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Racial Disparities in the Acquisition of Juvenile Arrest Records

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Abstract

Using administrative data for California, we document very large racial and ethnic disparities in the propensity of law enforcement to formally book, and thus officially record juvenile arrests. A fair share of the black-white disparity can be attributed to differences in arrest offense severity and arrest history, though this is not true for Hispanic-white disparities. In addition, a very large share of the raw differences can be explained by differences in practice between law enforcement agencies that tend to arrest minority youth and law enforcement agencies that tend to arrest white youth. Racial disparities in the propensity to book arrests tend to be largest for offender age ranges, offenses, and in departments where the greatest discretion is exercised. Finally, we explore whether officially booked arrests increase the likelihood of future interactions with the criminal justice system. We exploit the discontinuous increase in arrest bookings as the date of arrest passes through the 18th birthday. The results suggest sizable effects of a prior booking on the likelihood of a future arrest as well as an effect on subsequent bookings conditional on a subsequent arrest.

1. Introduction

Booked arrests (arrests that are formally recorded via processing, and most importantly, finger printing at a local detention facility) along with criminal convictions are the key building blocks of a criminal history record. Such arrests are observed by law enforcement when querying rap sheets in the field. Booked arrests and convictions also enter into future risk assessments and may in some instances be obtained by non-criminal justice actors, such as employers. In many jurisdictions, police are afforded and exercise greater discretion in the handling of youth arrests via a greater use of citations rather than bookings, and by simply resolving incidents through informal counseling.

In this paper, we study racial disparities in the rate at which juvenile arrests are booked by the police and assess the consequences of these disparities for future involvement with the criminal justice system. We begin by documenting racial and ethnic disparities in the processing of juvenile arrests and assess the degree to which they are explained by offense characteristics, criminal histories, and geographic variation in de facto policy. We document large disparities in black relative to white youth booking rates (on the order of roughly 50 percent, or 16.8 percentage points), and smaller yet significant disparities between Hispanic and white youth (on the order of 18 percent or 6.2 percentage points). Including detailed controls for current offense and prior arrest history explains roughly half of the black-white disparity, while controlling for the agency making the arrest (roughly corresponding to the city of arrest) narrows the unexplained residual difference to roughly one-quarter of the unadjusted value. The latter finding reflects two facts. First, black youth and white youth tend to be arrested by different agencies, a pattern reflecting racial segregation across California cities. Second, youth bookings

rates for all races and ethnicities are higher in cities with relatively large black and Hispanic populations.

The data do not permit a sharp outcome test for whether the residual disparities reflect unwarranted differential treatment of African-American youth. We can however explore heterogeneity in the racial-booking disparities to assess whether they are larger when greater discretion is typically exercised. The largest disparities are observed for non-violent felony offenses, such as drug offenses and those that fall under the “other felony” category. In addition, racial disparities are the largest for offenses where the booking rate for whites exhibit the highest variance. We also observe a larger discontinuous increase in bookings rates at 18 for white youth relative to black and Hispanic youth and consequently a narrowing of racial disparities. Since officers have considerably less discretion in processing adult arrests, this pattern suggests that racial disparities are largest for age groups where discretion is the greatest.

Next, we assess the degree to which booked arrests beget future booked arrests. Specifically, we exploit the large discontinuous increase in the proportion of first arrests that are booked when arrestees turn 18 to establish a causal relationship between a prior booking, the likelihood of a new arrest within three years, and the likelihood of being booked conditional on a future arrest. In an analysis of administrative data for California, we find that youth arrested for the first time just before their 18th birthday are significantly and substantially less likely to be rearrested within three years relative to youth arrested on or after their 18th birthday. Moreover, among those arrested a second time, the booking rate of the second arrest exhibits a discontinuous increase when the age-at-first-arrest running variable crosses the 18th birthday threshold.

2. Arrests, Bookings, and the Evolution of a Criminal History Record

Racial disparities in criminal justice involvement are evident in nearly all aspects of the U.S. criminal justice system. African Americans account for nearly 30 percent of arrests (Snyder 2013) and roughly one-third of individuals on probation or parole (Kaeble, Maruschak, and Bonczar 2015); shares that far exceed their numbers in the general population (roughly 13 percent). The lifetime likelihood of ever serving time in a state or federal prison is discretely higher for African Americans (Bonczar 2003) relative to other racial and ethnic groups as is the proportion incarcerated on any given day (Raphael and Stoll 2013). African Americans also tend to have more extensive criminal histories, a factor that plays an important role in determining pre-trial processing and sentencing (Harcourt 2010; Rehavi and Starr 2014).

In most instances, the lion' shares of these racial disparities are attributable to observable difference in case and individual characteristics. For example, Rehavi and Starr (2014) show that nearly 90 percent of the sentencing differential between African Americans and whites processed in federal criminal court is explained by differences in criminal history and the nature of the individual's current criminal conduct. MacDonald and Raphael (2017) find similar patterns in an analysis of local court data for San Francisco. McCrary and Raphael (2015) show that the racial disparity in the rate at which people are killed by police in the process of arrest are much more narrow when one uses arrests as a benchmark rather than population. Fryer (2016) finds that conditioning on observables narrows (though does not eliminate) inter-racial disparities in non-lethal uses of force by the police. However, Fryer also finds that once one limits the potential

pool of incidents to those that might arguably merit lethal use of force, differences in the use of lethal force by police officers stratifying by the race of the suspect disappear.

Nonetheless, most analyses of such disparities find residual differences that cannot be explained by observable factors, suggesting that differential treatment by actors in the criminal justice system or disparate impacts of policy and practice may be contributing factors. Moreover, slight differences in treatment beginning at a young age may have a cumulative impact on future criminal justice involvement and perpetuate and exacerbate racial disparities within specific birth cohorts. For example, several studies employing randomization of criminal cases to judges demonstrate that harsher sentencing begets future criminal activity and poor outcomes in other domains such as educational attainment, employment, and dependence on public aid (Aizer and Doyle 2015, Mueller-Smith 2015). In addition, there is evidence suggesting that pre-trial detention results in poorer sentencing outcomes for criminal defendants (Dobbie, Golden and Yang 2016), and current practice generally results in higher bail and a lower likelihood of supervised pre-trial release for those with more extensive criminal histories (Angwin et al. 2016). Age at first arrest and other markers of early criminal justice involvement are common elements in local risk assessment practices determining pre-trial release, mandatory conditions of community supervision, and in some instances, criminal sentencing (Monahan and Skeem 2015). To the extent that early interactions with the criminal justice system increases the likelihood of future criminality or flags an individual for harsher treatment in future criminal cases, small differences in treatment early in life may generate large disparities in criminal justice outcomes at later ages.

Nearly all interactions with the criminal justice system begin with an arrest. The definition of an arrest is somewhat ambiguous with the most general definition being when a suspect is no longer free to walk away from an arresting officer (Bergma and Berman 2015) and a more specific definition being when a law enforcement officer detains a suspect with the intention of seeking charges and records the detention (UCR Handbook 2004). Police officers have discretion to handle arrests in different ways depending on the seriousness of the offense. In the least serious cases, the suspect may simply be released with a warning. In the case of juveniles, this often takes the form of a call or visit to the parents or guardians of the child and officially recorded as having been handled internally. For more serious incidents, the suspect may be either issued a citation (a notice to appear in court) or booked and admitted to a local detention facility. A jail booking may take several hours and involves the collection of identifying information (including name, address, other demographic characteristics, and a set of finger prints), taking a photo of the suspect (the mug shot), strip-searching, and security and mental health screening.

Fingerprints taken at booking are used to create unique biometric identifiers that are key for linking interactions with the criminal justice system. Booked arrests along with prints are reported into state criminal history repositories (the information sources for criminal background checks) as well as to the Federal Bureau of Investigation (FBI) for entry into a 50-state and federal criminal history repository. Criminal arrests (reported at booking) and criminal convictions (reported at the time of case disposition) provide the building blocks for a criminal history record. Arrests that are resolved informally (a call home to parents), citations where criminal charges are not filed, and citations where charges are filed but do not result in conviction will often not be

recorded in one's official criminal history record.¹ Hence, the discretion exercised by police officers at the time of arrest may be the difference between having and not having a criminal history record.²

Police officers exercise greater discretion with youth arrests than they do with adult arrests. This is clearly evident in the data we analyze. Figure 1 presents the proportion of arrests that are either booked, cited, or neither booked nor cited (handled in another manner) for all recorded arrests in California for the year 2012 by single year of age for all arrestees between 11 and 24. Less than 40 percent (for most ages) of juvenile arrests result in a formal booking while slightly over 40 percent of juvenile arrests result in citations. Roughly one-fifth of all juvenile arrests involve neither a citation nor a booking. Once the arrestee turns 18, however, arrests are handled more uniformly and more harshly. Between 70 and 80 percent of young adult arrests

¹ In some jurisdictions, individual receiving citations are required to eventually go through a booking process especially when charges are filed or a conviction is obtained. However, informal conversations with criminal justice officials throughout the state revealed that whether or not the individual complies with the booking requirement is not closely monitored in all jurisdictions. In addition, we learned through conversation with data analysts at the California Criminal Justice Information Center (the division of the state Department of Justice that maintains criminal history records) that they sometimes received disposition information (convictions, acquittals etc.) for offenses with no corresponding arrest (referred to informally as an orphaned disposition). This fact suggests that arrests resulting in a citation are less likely to contribute incidents to one's official arrest history.

² The generation of actual criminal charges and a prosecution requires further action on the part of police departments and local prosecutors. For adults, the police must present the case to the district attorney's office who can either file formal criminal charges or decline to pursue the case. The latter action may occur for several reasons, including referral of the case to probation or parole if the person is under active community supervision, perceived evidence problems, or assessment that the case is low priority. The police may also close a case by not presenting charges to the district attorney. For juveniles, further case processing requires that the officer refer the incident to the juvenile probation department. The alternative is to handle the case within the department through consultation with the youth or a call to parents. This may occur with or without a booking or citation. Many cases are indeed closed at intake by juvenile probation (roughly 36 percent in 2014). Another 10 percent received informal probation or some other form of diversion (Office of the Attorney General 2014). Hence, many booked juvenile arrests do not result in a petition filing against the juvenile. However, the booked arrest remains on the record.

are formally booked while slightly over a fifth are cited. Relatively few adult arrests involve neither a citation nor a booking.³

In addition to officer level discretion, the processing of arrests (juvenile arrests in particular) varies considerably across departments with heterogeneity in local practice. In the data we analyze below, we observe juvenile arrests made by over 700 separate law enforcement agencies in California.⁴ The inter-quartile range for department-level juveniles booking rates is 0.373 compared to 0.251 for young adults. The comparable figures for the proportion of arrests neither booked nor cited are 0.193 for juveniles and 0.011 for young adults.

As we will soon document, there are enormous racial and ethnic disparities in how juvenile arrests are processed. In what follows we explore the sources and consequences of these disparities.

3. Documenting Racial Disparities in the Handling of Juvenile Arrests

In this section, we document racial disparities in the likelihood that juvenile arrests are booked and provide multivariate estimates of the effects of prior bookings on the likelihood of bookings. We begin by describing the administrative data used in this analysis. We then document racial disparities in arrest outcomes and assess the degree to which such disparities

³ In informal conversations with current and former police officers around the country, we have also learned that the cost to the officer of a juvenile arrest is often higher than the cost of an adult arrest. Juveniles require additional handling, often involving a direct transfer to a juvenile detective that may take the officer off patrol for long periods of time. Some jurisdictions streamline this process or create specialized locations for juvenile processing that minimizes these transactions costs. Adult arrests on the other hand are easier to process and in some jurisdictions may actually involve handing off the suspect in the field.

