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The “Distance Traveled”: Investigating the Downstream Consequences of Charge Reductions for Disparities in Incarceration

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ABSTRACT

Relatively little work examines the impact that charging decisions exert on sentencing. We investigate this issue by estimating the “distance traveled” in charge bargaining, or the expected change in the likelihood of incarceration associated with reductions in charges across different stages of prosecution. Using data from New York County, we examine how the probability of incarceration shifts as a result of charging decisions and how this potentially contributes to social inequalities in incarceration. Findings indicate that charge reductions are associated with sizeable decreases in the probability of incarceration, particularly at the plea bargaining stage. On average, the “distance traveled” is substantially greater for female than male defendants and for White compared to Latino and Black defendants, even after accounting for a host of relevant punishment factors. Findings are discussed as they relate to contemporary theoretical perspectives on prosecutorial decision-making and social inequality in punishment.

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Although an expansive research literature focuses on understanding the correlates of social inequality in criminal punishment (Baumer, 2013; Blumstein Cohen, Martin, & Tonry 1983; Spohn, 2000; Ulmer, 2012), insufficient attention has been devoted to the impact that prosecutorial charging decisions have on final sentencing outcomes. Prosecutors arguably exercise more control over life, liberty and justice than any other actor in the criminal court system (McDonald, 1979); they have broad discretion in initial charging and subsequent plea offers and their decision-making is largely immune from formal systems of legal oversight (Stith & Cabranes, 1998, p. 141). Despite longstanding recognition of the importance of prosecutorial power (Albonetti, 1987; McDonald, 1979), little empirical work focuses on the ways that charging decisions shape sentencing outcomes. As Gottfredson and Gottfredson (1988, p. 114–116) opined, “Charging decisions by prosecutors... greatly influence other significant actors in the criminal justice process”, yet they remain “the single most unreviewed exercise of power... in the American system of justice.” Because prosecutorial

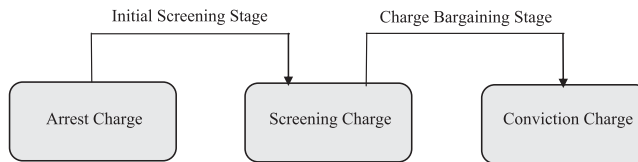


Figure 1. Stages of prosecution in New York County.

incentives and systems of accountability “leave substantial opportunity for disparity” (Forst, 2002, p. 523), a premium exists on empirical research that explicitly investigates the downstream consequences of charge reductions for social inequalities in punishment.

Much of the extant work on prosecutorial discretion remain limited in important ways. First, relatively few studies focus on charge bargaining. Most prior work has either examined the initial decision to file charges (e.g. Albonetti, 1987) or the decision to subsequently dismiss them (e.g. Franklin, 2010), with less work investigating charge reductions or their impact on social inequality. Second, existing work typically treats the charging process as a single decision (e.g. Shermer & Johnson, 2010), rather than considering how charges change across multiple stages of prosecution (Kutateladze, 2018). Charging changes occur at multiple points, including at the initial screening stage (between arrest and filing) and during the subsequent plea bargaining stage (between filing and conviction). However, relatively little is known about the *locus* of charging disparity or how charging changes at one stage are related to later stages (Kutateladze, 2018), especially for large samples of felony cases. Finally, little work explicitly focuses on the effect that charging decisions exert on downstream punishment outcomes. In particular, relatively little is known about the substantive *value* of charge reductions and how they may contribute to sentencing disparities (Metcalf & Chiricos, 2018; Piehl & Bushway, 2007). Research typically examines whether any charges are reduced at any point, rather than considering the substantive impact that charge alterations exert on key sentencing decisions like the use of incarceration. The result is that we know relatively little about the overall prevalence of charge bargaining, at what stage of case processing it typically occurs, and how it shapes broader patterns of disparity in criminal punishment (Johnson, King, & Spohn, 2016).

The current study addresses these issues and builds on prior research in three key areas. First, we provide new estimates of the prevalence of charge bargaining in a large sample of felony arrests from one large, urban jurisdiction. Our descriptive analysis shows that charge changes occur frequently and in ways that significantly alter the constitution of original arrest charges. Second, we replicate and extend recent work by Piehl and Bushway (2007), using more detailed data in a new research context to investigate disparities in the substantive impact that charge reductions have on sentencing outcomes. Specifically, we examine the “distance traveled” in sentencing, or the expected discount in the probability of incarceration, associated with charge alterations for defendants of different gender, racial and ethnic backgrounds. Finally, we also investigate the locus of charging disparity by disaggregating charging decisions across sequential stages of prosecutorial decision-making. In particular, we examine charge reductions that occur as part of the initial screening stage, between

arrest and filing, and also during the subsequent plea bargaining stage, after screening and prior to conviction (Figure 1). We begin by reviewing extant research on charge bargaining disparity before outlining our theoretical framework and detailing the data and methods used in the study.

Prosecution, charge bargaining, and sentencing disparities

Although legal scholars have long debated the merits and demerits of plea bargaining (Alschuler, 1981; Bibas, 2004; Schulhofer 1992), few empirical studies focus explicitly on prosecutorial charging decisions (Johnson et al., 2016). We, therefore, know relatively little about the potential role that charge bargaining plays in the creation and perpetuation of social inequalities in punishment (Forst, 2002). This is important for several reasons. First, guilty pleas are more common today than ever before in our nation's history (Smith, 2005), accounting for more than 95% of all criminal convictions (Reaves, 2013). Second, recent sentencing innovations have arguably enhanced the impact that charging decisions have on sentencing outcomes. Frase (2000, p. 440), for instance, observes that prosecutors maintain "enormous 'sentencing' power" because they "have virtually unreviewable discretion to select the initial charges and decide which charges to drop as part of plea bargaining." Finally, conclusions drawn from empirical sentencing research are likely to be incomplete if they fail to account for earlier charging processes. Prosecutors can alter initial charges in ways that can fundamentally transform the constitution of criminal cases, yet these processes remain "little understood outside of the community of prosecutors" (Frederick & Stemen, 2012, p. 1).

Prior research on charging decisions and sentencing disparities

Existing research on plea outcomes has focused predominantly on prosecutorial decisions to file initial charges (Albonetti, 1987; Freiburger & Jordan, 2011; Spohn, Gruhl, & Welch, 1987; Spohn & Holleran, 2001; Spohn & Spears, 1996; Wooldredge & Thistlethwaite, 2004) or to subsequently dismiss cases (Albonetti, 1992; Bishop & Frazier, 1984; Franklin, 2010). Less research, however, explicitly addresses charge bargaining or considers its direct impact on sentencing (Holmes, Daudistel, & Farrell, 1987; Miethe, 1987; Shermer & Johnson, 2010). In general, this corpus of work suggests that prosecutors are more likely to fully pursue cases that are more serious in nature, contain stronger evidence, involve more culpable defendants, and include more reliable, cooperative, and trustworthy victims or witnesses (see Johnson et al., 2016; Wu, 2016 for recent reviews).

A number of studies focus explicitly on extralegal disparities in charging. This work suggests that offender and victim characteristics often influence charging decisions (Baumer, Messner, & Felson, 2000; Franklin, 2010; Kutateladze, Lawson, & Andiloro, 2015; Spohn et al., 1987; Spohn & Spears, 1996; Shermer & Johnson, 2010; Wu, 2016). Recent work by Kutateladze et al. (2014), for instance, demonstrates that Black and Latino defendants are more likely than White defendants to receive custodial plea offers, and that they tend to experience cumulative disadvantages across multiple case processing outcomes. Other research indicates that charging disparities may be

especially pronounced for specific types of criminal defendants. Metcalfe and Chiricos (2018), for example, report that Black men tend to receive less return on their guilty pleas than other race and gender combinations. This finding is consistent with a well-established literature on the importance of intersectionality in punishment, which indicates that multiple offender and offense statuses can interact to produce compound disadvantages in sentencing (e.g. Demuth & Steffensmeier, 2004; Schlesinger, 2005, 2013; Steffensmeier, Ulmer, & Kramer, 1998).

In contrast, a number of studies also report inconsistent or null effects for gender and race in prosecution (e.g. Albonetti, 1992; Bernstein, Kick, Leung, & Schulz, 1977; Bishop & Frazier, 1984). Albonetti (1992), for example, found no evidence of gender or race disparity in charge bargains at initial screening, and Holmes et al. (1987) reported that Black defendants were *more* likely to receive charge reductions post-indictment. Similarly, results for gender versus race are often mixed. In the federal system, Shermer and Johnson (2010) showed that male defendants were less likely to receive charge reductions, but they found limited evidence of racial or ethnic disparity. In their recent overview of empirical research on race and prosecution, Kutateladze, Lynn, and Liang (2012, p. 17) conclude that “the effect of race and ethnicity on prosecutorial decision-making is inconsistent” even though many studies find some evidence of disparity in specific charging outcomes (Wu, 2016).

