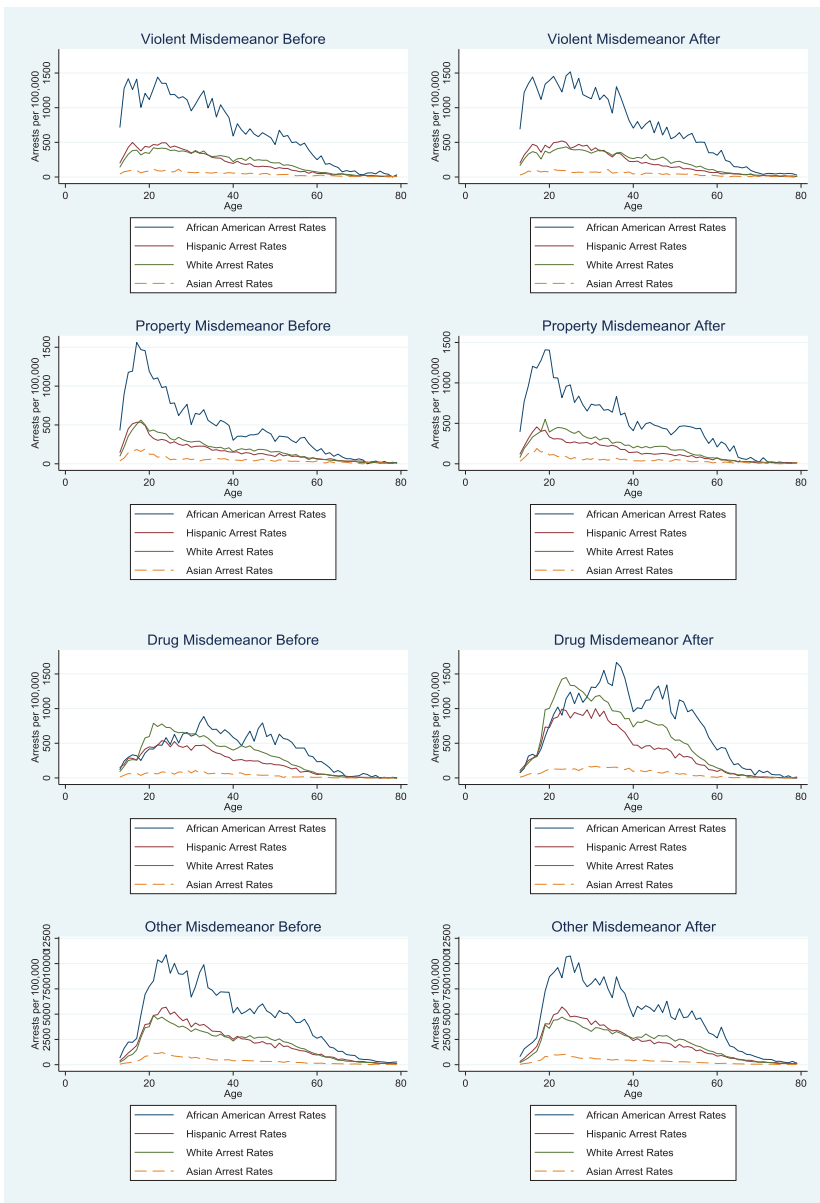
We observe notable changes for all age categories and narrowing of racial disparities for most age groups for property felony and drug felony arrest. The declines in drug felony arrest rates are stunning and fairly evenly distributed across age groups. The declines in property crime arrest rates are also notable and particularly large for African Americans in their early 20s.

Misdemeanor arrest rates are stable before and after Prop 47. Arrest-age profiles for violent and property misdemeanors appear stable, with African Americans (and young African Americans in particular) arrested at relatively high rates. Interestingly, misdemeanor drug arrest rates reveal some notable disparities by age category, with White people in their 20s arrested at higher rates for this offense than African Americans, and higher arrest rates for African Americans for those 30 and older. These age disparities remain with the passage of Prop 47 yet are magnified with the broader shift of drug arrests from felony to misdemeanor.



**FIGURE 5** Felony Arrests per 100,000 by race and single year of age for 12 months before and 12 months after the passage of prop 47 [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

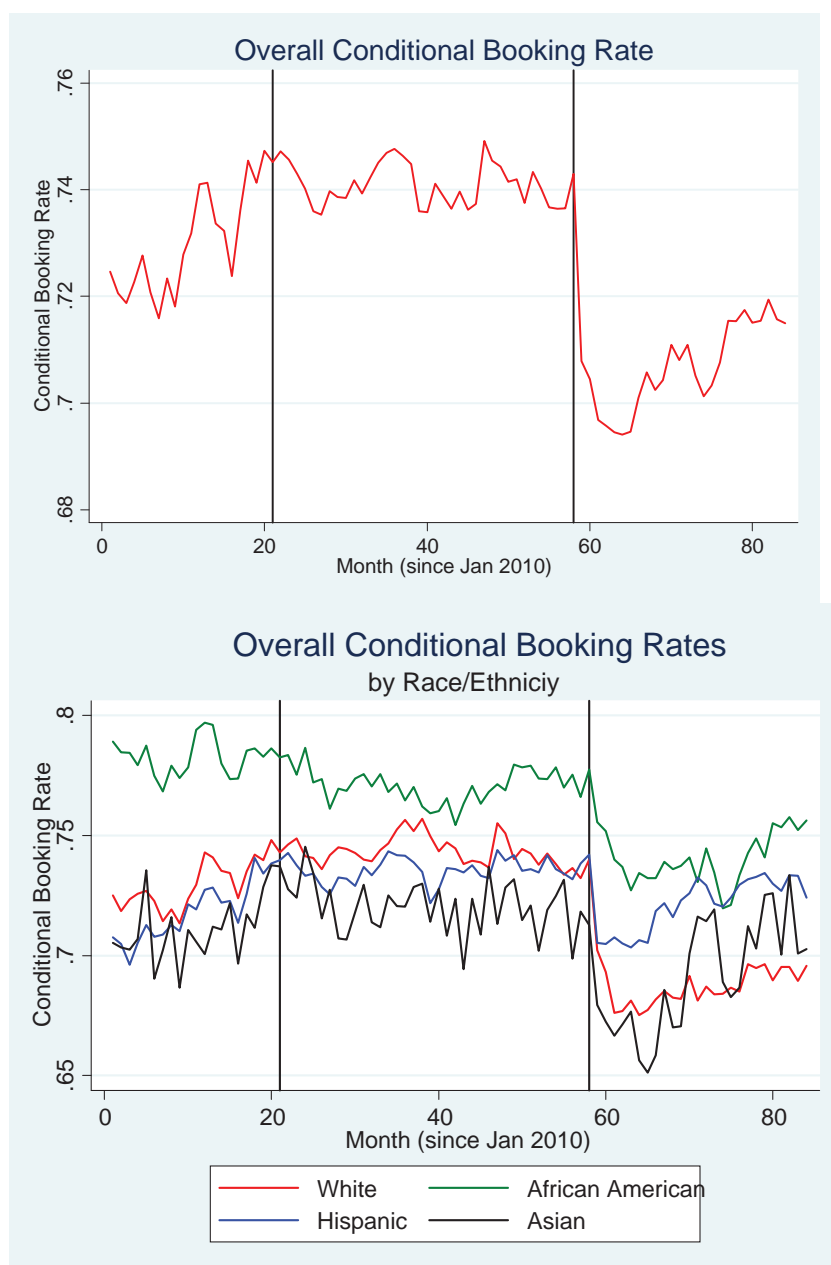
To summarize the findings of this section, we observe modest narrowing in overall racial/ethnic arrest-rate disparities, with arrest rates falling by larger magnitudes for African Americans and Hispanics relative to Whites and Asians. The narrowing is larger within specific arrest categories, with pronounced declines in felony property and drug arrests that disparately impacted African Americans. The declines in felony drug arrest rates in particular are large, with felony drug arrest rates declining by more than half for all groups and with the largest absolute declines for African Americans.



