

# UC Irvine

## UC Irvine Electronic Theses and Dissertations

### Title

Police Discretion and Criminal Justice Reform: Proposition 47's Impact on Drug Crime Arrests in California

### Permalink

<https://escholarship.org/uc/item/7fd0q642>

### Author

Barno, Matt

### Publication Date

2023

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA,  
IRVINE

“Police Discretion and Criminal Justice Reform:  
Proposition 47’s Impact on Drug Crime Arrests in California”

THESIS

submitted in partial satisfaction of the requirements  
for the degree of

MASTER OF ARTS

in Social Ecology

by

Matt Barno

Thesis Committee:  
Professor Charis Kubrin, Chair  
Professor Michael Gottfredson  
Professor Mona Lynch

2023



## TABLE OF CONTENTS

	Page
List of Figures	iii
List of Tables	iv
Acknowledgements	v
Abstract of the Thesis	vi
Introduction	1
I. Drug Crime Policing & Responses to Reform among Criminal Justice Organizations	2
II. The Present Study	8
III. Data & Methods	8
A. Dependent Variable	9
B. Independent Variables	11
C. Analytic Strategy	13
IV. Results	16
A. Descriptive Trends in Statewide Arrests	16
B. Multilevel Models	21
V. Discussion	27
VI. Conclusion	32
References	33

## LIST OF FIGURES

	Page
Figure 1. Annual Statewide Drug Arrest Rates	16
Figure 2. Annual Statewide Arrest Rates by Crime Type	16
Figure 3. Percentage of Annual Statewide Arrests by Crime Type	18
Figure 4. Arrest Rates and Crime Rates: Theft and Burglary	19
Figure 5. Arrest Rates and Crime Rates: Drugs and Violent Felonies	19
Figure 6. Predicted Post-Prop 47 Drug Arrest Rates for Agency with Pre-Prop 47 Annual Drug Arrest Trend 1 Standard Deviation Above the Mean	24
Figure 7. Predicted Post-Prop 47 Drug Arrest Rates for Agency with Pre-Prop 47 Annual Drug Arrest Trend 1 Standard Deviation Below the Mean	24

## LIST OF TABLES

	Page
Table 1. Temporal Variables	11
Table 2. Descriptive Statistics ( $n = 2,547$ )	13
Table 3. Multilevel Models Predicting Logged Annual Drug Arrest Rate	21

## ACKNOWLEDGEMENTS

I am immensely grateful for the assistance provided by my thesis committee, particularly my committee chair, Professor Charis Kubrin. Prof. Kubrin was exceedingly generous with her time, shepherding me through an independent study course on drug crime policing and providing guidance throughout the writing process. Completion of the project would not have been possible without her support. Professor Michael Gottfredson provided excellent mentorship, both in the drafting of the thesis and in my initial years in the graduate program. Professor Mona Lynch has been the best advisor any graduate student could hope for, providing both unqualified support and every possible opportunity to succeed and thrive. I would also like to extend deep thanks to Professors John Hipp and Richard McCleary, who graciously gave their time to read drafts and answer questions regarding the study's multilevel models. Any remaining errors in the manuscript are, of course, my own. Finally, completion of the thesis was only made possible through funding support provided by the University of California, Irvine.

## ABSTRACT OF THE THESIS

“Police Discretion and Criminal Justice Reform:  
Proposition 47’s Impact on Drug Crime Arrests in California”

by

Matt Barno

Master of Arts in Social Ecology

University of California, Irvine, 2023

Professor Charis Kubrin, Chair

In November 2014, California enacted Proposition 47 (Prop 47), a drug policy reform measure that re-classified nearly all drug possession crimes as misdemeanors. The current study examines the impact of Prop 47 on drug arrest rates among local municipal police agencies in California. Further, the study utilizes multilevel modeling to analyze how post-Prop 47 drug arrest rates among individual police agencies varied as a function of local community characteristics and organizational legacies of past practice. The results indicate that Prop 47 had little impact on agency-level drug arrest rates outside of a small collection of large, urban cities and cities with large Black populations. Moreover, drug arrest trends in the post-Prop 47 period were largely determined by agencies’ pre-Prop 47 arrest trends, suggesting that path dependency, or organizational inertia, is a key factor for understanding how individual police agencies respond to legal reform.



## Introduction

On March 13, 2020, police in Louisville, KY, shot and killed Breonna Taylor in her apartment while executing a no-knock search warrant for drugs. Ultimately, no drugs were found (Oppel Jr. et al., 2021). For advocates of drug policy reform, Taylor's death epitomized the nexus between drug crime enforcement and tragic instances of police violence, illustrating why drug policy reform is essential for limiting the potential for problematic police uses of force (Malinowska-Sempruch, 2020). While there is intuitive appeal to the notion that reductions in the penalties for drug offenses would lead to reductions in the scale and scope of drug crime enforcement, the matter has not been extensively researched. The current study explores this connection by examining the relationship between Proposition 47, a California drug policy reform measure, and drug crime arrests across the state.

Proposition 47 (hereinafter Prop 47) was passed by the California public in November of 2014 by a sizeable 20% margin. Among its core provisions, Prop 47 immediately re-classified virtually all drug possession crimes as misdemeanors.<sup>1</sup> Previously, non-marijuana drug possession crimes in California were typically treated as felonies, although prosecutors often retained discretion to charge the offenses as misdemeanors (California Legislative Analyst's Office, 2014).<sup>2</sup> Since Prop 47's passage in 2014, at least four additional states have followed suit by passing similar legislation re-classifying serious drug possession crimes as misdemeanors (Elderbroom & Durnan, 2018). Prior qualitative research demonstrates that drug policy reform measures like Prop 47 can have a substantial impact on how drug crimes are policed at the ground level (Gardiner, 2012). However, systematic quantitative research examining the

---

<sup>1</sup> Prop 47 requires prosecutors to still charge individuals who were previously convicted of murder or certain sex offenses with felonies for these drug possession offenses.

<sup>2</sup>Because marijuana offenses had been previously decriminalized in California in 2011, Prop 47 had no effect on the penalties associated with marijuana offenses.

relationship between drug policy reforms and drug crime enforcement is rare (Scheim et al., 2020). Rarer still are empirical studies examining variation in responses to reform across different police agencies, this despite the fact that, as countless scholars and observers have noted, individual police organizations retain broad discretion over enforcement activities, particularly in the case of drug offenses (e.g., Beckett et al., 2005; Lynch, 2012; Mosher, 2001). As states across the country continue to scale back the punitiveness of drug laws (Lopez, 2020), research on these topics is essential for understanding how drug policy changes are likely to impact on-the-ground police practices.

The current study employs a longitudinal data set on drug crime arrests in California from 2009 to 2018 to assess changes in drug arrest rates among local municipal police agencies following Prop 47. Further, the study utilizes multilevel modeling to analyze how post-Prop 47 arrest rates among individual police agencies varied as a function of local community characteristics and organizational legacies of past practice. The results indicate that drug arrest trends in the post-Prop 47 period were largely determined by agencies' pre-Prop 47 arrest trends, suggesting that organizational inertia is a key factor for understanding how individual police agencies respond to legal reform.

## **I. Drug Crime Policing & Responses to Reform among Criminal Justice Organizations**

Scholars have long observed that local police departments maintain significant discretion over their own enforcement practices (e.g., Chappell et al., 2006; Grattet & Jenness, 2005; Mastrofski, 1981). As Grattet and Jenness (2008) describe,

[E]ach agency is autonomous in terms of how it orients to the law, develops policy to enforce the law, and actually enforces the law. Such autonomy grants the agency significant freedom to develop and implement (or not) its own approach to crime control based upon its assessment of the nature of its specific community problems and its organizational commitments to addressing such problems. (p. 506)

The discretion that police agencies maintain over enforcement practices is particularly pronounced in the context of drug crime enforcement (Beckett et al., 2005; Lynch, 2012; Mosher, 2001). With most other offenses, including violent crimes and property crimes, police are able to respond reactively and initiate investigations or arrests at the request of a civilian complainant. However, the parties to a drug crime are usually consenting to the offense, so it is much less common for police to receive unsolicited information about drug crimes directly from the public. Police must generally engage in proactive enforcement tactics like stop-and-frisk in order to root out drug possession crimes, and the decision to engage in these proactive enforcement tactics lies almost entirely within the discretion of each local police agency (Beckett et al., 2005; Lynch, 2012).

Criminologists and sociolegal scholars have relied upon a variety of theoretical perspectives to explain discretionary drug enforcement practices across police agencies. Given the extensive history of racialized drug crime enforcement in the U.S. (see, e.g., Alexander, 2012; Human Rights Watch, 2008; Tonry, 1995), scholars have frequently invoked racial threat or minority group threat theory, which posits that social control measures such as drug arrests will be positively related to the relative size of the minority population (Blalock, 1967). The theory argues that as minority populations grow larger, whites are more likely to see minorities as an economic, political, and criminal threat, leading them to pressure criminal justice agencies to engage in more extensive forms of social control to manage this threat (Liska, 1992). However, empirical studies of the relationship between minority population size and agency-level arrest rates have produced only mixed results for the theory. Mosher (2001) found that drug arrest rates were higher among agencies in cities with larger proportions of Black residents, while both Parker and Maggard (2005) and Eitle and Monahan (2009) found that drug arrest

rates were lower among agencies in cities with larger Black populations. Studies focused on smaller units of analysis, such as neighborhoods (e.g. Geller & Fagan, 2010; Lynch et al., 2013) or individuals (e.g. Mitchell & Caudy, 2015), tend to more clearly reveal the contours of racialized drug crime enforcement.

The proliferation of “broken windows”-style order maintenance policing has also led to an increased focus on the connection between drug crime enforcement and other reported crime. According to the broken windows theory, aggressive enforcement of low-level offenses that reflect social disorder can help to prevent the onset of more serious violent or property crimes (Wilson & Kelling, 1982). Although the connection between drug possession and social disorder is somewhat tenuous, aggressive enforcement of drug offenses has been justified on the basis of broken windows theory and a commitment to addressing more serious crime (Harcourt & Ludwig, 2007). Existing research, however, suggests that geographical variation in drug arrest rates cannot be adequately explained by differences in reported crime levels (Beckett et al., 2006; Geller & Fagan, 2010; Parker & Maggard, 2005). A recent report from the Public Policy Institute of California found that among major arrest categories, drug arrest rates displayed the weakest connection to reported violent or property crime (Lofstram et al., 2019).