One potential explanation for this is the common tendency for researchers to examine a single outcome at a single stage of prosecution, often for only a select subset of offenses (Johnson et al., 2016). Several studies, however, suggest offender characteristics can exert differential effects across stages of prosecution. Spohn et al. (1987) showed that Black and Hispanic males were more likely to be charged but less likely to have their cases dismissed. Baumer et al. (2000), on the other hand, reported no racial disparity in initial charging decisions but found evidence of disadvantage in dismissals. These contrasting findings likely reflect the interrelated nature of sequential charging processes, which often vary substantially across prosecutor offices. Eisenstein and Jacob (1977), for example, found that some prosecutors’ offices have high case acceptance rates coupled with high dismissal rates, whereas others selectively file charges and rarely dismiss them. As Kutateladze (2018, p. 124) argues, “we continue to understand very little about how charges evolve across multiple decision points.” His work in New York County reported that nearly half the cases in a large sample of misdemeanor and felony defendants in New York County involved some type of charge alteration; although Black and Latino defendants were slightly more likely to receive charge reductions at initial screening, they were substantially less likely to have their charges subsequently reduced. This work highlights the importance of considering how charging decisions and potential disparities are interconnected across concurrent stages of prosecution.

In addition, much prior research focuses on the correlates of charging decisions without fully considering their impact on downstream sentencing outcomes. Scholars have increasingly recognized this issue, and recent studies have begun to address it (Kutateladze et al., 2014; Spohn, 2009; Stolzenberg, D’Alessio, & Eitle, 2013; Sutton, 2013; Wooldredge, Frank, Goulette, & Travis, 2015). Sutton (2013, p. 26), for example, found that racial minorities experience cumulative disadvantages in preliminary stages of the

court process that “echo across subsequent decisions.” Similarly, Kutateladze et al. (2014) demonstrated that racial differences in the type of plea offer contributed indirectly to racial disparities in sentencing. The work of Wright and Engen (2006) also highlights the importance of statutory legal dimensions that structure the “depth and distance” of available charging options, and Shermer and Johnson (2010) show that the receipt of a charge reduction in federal court reduces average sentence lengths by nearly 20%.

Although recent work has made great strides in our understanding of prosecutorial discretion, few studies investigate the substantive *value* of charge bargains in terms of their impact on sentencing. Piehl and Bushway (2007) provide an innovative approach for capturing this influence. They argue that the value of a charge bargain can be approximated by comparing the sentence one receives following a charge reduction to the expected sentence that would have been received in the absence of charge alterations. Although their study relies on a small sample, it suggests charge reductions have important effects on sentencing outcomes, especially in states with more structured sentencing systems.

The current study builds on and extends this line of inquiry. It estimates the “distance traveled” in sentencing, or the reduction in the probability of incarceration that is attributable to charging changes that occur at earlier stages of criminal case processing. We examine the overall prevalence of charge alterations at two distinct stages of prosecution—at the initial screening stage (i.e. between arrest and filing) and at the plea bargaining stage (i.e. between filing and conviction)—and we consider how these decisions may contribute to systematic disparities in incarceration by gender, race and ethnicity. This provides new insights into the pervasiveness of charge bargaining, where and when it typically occurs, and how it potentially contributes to patterns of inequality in punishment. The analysis is framed using current theories of court actor decision-making that combine insights from organizational perspectives on the criminal courts with contemporary theory on the focal concerns of prosecution and punishment.

Theoretical framework

Organizational decision-making perspectives emphasize that prosecutors, like other court actors, are forced to make charging decisions under time and information constraints that preclude full knowledge of future events (Albonetti, 1986, 1987). Under these conditions, they are likely to invoke decision-making routines, or patterned responses, that are rooted in past practice, organizational norms, and stereotypes about “normal crimes” and “normal criminals” (Sudnow, 1965). This process helps to manage the inherent uncertainty that characterizes charging decisions. Over time, as court actors engage in collective efforts to dispose of cases, local norms develop that shape existing decision-making patterns (Nardulli, Eisenstein, & Flemming, 1988). The end result is a system predicated on standardized plea discounts that are regularly meted out to typical defendants charged with typical crimes (Feeley, 1992; Sudnow, 1965). Over time, plea discounts become reified through established precedent and repeated application, and charge reductions emerge as an important organizational

tool for efficiently disposing of cases, encouraging guilty pleas, and ensuring high conviction rates (Feeley, 1992; Frohmann, 1997; McCannon, 2013).

Although standardized charge reductions are expected to be routinely applied in typical cases, they remain subject to cognitive decision-making processes that can systematically disadvantage certain categories of defendants. The routinization of guilty pleas is itself a substantive process (Savelsberg, 1992), which makes it vulnerable to social and cultural stereotypes that permeate society. As standardized decision-making schemas are developed, they may incorporate existing patterns of inequality that reflect broader racial and gender stereotypes in society. The influence of criminal stereotypes is thought to occur through a psychological attribution process in which subconscious negative associations tie key “focal concerns” of prosecution to individual defendant and victim characteristics (Spohn, Beichner, & Davis-Frenzel, 2001). In particular, prior work suggests prosecutors are predominantly concerned with the notion of “doing justice” (Eisenstein & Jacob, 1977), which is reflected in their assessment of key charging criteria, including the perceived culpability, threat, and dangerousness of the defendant (Albonetti, 1986; Shermer & Johnson, 2010; Spohn et al., 2001). To the extent that defendant background characteristics, or certain combinations of defendant characteristics, such as minority male status, color prosecutorial attributions of threat, blame, and future risk of recidivism, they may be systematically linked to charging decisions. Over time, social inequalities of this sort can become institutionalized in organizational praxis. Given the limited oversight and broad discretionary power of prosecutors, some argue that charging decisions are especially prone to these type of influences (Forst, 2002).

In addition to defendant culpability and community protection concerns, prosecutors are also subject to broader political and organizational goals, what might be termed the “practical constraints” of prosecution (Shermer & Johnson, 2010). For example, they are likely to consider relative evaluations of “case convictability”, or the expected probability of conviction at trial, as an additional “focal concern” of prosecution (Frohmann, 1997; Spohn et al., 2001; Steffensmeier et al., 1998). Prosecutorial conviction rates are also important because they are used as a measure of organizational success, and this provides considerable incentive to engage in charge bargaining to obtain guilty pleas (Eisenstein, Flemming, & Nardulli, 1988).

Finally, prosecutorial concern over the maintenance of effective workgroup relationships represents an additional organizational incentive that may facilitate charge bargaining discounts. Cooperation is necessary because prosecutors cannot take all criminal cases to trial (Nardulli et al., 1988). Therefore they must work with defense counsel and judges to ensure that a high proportion of cases are resolved via guilty pleas. As such, prosecutorial concerns with workgroup cohesion and efficient case disposition represent additional incentives that shape prosecutorial decision-making, with one of the most important tools at the prosecutor’s disposal being the use of reduced charges in exchange for the act of self-conviction (Alschuler, 1979).

Current research questions

Drawing from the above perspectives, the current study investigates the factors that affect charging discounts for different categories of criminal defendants. Prosecutors actively

pursue various goals related to individual assessments of specific case characteristics, such as defendant dangerousness and culpability, as well as broader practical constraints tied to case convictability, organizational efficiency and workgroup cohesion. Because the relative evaluation of these considerations is likely to be colored by social-psychological attributions that link cultural stereotypes to assessments of past and future behavior (Bridges & Steen, 1998), certain groups of defendants may be systematically disadvantaged in charge bargaining. In this way, patterned responses that link specific defendant characteristics, such as race and gender, to subjective assessments of blame, danger and future risk can reproduce social inequalities. In particular, prior research suggests that male defendants and racial and ethnic minority defendants are more likely to be associated with negative criminal stereotypes that result in less favorable charging dispositions (Franklin, 2010; Shermer & Johnson, 2010; Spohn et al., 2001). Moreover, status disadvantages may accrue for specific constellations of characteristics, such as minority male defendants (Metcalf & Chiricos, 2018). Similar factors may also shape assessments of trial convictability. Prosecutors are likely to anticipate fewer administrative concerns with the reduction of charges for a female or White defendant and may also have more favorable assessments of the likelihood of conviction at trial for male or minority offenders, in part because judges and juries tend to share similar criminal stereotypes associated with these demographic groups (Steffensmeier et al., 1998).