**FIGURE 6** Misdemeanor Arrests per 100,000 by race and single year of Age for 12 months before and 12 Months After the Passage of Prop 47 [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

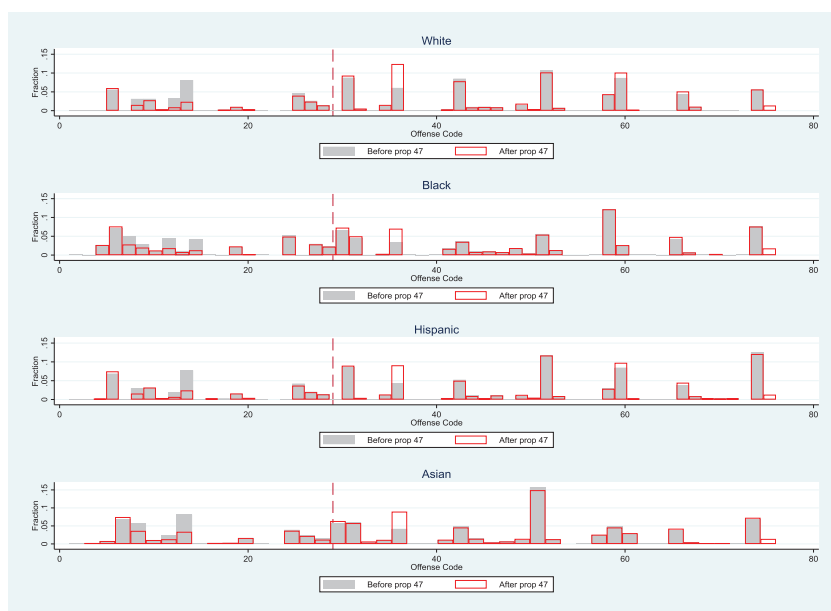
### 3.2 | Prop 47 and racial disparities in conditional booking rates

In addition to impacting overall arrest levels, the redefinition of several felony and wobbler offenses to straight misdemeanors may have impacted the overall propensity to book arrests into local jails, an outcome we refer to as a conditional bookings rate or the likelihood of a booking. Many arrests end with a citation rather than a booking. This is clearly a less costly alternative for the person in question and in terms of use of correctional resources, as it avoids pretrial detention and all that that implies.



**FIGURE 7** Likelihood of being booked conditional on having been arrested for each month between 2010 and 2016, all arrests and by race and ethnicity [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

Figure 7 presents the proportion of monthly arrests that are booked into jail for each month from January 2010 through the end of 2016. The graph shows two vertical lines marking the implementation of realignment in October 2011 (which shifted responsibility for many non-serious, non-violent, and non-sexual offenders from the state correctional system to the county correctional systems) and the passage of Prop 47 in November 2014. For most of the period, between 72% and 74% of arrests result in a booking, with conditional booking rates between the passage



**FIGURE 8** Empirical Distribution of Arrests Across Offense Categories Ranked from Most to Least Serious Before and After Prop 47 by Race/Ethnicity [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

*Note.* Dashed line marks boundary between felony and misdemeanor arrest charges.

of realignment and Prop 47 hovering around 74%. Following Prop 47 the likelihood of a booking declines sharply to below 70%, before rising slightly to 72%.

Figure 7 also depicts conditional booking rates by race and ethnicity. Prior to Prop 47, there are clear racial disparities in the likelihood of a booking (especially in the pre-realignment months), with roughly 77% of Black arrests resulting in a booking while roughly 72% to 73% of White, Hispanic, and Asian arrests result in a booking. With the passage of Prop 47, we see declines in conditional booking rates for all groups, but the largest absolute decline in likelihood of a booking is for Whites, suggesting a widening of the Black-White and Hispanic-White difference in conditional booking rates. Furthermore, while initially staying below the rate of Whites, the Asian conditional booking rate gradually increases and is somewhat higher than that of Whites in 2016.

A widening in the conditional booking rate disparity can be the result of several factors. First, there may be racial/ethnic differences in the distribution of offenses across arrest categories that lead to a larger proportion of White arrests being redefined as misdemeanors. This would be the case if White arrests were more heavily concentrated among offenses impacted by the proposition. Second, booking rates may widen within offense categories.

It does appear to be the case that a larger proportion of White arrests are reclassified as misdemeanor by Prop 47. Figure 8 presents the distribution of arrests across offense categories that are ranked from the most to least serious. The dashed line shows the dividing line between felonies and misdemeanors, with arrest categories to the left showing felonies and arrest categories to the right showing misdemeanors. For each race and ethnic group, the figure shows the proportion of arrests within each category for the 12 months prior to the passage of Prop 47 (the grey bars) and the proportion of arrests within each category for the 12 months following the proposition's passage (the bars outlined with red borders).

For all groups, we see declines in the proportion of arrests that are felonies with a rank of 9 through 14 (the felony offenses involving theft or a drug offense). The largest shifts in mass are from offenses ranked 12<sup>th</sup> through 14<sup>th</sup> in severity (felony drug offenses) towards misdemeanor drug offenses ranked 35<sup>th</sup> and 36<sup>th</sup> in terms of severity. We see the largest increase in the proportion of arrests concentrated in misdemeanor drug offenses (ranked 36<sup>th</sup> out of 65 categories in terms of the offense severity) among White arrests. This differential shifting is likely partially responsible for the widening in the conditional booking rate disparities we observe in Figure 7.

However, we also see some evidence of a widening in bookings rates disparities occurring within broad offense categories. To illustrate, Figure 9 presents monthly conditional booking rate time series for felony drug offense and misdemeanor drug offense by race/ethnicity. For felonies, we observed pronounced declines in the conditional booking rates for all groups corresponding to the passage of Prop 47, with the largest declines observed for White arrests. For misdemeanor drug offenses, we observe largely comparable declines in conditional booking rates for all groups, but the rate for Asians seem to drift upward starting mid to late 2015.<sup>11</sup>

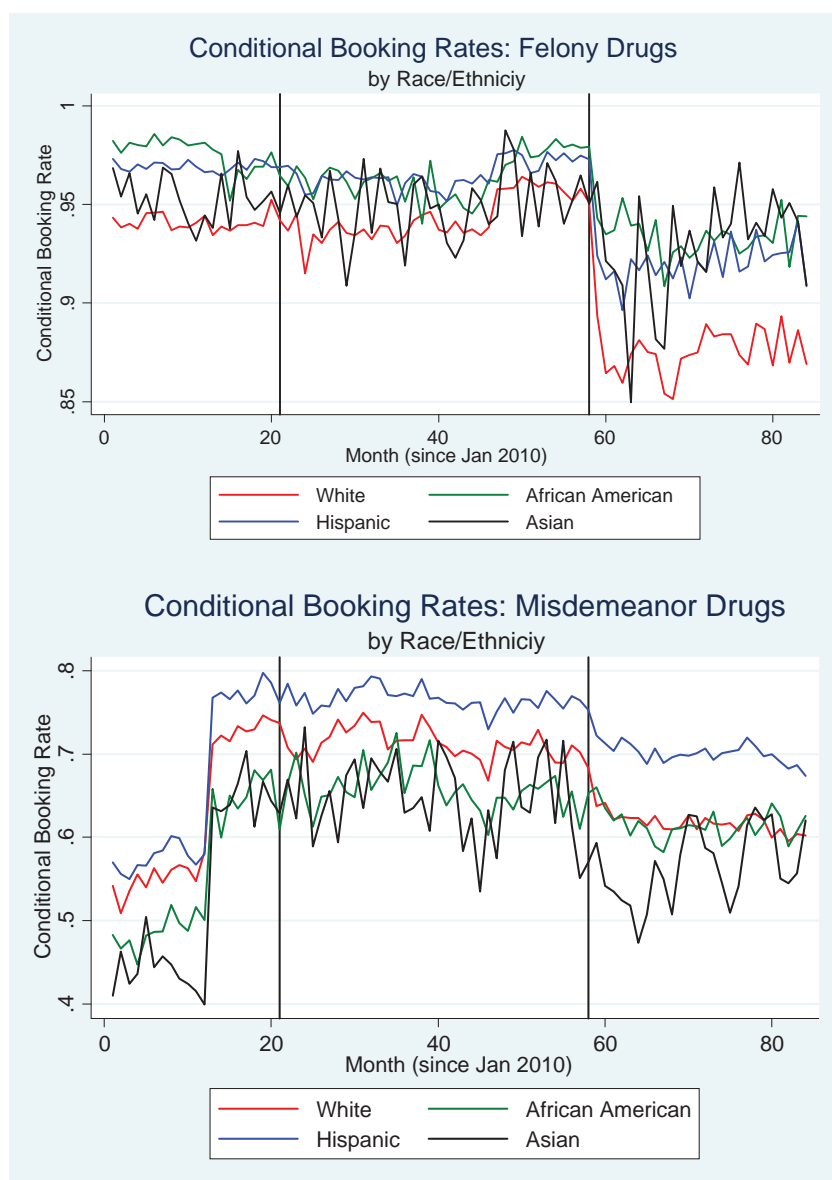
To formally test whether Prop 47 widened racial disparities in conditional booking rates, we estimate various specifications of the linear probability model described in equation (1) above. Table 4 presents results using all arrests occurring either during the 12 months preceding the proposition or the 12 months following. The dependent variable is a dummy indicating that the arrest was booked, and the key explanatory variables are dummies indicating that the arrested person is African American, Hispanic, or Asian; a dummy for the post-Prop 47 period; and interaction terms between the race/ethnicity dummies and the prop 47 dummy. To reiterate our methodological discussion, the coefficient on the prop 47 variable measures the pre-post change in the conditional booking rates for White arrests. The coefficient on the interaction terms measures the degree to which the comparable pre-post changes for black, Hispanic, and Asian arrests differ from the comparable changes for White arrests. A positive significant coefficient on these interaction terms indicates that the racial disparity in this outcome widens with the passage of the proposition.