Other indicia of socioeconomic disadvantage show a stronger connection to drug enforcement activity, although here too the evidence is mixed. Golub et al. (2006) found that marijuana arrests in New York City between 1995 and 2003 were concentrated in the city’s poorest neighborhoods. However, in an analysis of marijuana arrests in New York City between 2004 and 2008, Geller and Fagan (2010) found that neighborhood socioeconomic disadvantage was not a significant predictor of enforcement activity. At the departmental level, both Eitle and Monahan (2009) and Mosher (2001) found that drug arrest rates were higher among agencies in

cities with higher levels of poverty and unemployment. Parker and Maggard (2005), however, found no significant relationship between agency drug arrest rates and a composite measure of concentrated disadvantage.

For the most part, these prior studies of drug crime enforcement were conducted in the midst of mass incarceration, an era distinctly characterized by a hyper-punitive approach to drugs (Alexander, 2012). Fewer studies have explored changes in drug crime policing in response to recent reform measures that reduce the harshness of existing drug laws, like Prop 47. On the one hand, ethnographic research suggests that officers are likely to resist punitive de-escalation policies that encourage them to engage in less aggressive enforcement (e.g., Rengifo et al., 2017; Rudes, 2012). Gardiner (2012), for example, interviewed officers in Orange County regarding Proposition 36, a 2000 California ballot initiative that mandated treatment diversion for certain drug offenders in lieu of incarceration. Officers reported that after the ballot initiative was passed, they specifically sought additional charges in order to disqualify arrestees from receiving treatment pursuant to the new legislation. Moreover, as Woods (2015) argues in the context of traffic offense decriminalization, even when sanctions for a given offense are reduced, police are unlikely to roll back enforcement if they view enforcement as beneficial for achieving police goals and they retain the legal authority to engage in it.

Several recent studies of marijuana decriminalization and deprioritization support the view that drug policy reform is unlikely to have a substantial impact on the intensity of police enforcement. DeAngelo et al. (2018) analyzed the impact of local policies in Los Angeles County mandating that police treat marijuana possession offenses as their “lowest priority” and found that not only were these policies not associated with reduced marijuana arrests in adopting areas, but marijuana arrests also appeared to increase in neighboring non-adopting areas.

Kozlowski et al. (2019) found that overall marijuana enforcement in Prince George County, MD, increased after police were mandated to issue citations for marijuana possession in lieu of arrest. They also found evidence that marijuana possession arrests were replaced by arrests for other misdemeanor offenses, as overall misdemeanor arrests did not decline even as marijuana possession arrests fell. Shiner (2015) similarly documents an increase in both marijuana enforcement activity specifically and drug possession enforcement generally following a reduction in the classification of marijuana offenses in England and Wales. Studies of police activity in Tijuana, Mexico, following decriminalization of a broader range of drug possession offenses have also found that enforcement practices, including arrests, did not change significantly post-reform (Arredondo et al., 2018; Beletsky et al., 2016; Morales et al., 2020).

On the other hand, it also possible that by reducing the penalties associated with drug possession offenses, Prop 47 motivated police agencies to shift enforcement resources to other more serious crimes (Kozlowski et al., 2019; Mooney et al., 2018). Indeed, Los Angeles County Sheriff Jim McDonnell described Prop 47 as a “values statement” sent to police about how drug crimes should be prioritized relative to other offenses (Los Angeles Times, 2015). Beyond the values statement implied by Prop 47, the legal requirements for conducting a misdemeanor arrest in California are more stringent than those related to felony arrests,<sup>3</sup> and thus drug arrests might be expected to fall simply because these arrests are more difficult to make post-Prop 47 (Lofstram et al., 2020).

Two recent studies provide empirical support to the notion that Prop 47 led to overall reductions in drug enforcement activity. Mooney et al. (2018) examined county-level drug arrest

---

<sup>3</sup> In addition to probable cause, “an officer must generally be present when the offense was committed” in order to effectuate a misdemeanor arrest, unless there is a judicial warrant for the suspect’s arrest (Lofstram et al., 2020, p. 1199).

rates in the 3 years prior and 2 years following Prop 47, finding that both total drug arrest rates and absolute Black-White drug arrest disparities declined after the passage of the proposition. Lofstram et al. (2020) conducted a similar analysis comparing arrest rates in the 12 months preceding and 12 months following Prop 47 and also found that total drug arrest rates and Black-White disparities declined in the post-Prop 47 period. Thus, it appears that Prop 47 led to immediate reductions in drug crime policing across California, although the tight time frames involved in these studies preclude an analysis of whether these reductions persisted over a more extended period of time (Lofstram et al., 2020). Mooney et al.'s (2018) analysis in particular indicates that following a steep initial drop in drug arrests in the two months after Prop 47, drug arrest rates generally increased over the remaining sample period, suggesting that Prop 47's impact on drug crime policing may have waned over time.

Although some studies have examined the overall impacts of drug policy reform on drug crime policing, virtually no research has examined how local police agencies vary in their responses to drug policy reform measures, despite extensive research indicating that criminal justice agencies respond to changes in higher law in locally-specific ways (e.g. Grattet & Jenness 2005, 2008). Recent studies have examined heterogeneity in how local federal district courts (Lynch & Omori, 2014), county budget administrators (Lin, 2018), and county jail administrators (Verma, 2015, 2016) have reacted to policy shifts that provide greater opportunities for decarceration. These studies suggest that path dependency is likely to hinder the extent to which changes in formal law translate into changes in local criminal justice practices. Verma (2015), for example, analyzed the extent to which community and organizational factors influenced approaches to incarceration among California counties in the wake of Public Safety Realignment, which shifted responsibility for “nonviolent, nonserious, and nonsex” offenders

from state prisons to county jails (Kubrin & Seron, 2016, p. 19). Verma (2015) found that county Realignment plans were significantly influenced by counties' past incarceration practices, or what Verma refers to as the "law-before" (p. 857). Counties that had traditionally exhibited lower levels of incarceration were more likely to interpret Realignment as mandating overall decarceration, while counties that had traditionally exhibited higher levels of incarceration were more likely to interpret Realignment as mandating the relocation of inmates from state prisons to county jails. In a subsequent study, Verma (2016) also found that prior imprisonment trajectories had a significant influence on the likelihood that counties would actually reduce their incarceration levels post-Realignment. Given the particularly extensive discretion that local police agencies exert over drug crime enforcement (Beckett et al., 2005; Lynch, 2012; Mosher, 2001), it is especially likely that responses to drug policy reform measures like Prop 47 will vary according to agencies' past patterns of practice.

## **II. The Present Study**

The present study seeks to build upon the foregoing research by addressing two primary research questions:

- (1) How have drug arrest rates changed over time following the passage of Prop 47?
- (2) How have changes in drug arrest rates following Prop 47 varied across local municipal police agencies?

## **III. Data & Methods**

The current study utilizes annual longitudinal data from three sources. Arrest data come from the Monthly Arrest and Citation Register (MACR), managed by the California Department of Justice. These monthly data were aggregated to provide annual counts of arrests by arresting agency for the five years prior (November 2009-October 2014) and four years following



(November 2014-October 2018) the passage of Prop 47 on November 4, 2014. Data on local community characteristics in each agency's jurisdiction were sourced from American Community Survey (ACS) 5-year estimates for the periods 2010-2014 and 2014-2018, provided by the Irvine Laboratory for the Study of Space and Crime (ILSSC). The ACS 2010-2014 estimates were matched to annual MACR measures in the pre-Prop 47 period, while the ACS 2014-2018 estimates were matched to annual measures in the post-Prop 47 period. Lastly, annual crime data were sourced from the FBI's Uniform Crime Reports (UCR).<sup>4</sup>

Because enforcement priorities are largely set at the agency level (Beckett et al., 2005; Grattet & Jenness, 2005, 2008; Lynch, 2012), the primary unit of analysis for the current study are local municipal police agencies. Complete data for the 9 year period between November 2009 and October 2018 were available for 459 such agencies in California. Restricting the sample to agencies serving municipalities with over 20,000 residents yields a final sample of 286 city police agencies and 2,574 (286 agencies x 9 years) total annual observations.<sup>5</sup>

### **A. Dependent Variable**

Annual city-level drug arrest rates per 100,000 residents serve as the dependent variable for the current study. These annual arrest rates are intended to proxy the intensity of drug crime enforcement among city police agencies. In order to capture potential displacement effects associated with the replacement of Prop 47-related felony drug arrests by misdemeanor arrests or arrests for other felony drug offenses unaffected by Prop 47 (see Gardiner, 2012), this measure

---

<sup>4</sup> Because UCR crime data are aggregated by calendar year (January-December) while MACR arrest data were aggregated by annual periods surrounding the passage of Prop 47 (November-October), the time frames for these two data sources do not directly align. In order to maximize the number of overlapping months, UCR data were matched to MACR data based on the year of the January-October months in the MACR measure. In unreported alternative analyses, MACR data were matched to prior year UCR data; model results under this matching procedure did not meaningfully differ from those reported in text.

<sup>5</sup> In unreported analyses, models were also estimated using alternative population cut-offs for sample inclusion (5,000; 10,000; and 50,000 residents). Although coefficient p-values differ slightly across these models, coefficient values do not differ substantially from those described in text.

includes arrests for any non-marijuana drug offense.<sup>6</sup> The rate variable was constructed by dividing the number of annual drug arrests by the city population and multiplying by 100,000. In models below, this variable was also log transformed to better approximate a normal distribution.

As with other studies that utilize drug arrest rates as the dependent variable, there is a concern that the variable might be measuring changes in drug usage or trafficking rather than drug crime enforcement (see Eitle & Monahan, 2009; Mooney et al., 2018; Mosher, 2001; Parker & Maggard, 2005). To the extent that changes in drug arrest rates reflect changes in use or trafficking, interpretation of the study's findings will be biased. However, there are several reasons to believe that changes in drug arrest rates primarily reflect changes in drug crime enforcement. For one, Mooney et al. (2018) in their analysis of racial disparities in drug arrests post-Prop 47 found that arrest rates for drug offenses unaffected by Prop 47 did not change significantly in the two years following Prop 47, suggesting that overall drug use and activity has not changed significantly. Second, as will be discussed further below, drug arrest rates exhibit much greater annual variability than arrests for other offenses, indicating that drug arrests do not track general crime trends (see also Lofstram et al., 2019). Finally, as discussed above, drug crime enforcement is highly discretionary (Mosher, 2001). Drug arrest rates are, in some sense, always reflective of enforcement practices, because police must generally engage in proactive enforcement to root out drug offenses (Beckett et al., 2005; Lynch, 2012). Consequently, there is a strong theoretical justification for interpreting changes in drug arrest rates as primarily a reflection of changes in enforcement rather than drug use or trafficking.

