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The Effect of Sentencing Reform on Racial and Ethnic Disparities in Involvement with the Criminal Justice System: The Case of California's Proposition 47

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ABSTRACT

The Effect of Sentencing Reform on Racial and Ethnic Disparities in Involvement with the Criminal Justice System: The Case of California's Proposition 47*

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 percent decline in total drug arrests, an approximate 20 percent 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 inter-racial differences in overall arrest rates and arrest rates by offense type, with very large declines in the inter-racial arrest rate gaps for felony drug offenses. Conditional on being arrested, we see declines in bookings rates for all groups, though we find a larger decrease for white arrestees. This relatively larger decline for white arrests is largely explained by difference 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. For some offenses (felony drug offenses), inter-racial 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. The one-quarter decline in total correctional populations in the state coincided with sizable narrowing in inter-racial difference in incarceration rates.

JEL Classification: K40, K42

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

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1. Introduction

African Americans are heavily over-represented at all stages of involvement with the U.S. criminal justice system. While comprising only 13 percent of the U.S. population, African Americans account for almost one-third of arrests (Snyder 2013) as well as one-third of the population on some form of community corrections supervision (Bonczar et. al. 2015). African Americans are also more likely to be detained pre-trial, 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 and Stoll 2013).

Given this disproportionality in involvement, one would expect changes in criminal justice policy that impact the nature and 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 impacted those groups with relatively high levels of involvement in the criminal justice system. Note, 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 21st century, nearly all criminal justice reforms at both the federal and state level 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 and 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 population (PEW Charitable Trust 2016).

California has implemented the most far ranging and impactful criminal justice reforms. These reforms 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 and Martin 2016). As a consequence of these reforms, California has reduced its incarcerated population by more than a quarter since late 2011.

In this paper 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. The proposition redefined a series of felonies and “wobbler” offenses (offenses that can be charged as either a felony or misdemeanor) as straight misdemeanors. Most of these offenses involved relatively less serious property and drug felony offenses. The passage of prop 47 led to an immediate 15 percent decline in total drug arrests and an approximate 20 percent decline in total property crime arrests. Moreover, within these offense categories the proportion of arrests that were defined as felonies declined discretely (Dominguez-River, Lofstrom, and Raphael 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.

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 arrests rate by type of offense and severity. We document a substantial narrowing in 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 this rate declines for all groups, we find the somewhat surprising finding of a larger decrease for white arrestees. This relatively larger decline for white arrests 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, pre-trial detention) that are larger for African Americans and Hispanics relative to whites. For some offenses (felony drug offenses), inter-racial 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.

2. 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 starkly over-represented among jail (Minton and Zeng 2015) and prison (Carson and Anderson 2016) inmates.¹ There are also large racial disparities in the likelihood of becoming a crime victim. The rate of non-homicide violent victimization for

¹ 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 and Anderson 2016).

African Americans in 2015 was 130 percent the rate for whites (Truman and Morgan 2016). In 2015, African Americans comprised 52 percent of homicide victims and were murdered at a rate nearly seven times that of 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 (Hindelang, 1978; Sampson and Lauritsen 1997, Tonry 1995, Bureau of Justice Statistics 2008; O’Flaherty 2015), 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, Starr and Rehavi (2014) find that after accounting for differences in the arrest charges recorded by the U.S. Marshal’s Service, 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 facially race-neutral that 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 American, 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 pre-trial detention increases the likelihood of conviction (Dobbie, Golden, and Yang 2018; Donnelly & MacDonald, 2018; Heaton, Mayson, and Stevenson 2017; Stevenson

2017) may increase the likelihood of future offending (Heaton, Mayson, and Stevenson 2017), and contributed to racial disparities in case outcomes (Donnelly & MacDonald 2018; MacDonald and 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 pre-trial 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 inter-agency 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 Rozo (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 over-represented 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 paper focuses on the distributional effects ushered in by one specific California voter initiative. The passage of proposition 47 in November 2014 redefined a sub-set 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, apply to all new cases.²

Proposition 47 immediately impacted the volume and composition of arrests. Figure 1 displays trends in monthly arrest totals 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 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 following the passage of proposition 47. There is a sharp decline in the average daily jail population of nearly 8,000 inmates (a 9.4 percent decrease). We also observe a decrease in the state prison population of 4,570 inmates (a 3.4 percent decline). Figure 3 reveals a sharp decline in jail bookings coincident with the passage of proposition 47. The figure also reveals a discrete decrease in early releases from jail due to capacity constraints.

Figure 4 reveals 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

² The proposition also included a provision for individuals currently serving sentences for reclassified offenses to file a resentencing petition, as well as a provision for those convicted in the past to file a petition to have the prior conviction reclassified as a misdemeanor (California Judicial Council 2016).

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.³

To date there are only a few papers that 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 proposition 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 proposition 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 proposition 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.

3. Empirical Strategy and Data Description

We investigate whether the sentencing reforms embodied in proposition 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

³ The court-ordered population-reduction measures included increased credit earning and early parole for certain non-violent inmates. While there may have been some limited indirect impacts of these measures on jail populations, the measures did not apply to jails, which are operated by county Sheriff departments.

bookings, and overall incarceration rates. Here we described the data and provide a brief overview of our research strategy.

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 includes 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 non-institutionalized 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.

The Effect of Proposition 47 on Arrest Rates by Race

We begin our analysis by analyzing how proposition 47 impacted arrest rates by race, gender, and age. We use the 2014 and 2015 ACS to generate population estimates for various demographic sub-group. 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 twelve-month period preceding the proposition's passage (November 2013 through October 2014) and the twelve-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 period. Our basic strategy is to present pre-post proposition 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 indicated that they are African American is classified as African American. Of the remaining biracial observations, anyone who indicated that they are Asian is classified as Asian. The remaining observations along with individuals who indicated three or more racial groups are classified as other.⁴ We then combined 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, or Hispanic (the groups that we focus on in the analysis below).⁵

Next, using the MACR data we restrict the arrest data to individuals defined by the arresting officer as either white, black, or Hispanic and presume that those described by officers as white or black 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 corresponds population totals (from the ACS).

The Effect of Proposition 47 on Bookings Conditional on Arrest

⁴ 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, 850 through 899, and other as anyone with codes 300 through 399, 802, 700, and a value of 900 or greater.

⁵ Notes, these three groups account for the overwhelming majority of individuals involved with the criminal justice system in California.

The handling of an actual arrest varies largely based 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, non-financial release, or based on a risk assessment). Proposition 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, 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 proposition 47 on the likelihood that an arrest is booked. Define $Booked_{ijk}$ as a dummy variable equal to one if arrest i , made by law enforcement agency j , for offense k is booked. 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:

(1)

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

where $Race_{ijk}$ is a vector of race/ethnicity dummies with conforming parameter vector β , γ measures the pre-post proposition 47 change in booking rates for the racial group omitted from the race dummy vector, δ is a parameter vector measuring the differential effect of proposition 47 for the different racial/ethnic groups contained in the vector $Race_{ijk}$, θ_j and λ_k are law enforcement agency and offense fixed effects, respectively, and η_{ijk} is a mean-zero error term.

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 β_1 measures the black-white difference in booking rates for the pre-proposition 47 period. The sum

of the parameters β_1 and δ_1 measures the black-white difference in booking rate in the post-proposition 47 period. Thus, δ_1 represents the pre-post 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 bookings rates, adding offense-specific fixed effects to the specification should knock out the race-specific estimates of proposition 47 – i.e., γ 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 δ 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 fixed effects. We present model estimates for all offenses, as well for specific offense types.

The Effect of Proposition 47 on unconditional booking rates

Changes in arrest rates and change in the rates at which arrests are booked will generate change 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 to be used as a denominator and the MACR data to generate booked arrest totals by group, we estimate race-specific booking rates for the twelve-month periods preceding and following the passage of proposition 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.

The Effect of Proposition 47 on Overall Incarceration in the State by Race and Ethnicity

We have seen that proposition 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.⁶ For this reason, we use the ACS data to calculate the proportion of various sub-groups 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 terms trends in overall institutionalization rates by race/ethnicity, gender, age and education. We assess the degree to which inter-racial/ethnic difference narrow with the passage of proposition 47. We also compare the overall effect of proposition 47 relative to the comparable effects from earlier corrections reforms occurring within the state.