We present model results from four specifications:<sup>12</sup> (1) a model including only the race dummies, the post-prop 47 dummy, and the interaction terms, (2) a model that adds county fixed effects, (3) a model that includes county and a full set of arrest-offense fixed effects, (4) a model that includes county fixed effects, offense fixed effect, and a full set of effects for the law enforcement agency making the arrest.<sup>13</sup> Comparison of results from models (2) and (3) provides an indication of the extent to which differences in the offense distributions and the effect of the proposition on the offense distributions between racial/ethnic groups explain the widening of the conditional booking rates between these groups. Comparison of the results from models (3) and (4) provide information on the degree to which differential implementation of the proposition across the state's hundreds of law enforcement agency contributes to the widening.

Beginning with the results in model (1) of Table 4, we observe a statistically significant Black-White disparity in conditional booking rates of 2.7 percentage points in the pre-Prop 47 period. This widens to 4.6% in the post-Prop 47 period, with the increase in the differential statistically significant. Prior to the passage of Prop 47, the conditional bookings rate for Hispanics is lower but not statistically significant. However, in the post-Prop 47 period, a disparity of 1.8 percentage points arises (calculated by adding the coefficients on Hispanic and the interaction term between Hispanic and prop 47). The conditional booking rate for Asians is a statistically significant 3 percentage points lower pre-Prop 47 than for Whites, but this differential disappears post-Prop 47.

For Whites, Prop 47 reduced the overall conditional booking rate by 6.0 percentage points. The comparable change for black arrests is a decline of 4.1 percentage points, while the comparable





**FIGURE 9** Likelihood of being booked for a drug offense conditional on having been arrested for each month between 2010 and 2016, by race and ethnicity and by whether the arrest was a felony or misdemeanor [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

figures for Asian and Hispanic arrests are declines of 3.3 and 2.4 percentage points, respectively. Hence, the proposition widened race disparities for conditional booking rates due to relatively larger declines in booking rates for White arrests.

Adding county fixed effects to the model in model (2) narrows the Black-White conditional booking rate disparity in the pre-Prop 47 period to a statistically insignificant difference of  $-1.2$  percentage points. It also causes the pre-Prop 47 period Hispanic-White disparity to become negative and statistically significant at 3.9 percentage points, while the negative Asian-White disparity

**TABLE 4** Linear probability model of the likelihood that an arrest is booked

	(1)	(2)	(3)	(4)
African American	0.027** (0.012)	−0.012 (0.010)	0.008 (0.006)	0.005 (0.004)
Hispanic	−0.018 (0.024)	−0.039*** (0.012)	−0.000 (0.005)	−0.001 (0.005)
Asian	−0.030* (0.018)	−0.024 (0.016)	−0.016 (0.012)	0.001 (0.008)
Prop47	−0.060*** (0.009)	−0.058*** (0.009)	−0.024*** (0.004)	−0.025*** (0.004)
AfrAMer*Prop47	0.019** (0.008)	0.020*** (0.007)	0.007* (0.004)	0.009* (0.005)
Hispanic*Prop47	0.036*** (0.006)	0.034*** (0.006)	0.011** (0.005)	0.013*** (0.005)
Asian*Prop47	0.027* (0.014)	0.027** (0.013)	0.011 (0.010)	0.004 (0.009)
Constant	0.775*** (0.036)	0.834*** (0.017)	0.553*** (0.100)	0.581*** (0.078)
County Fixed Effects	No	Yes	Yes	No
Offense Fixed Effects	No	No	Yes	Yes
Lea Fixed Effects	No	No	No	Yes
N	4,076,525	4,076,525	4,076,525	4,076,525
R-squared	0.010	0.070	0.421	0.483

*Note.* Standard errors in parentheses. All models include controls for age, gender, a cubic polynomial trend variable, and season fixed effects. African American, Hispanic and Asian coefficients represent estimated pre-Prop 47 differences relative to Whites. Prop 47 coefficient is the estimate of the change in the conditional booking rate for Whites, while the interaction with race/ethnicity indicator variables (AfrAMer\*Prop47, Hispanic\*Prop47, and Asian\*Prop47) represent estimated differential impacts of Prop 47.

\*Estimate statistically significant at the 10% level of confidence.

\*\*Estimate statistically significant at the 5% level of confidence.

\*\*\*Estimate statistically significant at the 1% level of confidence.

decreases somewhat and becomes statistically insignificant. This suggests that the Black-White difference in practices across counties generate higher conditional booking rates for Black arrests in the pre-Prop 47 period and that controlling for county fixed effects eliminates these differences (and even points towards lower conditional bookings rate of Hispanics). However, adding county fixed effects does not explain the relatively larger decline in the conditional booking rate for white arrests caused by the proposition.

Adding offense fixed effects leads to notable differences in results. In model (3), we see that controlling for the most serious charge reduces the pre-post change in the White conditional booking rate to −2.4 percentage points. Contrasting this figure with the estimates of 5.8 to 6.0 percentage point declines in the first two models suggests that much of the observed decline for Whites is driven by the reclassification of offenses caused by the proposition. Similarly, we see the coefficients on the interaction term between African American and the prop 47 dummy narrows from 0.02 to 0.007. We see similar results for the Hispanic-White disparities. While the first two models show the Hispanic-White conditional booking rate disparity widening by 3.4 to 3.6 percentage points, accounting for differences in the offense distributions narrows the widening of this

TABLE 5 Linear probability model of the likelihood that an arrest is booked by offense type

	Felony Arrests			Misdemeanor Arrests		
	Violent	Property	Drugs	Violent	Property	Drugs
African American	0.0001 (0.002)	0.002 (0.002)	−0.008*** (0.003)	0.003 (0.005)	0.022** (0.009)	0.020 (0.017)
Hispanic	0.002 (0.001)	0.001 (0.002)	−0.005 (0.003)	0.001 (0.009)	0.001 (0.009)	0.004 (0.012)
Asian	−0.000 (0.004)	0.010*** (0.004)	−0.005 (0.004)	0.011 (0.016)	−0.033** (0.016)	0.024 (0.023)
Prop 47	−0.002 (0.002)	−0.011*** (0.004)	−0.092*** (0.017)	−0.019** (0.007)	−0.042*** (0.014)	−0.037*** (0.008)
AfrAMer*Prop47	0.002 (0.003)	−0.001 (0.002)	0.031*** (0.009)	−0.011 (0.007)	0.002 (0.011)	−0.003 (0.019)
Hispanic*Prop47	−0.001 (0.002)	−0.000 (0.002)	0.027*** (0.006)	0.004 (0.004)	0.006 (0.012)	0.017 (0.012)
Asian*Prop47	0.003 (0.004)	−0.002 (0.005)	0.042*** (0.010)	0.018 (0.012)	−0.006 (0.021)	−0.001 (0.028)
Constant	0.991*** (0.003)	0.983*** (0.004)	0.940*** (0.004)	0.583*** (0.049)	0.778*** (0.020)	0.498*** (0.018)
N	378,618	230,526	230,386	229,627	198,651	421,289
R-squared	0.406	0.297	0.287	0.254	0.418	0.346

Note. Standard errors in parentheses. All models include controls for age, gender, a cubic polynomial trend variable, and season, offense, and law enforcement fixed effects. African American, Hispanic, and Asian coefficients represent estimated pre-Prop 47 differences relative to Whites. Prop 47 coefficient is the estimate of the change in the conditional booking rate for Whites, while the interaction with race/ethnicity indicator variables (AfrAMer\*Prop47, Hispanic\*Prop47, and Asian\*Prop47) represent estimated differential impacts of Prop 47.

\*Estimate statistically significant at the 10% level of confidence.

\*\*Estimate statistically significant at the 5% level of confidence.