---

<sup>6</sup> See note 2 above.

## B. Independent Variables

Table 1. Temporal Variables									
	Nov. 2009- Oct. 2010	Nov. 2010- Oct. 2011	Nov. 2011- Oct. 2012	Nov. 2012- Oct. 2013	Nov. 2013- Oct. 2014	Nov. 2014- Oct. 2015	Nov. 2015- Oct. 2016	Nov. 2016- Oct. 2017	Nov. 2017- Oct. 2018
Time	0	1	2	3	4	5	6	7	8
Post-Prop. 47	0	0	0	0	0	1	1	1	1
Post-Prop. 47 Time	0	0	0	0	0	1	2	3	4

The primary independent variables of interest are those that capture temporal changes in drug arrest rates following Prop 47. Temporal trends in drug arrest rates across the full sample period are captured through three variables: (1) an annual count variable for the entire sample period; (2) a dichotomous variable reflecting post-Prop 47 status; and (3) a post-Prop 47 annual count variable. Table 1 summarizes the coding scheme for these three temporal variables. Given this variable specification, the coefficient for the “Time” annual count variable can be interpreted as the temporal trend in drug arrest rates in the pre-Prop 47 period; the coefficient for the “Post-Prop 47” dichotomous variable can be interpreted as the overall change in drug arrest levels in the post-Prop 47 period, independent of temporal trends; and the coefficient for the “Post-Prop 47 Time” annual count variable can be interpreted as the change in pre-Prop 47 drug arrest trends in the post-Prop 47 period (see Singer & Willett, 2003, p. 198-201).

To estimate variation in drug arrest rates correlated with local community characteristics, models also include several city-level independent variables sourced from the ACS data provided by the ILSSC. These include population size, percent Black, percent Latinx, and the percentage of households living below the poverty line. By matching 2010-2014 ACS data to arrest rates in the pre-Prop 47 period and 2014-2018 ACS data to arrest rates in the post-Prop 47 period, models are able to control for changes in drug arrest rates in the post-Prop 47 period correlated

with changes in community characteristics. In addition to these ACS variables, models also include a measure of each city's annual violent crime rate per 100,000 residents, constructed by dividing the annual number of violent crimes in the UCR data by the city population and multiplying by 100,000.<sup>7,8</sup>

Models also include two additional independent variables specifically designed to predict agency-level variation in responses to Prop 47. The first is a measure of a city's violent crime rate in the post-Prop 47 period relative to the same city's violent crime rates in the pre-Prop 47 period. This variable allows us to estimate whether responses to Prop 47 were influenced by changes in a city's violent crime rate relative to its own specific past, not simply in absolute terms. This variable was constructed by creating city-specific crime rate means and standard deviations for the five year period prior to Prop 47, then subtracting this mean from each annual crime rate in the post-Prop 47 period and dividing by the standard deviation. The resulting value is a normalized measure of the difference in city-specific standard deviations between a city's given annual violent crime rate in the post-Prop 47 period and the city's mean violent crime rate in the pre-Prop 47 period.

The second variable used exclusively to predict agency-specific responses to Prop 47 is a measure of the city's drug arrest rate trajectory in the pre-Prop 47 period. This variable allows us to examine whether responses to Prop 47 differed among agencies with increasing drug arrest rates prior to Prop 47 relative to agencies with flat or decreasing drug arrest rates. In essence, this

---

<sup>7</sup> In unreported analyses, models were also estimated with several other city-level predictors, including racial/ethnic heterogeneity, income inequality, percent foreign born, percent young Black males, percent young Latinx males, homicide rate, property crime rate, percent of the electorate who voted in favor of Prop 47, and percent of the electorate who voted for President Trump. However, these additional measures were ultimately excluded because they introduced problematic levels of multicollinearity into our models and, for the most part, they did not display significant effects on our outcome of interest when other predictors were excluded.

<sup>8</sup> Virtually identical results are obtained regardless of whether lagged or same-year violent crime rates are used in the analysis.

variable is designed to proxy organizational commitments to drug crime enforcement prior to the Prop 47 reforms.<sup>9</sup> The variable was constructed by averaging year-to-year changes in annual drug arrest rates for the three year period immediately preceding Prop 47.<sup>10</sup>

Table 2 includes descriptive statistics for the dependent variable and agency -level predictors included in the study. Pearson *r* correlation coefficients among these predictors do not exceed an absolute value of 0.66.<sup>11</sup> Aside from the post-Prop 47 crime rate variable centered and normalized by city-specific pre-Prop 47 crime rates, all other predictors were centered at their sample means and normalized by sample standard deviation. Hence, model coefficients for these variables can be interpreted as the effect of a one standard deviation change in predictor values on the outcome of interest.

Table 2. Descriptive Statistics ( <i>n</i> = 2,547)				
	Mean	SD	Min	Max
Drug Arrest Rate per 100,000 Residents	516.75	338.78	3.27	3,038.49
Population Size	105,245.49	260,055.69	20,028	3,959,657
Percent Black	4.73	5.55	0	42.08
Percent Latino	38.45	23.62	3.05	97.87
Percent Below Poverty Line	13.98	7.33	2.34	38.00
Violent Crime Rate per 100,000 Residents	345.20	245.40	19.62	1,984.40
Pre-Prop. 47 Annual Drug Arrest Trend	35.90	70.76	-295.58	304.08

### C. Analytic Strategy

We begin by examining descriptive trends in statewide arrests to develop an understanding of aggregate changes across the state as a whole in the years surrounding Prop 47.

<sup>9</sup> In unreported analyses, models were also estimated using average pre-Prop 47 drug arrest rates as an additional proxy for pre-Prop 47 organizational commitments to drug crime enforcement. However, this measure was excluded from final reported models because it did not exhibit significant effects on our outcome of interest.

<sup>10</sup> In unreported analyses, alternative models were estimated using either a 2-year average or single year annual change measure, rather than a 3-year average. Coefficients for these alternative variable specifications did not differ meaningfully from those described in text.

<sup>11</sup> VIF scores used to examine multicollinearity in OLS models cannot be calculated for multilevel models of the type used in this study.

We then employ multilevel models specifically designed to examine agency-level variation in drug arrest rates following the passage of Prop 47. This is accomplished by nesting annual observations at level 1 within agencies at level 2 (see Raudenbush & Bryk, 2002; Singer & Willet, 2003).

Our level 1 model is specified as follows:

$$Y_{ij} = \beta_{0j} + \beta_{10}(Time) + \beta_{2j}(Post\ Prop\ 47) + \beta_{3j}(Post\ Prop\ 47\ Time) + \varepsilon_{ij} \quad (1.1)$$

where  $Y_{ij}$  represents the logged annual drug arrest rate in year  $i$  for agency  $j$ ;  $\beta_{0j}$  represents the logged drug arrest rate for agency  $j$  at time 0 (Nov. 2009-Oct. 2010);  $\beta_{10}$  represents the annual temporal trend in pre-Prop 47 drug arrest rates, which is fixed across agencies;  $\beta_{2j}$  represents the overall change in drug arrest levels in the post-Prop 47 period, independent of temporal trends, for agency  $j$ ;  $\beta_{3j}$  represents the post-Prop 47 change in pre-Prop 47 temporal drug arrest trends for agency  $j$ ; and  $\varepsilon_{ij}$  represents the error term in year  $i$  for agency  $j$ .

The intercept equation at level 2 is specified as follows:

$$\beta_{0j} = \gamma_{00} + \Gamma_{10}X_{ij} + \mu_{0j} \quad (1.2)$$

where  $\gamma_{00}$  represents the mean logged drug arrest rate across all agencies at time 0;  $X_{ij}$  represents a vector of agency-level predictors with a  $\Gamma_{10}$  vector of effects on the agency-specific drug arrest rate at time 0; and  $\mu_{0j}$  represents the residual variation in agency-specific drug arrest rates at time 0. The vector  $X_{ij}$  includes city population size, percent Black, percent Latinx, percent below the poverty line, and annual violent crime rate.

The slope equations at level 2 are specified as follows:

$$\beta_{2j} = \gamma_{20} + \Gamma_{20}W_{ij} + \mu_{2j} \quad (1.3)$$

$$\beta_{3j} = \gamma_{30} + \Gamma_{30}Z_{ij} + \mu_{3j} \quad (1.4)$$

For equation 1.3,  $\gamma_{20}$  represents the average change in annual drug arrest rates across all agencies

in the post-Prop 47 period;  $W_{ij}$  represents a vector of agency-level predictors with a  $\Gamma_{20}$  vector of moderating effects on the average post-Prop 47 effect; and  $\mu_{2j}$  represents the residual agency-level variation in the post-Prop 47 effect. For equation 1.4,  $\gamma_{30}$  represents the average change in temporal drug arrest trends across all agencies in the post-Prop 47 period;  $Z_{ij}$  represents a vector of agency-level predictors with a  $\Gamma_{30}$  vector of moderating effects on post-Prop 47 drug arrest trends; and  $\mu_{3j}$  represents the residual agency-level variation in post-Prop 47 drug arrest trends. Initially, models were estimated with all available city and agency predictors incorporated in  $W_{ij}$  and  $Z_{ij}$ , including all of the variables incorporated in  $X_{ij}$  as well as the post-Prop 47 city-normalized violent crime rate and the three-year average of pre-Prop 47 drug arrest trends. However, in reported models, only variables that exhibited significant moderating effects were retained.

We initially fit a fully unconditional model with no predictors in order to assess the degree of variation in annual drug arrest rates organized at the agency level (level 2) relative to the temporal level (level 1). We then estimate a series of models by progressively adding predictors before estimating the final full model. All models were estimated with robust standard errors to insulate fixed effects estimates from potential deviations from normality in random effects distributions (Raudenbush & Bryk, 2002). Models were estimated in Stata 16 using the “mixed” command.