4. Empirical Results

A. Proposition 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 twelve-month period preceding proposition 47 (November 2013 through October 2014), the twelve-month period following proposition 47 (November 2014 through October 2015), and the change in arrest

⁶ 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.

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.⁷

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), and then whites (3,594 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, 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.

Proposition 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 571 for African Americans, 250 for Hispanics, and 146 for whites. These constitute percentage declines of 5.8, 6.1, and 4.1 percent for African Americans, Hispanics, and whites, 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 percent decline). The comparable Hispanic-white gap shrank from 488 to 384 (a 21 percent decline).

We observe more dramatic changes for felony arrest rates in panel B. The overall felony arrest rate for African Americans declines by 24 percent, while the gap in felony arrests relative to whites declines by 20 percent. 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 2.1 times as likely to be arrested for a felony drug offense relative to whites, it is notable

⁷ We omit juvenile status offense arrests from this table, both as a separate category as well as in the total calculations.

that in the post-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, and 178 for Hispanics. There is little evidence of offsetting increases in misdemeanor property crime offenses.

Table 2 present comparable arrest rate for males only. The patterns in table 2 mirror those in table 1, yet are magnified. The overall arrest rate for Africa American males declines by 719 (a 4.8 percent decline). The absolute declines for whites and Latinos are smaller (200 and 362, respectively). However, given the lower overall arrest rates in the pre-47 period for these two groups, the changes are proportionally similar to those for African Americans.

Again, we see the most drastic declines in arrest rate for felony drug offenses. Felony drug arrests for African American males decline by 62 percent, from 1,504 arrests per 100,000 in the pre-47 period to 579 arrests per 100,000 in the post-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 percent, respectively, relative to pre-reform levels. However, the absolute values of the pre-post 47 decline are small, less than half, compared to the decline for African Americans (a decline of 421 for white and 455 for Hispanics). The black-white gap in annual felony drug arrest per 100,000 declines from 906 in the pre-47 period to 402 in the post-47, period (a 56 percent 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 declines observed for African American men (declines of 102, 414, and 91 for whites, blacks, and Hispanics, respectively). Here, we see some evidence of offsetting increases in misdemeanor property offenses, especially for African American men.

Table 3 presented 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 that is more than double the rate for white women. Hispanic women are arrested at rates that are roughly 84 percent the rate of white women. We observe the largest absolute decline in arrest rates for black women (a decline of 397 per 100,000), followed by Hispanic women (134 per 100,000), and white women (96 per 100,000). While there is a small black-white disparity in overall drug arrests in the pre-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 47period. There is a also a substantial narrowing in the black-white gap in overall property arrests between black and white women, from a gap of 634 per 100,000 in the pre-47 period to 431 per 100,00 in the post period.

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-47 period to 54 in the post-47 period. The comparable rates for black women are 279 and 76, while the comparable rates for Hispanic women are 137 and 36. Regarding property offenses, African American women experience the largest absolute declines in felony property arrest rates, from 492 per 100,000 to 261 per 100,000 (a decline of 231). The changes are much smaller for white and Hispanic 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 twelve months preceding proposition 47 and the twelve 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-period by race ethnicity while the

figure on the right shows comparable rates for the post period. We restrict the arrest profiles to individuals that 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 twenties.

Misdemeanor arrest rates are stable before and after proposition 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 twenties 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 proposition 47, yet are magnified with the broader shift of drug arrests from felony to misdemeanor.

To summarize the findings of this section, we observe modest narrowing in overall racial/ethnic arrest-rate disparities, with arrests rate falling by larger magnitudes for African Americans and Hispanics relative to whites. 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 stunning, with felony drug arrest rates declining by more than half for all groups and the largest absolute declines for African Americans.

B. Proposition 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. Many arrests end with a citation rather than a booking. This is clearly a less costly alternative for the person in question, as it avoids pretrial detention and all that that implies.

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 and the passage of proposition 47 in November 2014. For most of the period, between 72 and 74 percent of arrests result in a booking, with booking rates between the passage of realignment and proposition 47 hovering around 74 percent. Following proposition 47 the conditional booking rate declines sharply to below 70 percent, before rising slightly to 72 percent.

Figure 7 also depicts booking rates by race and ethnicity. Prior to proposition 47, there are clear racial disparities in booking rates (especially in the pre-realignment months) with roughly 77 percent of black arrests resulting in a booking while roughly 73 percent of white and Hispanic arrests result in a booking. With the passage of proposition 47, we see declines in booking rates for all groups but the largest absolute declines in the conditional bookings rate of whites, suggesting a widening of the black-white and Hispanic-white difference in conditional booking rates.

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

It does appear to be the case that a larger proportion of white arrests are reclassified as misdemeanor by proposition 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 white arrests, black arrest, and Hispanic arrests, the figure shows the proportion of arrests within each category for the twelve months prior to the

passage of proposition 47 (the grey bars) and the proportion of arrests within each category for the twelve 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 12th through 14th in severity (felony drug offenses) towards misdemeanor drug offenses ranked 35th and 36th in terms of severity. We see the largest increase in the proportion of arrests concentrated in misdemeanor drug offenses (ranked 36th out of 65 categories in terms of the offense severity). This differential shifting is likely partially responsible for the widening in the booking rate disparities that 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 booking rate times series for felony drug offense and misdemeanor drug offense by race/ethnicity. For felonies, we observed pronounced declines in bookings rates for all groups corresponding to the passage of proposition 47, with the largest declines observed for white arrests. For misdemeanor drug offenses, we observe comparable declines in bookings rates for white and black arrest, but relatively little change for Hispanic arrests.⁸

To formally test whether proposition 47 widened racial disparities in conditional bookings 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 twelve months preceding the proposition or the twelve 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 or Hispanic, a dummy for the post-prop 47 period, and interactions terms between the two race/ethnicity dummies and the prop 47 dummy. To

⁸ The notable increase in the conditional bookings rate 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.

reiterate our methodological discussion, the coefficient on the prop 47 variable measures the pre-post change in booking rates for white arrests. The coefficient on the interaction terms measures the degree to which the comparable pre-post change for black and Hispanic 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: (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 include 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.⁹ Comparison of results from model (2) and (3) provide an indication of the extent to which difference in the offense distributions and the effect of the proposition on the offense distributions between racial/ethnic groups explain the widening of the 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 states 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 booking rates of 3.3 percentage points in the pre-period. This widens to 5.3 percent in the post period, with the increase in the differential statistically significant. Prior to the passage of proposition 47, there is no measurable difference in booking rates between Hispanic and white arrests. In the post-proportion 47 period, this disparity widens to 3.4 percentage points (calculated by adding the coefficients on Hispanic and the interaction term between Hispanic and prop 47). For whites, proposition 47 reduced overall booking rates by 5.4 percentage points. The comparable change for black arrests is a decline of 3.4 percentage points, while the comparable

⁹ Note, there are a few law enforcement agencies that operated in multiple counties –e.g., the California Highway Patrol.

figure for Hispanic arrests is a decline of a decline of 1.7 percentage points. Hence, the proposition widened race disparities for conditional bookings rates due to relatively larger declines in booking rates for white arrests.

Adding county fixed effects to the model narrows the black-white booking rate disparity in the pre-period to a statistically insignificant difference of -1.2 percentage points. It also causes the pre-period Hispanic-white disparity to become negative and statistically significant at 3.8 percentage points. This suggests that black-white difference in practices across counties generate higher booking rates for black arrests in the pre-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 booking rate for white arrests caused by the proposition.

Adding offense fixed effects leads to notable differences in results. In specification (3), we see that controlling for the most serious charge reduces the pre-post change in white bookings rate to -1.7 percentage points. Contrasting this figure with the estimates of 5.1 to 5.4 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 booking rate disparity widening by 3.4 to 3.7 percentage points, accounting for difference in the offense distributions narrows the widening of this differential to 1.1 percentage points (also note that statistically significantly lower Hispanic bookings rate turns to a relatively precisely estimated zero pre-Prop 47 difference). Note, the coefficient 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.