⁴ Roughly 75 percent of arrests are made by local municipal police departments, 20 percent by county sheriffs, and roughly 5 percent by other law enforcement agencies such as the California Highway Patrol, transit police departments, and other special district police departments.

reflect differential treatment by assessing whether the size of the disparity depends on the degree of discretion exercised by police officers.

3.1 Description of Multiple Arrest and Citation Register and Documentation of Racial Disparities

The data for this project comes from the Monthly Arrest and Citation Register (MACR) collected by the California Department of Justice Criminal Justice Statistics Center. The MACR includes micro-level data on all recorded arrests and citations occurring in the state of California. Data are available back to 1980, though in this paper we use various subsamples of the arrests occurring between 1990 and 2015.⁵ The dataset includes information on the arrest date, arrest status (booked, cited, or other), arrest disposition (handled internally or referred to another criminal justice agency), and various demographic characteristics of the arrestee (age, gender, and race/ethnicity as perceived by the arresting officer). The data also includes detailed information on the most serious charge recorded at arrest (with over 70 separate categories) and the arresting agency (over 700 separate agencies for the period we analyze).

Our analysis of racial disparities focuses on arrests of youth between the ages of 11 and 17 who are born in 1990 or later. We restrict the analysis samples to those individuals meeting these criteria who were arrested in the year 2012 or earlier. Hence, we are analyzing data on youth arrests from the years 2001 through 2012. The administrative data includes individual names as recorded by the arresting officer as well as birthdates. We use this information to construct arrest histories at time of arrest.⁶

⁵ Youth booking rates in the data increase considerably during the 1980s suggestive of greater use of this particular field by officers. Rates stabilize in the late 1980s. For this reason, we do not use data from the 1980s.

⁶ Names are clearly measured with error (for example, variation in spelling, inclusion of middle names, reversing first and last name, etc). Hence, all variables that we construct based on names and date of birth will also contain some measurement error. Since the MACR do not constitute the official criminal histories of individuals and are simply

The data reveal very large racial and ethnic disparities in how juvenile arrests are processed. Figures 2 through 4 document this pattern. Figure 2 displays the proportion of youth arrests that result in a booking, a citation, or neither a booking nor a citation.⁷ Black youth are 17 percentage points more likely than white youth and 11 percentage points more likely than Hispanic youth to be booked when arrested. White youth are the most likely to be cited, and are approximately 40 percent more likely to be neither booked nor cited relative to black youth. Observable disparities are similar when we restrict the sample to first-time arrestees, though booking rates are slightly lower across the board.

Figure 3 explores whether these disparities vary by age. For all juvenile arrests and for first-time arrests we observe sizable differences with African-American youth most likely to be booked followed by Hispanic youth and white youth within all age groups. The disparities appear to widen between the ages of 11 and 17. In figure 4, we tabulate the proportion booked, proportion cited, and the proportion neither booked nor cited (labeled other in the figure) by arrest for highly criminally active youth (arrested at least four times by age 17). Within racial/ethnic groups, we observe booking rates increasing with subsequent arrests, citation rates declining, and the proportion informally resolved declining as the youth accumulate additional arrests. Several factors may explain this pattern. First, police officers may grow increasingly impatient with youth who are repeatedly arrested and thus be more likely to book the arrest and refer the youth to juvenile probation. Alternatively, prior bookings may beget future bookings,

administrative data used to generate arrest totals for the federal Uniform Crime Reporting Program, there is no biometric identifier that would permit linking incidents within this file.

⁷ The figure displays separate tabulations for black, Hispanic, and white youth. While the data include more race/ethnicity categories, these three groups constitute approximately 94 percent of juvenile arrests in the state.

to the extent that a prior booking generates an official criminal history record observables by officers in the field.

Figure 4 also reveals sizable racial disparities in the processing of youth arrests even accounting for the number of prior arrests among this fairly criminally active sub-sample. The bookings rate for white youth on their fourth observed arrest (0.49) is 15 percentage points lower than comparable rate for black youth and only three percentage points higher than black youth in this sub-sample at their first arrest. Moreover, 15 percent of white youth on their fourth incident are neither booked nor cited compared with 9 percent of black youth on their fourth incident. The proportion neither booked nor cited among white youth on their fourth arrest actually exceeds slightly the comparable proportion for black youth on the first arrest.

To be sure, there are differences in the average characteristics of arrests involving youth of different racial and ethnic groups. Table 1 illustrates this point.⁸ There are no appreciable racial difference in average age, average age at first arrest, or in gender composition. African-American and Hispanic youth are considerably more likely to have a prior booking at the time of arrest relative to white youth and have slightly more prior arrests on average. We do, however, see substantial differences in arrest histories and the composition of current and previous charges. For example, 23 percent of black juvenile arrestees have a prior incident where the most serious offense was a felony. The comparable figures for arrested white and Hispanic youth are 14 and 20 percent, respectively. African American youth are also more likely to have prior violent felony

⁸ To generate the arrest history variables, we bin all arrests into the following broad offense categories: felony person, felony property, felony drug, felony other, misdemeanor, and status offenses. Status offenses are offenses that are defined for juveniles only, such as curfew violations, incorrigibility, being a runaway, or truancy. For each arrest incident we tabulate the total number of prior incidents for each of these categories. We also tabulate the prior number of booked arrests.

incidents. Regarding the current arrest offense, 25 percent of the arrests of whites are for felony charges, compared with 38 percent of black arrests, and 26 percent of Hispanic arrests.

Beyond the difference in Table 1, there are also large imbalances in which law enforcement agencies arrest which youth. Municipal police and county sheriff departments account for nearly 95 percent of arrests.⁹ As the distribution of youth across municipalities differs by race, the distribution of juvenile arrests across municipalities also differs by race. To characterize the extent of this imbalance, we calculate dissimilarity indices between the geographies of youth arrests of different race and ethnicity.¹⁰ The dissimilarity value between black and white youth arrests is 0.53, indicating that 53 percent of either black or white arrests would have to be hypothetically reallocated across jurisdictions for the white and black arrests distributions to be similar. The Hispanic-white dissimilarity index equals 0.45.

3.2 Empirical Strategy

We use simple regression analysis to assess the degree to which inter-group disparities in the likelihood that an arrest is booked can be explained by group disparities in incident characteristics, individual characteristics, observable arrest history, and inter-agency variation in practice. As we will soon see, much of the disparities documented above are attributable to differences in offense characteristics, arrest and booking history, and distribution of arrests

⁹ In the empirical analysis below, we treat local municipalities that contract with county sheriffs as separate agencies. We do indeed have a crosswalk developed by the California Department of Justice showing which municipalities sub-contract with sheriffs. In many instances, it appears that sheriff departments set up substations with separate staff for such municipalities and thus, we believe it is appropriate that they have their own fixed effect in our attempt to statistically adjust for heterogeneity in local practice. Our results and conclusions do not change appreciably when we allocate all sub-contracted agencies to the corresponding county sheriff.

¹⁰ The dissimilarity index between any two groups varies from zero to one and gives the proportion of youth arrests of any one group that would have to be reallocated across law enforcement agencies to yield comparable arrest distributions across agencies.

across law enforcement agencies. However, after controlling for those covariates, statistically significant differences in bookings rates equal to roughly one quarter of the raw race and ethnicity differentials remain. Prior research on differential treatment by the criminal justice system has employed a variety of strategies to assess whether residual differences reflect differential treatment of minorities by law enforcement, including controlling extensively for observables and/or outcome tests that assess whether minority criminal suspects are subject to lower probable cause threshold for search, arrests, bail decisions, and other key decision points.¹¹

One can certainly imagine potential outcome tests that could be deployed for the question at hand. For example, if the cases of black youth were more likely to be closed at intake by juvenile probation or diverted to an informal alternative sanction, this would be consistent with differential treatment of black youth by the police and corrective, offsetting behavior by subsequent up-stream criminal justice actors. Published aggregate data by the California Attorney General suggests the opposite; the cases of black youth referred to juvenile probation are less likely to be closed at intake or diverted than those of white youth (Office of the Attorney General 2014). However, as the descriptive statistics presented in Table 1 reveal, cross-racial

¹¹ In an analysis of federal sentencing disparities, Mustard (2001) controls extensively and flexibly for criminal history, offense severity, and whether the defendant cooperates with authorities in the prosecution of another, and interprets residual disparities as reflecting differential treatment. Knowles, Persico, and Todd (2001) and Sanga (2009) test for differential contraband discovery rates between blacks and whites searched by police, the insight being that a lower hit rate for police searches of African Americans would indicate that black suspects are being held to a lower evidentiary standard. Ayres and Waldfogel (1994) assess whether the percent charged against a set bail amount by private bail bonds companies differs for African-American criminal defendants relative to white criminal defendants. Based on the finding that bail bondsmen charge lower percentages to African-American defendants, the authors infer that judges are setting higher bail amounts for African Americans conditional on the risk of pre-trial misconduct. As one further example, Anwar and Fang (2006) as well as Antonovics and Knight (2009) derive tests for differential treatment of criminal suspects based on tests for interaction effects between officer and citizen race.

differences in average case characteristics make it impossible to draw any conclusion from this aggregate pattern. Unfortunately, we do not have case-level data at the current time on upstream actions taken by juvenile probation for these cases.

An alternative strategy would be to assess whether racial and ethnic disparities are larger for incidents, places, or age ranges where greater discretion is exercised. For example, suppose that juvenile homicide arrests are always booked. An officer who cites a juvenile homicide suspect or simply returns the suspect to his or her parents would certainly draw scrutiny. Alternatively, suppose that juveniles violating a local curfew are never booked. Harsh treatment of a juvenile for a minor violation may also draw negative attention. In both examples, the circumstances of the case limit discretion and thus one would expect equal treatment regardless of irrelevant suspect demographic characteristics.

By contrast, offenses that are sometimes booked and sometimes not permit greater leeway for the officer to decide how to proceed based on aggravating and mitigating factors. A difference in outcome between any two given youth that may differ by race or ethnicity would not be unusual for offenses that are booked half the time and not booked the other half. To the extent that discretion is exercised in a biased manner, one would expect to see greater racial disparities in processing outcomes for arrest offenses where greater discretion is afforded. On the other hand, to the extent that racial disparities reflect unobservable heterogeneity in case characteristics, one would expect to see comparable racial processing differences in high and low discretion cases.

We operationalize this strategy by testing for difference in racial disparities across various dimensions where one might argue a priori that the discretion afforded to officers varies. First,

we assess whether the discontinuous increase in bookings at age 18 is larger for white youth relative to black and Hispanic youth. Evidence of a relative larger increase for white youth would be indicative of a narrowing of racial disparities when moving from an age range where the officers have more discretion to an age range where the officers have less discretion.

Second, using white juvenile arrests we estimate booking rates for 76 broad offense types and stratify the offense into bins according to the mean booking rates. We test for larger racial disparities in the bins with higher variance in white booking rates (i.e., those arrests where mean booking rates are nearest to 0.5).