## IV. Results

### A. Descriptive Trends in Statewide Arrests

Figure 1. Annual Statewide Drug Arrest Rates

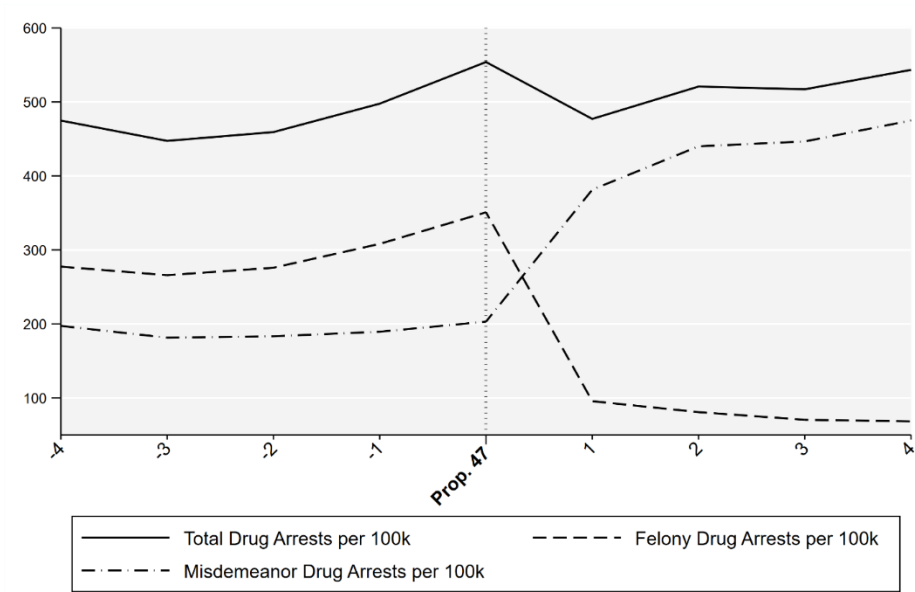


Figure 2. Annual Statewide Arrest Rates by Crime Type

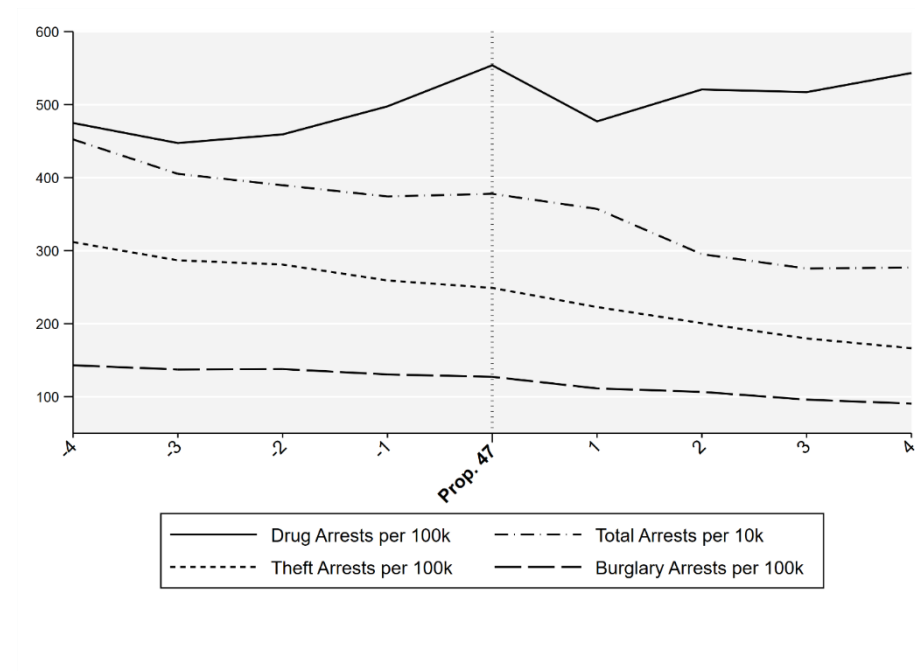




Figure 1 displays annual statewide non-marijuana drug arrest rates in the 5 years before and 4 years after the passage of Prop 47 in November 2014. Total drug arrest rates increased in the three years prior to Prop 47, primarily driven by an increase in felony drug arrest rates. Felony drug arrests then plummeted in the first year following Prop 47. This drop in felony arrests was only partially offset by an increase in misdemeanor drug arrests. In subsequent years, however, while felony drug arrest rates continued to fall, misdemeanor arrest rates continued to climb at a sharper pace. Consequently, after falling in the first year post-Prop 47, total drug arrest rates rose again between the second and fourth years after Prop 47. Ultimately, the total drug arrest rate four years after Prop 47 was 543 per 100,000 residents, only slightly below the high of 554 arrests per 100,000 residents in the year immediately preceding Prop 47.

Figure 2 compares trends in drug arrest rates against trends in total statewide arrests and arrests for other offenses reclassified under Prop 47. In addition to drug possession offenses, Prop 47 also reclassified several low-level theft and burglary offenses as misdemeanors. Total statewide arrests show a steady decline across this time period. Theft and burglary arrests also exhibited a steady downward trend both before and after Prop 47, mirroring the decline in total statewide arrests. Drug arrests, however, exhibited greater variability over this time period. Drug arrest rates rose in the three years prior to Prop 47, dropped in the first year after Prop 47, but rose again over the subsequent three years.

Figure 3. Percentage of Annual Statewide Arrests by Crime Type

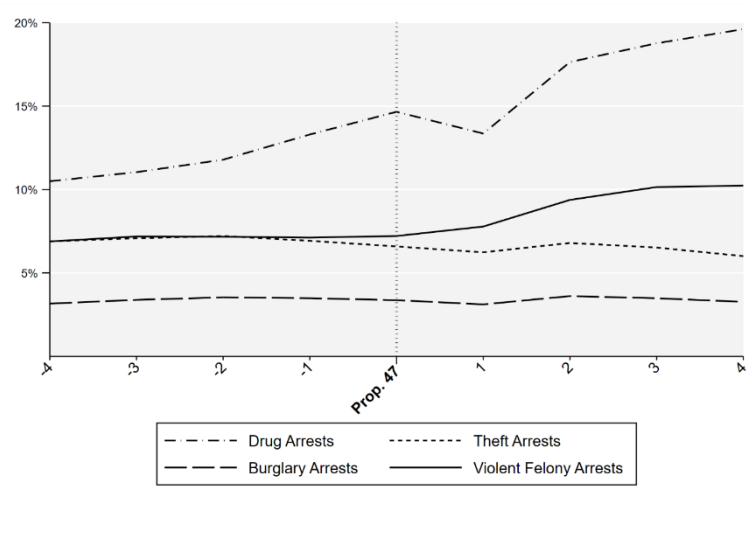


Figure 3 shows the annual percentage of total statewide arrests dedicated to these offense types. Outside of a slight dip in the first year following Prop 47, drug arrests comprised an increasingly larger percentage of total arrests both before and after Prop 47. By 2018, four years following Prop 47’s passage, drug arrests comprised nearly 20% of total statewide arrests, far and away the largest percentage of any major arrest category. These annual increases are especially noteworthy in light of a report finding that in 2014, the year Prop 47 was passed, California dedicated a larger proportion of total arrests to drug offenses than any other state (Human Rights Watch & American Civil Liberties Union, 2016). Following Prop 47, this proportion only grew further. The percentage of total arrests dedicated to other Prop 47-related offenses—theft and burglary—generally remained flat both before and after Prop 47. Arrests for violent felonies grew as a percentage of total arrests following Prop 47, suggesting that police agencies may have placed more priority on these offenses in the post-Prop 47 era. However, greater prioritization of violent felonies does not appear to have been driven by reduced prioritization of drug offenses, as drug crime arrests generally comprised an even greater proportion of total arrest activity post-Prop 47.

Figure 4. Arrest Rates and Crime Rates: Theft and Burglary

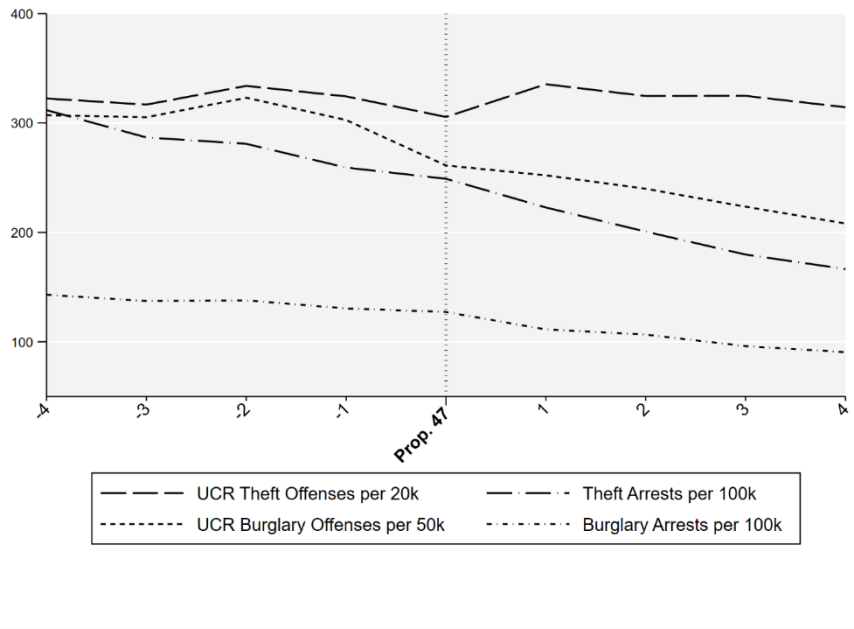
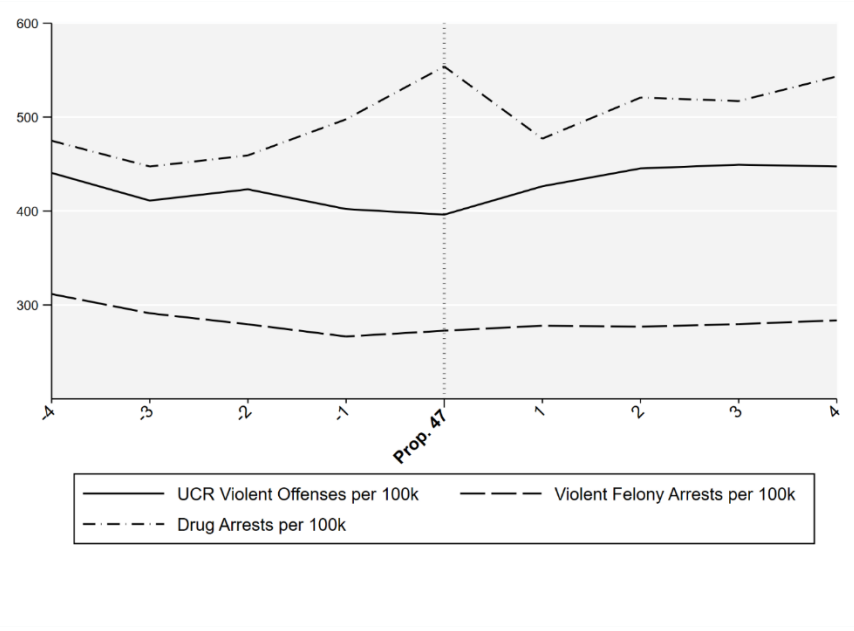


