Crack as Proxy: Aggressive Federal Drug Prosecutions and the Production of Black–White Racial Inequality

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In this article, we empirically examine jurisdictional variations in federal crack prosecutions to measure whether aggressive crack prosecutorial practices are associated with racial inequality in federal caseload characteristics and outcomes. Building on theories that address the production of inequality in institutional settings, we hypothesize that U.S. Attorneys' offices that are more proactive in charging defendants with crack, relative to other kinds of drugs, and relative to case strength and seriousness, will demonstrate higher rates of black–white racial inequality in case outcomes across the entire criminal caseload. Consistent with theories of institutional racism, our findings demonstrate that aggressive crack prosecutions at the district level are a strong predictor of black–white inequality in conviction rates across the entire criminal caseload, and a much more modest predictor of inequality in final sentence outcomes. We conclude by discussing the importance of organizational-level empirical analyses for more effectively uncovering the conditions under which inequality can and does flourish in legal settings, and suggest possible future lines of inquiry along these lines.

Crack cocaine first appeared in the major urban areas of New York, Miami, San Diego, and Los Angeles in the early 1980s, setting in motion a wave of new legislation and law enforcement practices that spread throughout the nation (Fagan and Chin 1989). Although the emergence of crack was associated with a number of social harms (Fryer et al. 2013), the political and legal response to its threat was disproportionately punitive, particularly at the federal level (Provine 2007; Reinarman and Levine 1997; Sklansky 1995). Most infamously, Congress passed the Anti-Drug Abuse Act of 1986, a provision of which incorporated a 100–1 powder–crack cocaine disparity whereby, for

instance, offenses involving just 5 g of crack cocaine were subject to the same 5-year mandatory minimum sentence as offenses involving 500 g of powder cocaine. Two years later, it made *possession* of crack cocaine subject to a 5-year mandatory minimum prison sentence. No other simple drug possession offense mandated a prison sentence at all under the federal code (Pub. L. No. 100–690 1988).

A number of scholars have argued that the federal war on crack, including the on-the-ground deployment of crack laws, has functioned as a tool of racial subjugation while justified through the logics of public safety and crime control (Alexander 2010; Dvorak 2000; Lynch 2013; Provine 2007; Tonry and Melewski 2008). Congressional debates about crack reiterated racially coded media narratives about the dangerous "urban" poor addicted to crack (Dvorak 2000; Provine 2007), unfit black mothers raising crack babies (Roberts 1997), and other threats posed by crack-related criminality. These narratives were in direct contrast to how whites' cocaine and freebase use, which predated crack cocaine but received little media and political attention, was both portrayed and sanctioned. In short, the federal reaction to crack was "not merely a rational response to a new threat to public health and public order" (Reinarman and Levine 1997: 19); it was also racially "coded" in its over-reliance on punitive criminal law to address the problem of crack (Dvorak 2000).

Yet, while the 1980s' federal drug statutes mandated harsh penalties for crack defendants across all the U.S. federal districts, those statutes have not been uniformly deployed. Rather, prosecutors in some districts have been much more proactive in pursuing crack cases, and their attendant lengthy sentences, than in others. Moreover, as the crack panic subsided, and public health and policy experts pointedly criticized the purely punitive approach to crack as ineffectual and even counterproductive, federal law enforcement's imperative to pursue crack convictions, especially in lower-level cases, became harder to justify (Sklansky 1995; U.S. Sentencing Commission 2002). Thus, over time, the prosecutorial choice—at the federal district level—to continue to aggressively pursue crack cases seemed increasingly driven by factors other than public safety concerns.

In this article, we assess the racial legacy effects of the 1980s' federal crack "war." Specifically, we examine jurisdictional variations in federal crack prosecutions from 2002–2012 to measure whether aggressive crack prosecutorial practices are associated with institutionally patterned inequality. We posit that, in the wake of the crack panic, those federal districts that have been more proactive in prosecuting crack offenses, relative to other kinds of drugs, and relative to case strength and seriousness, will demonstrate higher rates of black–

white racial inequality in case outcomes across the entire criminal caseload. In this sense, we ask whether prosecutorial practices related to crack function as a proxy indicator—a metaphorical "miner's canary" (Guinier and Torres 2002)—of racial discrimination in the federal criminal justice system. Using data from the U.S. Sentencing Commission and the executive office of the U.S. Attorneys, we present novel group-level variable specifications to better capture the key mechanisms that may contribute to racial inequality in the federal criminal justice system.

In the next section, we provide a background sketch of the 1980s crack "frenzy" and its role in federal drug legislation. We then detail developments in federal crack policy and adjudication practices over time to provide context for our underlying research question that asks whether and how the post-crack panic deployment of federal crack laws is associated with racial disparities in federal criminal caseload outcomes. Following that, we describe our conceptual and theoretical approach, which foregrounds organizational-level production of inequality. Then, we present our methods and results, which examine whether federal crack-related prosecutorial practices are associated with broader racial inequality in criminal justice outcomes. We conclude by discussing the implications of our findings for understanding institutionalized bias in complex organizations such as federal courts.

Racial Targeting and the Federal Regulation of Crack

An "extraordinary antidrug frenzy" was unleashed with the emergence of crack cocaine (Reinarman and Levine 1997: 1),[1] triggering intensified policing and penal responses in both state and federal jurisdictions across the country. Urban police departments nationwide devoted more and more resources to street-level drug law enforcement, and crack markets became the primary targets of those enforcement efforts (Beckett et al. 2005; Beckett et al. 2006; Fagan and Chin 1989; Lynch 2011). By the 1990s, those convicted for crack cocaine offenses made up the largest share of drug defendants who were sentenced to prison by state courts, which produce the majority of imprisoned drug defendants (Sevigny and Caulkins 2004).

Although the bulk of crack-related law enforcement occurred at the state level, the federal system's innovation of treating crack

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[1] Despite the political rhetoric elevating crack to the level of national emergency, it never achieved dominance as a drug of choice, or even as a *form* of choice among those who used cocaine (Reinarman and Levine 1997).

magnitudes more punitively than powder cocaine was, nonetheless, hugely consequential. The legislative process that produced the 1986 federal mandatory minimums was broadly publicized, as law-makers of all political stripes sought out the spotlight to bid up the punitive, racialized rhetoric on crack (Beaver, 2010; Dvorak 2000). The 1986 and 1988 federal drug laws also included significant fund-ing for multi-jurisdictional drug taskforces, which structurally opened up new incentives and opportunities for federal prosecution of smaller, street-level cases (Ouziel 2017). In particular, federal adoption of state cases (and in particular, crack cases) became a routine practice when the sanctioning severity was advan-tageous in federal court (Guerra 1995; Ouziel 2017). In some juris-dictions, low-level crack dealers became primary targets of such federal-state law enforcement partnerships (Lynch 2016; Russell-Einhorn et al. 2004).

Black Americans have borne the brunt of the federal crack policies (Free 1997; U.S. Sentencing Commission 2004). Indeed, crack prosecutions played a significant role in transforming the demography of the federal drug defendant pool. The share of convicted drug defendants who are black more than doubled in the first 5 years after the laws were implemented. By 1992, blacks constituted 36.4 percent of the convicted drug defendant pool (Bureau of Justice Statistics 1990, 1996) and 91 percent of the convicted crack defendant pool (U.S. Sentencing Commission 2002). Crack cases also made up an increasingly large share of the federal drug caseload, surpassing powder cocaine as the largest category of the overall drug caseload for the first time in 1996.

The gap in sentence lengths imposed on black and white defendants ballooned in the wake of the 1980s' drug law reforms, largely because black defendants were disproportionately likely to be charged with and convicted of crack-related offenses (U.S. Sen-tencing Commission 2004). By 1993, those federally convicted of trafficking crack received significantly longer sentences on aver-age than all other drug trafficking defendants, including those convicted of trafficking powder cocaine. The mean prison sen-tence for crack cases that year was about 126 months, compared to 95 months for powder cocaine cases (U.S. Sentencing Commis-sion 2007). A decade later, the crack-powder sentencing gap had expanded to nearly 4 years (U.S. Sentencing Commission 2007).

The extreme and disparate impact of the new laws quickly became evident to legal practitioners and policy makers. A number of federal judges expressed deep concern about the new mandatory drug laws and their impact in crack cases (e.g., Alschuler 1991; Sporkin 1993). The U.S. Sentencing Commission also highlighted the racial impact of the crack-specific sentencing laws in a series of reports to Congress, beginning with a 1995 report that expressed

concern that nearly all federal crack defendants were black (U.S. Sentencing Commission 1995).[2] The report proposed rescinding the 100–1 powder–crack cocaine disparity (it did not specify an alternative ratio) after concluding that scientific and other evidence could not justify the policy. When this general proposal was rejected by Congress, the Commission came back with a specific recommendation to reduce the disparity to 5–1 (U.S. Sentencing Commission 1997), which was again rejected.

The Commission's 2002 cocaine policy report comprehensively debunked all of the race-neutral justifications for the crack–powder sentencing gap, and pointedly highlighted the delegitimizing effect of the disparate treatment: "The Commission finds even the perception of racial disparity to be problematic. Perceived improper racial disparity fosters disrespect for and lack of confidence in the criminal justice system among those very groups that Congress intended would benefit from the heightened penalties for crack cocaine" (U.S. Sentencing Commission 2002: 103). Then, in its 2004 report on the first 15 years of federal sentencing guidelines, the Commission singled out the crack statutory provisions as the largest contributor to the huge disparity between sentence lengths for black and white drug defendants (U.S. Sentencing Commission 2004).