Taken together, the preceding suggests there may be important disparities in the substantive discounts produced during charge bargaining for different types of defendants. The current research focuses on three inter-related issues. First, we examine the overall prevalence of charge bargaining, considering how charges change across stages of prosecution, and examining their potential impact on downstream incarceration decisions. Prior research and theorizing suggest there are strong organizational incentives for court actors to engage in charge bargaining and that its substantive impact on punishment is potentially great (Wright & Engen, 2006). Second, we ask whether or not there are meaningful differences in the “distance traveled” during guilty plea negotiations for defendants from different gender, racial and ethnic backgrounds. Previous research has focused almost exclusively on *whether or not* a charge reduction is received rather than on the *substantive magnitude* of the plea discount. We consider the main and interactive effects of gender, race and ethnicity, examining whether or not less favorable charge discounts are given to male minority defendants. Finally, we also examine whether charge reductions have varying effects across stages of prosecutorial decision-making. Recent work indicates that charging discounts, and concomitant sentencing disparities, may be cumulative or offsetting (Kutateladze et al., 2014; Kutateladze, 2018; Sutton, 2013). We investigate the effects of charging changes between arrest and screening and also between screening and conviction. This approach provides new insights into *where* in the process charging discounts occur, as well as where disparities may become most pronounced.

Data and methods

To investigate our research questions, we analyze unique data from the District Attorney's Office of New York (DANY) (Kutateladze et al., 2014). The DANY data include information on all prosecutions in Manhattan during 2010–2011. This jurisdiction offers an opportunity to investigate the distance traveled during plea negotiations because DANY entered into a cooperative relationship with researchers that provided unusually detailed data on

charging information along with final sentencing outcomes. As such, New York County offers a valuable research setting for studying substantive differences in plea discounts across types of defendants and stages of criminal case processing. The DANY data come from administrative records generated by the prosecutors' case-management system, which were collected by researchers over a 20-month period (Kutateladze et al., 2014). Consistent with previous work, the sample is restricted to cases convicted by guilty plea (Piehl & Bushway, 2007), and it is confined to cases in which the most serious charge at arrest was for a felony offense. We limit the analyses to White, Latino, and Black defendants because there are relatively few defendants from other racial and ethnic groups, resulting in a final sample of 20,837 felony defendants.¹

Variables

We estimate the distance traveled in plea bargaining by examining the effect that charging changes have on the probability of incarceration. Prior work indicates that the distinction between custodial and non-custodial sentences is of key importance to both defendants and court actors (Wheeler, Weisburd, & Bode, 1982), and substantial disparities are often associated with "in/out" incarceration decisions (Mitchell, 2005; Spohn, 2000; Ulmer, 2012). Custodial sentences are coded as 1 for offenders who are sentenced to jail or prison and 0 otherwise.

A broad range of legal, case-processing and defendant characteristics are incorporated into the analysis. We include detailed measures of crime severity, which is based on the top charge as captured by statutory severity and type of offense. We use information on the top charge *at conviction* to predict incarceration, and we then substitute initial charges at arrest and screening to estimate probabilities of incarceration based on earlier charges. In New York, statutory severity is divided into five felony classifications (Class A to Class E felonies), two misdemeanor classifications (Class A and Class B misdemeanors) and a third category for criminal violations (the least serious group). For our analyses, misdemeanors and violations are combined into a non-felony reference group.² We also include separate indicators of offense types that distinguish person, property, drug, public order, and "other" crimes.³ Public order crimes serve as the reference group. Both the

¹Among the felony arrestees convicted by plea, 3.4% of the sample was Asian American and <1% was Native American. A small number of cases were removed from the sample because they were missing necessary information on sentence type ($n = 448$) or offense type at conviction ($n = 859$). In addition, 8 cases were removed for missing information on defendant gender along with six cases missing information on neighborhood of arrest.

²Because we begin with a sample of felony arrests, very few cases are reduced to Class B misdemeanors or violations, particularly at the screening stage ($n = 203$ and $n = 79$ cases, respectively). To address concerns with small cell sizes, we collapse misdemeanors and violations into a single "non-felony" classification. Separate analyses separating misdemeanors and violations produce similar results. We also combine Class A and Class B felonies because very few offenses were convicted as Class A felonies (only nine person offenses and 74 drug offenses in our sample).

³Because the specific types of felony offenses are closely aligned with statutory severity levels (e.g. all first Degree Robberies are Class B Felonies), it is not possible to include both in the model. We therefore examine statutory severity levels along with broader offense categories. Person offenses include crimes such as assault or robbery, property offenses include crimes such as larceny or theft as well as fraud and related offenses, drug offenses include felony possession or distribution, public order includes crimes such as prostitution or gambling, and other offenses involve crimes that do not fit into these other categories, such as obstruction of justice and weapon offenses. Drug crimes are limited to cases prosecuted by DANY. In New York County, drug cases are divided at random between DANY and the Office of the Special Narcotics Prosecutor, with each handling roughly half of all drug cases in the county (see Kutateladze and Andiloro, 2014).

severity and type of offense are included as separate blocks of dummy variables. We also control for the number of charges, distinguishing between cases with single versus multiple charges.⁴ Criminal history includes information on the number of prior arrests, prior convictions, and prior imprisonments. Because these measures were highly correlated, we combined them into a standardized scale that captures the overall severity of the defendant's prior criminal history.⁵

The primary independent variables of interest are the gender and race/ethnicity of the defendant. Gender is coded 1 for males and 0 for females. Race and ethnicity are included with dummy variables for White, Latino and Black defendants, with Whites as the reference. Additional variables include the age (and age-squared) of the defendant in years and the neighborhood where the arrest was made. Prior work suggests that the inclusion of neighborhoods can offer a useful proxy for socioeconomic differences and local influences in prosecution (Kutateladze et al., 2014). New York neighborhoods are divided into Harlem/Morning Side Heights, Upper East Side/West Side, Midtown/Financial District (MTFD)–West, and Midtown/Financial District (MTFD)–East, with cases originating outside of Manhattan serving as the reference group. In addition, pretrial detention status is included with a dummy variable coded 1 for defendants detained at arraignment and 0 otherwise. We also include an “other detention status” measure to identify defendants whose pretrial status was coded as “other” or “not applicable” in the data.⁶ Finally, the type of defense counsel is measured using dummy variables that distinguish defendants who are represented by private attorneys, court-appointed attorneys, and public defenders (the reference group), with the latter combining defendants represented by the Legal Aid Society, Neighborhood Defender Service (NDS) and the New York County Defender Services (NYCDS).⁷ Examination of collinearity diagnostics indicated multicollinearity was not a concern in the analysis.⁸

Calculating the “distance traveled”

There are two main stages in which the charges against the defendant can be altered by the prosecution in New York County. After an arrest, the police bring the case to

⁴We dichotomize this measure because the vast majority of cases are convicted of a single charge (96% in our sample); however, alternative models specifying a continuous measure for the number of charges at conviction produces equivalent results.

⁵Supplemental models including the individual criminal history measures separately also produce equivalent findings. These and other supplemental analyses are available from the authors by request.

⁶This can occur when a guilty plea or other case disposition is determined prior to arraignment, so that the detention status at arraignment is not applicable or unknown. Reported findings are unaffected by the removal of these cases.

⁷In New York county, court-appointed attorneys are referred to as “18(b)” attorneys, pursuant to county law that established them, and public defenders come from several different agencies all of which are nonprofit organizations that provide defense counsel to indigent defendants in different parts of the county. We initially included an additional dummy variable for the small number of cases ($n = 605$) missing information on type of attorney but they were indistinguishable from the public defender cases and are therefore grouped in the omitted reference category. Results are unchanged when these cases are captured separately using an additional dummy variable.

⁸The variance inflation factors (VIFs) for independent variables of interest are all below 3.0. Age and age-squared are highly correlated, but this is to be expected and is not an indicator of problematic multicollinearity, which involves two (or more) variables correlated by chance rather than by design.

DANY's Early Case Assessment Bureau (ECAB), where assistant district attorneys review the case and decide whether to prosecute and if so what initial charges to bring. The initial arrest charges may be altered at this point as part of the initial screening process. After a case is filed, the charges can be further altered during plea negotiations. As summarized in [Figure 1](#), we refer to charge reductions that occur between arrest and filing as the initial screening stage and charging changes that occur after filing and before conviction as the plea bargaining stage.⁹

To capture the "distance traveled" it is necessary to compare the sentence that occurred after a charge alteration to the expected sentence that would have occurred in its absence. Importantly, this approach captures both increases and decreases in the severity and type of original charges across stages of prosecution. Because information is available on the sentencing outcomes of other similar defendants in the data, this information can be used to create an estimate of the likely punishment that would have occurred in the absence of charge bargaining (Piehl & Bushway, 2007). To illustrate, consider a defendant who is arrested and initially charged with first degree robbery but later convicted only of third degree burglary. We observe the sentence that results from the burglary conviction, but not the sentence that would have resulted from the original robbery charge. Although we do not observe the counterfactual punishment, we can estimate it by averaging across other comparable cases in the dataset. That is, we use information on other offenders who were convicted and sentenced for first degree robbery. In this way we obtain a proxy for the going rate for first degree robbery convictions in the jurisdiction, conditional on other relevant case, defendant and offense characteristics. Stated differently, we estimate the expected sentence that would have occurred if the defendant had been convicted of the original offense (see Smith, 1986).