Figure 5. Arrest Rates and Crime Rates: Drugs and Violent Felonies



Figures 4 and 5 plot trends in arrests for Prop 47-related offenses against trends in UCR-reported crime. As figure 4 demonstrates, declines in theft arrests do not appear to be driven by declines in theft offenses, as UCR-reported theft offenses generally remained flat both before and after Prop 47. Theft arrest rates, however, declined by nearly half. In contrast to theft arrests,

declines in burglary arrests largely track declines in UCR-reported burglary offenses.

The UCR data do not provide a reliable measure of reported drug offenses, and thus we cannot compare trends in drug arrest rates against trends in reported drug crimes. However, in keeping with currently applied variants of broken windows theory, figure 5 plots annual drug arrest rates against UCR-reported violent crime. After declining over the five years prior to Prop 47, reported violent crime rose in the four years following Prop 47. Arrests for violent felony offenses, however, rose only slightly in the post-Prop 47 period. Hence, it may be the case that after an initial drop immediately following Prop 47, drug arrests increased as a method of addressing the rise in more serious violent crime. Our multilevel models below directly test this proposition by analyzing whether post-Prop 47 increases in drug arrests at the departmental level were driven by local increases in violent crime.

Overall, these figures begin to provide a picture of drug crime enforcement in the years following Prop 47. After an initial sharp reduction in the first year, drug crime enforcement generally increased statewide over the following three years, both in absolute terms but quite especially as a proportion of total arrest activity. These increases stand in contrast to arrests for other Prop 47-related offenses, which continued their pre-Prop 47 declines. Furthermore, arrest trends for these Prop 47-related offenses do not appear to be driven primarily by trends in reported crime, as theft arrests declined precipitously even as reported theft offenses remained relatively flat. Accordingly, it appears that these drug arrest trends reflect discretionary enforcement decisions, rather than automatic responses to underlying drug crime.

Our multilevel models below examine the degree to which these changes in drug enforcement activity at the city level are correlated with organizational characteristics of local police agencies and the structural characteristics of the communities in which they operate.

## B. Multilevel Models

Table 3. Multilevel Models Predicting Logged Annual Drug Arrest Rate						
	Unconditional	Model 1	Model 2	Model 3 <sup>a</sup>		
<i>Temporal Variables</i>						
Time ( $\beta_{10}$ )		.056 *** (.007)	.056 *** (.007)	.056 *** (.007)	.056 *** (.007)	.056 *** (.007)
Post-Prop. 47 ( $\gamma_{20}$ )		-.058 * (.029)	-.074 * (.030)	-.073 * (.030)	-.073 * (.030)	-.073 * (.030)
Post-Prop. 47 Time ( $\gamma_{30}$ )		-.003 (.013)	.000 (.012)	-.001 (.012)	-.001 (.012)	-.001 (.012)
<i>Level 2 Predictors of Random Intercept (<math>X_{ij}</math>)</i>						
Population Size		-.055 *** (.014)	-.040 ** (.014)	-.022 (.052)	-.022 (.052)	-.022 (.052)
Percent Black		-.065 (.033)	-.028 (.036)	-.029 (.036)	-.029 (.036)	-.029 (.036)
Percent Latinx		.055 (.041)	.064 (.041)	.065 (.041)	.065 (.041)	.065 (.041)
Percent Poverty		.167 *** (.039)	.131 *** (.037)	.130 *** (.037)	.130 *** (.037)	.130 *** (.037)
Violent Crime Rate		.041 (.028)	.060 * (.030)	.060 * (.030)	.060 * (.030)	.060 * (.030)
<i>Level 2 Predictors of Post-Prop. 47 Slope (<math>W_{ij}</math>)</i>						
Percent Black			-.078 ** (.024)	-.078 ** (.024)	-.078 ** (.024)	-.078 ** (.024)
Pre-Prop. 47 Annual Drug Arrest Trend			.194 *** (.033)	.194 *** (.033)	.194 *** (.033)	.194 *** (.033)
<i>Level 2 Predictors of Post-Prop. 47 Time Slope (<math>Z_{ij}</math>)</i>						
Population Size			-.012 ** (.004)	-.026 * (.010)	-.026 * (.010)	-.026 * (.010)
Percent Black			-.016 * (.007)	-.015 * (.007)	-.015 * (.007)	-.015 * (.007)
Pre-Prop. 47 Annual Drug Arrest Trend			-.032 *** (.009)	-.032 *** (.009)	-.032 *** (.009)	-.032 *** (.009)
City Normalized Violent Crime Rate			-.011 ** (.004)	-.011 ** (.004)	-.011 ** (.004)	-.011 ** (.004)
<i>Fixed Intercept Value (<math>\gamma_{00}</math>)</i>	6.043 *** (.036)	5.848 *** (.036)	5.851 *** (.036)	5.853 *** (.036)	5.853 *** (.036)	5.853 *** (.036)
<i>Level 1 Residual Variance (<math>\sigma^2_{\epsilon}</math>)</i>	.119 *** (.008)	.060 *** (.004)	.060 *** (.004)	.060 *** (.004)	.060 *** (.004)	.060 *** (.004)
<i>Intercept Variance (<math>\sigma^2_{u0}</math>)</i>	.361 *** (.039)	.322 *** (.043)	.320 *** (.042)	.321 *** (.042)	.321 *** (.042)	.321 *** (.042)
<i>Post-Prop. 47 Slope Variance (<math>\sigma^2_{u2}</math>)</i>		.119 *** (.022)	.076 *** (.016)	.077 *** (.017)	.077 *** (.017)	.077 *** (.017)
<i>Post-Prop. 47 Time Slope Variance (<math>\sigma^2_{u3}</math>)</i>		.011 *** (.002)	.010 *** (.002)	.010 *** (.002)	.010 *** (.002)	.010 *** (.002)
AIC	2795.154	1893.917	1814.420	1814.613	1814.613	1814.613
BIC	2812.714	1987.568	1943.190	1943.306	1943.306	1943.306
N	2574	2574	2574	2565	2565	2565
*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$						
<sup>a</sup> Model 3 replicates the analysis from Model 2 while excluding Los Angeles from the sample.						

Table 3 displays results from the multilevel models predicting logged annual drug arrest rates in the years surrounding Prop 47. Results from the fully unconditional model with no predictors indicate that the mean logged drug arrest rate across all agencies over this period is 6.043, corresponding to a drug arrest rate of about 421 arrests per 100,000 residents.<sup>12</sup> The variance components indicate that approximately 75.2% of the variation in drug arrest rates about the mean is organized at the agency level ( $\sigma^2_{u0}=.361$ ) and approximately 24.8% is organized at the temporal level ( $\sigma^2_{\epsilon}=.119$ ). Thus, substantial variation in drug arrest rates is evident both between different agencies and over time.

In Model 1, we introduce our temporal predictors as well as our city-level predictors of the agency-specific starting values. Results indicate that, on average, drug arrest rates across all agencies rose 5.6% annually in the pre-Prop 47 period ( $\beta_{10}=.056, p<0.001$ ), and this temporal trend was not significantly altered by the passage of Prop 47 ( $\gamma_{30}=-.003, p>0.05$ ). However, drug arrest rates were, on average, 5.8% lower in the post-Prop 47 period relative to the pre-Prop 47 period ( $\gamma_{20}=-.058, p<0.05$ ). Hence, while Prop 47 was associated with a modest reduction in drug arrest rates in the first year following its passage, drug arrest rates continued to rise annually in the years that followed. The city-level predictors of the agency-specific starting values indicate that agencies in cities with larger populations generally exhibited lower drug arrest rates across the sample period ( $\gamma=-.055, p<0.001$ ), while agencies in cities with higher levels of poverty generally exhibited higher drug arrest rates ( $\gamma=.167, p<0.001$ ).

The variance components for Model 1 demonstrate that these predictors can account for approximately 10.8% of the variation in drug arrests between agencies and approximately 49.6%

---

<sup>12</sup> This value differs from the overall sample mean of 516.75 drug arrests per 100,000 residents because it represents the mean of the log-transformed drug arrest rates, rather than the mean of the raw, untransformed drug arrest rates.

of the variation in drug arrests within agencies over time.<sup>13</sup> Hence, our model captures a substantial portion of the temporal variation in drug arrest rates over the sample period. The results also indicate that changes to drug arrests rates in the post-Prop 47 period varied significantly across different police agencies. The estimated variance in the post-Prop 47 effect ( $\sigma^2_{u2}$ ) is .119, yielding a 95% plausible range of -73.4% to +61.8% for agency-specific changes in drug arrest levels in the post-Prop 47 period relative to the pre-Prop 47 period.<sup>14</sup> Moreover, while the average change in post-Prop 47 annual drug arrest trends across all agencies was not statistically significant ( $\gamma_{30}=-.003, p>0.05$ ), agencies exhibited statistically significant variation in post-Prop 47 drug arrest trends ( $\sigma^2_{u3}=.011, p<0.001$ ). The 95% plausible range for agency-specific changes in post-Prop 47 annual drug arrest trends is -20.9% to +20.3%.