The legislative effort to reform the crack penalties also began in the 1990s, and came from disparate lawmakers with members of the Congressional Black Caucus leading the way. In 1993, Representative Charles Rangel, who had originally been a vociferous supporter of the 1986 Anti-Drug Abuse Act, initiated the first of several congressional efforts to eliminate the crack–powder disparity (Bergman 1998). It took until 2010 for any movement to happen, when a compromise bill—the Fair Sentencing Act—was passed by Congress and signed into law (Steiker 2013). The Act set an 18:1 powder–crack ratio so that it now takes 28 g of crack and 500 g of powder cocaine to trigger the same 5-year minimum sentence. This legislation also eliminated the crack-possession mandatory minimum. While the Fair Sentencing Act was a major accomplishment, it was a far cry from early efforts to completely eliminate the crack–powder disparity.

Crack Prosecutions as Institutionalized Racial Targeting

That crack became a federal concern at all is striking, given that the majority of crack cocaine cases have been neighborhood-level cases involving low-level retail dealers (U.S. Sentencing

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[2] Appellate courts also heard equal protection challenges to the crack laws as written and as applied, but largely upheld their legality.

Commission 2007). Nearly three quarters of federally sentenced crack defendants in 2000 were either street dealers or lesser players, even though they received substantially longer sentences on average than powder cocaine defendants. Nor is crack typically trafficked in huge quantities across multiple jurisdictional borders; rather, it is usually converted from powder by local dealers for retail sales (Sklansky 1995). In 2005, only six percent of federal crack cocaine prosecutions were national or international in scope, compared to 60 percent of the federally prosecuted powder cocaine cases (U.S. Sentencing Commission 2007). Sklansky (1995: 1288) makes the case that the federal crack statutes are fundamentally contrary to the stated goal of using the mandatory drug laws against higher-level traffickers as crack defendants "are almost always the street-level retailers of the cocaine trade, not the wholesalers" (see also, Ouziel 2017). Moreover, the elevation of simple crack possession to a mandatory-minimum offense suggests that the federal legislative action was driven by something other than reasoned policy prerogatives, as drug possession, in itself, is not a pressing federal concern.

To that end, although crack cases became a significant share of the federal drug trafficking caseload after the 1980s sentencing reforms, not all federal jurisdictions have pursued crack cases with the same gusto. Considerable variation exists over time and between districts in the relative numbers and proportions of crack cases, as well as in the characteristics of the crack caseloads. The district-level variations do not neatly map on to patterns of crack usage, suggesting that other district-level law enforcement policy choices play an important explanatory role (see Figure 1).

Federal crack prosecutions are substantially driven by law enforcement activity, which is highly discretionary to begin with. Generally speaking, drug law enforcement and prosecution is more likely to be driven by institutional resource allocation choices and proactive policing strategies, relative to other "imprisonable" offenses (Tonry and Melewski 2008: 6). Consequently, drug arrests are frequently racially patterned due to geographically concentrated enforcement decisions, where neither the nature nor extent of drug offending can explain the patterns (Mitchell and Caudy 2015; see also, Beckett et al. 2006).

Selective drug law enforcement practices are especially pronounced in the federal system. The federal government only becomes involved in a tiny fraction of known drug cases, as most drug cases are prosecuted in state courts. Federal involvement therefore reflects the formal or informal policy priorities of local U.S. Attorneys' offices, sometimes developed in conjunction with local law enforcement (Lynch 2016; Miller and Eisenstein 2005;
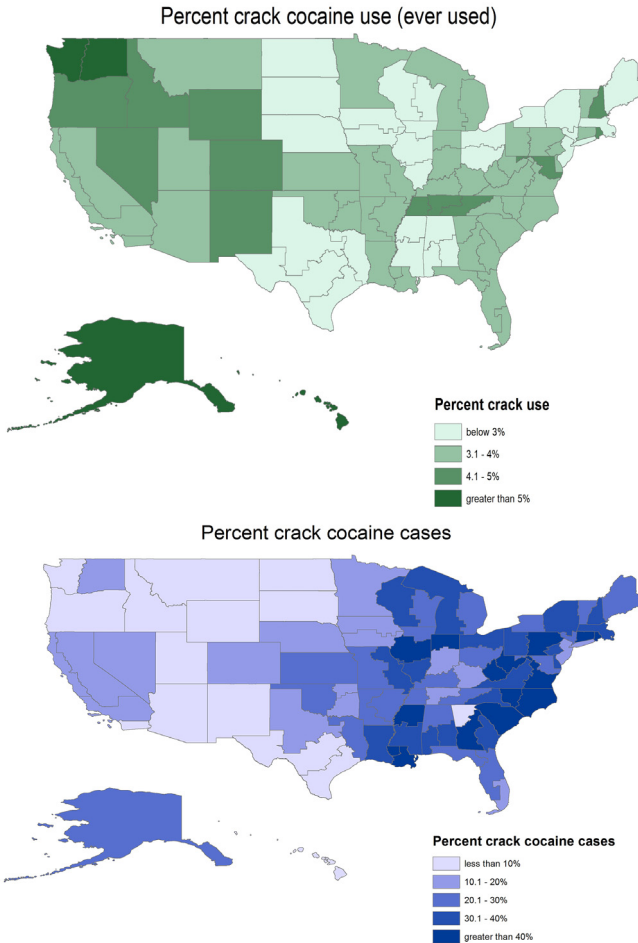
Figure 1. Maps of Crack Cocaine Use and Federal Crack Caseloads, 2002–2012.

Ouziel 2017).[3] Given the concurrent jurisdiction in drug matters, district-level U.S. Attorneys' offices typically elect to prosecute those cases that have overwhelming evidence, that involve certain types or amounts of illegal substances, and/or that otherwise pique federal interest (Heller 1997; Lynch 2016 ; Richman 2000).

To that end, some U.S. Attorneys' offices regularly adopt smaller drug cases from state courts, whereas others rarely or never engage in this kind of strategy (Lynch 2016). Relatedly, some

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[3] There is, of course, a share of more traditional federal drug cases, such as those that occur on federal lands, those involving U.S. mail, and those crossing jurisdictional, and especially international, borders.

districts have robust multi-jurisdictional law enforcement partnerships that proactively target particular kinds of offenses, often resulting in many lower-level drug cases (Lynch 2016; Miller and Eisenstein 2005). At the same time, federal prosecutors face less burdensome time and resource constraints than their state-level counterparts so are able to leverage the powerful drug laws to obtain very high rates of conviction (Lynch 2016; Richman 2000). Ultimately, federal prosecutors select in a small number of drug cases relative to the potential pool, but once selected in, they are unlikely to fall out before conviction (Johnson, 2014).

Federal drug prosecutions also do not accurately represent the population of potential defendants, especially in crack cases (Berk 1993; Provine 2011; Tonry and Melewski 2008). A diverse body of research indicates whites make up the majority of crack users in the U.S.,[4] and rates of usage between ethnic and racial groups are much more similar than law enforcement data would suggest (Chilcoat and Schutz 1995; Lillie-Blanton et al. 1993; Palamar and Ompad 2014). Nonetheless, whites are infrequently prosecuted on crack charges in federal court, constituting a mere three to nine percent of the annual defendant population that is federally sentenced for crack offenses (U.S. Sentencing Commission 2011). Conversely, blacks have generally constituted 80–95 percent of those annually sentenced for crack convictions in federal court. Because crack users, like other illicit drug users, generally buy from sellers of their own ethnic or racial background (Alexander 2010; Fellner 2009; Riley 1997), the disproportionately low numbers of federally prosecuted whites, and disproportionately high numbers of blacks prosecuted, suggests biased selection into the system. Indeed, the extreme over-selection of blacks for federal crack prosecution was the subject of an equal protection challenge in the Central District of California, the largest federal jurisdiction in the nation where, for significant periods, only blacks were prosecuted for crack (*U.S. v. Armstrong* 1996).[5]

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[4] Consistent with results from prior years, the 2009 SAMHSA data indicated that of those adults reporting that they had ever tried crack, 72 percent were non-Hispanic whites, and only 13 percent were black. Of those who had used crack in the prior year, 63 percent were white and 25 percent were black.

[5] In this case, the U.S. Supreme Court reversed the Ninth Circuit, shutting down the inquiry into the AUSA's exclusive targeting of blacks in federal crack cases. Armstrong alleged that federal prosecutors singled out black crack suspects, leaving white crack suspects to the state system where the punishments were significantly more lenient. The trial court ordered prosecutors to produce statistics on the race of federally-charged crack defendants. The Ninth Circuit affirmed the trial court upon appeal by the U.S. Attorney's office. The Supreme Court, though, sided with the U.S. Attorney's office, ruling that Armstrong must be able to show that there was selective prosecution to even obtain the evidence from the prosecutor (U.S. v. Armstrong 1996; see also Provine 2007; Steiker 2013).

Even the Drug Enforcement Administration (DEA) has made explicit that crack became a federal "problem" once it was determined to involve poor people of color. A DEA-authored historical account of the agency asserted that in the early 1980s, "crack was not fully appreciated [by the DEA] as a major threat because it was primarily being consumed by middle class users who were not associated with cocaine addicts…In the New York City area, it was estimated that more than three-fourths of the early crack consumers were white professionals or middle class youngsters from Long Island, suburban New Jersey, or upper-class Westchester County…By early 1986, crack had a stranglehold on the ghettos of New York City and was dominated by traffickers and dealers from the Dominican Republic." (DEA n.d.: 60).