Table 5 presents comparable models that test for differential changes in 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 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 booking rates in either the pre or post proposition 47 period, as well as no evidence of a pre-post proposition changes. The same is true for misdemeanor violent offenses. We do observe a small statistically significant decline in booking rates for felony property offenses of roughly one percentage point for all groups, but no evidence of a widening racial disparity. We also find no evidence of race disparities in misdemeanor property crime booking rates in either the pre or post-prop 47 periods.

We do however find evidence of a differential impact by race of proposition 47 on individuals arrested for felony drug offenses. For whites, we observe a decline in booking rates of 10.6 percentage points. Note, this effect has nothing to do with 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 proposition 47. Booking rates for black and Hispanic felony drug arrests decline as well, but by less than the decline observed for whites. The change for black arrest is a decline of 7.2 percentage point. The comparable decline in felony drug arrest booking rate for Hispanics is 7.9 percentage points. Note the differentials in the pre-post change, and the widening of the race disparities in this outcome are statistically significant at the one percent level of confidence.

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 differential change widens the booking rate differentials between black and white arrests and Hispanic and white arrests. This widening is driven largely by white arrests being more heavily concentrated in offenses that were targeted for redefinition by the proposition. However, we also observe evidence of differential declines in booking rates for felon drug arrests that tends to favor white people arrested by the police.

C. Unconditional Booking Rates

The results thus far show that proposition 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 inter-racial and inter-ethnic 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 proposition 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.¹⁰

¹⁰ 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.

Before discussing how inter-racial/ethnic 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 571 per 100,000, while booked arrests decline by 742. This difference reflects the fact that the decline in felony arrest 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 arrest. These juxtaposed results indicate that the proposition caused a shift away from pre-trial detention in the resolution of less serious criminal cases.

Regarding inter-racial and inter-ethnic 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 percent.¹¹ 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 percent.

Within offense categories, there are quite sizable drops in the black-white booking rate disparity. For example, the property crime booking rate for blacks decline 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 percent 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

¹¹ These figures come from calculating the difference in booked arrests rates by race for the pre and post periods from the rates presented in the first column of panel A.

narrows the black-white disparity in annual bookings per 100,000 into county jails for drug offenses by roughly 37 percent. Working through similar comparisons for booked felony arrests, proposition 47 narrows the black-white disparity in booked property crime arrests by 37 percent and by 57 percent 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 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 offenses bookings per 100,000 for white people.

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 inter-racial differences in annual booking rates. The narrowing is particularly pronounced for drug and property offenses.

D. Overall Incarceration Rates

The results thus far demonstrate that the implementation of proposition 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 decline observed for African Americans and the gaps for the specific offenses targeted by proposition 47.

These trends must certainly have narrowed racial disparities in jail incarceration rates (given the decline in bookings) and perhaps even prison incarceration rate 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 however measure overall incarceration using data from the ACS. To reiterate the discussion from our methods section, the census bureau interviews both the non-institutionalized 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.¹²

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 displays results for males while the bottom row displays results for females. Each figure includes vertical markers for the year 2011 (the year largely preceding realignment) and 2014 (the year largely preceding proposition 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 ten percent) 0.065 (or 6.5 percent) 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 realignment, this gap was 0.065. By 2017, the gap stood at 0.053.

¹² 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.

Hence, from 2011 to 2017 the black-white incarceration gap shrunk by 32 percent. Roughly half of this declines occurred with the implementation of proposition 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 0.032 to 0.025), while there is no measurable decline for white males.

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 proportional institutionalized among California women declines by roughly 38 percent. 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 percent 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.¹³

5. Conclusion

Striking racial disparity, especially between African Americans and whites, is one of the most troubling and pressing issue 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 American 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 and Hayes, 2018). In a subset of California counties that represent roughly 2/3 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 American.

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 non-serious, non-violent, and non-sexual 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; Proposition 47 (2014), which reclassified a number of drug and property felonies (or wobblers) as misdemeanors; and Proposition 57 (2016), which expanded early parole for non-violent 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

¹³ We present comparable tabulations for the rest of the United States in Appendix tables A3 and A4.

lessened the state's reliance on incarceration. The impact of these reforms are enough to account for nearly half of the decline in the national incarceration rate since 2011.

To date, most research on California's criminal justice reforms have focused on crime impacts (Bartos and Kubrin 2018; Lofstrom and Raphael 2016; Dominguez, Lofstrom, and Raphael 2019), recidivism (Bird et. al. 2018), criminal justice expenditures (Lofstrom and Martin 2015), and population pressure and overcrowding in institutions (Lofstrom and Martin 2015; Grattet et. al. 2016). 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 paper we examine whether California's recent and significant criminal justice reforms (with a specific focus on proposition 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 proposition 47 had a disparate impact on African Americans and Hispanics relative to whites, with African Americans experiencing the largest decline in arrest rates followed by Hispanics, and white. 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 arrests 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 inter-racial disparities in the proportion institutionalized on any given day. In sum, our findings here suggest that similar reform efforts elsewhere may reduce the vast differences across race and ethnicity in criminal justice experiences.

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Figure 1: Pre and Post Proposition 47 Trends in Monthly Arrest by Offense Type

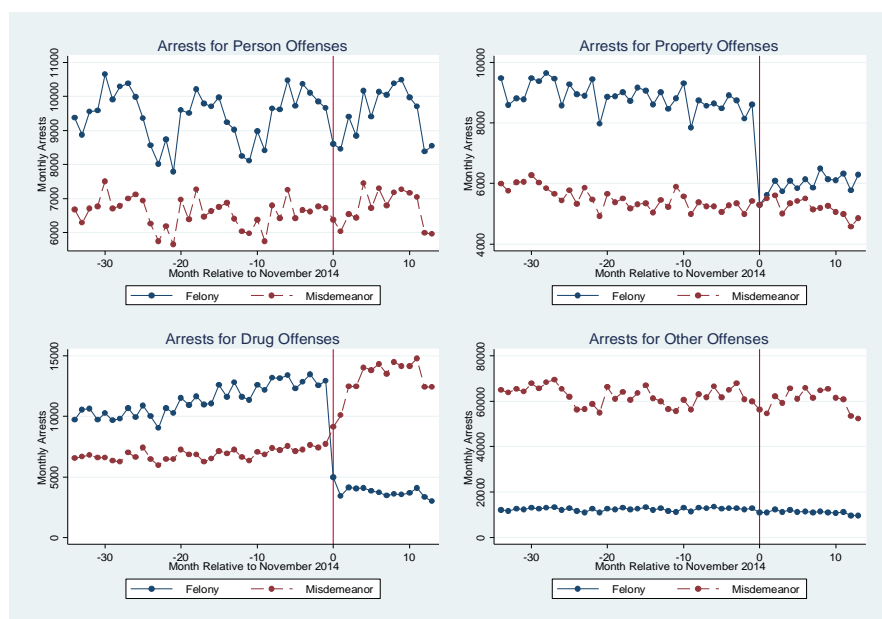


Figure 2: Pre-Post Proposition 47 Trends in Monthly California Jail and Prison Populations

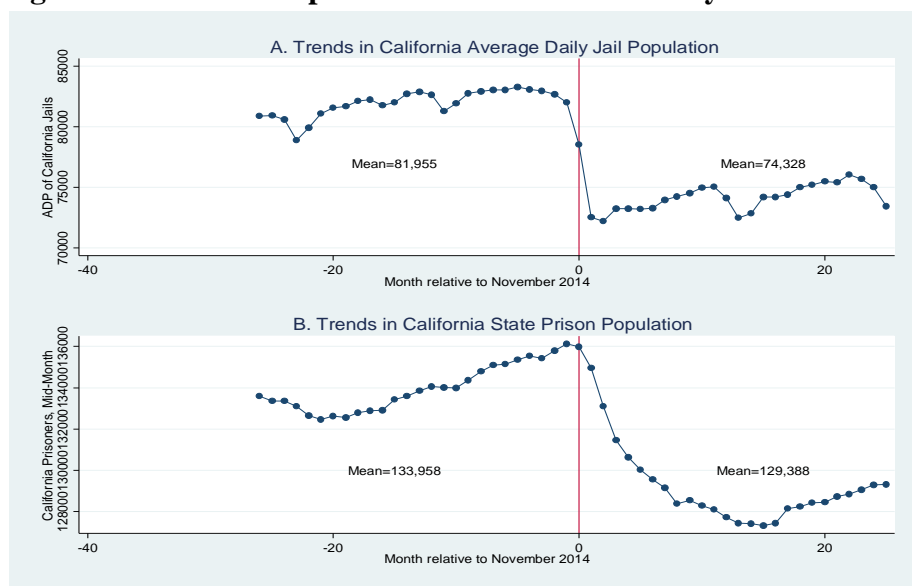


Figure 3: Pre-Post Proposition 47 Trends in Monthly Jail Bookings and Releases due to Capacity Constraints.