\*\*\*Estimate statistically significant at the 1% level of confidence.

differential to 1.1 percentage points. (Also note that the statistically significantly lower Hispanic bookings rate turns to a relatively precisely estimated zero pre-Prop 47 difference.) The estimates point toward no statistically significant differences before or after Prop 47 between Asians and Whites. Note, the coefficients on the interaction terms for both Black and Hispanic arrests are still statistically significant, suggesting that part of the widening must be happening within offense categories.<sup>14</sup>

Table 5 presents comparable models that test for differential changes in conditional booking rates within broad offense categories. We present the results from six models. All include the race/ethnicity dummies, the Prop 47 dummy, the interaction terms, and the complete sets of offense and law enforcement agency fixed effects. However, each model is estimated on separate subsets of the data. The first three models present results for felony offense, with separate estimates for violent offenses, property offenses, and drug offenses. The next three models present comparable results for misdemeanor arrests. For violent felonies, we find no evidence of race disparities in conditional booking rates in either the pre- or post-Prop 47 period, as well as no evidence of pre-post proposition changes. The same is true for misdemeanor violent offenses. We do observe a statistically significant decline in the conditional booking rate for felony property

offenses of close to 1 percentage point for all groups, but no evidence of a widening racial disparity. We also find no evidence of race disparities in the conditional misdemeanor property crime booking rates in either the pre- or post-Prop 47 periods. The exception is Asians, who have a statistically lower conditional booking rate compared to Whites both before and after Prop 47.

We do however find evidence of a differential impact by race of Prop 47 on individuals arrested for felony drug offenses. For Whites, we observe a decline in the conditional booking rate of 9.2 percentage points. Note, this effect is not a direct compositional effect of the reclassification of an offense from felony to misdemeanor since we are effectively comparing people whose arrests are classified as felonies both before and after the proposition passes. Hence, this decline reflects a change in propensity to book felony arrests corresponding in time with the implementation of Prop 47. The conditional booking rates for the other groups' felony drug arrests decline as well, but by less than the decline observed for Whites. The change for Black arrest is a decline of 6.1 percentage point. The comparable declines in the conditional felony drug arrest booking rate for Hispanics and Asians are 6.5 and 5.0 percentage points, respectively. Note that the differentials in the pre-post change and the widening of the race disparities in this outcome are statistically significant at the 1% level of confidence.<sup>15</sup>

To summarize the findings from this section, we find declines in the conditional bookings rates for all groups, but significantly larger declines for White arrests. This interracial pattern in relative declines is especially notable for drug offenses. It is arguably surprising that within felony and misdemeanor drug offenses, the likelihood of being booked into jail dropped.<sup>16</sup> One plausible contributing factor to this is law enforcement officer discretion. After all, the passage of Prop 47 sent a signal to law enforcement that drug offenses broadly are now deemed less severe, and that officers should—all else being equal—be more judicious about making arrests and booking suspects into jail, which use up costly public resources and involve risks to both officers and arrestees.

We also find changes that widened the conditional booking rate differentials between White arrests and other groups' arrests. This widening is driven largely by White arrests being more heavily concentrated in offenses that were targeted for redefinition by the proposition. For example, as can be gleaned from Table 1, arrests for felony drug offenses made up 11.5% of White arrests before Prop 47, while arrests for these offenses made up 8.9% of African American arrests. After Prop 47, these shares dropped to 3.3% and 3.5% respectively. Not surprisingly, the shares of all arrests made for misdemeanor drug offenses went up, from 7.4% to 14.0% for Whites, and from 3.7% to 7.3% for African Americans. That is, not only did the share of arrests for drug offenses more likely to be booked (felonies) drop more for Whites, the increase in the relatively less likely to be booked drug offenses (misdemeanor) increased more for Whites than for African Americans. As a result, the share of drug arrests that are felonies dropped from 61% to 19.3% for Whites, while for African Americans it decreased from 70.8% to 32.1%. This compositional effect from the reclassification led to a smaller decrease in the likelihood of a booking for African Americans relative to Whites overall, but also within the category of drug offenses. This, however, does not explain why once we estimate models by offense category and include offense fixed effects we find a greater decrease in the conditional booking rate for Whites than for African Americans and Hispanics. A closer look at the data reveals that possession of various drugs is the main driver behind these changes. The severity of such offenses are affected by the amount and type of drug as well as whether the person was armed. Unfortunately, our data are not specific enough to identify the amount nor whether the person was armed. It is possible that these more severe drug offenses make up a higher share of felony drug offenses post-Prop 47 for African Americans and Hispanics than Whites, which, if so, would contribute to a smaller decrease in the conditional bookings rate.

### 3.3 | Unconditional booking rates

The results thus far show that Prop 47 caused sizable declines in overall arrests and modest narrowing in overall race disparities in arrest rates. For certain offenses, declines in race disparities in arrests are quite substantial (drug felonies, in particular), while for others less so (for example, felony violent arrests). We also find evidence of a slight widening in interracial and interethnic gaps in the likelihood that an arrest is booked. While overall booking rates decline for all groups, the declines are slightly larger for Whites.

The product of the arrest rate times the booking rate for any given group yields the rate at which individuals from this group are admitted to jail annually. We see in Figure 3 a sizable decline in monthly jail bookings corresponding in time with the passage of Prop 47. Here we use booked arrests from the MACR data in conjunction with population estimates from the ACS to generate annual booked arrests per 100,000 residents, what we refer to as the unconditional booking rate. Note this is equivalent to the annual jail admissions rate for each demographic group.

Table 6 presents booked arrests per 100,000 by race/ethnicity and by offense type. The table is structured in exactly the same manner as Tables 1 through 3 showing overall arrest rates.<sup>17</sup> Before discussing how interracial/interethnic disparities in this outcome change, it is worth pointing out some general patterns that emerge from comparing the results in Tables 1 and 6. First, booked arrests per 100,000 are lower than overall arrests per 100,000 for all groups and all offenses. This follows from the fact that not all arrests result in a booking. Second, booked arrests per 100,000 for all offenses fall by more for each group than the decline in overall arrest rates. For example, the overall arrest rate for African Americans declines by 570 per 100,000, while booked arrests decline by 742. This difference reflects the fact that the decline in felony arrests, which are booked at relatively higher rates, is offset to some degree by an increase in misdemeanor arrests, which are booked at lower rates. Finally, while the decline in felony arrest rates and booked felony arrest rates are comparable, the increase in overall misdemeanor arrests are considerably larger than the increases in booked misdemeanor arrests. These juxtaposed results indicate that the proposition caused a shift away from pretrial detention in the resolution of less serious criminal cases.

Regarding interracial and interethnic disparities, we see larger declines in these gaps for booked arrests relative to overall arrests. For example, the Black-White disparity in booked arrests per 100,000 decline from 4,911 to 4,465, an absolute decline of 446 and a percentage decline relative to baseline of 9.1%.<sup>18</sup> For overall arrests (displayed in Table 1), the Black-White arrest rate gap declines from 6,290 to 5,866, giving an absolute decline of 424 and a percentage decline relative to baseline of 6.7%.

Within offense categories, there are quite sizable drops in the Black-White booking rate disparity. For example, the property crime booking rate for Blacks declines by 314 per 100,000, while the comparable rate for Whites declines by 73, narrowing the overall racial disparity by 241. This amounts to nearly 30% of the baseline gap in booking rates for this offense. Similarly, the drug offense booking rate declines by 374 for African Americans and by 182 for Whites. This narrows the Black-White disparity in annual bookings per 100,000 into county jails for drug offenses by roughly 37%. Working through similar comparisons for booked felony arrests, Prop 47 narrows the Black-White disparity in booked property crime arrests by 37% and by 57% for booked drug arrests.

While we see declines in the number of booked arrests per 100,000 for Hispanics, the absolute declines for Whites are larger, leading to a slight widening in the overall Hispanic-White difference

**TABLE 6** Booked Arrests per 100,000 by race and offense type for the 12-month period preceding prop 47 and the 12-month period following prop 47

<b>Panel A: Booked Felony and Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	2,621	348	278	576	1,419
After	2,326	357	205	394	1,370
Change	-295	9	-73	-182	-49
Black					
Before	7,532	1,488	1,069	1,086	3,889
After	6,791	1,511	755	712	3,812
Change	-741	23	-314	-374	-77
Hispanic					
Before	2,932	470	317	546	1,599
After	2,669	481	247	384	1,557
Change	-263	11	-70	-162	-42
Asian					
Before	517	90	62	93	272
After	433	88	44	60	241
Change	-84	-2	-18	-33	-31
<b>Panel B: Booked Felony Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1,166	211	222	395	338
After	763	216	147	99	300
Change	-403	5	-75	-296	-38
Black					
Before	3,905	993	866	859	1,188
After	2,958	999	553	300	1,106
Change	-947	6	-313	-559	-82
Hispanic					
Before	1,316	306	248	387	375
After	934	310	182	110	332
Change	-382	4	-66	-277	-43
Asian					
Before	243	60	49	70	64
After	168	57	33	24	54
Change	-75	-3	-16	-46	-10
<b>Panel C: Booked Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1,459	138	55	182	1,084
After	1,573	142	58	297	1,077
Change	114	4	3	114	-7

(Continues)

TABLE 6 (Continued)

Panel C: Booked Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
Black					
Before	3,598	491	202	225	2,680
After	3,830	512	202	412	2,705
Change	232	21	0	187	25
Hispanic					
Before	1,595	162	68	157	1,208
After	1,724	170	64	272	1,217
Change	129	8	−4	115	9
Asian					
Before	274	30	13	23	208
After	265	31	11	35	187
Change	−9	1	−2	12	−21

Note. Rates tabulated from the 2013–2015 MACR combined with the 2014 and 2015 ACS public use files.

in this outcome. Specifically, booked arrests per 100,000 for Hispanics declines from 2,932 to 2,669, for an absolute drop of 263. This is smaller relative to the decline of 294 per 100,000 experience by White people in California. Consequently, the ratio of the Hispanic booking rate to the White booking rate increases from approximately 1.12 to 1.15. This pattern is driven primarily by the relatively larger decline in drug offense bookings per 100,000 for White people. In absolute terms, the levels and declines in arrest rates are lower for Asians.