The federal pursuit of crack cases thus offers a useful window into how criminal law is differentially deployed on the ground as a racialized social control mechanism. As Roberts (2004) notes, despite the general recognition that "disproportionate incarceration of African Americans results more from systemic factors, such as law enforcement priorities and sentencing legislation, than from biased decision-making in individual cases," research has only begun to shift to "explaining how racial hierarchies are embedded in social institutions and practices" (p. 1279–1280). Instead, most empirical examinations of federal criminal case outcomes implicitly assume the unbiased rationality of the pool of cases that enter the system. Indeed, most studies focus on how individual defendants' racial or ethnic identity predicts outcomes relative to others in the defendant pool at only the final, sentencing stage of the adjudication process, and after adjusting for other, ostensibly "race-neutral" legal factors (see Fischman and Schanzenbach 2012; Rehavi and Starr 2014 for discussion). In other words, investigations into "unwarranted disparities" (U.S. Sentencing Commission 2004) often begin well after defendants have been selected and charged, pleas have been negotiated, and convictions have been formally recorded.

The predominant empirical approach also typically treats individual cases as both atomized and autonomous, especially in terms of how racial bias is conceptualized and modeled. At the conceptual level, specifying defendant race as an individual predictor variable, net of other case factors, raises a number of interpretation problems. It essentially specifies demographic identity as a causal force, eliding race-based inequality as a problem to be explained (see, e.g., Martin and Yeung 2003; Zuberi 2000). In contrast, institutional theories of racism highlight how discriminatory action in organizational settings is generally produced by an amalgam of forces, often at the group level, rather than simply by singular, unconstrained actors who consciously or unconsciously

discriminate against individuals of color (Haney López 2000). The institutional processes themselves can both produce and inculcate larger patterns of biased action, by reinforcing racialized ideologies about criminality and naturalizing racially harmful responses as appropriate interventions (Bonilla-Silva 1997; Gomez 2012; Haney López 2000; Murakawa and Beckett 2010; Van Cleve 2016). As such, racial inequality is both systemic and systematized (or patterned) within organizations, rather than the sporadic, individualized action of single actors.

Moreover, institutional racism theories situate actors in their organizational contexts, identifying how role demands—and discretionary opportunities—trigger racially biased action (Lynch 2013). Thus, identifying and documenting institutional bias within criminal justice settings requires examining those locations and stages with relatively unconstrained and opaque decision-making discretion. In the federal criminal justice system, the most discretionary power—and at its least transparent—rests with prosecutors in their early-stage decision-making (Barkow 2008), including the decision to bring criminal charges, the content of the charges, and the terms of plea offers. It is therefore through the conviction stage that federal prosecutors largely control the process, much of it outside of open court.

As a consequence, criminal law itself can and does function as a racial stratification tool and forceful weapon of racialized social control (Haney López 2010; Muhammad, 2010; Murakawa and Beckett 2010). In this conceptualization, the criminal justice system relies upon formally race-neutral laws, policies, and procedures, but their deployment is racially targeted to subjugate minority populations (Van Cleve 2016; Van Cleve and Mayes 2015). Therefore, racial bias cannot not be cleanly disaggregated from legal practices, and distinguishing "legal" from "extra-legal" causal forces, like race, as is done in most empirical examinations of federal sentencing, misses where and how racially unequal outcomes are produced (Murakawa and Beckett 2010). More fundamentally, many such legal "controls" are endogenous to final sentence (Fischman and Schanzenbach 2012) and are themselves the "end product of the discretionary processes… charging, plea-bargaining and sentencing fact-finding" (Starr and Rehavi 2013: 16) that are often racialized.

Finally, when organizations pursue racially harmful legal practices without sufficient policy justification, they are engaged in institutionalized "path racism" (Haney López 2000: 1820), whereby organizational actors actively maintain racially harmful behavior even when confronted with evidence of the harms. In this regard, the war on crack is an exemplary case, where the potential for racial harms was apparent from the start and quickly

realized upon implementation, and where the policy justifications were suspect (Lynch 2013; Provine 2007; Tonry 1995). Legal actors in both state and federal jurisdictions across the U.S. have been willing to disproportionately arrest and over-punish crack-involved blacks in exchange for political, fiscal and career-related benefits in ways that other potential defendants have not been so targeted (Beckett et al. 2006; Lynch 2011).

In the forthcoming analysis, we empirically examine whether the localized deployment of federal crack prosecutions is associated with direct racial inequality in caseloads, as well as indirect racial inequality in the broader federal criminal justice machinery. We theorize that those jurisdictions that especially indulge in the war on crack are likely to wield the criminal law disproportionately against blacks across the spectrum of cases. As such, aggressive crack prosecutorial practices may function as both a direct indicator of, and proxy measure for, institutionalized racism in the federal criminal justice system.

We focus on federal crack prosecutions for two reasons. First, as we have detailed, the federal involvement in regulating crack is the iconic example of covertly racialized law-making and law enforcement in the post-civil rights era, where both legislators and legal practitioners have willfully ignored policy-relevant evidence about the racial harms caused by the crack laws (Lynch 2013; Provine 2007). Second, the practice of federally prosecuting crimes for which there is a less draconian, local state court option, as is the case for the majority of crack cases, is in itself revelatory in regard to organizational priorities. To put it bluntly, we expect that the zealous use of crack laws in the federal system is neither "racially innocent" (Murakawa and Beckett 2010: 697) nor distinct from prosecutorial norms and practices more broadly at the organizational level.

The Current Study

Overview

We aim to expand the empirical scholarship on racial inequality in federal criminal justice through three innovations. First, we ask a more expansive question about the discriminatory effect of the federal crack laws. That is, beyond the well-documented inequalities that have resulted from the crack–powder punishment disparities, we ask whether the aggressive prosecution of crack cases might indicate patterns of institutional discrimination across the entire criminal caseload. Second, using data aggregated to the federal district, we model how prosecutorial legal practices at the group level are associated with racial inequality in

outcomes, in contrast to the standard individual-level specification of defendant racial demographics as predictors of legal outcomes. Third, we aim to capture how discretionary case decisions are associated with inequality by examining conviction rate ratios as a function of convictions per population. Given the highly discretionary nature of U.S. Attorneys' case selection power, especially because of concurrent jurisdiction in drug cases (Heller 1997), this allows us to better observe variations in the relative share of criminal charges brought against blacks and whites within the general population in their districts. We contrast these conviction-rate ratios to sentence-length inequality ratios to highlight how inequality may disproportionately accrue in earlier prosecutorial stages relative to the later sentencing stage of the process.

In light of the particular history of crack in the federal system, we theorize that locales that continued to aggressively prosecute crack cases after the policy harms were well-documented will have higher ratios of black–white racial inequality in all drug case outcomes, as well as in all criminal case outcomes. To that end, we expect crack prosecutions to have both a direct relationship to racial inequality in criminal caseloads, and a "spillover" effect to criminal caseloads, exclusive of crack cases. We also treat districts' caseload features as key variables of inquiry, representative of district-level prosecutorial policy interests and selective filing behavior, rather than assuming that the defendant pool accurately represents the eligible criminal defendant population.

Our primary outcome of interest is racial inequality by district in *conviction* rates. Our conviction rate measure is unconventional in that the denominator is not the number of cases charged for each racial group. Rather, it uses district population as the denominator to capture selection into the system as a function of race. We use convictions because they represent the cumulative outcome of case selection, charging, and plea negotiations, all processes largely controlled by the prosecutor (Barkow 2008).[6] While we recognize that inequality increased for most drug defendants of color after the 1980s federal sentencing reforms, we focus here on black–white racial inequality because the war on crack so directly targeted black Americans (Provine 2007).

Specifically, we estimate four sets of models: racial inequality in drug convictions including crack cases, racial inequality in drug convictions excluding crack cases, racial inequality in all case

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[6] In federal court, pursuant to 11(c)(1) of the federal rules of criminal procedure, judges are precluded from participating at all in plea negotiations. While a small percentage of cases in federal court are convicted at trial, the overwhelming majority of convictions are the result of guilty pleas. In 2012, 97 percent of all federal criminal convictions were the result of pleas rather than trial verdicts (U.S. Attorneys, 2012).

convictions including crack cases, and racial inequality in all case convictions excluding crack cases. We run models including crack cases to measure the direct racial impact of crack prosecutions on conviction rate inequality, and we run models excluding crack cases to assess whether those places that aggressively prosecute crack cases demonstrate increased inequality in conviction rates across the caseloads, absent crack prosecutions.

We also model black–white inequality in sentence length outcomes by district to demonstrate its relative paucity in predicting inequality in federal court. As we do with the conviction rate models, we run models with crack cases included in, then excluded from, the sentencing inequality measures. Thus, with the two sets of models we aim to advance scholarship on racial inequality in federal courts by more robustly conceptualizing bias as an institutional process rather than an individual-level process; by specifying appropriate predictors of inequality that recognize that legal tools may be the direct conduit to the production of inequality; and by capturing more directly where bias manifests, which in determinate sentencing systems like the federal system, is primarily before the formal determination of sentence (see generally, Piehl and Bushway 2007).

We operationalize "aggressive prosecution of crack cases" through three interrelated hypotheses. We first hypothesize that districts that charge higher proportions of crack cases relative to all drug cases, as well as those that pursue a higher number of weak crack cases as measured by crack case fallout, are more likely to demonstrate racially unequal case outcomes in both the drug caseload and in the overall criminal caseload of a district. We treat case fallout as a measure of prosecutorial aggressiveness because it signals commitment by early-stage decision makers to pursuing cases without sufficient justification (Lochner 2008). This hypothesis primarily addresses law enforcement and prosecutorial case selection processes.

Second, we hypothesize that the prevalence of lower-level crack defendants, as measured by median weight charged in crack cases in a given district and by share of crack defendants eligible for the "safety valve," will be associated with greater black–white inequality in outcomes across all case types. The safety valve is a sentencing provision that allows certain drug defendants with negligible criminal history and whose involvement in the crime is not aggravated to escape mandatory minimums. We justify this prediction on the logic that low-level defendants, who are less criminally involved and/or whose cases involve smaller amounts of drugs, are normally—and more appropriately—managed in state courts, so their prosecution in federal court represents a hyperaggressive use of federal legal power.

