

WHEN A PLEA IS NO BARGAIN AT ALL: COMPARING
SENTENCING OUTCOMES FOR MASSACHUSETTS
DEFENDANTS IN NON-SEXUAL AND SEXUAL CRIMES

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In the 1980s and early 1990s, a rapid increase in crime rates, particularly for violent offenses such as murder, manslaughter, robbery, aggravated assault, and rape,¹ prompted a public outcry for harsher punishment of offenders.² The belief that “tough on crime” policies would reduce violent crime produced several legal changes (e.g., the “three-strikes” law and the increase in minimum sentencing mandates) that have increased the proportion of the population behind bars without a proportional reduction in crime.³ In fact, research has shown that incarceration has a minimal impact on the prevention of violent crime (i.e., an “incapacitation” effect), even in “punitive” states, in which those convicted are far more likely to be incarcerated, facing longer custodial sentences, or even the death penalty.⁴ Some analyses have indicated that each prison-year served

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¹ See MARIE SIMONETTI ROSEN, CHIEF CONCERNS: A GATHERING STORM – VIOLENT CRIME IN AMERICA 14 (2006).

² See ELLIOT CURRIE, CRIME AND PUNISHMENT IN AMERICA 15 (rev. ed. 2013).

³ See Francis T. Cullen et al., *Prisons Do Not Reduce Recidivism: The High Cost of Ignoring Science*, 91 PRISON J. 48S, 59S (2011); Steven D. Levitt, *Understanding Why Crime Fell in the 1990s: Four Factors that Explain the Decline and Six that Do Not*, 18 J. ECON. PERSP. 163, 173, 186 (2004) [hereinafter Levitt, *Understanding Why Crime Fell*]; Arit John, *A Timeline of the Rise and Fall of ‘Tough on Crime’ Drug Sentencing*, ATLANTIC (Apr. 22, 2014), <https://www.theatlantic.com/politics/archive/2014/04/a-timeline-of-the-rise-and-fall-of-tough-on-crime-drug-sentencing/360983/>; *Bill Clinton Regrets ‘Three Strikes’ Bill*, BBC (July 16, 2015), <https://www.bbc.com/news/world-us-canada-33545971>.

⁴ See Marc Ouimet & Pierre Tremblay, *A Normative Theory of the Relationship Between*

prevents 0.30 violent crimes per individual in custody, and the benefits of incapacitation have dropped even further in recent years.⁵

Approximately 95% of felony convictions are obtained through guilty pleas.⁶ The practice of plea bargaining, protected and reaffirmed by several Supreme Court decisions—most notably *Brady v. United States*,⁷ *Lafler v. Cooper*,⁸ and *Missouri v. Frye*⁹—enables prosecutors to offer a sentencing “discount” to defendants in exchange for a waiver of their right to trial.¹⁰ In violent crime prosecutions, plea bargaining is often seen as evidence of a slipshod attitude toward punishing criminals.¹¹ While some perceive plea-bargaining as a lax method of prosecuting criminals, others have raised concerns regarding the potential coercion of criminal defendants by prosecutors with unchecked discretion, and whether plea bargains truly produce shorter sentences for criminal defendants.¹²

I. PLEA BARGAINING AND SEX CRIME PROSECUTION

Prosecution of sex crimes remains a slow process, and successful prosecution rates vary widely.¹³ Past researchers have determined

Crime Rates and Imprisonment Rates: An Analysis of the Penal Behavior of U.S. States from 1972 to 1992, 33 J. RES. CRIME & DELINQ. 109, 110, 111 (1996); Gary Sweeten & Robert Apel, *Incapacitation: Revisiting an Old Question with a New Method and New Data*, 23 J. QUANTITATIVE CRIMINOLOGY 303, 304, 319 (2007).

⁵ Rucker Johnson & Stephen Raphael, *How Much Crime Reduction Does the Marginal Prisoner Buy?*, 55 J.L. & ECON. 275, 301 (2012); see Steven D. Levitt, *The Effect of Prison Population Size on Crime Rates: Evidence from Prison Overcrowding Litigation*, 111 Q.J. ECON. 319, 348 (1996); Levitt, *Understanding Why Crime Fell*, *supra* note 3, at 186; Ouimet & Tremblay, *supra* note 4, at 110.

⁶ See Donald A. Dripps, *Guilt, Innocence, and Due Process of Plea Bargaining*, 57 WM. & MARY L. REV. 1343, 1352 (2016); Brady Heiner, *The Procedural Entrapment of Mass Incarceration: Prosecution, Race, and the Unfinished Project of American Abolition*, 42 PHIL. & SOC. CRITICISM 594, 599–600 (2016).

⁷ *Brady v. United States*, 397 U.S. 742, 758 (1970).