3.3 Multivariate Analysis of Racial Disparities in Booking Rates

Tables 2 and 3 contain our principal analysis of racial disparities in the likelihood that a juvenile arrest (arrests occurring at the age of 17 or younger) is booked. Table 2 presents the results from linear probability models using all juvenile arrests. Table 3 presents analysis of the sub-samples defined by broad offense categories. In all models, we cluster the standard errors by law enforcement agency.

In Table 2, we begin by estimating unadjusted differences in booking rates relative to white youth. We then consecutively add basic demographics (gender, age), a complete set of dummy variables indicating the most serious current charge, controls for the number of prior arrests by offense type, the number of prior bookings, and in the final model, a full set of fixed effects for arresting agencies. Collectively, adjusting for these alternative sets of control variables reduces the unexplained black-white differential in bookings rates from 0.163 to 0.039, basically closing 76 percent of the gap. Analyzing the results across specifications reveal two key sets of variables that explain much of the racial disparity in arrest processing. First, holding constant the

most serious current charge reduces the black-white gap from 0.164 to 0.092 (a 44 percent decline). Controlling for prior arrests and prior bookings narrows the difference further, but only slightly. Second, adding controls for arresting agency reduces the residual black-white difference to 0.039. Hence, black-white differences in the types of offenses generating arrests and in the practices of agencies that typically arrest black as opposed to white youth are key factors. The remaining disparity is statistically significant at the one percent level of confidence.

We observe a somewhat different pattern for Hispanic-white bookings differences. While smaller in magnitude relative to the black-white disparities, Hispanic youth are roughly six percentage points more likely to be booked at arrest relative to white youth. In sharp contrast to the results for the black-white disparity, the relatively higher booking rate for Hispanic youth is not explained by differences in demographics, current offense characteristics, prior arrests by type, nor prior bookings. Across the first five specifications of the table, the disparity is relatively stable at approximately six percentage points. Adjusting for arresting agency, however, explains nearly all of this disparity, narrowing the residual gap to a statistically significant 1.6 percentage points.

The remaining results in Table 2 reveal several interesting patterns, with perhaps the most important pertaining to the role of prior arrest incidents in determining the likelihood that a juvenile arrest is booked. When prior bookings are omitted from the specification, we observe positive and significant coefficients on the number of prior arrest, especially for prior felony arrests. Adding prior-bookings to the analysis reverses the sign of these effects, suggesting that prior arrests impact current booking through an increased likelihood of having been booked in the past. These results (presented in column (5)) suggest very large effects of prior bookings on

future bookings that increase discretely for the first booking (by 25 percentage points) and for each subsequent booking (by between 9 and 14 percentage points). The results in the final column inclusive of agency fixed effects, however, paint a somewhat different portrait. First, all of the coefficients on the prior arrest totals are very near zero, though often statistically significant. Regarding prior bookings, the results from the complete specification suggest that crossing the extensive margin between having ever been booked and never having been booked increases the likelihood of future booking at arrest by roughly 9 percent. However, increases along the intensive margin (more bookings) do not increase the likelihood for the current case.

Table 3 presents bookings disparities estimates for all offenses and by broad offense categories. Panel A presents results for black-white disparities while panel B presents results for Hispanic-white disparities. The results reveal relatively small differences for the least serious offenses (misdemeanor and status offenses) and the largest disparities for less serious felony offenses (drug offenses, other felony offenses). Controlling for specific offenses within broad offense categories and arrest and booking history does not alter this pattern. However, adding a complete set of law enforcement dummies greatly narrows the degree of heterogeneity across offense types. The comparisons of the results in columns (2) and (3) of the table are indicative of the manner in which inter-agency heterogeneity in practice contributes to racial and ethnic disparities in bookings rates. Adding agency dummies leads to particularly large declines in residual black-white bookings disparities for felony property offenses (from 0.161 to 0.054), felony drug offenses (0.186 to 0.047), and other felony offenses (0.166 to 0.065), suggesting that agencies that disproportionately arrest African-American youth are the most likely to book

juveniles for non-violent felony offenses. Similar patterns are observed for the Hispanic-white disparities.

3.4 Are Racial/Ethnic Disparities Larger for Arrests that Afford Greater Discretion?

The patterns thus far suggest that (a) a prior bookings increases the likelihood that future interactions with the police results in a formal arrest, (b) minority youth are much more likely to be booked than white youth, and (c) most though not all of the racial and ethnic disparities in how juvenile arrests are handled can be explained by factors readily observable at the time of arrest. In this section we turn to an assessment of whether the residual disparities reflect differential treatment as opposed to unobserved heterogeneity.

While we are unable to conduct sharp outcome test with our data, we can assess whether racial and ethnic disparities in bookings rates are largest when discretion is the greatest. We exploit two sources of variation in discretion. First, we assess whether racial disparities decline for arrests occurring after the 18th birthday. Second, we assess whether disparities are larger for offenses where the variance in bookings rates are greatest.

Figure 5 plots booking rates for arrest by date of arrest relative to the 18th birthday for all arrests of 17 and 18 year olds occurring between 2000 and 2014. Averages by day for white youth are marked by green triangles. The comparable averages for Hispanic youth are marked by red dots while the comparable averages for black youth are marked by blue x's. For all arrests, we observe discrete increases in bookings within groups, though important differences in levels among both youth arrested before and after their 18th birthdays. There appears to be somewhat larger visible increase for white youth. Within offense categories, the pre-post 18th birthday differences by race are more visible. Within specific offense categories we observe much greater

variance in these averages for arrests occurring prior to the 18th birthday relative to arrests made after. Moreover, the cloud of bookings observations for white youth generally lies below that for Latino youth, which in turn lies below that for black youth. The variance and these differentials narrow considerably for arrests made after the age of 18. This pattern is especially strong for felony drug offenses and other offenses.

Table 4 formally tests whether these inter-racial and inter-ethnic disparities narrow for arrests made on the 18th birthday or later. The table presents the pre-post 18 discontinuity in bookings rates for white youth (the coefficient on the variable over 18 in the table), and the extent to which the pre-post change differs for black and Hispanic youth.¹² Specification (1) presents unadjusted estimates of these coefficients, specification (2) adds controls for gender and arrest offense, while specification (3) adds controls for arresting agency. For all offenses combined, there is a discontinuous increase in the bookings rate for white youth of roughly 20 percentage points. The increase is only slightly smaller for black youth (by four percentage points) and insignificantly smaller for Hispanic youth. Adjusting for observable in specifications (2) and (3) yield qualitatively similar results, though the change for Hispanic youth becomes statistically distinguishable from that for white youth.

Within offense category however, there is considerably greater evidence of pre-post 18 narrowing in racial bookings disparities. We observe the largest discontinuous increase in the booking rate for white youth for property and drug felonies, on the order of nearly 30 percentage points. For property offenses, the increase at 18 in the bookings rate for black youth is 12 to 14 percentage points lower than that for white youth. For drug offenses, this increase is 14 to 15

¹² The full specification of the underlying regression model is discussed in the notes to table 4.

percentage points lower. The difference in discontinuities suggests that the Hispanic-white disparities narrows 9 to 10 percentage points for property felonies and by 12 to 13 percentage points for drug felonies. We see similar large changes for other felonies but relatively little narrowing for misdemeanors arrests.

Table 5 explores heterogeneity in bookings rates in a slightly different manner. We begin by estimating the rates at which white youth are booked for each of 76 broad offense categories. We then sub-divide all arrests into nine groups by the bookings propensity for the arrest offense ordered from lowest to highest bookings rates.¹³ Finally, we estimate racial and ethnic disparities in bookings rates within each group. The goal here is to assess whether disparities are largest for offenses with the highest bookings-rate variance. Given that the bookings outcome is a dichotomous variable, bookings variance is the highest in the intervals 0.4 to 0.5 and 0.5 to 0.6.

The table reveals a fairly clear pattern of heterogeneity in the bookings disparities. First, disparities are the largest for the high variance offenses, with the absolute largest disparities for offenses in the 0.5 to 0.6 strata for all specifications and for both the black-white and Hispanic-white disparities. Second, comparing the lower-bookings rate groups to the higher bookings rate groups suggests that the disparities tend to be larger for offenses with bookings rates above 0.5 relative to offenses with similar bookings rate variance below 0.5. For example, the residual black-white disparity in column (2) for offenses in the white bookings rate range of 0.6 to 0.7 is 0.101. The comparable difference for offenses in the bookings rate range of 0.3 to 0.4 (offenses with comparable booking variance) is 0.057. This asymmetric pattern is evident to varying

¹³ We group arrests by the white booking rate into the grouping 0.0 to 0.1, 0.1 to 0.2, 0.3 to 0.4. and so one. We combine the two highest groups (0.8 to 0.9 and 0.9 to 1.0) into one group due to relatively small number of arrests in the highest booking rate categories.

degrees through the three specifications and for both black-white and Hispanic-white disparities. Finally, we again see that adjusting for inter-agency differences explains large portions of the inter-racial and inter-ethnic bookings disparities, though residual differences are still the largest for offenses in the 0.5 to 0.6 white bookings strata. Consistent with the findings in Table 4, this suggests that inter-agency disparities in practice as applied to offenses with high bookings variance seems to be a key driver of racial disparities in juvenile arrest processing.

4. Do Bookings Beget Future Arrests and Bookings?

The descriptive statistics document large racial and ethnic disparities in the handling of juvenile arrests. Given the manner in which official criminal history records evolve, differential treatment will result in racial disparities in the prevalence and extensiveness of criminal history records. To be sure, a higher likelihood of booking an arrest will mechanically record a greater proportion of arrests for black and Hispanic youth relative to white youth, generating disparate records holding behavior constant. However, these disparities may be further exacerbated to the extent that an initial booked arrests increases the likelihood of a future arrest and the handling of future arrests.

There are several avenues through which an initial booking may generate more and qualitatively different future interactions with law enforcement. If the booked arrest leads to the filing of a petition, a sentence to probation, probation-related restrictions such as curfews, travel limitations, mandatory meetings and drug testing, and perhaps greater scrutiny of an individual's behavior, the booked arrest may causally increase the likelihood of future arrests. Moreover detention itself may be criminogenic (Aizer and Doyle 2015) further increasing the

likelihood of future interactions with law enforcement. These causal channels are shut off for youth who are effectively informally diverted. Beyond increasing the likelihood of future arrests, a prior booking may increase the likelihood that future arrests are booked and referred to the prosecutor. Police may be less likely to cite and release or informally handle arrests for individuals with officially recorded past arrests.

In this section, we explore whether the formal booking of arrests increases the likelihood of future arrests and future bookings, exploiting the discrete increase in booking rates occurring for those arrested on or after their 18th birthdays. Specifically, we identify all individuals in the state of California arrested for the first time for a non-status offense¹⁴ at age 17 or 18 between 1990 and 2012. We then create outcome variables indicating whether the person was rearrested within three years of the first arrest¹⁵ and if so, whether the second arrest is booked. We construct a running variable measuring the date of the first arrest relative to the arrestee's 18th birthday and estimate the effect of a prior booking on the likelihood of a second arrest, and on the likelihood of a second booking conditional on a second arrest exploiting the discrete variation in the first-arrest booking rate occurring at the 18th birthday.