We introduce our level 2 predictors of this agency-level variation in Model 2. The results indicate that agency-specific responses to Prop 47 were significantly correlated with several city and agency characteristics, most notably annual trends in pre-Prop 47 drug arrest rates. A one standard deviation increase in an agency's pre-Prop 47 annual change average was associated with a 19.4% increase in the agency's post-Prop 47 drug arrest rates ( $\gamma=.194, p<0.001$ ), entirely overshadowing the average 7.4% decrease in post-Prop 47 drug arrest rates across all agencies ( $\gamma_{20}=-.074, p<0.05$ ). A one standard deviation increase in the pre-Prop 47 annual change average was also associated with a 3.2% annual reduction in post-Prop 47 drug arrest rates ( $\gamma=-.032, p<0.001$ ), but this reduction is not sufficient to overcome the average 5.6% annual increase in drug arrest rates across all agencies over the sample period ( $\beta_{10}=.056, p<0.001$ ).

---

<sup>13</sup> The percentage of variation accounted for by the model predictors is calculated through the “proportional reduction in residual variance” (Singer & Willet, 2003, p. 103). This proportion compares the residual variance at a given level for a model with predictors to the comparable residual variance for the unconditional model.

<sup>14</sup> The 95% plausible range for agency-specific effects is calculated by multiplying the square root of the residual variance by 1.96, then adding and subtracting this value from the estimated average effect across all agencies (see Raudenbush & Bryk, 2002, p. 78).

Figure 6. Predicted Post-Prop 47 Drug Arrest Rates for Agency with Pre-Prop 47 Annual Drug Arrest Trend 1 Standard Deviation Above the Mean

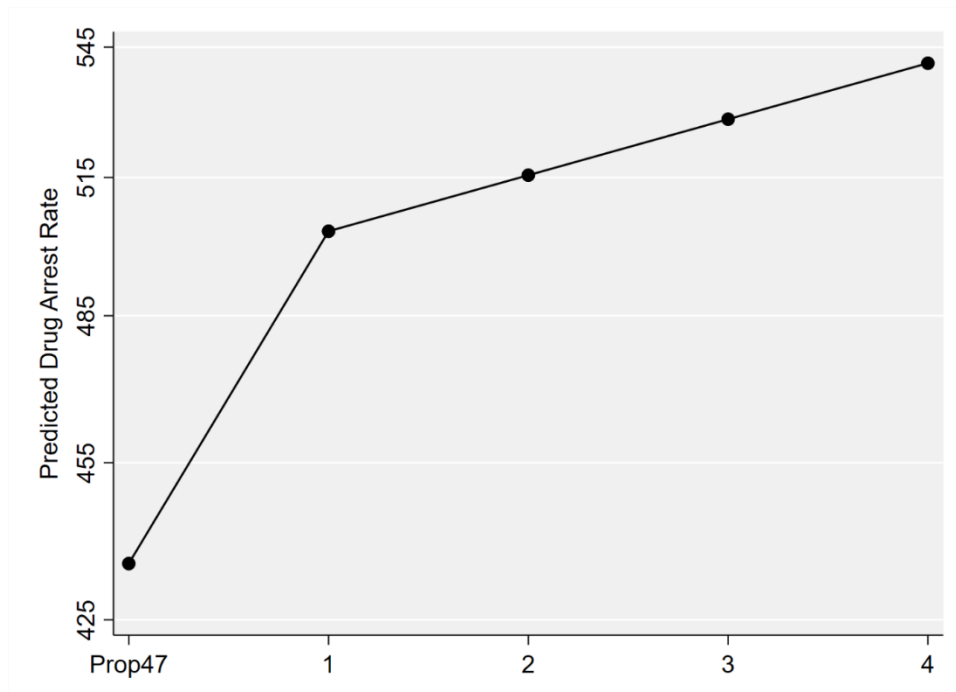
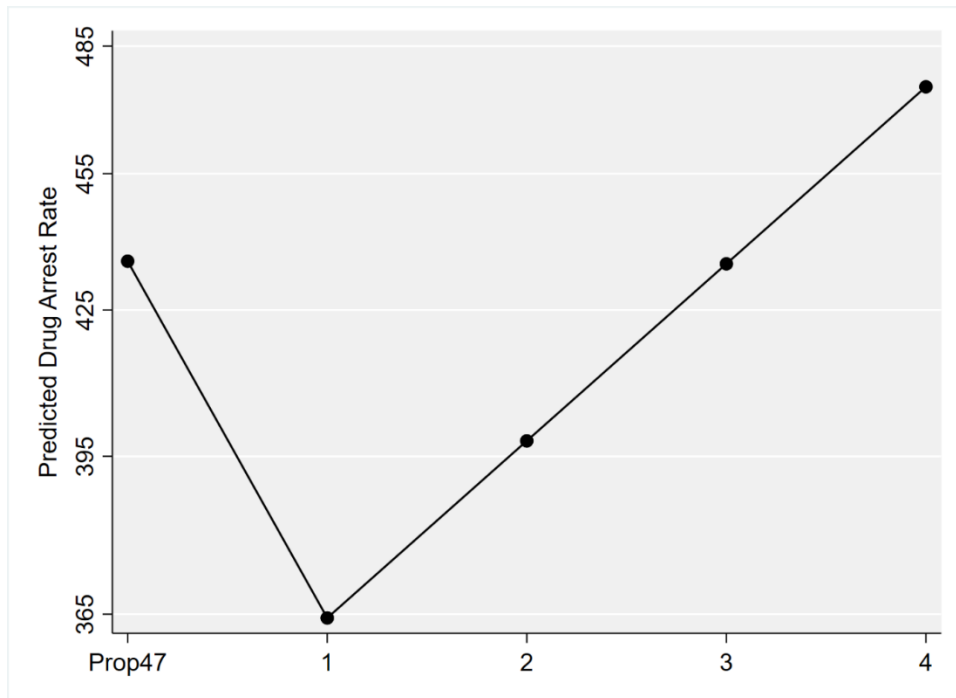


Figure 7. Predicted Post-Prop 47 Drug Arrest Rates for Agency with Pre-Prop 47 Annual Drug Arrest Trend 1 Standard Deviation Below the Mean





Figures 6 and 7 illustrate how predicted post-Prop 47 drug arrest rates differ according to an agency's pre-Prop 47 drug arrest trajectory. Figure 6 displays the post-Prop 47 trend in drug arrest rates for an agency with a pre-Prop 47 annual change average one standard deviation above the sample mean (+106.66 drug arrests per 100,000 residents per year) and all other variables at their sample means. Figure 7 displays the analogous trend for an agency that differs only in its pre-Prop 47 annual change average, which is one standard deviation below the sample mean (-34.86 drug arrests per 100,000 residents per year). Both agencies have a starting drug arrest rate of 435.51 drug arrests per 100,000 residents in the year immediately preceding Prop 47. However, for the agency in Figure 6, the drug arrest rate exhibits a sharp *incline* in the first year after Prop 47, followed by moderate annual increases in the subsequent three years. In contrast, the agency in Figure 7 exhibits a sharp *decline* in the drug arrest rate in the first year after Prop 47, followed by larger annual increases in the subsequent three years. Nevertheless, despite this larger rate of increase, the predicted drug arrest rate for the agency in Figure 7 does not approach the predicted drug arrest rate for the agency in Figure 6 within the sample time frame. For the agency in Figure 6, the predicted drug arrest rate in the fourth year following Prop 47 is 541.21 per 100,000 residents, while the predicted drug arrest rate for the agency in Figure 7 is 475.22 per 100,000 residents.

Agency-specific responses to Prop 47 were also significantly correlated with several city-level structural characteristics. Agencies operating in cities with larger proportions of Black residents generally exhibited both larger reductions in drug arrest levels and smaller annual increases in the post-Prop 47 period relative to the pre-Prop 47 period. A one standard deviation increase in a city's Black population percentage was associated with an additional 7.8% reduction in post-Prop 47 drug arrest rates ( $\gamma = -.078$ ,  $p < 0.01$ ), over and above the average 7.4%

reduction in post-Prop 47 drug arrest rates across all agencies ( $\gamma_{20}=-.074, p<0.05$ ). Furthermore, cities with a Black population percentage one standard deviation above the mean exhibited a 1.6% point reduction in post-Prop 47 annual drug arrest trends relative to cities with Black populations at the sample mean ( $\gamma=-.016, p<0.05$ ).

Contrary to what might be expected under a broken windows policing framework, cities that experienced larger increases in violent crime rates relative to their pre-Prop 47 violent crime levels generally exhibited lower drug arrest rates in the post-Prop 47 period. A one standard deviation increase in a city's violent crime rate relative to its pre-Prop 47 violent crime rate was associated with a 1.1% point reduction in post-Prop 47 annual drug arrest trends ( $\gamma=-.011, p<0.01$ ), suggesting that agencies may have reduced their drug enforcement levels in order to prioritize other enforcement strategies more likely to combat violent crime.

Lastly, larger cities generally exhibited lower drug arrest rates in the post-Prop 47 period relative to smaller cities. The estimates from Model 2 suggest that a one standard deviation increase in the city population size was associated with a 1.2% point reduction in post-Prop 47 annual drug arrest trends ( $\gamma=-.012, p<0.01$ ). However, this coefficient estimate is somewhat distorted by the inclusion of observations from Los Angeles, whose population size is nearly 10 standard deviations larger than the next largest city (San Diego). When observations from Los Angeles are excluded in Model 3, the absolute value of the coefficient more than doubles. Under this model, a one standard deviation increase in the city population size was associated with a 2.6% point reduction in post-Prop 47 annual drug arrest trends ( $\gamma=-.026, p<0.05$ ). The coefficient on the population size predictor of agency-specific starting values is also no longer significant in Model 3, indicating that differences in starting drug arrest rates between agencies in larger and smaller cities were largely driven by a lower starting drug arrest rate in Los Angeles.

## **V. Discussion**

The tremendous expansion of drug law enforcement since the mid-1980s has been the subject of intense criticism for more than two decades (see, e.g., Tonry, 1995). Much of this criticism centers on the concentration of drug crime enforcement in disadvantaged communities of color (e.g. Alexander, 2012), a topic that has received substantial empirical scrutiny (see, e.g., Beckett et al., 2006; Geller & Fagan, 2010; Mosher, 2001; Parker & Maggard, 2005). Critics have also argued that increased enforcement of low-level level drug crimes has diverted scarce law enforcement resources away from more serious violent crimes, rendering communities less safe overall (Kennedy, 1998; Mauer & King, 2007). Furthermore, while scholars have raised concerns for some time about the aggressive and intrusive policing tactics associated with drug crime enforcement (Balko, 2013; Lynch, 2012; Stuart, 2016), these tactics have received renewed public scrutiny in the wake of the Breonna Taylor tragedy and other high-profile instances of police violence.