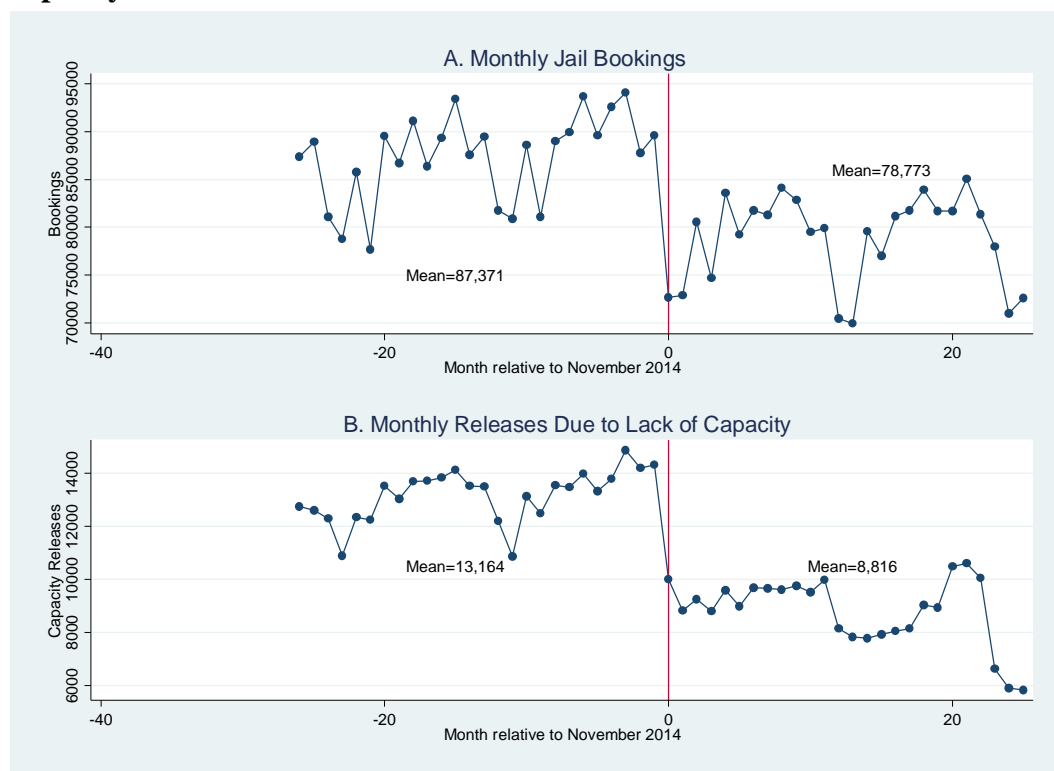


Figure 4: Pre-Post Proposition 47 Trends in Monthly Prison Admissions and Releases

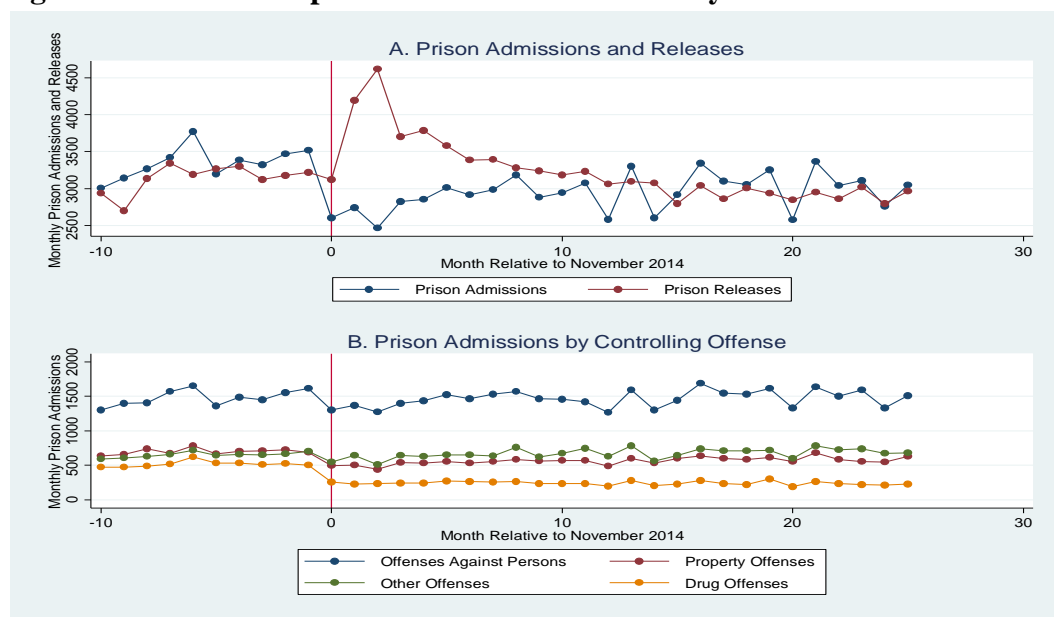


Figure 5: Felony Arrests per 100,000 by Race and Single Year of Age for Twelve Months Before and Twelve Months After the Passage of Proposition 47