To calculate the distance traveled, we predict the expected sentence for the most serious arrest and screening charges using coefficients from a model that estimates the probability of incarceration based on final conviction charges, after controlling for other relevant sentencing factors (Piehl & Bushway, 2007). [Equation 1](#) summarizes the basic model:

$$Pr(Incar_i) = \alpha + \beta \overline{Convict}_i + \gamma \overline{W}_i + \delta \overline{Z}_i \quad (1)$$

[Equation 1](#) is estimated with a probit model where incarceration sentences are coded 1 and non-incarceration sentences are coded 0. The β coefficient represents the effects of a vector of conviction charges, including the severity, type and number of charges. The $\gamma \overline{W}_i$ term captures the influence of other defendant characteristics, like age, gender, race and ethnicity, and the $\delta \overline{Z}_i$ term is a vector of other case processing characteristics, such as criminal history, type of attorney, and location of arrest. The coefficients from this model are saved and used to create predicted probabilities of incarceration for each defendant at each stage of charging, where the key difference is that the number, severity and type of conviction charges are replaced with the original charges at arrest or screening. This provides predicted values that represent the expected likelihood of incarceration conditional on the arrest or screening charges. The difference between the predicted probabilities can then be used to investigate the effects of charge bargaining on the likelihood of

⁹We do not investigate case acceptance because the overwhelming majority of cases (96%) are forwarded for prosecution in New York county (see Kutateladze et al., 2014).

incarceration. In the case of no charge bargaining, the predicted values at each stage will be equivalent. When a charge reduction occurs, the predicted values based on the arrest or screening charges will be higher on average than the predicted value based on the conviction charge. The differences between these estimates provide a useful approximation of the anticipated sentencing discount, or the “distance traveled” in the likelihood of incarceration that is attributable to charge bargaining. As Piehl and Bushway (2007, p. 112) note, this estimate is unbiased as long as relevant predictors are included. The key assumption is that the sentencing process operates similarly, conditional on observable covariates, for defendants convicted of the original charges and for defendants who receive a charge reduction. Under this assumption, the method offers a useful approach for estimating the impact of charging changes on downstream sentencing outcomes.

We further extend this basic model in three important ways. First, we adapt it to the study of unwarranted disparities by estimating the distance traveled separately for male and female defendants and for defendants from different racial and ethnic backgrounds. We also consider interactions between race, gender and offense type. Second, we investigate the effects of charge bargains that occur at distinct stages of case processing. Specifically, we estimate the distance traveled during the initial screening stage, between arrest and filing, and also during the subsequent plea bargaining stage, between filing and conviction. Lastly, we also consider several alternative approaches to estimating the “distance traveled” in order to assess the robustness of our findings across modeling strategies.

Results

Descriptive statistics for convicted cases are reported in [Table 1](#). Misdemeanor crimes and property crimes are the modal offense categories at conviction. The vast majority of cases are convicted of a single offense, though many initially involved multiple charges. The average defendant has a mean of four prior arrests and two prior incarcerations. The typical defendant is Black, male and in his early-to-mid thirties. Nearly half of all defendants are detained prior to sentencing and the majority are represented by public defenders. Most criminal cases are the result of arrests occurring in Harlem or Midtown–West. Most importantly, 41% of defendants had their charges reduced at the initial screening stage, between arrest and filing, whereas 60% of defendants had their charges reduced during the plea bargaining stage, after charges were filed and before the defendant was convicted. Small proportions of defendants had their charges increased at each stage of prosecution, which is also factored into our estimates of the distance traveled. Finally, just under half of all felony arrestees were sentenced to incarceration. In part, this reflects the fact that nearly two-thirds of all felony arrests were reduced to misdemeanor convictions during the charging process. This issue is explored further in [Table 2](#), which reports the ways that the type and class of felony offenses change during the charging process.

[Table 2](#) illustrates the fundamental importance of charging changes across stages of prosecution in New York County. The first panel reports felony offense classifications at arrest. Not surprisingly, most felony cases originate as property crimes and most are of the less serious variety (class E or class D felonies), which include larceny,

Table 1. Descriptive statistics for felony arrest guilty pleas in New York County.

Variable	Mean	SD	Min	Max
Sentencing outcome				
Incarceration	0.47	0.50	0	1
Charge reduction				
Arrest to screening	0.41	0.49	0	1
Screening to conviction	0.60	0.49	0	1
Charge increase				
Arrest to screening	0.08	0.27	0	1
Screening to conviction	0.03	0.17	0	1
Statutory severity level at conviction				
Felony A	0.004	0.06	0	1
Felony B	0.07	0.26	0	1
Felony C	0.06	0.24	0	1
Felony D	0.13	0.34	0	1
Felony E	0.06	0.24	0	1
Misdemeanor	0.68	0.47	0	1
Offense type at conviction				
Person	0.12	0.33	0	1
Property	0.31	0.46	0	1
Drug	0.23	0.42	0	1
Other	0.08	0.27	0	1
Public order	0.26	0.44	0	1
Multiple charges at conviction	0.04	0.18	0	1
Defendant criminal history				
Prior arrests	4.00	7.99	0	153
Prior convictions	4.14	8.68	0	130
Prior prison sentences	2.05	5.33	0	84
Prior record scale	0.38	2.94	-1.56	9.60
Demographic characteristics				
Age	33.55	12.29	14	80
Male	0.84	0.36	0	1
White	0.13	0.33	0	1
Latino	0.35	0.48	0	1
Black	0.53	0.50	0	1
Pretrial detention	0.48	0.50	0	1
Other detention status	0.17	0.37	0	1
Defense counsel				
Private attorney	0.06	0.24	0	1
Panel attorney	0.14	0.35	0	1
Public defender	0.80	0.40	0	1
Arrest neighborhood				
Harlem	0.39	0.49	0	1
Upper west/east side	0.11	0.31	0	1
MTFD-west	0.39	0.49	0	1
MTFD-east	0.07	0.25	0	1
Outside Manhattan	0.05	0.21	0	1

N = 20,837.

MTFD: midtown to financial district.

burglary, and fraud. Nontrivial numbers of arrests are also made for class D person crimes (which include most assaults), and for class A and B drug offenses (trafficking in controlled substances). By far the least common arrest category is public order offenses, virtually all of which are the lowest-level felonies.

Panel B in [Table 2](#) reports the same information at screening. Notable shifts occur at this stage, where more than one in three cases have their felony arrest charges reduced to a misdemeanor. The majority of these occur for the less serious felony offense categories. There are also small increases in the number of cases charged for

Table 2. Changes in the type and severity of charges at arrest, screening and conviction in New York County.

Offense classifications at arrest							
	Misd	Class E	Class D	Class C	Class B	Class A	Total
Person	–	300	1821	955	624	60	3760
Property	–	3997	3579	719	55	1	8351
Drug	–	203	1376	351	3098	285	5313
PO	–	1366	48	4	0	0	1418
Other	–	149	1472	347	27	0	1995
Total	–	6015	8296	2376	3804	346	20,837

Offense classifications at screening							
	Misd	Class E	Class D	Class C	Class B	Class A	Total
Person	378	112	1261	927	681	70	3429
Property	3013	2081	2789	543	80	1	8507
Drug	1890	43	541	159	2468	218	5319
PO	776	242	30	3	1	0	1052
Other	1518	44	646	316	6	0	2530
Total	7575	2522	5267	1948	3236	289	20,837

Offense classifications at conviction							
	Misd	Class E	Class D	Class C	Class B	Class A	Total
Person	762	181	871	411	274	9	2508
Property	4276	900	1121	185	33	0	6515
Drug	2557	48	377	517	1165	74	4738
PO	5328	58	17	1	0	0	5404
Other	1183	60	301	123	5	0	1672
Total	14,106	1247	2687	1237	1477	83	20,837

Misd: misdemeanor offense; PO: public order.

the more serious person and property offenses (Class A and B), which indicates prosecutors, in a small minority of cases, also increase charge severity between arrest and screening.¹⁰ As noted above, our analytic approach captures both increases and decreases in charge severity at different stages of prosecution.

Finally, Panel C reports comparable information for the final offense at conviction. Charge changes at this stage are especially pronounced. Overall, two-thirds of all felony arrests end up as a misdemeanor conviction. In addition, a sizeable number of cases are routinely pled from person, property and drug crimes into less serious public order offenses—only 7% of felony arrests occur for public order offenses, yet more than one in four convictions end as a public order crime. Additional analysis separating changes in offense type from changes in statutory severity show that both occur frequently, with changes in statutory severity the most common, especially during the plea bargaining phase (see [Table A1](#) of the Appendix). These descriptive results suggest a clear and systematic pattern of charge manipulation, both during the initial screening phase and especially as a part of the subsequent plea bargaining process.