Figure 6 presents the reduced-form and first-stage relationships for these two outcomes. The top half of the figure displays the relationship between the likelihood of a second arrest within three years as a function of the date of the first arrest (the figure on the top left) and the

¹⁴ Status offense include the categories truancy, runaway, curfew violation, incorrigible, and other status offense, and are defined as juvenile offenses. These offenses accounts for roughly 10 percent of charges for arrests occurring right before the 18th birthday and mechanically drop to zero percent at the 18th birthday. We also estimated all of the results in this section including status offense arrests. The results are quite similar to what we report here.

¹⁵ To create equal three-year post arrest observations periods, we use MACR data for 1990 through 2015 to capture second arrests.

relationship between whether the first arrest is booked and arrest date (in both figures, date is measured relative to the 18th birthday). Both figures use all individuals with a first non-status arrest at ages 17 or 18 (1,698,270 individuals in total). Each point corresponds to the average for all observations binned by the arrest date minus the date of the 18th birthday. There is a discrete and highly significant increase in the likelihood of a second arrest for those whose first arrest occurs at the 18th birthday of roughly 4.6 percentage points and a discrete increase in the likelihood that the first arrest is booked of roughly 13.3 percentage points.¹⁶

The bottom half of figure 6 presents similar empirical relationships for the likelihood of a second booking conditional on having been arrested twice as well as the first-arrest booking rate. Note both figures use the sample that conditions on there being a second arrest (420,337 observations for this restricted sample). The discontinuity in booking rates for first arrests occurring at the 18th birthday is slightly smaller than the discontinuity estimated using the complete sample of individuals arrested for the first time (12.7 percentage points), but is still highly statistically significant. Regarding the reduced-form effect on second arrest booking rates, individuals first arrested on or after their 18th birthday experience a 3.8 percentage point increase in the second-arrest booking rate relative to individuals whose first arrest precede their 18th birthdays.

4.1 Discussion of Estimation Strategy

We estimate the effect of prior bookings on subsequent arrests and the effect of prior bookings on future bookings in the following manner. We specify a first-stage equation relating the likelihood of a prior booking to the running variable as

¹⁶ The t-statistic for the first-stage booking differential is 57.41.

$$PB_i = \alpha_0 + \alpha_1 t_i + \alpha_2 t_i^2 + \beta_0 Over_i + \beta_1 Over_i x t_i + \beta_2 Over_i x t_i^2 + \varepsilon_i,$$

(1)

where PB_i , is an indicator variable for the first arrest booking, t_i measures the arrest date relative to the 18th birthday (equal to zero for those arrested on their eighteenth birthday), and $Over_i$ is a dummy variable indicating that t_i is greater or equal to zero. The parameter β_0 measures any discontinuous change in booking rates at the 18th birthday. For our outcomes variables, we specify the second-stage equation

$$Outcome_i = \gamma_0 + \theta PB_i + \gamma_1 t_i + \gamma_2 t_i^2 + \delta_1 Over_i x t_i + \delta_2 Over_i x t_i^2 + v_i$$

(2)

and estimate equations (1) and (2) using 2SLS. The parameter θ provides the causal effect of being booked at the first arrest on the outcome in question and is identified by the discontinuity in first-arrest booking rates for arrests occurring at the 18th birthday (given by the coefficient β_0). We estimate the effect of a prior booking on the rearrest probability using the complete sample of first arrestees and the effect of a prior booking on future bookings using the sub-sample restricted to individuals who are rearrested.

A clear caveat to the interpretation of the estimates from this strategy is that in addition to a discrete increases in booking rates at 18, those arrested at 18 rather than earlier, if booked and charged, are processed in the adult rather than a juvenile system. This in and of itself may increase the likelihood of future arrests and bookings to the extent that adults arrests are more likely to result in pretrial detention, to the extent that adult probation is more punitive than juvenile probation, or to the extent that police in the field consider prior adult arrests as

representing a more serious history relative to someone with prior juvenile arrests. The consequences of this for our estimation strategy is that we may be misattributing the effects of these aspects of the adult criminal justice system on future criminal justice involvement to the discrete increase in booking at the 18th birthday.

3.2. Behavior of Arrest Covariates for Arrests Occurring Near the 18th Birthday

Table 6 displays the behavior of various demographic and first-arrest characteristics as the first arrest date passes through the 18th birthday. For reference, the first and second columns present average values for each variable for arrests that occur during the year prior to an 18th birthday and the 30-day period prior to the 18th birthday. The third column presents the estimated discontinuity in each variable for arrests that occur on or after the 18th birthday.¹⁷ There are statistically significant changes in demographic characteristics for first arrests occurring on or after the 18th birthday, though many of the changes are small relative to the averages presented in the first two columns. For example, the proportion of arrests that are of females declines of -0.007 relative to the average proportion among those arrested the month prior to their 18th birthday of 0.224. We observe the largest absolute change in the proportion of arrests that are of white youth (-0.018), though again the change is small relative to the proportion of youth who are white among those arrested when they are nearly 18 years of age (0.341). The discontinuity for the proportion white is similar in magnitude to the more than offsetting discontinuity in the proportion of arrestees that are Hispanic.

¹⁷ The discontinuity estimates are from a regression of each variable on a running variable measuring arrest date relative to the 18th birthday (equal to zero on the birthday), the square of the running variable, a dummy indicating arrest on or after the 18th birthday, and interaction terms between this dummy, the running variable, and the squared of the running variable.

There are slight discontinuities in the distribution of arrests across offenses that suggest that first arrests occurring on the 18th birthday or later are more serious. The proportion that is non-felony declines discretely by 1.7 percentage points, while the proportion classified as felony drug offenses increases by 1.4 percentage points. There is little reason to suspect that the qualitative content of criminal behavior changes discretely at the 18th birthday. However, it is possible that officers record offenses differently for arrestees above and below the age of majority, holding those 18 or over to a discretely higher standard.

The final four rows of table 6 assess whether the incident-level factors that predict subsequent arrests, booking rates for the second arrests, and first-arrest booking rates change discretely for cases with first arrests occurring on or after the 18th birthday. Using the rearrest probability to illustrate, we first estimate a linear probability model where we regress an outcome variable indicating that the individual is rearrested within three years on a complete set of race/ethnicity dummies, a gender dummy, a complete set of first-arrests offense code dummies (76 categories), and a complete set of first-arrest, arresting-agency dummies (over 700 categories) and use the model to generate a predicted value for each observation. We then estimate whether this predicted value increases discretely for those whose first arrest occurs on or after the 18th birthday. The first two sets of averages and estimates use the complete set of first arrests to estimate the discontinuity for the predicted probability of rearrest and the predicted likelihood that the first arrest is booked. The second two sets of estimates (the proportion of second arrests booked and the booking rate for the first arrest) condition the sample on those individuals rearrested within three years of the first arrest.

There is a small, but statistically significant increase in the predicted rearrest probability of 0.004. Note, the observed discontinuity in the proportion actually rearrested is 0.046. There are larger predicted increases in the predicted bookings probability for the second arrest equal to 2.2 percentage points (relative to the observed reduced form discontinuity in this outcome variable of 3.8 percentage points). This suggests that the 2SLS estimates for this outcome will be sensitive to controlling for observable arrest characteristics. Finally, we also observe statistically significant increases in the predicted first arrest bookings rates both for the complete sample and the sample restricted to those arrested a second time. Here the increases in the predicted probabilities are 2.2 to 2.4 percentage points, equal to roughly 16 to 17 percentage points of the actual discontinuities at 18 in the first arrest booking rates.

As a final descriptive analysis of the data before presenting our main results, figure 7 presents the number of first arrests by day of arrest relative to the 18th birthday. The figure reveals arrests hovering around 2,100 prior to the 18th birthday, increasing discretely to roughly 2,300 in the days following and then increasing to roughly 2,600 per day by the end of the first year following the 18th birthday. The discrete increase at 18 is driven by the fact that we are omitting status offense arrest from the analysis. If we include status offenses, we observe daily arrests declining from roughly 2,400 per day to slightly higher than 2,300 per day for the year prior to the 18th birthday, a spike in arrests on the day before, the day of, and the day after the 18th birthday, followed by a slight decline in average arrests and the increase in the post-birthday year similar to what we observe in Figure 7.

The discrete increase in arrests observed in Figure 7 raises the question of whether we should be including status offenses for arrests occurring prior to turning 18. The argument for

dropping these offenses is that by nature they are less likely be booked and more likely to be resolved informally, and thus any first-stage discontinuity at 18 may simple reflect the fact that there are behaviors that one can be arrested for as a juvenile that one will not be arrested for as an adult. The argument for including these offenses is that police officer may be coding as status offense incidents that they would code as actual crimes if the person were over 18. In other words, officers may be using status offense charges with discretion to informally divert juveniles from formal case processing and further criminal justice involvement. The fact that arrest totals inclusive of status offenses for those just under 18 align more closely with arrest totals just after 18 suggest that this is likely the case – i.e., that offenses are charged differently for those arrested before and after 18. Irrespective of this specification choice, attempting to isolate a booking effect per se using the discontinuity at 18 should control for offense characteristics to ensure that the effect isolated doesn't reflect differences in charging practices for those who reach the age of majority.¹⁸

4.3 Estimation Results

Table 7 presents our principal estimation results using various specifications of the 2SLS model from equations (1) and (2). Panel A presents 2SLS estimates of the effect of being booked at the first arrest on the likelihood of being rearrested within three years while panel B presents estimates of the effect of being booked at the first arrest on the likelihood of being booked at the second arrest. We present estimates from three specifications. Specification (1) is the basic model outlined by equations (1) and (1) above. Specification (2) adds controls for race/ethnicity

¹⁸ Note, we also estimated all of the results in Tables 7 and 8 including status offenses in the sample. The parameter estimates are quite similar to those we report here and are available upon request.

and gender, a complete set of dummies indicating most serious charge for first arrest, and for the second booking outcome, a complete set of dummies for the most serious charge for the second arrest (for the second arrest booking outcome only). Specification (3) adds a complete set of dummy variables for arresting agency to the variables included in specification (2). Within each panel, we present estimates for all arrest, separate estimates for felony and non-felony arrests, and separate estimates by race/ethnicity and gender.

The results in panel A indicate that being booked for the first arrest increases the likelihood of being rearrested within three years by at least 0.344. The coefficient estimates are stable across the three specification and tend to increase as we add covariates to the model. The effects are larger when the initially booked arrest is a misdemeanor, are larger for African American youth, relative to white and Hispanic youth, and are somewhat larger for women relative to men. All of the estimates presented in Panel A are statistically significant at the one percent level of confidence.

In panel B, we observe significant effects of a prior booking on the likelihood that a subsequent arrest is booked, though the estimates are sensitive to controls for offenses characteristics. From specification (1) omitting offense characteristics, a prior booking increases the likelihood that the second arrest is booked by 0.299. Adding controls for demographics and the most serious charge for the first and second arrest reduces the estimate to 0.147, while adding arresting agency dummies reduces the coefficient further to 0.133. All estimates are statistically significant at the one percent level of confidence. Interestingly, the estimate from specification (3) of 0.133 is close to the multivariate estimates in Table (2) of the effect of a prior booked arrest when the data are restricted to juvenile arrests.