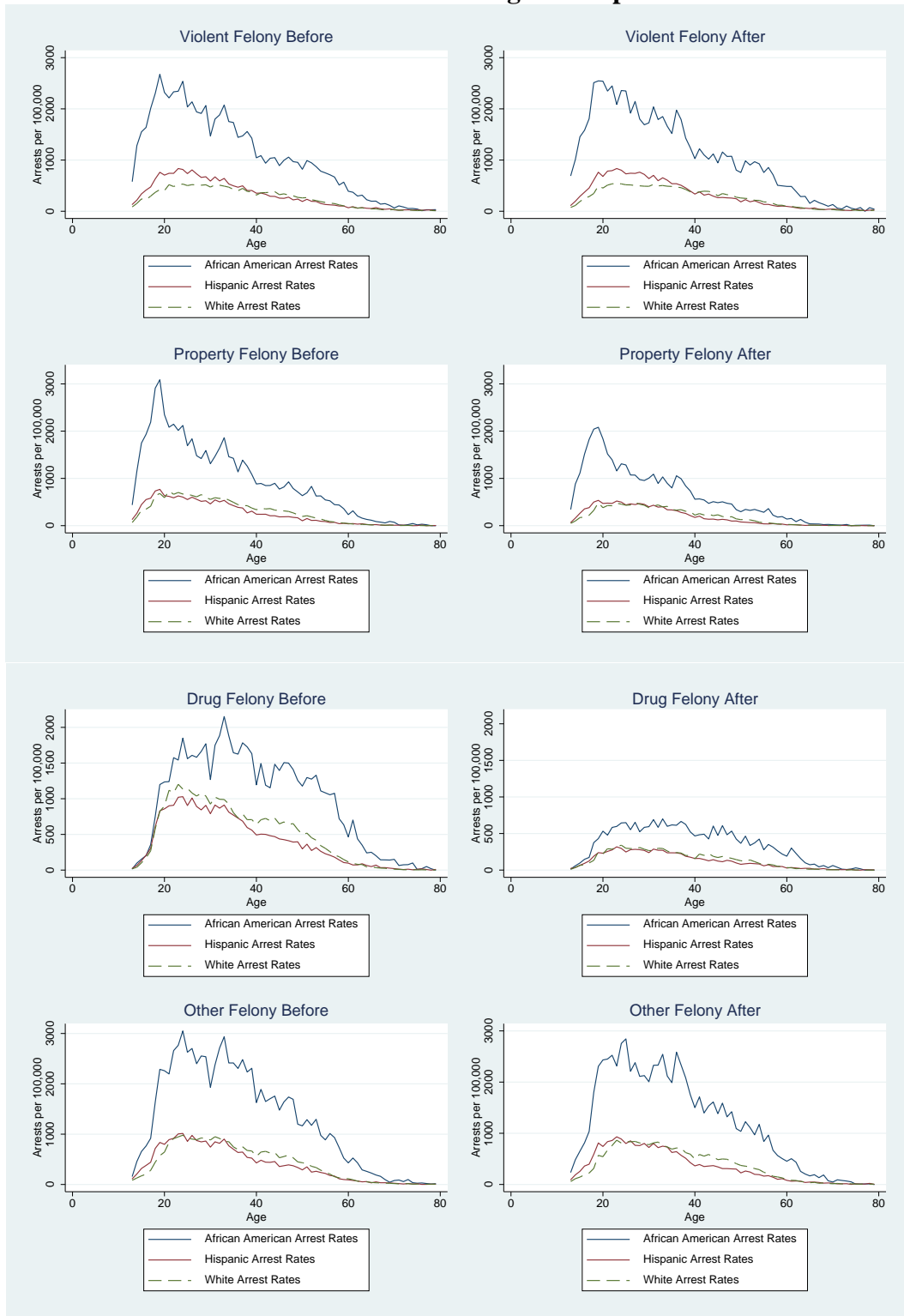


Figure 6: Misdemeanor Arrests per 100,000 by Race and Single Year of Age for Twelve Months Before and Twelve Months After the Passage of Proposition 47

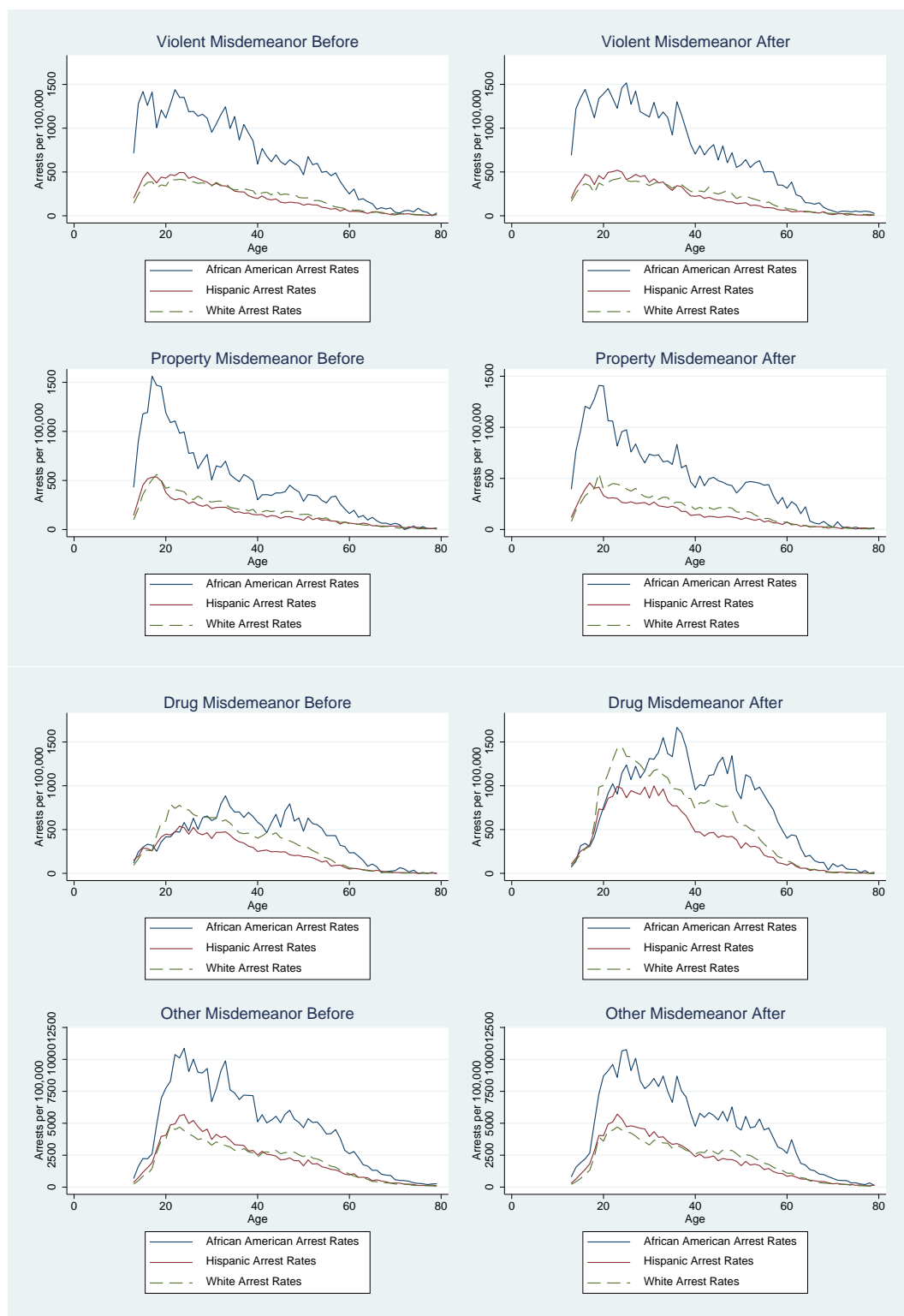


Figure 7: Likelihood of Being Booked Conditional on Having been Arrested for Each Month Between 2010 and 2016, All Arrests and By Race and Ethnicity