Appendix Tables A1 and A2 present similar tabulations by gender. The tabulations are similar to what we observe for booked arrest rates when both genders are combined. However, the difference and changes are amplified for men and muted for women.

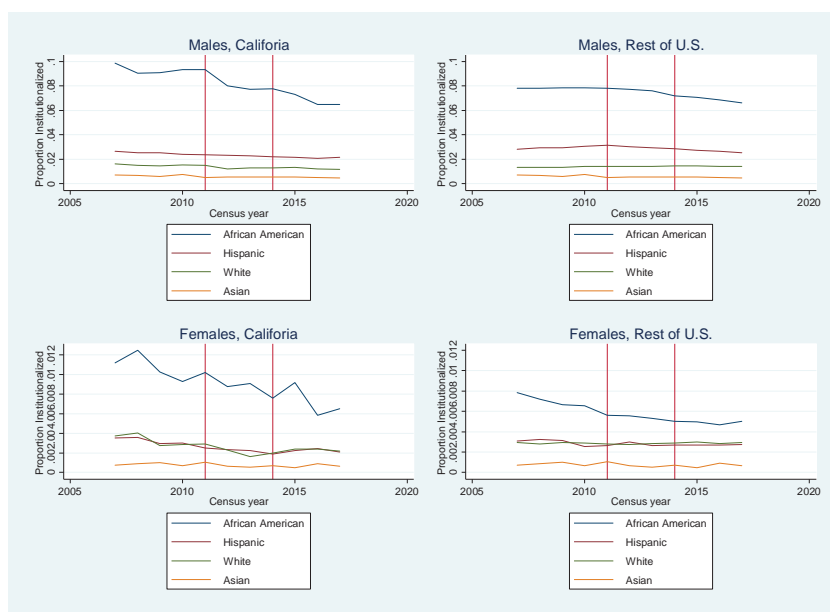
To summarize, despite a widening in the conditional booking rate differential between White arrests and arrests of African Americans and Hispanics, the declines in overall arrest rates coupled with the shift in drug arrests from felonies to misdemeanor results in substantial narrowing in the interracial differences in annual booking rates. The narrowing is particularly pronounced for drug and property offenses.

3.4 | Overall incarceration rates

The results thus far demonstrate that the implementation of Prop 47 corresponds with lower arrest and booking rates for all groups, with racial disparities in arrest rates narrowing and racial disparities in conditional booking rates widening slightly. Ultimately, we conclude that bookings into jails decline, with the largest declines observed for African Americans and the gaps for the specific offenses targeted by Prop 47.

These trends must certainly have narrowed racial disparities in jail incarceration rates (given the decline in bookings) and perhaps even prison incarceration rates to the extent that some of the arrests that would have been recorded and charged as felonies in the past are now being charged as misdemeanors. Unfortunately, we do not have microdata on jail and prison inmates in California and thus cannot explore trends in these two correctional populations separately. We can,





**FIGURE 10** Proportion Institutionalized From 2007 Through 2017 Among Those Between the Ages of 18 and 55 by Race and Gender: California and the Rest of the United States [Color figure can be viewed at [wileyonlinelibrary.com](http://wileyonlinelibrary.com)]

however, measure overall incarceration using data from the ACS. To reiterate the discussion from our methods section, the Census Bureau interviews both the noninstitutionalized as well as people residing in institutionalized group quarters. For individuals between the ages of 18 and 55, the overwhelming majority of people in institutional group quarters are either in prison or jail. Hence, we use the ACS microdata for each year from 2007 through 2017 to study trends in overall incarceration rates, and how these rates change by race and ethnicity.<sup>19</sup>

Figure 10 graphs the proportion institutionalized for African Americans, Whites, and Hispanics. Of the four charts presented in the figure, the left column depicts institutionalization rates for California, while the figures in the right column present comparable rates for the remainder of the United States. In addition, the top row of figures display results for males, while the bottom row displays results for females. Each chart includes vertical markers for the year 2011 (the year largely preceding realignment) and 2014 (the year largely preceding Prop 47).

Beginning with the results for males, we see a sizable decline in the proportion of African American males incarcerated in California from roughly 0.10 (or 10%) to 0.065 (or 6.5%) by the end of the period. While the proportion institutionalized also declines for White males (from roughly 0.015 to 0.012), the decline is much smaller. In 2011, the year largely preceding realignment, the Black-White gap in the proportion institutionalized was 0.078. In 2014, the year largely preceding Prop 47, this gap was 0.065. By 2017, the gap stood at 0.053. Hence, from 2011 to 2017 the Black-White incarceration gap shrunk by 32%. Roughly half of this declines occurred with the implementation of Prop 47. Over the same period, we observe a slight increase in the Hispanic-White incarceration rate gap (or approximately one tenth of a percentage point) due largely to a slightly larger decline in the proportion institutionalized among White males relative to the decline for Hispanic males. In contrast, the decline in the incarceration rate for African Americans in the remainder of the U.S. is smaller (from 0.078 in 2011 to 0.066 in 2017), the decline for Hispanic males is larger (from

**TABLE 7** Proportion institutionalized for California men, 18 to 55 years of age, by race/ethnicity, age, and educational attainment

<b>Panel A: White Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.015	0.013	0.012
18 to 25	0.013	0.008	0.006
26 to 30	0.017	0.013	0.015
31 to 40	0.016	0.015	0.014
41 to 55	0.015	0.014	0.012
Less than HS	0.086	0.071	0.070
HS grad	0.023	0.022	0.020
Some college	0.011	0.011	0.011
College +	0.001	0.001	0.001
<b>Panel B: African American Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.093	0.078	0.065
18 to 25	0.076	0.056	0.050
26 to 30	0.094	0.089	0.072
31 to 40	0.106	0.089	0.075
41 to 55	0.097	0.082	0.064
Less than HS	0.337	0.285	0.295
HS grad	0.109	0.093	0.075
Some college	0.054	0.040	0.038
College +	0.007	0.008	0.005
<b>Panel C: Hispanic Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.024	0.022	0.022
18 to 25	0.023	0.020	0.019
26 to 30	0.028	0.023	0.027
31 to 40	0.026	0.028	0.028
41 to 55	0.019	0.019	0.016
Less than HS	0.036	0.035	0.041
HS grad	0.024	0.023	0.022
Some college	0.011	0.011	0.010
College +	0.003	0.003	0.002
<b>Panel D: Asian Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.005	0.006	0.005
18 to 25	0.006	0.002	0.002
26 to 30	0.007	0.008	0.003
31 to 40	0.005	0.009	0.008
41 to 55	0.004	0.005	0.004
Less than HS	0.021	0.034	0.039
HS grad	0.012	0.010	0.010
Some college	0.004	0.005	0.003
College +	0.001	0.001	0.000

**TABLE 8** Proportion Institutionalized for California Women, 18 to 55 years of age, by race/ethnicity, age, and educational attainment

<b>Panel A: White Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.002	0.002	0.002
18 to 25	0.002	0.002	0.001
26 to 30	0.003	0.002	0.001
31 to 40	0.003	0.002	0.002
41 to 55	0.003	0.002	0.003
Less than HS	0.026	0.012	0.017
HS grad	0.004	0.002	0.004
Some college	0.003	0.003	0.002
College +	0.000	0.000	0.000
<b>Panel B: African American Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.010	0.008	0.007
18 to 25	0.009	0.004	0.002
26 to 30	0.009	0.008	0.012
31 to 40	0.013	0.011	0.010
41 to 55	0.010	0.008	0.004
Less than HS	0.048	0.050	0.043
HS grad	0.012	0.008	0.006
Some college	0.007	0.005	0.006
College +	0.002	0.000	0.000
<b>Panel C: Hispanic Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.002	0.002	0.002
18 to 25	0.002	0.002	0.002
26 to 30	0.004	0.003	0.003
31 to 40	0.003	0.002	0.003
41 to 55	0.002	0.002	0.002
Less than HS	0.005	0.003	0.004
HS grad	0.002	0.002	0.002
Some college	0.001	0.001	0.002
College +	0.000	0.001	0.001
<b>Panel D: Asian Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.001	0.001	0.001
18 to 25	0.001	0.000	0.001
26 to 30	0.001	0.001	0.000
31 to 40	0.001	0.001	0.001
41 to 55	0.001	0.001	0.000
Less than HS	0.002	0.007	0.003
HS grad	0.002	0.001	0.001
Some college	0.001	0.001	0.001
College +	0.001	0.000	0.000

0.032 to 0.025), while there is no measurable decline for White males. Incarceration rates for Asian men are stable over the time period, through very low relative to other groups in all years.