As a means of addressing these concerns with drug crime policing, activists have increasingly called for drug policy reforms that reduce or eliminate the criminal penalties associated with drug offenses (e.g. Malinowska-Sempruch, 2020; The Appeal, 2021). Yet, the connection between drug policy reform measures and changes to drug crime policing remains ambiguous (see Arredondo et al., 2018; Gardiner, 2012; Kozlowski et al., 2019; Mooney et al., 2018). The current study has sought to analyze this connection further by exploring changes in drug crime arrests among California police agencies in the wake of Prop 47, a reform measure that mandated misdemeanor treatment for the vast majority of drug possession crimes.

The results offer limited support for the notion that drug policy reforms can address some of the issues with drug crime policing outlined above. In particular, drug arrest rates after Prop

47 dropped further and remained lower among agencies serving larger proportions of Black residents relative to agencies serving smaller proportions of Black residents. This contrasts with what might be predicted under a racial threat framework, and it accords with research from Mooney et al. (2018) and Lofstram et al. (2020) indicating that Prop 47 was associated with reductions in Black-White drug arrest disparities across California. Moreover, post-Prop 47 drug arrest trends were also reduced among agencies in cities with larger population sizes, suggesting that Prop 47 may have had a bigger impact on enforcement practices among the type of large, urban police forces that have received the most scrutiny regarding racialized drug crime enforcement (Lynch, 2012). Crank (2003) has argued that, like other government agencies, police departments operate in institutional environments in which they must remain attentive to the values and concerns of their “constituents” (p. 187). Police departments are not “technical” organizations that can structure their practices entirely according to efficiency concerns or managerial preferences (p. 186). Rather, “the bottom line for police organizations is that they must display, in their organizational behavior and design, that they care about constituents’ concerns...and the way in which these issues are important to them” (p. 187). The results of the current study suggest that in the wake of sustained criticism of racialized drug crime policing, strong electoral mandates in favor of drug policy reform may inspire the departments most implicated by these critiques to scale back their drug crime enforcement.

Overall, however, the results provide a strong cautionary counterpoint to activists’ calls for drug policy reform as a method for producing substantial change in drug crime policing. For one, the moderating effects associated with city population size and Black population percentage were small relative to the average policy effects exhibited across the sample as a whole. On average, Prop 47 had little impact on drug arrest trends among California police agencies outside

of a modest reduction in drug arrest rates in the first year following its passage. In subsequent years, agencies generally exhibited annual increases in drug arrest rates that mirrored the annual increases exhibited in the pre-Prop 47 period. The drop in drug arrests in the first year following Prop 47 was more pronounced and subsequent annual increases were smaller among agencies in cities with larger populations and larger proportions of Black residents. However, the model predicts annual *decreases* in post-Prop 47 drug arrest rates only among the small collection of agencies in the 98th percentile of the sample distribution with regard to population size or proportion of Black residents. These moderating effects should not be entirely discounted. Approximately 18.4% of the total state population resides in the state's four largest urban cities. Annual decreases in drug arrest rates in these cities are likely the reason that post-Prop 47 statewide drug arrest rates have remained below their pre-Prop 47 highs (see Figure 1), despite the fact that most agencies continued to increase their drug arrest rates over this period. Moreover, reductions in arrests in cities with large Black populations can contribute to reductions in problematic Black-White drug arrest disparities (Mooney et al., 2018; Lofstram et al., 2020). Nevertheless, the results demonstrate that in most areas of the state, the scale of drug crime enforcement changed very little after the passage of Prop 47.

Furthermore, the moderating effects associated with city population size and Black population percentage were dwarfed by the moderating effects associated with pre-Prop 47 drug arrest trends. All else being equal, agencies that exhibited increasing drug arrest rates above the sample mean in the pre-Prop 47 period generally exhibited significant *increases* in drug arrest rates in the first year following Prop 47, rather than an initial drop (see Figure 6). On the other hand, agencies with decreasing drug arrest rates in the pre-Prop 47 period generally exhibited even more substantial decreases in the first year following Prop 47 (see Figure 7). This accords

with research from a variety of criminal justice contexts indicating that responses to reform among criminal justice organizations are largely shaped by legacies of past practice (Lin, 2018; Lynch & Omori, 2014; Verma, 2015, 2016), or what Verma (2015) describes as the “law-before” (p. 857). Criminal justice organizations, and in particular local municipal police agencies, retain significant autonomy and discretion over how they respond to changes in black letter law (Grattet & Jenness 2005, 2008). The results from the current study add to a growing body of research suggesting that entrenched mentalities and practices will shape how these organizations respond to legal change, and consequently organizational practices will often remain durable even in the face of significant legal reforms.

Moving forward, these results suggest that further efforts beyond reductions in the penalties for drug offenses may be necessary to effectuate lasting changes in drug crime policing. While Prop 47 clearly impacted a number of post-arrest outcomes for drug offense arrestees, including jail bookings, felony convictions, and incarceration (Lofstram et al., 2020; MacDonald & Raphael, 2020; Mooney et al., 2019), its effects on the intensity of drug crime policing appear minimal outside of a few large, urban cities and cities with very large proportions of Black residents. To substantially alter arrest practices associated with drug offenses, it may be necessary to focus specifically on the police practices that undergird drug crime enforcement, such as investigatory stops, consent searches, and no-knock search warrants. Several jurisdictions are considering reforms that limit such practices (see National Association of Criminal Defense Lawyers, 2021), and future research should examine the impact of these limitations on drug crime enforcement levels.

There are several limitations to the current study that are important to acknowledge. For one, like most other policy studies, the study design is observational rather than experimental,

and thus the study's capacity to support causal claims is necessarily limited. There is the potential that changes in drug arrest rates following Prop. 47 are driven by changes in unobserved characteristics of police agencies and local communities correlated with the passage of Prop. 47. The study seeks to minimize this potential by controlling for changes in relevant and available agency and community level variables (see Sec. III(B) and corresponding footnotes above), but this potential cannot be entirely eliminated. Second, like all other studies that utilize drug arrests as a dependent variable, the study cannot rule out the possibility that changes in drug arrest rates reflect changes in drug usage or trafficking rather than changes in enforcement. As outlined above in Sec. III(A), however, there are a number of reasons to believe that annual changes in drug arrests primarily reflect changes in enforcement, including the fact that annual trends in drug arrests appear to be largely decoupled from general crime trends. Third, the current study focuses only on changes in the *quantity* of drug arrests in response to Prop 47, not changes to the *quality* of drug arrests or of drug crime enforcement more generally. While findings suggest that Prop 47 minimally impacted the scale of drug crime enforcement across California, Prop 47 could have produced meaningful changes to the intrusiveness or aggressiveness of drug crime enforcement practices that cannot be captured through the current study. In particular, aggressive enforcement tactics like the no-knock search warrant involved in the Breonna Taylor incident are more likely to be deployed in the context of felony drug arrests, which declined dramatically post-Prop 47 (see Figure 1). Finally, while Prop 47 reduced the penalties associated with most drug possession crimes, these offenses still remain misdemeanors eligible for criminal penalties. More extensive drug policy reforms that decriminalize drug possession offenses entirely by making them civil infractions may produce more substantial changes to drug crime enforcement levels. Oregon recently enacted such a policy (Schnell,

2021), offering an opportunity to further explore decriminalization's impacts on drug crime policing.

## **VI. Conclusion**

As more states continue to enact drug policy reform measures that reduce the penalties associated with drug offenses (Elderbroom & Durnan, 2018), research is critical for understanding the connection between these drug policy reforms and drug crime policing. The results of the current study on California's Prop 47 suggest that such reforms alone are unlikely to have a substantial impact on the overall scale of drug crime enforcement, and that responses to reform among individual police agencies are likely to be structured by legacies of past practice particular to each agency.



## References

- Alexander, M. (2012). *The new Jim Crow: Mass incarceration in the age of colorblindness*. The New Press.
- Arredondo, J., Gaines, T., Manian, S., Vilalta, C., Bañuelos, A., Strathdee, S. A., & Beletsky, L. (2018). The law on the streets: Evaluating the impact of Mexico's drug decriminalization reform on drug possession arrests in Tijuana, Mexico. *International Journal of Drug Policy*, *54*, 1–8.
- Balko, R. (2013). *Rise of the warrior cop: The militarization of America's police forces*. PublicAffairs.
- Beckett, K., Nyrop, K., & Pflingst, L. (2006). Race, drugs, and policing: Understanding disparities in drug delivery arrests. *Criminology*, *44*(1), 105–137.
- Beckett, K., Nyrop, K., Pflingst, L., & Bowen, M. (2005). Drug use, drug possession arrests, and the question of race: Lessons from Seattle. *Social Problems*, *52*(3), 419–441.
- Beletsky, L., Wagner, K. D., Arredondo, J., Palinkas, L., Magis Rodriguez, C., Kalic, N., Natasha-Ludwig-Barron, & Strathdee, S. A. (2016). Implementing Mexico's "Narcomenudeo" drug law reform: A mixed methods assessment of early experiences among people who inject drugs. *Journal of Mixed Methods Research*, *10*(4), 384–401.
- Blalock, H. M. (1967). *Toward a theory of minority-group relations*. Wiley.
- California Legislative Analyst's Office. (2014). *Proposition 47*.  
<http://www.lao.ca.gov/ballot/2014/prop-47-110414.aspx>
- Chappell, A. T., MacDonald, J. M., & Manz, P. W. (2006). The organizational determinants of police arrest decisions. *Crime & Delinquency*, *52*(2), 287–306.
- Crank, J. P. (2003). Institutional theory of police: A review of the state of the art. *Policing: An International Journal of Police Strategies & Management*, *26*(2), 186–207.
- DeAngelo, G. J., Gittings, R. K., & Ross, A. (2018). Police incentives, policy spillovers, and the enforcement of drug crimes. *Review of Law & Economics*, *14*(1), 1–29.
- Eitle, D., & Monahan, S. (2009). Revisiting the racial threat thesis: The role of police organizational characteristics in predicting race-specific drug arrest rates. *Justice Quarterly*, *26*(3), 528–561.
- Elderbroom, B., and Durnan, J. (2018). *Reclassified: State drug law reforms to reduce felony convictions and increase second chances*. Urban Institute.  
[https://www.urban.org/sites/default/files/publication/99077/reclassified\\_state\\_drug\\_law\\_reforms\\_to\\_reduce\\_felony\\_convictions\\_and\\_increase\\_second\\_chances.pdf](https://www.urban.org/sites/default/files/publication/99077/reclassified_state_drug_law_reforms_to_reduce_felony_convictions_and_increase_second_chances.pdf)