Our final set of results restricts the analysis to first arrests occurring within a narrow band of days around the 18th birthday. Specifically, we restrict the sample to individuals who are arrested within five days of their 18th birthday and calculate simple Wald estimates of the effect of a prior booking given by the ratio of the pre-post 18th birthday difference in the outcome variable to the pre-post difference in the first-arrest booking rates. We present results for all arrests occurring within five days, four days, three days, two days, and one day (arrested on one's 18th birthday relative to being arrested the day before one's 18th birthday). Table 8 presents these estimates. The table presents the estimated first-stage effect on first-arrest bookings, the IV-estimates, and the sample size. Again, panel A presents results for rearrest while panel B presents results for the likelihood of being booked at the second arrest conditional on being rearrested.

The estimated effects on rearrest range from 0.228 to 0.294, a bit smaller than the estimates in Table 7 though similar in magnitude. All of the estimates are statistically significant at the one percent level of confidence. The results for second-arrest bookings yield estimates ranging from 0.318 to 0.467. All are statistically significant at either the one or five percent level and are comparable in magnitude, of somewhat larger, than the estimates from the first specification presented in Table 7.

5. Discussion

In summary, we document very large racial and ethnic disparities in the propensity of law enforcement to formally book, and thus officially record juvenile arrests, with black youth booked at the highest rate, followed by Hispanic youth, and white youth. A fair share of the black-white

disparity can be attributed to difference in arrest offense severity and arrest history, though this is not true for Hispanic-white disparities. In addition, a very large share of the raw differences can be explained by differences in practice between law enforcement agencies that tend to arrest minority youth and law enforcement agencies that tend to arrest white youth. While race/ethnicity specific bookings rates are highly correlated across agencies, the segregation of youth of different race and ethnicities across California cities, coupled with tougher policing practices in cities with larger minority populations leads to sizable differences in the propensity to formally book minority youth (black youth in particular).

We also present evidence using both simple regression analysis conditioning on observables and an RD-design indicating that once one becomes formally involved with the criminal justice system this increases the likelihood of further criminal justice involvement. In particular, we find that variation along the extensive margin in prior bookings is associated with a discrete increase in the likelihood that a future juvenile arrest is booked, while variation along the intensive margin is not. We also find that youth arrested on or after their 18th birthday are discretely more likely to be rearrested within three years and to be booked at subsequent arrest, patterns we argue are due in part to the discrete increase in bookings rates at 18 years of age.

One potential explanation for these findings concerns the fact that prior arrests that are booked appear on criminal history records while those that are not booked often will not. Law enforcement officers in the field are able to query criminal histories in their patrol cars using the California Law Enforcement Telecommunication System (CLETS), and presumably may handle juveniles with prior booked arrests more formally than juveniles without. Interestingly, greater discretion in youth arrests is often justified in informal conversations by a desire to keep people

“out of the system” based on the supposition that once one has a formal criminal record one is treated differently by law enforcement and other agents of the criminal justice system. More research on this question in particular is needed.

While we cannot construct a sharp test for differential treatment by law enforcement, we can draw some conclusions based on heterogeneity in the racial/ethnic bookings disparities by offense and agency. First, we should note that roughly three quarters of the black-white disparity and two-thirds of the Hispanic-white disparity are attributable to observable factors including offense severity and arresting law enforcement agency. While one might question why some police departments are tougher than others, the data do reveal a strong correlation across departments between the bookings rates of youths of different races and ethnicities. That is to say, departments that are tough with black youth are also tough with white and Hispanic youth.

Regarding the residual disparities that survive controlling for offense severity and arresting agency, we do observe larger disparities for age ranges, offenses, and in departments where the greatest discretion is exercised. We also document an interaction effect between the degree of leniency displayed for white youth and the bookings disparities by offenses. While this is not decisive evidence of differential treatment, the data do indicate that further exploration of this very early decision point in the criminal case process flow is warranted. Further research should assess whether there is evidence of corrective actions by criminal justice agents further up-stream (higher propensity of juvenile probation to close cases at intake, divert to non-incarceration alternatives, or a higher likelihood of acquittal), or whether future actions concur and thus potentially validate the residual disparities documented here.

A further issue raised by the findings here concerns whether the differential treatment of minority youth is permanently impacting their life prospects via the creation of a criminal history record. Employers increasingly use criminal history records in screening applicants and audit evidence suggests that even arrests without conviction may impact employer hiring choices (Uggen et. al. 2014). Moreover, the results here suggest that police officers likely consult criminal histories in deciding how to proceed with specific incidents. Risk assessments for pre-trial release and bail decisions, community supervision conditions for prison and jail releases, and increasingly sentencing rely on such factors as number of prior arrests and age at first arrest. Harcourt (2010) argues that criminal history has increasingly become a “proxy” for race and that risk assessment tools that rely on criminal history in making important supervision and sentencing determinations may be unwarrantedly contributing to racial inequality. Similar arguments are made in Starr (2014), who proposes that risk assessment, especially in the context of criminal sentencing, may be validating and reifying past discriminatory treatment. While Harcourt does not provide a precise definition of what he means by “proxy” and why the correlation of criminal history with racial categorization should lead one to be against risk assessment, the findings in this paper present one concrete justification that may call into question the value of certain predictors commonly used in risk assessment tools. Specifically, to the extent that black youth are disproportionately exposed to police departments that handle the arrests of young people more harshly and who face police officers who treat them differentially, racial disparities in arrest history will in part reflect racial disparities in treatment. Moreover, to the extent that in the future black youth will be exposed to police departments that handle arrests of young people

more harshly and face police officers who treat them differentially, racial disparities in arrest history will predict racial disparities in future arrests.

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Figure 1: Proportion of Arrests Made in California in 2012 that are Booked, Cited, or Neither (Other) by Age for those 11 to 25 at Time of Arrest

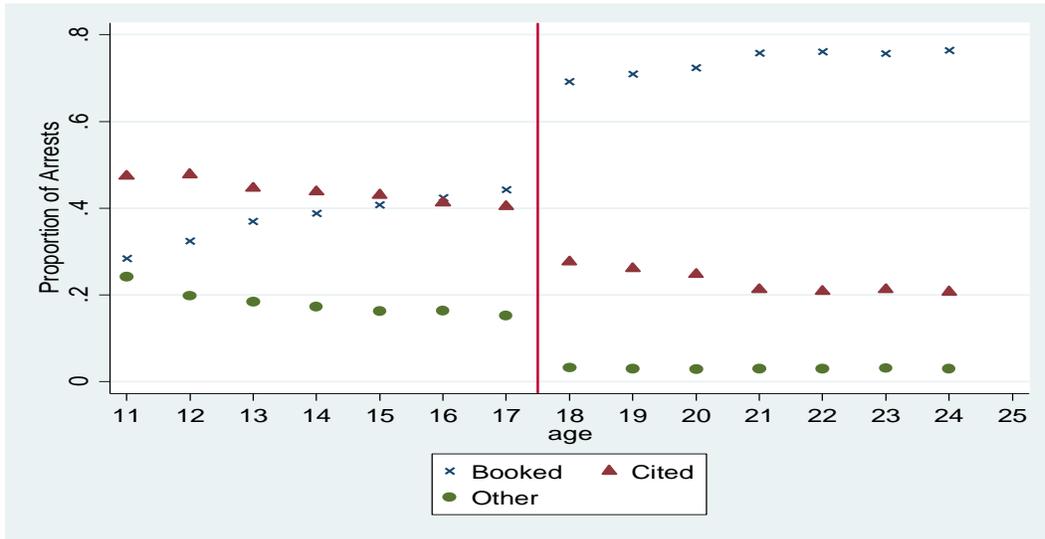


Figure 2: Status of Arrests by Race/Ethnicity: All Juvenile Arrest and for Youth Arrested for the First Time