Regarding women in California, the proportion incarcerated for white women holds stable over the entire period (at roughly 0.002). Black women however, experienced a sizable decline from 0.010 in 2011, to 0.008 in 2014, to 0.007 in 2017. The Black-White gap in the proportion institutionalized among California women declines by roughly 38%. We observe no decline in the incarceration rate for Hispanic women and a Hispanic-White gap of zero in all years. Incarceration rates for women in the remainder of the United States are stable over the period depicted.

To dig further into these trends, Tables 7 and 8 present estimates of the proportion institutionalized for each racial/ethnic group by broad age groups and educational attainment groups for the years 2011, 2014, and 2017. Table 7 presents results for men, while Table 8 presents results for women. Beginning with the results for men, the declines in incarceration rates are experienced by all age groups, though among White men the largest declines occur for relatively young men. There are stunningly high incarceration rates among Black men with less than a high-school degree, with approximately 34% institutionalized in 2011 on any given day. Nonetheless, the declines in incarceration rates for African American men occur within each educational group, with the exception of those with a college degree or more (where the declines are small).

The results for women in Table 8 reveal general stability in incarceration rates for white women and Hispanic women. For black women, we see the largest declines for the young and the relatively less educated.<sup>20</sup>

While the ACS data do not permit a separate assessment of the degree to which changes in prison incarceration vs. jail incarceration are explaining the narrowing in racial incarceration disparities, using the timing and differential impacts of California's reforms on prison and jail populations, we can discern some likely contributions of these two sources over the time period analyzed here. The realignment reform in 2011 caused a sharp drop in prison incarceration (by nearly 27,000 inmates), largely due a reduction in the likelihood that individuals on parole are returned to custody. There was an offsetting increase in jail incarceration of roughly one third the decline in prison incarceration (Lofstrom & Raphael, 2016b). This change in jail incarceration did not reverse until the passage of Prop 47. Hence, between 2011 and 2014, the narrowing in racial incarceration disparities was driven entirely by a relative decline in prison incarceration rates for African Americans. Post-Prop 47, change in jail incarceration was likely the more important contributor.

In addition, the ACS data do not permit assessment of which controlling offenses are driving the decline in incarceration over this time period. Nonetheless, we do know that the declines in prison incarceration coinciding with realignment were driven mostly by fewer parole revocations and fewer prison admissions for lower level drug and property felonies. In future work, we plan to analyze specific admissions data by county from the National Corrections Reporting Program linked to arrest data, with the aim of precisely analyzing the controlling offense differences that drive race disparities in prison incarceration and recent changes in these disparities.

## 4 | CONCLUSION

Striking racial disparity, especially between African Americans and Whites, is one of the most troubling and pressing issues in the U.S. criminal justice system. A number of statistics show that this holds on the national level, and certainly for California. The arrest rate of African Americans is slightly more than three times that of Whites in California (Lofstrom et al., 2018). African

Americans and Whites make up equal shares (26%) of California's probation population in spite of vastly different shares of the overall population, about 6% and 41%, respectively (Goss & Hayes, 2018). In a subset of California counties that represent roughly two thirds of the state's population, Grattet et al. (2016) finds that 25% and 29%, respectively, of the jail and prison populations in California are African Americans.

Motivated by a federal court order to reduce its prison population, California began to reverse a decades-long trend of explosive growth in its state prison population in 2011, when it shifted responsibility for many nonserious, nonviolent, and nonsexual offenders from state prison to county jail and probation systems. This reform—known as realignment—reduced prison overcrowding while increasing the jail population. Realignment was followed by three voter initiatives: Proposition 36 (2012), which revised California's three-strikes law; Prop 47 (2014), which reclassified a number of drug and property felonies (or wobblers) as misdemeanors; and Proposition 57 (2016), which expanded early parole for nonviolent offenders participating in educational and rehabilitative programming. Altogether, these reforms have helped reduce the prison population by about 44,000 inmates (or 25%) from its peak in 2006 and significantly lessened the state's reliance on incarceration. The impacts of these reforms are enough to account for nearly half of the decline in the national incarceration rate since 2011. Despite the intense focus on racial disparities in criminal justice involvement in the United States, there has been surprisingly little discussion of how these major reforms may have disparately impacted racial and ethnic minorities.

In this article we examine whether California's recent and significant criminal justice reforms (with a specific focus on Prop 47) have affected racial disparity in the first stages of the criminal justice process—arrests and bookings into jail, as well as in incarceration. The findings from our analysis are the following. First, the decline in arrests for property offenses and drug offenses in California caused by Prop 47 had a disparate impact on African Americans and Hispanics relative to Whites as well as Asians (who have the lowest arrest rates), with African Americans experiencing the largest decline in arrest rates followed by Hispanics, Whites, and Asians. Consequently, racial arrest rate disparities narrowed, modestly overall, but quite substantially for felony property and drug offenses. While the likelihood of a booking conditional on having been arrested declined the most among arrested White people (due largely to the relative concentration of White arrests in offense categories targeted by the proposition), racial disparities in booking rates into jail narrowed considerably, especially for felony drug arrests. Finally, the cumulative impact of the collection of reforms in California since 2011 has been a sizable reduction in the overall incarceration rate and a narrowing of interracial disparities in the proportion institutionalized on any given day.

Given our findings, what are lessons for other states? First, it is important to note that while we find strong evidence of meaningful decreases in racial disparity in key criminal justice outcomes, our arrest and bookings analysis is limited to the first few years of Prop 47. And while California's prison and jail populations have not increased since, we do observe some increases in the likelihood of a booking in 2016. A closer look at our data shows that increase is driven by, and limited to, misdemeanor property offenses. Nonetheless, the estimates represent average impacts over a two-year period and longer term effects may differ.

Another important issue is whether California's drug reclassifications and/or felony thresholds pre-Prop 47 represent a unique situation, unlike what might be implemented in other states. What is arguably unique about reforms in California is that they are largely fueled by a federal court order to reduce the state's prison population, upheld by the U.S. Supreme Court. This, however, is what provides opportunities for quasi-experimental research and policy evaluations. Importantly, other states have also reduced their prison populations significantly over the last decade (including New York, Michigan, Connecticut, Mississippi, and South Carolina), and

pre-Prop 47 drug and property classifications in California are in line with those of many states today.

The shift in the felony threshold for the relevant property offenses from \$450 to \$950 puts California in the mid-range of thresholds in the country (Gelb & Stevenson, 2017), suggesting relevance of the finding to many other states. California was the first state to reclassify most drug possession offenses from felonies to misdemeanors, but since then four other states have followed suit (Utah, Connecticut, Alaska, and Oklahoma). In other words, offense reclassifications such as those introduced with Prop 47 in California are possible in other environments, but most states have not yet done such reclassification. In sum, the findings here suggest that similar reform efforts elsewhere may reduce the vast differences across race and ethnicity in criminal justice experiences.