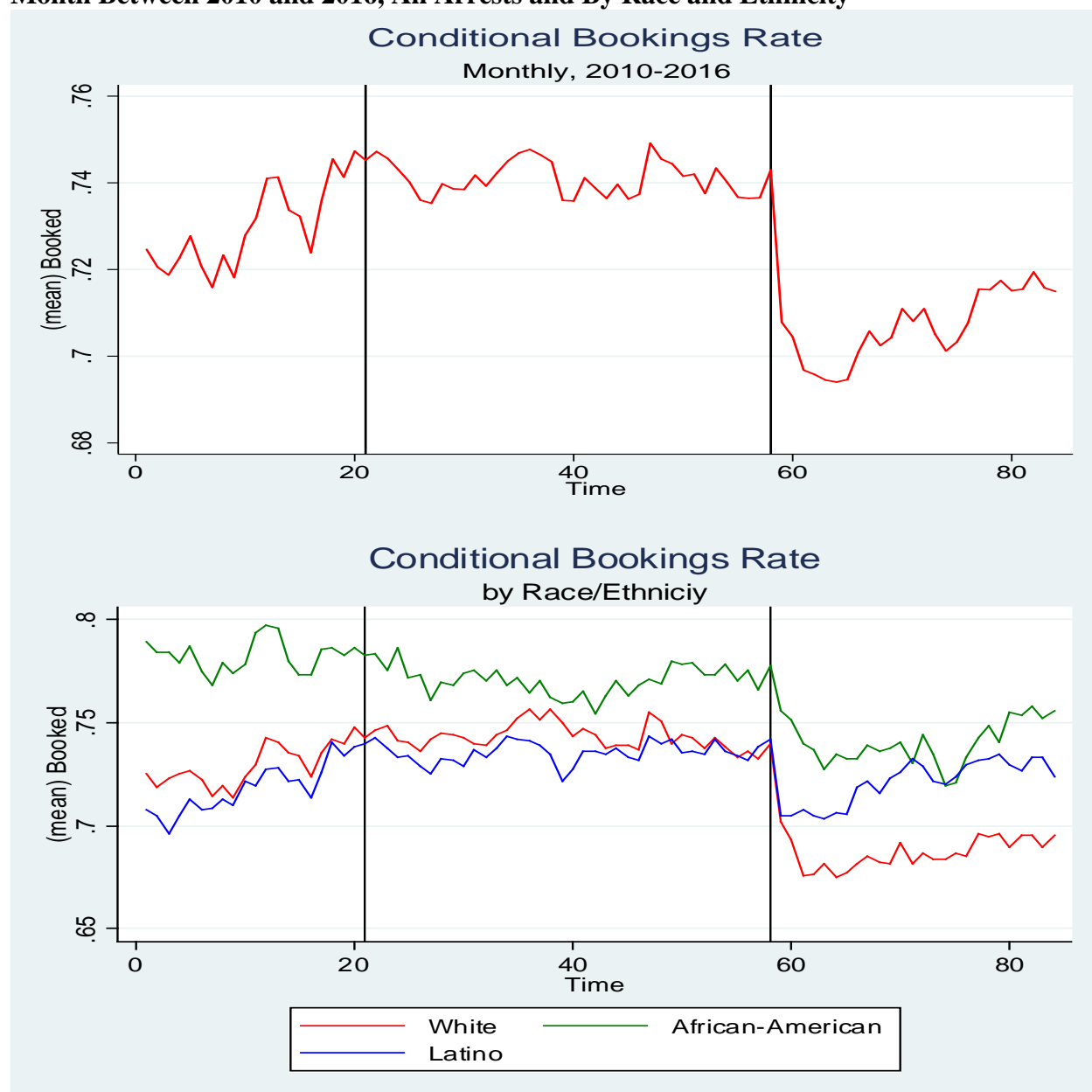


Figure 8
Empirical Distribution of Arrests Across Offense Categories Ranked from Most to Least Serious Before and After Proposition 47 by Race/Ethnicity (Dashed Line Marks Boundary Between Felony and Misdemeanor Arrest Charges)

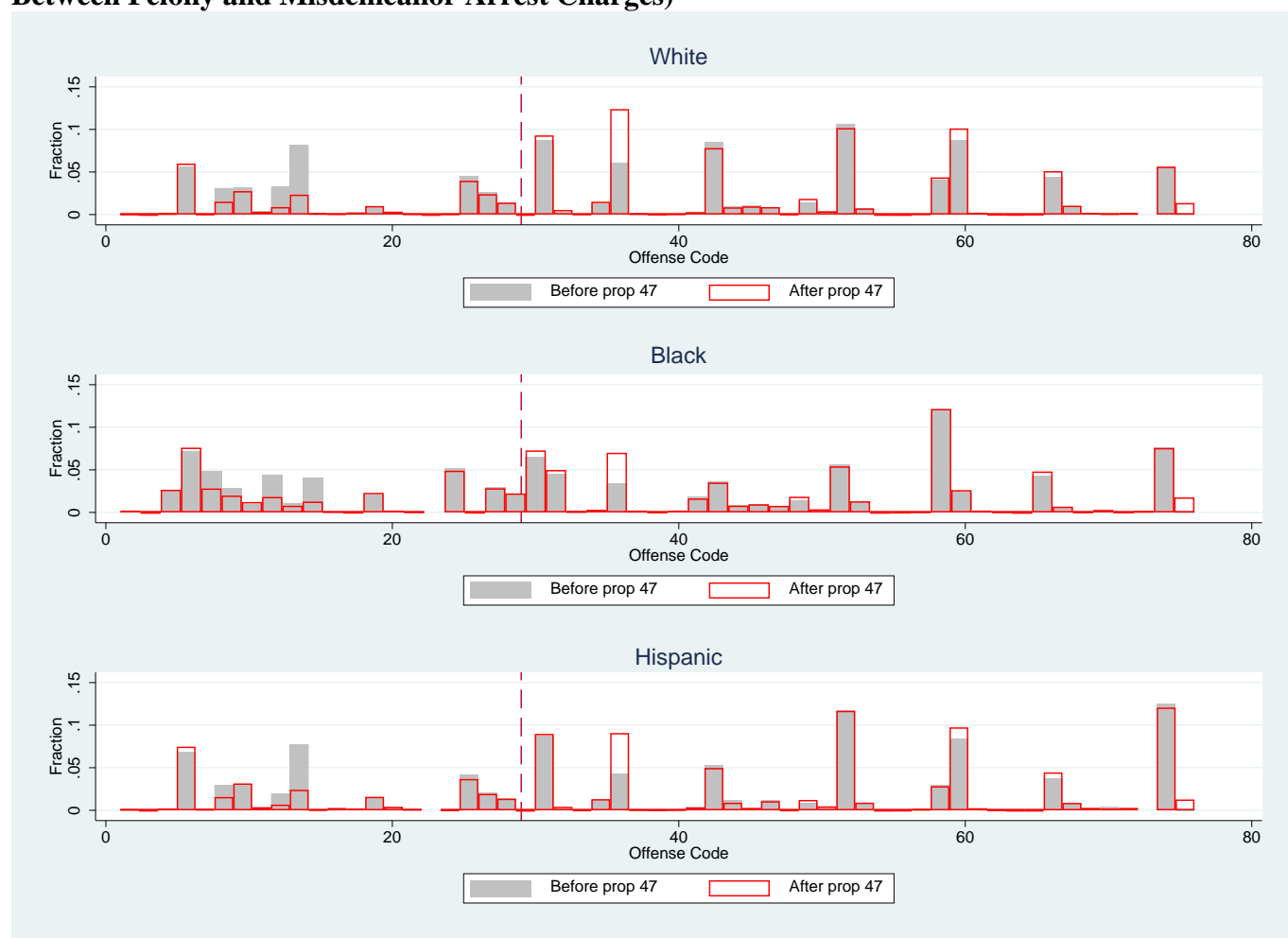


Figure 9: Likelihood of Being Booked for a Drug Offense Conditional on Having been Arrested for Each Month Between 2010 and 2016, by Race and Ethnicity and by Whether the Arrest Was a Felony or Misdemeanor