Third, we hypothesize that districts that use punitive "hammers" more frequently in crack cases, and that, conversely, are less generous with prosecutor-controlled legal relief from harsh penalties will be significantly related to more black–white inequality. We specify two punitive tools—the relative frequency of crack cases subject to mandatory minimum sentences and the relative share of "career offender" crack cases per district— to measure commitment to harsh punishment in those districts. The career offender cases are those where, due to two or more before qualifying convictions, defendants are sentenced to prison terms many magnitudes higher than the regularly calculated guideline range (see Baron-Evans et al. 2010). Approximately three quarters of the career offender cases in federal court involve drug defendants, and some districts especially target low-level street dealers with career offender eligibility for federal prosecution (Lynch 2016). Along the same logic, we expect that in places where prosecutors are less likely to recommend sentence reductions for substantial assistance to the government in crack cases, we will find higher rates of inequality in outcomes.

For all three hypotheses, we expect that the effect sizes will be greater for the conviction rate models, compared to the sentence length models, as the most substantial, largely unobservable discretionary power is exercised before formal sentencing.

Sample and Data

We use data from the defendants sentenced under the Sentencing Reform Act and defendants in criminal cases filed in district court from the executive office for the US Attorneys, which is part of the Federal Justice Statistics Program (U.S. Department of Justice 2014) for the years 2002–2012. We use this date range because it is well past the "crack panic" years, and it represents a period during which the federal crack policies were explicitly and broadly challenged for being racially harmful with minimal public safety benefits, both within and beyond the federal justice system. Thus, jurisdictions that maintained aggressive crack prosecutorial practices did so in the face of widespread skepticism about the policy benefits. To investigate broader patterns of crack prosecution and inequality, we aggregate these data to the federal district by year using two different samples. In the first set of analyses, we model inequality in outcomes for all drug trafficking and possession cases aggregated to the district, and then we broaden the scope in our second set of analyses to include all criminal

cases. Our final sample in both cases is 89 districts[7] over 11 years (N = 918).

Dependent Variables

We estimate two outcomes for the drug defendant sample and for the general defendant sample: 1) the ratio of black–white conviction rates per general population in a district in a year, and 2) the ratio of black–white final sentence length for convicted defendants in a district in a year.[8] As noted above, the conviction rate inequality primarily represents a prosecutorial outcome, as prosecutors are largely responsible for case selection, charging, and settlement offers for guilty pleas. Final sentence length is an outcome that amalgamates the input and decision-making of multiple actors, including prosecutors, defense attorneys, probation officers, and judges.

We calculate the ratio of black–white inequality in conviction rates by dividing the black convictions per black general population by white convictions per white general population in a district in a year.[9] A value of 1 therefore represents the same conviction rate for black and white defendants, relative to the general population. We use four conviction rate inequality ratios: the conviction rate inequality for all drug cases, the conviction rate inequality for drug cases excluding crack cases, the conviction rate inequality for all criminal cases, and the conviction rate inequality for all criminal cases excluding crack cases. The population estimates for counties are from the American Community Survey 5-Year Data (Minnesota Population Center 2011), and these county estimates were then aggregated to the federal district, based on Hansen et al.'s (2015) boundary shapefiles for U.S. federal districts.

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[7] There are 94 federal districts, but we excluded Guam, Mariana Islands, U.S. Virgin Islands, Puerto Rico, and the District of Columbia. We also excluded districts that had no black drug convictions in a year, excluding crack cases (and therefore 0 black–white drug conviction rate in a year). This included Idaho (2005, 2006, 2010, 2011, 2012), North Dakota (2002, 2007), New Hampshire (2002, 2004), Rhode Island (2005, 2008), Arkansas West (2003, 2010), South Dakota (2012), Washington East (2004, 2007, 2012), Oklahoma East (2006, 2012), and Wyoming (2002). We also examined the minimum number of drug prosecutions in a year to ensure districts had enough drug cases to have a meaningful black–white conviction rate. Districts had a minimum of 80 drug convictions in a year, which we decided was a meaningful number of cases to calculate the black–white conviction rate.

[8] We do not include the "in/out" incarceration decision in these models because of the high rate of imprisonment in federal court. For instance, in 2012, our most recent year of data, 98 percent of convicted drug trafficking defendants received incarceration (U.S. Sentencing Commission 2013).

[9] We limit to those identified as non-Hispanic members of both groups, consistent with the U.S. Sentencing Commission's coding protocol for race/ethnicity.

The samples including crack cases incorporate the direct role that crack prosecutions may play in racial inequality in case outcomes, and the samples excluding crack cases capture whether inequality is associated with crack prosecutorial practices above and beyond the direct role played by the racial demography of crack cases themselves. While including crack cases in our conviction rate outcomes (and sentencing outcomes) may be considered somewhat endogenous, they are essential to understanding direct role of crack prosecutions' in caseload racial inequality. As the outcome measure is a racial inequality ratio, variations in relative share of white crack defendants is appropriately and importantly captured here as a direct measure of crack's role in inequality. Indeed, the share of crack defendants who are black varies considerably by district-year, ranging from 0 to 100 percent. Moreover, if we were to exclude them as inappropriately endogenous, then under this logic many other caseload features would also need to be excluded, including percent career offenders, mandatory minimum cases, and other variables.

Descriptive statistics, displayed in Table 1, indicate that crack cases play a significant role in conviction rate inequality in the federal drug caseload. Including crack cases, the conviction rate is nearly 12 times higher for black drug defendants per population compared to white drug defendants per population. When crack cases are removed, the drug conviction rate inequality is still nearly five times higher for black defendants compared to white defendants. This relationship is similar (though less dramatic) when examining the overall caseload—the black–white inequality ratio is 6.73 for all cases including crack cases, and over four and a half times excluding crack cases. Conviction rate inequality also varies considerably by district.[10]

The ratio of black–white sentence lengths is calculated as the mean sentence length for black defendants divided by the mean sentence length for white defendants in a district in a year. Similar to the conviction rate inequality measure, a value of 1 represents the same average sentence length for black and white defendants. We also calculate four sentence length inequality measures: sentence length inequality for all drug cases, for drug cases excluding crack, for all criminal cases, and for all cases excluding crack. Black drug defendants' sentences are over 50 percent longer compared to white drug defendants (a ratio of 1.52), and black defendants overall receive sentences that are over 40 percent longer than white defendants (a ratio

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[10] Although the conviction rate inequality is skewed, this does not necessarily present a problem. While normally distributed error terms are required to conduct inferential tests in smaller samples, we can apply asymptotic normality in larger samples to obtain valid inferential test statistics (Wooldridge, 2016). We also ran additional models with a natural log-transformed outcome, and obtained substantively similar results.

Table 1. Descriptive Statistics for Independent and Dependent Variables ($N = 918$)

	Mean	s.d.	Coef. of Variation (s.d./Mean)	Median	Min	Max
Conviction rate inequality (drug cases)	11.791	12.166	1.032	8.456	0.167	175.16
Conviction rate inequality (drug cases excluding crack)	4.841	5.329	1.101	3.469	0.000	76.805
Conviction rate inequality (all cases)	6.732	5.191	0.771	5.269	0.170	56.472
Conviction rate inequality (all cases excluding crack)	4.565	3.019	0.661	3.849	0.000	25.128
Sentence length inequality (drug cases)	1.517	0.545	0.360	1.435	0.158	10.303
Sentence length inequality (drug cases excluding crack)	1.491	0.572	0.383	1.450	0.000	10.303
Sentence length inequality (all cases)	1.429	0.381	0.267	1.409	0.015	3.537
Sentence length inequality (all cases excluding crack)	1.429	0.382	0.268	1.409	0.000	3.537
% Crack	25.907	15.420	0.595	25.094	0.180	69.184
Crack case fallout	0.030	0.951	31.884	0.347	−7.168	0.831
Crack weight	1.358	10.065	7.412	0.627	0.000	300.000
% Crack safety valve	14.355	11.247	0.783	12.500	0.000	100.000
% Crack mandatory minimum	76.038	17.485	0.230	79.798	0.000	100.000
% Crack career offender	16.744	12.163	0.726	14.815	0.000	100.000
% Crack substantial assistance	27.254	17.705	0.650	26.027	0.000	100.000
Noncitizen (drug cases)	21.005	15.698	0.747	15.434	0.000	74.033
Noncitizen (all cases)	24.285	17.173	0.707	18.465	0.000	87.076
Guideline minimum (drug cases)	105.202	28.503	0.271	101.953	35.242	195.776
Guideline minimum (all cases)	67.270	19.576	0.291	64.971	17.085	136.594
% Crack use	3.446	0.915	0.266	3.286	1.499	7.262
Treatment admissions ratio	2.091	0.990	0.473	1.853	0.737	17.973
Socioeconomic disadvantage	0.006	0.962	172.78	0.094	−1.962	2.082
Racial/ethnic heterogeneity	0.442	0.158	0.359	0.467	0.115	0.718
Year	2006.964	3.147	0.002	2007	2002	2012

of 1.43). The average district-level drug sentence length for black defendants is over 105 months, compared to 75 months for white defendants when crack cases are included. Conviction rate and sentence length inequality do not necessarily occur in the same districts, however. As reflected in the appendix, the correlation between conviction rate and sentence length racial inequality is relatively low.