To investigate the substantive effects of these changes on incarceration, we next turn to our analysis of the “distance traveled” in charge bargaining. We estimate a probit model for the likelihood of incarceration based on the conviction data. These

¹⁰Increases in initial arrest charges can occur for several reasons. Prosecutors may view the defendant or the offense as relatively more serious or more culpable than the police, or additional evidence might come to light after the arrest that strengthens the case against the defendant.

Table 3. Probit model for the incarceration decision.

	Incarceration			
	<i>b</i>		SE	ME
Constant	-3.51	***	0.12	
Offender characteristics				
Age	0.07	***	0.01	0.03
Age square	-0.00	***	0.00	-0.00
Male	0.33	***	0.03	0.12
Latino	0.08	*	0.04	0.03
Black	0.12	**	0.04	0.05
Offense severity at conviction				
Felony A/B	0.98	***	0.05	0.37
Felony C	0.71	***	0.05	0.28
Felony D	0.80	***	0.04	0.31
Felony E	0.78	***	0.05	0.30
Type of crime at conviction				
Person	0.99	***	0.05	0.37
Property	0.87	***	0.04	0.34
Drug	0.70	***	0.04	0.27
Other	0.89	***	0.05	0.34
Multiple charges at conviction	0.10		0.06	0.04
Defendant criminal history	0.14	***	0.00	0.06
Pretrial detained	1.22	***	0.03	0.45
Other pretrial status	0.68	***	0.04	0.27
Private attorney	-0.25	***	0.05	-0.09
Panel attorney	0.00		0.03	0.00
Arrest neighborhood				
Harlem	0.07		0.06	0.03
Upper west/east side	0.00		0.06	0.00
MTFC-west	0.06		0.06	0.02
MTFC-east	0.05		0.07	0.02

N = 20,837.

*** $p \leq .05$; ** $p \leq .01$; * $p \leq .001$.

estimates are provided in [Table 3](#) and are subsequently used to generate expected sentences based on arrest and screening charges. In addition to the coefficients and standard errors we report and discuss marginal effects, which capture the expected change in the conditional mean of the outcome associated with a unit change in each regressor (Cameron & Trivedi, 2010).

Consistent with much prior work, several defendant demographic characteristics are significantly associated with incarceration. Of particular interest to the current study, we find that the probability of incarceration for male defendants is 12% higher than for female defendants, and it is 3 and 5% higher for Latino and Black defendants respectively compared to Whites. In addition, older defendants are more likely to receive custodial sentences, though this effect is small and curvilinear and decreases slightly at older ages.

Not surprisingly, the results in [Table 3](#) also indicate that there is variation in the predicted probability of imprisonment across statutory severity and offense types. Defendants convicted of Felony A/B crimes have the highest probabilities of incarceration, being 37% more likely to be incarcerated than defendants convicted of misdemeanor offenses. Other felony offenses are also significantly more likely to result in incarceration. With regards to offense type, defendants convicted of person offenses have the highest probability of incarceration, followed by property and other offenses. Drug convictions are less likely to result in incarceration, though they are still significantly more likely than public order defendants to result in jail or prison time. A

defendant's prior criminal record is also strongly related to custodial sentences. Each unit increase in the criminal history scale results in a 6% increase in the probability of incarceration. Consistent with prior sentencing research, then, the severity of the current offense and the prior criminal record of the defendant are both strong predictors of incarceration (Spohn, 2000).

Finally, the results in Table 3 further suggest that several other case factors are significantly associated with incarceration. Defendants who are detained pretrial have a probability of imprisonment that is 45% greater than released defendants, and individuals represented by private attorneys are significantly less likely to be imprisoned relative to defendants represented by public defenders. Overall, these results are largely consistent with prior punishment research in the current research context and more generally (Kutateladze et al., 2014; Spohn, 2000; Ulmer, 2012).

Estimates of the distance traveled in charge bargaining are presented in Table 4. We use the coefficients in Table 3 to generate predicted probabilities of incarceration for all defendants at arrest, screening and conviction. As Table 4 shows, consistent with our descriptive analysis, there is a clear downward progression in the probability of incarceration across stages of prosecution. Based on the original offense charged at arrest, defendants have an average probability of imprisonment equal to roughly 66%, yet by the time they are convicted, the mean probability of incarceration drops below 50%. In raw numbers, the probability of incarceration drops 8 percentage points from arrest to screening and another 12% points from screening to conviction. In terms of percentage changes, this represents about a 12% decrease from arrest to screening and more than a 21% decrease from screening to conviction.¹¹ These results indicate a clear pattern of systematic reductions in the severity of the top charge across stages of prosecution, with the greatest reductions occurring during the plea bargaining stage.

Table 4 also reports similar findings disaggregated by gender. To obtain these results, we divided the sample by gender and recalculated the "distance traveled" separately for men and for women in the data. These results are summarized in Figure 2 and indicate that male and female defendants receive similar charging discounts between arrest and screening, but that female defendants receive substantially greater sentencing reductions during plea bargaining. On average, the probability of incarceration is reduced by 18% for male defendants during the plea bargaining stage, while it is decreased by 31% for female defendants. Substantively, this indicates that even after controlling for a wide array of other offender, offense, and case characteristics, the average plea bargaining discount, or "distance traveled", is substantially greater for female defendants relative to male defendants.

Similar but less pronounced differences emerge across racial and ethnic groups. On average, White defendants receive more favorable charge reductions than Latino or Black defendants. These findings are summarized in Figure 3. During the initial charging stage (between arrest and screening), charging changes reduce the average probability of incarceration by about 16% for White defendants and by 14 and 11%, respectively for Latino and Black defendants. As with gender, larger differences emerge during the plea bargaining stage (between screening and conviction). Here White defendants receive charge

¹¹Percentage changes are calculated as follows: $\% \Delta = \frac{V_1 - V_0}{V_0} \times 100\%$ where V_0 = predicted probability of incarceration at Time 1 (arrest or screening) and V_1 is the predicted probability at Time 2 (screening or conviction).

Table 4. The impact of charging changes on incarceration by race and gender.

	N	Predicted probability of incarceration \hat{Y}			%Change Δ	
		Arrest charges	Screening charges	Conviction charges	Arrest to screening	Screening to conviction
Total sample	20,837	0.66	0.58	0.46	-12.1%	-20.7%
Gender disparity						
Males	17,564	0.70	0.61	0.50	-12.9%	-18.0%
Females	3,273	0.48	0.42	0.29	-12.5%	-31.0%
Racial disparity						
Whites	2,676	0.55	0.46	0.32	-16.4%	-30.4%
Latinos	7,220	0.65	0.56	0.44	-13.8%	-21.4%
Blacks	10,941	0.70	0.62	0.52	-11.4%	-16.1%

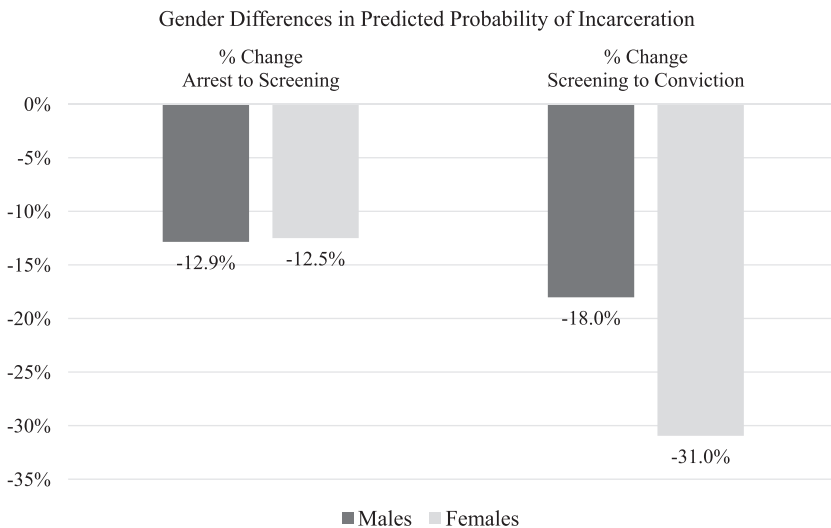


Figure 2. Summary of gender disparities in the “distance traveled.”

reductions that lower their expected probability of incarceration by 30%, on average, compared to charging discounts of 21 and 16%, respectively for Latino and Black defendants. Overall, these results suggest that incarceration disparities by gender, race and ethnicity widen across successive stages of charging in New York County.

Importantly, the estimates for the distance traveled do not appear to be driven simply by the likelihood of receiving a charge reduction. To illustrate, a supplemental model with a binary charge reduction measure is reported in Table A2 of the Appendix. Gender is not significantly related to the binary charge outcome, and although the effects of race and ethnicity are negative as expected, they are substantively small and statistically significant only for Black defendants.¹² All of this suggests that a binary charge measure fails to

¹²Additional analysis of separate binary charge reduction measures at each stage of prosecution (results not shown in tabular form) also demonstrate that key predictors exert different effects across charging decisions. Gender, for example, is significantly and positively related to charge reduction at screening but negatively related to it during plea bargaining, which helps to explain its null effect in the overall binary charge reduction model.