## ENDNOTES

- <sup>1</sup> See for example “California Leads on Justice Reform,” *New York Times*, October 29, 2014, and “Californians Vote to Weaken Mass Incarceration,” *The Atlantic*, November 5, 2014.
- <sup>2</sup> To make an arrests for a misdemeanor, in addition to finding probable cause, an officer must generally be present when the offense was committed or have a warrant for the suspect’s arrest issued by a judge. The exceptions stated in penal code section 853.6 include arrests for domestic violence; arrestees who have outstanding warrants, are too intoxicated to care for themselves, or cannot provide satisfactory identification; and a reasonable likelihood that the crime would otherwise continue.
- <sup>3</sup> Racial disparities in incarceration are particularly large, with an African American prison incarceration rate nearly seven times that for whites, and slightly over twice the rate for Hispanics (Carson & Anderson, 2016).
- <sup>4</sup> The proposition also included a provision allowing individuals currently serving sentences for reclassified offenses to file a resentencing petition, as well as a provision allowing those convicted in the past to file a petition to have the prior conviction reclassified as a misdemeanor (California Judicial Council, 2016).
- <sup>5</sup> The court-ordered population reduction measures included increased credit earning and early parole for certain nonviolent inmates. While these measures may have had some limited indirect impacts on jail populations, the measures did not apply to jails, which are operated by county sheriff departments.
- <sup>6</sup> To be specific, using the detailed race variable from the integrated public use ACS data, we define as White anyone with code 100; Black as anyone with codes 200, 801, or 830 through 845; Asian as anyone with codes 400 through 699, 810 through 827, and 850 through 899; and other as anyone with codes 300 through 399, 802, 700, and a value of 900 or greater.
- <sup>7</sup> These three groups account for the overwhelming majority of individuals involved with the criminal justice system in California.
- <sup>8</sup> Furthermore, all estimated models include a cubic polynomial trend variable and season fixed effects.
- <sup>9</sup> While the California Department of Corrections and Rehabilitation (CDCR) does report population totals by race/ethnicity and gender, we cannot explore effects of the legislation within detailed age categories or within other socioeconomic dimensions of interest, such as education.
- <sup>10</sup> We omit juvenile status offense arrests from this table, both as a separate category as well as in the total calculations.
- <sup>11</sup> The notable increase in the conditional booking rates of misdemeanor drugs is likely driven by the 2010 reclassification of possession of less than an ounce of marijuana from a misdemeanor to an infraction. Infractions are not included in the MACR data.
- <sup>12</sup> All model specifications include controls for age, gender, a cubic polynomial trend variable, and season fixed effects.
- <sup>13</sup> Note, there are a few law enforcement agencies that operated in multiple counties, e.g., the California Highway Patrol.
- <sup>14</sup> The results in Model (4) show that the estimates of interest are not sensitive to whether we use county fixed effects or law enforcement agency fixed effects.
- <sup>15</sup> Given that we observe an uptick in 2016 in the conditional booking rate in Figure 7, especially for Asian and Hispanics, we estimated the full specification models (specification shown in column (4) in Table 4 and all

models in Table 5) with a dummy for 2016, and it interacted with our race/ethnicity indicator variables. We find in this sensitivity test that none of the estimated 2016 coefficients were statistically significant, and the Prop 47 coefficients remained largely unchanged (results available upon request).

- <sup>16</sup> The conditional booking rate dropped from 96.7% to 90.5% for felony drug offenses and from 71.5% to 64.5% for misdemeanor drug offenses.
- <sup>17</sup> In the main text, we discuss in detail the overall change in booked arrests per 100,000 in comparison with the patterns we observe for all arrests per 100,000 presented in Table 1. The results by gender are similar, though more pronounced for men and muted for women. We present tabulations of booking rates per 100,000 by gender comparable to the results presented in Tables 2 and 3 for all arrests in appendix Tables A1 and A2.
- <sup>18</sup> These figures come from calculating the difference in booked arrests rates by race for the pre- and post-periods presented in the first column of panel A.
- <sup>19</sup> We should note that we are likely also capturing people who are incarcerated in federal prisons located within California. Hence, the trends in institutionalization rates presented here reflect inmates in county jails, state institutions, and federal institutions, though federal inmates comprise a small share.
- <sup>20</sup> We present comparable tabulations for the rest of the United States in Appendix Tables A3 and A4.

## CONFLICT OF INTEREST

The authors confirm that they have no conflict of interest to declare.

## REFERENCES

- Bartos, B., & Kubrin, C. E. (2018). Can we downsize our prisons and jails without compromising public safety? Findings from California's Prop 47. *Criminology & Public Policy*, 17(3), 693–715.
- Bird, M., & Grattet, R. (2016). Realignment and recidivism. *The ANNALS of the American Academy of Political and Social Science*, 1, 176–195.
- Bird, M., Lofstrom, M., Martin, B., Raphael, S., & Nguyen, V. (2018). *The impact of Prop 47 on crime and recidivism*. Public Policy Institute of California.
- Bonczar, T. P. (2003). *Prevalence of imprisonment in the U.S. population, 1974–2001* (Special Report, NCJ 197976). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Bureau of Justice Statistics. (2008). *Criminal victimization in the United States, 2006: Statistical tables* (NCJ 223436). Washington, DC: U.S. Department of Justice Office of Justice Programs, Bureau of Justice Statistics.
- California Judicial Council. (2016). *Prop 47 frequently asked questions: Updated November 2016*. San Francisco, CA: California Judicial Council.
- Carson, A. E., & Anderson, E. (2016). *Prisoners in 2015* (Bulletin, NCJ 250229). Washington, DC: U.S. Department of Justice Office of Justice Programs, Bureau of Justice Statistics.
- Dobbie, W., Goldin, J., & Yang, C. S. (2018). The effect of pretrial detention on conviction, future crime, and employment: Evidence from randomly assigned judges. *American Economic Review*, 108(2), 201–240.
- Dominguez Rivera, P., Lofstrom, M., & Raphael, S. (2019). *The effect of sentencing reform on crime rates: Evidence from California's Proposition 47*. University of California Berkeley Working Paper.
- Donnelly, E. A., & MacDonald, J. M. (2018). The downstream effects of bail and pretrial detention on racial disparities in incarceration. *Journal of Criminal Law & Criminology*, 108, 775–814.
- Feigenberg, B., & Miller, C. (2018). *Racial divisions and criminal justice: Evidence from southern state courts*. University of California Berkeley Working Paper.
- Gelb, A., & Stevenson, P. (2017). *The effects of changing felony theft thresholds*. The Pew Charitable Trusts.
- Goss, J., & Hayes, J. (2018). *California's changing parole population*. Public Policy Institute of California.
- Grattet, R., Tafoya, S., Bird, M., & Nguyen, V. (2016). *California's county jails in the era of reform*. Public Policy Institute of California.
- Heaton, P., Mayson, S., & Stevenson, M. (2017). The downstream consequences of misdemeanor pretrial detention. *Stanford Law Review*, 69, 711.
- Hindelang, M. J. (1978). Race and involvement in common law personal crimes. *American Sociological Review*, 43(1)93–109.



- Horowitz, J., & Fuhrmann, M. (2018). *States can safely raise their felony theft thresholds, research shows*. <https://www.pewtrusts.org/en/research-and-analysis/articles/2018/05/22/states-can-safely-raise-their-felony-theft-thresholds-research-shows>
- Kaeble, D., Maruschak, L., & Bonczar, T. P. (2015). *Probation and parole in the United States, 2014* (Bulletin, NCJ 249057). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.
- Lofstrom, M., Bird, M., & Martin, B. (2016). *California's historic corrections reforms*. Public Policy Institute of California.
- Lofstrom, M., & Martin, B. (2014). *Key factors in California's jail construction needs*. Public Policy Institute of California.
- Lofstrom, M., & Martin, B. (2015). *Public safety realignment: Impacts so far*. Public Policy Institute of California.
- Lofstrom, M., Martin, B., Goss, J., Hayes, J., & Raphael, S. (2018). *New insights into California arrests: Trends, disparities, and county differences*. Public Policy Institute of California.
- Lofstrom, M., & Raphael, S. (2016a). Prison downsizing and public safety. *Criminology and Public Policy*, 15(2), 349–365.
- Lofstrom, M., & Raphael, S. (2016b). Incarceration and crime: Evidence from California's public safety realignment reform. *The ANNALS of the American Academy of Political and Social Science*, 664(1), 196–220.
- MacDonald, J., & Raphael, S. (2019). *The effect of scaling back punishment in racial disparities in criminal case outcomes*. University of California Berkeley Working Paper.
- Mooney, A. C., Giannella, E., Glymour, M. M., Neilands, T. B., Morris, M. D., Tulskey, J., & Sudhinaraset, M. (2018). Racial/ethnic disparities in arrests for drug possession after California Proposition 47, 2011–2016. *American Journal of Public Health*, 108(8), 987–993.
- Minton, T. D., & Zeng, Z. (2015) *Jail inmates at midyear 2014* (Bulletin, NCJ 248629). U.S. Department of Justice Office of Justice Programs, Bureau of Justice Statistics.
- O'Flaherty, B. (2015). *The economics of race in the United States*. Cambridge, MA: Harvard University Press.
- Petersilia, J. (2014). California prison downsizing and its impact on local criminal justice systems. *Harvard Law & Policy Review*, 8, 327–359.
- PEW Charitable Trusts. (2016). *33 states reform criminal justice policies through justice reinvestment* (Fact Sheet). The PEW Charitable Trusts.
- Raphael, S., & Roza, S. V. (2019). Racial disparities in the acquisition of juvenile arrest records. *Journal of Labor Economics*, 37(S1), S125–S159.
- Raphael, S., & Stoll, M. A. (2013). *Why are so many Americans in prison?* New York, Russell, NY: Sage Foundation.
- Rehavi, M. M., & Starr, S. B. (2014). Racial disparity in federal criminal sentences. *Journal of Political Economy*, 122(6), 1320–1354.
- Sampson, R. J., & Lauritsen, J. L. (1997). Racial and ethnic disparities in crime and criminal justice in the United States. *Crime and Justice*, 21, 311–374.
- Snyder, H. N. (2012). *Arrest in the United States, 1990–2010* (NCJ 239423). Washington, DC: U.S. Department of Justice, Office of Justice Program,. Bureau of Justice Statistics.
- Sundt, J., Salisbury, E. J., & Harmon, M. G. (2016). Is downsizing prisons dangerous? The effect of California's realignment act on public safety. *Criminology & Public Policy*, 15(2), 315–341.
- Tonry, M. (1995). *Malign neglect: Race, crime, and punishment in America*. New York, NY: Oxford University Press.
- Truman, J. L., & Morgan, R. E. (2016). *Criminal victimization, 2015* (Bulletin, NCJ 250180). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics.