Independent Variables

In regard to our first hypothesis, we include two indicators of "aggressive pursuit" of crack cases. First, we use percentage of crack cases in a district per year. This indicator measures level of commitment within a given district to federally pursuing crack cases. On average, just over 25 percent of districts' drug cases were crack cases. The crack caseload varies substantially by district in a given year; across all years, the share of drug caseload composed of crack cases ranges from less than 1 percent to nearly 70 percent. Second,

we devise a crack case fallout measure, the z-score of the percentage of filed crack cases resulting in a conviction in a district, to capture willingness to pursue weak crack cases. Because the conviction rates for filed cases are high (over 92 percent on average), we use z-scores to create a relative, standard deviation (s.d.) measure of conviction rates between districts. Higher z-scores represent districts with higher rates of crack convictions per filings, and lower z-scores represent districts that have more crack cases fall out before conviction. The two "aggressive pursuit" indicators have a very small correlation coefficient, suggesting that districts (or districts in different years) that have large shares of crack cases are not necessarily the same ones that have higher crack case fallout rates.

Our second hypothesis focuses on the prosecution of low-level crack defendants, which we operationalize using median crack weight and safety valve use. Median crack weight in hundreds of grams per year represents a measure of crack case size in a given district.[11] Districts varied widely in crack weight, with a district-level mean value of just over 130 g of crack, and a median value of about 60 g. We also include the percentage of crack defendants in a district who were eligible to receive "safety valve" relief from mandatory minimums as an additional measure of low-level case prosecutions, because those eligible for this relief have little prior criminal history and are not "kingpins" in the offense of conviction.

To operationalize our third hypothesis regarding the use of legal punishment tools, we calculate the share of crack cases in a district that are subject to long imprisonment terms via both mandatory minimums and the career offender guideline. The district-level mean for crack cases subject to mandatory minimum sentences is 76 percent, and the district-level mean for those subject to the career offender guideline is 17 percent. We also include the rate of substantial assistance departures as a measure of punitiveness, predicting that lower rates of such departures in crack cases will predict greater inequality in outcomes.[12] These departures are prosecutor-controlled sentence reductions, and awarded to defendants for providing

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[11] In some cases, a range of weight was given, in which case, we used the mean value of the range. The district median weights we calculated closely approximated the USSC's estimates in their report to the Congress (U.S. Sentencing Commission 2007).

[12] While on the surface, this seems to violate the time-order rule for our conviction models, a departure for substantial assistance is negotiated with the prosecutor prior to the guilty plea and formal conviction. The same is generally true for safety valve, especially in meeting the fifth prong for eligibility, requiring defendants to provide information about the offense. Mandatory minimum eligibility is also determined by charging and plea terms as to conviction offense, since requisite weight to trigger the minimum needs to be specified in the charge. Career offender eligibility frequently drives the decision to charge federally and is based on prior convictions as well as current crime (Lynch 2016). As such, the elements determining variations happen prior to formal conviction.

information about criminal activity. The mean share of crack cases at the district level that obtain substantial assistance departures is 27 percent. The correlations between percent mandatory minimum, percent career offender, and percent substantial assistance are low, so these tools seem to operate independently from each other, rather than in tandem. Based on the coefficient of variation (s.d. divided by the mean), mandatory minimums also appear to be less variable, and therefore used more consistently, compared to the other legal tools.

We control for several case-relevant factors in the models. We include percent of noncitizens in the caseload, because case processing may be substantially different for cases involving immigrants, including through the use of fast track programs. In our sentencing inequality models, we include the mean guideline minimum sentence for each of the samples as an approximation for overall case severity in each district per year, and to control for the presumptive sentence.[13] The district-level average guideline minimum is approximately 105 months in the annual drug caseloads, and the guideline minimum is just over 67 months for districts' annual overall caseloads.

We include biannual state-level measures of crack use as a rough control for relative size of crack cocaine market in a given jurisdiction. We measure crack use as the percentage of people in the state who said they had used crack cocaine in their lifetime, based on 2-year state estimates from the National Household Survey of Drug Use and Health (U. S. Department of Health and Human Services 2014).[14] This is the primary data source used by epidemiologists to measure crack usage (e.g., Chen and Anthony 2004; Chilcoat and Schutz 1995; Lillie-Blanton et al. 1993), as it allows for distinguishing crack from powder cocaine usage and suffers from fewer biasing problems than other data sources.[15] On average, about three and a half percent of people reported using crack in their lifetime. We also calculate the treatment admissions ratio of black–white annual drug treatment admission rate per their

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[13] We also estimated models without the guideline minimum, but they did not change the results substantively. Guideline minimum also includes criminal history so controls for that sentencing factor.

[14] The only exception to this was for the year 2012, where there were no updated estimates in the public data due to a change in the way the data were managed. For this year, we used 2010–2011 estimates.

[15] Crack usage is particularly difficult to measure epidemiologically, as it is indistinguishable from powder cocaine once in the bloodstream. This makes alternative measures, like emergency room data that rely upon bioassay measures, unusable for our purposes. Moreover, emergency room data is notoriously unrepresentative of the general population in regard to race, ethnicity, and class (McGeary and French 2000). Using arrest data, as Fryer et al. (2013) do, is especially problematic given evidence of biased crack law enforcement.

respective populations based on the Treatment Episode Data Sets as an added control for race-based differentials in serious drug use in a given jurisdiction. According to the treatment admissions ratio, black drug users are two times as likely to be in treatment compared to white drug users relative to their population.[16] Despite the high inequality in treatment admissions, both treatment admissions and percent crack use are actually negatively correlated with percent crack cases. This suggests that federal prosecutorial focus on crack cases was not in places where relatively more blacks sought drug treatment, nor where there were higher rates of crack usage in general, in line with our theorizing that federal crack prosecutions are not merely rational responses to drug problems in a given time and place.

We include several district-level demographic characteristics, based on county-level estimates from the American Community Survey 5-Year Data. We use an economic disadvantage measure based on a principle component factor analysis of percent in poverty, percent unemployment, median household income, and percent single parent households. Disadvantage is calculated by averaging the standardized z-scores for the indexes. We also include the Herfindahl index of racial/ethnic heterogeneity, where larger values indicate greater racial/ethnic heterogeneity or diversity in a district.[17] Case outcome year is represented as a series of fixed effect dummy variables, with 2002 excluded as the reference.

Analytic Approach

We estimate a series of regression models on both the conviction rate inequality and the sentence length inequality outcomes for the drug defendant and overall criminal defendant samples. Again, both inequality outcomes have two sets of results, the first based on districts but limited to inequality among drug defendants only (with crack cases included, then excluded), and the second expanded to all criminal defendants (with crack cases included, then excluded) to examine how crack prosecutorial practices are related to inequality in the entire criminal caseload of a district. The models are estimated in Stata 13 using ordinary least squares with a clustered sandwich estimator to correct for

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[16] In some states, Treatment Episode Data Set only covers substance abuse treatment programs receiving any public funds, but does not require reporting for privately funded treatment. Thus, drug use (and in particular, white drug use) is underreported to the degree that white drug users are more likely to access privately funded drug treatment.

[17] The Herfindahl index is calculated as one minus the sum of each racial/ethnic group's proportion squared: $1 - \Sigma\ pblack^2 + pwhite^2 + platino^2 + pasian^2 + pother^2$.

clustering by district.[18] The fixed effect for year controls for variation across years. Because these models illustrate the district case-load characteristics of districts, we can only infer (rather than directly test) the mechanisms of inequality in our results below.

Results

Racial Inequality in Conviction Rates

In the first set of models, we estimate inequality in black–white conviction rates for districts for the drug defendant sample, and then we expand the sample to all criminal defendants. The first models for each sample include crack cases in the inequality outcomes and the second models exclude crack cases. Table 2 reflects results from the models predicting inequality in conviction rates.

As reflected in the models, districts that prosecute relatively larger crack caseloads have substantially more inequality in conviction outcomes, particularly when crack cases are included in the outcome. Figure 2 depicts the conviction rate inequality based on the percentage of crack cases in a district for both drug cases and all cases, including crack cases in the inequality measure.

As reflected in Figure 2, districts with crack cases representing 10 percent of their drug caseload (one s.d. below the mean) have black conviction rates that are about five to six times as high as white conviction rates in both the drug caseload and the overall criminal caseload. In contrast, districts where 40 percent of their drug caseload are crack cases (one s.d. above the mean) have black drug conviction rates over 17 times as high as white drug conviction rates, and over eight times as high for overall conviction rates.

Even after excluding crack cases from the conviction rate inequality measure, districts still indicate a significant increase in racial inequality in conviction rates as the percentage of crack cases grows. Although this increase is much smaller compared to when crack cases are included, crack caseload size is nonetheless significantly associated with inequality rates. Thus, districts with low levels of crack cases have approximately four times the rate of black to white prosecutions, whereas districts with high levels of crack cases have five (or greater) times the rate of black to white prosecutions. So, while crack caseload size is directly associated with racial inequality in conviction rates, it is also positively related

[18] We also estimated models with fixed effects for district, but the main crack findings are the same, and we are interested in examining both within- and between-district variation. In general, the models indicated relatively low collinearity issues with a VIF score of greater than 4 for percent immigrant only. All other scores were lower.
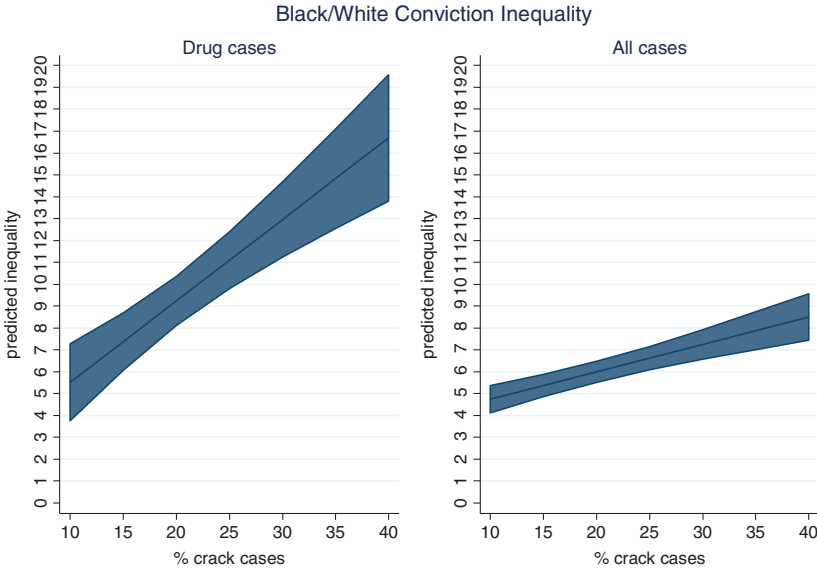
Table 2. Conviction Rate Racial Inequality ($N = 918$)