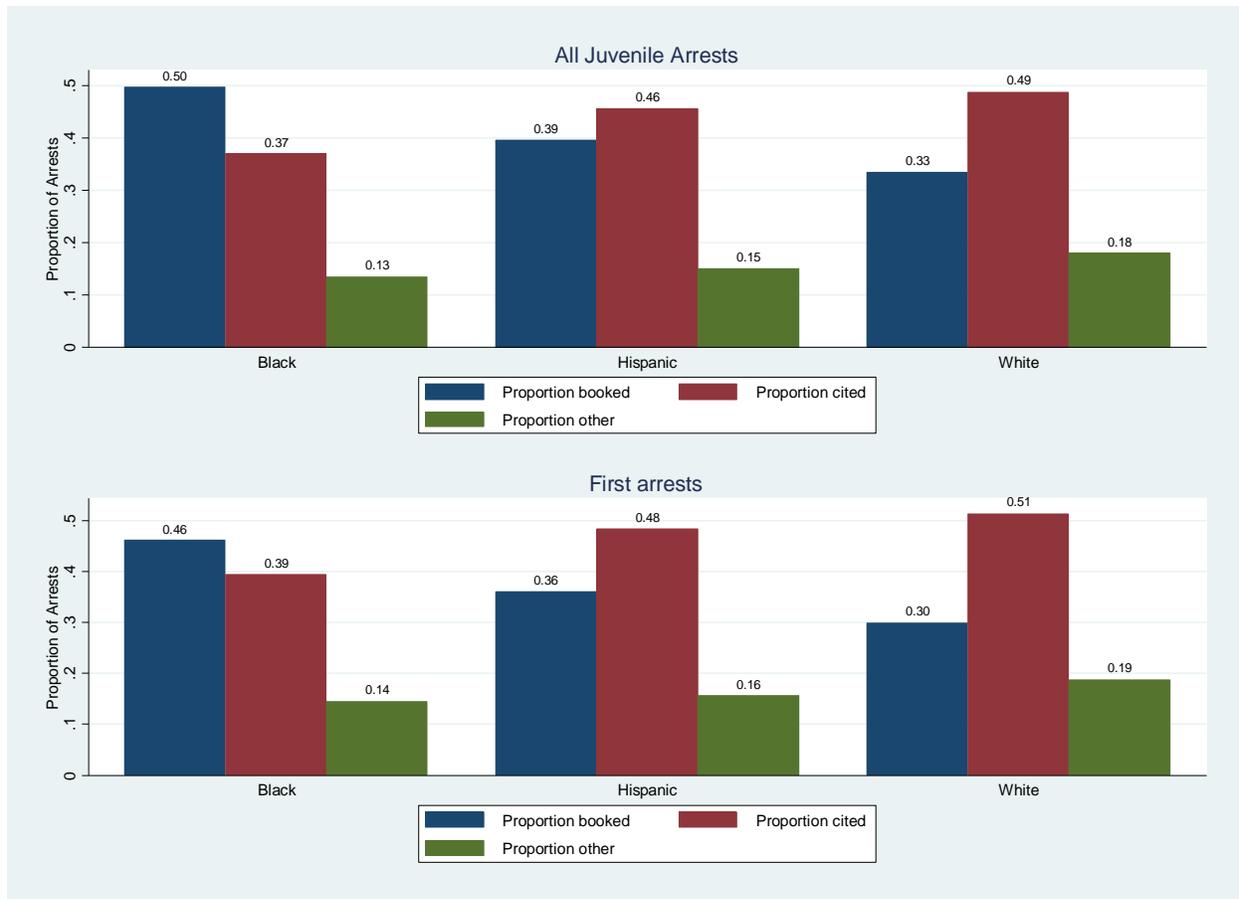


Figure 3: Booking Rates by Age and Race, All Juvenile Arrests and First Arrests

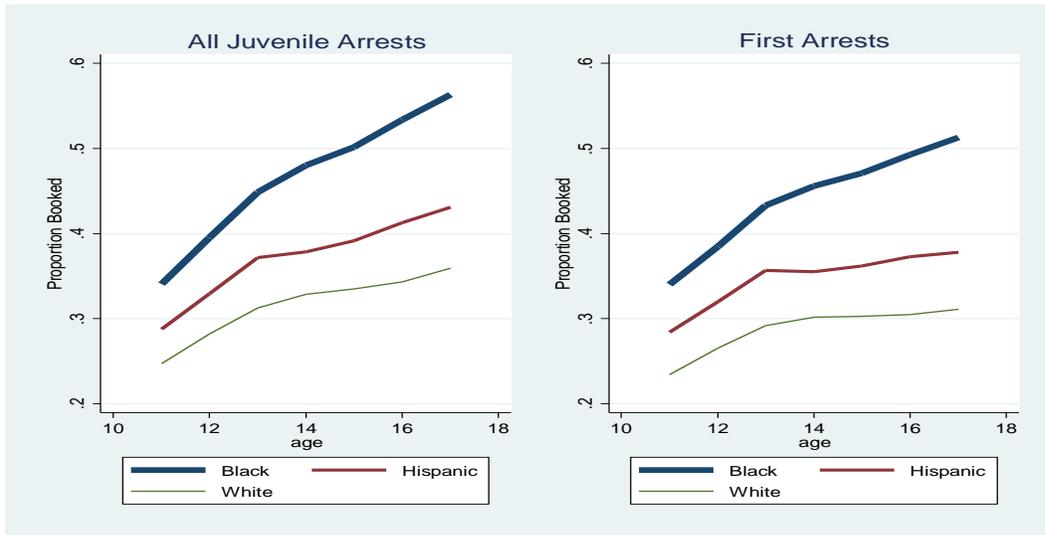


Figure 4: Arrest Status by Arrest Sequence and Race/Ethnicity for those Youth Arrested at Least Four Times

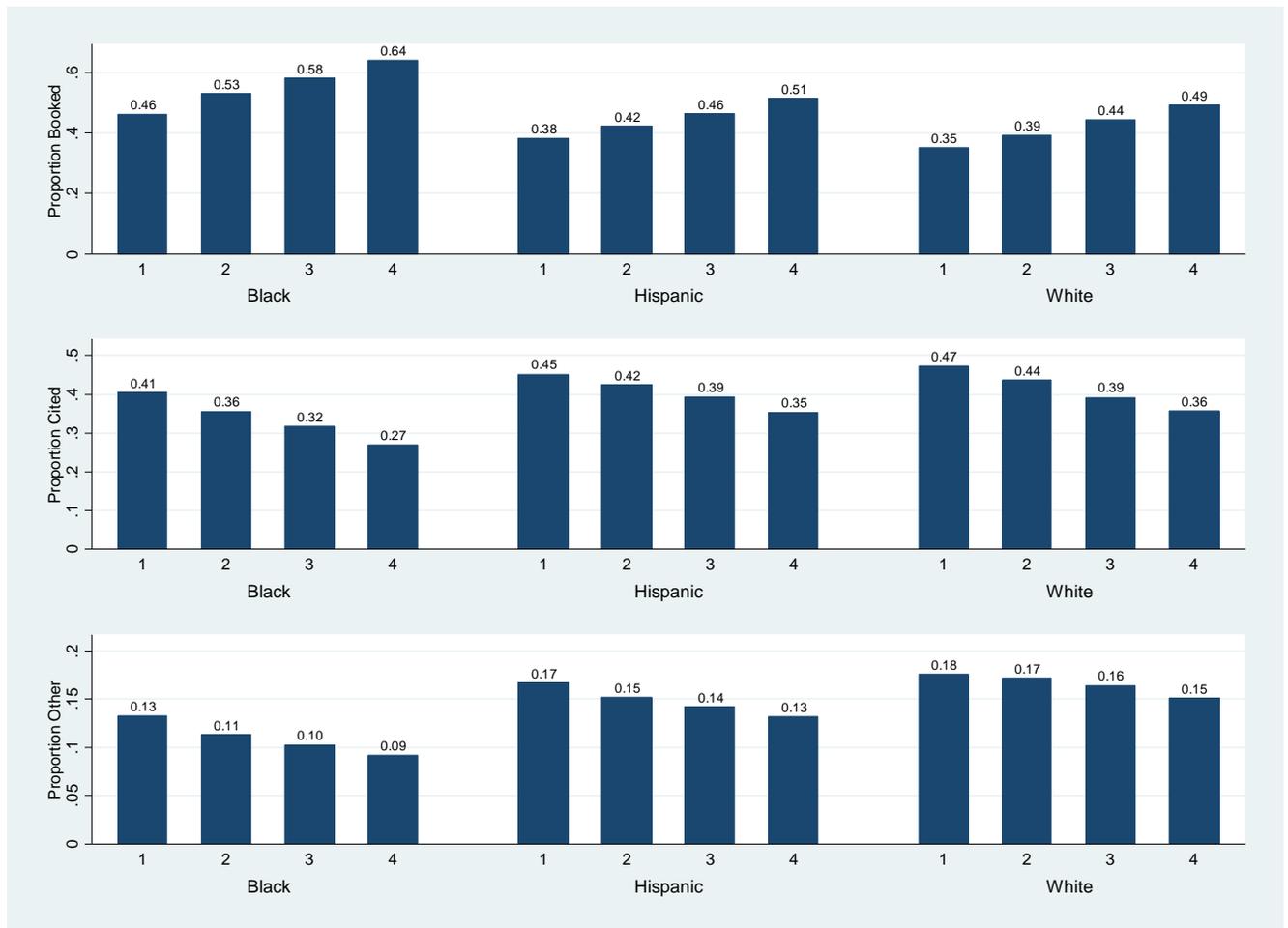


Figure 5: Proportion Booked by Race and Date of Arrest Relative to the Arrestee’s Birthday for Black, White, and Hispanic Youth: All Offenses and by Broad Offense Category

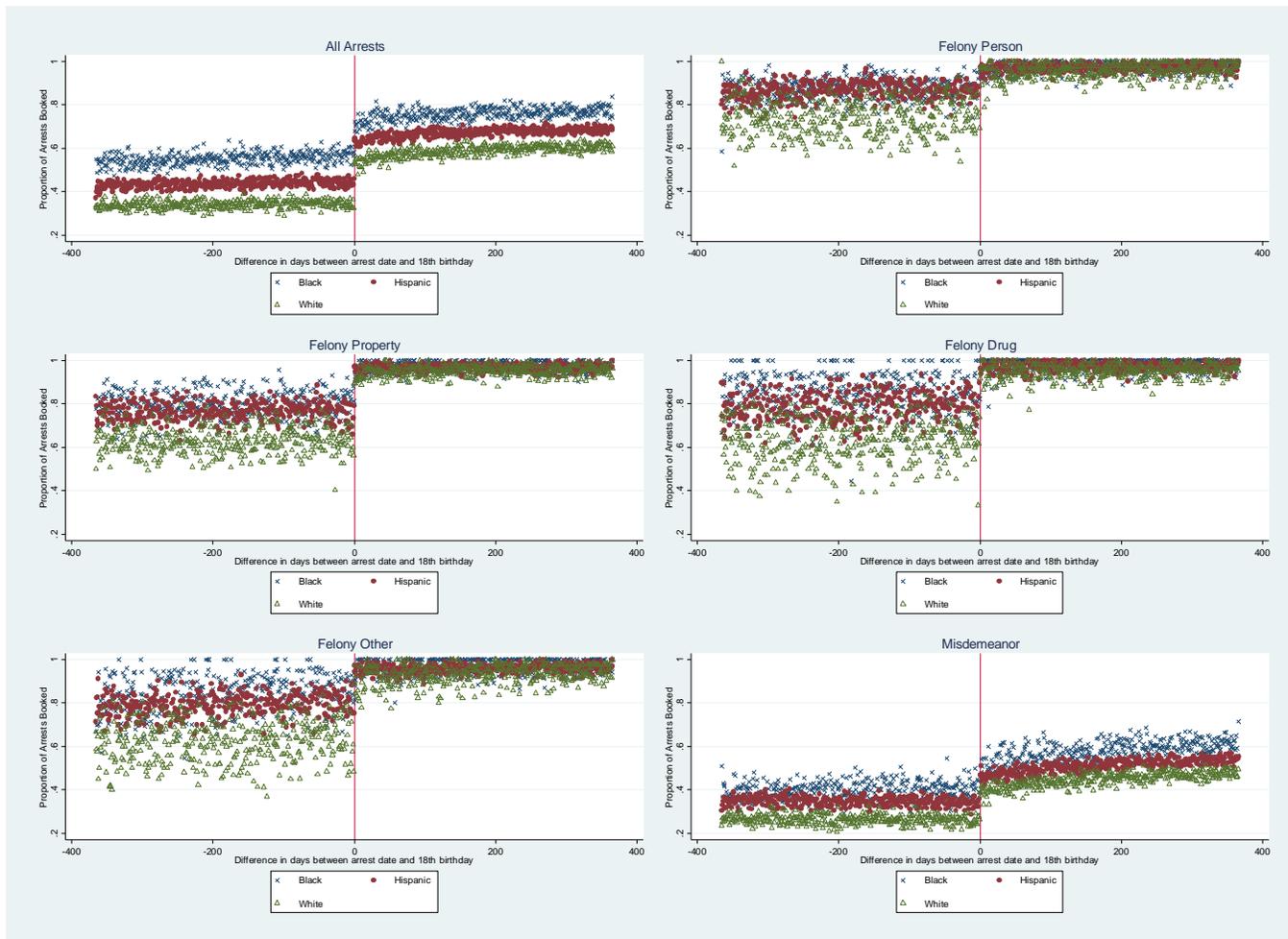


Figure 6: Reduced Form Effects of a First Arrest on or After the 18th Birthday on the Likelihood of Rearrest, Booking Conditional on Rearrest as Well as First Stage Effects on the First Arrest Booking Rates

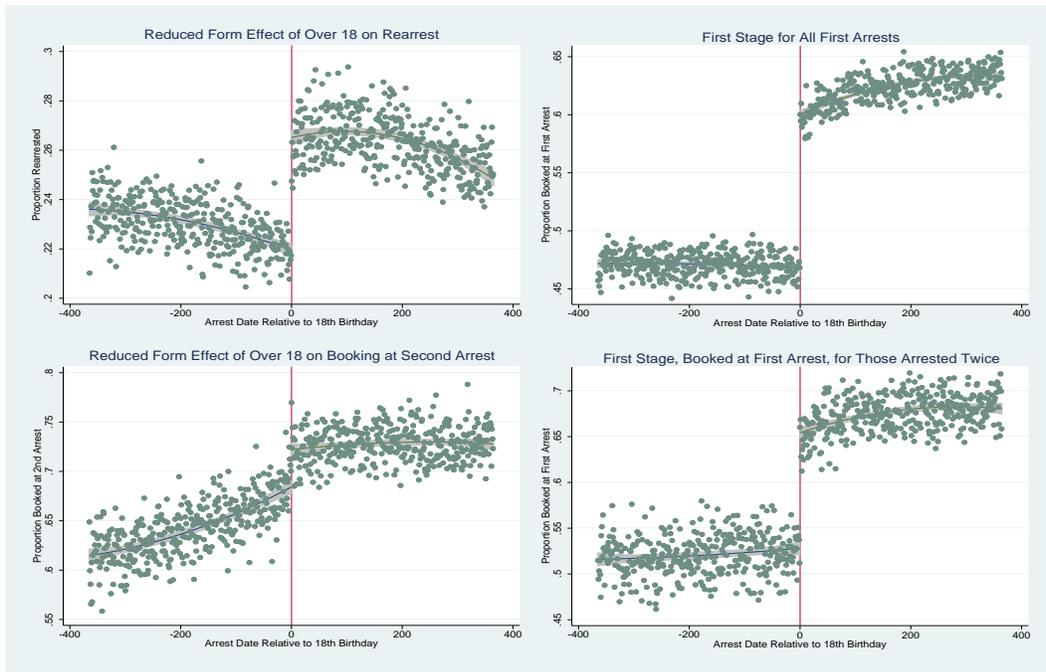


Figure 7: Number of First Arrest by Day Relative to the 18th Birthday, Omitting Arrests for Juvenile Status Offenses