## AUTHOR BIOGRAPHIES

**Magnus Lofstrom** is policy director and a senior fellow at the Public Policy Institute of California.

**Brandon Martin** is a research associate at the Public Policy Institute of California.

**Steven Raphael** is a professor of public policy at the Goldman School of Public Policy at the University of California, Berkeley.

**How to cite this article:** Lofstrom M, Martin B, Raphael S. Effect of sentencing reform on racial and ethnic disparities in involvement with the criminal justice system: The case of California’s proposition 47. *Criminol Public Policy*. 2020;19:1165–1208.  
<https://doi.org/10.1111/1745-9133.12527>

APPENDIX

**TABLE A1** Male booked arrests per 100,000 by race and offense type for the 12-month period preceding prop 47 and the 12-month period following prop 47

Panel A: Booked Felony and Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	3847	524	374	826	2123
After	3438	533	285	579	2041
Change	−409	9	−89	−247	−82
Black					
Before	11773	2375	1506	1829	6063
After	10754	2402	1126	1231	5996
Change	−1019	27	−380	−598	−67
Hispanic					
Before	4760	764	446	893	2658
After	4365	780	365	634	2585
Change	−395	16	−81	−259	−73
Asian					
Before	839	142	88	158	452
After	703	139	65	104	396
Change	−136	−4	−23	−54	−56
Panel B: Booked Felony Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	1724	324	311	570	518
After	1166	330	214	153	469
Change	−558	4	−97	−417	−49
Black					
Before	6371	1604	1277	1465	2026
After	4922	1607	874	538	1903
Change	−1449	3	−403	−927	−123

(Continues)

TABLE A1 (Continued)

Panel B: Booked Felony Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
Hispanic					
Before	2145	505	370	638	630
After	1549	510	286	187	567
Change	-596	5	-84	-451	-63
Asian					
Before	402	96	75	120	112
After	281	92	51	43	95
Change	-121	-4	-24	-77	-17
Panel C: Booked Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	2123	200	63	255	1605
After	2272	203	71	426	1572
Change	149	3	8	171	-33
Black					
Before	5402	771	229	364	4037
After	5832	795	252	693	4093
Change	430	24	23	329	56
Hispanic					
Before	2616	259	75	255	2027
After	2816	270	80	447	2018
Change	200	11	5	192	-9
Asian					
Before	437	46	13	37	340
After	421	47	13	61	301
Change	-16	1	0	24	-39

Note. Rates tabulated from the 2013–2015 MACR combined with the 2014 and 2015 ACS public use files.

**TABLE A2** Female booked arrests per 100,000 by race and offense type for the 12-month period preceding prop 47 and the 12-month period following prop 47

<b>Panel A: Booked Felony and Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	1400	172	182	328	717
After	1215	181	125	209	700
Change	-185	9	-57	-119	-17
Black					
Before	3415	627	645	365	1779
After	2966	652	397	212	1705
Change	-449	25	-248	-153	-74
Hispanic					
Before	1080	172	187	194	526
After	953	179	127	130	516
Change	-127	7	-60	-64	-10
Asian					
Before	225	43	39	35	109
After	189	42	25	20	101
Change	-36	-1	-14	-15	-8
<b>Panel B: Booked Felony Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	610	97	135	220	158
After	359	102	81	45	131
Change	-251	5	-54	-175	-27
Black					
Before	1510	399	466	270	375
After	1062	413	243	69	337
Change	-448	14	-223	-201	-38
Hispanic					
Before	476	105	123	132	116
After	311	108	78	32	94
Change	-165	3	-45	-100	-22
Asian					
Before	99	27	26	25	20
After	65	26	16	8	16
Change	-34	-1	-10	-17	-4
<b>Panel C: Booked Misdemeanor Arrests per 100,000</b>					
	<b>All Arrests</b>	<b>Person</b>	<b>Property</b>	<b>Drug</b>	<b>Other</b>
White					
Before	789	75	47	108	559
After	855	79	44	164	569
Change	66	4	-3	56	10

(Continues)

TABLE A2 (Continued)

Panel C: Booked Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
Black					
Before	1905	228	178	94	1404
After	1904	239	153	143	1369
Change	−1	11	−25	49	−35
Hispanic					
Before	604	68	63	62	410
After	641	71	50	99	422
Change	37	3	−13	37	12
Asian					
Before	126	16	13	9	89
After	123	16	10	12	85
Change	−3	0	−3	3	−4

Note. Rates tabulated from the 2013–2015 MACR combined with the 2014 and 2015 ACS public use files.

**TABLE A3** Proportion institutionalized for Non-California men, 18 to 55 years of age, by race/ethnicity, age, and educational attainment

<b>Panel A: White Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.014	0.014	0.014
18 to 25	0.014	0.012	0.010
26 to 30	0.018	0.019	0.018
31 to 40	0.016	0.017	0.018
41 to 55	0.012	0.013	0.013
Less than HS	0.049	0.047	0.053
HS grad	0.020	0.021	0.022
Some college	0.009	0.010	0.010
College +	0.002	0.002	0.002
<b>Panel B: African American Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.078	0.072	0.066
18 to 25	0.073	0.066	0.055
26 to 30	0.103	0.092	0.080
31 to 40	0.094	0.085	0.081
41 to 55	0.063	0.060	0.057
Less than HS	0.200	0.201	0.199
HS grad	0.082	0.079	0.074
Some college	0.035	0.034	0.033
College +	0.010	0.006	0.006
<b>Panel C: Hispanic Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.032	0.029	0.025
18 to 25	0.029	0.026	0.022
26 to 30	0.041	0.036	0.032
31 to 40	0.036	0.035	0.029
41 to 55	0.025	0.022	0.021
Less than HS	0.049	0.045	0.044
HS grad	0.032	0.030	0.026
Some college	0.018	0.016	0.016
College +	0.005	0.004	0.004
<b>Panel C: Asian Men</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.007	0.006	0.005
18 to 25	0.005	0.004	0.003
26 to 30	0.007	0.007	0.005
31 to 40	0.008	0.006	0.006
41 to 55	0.006	0.005	0.006
Less than HS	0.022	0.025	0.018
HS grad	0.013	0.010	0.012
Some college	0.006	0.006	0.004
College +	0.001	0.001	0.001

**TABLE A4** Proportion institutionalized for Non-California women, 18 to 55 years of age, by race/ethnicity, age, and educational attainment

<b>Panel A: White Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.003	0.003	0.003
18 to 25	0.002	0.002	0.002
26 to 30	0.003	0.004	0.003
31 to 40	0.003	0.004	0.004
41 to 55	0.003	0.003	0.003
Less than HS	0.013	0.013	0.014
HS grad	0.004	0.004	0.005
Some college	0.002	0.002	0.003
College +	0.001	0.000	0.000
<b>Panel B: African American Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.006	0.005	0.005
18 to 25	0.005	0.004	0.005
26 to 30	0.006	0.004	0.006
31 to 40	0.006	0.006	0.005
41 to 55	0.006	0.005	0.005
Less than HS	0.019	0.019	0.021
HS grad	0.006	0.006	0.006
Some college	0.004	0.003	0.004
College +	0.001	0.001	0.001
<b>Panel C: Hispanic Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.003	0.003	0.003
18 to 25	0.003	0.002	0.003
26 to 30	0.004	0.004	0.004
31 to 40	0.002	0.003	0.003
41 to 55	0.002	0.002	0.002
Less than HS	0.005	0.005	0.005
HS grad	0.002	0.003	0.004
Some college	0.002	0.002	0.001
College +	0.000	0.001	0.000
<b>Panel C: Asian Women</b>			
	<b>2011</b>	<b>2014</b>	<b>2017</b>
All	0.001	0.001	0.000
18 to 25	0.000	0.000	0.000
26 to 30	0.000	0.001	0.000
31 to 40	9.999	0.000	0.000
41 to 55	0.002	0.001	0.000
Less than HS	0.004	0.002	0.001
HS grad	0.001	0.001	0.001
Some college	0.000	0.001	0.000
College +	0.001	0.000	0.000