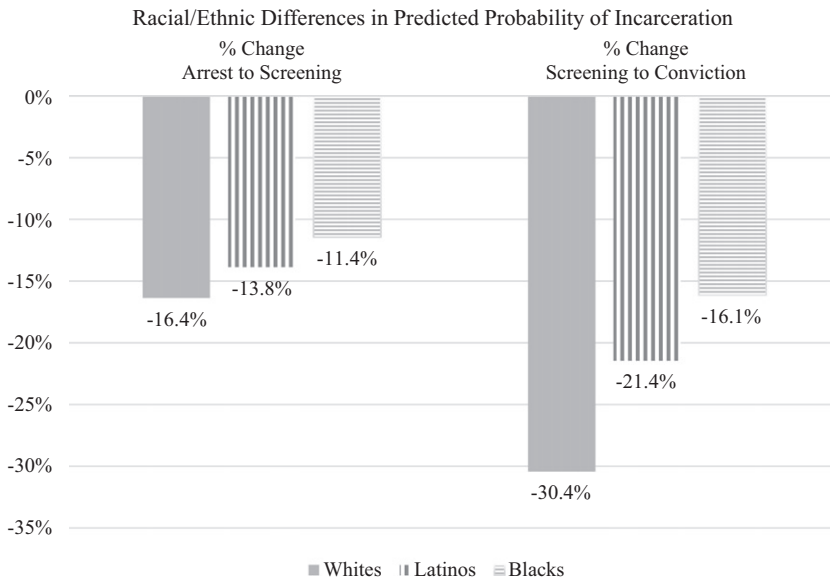


Figure 3. Summary of racial/ethnic disparity in the “distance traveled.”

capture meaningful differences in the substantive value of charging discounts given to different types of defendants and that important nuances may be lost when charging decisions are aggregated across stages of prosecution.

Finally, to consider the potential impact of intersectionality on the distance traveled, we also examined the interactive effects of race and gender (Crenshaw, 1991). In the interest of space, we combine estimates across the two stages of prosecution and summarize them in Figure 4 (full tabular results are available by request). Overall, these joint estimates follow a consistent and predictable pattern; specifically, Black males receive the smallest discounts, with the average probability of incarceration being reduced by 24% from arrest to conviction. In comparison, White females receive the largest discounts, with the average probability of incarceration being reduced by 47% from arrest to conviction. Latino odds fall between Whites and Blacks for both men and women, though racial disparities in the distance traveled tend to be more pronounced for male than female defendants.¹³

Alternative specifications and robustness checks

To investigate the robustness of our conclusions, we also examined a number of alternative model specifications. First, we considered an alternate method for calculating the “distance traveled.” Piehl and Bushway’s (2007) model, reported above, computes the marginal effect for the average offender in the data. That is, it estimates the average predicted probability of incarceration based on arrest offenses and compares it to the average probability of incarceration using screening or conviction offenses. This

¹³We also investigated differences by type of offense for the subset of male offenders (there were insufficient numbers of cases across offense types to conduct this analysis separately for female defendants). Consistent with prior work (e.g. Steffensmeier and Demuth, 2000; Schlesinger, 2005; 2013), racial disparities among men were most pronounced for arrests that involved drug or violent crimes. These additional results are also available by request.

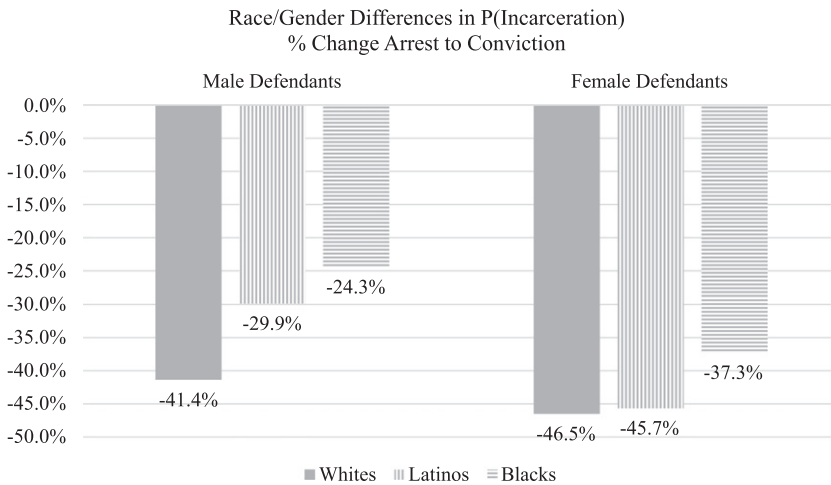


Figure 4. Summary of the joint impact of race/gender on the “distance traveled.”

method is simple, straightforward and easy to interpret, but it is not based on variations in the value of specific charge reductions for each individual defendant in the data. An alternative approach therefore is to calculate the average marginal effect by measuring the distance traveled separately for each individual offender and then averaging across cases in the data. Equation (2) summarizes this approach using the example of screening and conviction charges:

$$Distance\ Travelled_{SC} = \frac{1}{n} \sum_{i=1}^n \frac{P(\widehat{Incar})_i^C - P(\widehat{Incar})_i^S}{P(\widehat{Incar})_i^S} \tag{2}$$

In this formulation, the distance traveled is equal to the difference in the predicted probabilities of incarceration $P(\widehat{Incar})$ for each individual (i) based on their charges at conviction (C) and their charges at screening (S). This difference is divided by the screening value $P(\widehat{Incar})_i^S$ to create a measure of the percentage change for each individual offender. These individual values are then averaged across cases in the data ($\sum_{i=1}^n$) and divided by the total number of observations (n). Whereas the original approach calculates the marginal effect for the average case, this approach computes the average of the marginal effects. The resultant value represents the mean individual change in the expected probability of incarceration that is due to charging alterations. This approach has the benefit of taking into consideration individual case characteristics for specific defendants when calculating the distance traveled.

We refer to these alternative estimates as Individual Estimates and report them in Table A3 of the Appendix. Importantly, the overall conclusions regarding expected benefits of charge reductions, and racial and gender disparities in incarceration, remain unchanged when we calculate these alternate estimates. In fact, the magnitudes of charging discounts are somewhat larger when the distance traveled is calculated separately for each individual. For example, the estimate of the percent decrease in the probability of incarceration increases from 12 to 16% at screening and from 21 to 29% at plea bargaining when using the individual estimates, though the overall pattern of gender and race differences remains the same. The fact that the individual estimates are

somewhat larger suggests gender and race disparities are even more pronounced when accounting for individual charging discounts given to specific defendants. This implies there is value in not just focusing on the marginal effect for the average offender, but also in investigating the distance traveled in specific cases in the data. The larger estimates from the individual models likely reflect the fact that some individuals experience very large charging discounts that are not fully captured by the standard approach, which is limited to comparisons of average probabilities at each stage of prosecution. Even though the individual estimates are somewhat larger, though, they still provide a consistent picture of relative disadvantage for male and minority defendants, especially during the charge bargaining stage of prosecution.

The second set of additional analyses we perform examines the robustness of our findings when using conditional models estimated separately for different groups in the data. The original formulation applies the coefficients based on the total sample to the gender and race-specific subsamples. The underlying assumption in this approach is that the effects of the independent variables operate similarly across demographic groups. Some prior work, however, suggests that there may be differences in the effects of independent variables by gender and race (Doerner & Demuth, 2010; Freiburger & Hilinski, 2013; Steffensmeier & Demuth, 2006). We therefore reexamined our models after estimating separate, group-specific probit models for men and for women, as well as for each racial and ethnic group in the data. The coefficients from these models were then used to recalculate predicted probabilities of incarceration using the group-specific coefficients. This approach allows case characteristics to have varying effects on the probability of incarceration for different types of defendants. We refer to these as Conditional Estimates in [Table A3](#). These findings are nearly identical to the overall estimates provided in [Table 4](#), which indicates that group-specific estimates also support a consistent pattern of gender and race differences in the relative value attached to charge reductions.

Lastly, we also investigated alternative model specifications that include joint combinations of offense type and severity, similar to Piehl and Bushway (2007) who interacted their felony/misdemeanor dummy with the type of offense. This results in more than twenty separate dummy variables that capture the joint impact of statutory seriousness and crime type (e.g. Class C person; Class D property, Drug misdemeanor, etc.). Findings from this additional specification are labeled Interactive Estimates and are also reported in [Table A3](#) in the Appendix. The inclusion of more detailed offense variables has minimal impact on the overall estimates and further supports the conclusion that charging changes significantly reduce the probability of incarceration, and that these effects tend to be greater for female and White defendants, especially during plea bargaining.