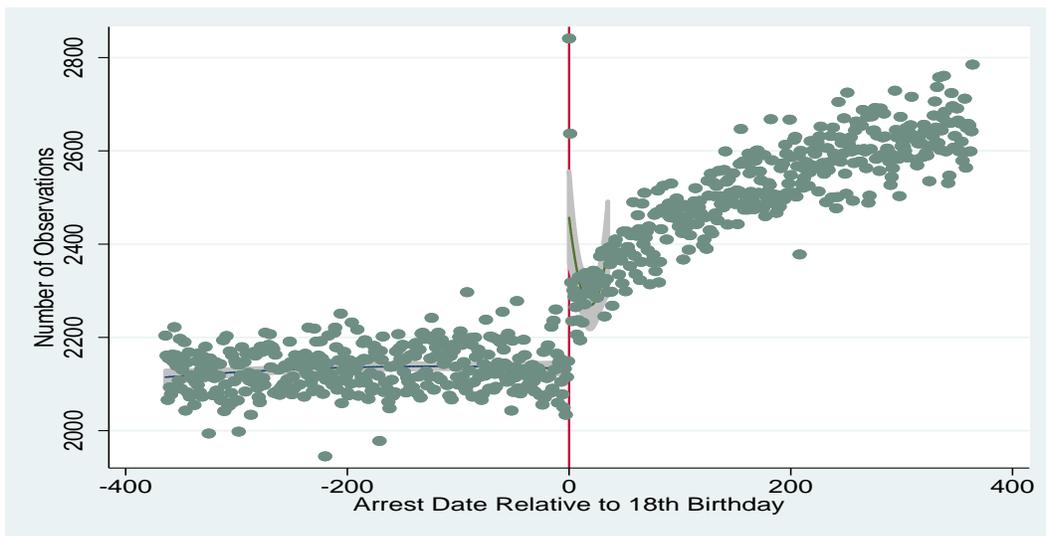


Table 1
Demographic Characteristics, Offense Type, and Arrest and Booking Histories of Juvenile Arrests by Race/Ethnicity

	White	Black	Hispanic
Age	15.04	14.81	15.01
Age at first arrest ^a	14.91	14.64	14.82
Male	0.69	0.71	0.74
Prior Bookings	0.20	0.29	0.28
Prior Arrests			
Total	0.59	0.64	0.77
Felony Person	0.03	0.08	0.05
Felony Property	0.06	0.10	0.07
Felony Drug	0.01	0.01	0.01
Felony Other	0.04	0.04	0.07
Misdemeanor	0.32	0.34	0.41
Status	0.13	0.07	0.16
Current Arrest Offense			
Felony Person	0.06	0.15	0.07
Felony Property	0.10	0.15	0.09
Felony Drug	0.03	0.02	0.02
Felony Other	0.06	0.06	0.08
Misdemeanor	0.61	0.52	0.56
Status	0.14	0.11	0.17
Arrest Offense, First Arrest ^a			
Felony Person	0.06	0.14	0.06
Felony Property	0.10	0.14	0.09
Felony Drug	0.03	0.02	0.02
Felony Other	0.06	0.05	0.08
Misdemeanor	0.63	0.54	0.58
Status	0.13	0.11	0.17
N	313,300	235,997	718,191

a. Sample restricted to observations with no observed prior arrests.

Table 2
Linear Probability Models Estimates of Racial/Ethnic Disparities in the Likelihood that a Juvenile Arrest is Booked

	(1)	(2)	(3)	(4)	(5)	(6)
Black	0.163 ^a (0.024)	0.164 ^a (0.023)	0.092 ^a (0.019)	0.088 ^a (0.019)	0.082 ^a (0.017)	0.039 ^a (0.004)
Hispanic	0.061 ^a (0.018)	0.055 ^a (0.018)	0.064 ^a (0.015)	0.062 ^a (0.015)	0.058 ^a (0.014)	0.016 ^a (0.004)
Asian	-0.019 (0.028)	-0.019 (0.028)	-0.031 (0.023)	-0.032 (0.023)	-0.027 (0.022)	-0.009 (0.006)
Other	0.019 (0.020)	0.015 (0.020)	0.022 (0.016)	0.023 (0.016)	0.023 (0.015)	0.005 (0.006)
Prior Arrests						
Felony Person	-	-	-	0.051 ^a (0.007)	-0.089 ^a (0.007)	0.009 (0.006)
Felony Property	-	-	-	0.049 ^a (0.006)	-0.070 ^a (0.006)	0.013 ^a (0.004)
Felony Drug	-	-	-	0.053 ^a (0.007)	-0.068 ^a (0.008)	0.011 (0.008)
Felony Other	-	-	-	0.039 ^a (0.007)	-0.067 ^a (0.006)	0.008 ^a (0.004)
Misdemeanor	-	-	-	0.002 (0.005)	-0.042 ^a (0.004)	0.007 ^a (0.003)
Status	-	-	-	-0.011 ^c (0.006)	-0.017 ^a (0.004)	-0.007 ^a (0.003)
Prior Bookings						
One	-	-	-	-	0.252 ^a (0.017)	0.087 ^a (0.007)
Two	-	-	-	-	0.370 ^a (0.022)	0.107 ^a (0.012)
Three	-	-	-	-	0.457 ^a (0.024)	0.107 ^a (0.015)
Four +	-	-	-	-	0.608 ^a (0.033)	0.094 ^a (0.023)
Demographics/year	No	Yes	Yes	Yes	Yes	Yes
Current Offense	No	No	Yes	Yes	Yes	Yes
Agency	No	No	No	No	No	Yes

Note: Standard errors are in parentheses and are clustered by arresting law enforcement agency. All models are estimated on 1,349,477 observations and include a constant term. "White" is the omitted race/ethnicity category. Specifications including demographic/year controls include single-year age dummies, a dummy for male, and year-of-arrest dummies. Specifications including controls for current offense include 274 fixed effects for the most serious charge. Specifications including controls for agency include 708 agency-fixed effects.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence
- c. Statistically significant at the ten percent level of confidence.

Table 3
Estimates of Racial Bookings Disparities within Broad Offense Categories

Panel A: Black-White Disparities			
	(1) Basic demographics	(2) Specification (1) plus offense and criminal history	(3) Specification (2) plus controls for arresting agency
All arrests combined	0.164 ^a (0.023)	0.082 ^a (0.017)	0.039 ^a (0.004)
Felony-person	0.152 ^a (0.021)	0.102 ^a (0.019)	0.043 ^a (0.005)
Felony property	0.183 ^a (0.024)	0.161 ^a (0.020)	0.054 ^a (0.005)
Felony drug	0.236 ^a (0.030)	0.186 ^a (0.028)	0.047 ^a (0.013)
Felony other	0.214 ^a (0.023)	0.166 ^a (0.029)	0.065 ^a (0.009)
Misdemeanor	0.085 ^a (0.030)	0.061 ^a (0.022)	0.034 ^a (0.004)
Status	0.017 (0.048)	0.017 (0.023)	0.006 (0.004)
Panel B: Hispanic-White Disparities			
	(1) Basic demographics	(2) Specification (1) plus offense and criminal history	(3) Specification (2) plus controls for arresting agency
All arrests combined	0.055 ^a (0.018)	0.058 ^a (0.014)	0.016 ^a (0.004)
Felony-person	0.112 ^a (0.023)	0.077 ^a (0.021)	0.035 ^a (0.004)
Felony property	0.123 ^a (0.024)	0.104 ^a (0.021)	0.036 (0.005)
Felony drug	0.160 ^a (0.036)	0.134 ^a (0.034)	0.042 ^a (0.007)
Felony other	0.153 ^a (0.032)	0.135 ^a (0.030)	0.051 ^a (0.006)
Misdemeanor	0.053 ^a (0.019)	0.056 ^a (0.016)	0.009 (0.007)
Status	-0.039 ^c (0.023)	-0.025 ^c (0.013)	-0.004 (0.003)

Note: Standard errors are in parentheses and are clustered by agency. Each coefficient corresponds to a separate regression. The first specification includes basic demographics. The second specification adds dummies for the number of prior bookings, dummies for detailed categories of current arrest offense, and controls for the number of arrests by type. The final specification adds a complete set of dummy variables for the arresting agency.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.
- c. Statistically significant at the ten percent level of confidence.

Table 4
Estimates of the Discontinuous Increase in Bookings Rates for White Youth at Age 18 and the
Difference in this Change for Black and Hispanic Youth Relative to White Youth

Panel A: All Arrests			
	Specification (1)	Specification (2)	Specification (3)
Over 18	0.196 (0.004) ^a	0.147 (0.003) ^a	0.145 (0.003) ^a
Over 18*black	-0.039 (0.007) ^a	-0.037 (0.006) ^a	-0.042 (0.005) ^a
Over 18 *Hispanic	-0.005 (0.005)	-0.025 (0.004) ^a	-0.030 (0.004) ^a
Panel B: Arrests for a Felony Against a Person			
	Specification (1)	Specification (2)	Specification (3)
Over 18	0.173 (0.010) ^a	0.173 (0.010) ^a	0.170 (0.009) ^a
Over 18*black	-0.082 (0.013) ^a	-0.084 (0.013) ^a	-0.081 (0.012) ^a
Over 18 *Hispanic	-0.065 (0.012) ^a	-0.065 (0.012) ^a	-0.061 (0.011) ^a
Panel C: Arrests for Felony Property Offense			
	Specification (1)	Specification (2)	Specification (3)
Over 18	0.298 (0.008) ^a	0.298 (0.009) ^a	0.285 (0.007) ^a
Over 18*black	-0.138 (0.013) ^a	-0.137 (0.013) ^a	-0.122 (0.012) ^a
Over 18 *Hispanic	-0.102 (0.011) ^a	-0.102 (0.011) ^a	-0.092 (0.010) ^a
Panel D: Arrests for Felony Drug Offense			
	Specification (1)	Specification (2)	Specification (3)
Over 18	0.296 (0.011) ^a	0.295 (0.011) ^a	0.291 (0.010) ^a
Over 18*black	-0.151 (0.018) ^a	-0.149 (0.018) ^a	-0.140 (0.016) ^a
Over 18 *Hispanic	-0.134 (0.014) ^a	-0.133 (0.014) ^a	-0.124 (0.013) ^a
Panel E: Arrests for Other Felonies			
	Specification (1)	Specification (2)	Specification (3)
Over 18	0.253 (0.012) ^a	0.254 (0.012) ^a	0.250 (0.011) ^a
Over 18*black	-0.157 (0.019) ^a	-0.161 (0.019) ^a	-0.152 (0.017) ^a
Over 18 *Hispanic	-0.118 (0.014) ^a	-0.122 (0.014) ^a	-0.113 (0.013) ^a
Panel F: Misdemeanor Arrests			
	Specification (1)	Specification (2)	Specification (3)
Over 18	0.136 (0.005) ^a	0.113 (0.004) ^a	0.114 (0.004) ^a
Over 18*black	-0.029 (0.009) ^a	-0.020 (0.008) ^a	-0.033 (0.007) ^a
Over 18 *Hispanic	-0.009 (0.007)	-0.017 (0.005) ^a	-0.028 (0.005) ^a

Standard errors are in parentheses. The dependent variable in all models is a dummy variable indicating that the arrest was booked. Specification (1) includes a running variable measuring date of arrest relative to the 18th birthday, the running variable squared, an indicator for over 18, interactions between the over-18 indicator, the running variable, and the running variable squared, dummy variables indicating black youth and Hispanic youth, and a complete set of interaction terms between dummies for Hispanic and black, the running variable function, the indicator for being over 18, and the interaction terms between the over-18 indicator and the running variable function. Specification (2) adds controls for gender and for arrest offense. Specification (3) adds controls for arresting agency. Each panel corresponds to separate models estimated on the indicated subset of offenses.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence
- c. Statistically significant at the ten percent level of confidence.