	Drug Cases	Drug Cases Excluding Crack	All Cases	All Cases Excluding Crack
	β/(s.e.)	β/(s.e.)	β/(s.e.)	β/(s.e.)
% Crack	0.371***	0.057**	0.125***	0.040**
	(0.068)	(0.018)	(0.023)	(0.012)
Crack case fallout	−0.026	0.129	−0.072	−0.020
	(0.274)	(0.126)	(0.174)	(0.135)
Crack weight	−0.026**	−0.015**	−0.020***	−0.011**
	(0.009)	(0.006)	(0.003)	(0.003)
% Crack safety valve	0.053*	0.040*	0.021	0.015
	(0.026)	(0.016)	(0.012)	(0.008)
% Crack mandatory minimum	−0.047	−0.015	−0.037***	−0.021**
	(0.025)	(0.017)	(0.009)	(0.006)
% Crack career offender	0.055	0.023	0.002	0.002
	(0.049)	(0.019)	(0.018)	(0.010)
% Crack substantial assistance	−0.069	−0.023	−0.027	−0.009
	(0.046)	(0.018)	(0.016)	(0.010)
Noncitizen	0.181***	0.017	0.057**	0.018
	(0.050)	(0.020)	(0.017)	(0.012)
% Crack use	0.255	0.038	0.354	0.265*
	(0.566)	(0.224)	(0.206)	(0.122)
Treatment admissions ratio	0.458	−0.018	0.265	0.162
	(0.588)	(0.298)	(0.244)	(0.164)
Socioeconomic disadvantage	−2.496***	−0.768**	−1.184***	−0.702***
	(0.715)	(0.282)	(0.291)	(0.176)
Racial/ethnic heterogeneity	−31.702***	−8.191**	−19.546***	−9.871***
	(6.233)	(2.576)	(2.329)	(1.440)
Year: 2003	−0.457	−0.238	−0.063	−0.116
	(0.936)	(0.418)	(0.322)	(0.211)
Year: 2004	−0.273	−0.022	0.153	0.127
	(0.770)	(0.308)	(0.384)	(0.246)
Year: 2005	0.785	0.731	0.406	0.413
	(0.785)	(0.395)	(0.327)	(0.253)
Year: 2006	0.287	0.710	0.376	0.466
	(0.758)	(0.435)	(0.320)	(0.261)
Year: 2007	3.572**	1.613**	1.246**	0.876***
	(1.338)	(0.492)	(0.404)	(0.248)
Year: 2008	1.556	0.998*	0.578	0.525
	(0.940)	(0.402)	(0.463)	(0.335)
Year: 2009	3.470***	1.840***	1.176**	0.846**
	(0.972)	(0.493)	(0.426)	(0.306)
Year: 2010	2.740**	1.581***	1.021*	1.067**
	(0.922)	(0.461)	(0.439)	(0.338)
Year: 2011	2.773**	2.073***	0.488	0.802*
	(1.050)	(0.541)	(0.499)	(0.357)
Year: 2012	3.985**	3.059**	0.907	1.307***
	(1.459)	(1.007)	(0.489)	(0.359)
Constant	12.506***	6.077**	11.674***	7.282***
	(3.624)	(1.875)	(1.702)	(1.049)
R-squared	0.422	0.188	0.584	0.448

Notes: *$p < .05$; **$p < .01$; ***$p < .001$.

to inequality in the pool of non crack cases. Figure 3 depicts the conviction rate inequality for cases excluding crack.

Comparing these two sets of results, we estimate that the inclusion of crack cases is associated with a sevenfold increase in racial inequality in the drug caseload, and over a threefold increase in inequality in the overall caseload. Our second indicator of "aggressive pursuit" of crack cases, case fallout, was not significantly associated with conviction rate inequality. This may be because, in

Black/White Conviction Inequality

Figure 2. Conviction Rate Racial Inequality Including Crack Cases.

general, the vast majority of drug cases that get brought to federal court neither fall out before conviction, nor end in acquittals.

As predicted, the relative size of crack cases, as measured by median weight, is also associated with inequality in conviction

Black/White Conviction Inequality
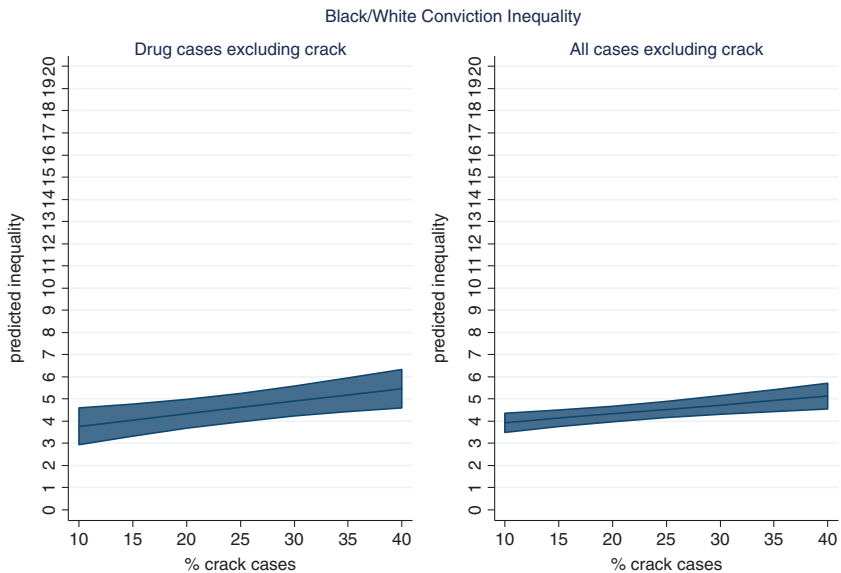
Figure 3. Conviction Rate Racial Inequality Excluding Crack Cases.

rates. Districts that prosecute defendants whose cases have lower median crack weights demonstrate more racial inequality in drug case conviction rates, both when including and excluding crack cases from the inequality measure. In addition, crack weight is negatively associated with conviction rate inequality in the full criminal caseload sample, both when crack cases are included and excluded. Our second indicator of low-level crack defendants, the percentage of crack "safety valve" cases, was positively related to conviction rate inequality in the drug sample, both when crack cases were included and excluded, but not in the full sample.

Contrary to our hypothesis, districts with higher rates of crack mandatory minimums demonstrated no increased inequality in the drug sample, and actually demonstrated less racial inequality in conviction rates in the general sample. Although these findings seem counterintuitive, the mandatory minimum rates likely function as a countermeasure to our small cases, where districts with high rates of crack mandatory minimum cases may accordingly have larger cases in terms of median drug weight. In our samples, districts' rates of crack mandatory minimums and median crack weight are negatively (although not strongly) correlated with each other, providing some support to this supposition. While we expected to see substantial assistance departures predicting lower rates of conviction inequality, and higher rates of career offender cases associated with higher inequality, the results were not statistically significant for either of these variables.

The contextual control variables indicate that other caseload features and district demographic characteristics are related to conviction rate inequality as well. Districts with higher proportions of noncitizen defendants have greater inequality in black–white conviction rates when crack cases are included. On the other hand, districts with greater socioeconomic disadvantage and greater diversity (as measured by racial heterogeneity) in the general population have lower racial inequality in conviction rates. Finally, the year dummy variables indicate that inequality in conviction rates has generally increased over time. More specifically, it appears that conviction rate inequality became significantly higher after the sentencing guidelines became advisory and judges began to exercise more sentencing discretion in the wake of the *U.S. v. Booker* (2005), *Kimbrough v. U.S.* (2007), and *Gall v. U.S.* (2007) decisions.

Racial Inequality in Sentence Length

The second set of models, predicting inequality in black–white sentence lengths, are reported in Table 3. As we did with our conviction rate models, we estimate models for the drug defendant
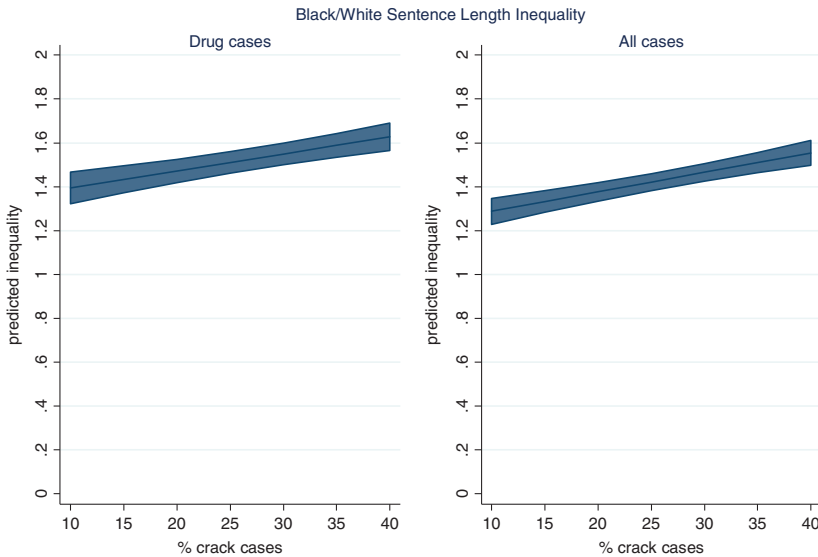
sample including and excluding crack cases, and then expand the models to include the overall criminal defendant caseload sample, both including and excluding crack cases. The models include percent crack, case fallout, crack weight, safety valve cases, and the prosecutorial "hammers" and reliefs, including substantial assistance, the career offender crack caseload, and mandatory