Overall, the results from various alternative model specifications consistently suggest that prosecutorial charging decisions translate into significant discounts in the probability of incarceration. Notable changes occur at the initial screening stage but even larger discounts are awarded during plea bargaining. On average, female defendants receive more significant charging discounts than male defendants, especially at the plea bargaining phase, whereas White defendants tend to benefit more than Latino and Black defendants at both initial screening and during plea bargaining. Although estimates of the “distance traveled” vary somewhat across alternative

modeling approaches, the overall pattern of findings provides clear evidence for a consistent arrangement of charging discounts that tend to favor female and White defendants, especially in the plea bargaining stage of prosecution.

Discussion and conclusion

A number of academic scholars have argued for greater attention to negotiated pleas and their downstream consequences in punishment (Nardulli et al., 1988; Johnson et al., 2016; Wright & Engen, 2006). For example, Bushway and Forst (2013, p. 217) argue that “most cases are resolved at the stages of arrest, screening and by plea bargains, over which prosecutors have substantial discretion”, and Frederick and Stemen (2012, p. ii) argue that this means “Prosecuting attorneys enjoy broader discretion in making decisions that influence criminal case outcomes than any other actors in the American criminal justice system.” Yet, despite growing recognition of the power of the prosecutor and the importance of quantifying plea bargaining discounts, relatively few empirical studies examine charge reductions or their potential impact on sentencing outcomes. As Johnson et al. (2016, p. 3) recently opined, “a great deal remains unknown about the processes that lead to guilty pleas or the substantive impacts that these decisions have on criminal punishments.” The current study speaks to this issue by calculating and testing a measure of the “distance traveled” in charge bargaining—it quantifies the value of a charge bargain as it relates to the likelihood of incarceration, it investigates its potential impact on racial, ethnic and gender inequality in punishment, and it disaggregates these effects across distinct stages of the charging process.

This research sought to address three closely related research questions. First, it asked how prevalent and consequential charge bargaining might be for final punishments, focusing specifically on the potential impact it exerts on custodial sentences. Prior research and theorizing argue that prosecutors maintain broad and unfettered discretion in the tailoring of criminal charges and that there are strong organizational incentives to engage in charge bargaining (Forst, 2002; Shermer & Johnson, 2010; Lynch, 2016; Wright & Engen, 2006). Consistent with the goals of prosecution, significant charging discounts are expected because they help to efficiently dispose of cases, encourage guilty pleas, maintain workgroup relations, and ensure high conviction rates, which serve as an organizational indicator of prosecutorial effectiveness (Feeley, 1992; Nardulli et al., 1988; Sudnow, 1965). In line with this, the current results indicate that charge bargains are frequently employed and that they are highly consequential for expected punishments.

Specifically, 41% of felony defendants had their charges reduced between arrest and screening, and 60% had them further mitigated prior to a guilty plea being accepted. Only a small number of cases involved charge increases. These estimates are somewhat larger than for similar work including misdemeanor arrests (Kutateladze, 2018), but they are largely consistent with prior research on felony crimes in other states. For instance, Wright and Engen (2006) reported that roughly half of all felony convictions in North Carolina received a charge reduction. In terms of the overall probability of imprisonment, the average likelihood in our sample was reduced from 66% to 46% as a result of charging changes. This translates into a 31% reduction $[(0.66 - 0.46)/0.66 = 0.31]$ in the probability of incarceration, with reductions during plea bargaining having almost twice the

impact as changes that occur at initial screening. The fact that reductions are more prevalent and influential during plea bargaining than the initial screening stage is interesting and suggests prosecutors rely heavily on charge reductions to induce guilty pleas. This interpretation is consistent with recent qualitative work that finds large charging discounts associated with cases settled by guilty plea (Zottoli, Daftary-Kapur, Winters, & Hogan, 2016), and it also raises important questions about the potential for coercive pressure to affect the guilty plea process (McCoy, 2005).

Our second research question asked whether the value attached to a charge reduction varied systematically with regard to the gender, race or ethnicity of the defendant. Organizational decision-making perspectives emphasize that prosecutors make charging decisions under time and information constraints that encourage the use of patterned responses tied to specific defendant characteristics. In particular, negative criminal stereotypes attached to prosecutorial assessments of threat, blame, and risk of recidivism may systematically disadvantage male and minority defendants. Overall, we find compelling evidence for gender and race disparity in the value attached to guilty plea discounts. Importantly, our investigation of this issue differs from most prior research in two important ways. First, few studies examine the substantive magnitude of charging discounts (Piehl & Bushway, 2007), and second, a dearth of research considers the downstream impact of charging decisions on sentencing outcomes (Johnson et al., 2016). Our work focuses on potential disparities that may result from differential patterns of charge alterations among felony arrests, and it suggests that charging discounts reduce the predicted probability of incarceration for women more than men, for Whites more than Latino and Black defendants, and for White females more than Latino and Black men.

Finally, we also considered the way that charging discounts vary across stages of prosecution, distinguishing shifts that ensue from arrests to screening from those that occur between screening and conviction. Recent work in this area emphasizes that the influence of charging decisions may be cumulative or offsetting (Johnson et al., 2016; Kutateladze et al., 2014, 2018; Spohn & Tellis, 2014), yet few empirical studies examine more than one stage of prosecution. Our results consistently demonstrate that the lion's share of charging discounts occur during the plea bargaining stage (between screening and conviction), though meaningful reductions also occur at initial appearance (between arrest and screening). Charge increases, by comparison, are relatively rare at both stages of prosecution. On average, charge reductions at initial screening reduce the probability of incarceration by about 12%, while charge bargaining discounts have a significantly greater impact. Across various estimation strategies, the predicted probability of incarceration is reduced between 19 and 29% during the plea bargaining phase. In the current jurisdiction, then, the most consequential charging changes consistently occur during guilty plea negotiations.

One unexpected implication of our work is that charges often move freely between types of crimes that deviate from their legally included offenses. In many cases, serious felonies are reduced to minor public order offenses. To illustrate, in these data, felony arrests for robbery result in a robbery conviction less than 60% of the time. Similarly, fewer than 60% of felonious larceny arrests end as larceny convictions, with nearly one-fourth becoming public order crimes, and only 22% of felony theft arrests produce a theft conviction, while 39% end as a public order offense. These results are consistent with the early plea bargaining work of Sudnow (1965, p. 258) who reported that "Offenses are regularly

reduced to other offenses the latter of which are not necessarily or situationally included in the former." In other words, arrest charges are commonly transmuted into other offense categories that may be far removed from criminal conduct. In Sudnow's (1965, p. 258) words, charging manipulations are the product of "practically tested criminological wisdom" rather than established statutory legal criteria. Because this type of local "wisdom" tends to be specific to each court community, this also suggests that charging practices are likely to deviate across court contexts. As such it will be important for future research to replicate and extend our analysis with new data in other jurisdictions.

Despite the unique contribution of our study, certain limitations are worth noting, which may provide interesting lines of future inquiry. First, our approach likely offers a conservative estimate of the total impact of charge bargaining on sentencing. Our analysis only captures one form of plea bargaining that involves changes to criminal charges. Other forms of plea negotiation may also be present, such as sentence bargaining, where the judge agrees to provide a specific sentence to the defendant, or fact bargaining, which involves changes to specific case details (e.g. loss or drug amounts). Conversations with court actors in this jurisdiction suggest that these other forms of plea negotiation are rare, though our research is unable to empirically test them. However, our study does offer clear evidence that charging alterations are regularly used by prosecutors to attain guilty pleas, and that they play a substantial role in shaping criminal punishment in New York County.¹⁴

Second, our analysis is focused on the judicial use of incarceration for convicted defendants. This decision was driven by both theoretical and practical considerations. Prior work demonstrates that the incarceration decision is of paramount importance to defendants and judges alike (Wheeler et al., 1982), and that extralegal disparities are often pronounced for this highly consequential outcome (Mitchell, 2005; Spohn, 2000; Ulmer, 2012). Moreover, charge alterations remain one of the most important and least understood aspects of plea bargaining. As such, examining the effects of charge bargaining on incarceration decisions offers a logical starting point for any investigation of the effects of prosecutorial discretion on sentencing outcomes. At the same time, though, other charging decisions are also highly consequential and may affect other aspects of sentencing. Prosecutorial decisions to dismiss cases, for instance, remove the defendant from the punishment process altogether, and even among convicted defendants, reductions in charges may impact other outcomes such as the relative length of custodial sentences. Because we rely on data from the district attorney's office, detailed information on additional sentencing outcomes is limited, and we must leave it to future studies to expand our work to other facets of punishment, and to adapt this approach to better capture defendants who are not ultimately convicted. For instance, dismissed cases might be incorporated as part of the

¹⁴Recall that our estimates adjust for all charging changes, including the small number of cases in which charges were increased by prosecutors. The inclusion of all charge alterations is important because it captures the bidirectional processes that shape final case outcomes, but this may also contribute to an underestimate of the effect of charge *reductions* on sentencing. To investigate this issue, we re-estimated our models after excluding the small number of cases in which the initial charge severity increased, and our overall estimates were little affected. Specifically, the average probability of incarceration at screening and conviction were reduced only slightly from 0.579 to 0.565 and from 0.464 to 0.446, respectively, which is not surprising given the relative rarity of charge increases in our data.

non-incarceration outcome to better capture the joint impact of charge reductions and case dismissals in the punishment process.