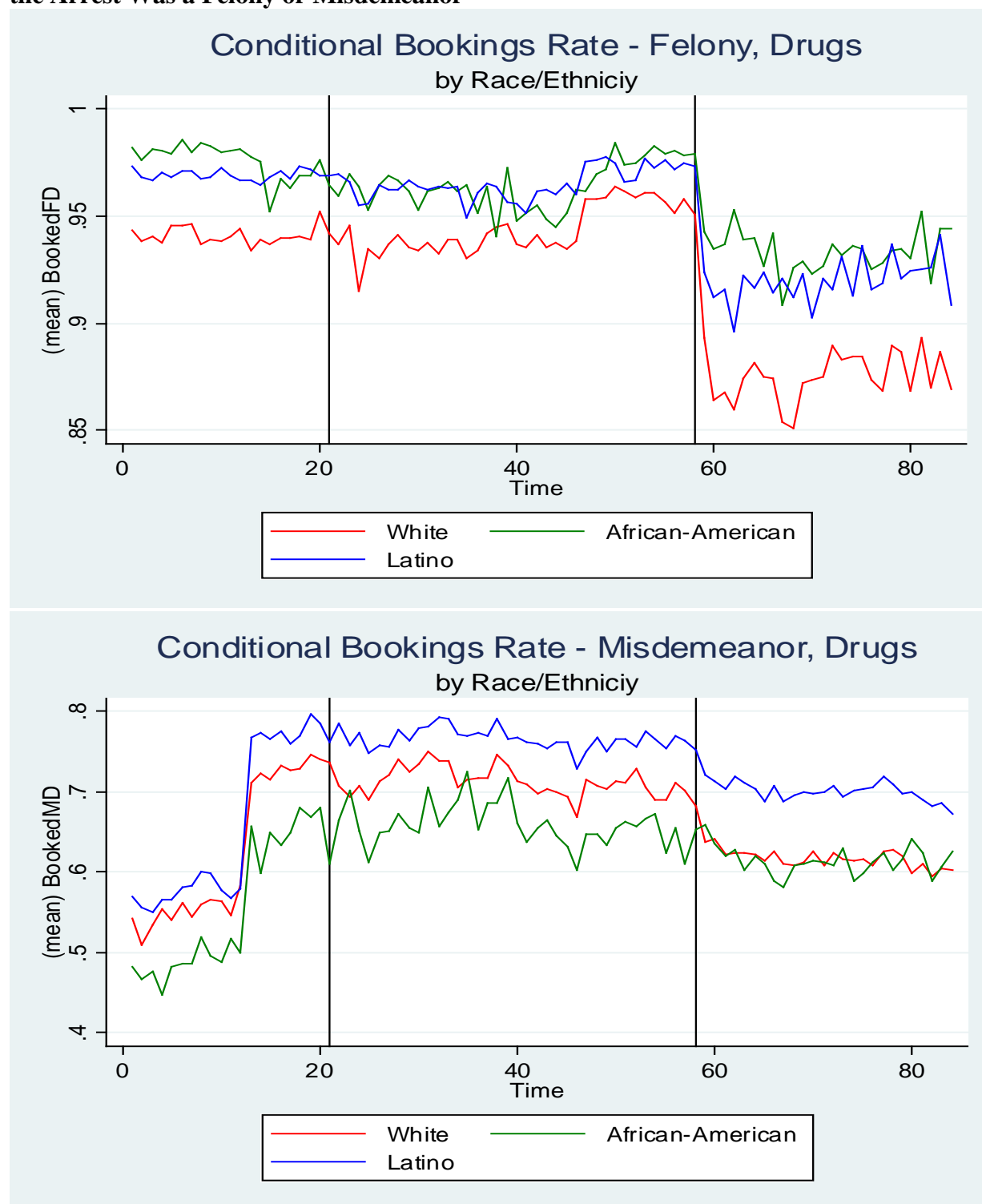


Figure 10: Proportion Institutionalized From 2007 through 2017 Among those Between the Ages of 18 and 55 by Race and Gender: California and the Rest of the United States

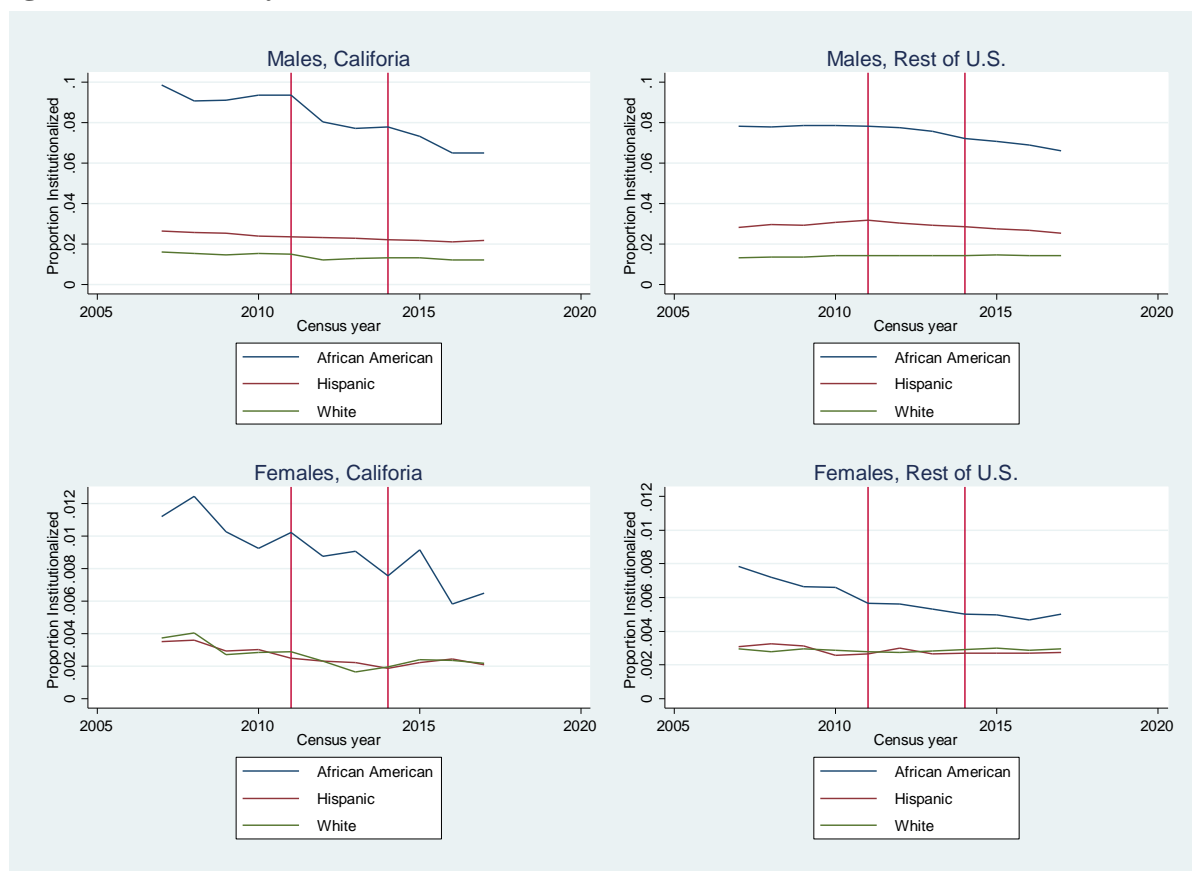


Table 1
Arrests per 100,000 by Race for the Twelve-Month Period Preceding Proposition 47 and
the Twelve-Month Period Following Proposition 47

Panel A: Felony and Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
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	-571	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
Panel B: Felony Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	1,232	221	238	414	359
After	820	227	158	116	320
Change	-412	5	-80	-299	-39
Black					
Before	4,048	1,030	909	882	1,227
After	3,085	1,033	586	323	1,143
Change	-963	3	-323	-560	-84
Hispanic					
Before	1,382	319	265	401	397
After	993	323	195	122	353
Change	-389	4	-70	-279	-44
Panel C: Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	2,362	176	151	265	1770
After	2,628	184	160	481	1804
Change	266	8	9	216	34
Black					
Before	5,836	642	455	364	4375
After	6,229	682	478	683	4387
Change	393	40	23	319	11
Hispanic					
Before	2,700	206	163	223	2107
After	2,839	216	149	402	2071
Change	139	10	-14	178	-36

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

Table 2
Male Arrests per 100,000 by Race for the Twelve-Month Period Preceding Proposition 47 and the Twelve-Month Period Following Proposition 47

Panel A: Felony and Misdemeanor Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
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	-333	-361	-72
Hispanic					
Before	6,460	842	559	1,015	4,044
After	6,097	861	471	859	3,908
Change	-362	19	-89	-156	-136

Panel B: Felony Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	1,818	340	331	598	549
After	1,251	346	229	177	499
Change	-568	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	-1,473	-5	-414	-925	-128
Hispanic					
Before	2,249	526	396	662	666
After	1,643	529	305	207	602
Change	-606	4	-91	-455	-64

Panel C: Misdemeanor Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	3,385	253	161	370	2,601
After	3,752	263	183	691	2,615
Change	367	10	22	321	14
Black					
Before	8,525	960	483	580	6,502
After	9,280	1,012	564	1,145	6,558
Change	755	52	82	565	56
Hispanic					
Before	4,211	316	164	353	3,378
After	4,454	331	166	652	3,305
Change	243	15	2	298	-72

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

Table 3
Feale Arrests per 100,000 by Race for the Twelve-Month Period Preceding Proposition 47 and the Twelve-Month Period Following Proposition 47

Panel A: Felony and Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	1992	202	286	391	1112
After	1895	212	224	326	1134
Change	-96	10	-62	-66	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
Panel B: Felony Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	648	103	145	232	169
After	390	107	87	54	141
Change	-258	4	-57	-177	-28
Black					
Before	1576	414	492	279	390
After	1120	428	261	76	355
Change	-456	14	-231	-203	-36
Hispanic					
Before	504	111	132	137	124
After	336	115	84	36	101
Change	-168	4	-48	-102	-23
Panel C: Misdemeanor Arrests per 100,000					
	All Arrests	Person	Property	Drug	Other
White					
Before	1344	99	142	160	943
After	1505	105	137	271	993
Change	162	5	-5	111	50
Black					
Before	3225	333	428	155	2310
After	3285	362	394	238	2291
Change	60	30	-34	83	-19
Hispanic					
Before	1170	95	162	92	820
After	1204	100	133	149	823
Change	34	5	-30	57	3