Table 5
Estimated Racial/Ethnic Booking Disparities for Offense Groups Defined by the White Booking Rate

Panel A: Black-White Bookings Disparities			
White booking rate group	(1) Basic demographics	(2) Specification (1) plus offense and criminal history	(3) Specification (2) plus controls for arresting agency
0 < x ≤ 0.1	-0.020 (0.019)	-0.001 (0.015)	0.008 (0.004) ^b
0.1 < x ≤ 0.2	0.087 (0.040) ^b	0.088 (0.034) ^b	0.043 (0.006) ^a
0.2 < x ≤ 0.3	0.064 (0.029) ^b	0.059 (0.027) ^b	0.032 (0.007) ^a
0.3 < x ≤ 0.4	0.073 (0.036) ^b	0.057 (0.030) ^c	0.050 (0.018) ^a
0.4 < x ≤ 0.5	0.110 (0.037) ^a	0.083 (0.033) ^b	0.016 (0.004) ^a
0.5 < x ≤ 0.6	0.198 (0.022) ^a	0.174 (0.022) ^a	0.059 (0.008) ^a
0.6 < x ≤ 0.7	0.131 (0.022) ^a	0.101 (0.020) ^a	0.038 (0.006) ^a
0.7 < x ≤ 0.8	0.112 (0.020) ^a	0.079 (0.018) ^a	0.040 (0.007) ^a
0.8 < x ≤ 1.0	0.027 (0.016)	0.019 (0.016)	0.016 (0.007) ^b
Panel B: Hispanic-White Bookings Disparities			
White booking rate group	(1) Basic demographics	(2) Specification (1) plus offense and criminal history	(3) Specification (2) plus controls for arresting agency
0 < x ≤ 0.1	-0.023 (0.017)	-0.003 (0.013)	-0.000 (0.002)
0.1 < x ≤ 0.2	0.049 (0.020) ^b	0.054 (0.022) ^b	0.026 (0.005) ^a
0.2 < x ≤ 0.3	0.072 (0.024) ^a	0.067 (0.022) ^a	0.006 (0.004)
0.3 < x ≤ 0.4	0.055 (0.023) ^b	0.045 (0.019) ^b	0.026 (0.006) ^a
0.4 < x ≤ 0.5	0.084 (0.036) ^b	0.054 (0.031) ^c	0.009 (0.003) ^b
0.5 < x ≤ 0.6	0.135 (0.027) ^a	0.121 (0.025) ^a	0.039 (0.004) ^a
0.6 < x ≤ 0.7	0.097 (0.026) ^a	0.068 (0.023) ^a	0.030 (0.005) ^a
0.7 < x ≤ 0.8	0.075 (0.020) ^a	0.057 (0.018) ^a	0.035 (0.006) ^a
0.8 < x ≤ 1.0	0.003 (0.014)	-0.000 (0.013)	-0.007 (0.007)

Note: Standard errors are in parentheses. The first specification including basic demographics includes single year of age dummies, a dummy for recorded gender, and year of arrest dummies. The second specification includes the basic demographics, dummies for the number of prior bookings, dummies for detailed categories of current arrest offense, and controls for the number of arrests by type. The final specification includes all of the variables from the first two specifications plus a complete set of dummy variables for the arresting agency. Standard errors are clustered by agency. Separate models are estimated for each booking rate group.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.
- c. Statistically significant at the ten percent level of confidence.

Table 6
Estimated Discontinuities in First-Arrest Covariates and in Predicted Values of Outcome Variables and First-Stage Booking Rates Occurring at the 18th Birthday Arrest Threshold

Variable	Average, pre-18 th Birthday Arrests	Average, 30 days preceding 18 th Birthday	Discontinuity at 18 th Birthday (standard error)
Female	0.231	0.224	-0.007 (0.002) ^a
Black	0.148	0.144	-0.001 (0.002)
White	0.341	0.341	-0.013 (0.002) ^a
Hispanic	0.429	0.436	0.018 (0.002) ^a
Asian	0.042	0.039	-0.004 (0.001) ^a
Non-Felony	0.677	0.683	-0.017 (0.002) ^a
Felony violent	0.084	0.083	-0.001 (0.001)
Felony property	0.146	0.139	-0.000 (0.001)
Felony drug	0.045	0.046	0.014 (0.001) ^a
Other	0.049	0.043	0.004 (0.001) ^a
Predicted probability Rearrest ^b	0.242	0.243	0.004 (0.0003) ^a
Predicted probability of first-arrest booking, all first arrests ^b	0.539	0.532	0.022 (0.001) ^a
Predicted probability of second arrest booking ^b	0.625	0.680	0.022 (0.002) ^a
Predicted probability of first-arrest booking for those arrested twice ^b	0.594	0.587	0.024 (0.002) ^a

a. Estimate statistically significant at the one percent level.

b. Predicted values for these variables are generated by first estimating a linear probability model for each outcome where the covariates include dummies for female, black, Hispanic, Asian, other race, 76 offense dummies and complete set of dummies for arresting agency and then using the regression model to predict the noted outcome for each observation in the data. The first two outcomes are based on the full sample of 1,698,270 arrests. The second two outcomes are based on the subset of 420,337 individuals who are rearrested within three years of the first arrest.

Table 7
IV Estimates of the Effect of a Prior Booking on the Likelihood of Rearrest within Three Years and the Likelihood that the Second Arrest is Booked Exploiting the Discontinuous Increases in Bookings Occurring at the Age of 18

Panel A: Rearrest within Three Years of First Arrest			
Sample	Specification (1)	Specification (2)	Specification (3)
All Arrests	0.344 (0.016) ^a	0.340 (0.018) ^a	0.422 (0.019) ^a
Felony arrests	0.264 (0.020) ^a	0.267 (0.021) ^a	0.270 (0.021) ^a
Misdemeanor arrests	0.444 (0.026) ^a	0.527 (0.034) ^a	0.598 (0.036) ^a
Black	0.524 (0.053) ^a	0.535 (0.056) ^a	0.588 (0.059)
White	0.364 (0.024) ^a	0.398 (0.028) ^a	0.417 (0.028) ^a
Hispanic	0.284 (0.025) ^a	0.332 (0.031) ^a	0.367 (0.033) ^a
Male	0.321 (0.018) ^a	0.376 (0.021) ^a	0.404 (0.022) ^a
Female	0.417 (0.034) ^a	0.443 (0.039) ^a	0.490 (0.042) ^a
Panel B: Second Arrest Booked Among Those Arrested Twice			
All Arrests	0.299 (0.033) ^a	0.147 (0.032) ^a	0.133 (0.029) ^a
Felony arrests	0.061 (0.023) ^a	0.068 (0.031) ^b	0.056 (0.028) ^b
Misdemeanor arrests	0.540 (0.049) ^a	0.208 (0.047) ^a	0.169 (0.044) ^a
Black	0.304 (0.049) ^a	0.180 (0.088) ^b	0.196 (0.081) ^b
White	0.316 (0.049) ^a	0.190 (0.047) ^a	0.163 (0.046) ^a
Hispanic	0.272 (0.056) ^a	0.067 (0.059)	0.073 (0.050)
Male	0.253 (0.034) ^a	0.165 (0.021) ^a	0.096 (0.031) ^a
Female	0.662 (0.116) ^a	0.382 (0.059) ^a	0.404 (0.115) ^a

Standard errors are in parentheses. Panel A uses the sample of all first arrests (1,698,270 observations) while Panel B conditions on those rearrested within three years (420,337 observations). Estimates are based on a just-identified 2SLS model where the first stage includes the arrest date for the first arrest relative to the arrestees 18th birthday, the date variable squared, a dummy for over 18, interaction terms between the dummy and the quadratic function for the running variable and various additional covariates. Specification (1) only includes these variables. Specification (2) adds dummy variables for race and ethnicity, gender, the first arrest offense (roughly 76 categories), and the current arrest offense (roughly 72 categories for the models in panel B only). The final specification adds over 700 fixed effects for arresting agency.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.
- c. Statistically significant at the ten percent level of confidence.

Table 8

IV Estimates of the Effect of a Prior Booking on the Likelihood of Rearrest within Three Years and the Likelihood that the Second Arrest is Booked Restricting the Sample to Observations Where First Arrests Occur Within Five Days of the 18th Birthday

Panel A: Rearrest within Three Years of First Arrest			
Band around the 18 th Birthday	First Stage	IV Estimate	N
Within 5 days	0.134 (0.007) ^a	0.294 (0.043) ^a	22,813
Within 4 days	0.131 (0.007) ^a	0.292 (0.049) ^a	18,462
Within 3 days	0.134 (0.008) ^a	0.258 (0.054) ^a	14,094
Within 2 days	0.127 (0.010) ^a	0.304 (0.070) ^a	9,742
Within 1 day	0.132 (0.014) ^a	0.228 (0.093) ^a	4,990
Panel B: Second Arrest Booked Among Those Arrested Twice			
Band around the 18 th Birthday	First Stage	IV Estimate	N
Within 5 days	0.116 (0.013) ^a	0.318 (0.105) ^a	5,381
Within 4 days	0.109 (0.007) ^a	0.297 (0.122) ^b	4,350
Within 3 days	0.124 (0.017) ^a	0.321 (0.124) ^a	3,332
Within 2 days	0.140 (0.021) ^a	0.310 (0.133) ^b	2,320
Within 1 day	0.148 (0.029) ^a	0.467 (0.181) ^a	1,170

Standard errors are in parentheses. The first-stage estimate is the difference in mean booking rates for observations with first arrests occurring on or after the 18th birthday minus the observations with first arrests occurring prior to the 18th birthday within the indicated time band. The IV estimates are Wald estimates calculated by taking the ratio of the comparable difference in the explanatory variable to the first-stage booking rate estimate.

- a. Statistically significant at the one percent level of confidence.
- b. Statistically significant at the five percent level of confidence.