Table 3. Sentence Length Racial Inequality ($N = 918$)

	Drug Cases	Drug Cases Excluding Crack	All Cases	All Cases Excluding Crack
	β/(s.e.)	β/(s.e.)	β/(s.e.)	β/(s.e.)
% Crack	0.008***	0.007**	0.009***	0.009***
	(0.002)	(0.002)	(0.001)	(0.001)
Crack case fallout	0.006	0.028	−0.000	−0.000
	(0.020)	(0.026)	(0.017)	(0.017)
Crack weight	−0.001	−0.001	−0.001	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)
% Crack safety valve	−0.006	−0.005	−0.001	−0.001
	(0.003)	(0.003)	(0.002)	(0.002)
% Crack mandatory minimum	0.003*	0.004*	0.003**	0.003**
	(0.001)	(0.002)	(0.001)	(0.001)
% Crack career offender	0.007**	0.004	0.005**	0.005***
	(0.002)	(0.003)	(0.002)	(0.002)
% Crack substantial assistance	0.004*	0.004*	0.001	0.001
	(0.002)	(0.002)	(0.001)	(0.001)
Noncitizen	0.001	0.000	0.002	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Guideline minimum	−0.005***	−0.004***	−0.001	−0.002
	(0.001)	(0.001)	(0.001)	(0.001)
% Crack use	−0.017	−0.039	−0.012	−0.012
	(0.021)	(0.023)	(0.018)	(0.018)
Treatment admissions ratio	−0.010	−0.003	−0.021	−0.021
	(0.022)	(0.024)	(0.019)	(0.019)
Socioeconomic disadvantage	−0.038	−0.030	−0.026	−0.026
	(0.023)	(0.027)	(0.021)	(0.021)
Racial/ethnic heterogeneity	−0.144	−0.048	0.019	0.019
	(0.199)	(0.205)	(0.149)	(0.149)
Year: 2003	0.050	0.053	−0.086	−0.082
	(0.070)	(0.077)	(0.054)	(0.055)
Year: 2004	0.158	0.145	−0.127*	−0.123*
	(0.147)	(0.148)	(0.053)	(0.054)
Year: 2005	0.081	0.100	−0.102	−0.098
	(0.074)	(0.075)	(0.060)	(0.060)
Year: 2006	0.018	0.038	−0.177**	−0.173**
	(0.081)	(0.082)	(0.061)	(0.062)
Year: 2007	0.024	0.040	−0.152**	−0.148*
	(0.069)	(0.073)	(0.056)	(0.056)
Year: 2008	−0.078	−0.071	−0.284***	−0.281***
	(0.075)	(0.076)	(0.058)	(0.059)
Year: 2009	−0.053	−0.018	−0.299***	−0.296***
	(0.075)	(0.081)	(0.061)	(0.062)
Year: 2010	−0.064	−0.038	−0.333***	−0.329***
	(0.083)	(0.086)	(0.059)	(0.059)
Year: 2011	−0.095	−0.041	−0.343***	−0.338***
	(0.084)	(0.087)	(0.058)	(0.059)
Year: 2012	−0.110	−0.084	−0.368***	−0.362***
	(0.077)	(0.080)	(0.063)	(0.065)
Constant	1.548***	1.531***	1.226***	1.216***
	(0.192)	(0.218)	(0.141)	(0.142)
R-squared	0.113	0.086	0.219	0.219

Notes: *$p < .05$; **$p < .01$; ***$p < .001$.
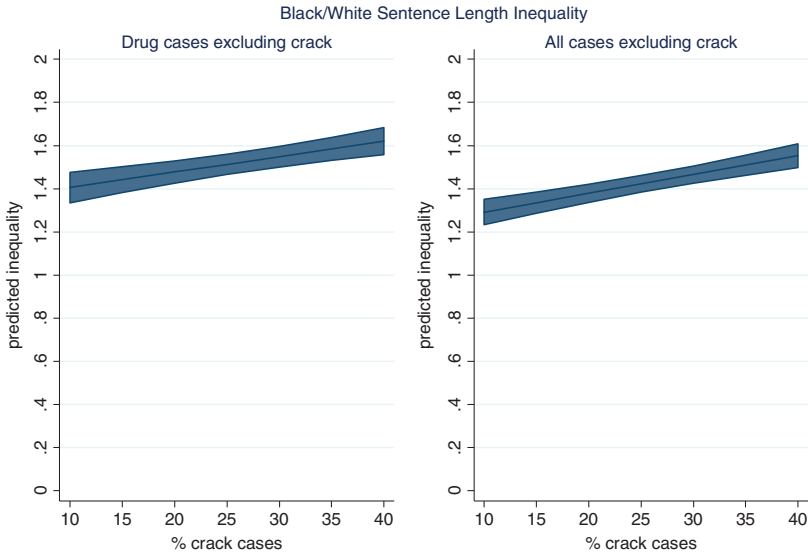
Black/White Sentence Length Inequality

Figure 4. Sentence Length Racial Inequality Including Crack Cases.

minimum crack caseload, as well as the contextual controls, including the mean guideline minimum sentence in a district.[19]

Figures 4 and 5 reflect the relationship between percentage crack in the drug caseload and sentence length inequality. As we expected, the relationship is far less dramatic than that observed in the conviction rate inequality, although it is still substantial. Moreover, the results are very consistent across both samples, with and without crack cases in their caseloads. As illustrated in the figures, districts with crack cases as 10 percent of the drug caseload sentence black defendants to approximately 40 percent longer prison terms in the drug sample compared to white defendants, and 30 percent longer than white defendants in the full sample. In the districts with the highest concentration of crack cases, sentences are more than 55–60 percent longer for black defendants relative to whites in both samples. Share of weak crack cases is not significantly associated with sentence length inequality.

Prosecution of low-level crack defendants, as captured by median weight in crack cases and percentage of safety valve-eligible defendants, is also not significantly related to sentence length inequality in any of the models. On the other hand, some of the prosecutorial hammers are associated with final sentence

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[19] We also ran models, not presented in our tables, that included a ratio of black–white guideline minimum sentence to capture differences, by race, in the calculated advisory sentence. Including this ratio constrains most other caseload variables because inequality in the guideline minimum sentence is so highly correlated with the inequality ratio in the final sentence length. In the drug sample, the two variables are correlated at 0.87, and in the general sample, the correlation is 0.90.

Black/White Sentence Length Inequality

Figure 5. Sentence Length Racial Inequality Excluding Crack Cases.

length inequality. As expected, share of crack mandatory minimum cases increases final sentence length inequality in all of the models. Also as expected, districts that have higher rates of crack defendants eligible to be sentenced under the career offender guideline demonstrate greater black–white racial inequality in sentence lengths in all but one of the models.

Contrary to expectations, districts with higher rates of crack substantial assistance departures also had higher black–white sentence length inequality in their drug caseload. Substantial assistance, which is a prosecutor-controlled sentence reduction awarded to those who provide information about criminal cases, may be disproportionately awarded to white crack defendants compared to black crack defendants (and/or for greater sentence reductions), which would be consistent with previous research on substantial assistance departures in crack cases (Hartley et al. 2007). Finally, in contrast to our conviction rate models, year has a negative association with sentence rate inequality in the full caseload, suggesting that over time—especially as judicial sentencing has become less constrained—black–white sentence inequality has been mitigated.

Discussion

The significant level of racial inequality we observed in conviction rates suggests that inequality in the federal criminal justice process begins with prosecutorial discretion in case selection. The relative size of crack caseloads, we have shown, are directly and significantly associated with conviction inequality rates, which is to

be expected given the extreme racial disproportionality attending federal crack prosecutions. However, crack cases also serve as the proverbial canary in a coal mine, signaling broader institutional bias. Federal prosecutors in districts that bring a large share of crack cases, and ones that bring relatively less serious cases (as indicated by drug weight) appear to be disproportionately likely to have charged and obtained convictions against black defendants in all criminal matters, above and beyond crack cases.

As numerous legal scholars have observed, early-stage prosecutorial decision-making overwhelmingly determines final outcomes in the federal system (Barkow 2008; Berman 2010; Stith 2008) so to isolate examinations of bias to the end-stage of the process is to substantially miss out on where inequality occurs. Our results offer empirical support for this observation, in that conviction rates reveal far greater racial inequality compared to sentence lengths. In that sense, our two sets of models fulfill our overarching goal of capturing more directly where inequality manifests, which is largely before the formal pronouncement of sentence. Moreover, the conviction rate models, by design, reject the unspoken assumption in much federal sentencing research that case selection itself is not biased.

Our goal of more appropriately modeling racial inequality as an institutional process, rather than as an individual one, was also fulfilled through these models. Rather than making inferences about individual court actors' stereotypes, biases, and heuristics, we modeled observable mechanisms at the organizational level to test our hypotheses about associations between legal practice and institutional inequality. Specifically, we posited that district-level investment in prosecuting crack cases would be associated with over-representation of black defendants across all case types, as observed in conviction outcomes. In that sense, our findings suggest that legal mechanisms and strategies themselves need to be scrutinized both as potential direct modes of producing bias and as indicators of broader bias.