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

Table 4
Linear Probability Model of the Likelihood that an Arrest is Booked

	(1)	(2)	(3)	(4)
African American	0.033*** (0.012)	-0.012 (0.010)	0.009 (0.006)	0.005 (0.005)
Hispanic	-0.003 (0.025)	-0.038*** (0.012)	0.000 (0.005)	-0.001 (0.005)
Prop47	-0.054*** (0.008)	-0.051*** (0.008)	-0.017*** (0.004)	-0.017*** (0.004)
AfrAMer*Prop47	0.020** (0.008)	0.020*** (0.007)	0.007* (0.004)	0.009* (0.005)
Hisp*Prop47	0.037*** (0.006)	0.034*** (0.006)	0.011** (0.005)	0.013*** (0.005)
Constant	0.741*** (0.025)	0.827*** (0.016)	0.522*** (0.084)	0.561*** (0.068)
County Fixed Effects	No	Yes	Yes	Yes
Offense Fixed Effects	No	No	Yes	Yes
Lea Fixed Effects	No	No	No	Yes
N	4,226,084	4,226,084	4,226,084	4,226,084
R-squared	0.004	0.071	0.425	0.485

Standard errors in parentheses.

* Estimate statistically significant at the ten percent level of confidence.

** Estimate statistically significant at the five percent level of confidence.

*** Estimate statistically significant at the one percent level of confidence.

Table 5**Linear Probability Model of the Likelihood that an Arrest is Booked by Offense Type**

	Felony Arrests			Misdemeanor Arrests		
	<i>Violent</i>	<i>Property</i>	<i>Drugs</i>	<i>Violent</i>	<i>Property</i>	<i>Drugs</i>
African	0.007	0.004	-0.001	-0.014	0.013	0.001
American	(0.007)	(0.005)	(0.012)	(0.016)	(0.020)	(0.017)
Hispanic	0.000	-0.002	-0.010**	-0.002	0.012	0.000
	(0.002)	(0.002)	(0.004)	(0.010)	(0.023)	(0.011)
Prop47	-0.002	-0.010***	-0.106***	-0.004	0.001	-0.031**
	(0.002)	(0.003)	(0.019)	(0.004)	(0.010)	(0.013)
AfrAMer*Prop47	0.003	-0.001	0.034***	-0.011	0.007	0.002
	(0.003)	(0.003)	(0.010)	(0.007)	(0.012)	(0.019)
Hisp*Prop47	-0.000	0.000	0.027***	0.004	0.005	0.020
	(0.001)	(0.003)	(0.008)	(0.004)	(0.014)	(0.016)
Constant	0.984***	0.955***	0.946***	0.395***	0.548***	0.404***
	(0.008)	(0.015)	(0.006)	(0.071)	(0.026)	(0.027)
N	391,115	237,624	237,173	238,166	207,395	432,858
R-squared	0.162	0.129	0.117	0.137	0.234	0.213

Standard errors in parentheses. All models include county, offense, and law enforcement fixed effects.

* Estimate statistically significant at the ten percent level of confidence.

** Estimate statistically significant at the five percent level of confidence.

*** Estimate statistically significant at the one percent level of confidence.

Table 6
Booked Arrests per 100,000 by Race for the Twelve-Month Period Preceding Proposition 47 and the Twelve-Month Period Following Proposition 47

Panel A: Booked Felony and Misdemeanor Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	2,621	348	278	576	1,419
After	2,326	357	205	394	1,370
Change	-294	9	-73	-182	-48
Black					
Before	7,532	1,488	1,069	1,086	3,889
After	6,791	1,511	755	712	3,812
Change	-742	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

Panel B: Booked Felony Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	1,166	211	222	395	338
After	763	216	147	99	300
Change	-403	5	-75	-295	-38
Black					
Before	3,905	993	866	859	1,188
After	2,958	999	553	300	1,106
Change	-947	7	-313	-559	-82
Hispanic					
Before	1,316	306	248	387	375
After	934	310	182	110	332
Change	-382	4	-65	-277	-43

Panel C: Booked Misdemeanor Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	1,459	138	55	182	1,084
After	1,573	142	58	297	1,077
Change	114	4	3	114	-7
Black					
Before	3,598	491	202	225	2,680
After	3,830	512	202	412	2,705
Change	232	20	0	187	25
Hispanic					
Before	1,595	162	68	157	1,208
After	1,724	170	64	272	1,217
Change	129	9	-4	115	9

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

Table 7**Proportion Institutionalized for California Men, 18 to 55 years of age, by Race/Ethnicity, Age, and Educational Attainment**

Panel A: White Men			
	2011	2014	2017
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
Panel B: African American Men			
	2011	2014	2017
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
Panel C: Hispanic Men			
	2011	2014	2017
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

Table 8
Proportion Institutionalized for California Women, 18 to 55 years of age, by
Race/Ethnicity, Age, and Educational Attainment

Panel A: White Women			
	2011	2014	2017
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
Panel B: African American Women			
	2011	2014	2017
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
Panel C: Hispanic Women			
	2011	2014	2017
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

Appendix Table A1**Male Booked Arrests per 100,000 by Race for the Twelve-Month Period Preceding Proposition 47 and the Twelve-Month Period Following Proposition 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	-408	9	-89	-246	-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	-396	16	-80	-259	-72

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	5	-97	-417	-49
Black					
Before	6371	1604	1277	1465	2026
After	4922	1607	874	538	1903
Change	-1449	3	-403	-926	-123
Hispanic					
Before	2145	505	370	638	630
After	1549	510	286	187	567
Change	-595	4	-85	-452	-63

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	431	24	23	328	56
Hispanic					
Before	2616	259	75	255	2027
After	2816	270	80	447	2018
Change	200	12	5	193	-9

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

Appendix Table A2**Female Booked Arrests per 100,000 by Race for the Twelve-Month Period Preceding Proposition 47 and the Twelve-Month Period Following Proposition 47****Panel A: Booked Felony and Misdemeanor Arrests per 100,000**

	All Arrests	Person	Property	Drug	Other
White					
Before	1400	172	182	328	717
After	1215	181	125	209	700
Change	-185	8	-57	-119	-17
Black					
Before	3415	627	645	365	1779
After	2966	652	397	212	1705
Change	-449	25	-248	-153	-73
Hispanic					
Before	1080	172	187	194	526
After	953	179	127	130	516
Change	-127	7	-59	-64	-11

Panel B: Booked Felony Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	610	97	135	220	158
After	359	102	81	45	131
Change	-251	5	-54	-174	-28
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	4	-46	-100	-23

Panel C: Booked Misdemeanor Arrests per 100,000

	All Arrests	Person	Property	Drug	Other
White					
Before	789	75	47	108	559
After	855	79	44	164	569
Change	66	4	-4	56	10
Black					
Before	1905	228	178	94	1404
After	1904	239	153	143	1369
Change	-1	11	-25	48	-36
Hispanic					
Before	604	68	63	62	410
After	641	71	50	99	422
Change	38	3	-14	36	12

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

Appendix Table A3
Proportion Institutionalized for Non-California Men, 18 to 55 years of age, by
Race/Ethnicity, Age, and Educational Attainment

Panel A: White Men

	2011	2014	2017
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

Panel B: African American Men

	2011	2014	2017
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

Panel C: Hispanic Men

	2011	2014	2017
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

Appendix Table A4
Proportion Institutionalized for Non-California Women, 18 to 55 years of age, by
Race/Ethnicity, Age, and Educational Attainment

Panel A: White Women

	2011	2014	2017
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

Panel B: African American Women

	2011	2014	2017
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

Panel C: Hispanic Women

	2011	2014	2017
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