- Gardiner, C. (2012). "An absolute revolving door": An evaluation of police perception and response to Proposition 36. *Criminal Justice Policy Review*, 23(3), 275–303.
- Geller, A., & Fagan, J. (2010). Pot as pretext: Marijuana, race, and the new disorder in New York City street policing. *Journal of Empirical Legal Studies*, 7(4), 591–633.
- Golub, A., Johnson, B. D., & Dunlap, E. (2006). Smoking marijuana in public: The spatial and policy shift in New York City arrests, 1992–2003. *Harm Reduction Journal*, 3(1), 22.
- Grattet, R., & Jenness, V. (2005). The Reconstitution of law in local settings: Agency discretion, ambiguity, and a surplus of law in the policing of hate crime. *Law & Society Review*, 39(4), 893–942.
- Grattet, R., & Jenness, V. (2008). Transforming symbolic law into organizational action: Hate crime policy and law enforcement practice. *Social Forces*, 87(1), 501–527.
- Harcourt, B. E., & Ludwig, J. (2007). Reefer madness: Broken windows policing and misdemeanor marijuana arrests in New York City, 1989–2000. *Criminology & Public Policy*, 6, 165.
- Human Rights Watch. (2008). *Targeting blacks: Drug law enforcement and race in the United States*. Human Rights Watch. <https://www.hrw.org/reports/2008/us0508/>
- Human Rights Watch, & American Civil Liberties Union. (2016). *Every 25 seconds: The human toll of criminalizing drug use in the United States*. Human Rights Watch. [https://www.hrw.org/sites/default/files/report\\_pdf/usdrug1016\\_web\\_0.pdf](https://www.hrw.org/sites/default/files/report_pdf/usdrug1016_web_0.pdf)
- Kennedy, R. (1998). *Race, Crime, and the Law*. Vintage.
- Kozlowski, M., Glazener, E., Mitchell, J. A., Lynch, J. P., & Smith, J. (2019). Decriminalization and depenalization of marijuana possession: A case study of enforcement outcomes in Prince George's County. *Criminology, Criminal Justice, Law & Society*, 20(2), 109–127.
- Kubrin, C., & Seron, C. (2016). The prospects and perils of ending mass incarceration in the United States. *The ANNALS of the American Academy of Political and Social Science*, 664(1), 16–24.
- Liska, A. E. (1992). *Social threat and social control*. State University of New York Press.
- Lofstrom, M., Martin, B., Goss, J., Hayes, J., & Raphael, S. (2019). *Key factors in arrest trends and differences in California's counties*. Public Policy Institute of California. <https://www.ppic.org/wp-content/uploads/key-factors-in-arrest-trends-and-differences-in-californias-counties.pdf>

- Lofstrom, M., Martin, B., & Raphael, S. (2020). Effect of sentencing reform on racial and ethnic disparities in involvement with the criminal justice system: The case of California's proposition 47. *Criminology & Public Policy*, 19(4), 1165–1207.
- Lopez, G. (2020, November 4). Election Day was a major rejection of the war on drugs. *Vox*. <https://www.vox.com/2020-presidential-election/2020/11/4/21548800/election-results-marijuana-legalization-drug-decriminalization-new-jersey-arizona-oregon-montana>
- Los Angeles Times. (2015, November 4). Sheriff Jim McDonnell: Thanks to Prop. 47, Californians are less safe than they were a year ago. *Los Angeles Times*. [latimes.com/opinion/la-ol-1104-prop-47-revolution-sheriff-jim-mcdonnell-20151104-htmllstory.html](http://latimes.com/opinion/la-ol-1104-prop-47-revolution-sheriff-jim-mcdonnell-20151104-htmllstory.html)
- Lin, J. L. (2018). The diversity of decarceration: Examining first-year county Realignment spending in California. *Criminal Justice Policy Review*, 29(8), 771– 798.
- Lynch, M. (2012). Theorizing the role of the 'war on drugs' in US punishment. *Theoretical Criminology*, 16(2), 175–199.
- Lynch, M., & Omori, M. (2014). Legal change and sentencing norms in the wake of *Booker*: The impact of time and place on drug trafficking cases in federal court. *Law & Society Review*, 48(2), 411–445.
- Lynch, M., Omori, M., Roussell, A., & Valasik, M. (2013). Policing the 'progressive' city: The racialized geography of drug law enforcement. *Theoretical Criminology*, 17(3), 335–357.
- MacDonald, J., & Raphael, S. (2020). Effect of scaling back punishment on racial and ethnic disparities in criminal case outcomes. *Criminology & Public Policy*, 19(4), 1139–1164.
- Malinowska-Sempruch, K. (2020, September 20). Want to reform the police? That must start with decriminalizing drugs. *Salon*. <https://www.salon.com/2020/09/20/want-to-reform-the-police-that-must-start-with-decriminalizing-drugs/>
- Mastrofski, S. (1981). Policing the beat: The impact of organizational scale on patrol officer behavior in urban residential neighborhoods. *Journal of Criminal Justice*, 9(5), 343–358.
- Mauer, M., & King, R. (2007). *A 25-year quagmire: The War on Drugs and its impact on American society*. The Sentencing Project. <https://www.sentencingproject.org/publications/a-25-year-quagmire-the-war-on-drugs-and-its-impact-on-american-society/>
- Mitchell, O., & Caudy, M. S. (2015). Examining racial disparities in drug arrests. *Justice Quarterly*, 32(2), 288–313.

- Mooney, A. C., Giannella, E., Glymour, M. M., Neilands, T. B., Morris, M. D., Tulsy, 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.
- Mooney, A. C., Neilands, T. B., Giannella, E., Morris, M. D., Tulsy, J., & Glymour, M. M. (2019). Effects of a voter initiative on disparities in punishment severity for drug offenses across California counties. *Social Science & Medicine, 230*, 9–19.
- Morales, M., Baker, P., Rafful, C., Mittal, M. L., Rocha-Jimenez, T., Clairgue, E., Arredondo, J., Cepeda, J. A., Strathdee, S. A., & Beletsky, L. (2020). Conflicting laws and priorities as drug policy implementation barriers: A qualitative analysis of police perspectives in Tijuana, Mexico. *Journal of Drug Policy Analysis, 12*(1). <https://doi.org/10.1515/jdpa-2018-0014>
- Mosher, C. (2001). Predicting drug arrest rates: Conflict and social disorganization perspectives. *Crime & Delinquency, 47*(1), 84–104.
- National Association of Criminal Defense Lawyers. (2021, March 31). *State Legislative Tracking: Policing*. [https://www.cqstatetrack.com/teaxis/statetrack/insession/viewrpt/+aqe8\\_ASeHxwww?report=6064943965ea](https://www.cqstatetrack.com/teaxis/statetrack/insession/viewrpt/+aqe8_ASeHxwww?report=6064943965ea)
- Oppel Jr., R. A., Taylor, T. B., and Bogel-Burroughs, N. (2021, January 6). What to know about Breonna Taylor’s death. *The New York Times*. <https://www.nytimes.com/article/breonna-taylor-police.html>
- Parker, K. F., & Maggard, S. R. (2005). Structural theories and race-specific drug arrests: What structural factors account for the rise in race-specific drug arrests over time? *Crime & Delinquency, 51*(4), 521–547.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Sage Publications.
- Rengifo, A. F., Stemen, D., & Amidon, E. (2017). When policy comes to town: Discourses and dilemmas of implementation of a statewide reentry policy in Kansas. *Criminology, 55*(3), 603–630.
- Rudes, D. S. (2012). Framing organizational reform: Misalignments and disputes among parole and union middle managers. *Law & Policy, 34*(1), 1–31.
- Scheim, A. I., Maghsoudi, N., Marshall, Z., Churchill, S., Ziegler, C., & Werb, D. (2020). Impact evaluations of drug decriminalisation and legal regulation on drug use, health and social harms: A systematic review. *BMJ Open, 10*(9), e035148. <http://dx.doi.org/10.1136/bmjopen-2019-035148>

- Schnell, L. (2021, February 1). Oregon law to decriminalize all drugs goes into effect, offering addicts rehab instead of prison. *USA Today*.  
<https://www.usatoday.com/story/news/nation/2021/02/01/oregon-decriminalizes-all-drugs-offers-treatment-instead-jail-time/4311046001/>
- Shiner, M. (2015). Drug policy reform and the reclassification of cannabis in England and Wales: A cautionary tale. *International Journal of Drug Policy*, 26(7), 696–704.
- Singer, J. D., & Willet, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*. Oxford University Press.
- Stuart, F. (2016). *Down, out, and under arrest: Policing and everyday life in Skid Row*. University of Chicago Press.
- The Appeal. (2021, March 29). *How decriminalizing drugs can improve public safety* [Video]. Youtube. <https://www.youtube.com/watch?v=Fmu240rHLvI>
- Tonry, M. (1995). *Malign neglect: Race, crime, and punishment in America*. Oxford University Press.
- Verma, A. (2015). The law-before: Legacies and gaps in penal reform. *Law & Society Review*, 49(4), 847–882.
- Verma, A. (2016). A turning point in mass incarceration? Local imprisonment trajectories and decarceration under California’s Realignment. *The ANNALS of the American Academy of Political and Social Science*, 664(1), 108–135.
- Wilson, J. Q., & Kelling, G. L. (1982). Broken windows. *Atlantic Monthly*.  
[theatlantic.com/magazine/archive/1982/03/broken-windows/304465/](http://theatlantic.com/magazine/archive/1982/03/broken-windows/304465/)
- Woods, J. B. (2015). Decriminalization, police authority, and routine traffic stops. *UCLA Law Review*, 62, 672.