Third, our analysis focuses primarily on disparities tied to defendant gender, race and ethnicity. We include a wide array of sentencing considerations, but future studies could expand the ken of usual predictors. For example, Johnson et al. (2016, p. 489) note that “contemporary research rarely has adequate controls for the quantity or quality of evidence.” This is a limitation that needs to be better addressed in subsequent work, though it is important to emphasize that prior research finds evidence matters more for initial case acceptance than for subsequent charging decisions (e.g. Kutateladze et al., 2015, p. 487). Future research could also dig more into crime-specific patterns of charge negotiation, or what Sudnow (1965) referred to as routine discounts provided for normal crimes. Given the large number of individual offenses in our data, a complete examination of this is beyond the scope of the current work. However, exploratory analysis of different offense categories suggests that, although patterns of disadvantage remain highly consistent, they tend to be most pronounced in drug and violent crimes.¹⁵ The general consistency of our results suggests that the observed differences in the relative discounts attached to charge reductions are not simply the result of different offenders committing different types of crimes; still, this issue deserves additional attention in future work.

Finally, future research in this area would also benefit from additional consideration of other factors that may condition charging and punishment disparities. Prior work, for example, indicates that pretrial detention shapes conviction, plea and sentencing outcomes (Kellough & Wortley, 2002; Lee, 2016; Leslie & Pope, 2017), and that the relative timing of the plea within charging stages can also affect the size of plea discounts (Kutateladze et al., 2016; LaFree, 1985). Moreover, it is likely that broader legal factors also shape patterns of inequality in ways not fully captured by our study. For example, prior work emphasizes the importance of repeat offender and mandatory minimum laws (Crawford, Chiricos, & Kleck, 1998; Crow & Johnson, 2008; Ulmer, Kurlychek, & Kramer, 2007). To the extent that these types of charging enhancements are disproportionately applied to male and minority offenders they likely play a key role in differential sentencing outcomes. Similarly, apparently race-neutral policies, such as imbalances in race-related drug penalties or the use of criminal histories related to both race and gender may also play a significant role in incarceration disparities (Frase, 2012; Tonry, 1995). Clearly these issues represent an important priority for future research on prosecutorial charging and criminal punishment.

Overall, the current research set out to investigate the role that prosecutorial charging decisions play in shaping incarceration outcomes, as well as the potential impact that they exert on racial, ethnic and gender disparities in sentencing. Prosecutors are invested with enormous discretion to determine and alter criminal charges, yet not enough is known about these processes or their potential effect on downstream sentencing decisions. We develop new estimates of the effect of charge alterations on incarceration decisions, and we examine their potential contribution to racial, ethnic and gender disparity in punishment across stages of prosecution. Our results suggest that

¹⁵Across 25 offense-specific contrasts for gender and race/ethnicity, only two exceptions occurred. At the initial screening phase, males received slightly larger charging discounts for property offenses and Hispanics received the largest discounts for public order crimes. For all other offense-specific comparisons, female and White offenders benefitted most from charge reductions at both the initial screening and plea bargaining stages.

prosecutorial charging discretion is instrumental in shaping punishment, and they also suggest that systematic patterning of charging discounts may contribute in important ways to existing social inequalities in criminal sentencing. In light of these findings, and in concert with the growing chorus of scholars who have emphasized the need for more empirical research on the consequences of prosecutorial discretion, we hope this work spurs future investigations that continue to refine our estimates of the “distance traveled” in charge bargaining and its cascading effects on criminal punishment.

Acknowledgement

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Appendix

Table A1. Changes in type and severity of offenses across stages of prosecution in New York County.

Panel A: Offense types: arrest and screening

		Offense at screening					Total	% Δ Arrest to screening
		Person	Property	Drug	PO	Other		
Offense at arrest	Person	3248	192	23	24	273	3760	13.6%
	Property	97	7929	72	57	196	8351	5.1%
	Drug	10	200	4918	56	129	5313	7.4%
	PO	18	80	251	883	186	1418	37.7%
	Other	56	106	55	32	1746	1995	12.5%
	Total	3429	8507	5319	1052	2530	20,837	10.1%

Panel B: Offense types: screening and conviction

		Offense at conviction					Total	% Δ Screening to conviction
		Person	Property	Drug	PO	Other		
Offense at screening	Person	2259	403	18	581	168	3429	34.1%
	Property	104	5889	88	2352	74	8507	30.8%
	Drug	15	92	4318	701	193	5319	18.8%
	PO	16	25	163	809	39	1052	23.1%
	Other	114	106	151	961	1198	2530	52.6%
	Total	2508	6515	4738	5404	1672	20,837	30.5%

Panel C: Statutory severity: arrest and screening

		Severity at screening						Total	% Δ Arrest to screening
		Misd	Class E	Class D	Class C	Class B	Class A		
Severity at arrest	Misd	–	–	–	–	–	–	–	–
	Class E	3033	2301	574	70	36	1	6015	61.7%
	Class D	3317	181	4127	398	269	4	8296	50.3%
	Class C	453	32	357	1317	213	4	2376	44.6%
	Class B	755	8	202	155	2651	33	3804	30.3%
	Class A	17	0	7	8	67	247	346	28.6%
Total	7575	2522	5267	1948	3236	289	20,837	48.9%	

Panel D: Statutory severity: screening and conviction

		Severity at conviction						Total	% Δ Screening to conviction
		Misd	Class E	Class D	Class C	Class B	Class A		
Severity at screening	Misd	7504	19	31	13	8	0	7575	0.9%
	Class E	1774	646	96	5	1	0	2522	74.4%
	Class D	3298	437	1420	73	38	1	5267	73.0%
	Class C	596	99	688	542	23	0	1948	72.2%
	Class B	914	43	428	577	1272	2	3236	60.7%
	Class A	20	3	24	27	135	80	289	72.3%
Total	14,106	1247	2687	1237	1477	83	20,837	45.0%	

% Δ refers to the percentage of cases in each offense or severity category that changed between stages.
Misd: misdemeanor offense; PO: public order.

Table A2. Probit model for receipt of a charge reduction.

	Charge reduction			
	<i>b</i>		SE	ME
Constant	0.92	***	0.13	
Offender characteristics				
Age	0.05	***	0.01	0.01
Age square	0.00	***	0.00	-0.00
Male	-0.03		0.03	-0.01
Latino	-0.07		0.04	-0.02
Black	-0.08	*	0.04	-0.02
Offense severity at arrest				
Felony A/B	-0.29	***	0.05	-0.07
Felony C	-0.04		0.04	-0.01
Felony D	-0.03		0.03	-0.01
Type of crime at arrest				
Person	-0.32	***	0.07	-0.07
Property	-0.66	***	0.07	-0.15
Drug	-0.60	***	0.08	-0.15
Other	-0.20	**	0.08	-0.05
Multiple charges at arrest	0.12	***	0.02	0.03
Defendant criminal history	0.03	***	0.00	0.01
Pretrial detained	-0.79	***	0.03	-0.17
Other pretrial status	1.12	***	0.08	0.15
Private attorney	-0.15	**	0.04	-0.04
Panel attorney	-0.12	***	0.03	-0.03
Arrest neighborhood				
Harlem	0.23	***	0.05	0.05
Upper west/east side	0.14	**	0.06	0.03
MTFC-west	0.07		0.05	0.02
MTFC-east	0.17	**	0.06	0.03

Charge reduction =1 if charges were reduced at any stage of prosecution Felony E is used as the reference category for offense severity at arrest.

N = 20,837.

****p* ≤ .05; ***p* ≤ .01; **p* ≤ .001.

Table A3. The impact of charging on incarceration across alternative estimation strategies.

	%Change in predicted probability of incarceration					
	Individual estimates		Conditional estimates		Interactive estimates	
	Arrest to screening	Screening to conviction	Arrest to screening	Screening to conviction	Arrest to screening	Screening to conviction
Total sample	-16.1%	-29.4%	-12.5%	-19.8%	-15.8%	-18.9%
Gender disparity						
Males	-16.2%	-26.3%	-12.9%	-18.4%	-15.8%	-17.3%
Females	-15.7%	-45.9%	-11.0%	-31.8%	-15.7%	-31.0%
Racial disparity						
Whites	-20.6%	-42.1%	-16.5%	-27.8%	-19.6%	-29.3%
Latinos	-17.6%	-31.1%	-13.5%	-21.5%	-16.9%	-20.3%
Blacks	-14.0%	-25.2%	-11.2%	-17.8%	-14.4%	-16.2%