As to our specific predictions, we obtained full or partial support for two of our three hypotheses in regard to conviction rate inequality. Our first hypothesis, that aggressive pursuit of crack cases would be associated with inequality, was strongly supported when we examined the relative share of crack cases in a district, but not when we examined crack case fallout. The relationship between crack caseload percentage and conviction rate inequality was especially notable across the models that included crack cases in the inequality outcome measures, quadrupling the conviction rate inequality from the lowest to highest share of crack cases. However, the association was substantial even when the criminal caseloads excluded crack cases in the outcome measure.

Our second hypothesis was also supported in the conviction rate models, where small crack case size was associated with

increased racial inequality in conviction rates. Furthermore, the relative share of "safety valve"-eligible crack defendants predicted inequality in the drug caseloads, both with and without crack cases included in the outcome. Taken together, these findings provide support for our argument that U.S. Attorneys' offices that federally prosecute less serious defendants in crack cases (rather than leaving their prosecution to state court) have greater racial inequality across the criminal caseload. Our third hypothesis, that relative use of punitive hammers, or relief from punitive sentences, in crack cases would predict racial inequality, was not supported in the conviction rate inequality models.

In regard to sentence length inequality, the predicted relationships were muted for sentence length inequality, relative to conviction rate inequality. We did observe a significant, albeit more modest, relationship between relative size of crack caseload and sentence inequality across all the models. In addition, we found that many of the hammers, including the relative share of crack mandatory minimum and career offender cases was positively associated with sentence-length inequality. The finding in regard to mandatory minimums, however, is best interpreted as the product of prosecutorial discretion, rather than judicial discretion, because judges have no power to sentence below the minimums except in safety valve cases or those where the prosecutor authorizes a departure. As prior research demonstrates (Fischman and Schanzenbach 2012; Lynch and Omori 2014; Rehavi and Starr 2014), inequality in charging mandatory minimum-eligible cases directly contributes to sentence length inequality between black and white defendants because of the constraint mandatory minimums place on judicial sentencing discretion.

Conclusion

In this study, we endeavored to take the lessons of socio-legal scholarship that examines how criminal law is implicated in institutionalized racism, and apply them to federal court processes, where empirical examinations have largely focused on individual-level analyses of the problem of sentence disparities. The first line of scholarship has expressed deep concern for the dramatic and obvious racially disproportionate impact of crack laws and policies, which seem to be deployed as tools of racial control and subjugation (see, e.g., Alexander 2010; Butler 1998; Provine 2007; Tonry 1995). The second line of research has, with some notable exceptions, treated the on-the-books sentencing laws as race-neutral, and has looked only for bias in that gap between their intended application and their actual application (for discussion, see Murakawa and Beckett 2010; Van Cleve and Mayes 2015). In recent years, critical efforts to complicate that narrow empirical approach have begun to

emerge. Thus, scholars have re-specified predictor and outcome variables to better capture early-stage discretionary processes (Fischman and Schanzenbach 2012; Rehavi and Starr 2014; Shermer and Johnson 2010; Starr and Rehavi 2013), and have developed more robust models that account for broader social and legal contexts (Johnson et al. 2008; Lynch and Omori 2014).

The study we present here was done in that vein of exploration, and comes with several important limitations. Given the nature of the data, analyses such as this one cannot directly measure the behavior of individual legal actors, much less their intentions or sentiments. Rather, the relationships we uncover are just that—associations between key factors that suggest where we might direct further attention by marshaling techniques that can more directly uncover on-the-ground processes that give rise to inequality. Along those lines, we envision future analyses that aim to tease out the more complex interplay between within- and between-jurisdictional relationships over time. Nonetheless, we think this exploration offers both substantive and methodological insights that advance both fields upon which it builds.

Most importantly, we have demonstrated that beyond the stark racial inequality in who gets prosecuted and convicted for crack offenses in the federal system, crack prosecutorial practices themselves are associated with patterns of racial inequality across the criminal caseload. That is, in places that have prosecuted crack with gusto, black citizens are disproportionately likely to be federally charged and convicted across the board, relative to whites. It stands to reason that discriminatory practices would not be neatly contained within the crack case context. Rather, the willingness to aggressively wield federal crack laws where less draconian state options exist, and where the "malign effects" (Tonry and Melewski 2008: 1) are well-known, signals a broader tendency toward racialized social control through criminal law.

To that end, several of our findings in regard to our contextual control variables are intriguing, and suggest possible future lines of research. For instance, we note that racial and ethnic diversity in the community tempers conviction rate inequality, as does economic disadvantage. Thus, districts with wealthier and more homogeneous populations disproportionately over-prosecute black members of the community. This is consistent with structural theories of racism that suggest institutions like the legal system are deployed to maintain race-based power structures (Bonilla-Silva 1997; Massey 2007).

We also note that our control for "year" works in opposite directions in the two sets of models. Specifically, conviction rate inequality increased after key legal decisions that returned sentencing discretion to judges, while sentencing rate inequality decreased in the same years. These findings should be interpreted in tandem, as they are likely part of a larger story about prosecutorial response

to the shift from mandatory sentencing guidelines. As several scholars have documented, prosecutors' charging and adjudication practices changed in light of the *U.S. v. Booker* (2005) decision, which rendered the guidelines advisory, and the *Gall v. U.S.* (2007), and *Kimbrough v. U.S.* (2007) decisions, which made clear that judges could use their discretion to sentence outside of the guidelines. In the post-*Booker* period, prosecutors have been more likely to pursue cases that trigger mandatory minimums and sentencing enhancements, where prosecutorial discretionary power to dictate particular outcomes has not been diminished (Fischman and Schanzenbach 2012; Lynch and Omori 2014) and they have been disproportionately likely to charge black defendants with mandatory minimum-eligible charges (Rehavi and Starr 2014).

Conversely, the diminution of inequality in sentence lengths in the same period may indicate that the return of some discretion to judges, post-*Booker*, has resulted in a corrective on bias in this system. Indeed, as Fischman and Schanzenbach (2012) observed, a significant portion of the observed racial disparity in post-*Booker* sentencing occurs when judicial sentencing discretion butts up against mandatory minimum sentencing floors. Moreover, in the later years of our sample, the reduction in sentencing inequality in the models that include crack cases is likely directly due to the remediation that came with both Sentencing Commission and congressional reforms to crack sentencing policy (Steiker 2013). Taken together, these findings may indicate a troubling pattern of adaptation: as prosecutors have lost some discretionary power at the back end of the criminal court process, they have used their substantial charging powers to disproportionately bring black defendants in through the front end. However, because sentencing length inequality and conviction rate inequality are largely uncorrelated, there remains much more to tease out as to how both prosecutorial and judicial practices have evolved post-*Booker*.

Finally, although we do not expressly focus on policing, it is the key point of entry into the criminal justice system, reliant upon discretionary law enforcement that sometimes devalues communities of color for the accrual of system benefits and incentives (Lynch 2011; Ouziel 2017). In that sense, we hope this study prompts further inquiry to identify signifiers at the point of entry into the system as a method for predicting and uncovering broader patterns of institutional racism in given locales. Thus, practices such as the racially stratified issuance of discretionary, low-level infraction citations (Department of Justice 2015); race-and spatially-based stop and frisk law enforcement tactics (Fagan 2010); and racially selective drug law enforcement dragnets (Beckett et al. 2006; Lynch et al. 2013) may each function themselves as miners' canaries (Guinier and Torres 2002), warning of wider spread inequality in the entire system.

Appendix. Correlation Matrix for All Cases

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1 Conviction rate inequality (all cases)	1.00																	
2 Conviction rate inequality (all cases except crack)	0.91	1.00																
3 Sentence length inequality (all cases)	0.11	0.01	1.00															
4 Sentence length inequality (all cases except crack)	0.11	0.01	1.00	1.00														
5 % Crack	0.33	0.18	0.29	0.29	1.00													
6 Crack case fallout	0.04	0.05	0.00	0.00	0.07	1.00												
7 Crack weight	−0.03	−0.02	−0.06	−0.06	−0.08	0.01	1.00											
8 % Crack safety valve	0.07	0.05	0.01	0.01	0.06	−0.03	−0.05	1.00										
9 % Crack mandatory minimum	−0.18	−0.19	0.13	0.13	0.01	−0.04	−0.11	−0.03	1.00									
10 % Crack career offender	0.02	0.04	0.09	0.09	−0.02	0.03	−0.04	−0.31	0.05	1.00								
11 % Crack substantial assistance	−0.03	−0.02	0.09	0.09	0.09	−0.03	−0.04	0.05	0.11	−0.05	1.00							
12 Noncitizen	−0.18	−0.14	−0.11	−0.11	−0.57	−0.11	−0.01	0.01	0.00	0.06	−0.15	1.00						
13 Guideline minimum	0.10	0.03	0.07	0.07	0.33	0.11	−0.01	−0.19	0.29	0.24	0.10	−0.43	1.00					
14 % Crack use	−0.03	0.01	−0.06	−0.06	−0.18	−0.07	−0.02	−0.04	−0.05	0.08	−0.08	0.16	−0.08	1.00				
15 Treatment admissions ratio	0.02	0.02	−0.02	−0.02	−0.15	0.00	0.02	−0.01	0.11	−0.02	0.01	0.19	0.02	−0.17	1.00			
16 Socioeconomic disadvantage	−0.35	−0.36	0.00	0.00	0.16	−0.06	−0.04	0.04	0.03	−0.03	0.06	−0.09	−0.05	−0.05	−0.19	1.00		
17 Racial/ethnic heterogeneity	−0.65	−0.57	−0.03	−0.03	−0.21	−0.06	−0.03	−0.04	0.07	−0.01	−0.14	0.38	−0.19	0.13	0.03	0.25	1.00	
18 Year	0.08	0.14	−0.29	−0.29	−0.09	0.04	−0.03	−0.19	−0.13	0.25	−0.14	0.14	0.07	0.05	−0.14	−0.02	−0.01	1.00

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