⁸ *Lafler v. Cooper*, 566 U.S. 156, 174–75 (2012).

⁹ *Missouri v. Frye*, 566 U.S. 134, 151 (2012).

¹⁰ See Jeremy D. Ball, *Is It a Prosecutor's World? Determinants of Count Bargaining Decisions*, 22 J. CONTEMP. CRIM. JUST. 241, 243 (2006); Dripps, *supra* note 6, at 1385–86.

¹¹ See CURRIE, *supra* note 2, at 2; Stephanos Bibas, *The Feeney Amendment and the Continuing Rise of Prosecutorial Power to Plea Bargain*, 94 J. CRIM. L. & CRIMINOLOGY 295, 308 (2004).

¹² See David S. Abrams, *Is Pleading Really a Bargain?*, 8 J. EMPIRICAL LEGAL STUD. 200, 200, 201 (2011) [hereinafter Abrams, *Is Pleading Really a Bargain?*]; Roger Douglas, *Pre-Trial Withdrawals: Trial, Bargain, or Pseudo-Bargain?* 16 AUSTRAL. & N.Z. J. CRIMINOLOGY 210, 222 (1983); Heiner, *supra* note 6, at 598.

¹³ See Theodore P. Cross et al., *Criminal Justice Outcomes of Prosecution of Child Sexual Abuse: A Case Flow Analysis*, 19 CHILD ABUSE & NEGLECT 1431, 1431, 1438 (1995); Kathleen Coulborn Faller & James Henry, *Child Sexual Abuse: A Case Study in Community*

that in most cases, prosecution takes an average of sixty days to file charges or proceed to indictment, and total case resolution typically takes over six months.¹⁴ Even when sex crimes are resolved through plea-bargaining, cases often take up to a year to reach disposition.¹⁵ Research indicates that in cases of sexual crimes against child victims, rates vary widely, with 46%–82% of cases disposed through guilty pleas.¹⁶

Prison sentences produced by sex-crime prosecutions are among the least effective measures in preventing reoffending, as compared to treatment and community supervision methods.¹⁷ Some authors further assert that imposition of a prison sentence is the sole significant predictor of chronic sexual offending.¹⁸ Furthermore, increasing the inmate population by one-hundred male offenders correlated with a statewide reduction of two sex crimes per year.¹⁹ Despite this, emotionally-fueled public opinion continues to favor long prison sentences and few re-entry opportunities for sex offenders.²⁰ Providing reduced sentences or plea offers are rarely in line with public opinion when sex crimes are being prosecuted; rare exceptions include cases involving older, first-time defendants who displayed remorse,²¹ and cases where the convicted offender

Collaboration, 24 CHILD ABUSE & NEGLECT 1215, 1221 (2000); John E.B. Meyers et al., *Professional Writing on Child Sexual Abuse from 1900 to 1975: Dominant Themes and Impact on Prosecution*, 4 CHILD MALTREATMENT 201, 212 (1999); Wendy A. Walsh et al., *How Long to Prosecute Child Sexual Abuse for a Community Using a Children's Advocacy Center and Two Comparison Communities?*, 13 CHILD MALTREATMENT 3, 4 (2008) [hereinafter Walsh et al., *How Long to Prosecute Child Sexual Abuse*].

¹⁴ See Walsh et al., *How Long to Prosecute Child Sexual Abuse*, *supra* note 13, at 7, 8 tbl.2.

¹⁵ See Mary Martone et al., *Criminal Prosecution of Child Sexual Abuse Cases*, 20 CHILD ABUSE & NEGLECT 457, 461 (1996).

¹⁶ See Cross et al., *supra* note 13, at 1436; Faller & Henry, *supra* note 13, at 1221; Martone et al., *supra* note 15, at 460 tbl.2; Wendy A. Walsh et al., *Prosecuting Child Sexual Abuse: The Importance of Evidence Type*, 56 CRIME & DELINQ. 436, 447 (2008).

¹⁷ See Michelle L. Meloy, *The Sex Offender Next Door: An Analysis of Recidivism, Risk Factors, and Deterrence of Sex Offenders on Probation*, 16 CRIM. JUST. POLY REV. 211, 227 (2005).

¹⁸ See *id.* at 231.

¹⁹ See Thomas B. Marvell & Carlisle E. Moody, Jr., *Prison Population Growth and Crime Reduction*, 10 J. QUANTITATIVE CRIMINOLOGY 109, 132 tbl.5 (1994).

²⁰ See William Edwards & Christopher Hensley, *Contextualizing Sex Offender Management Legislation and Policy: Evaluating the Problem of Latent Consequences in Community Notification Laws*, 45 INT'L J. OFFENDER THERAPY & COMP. CRIMINOLOGY 83, 84 (2001); D. Richard Laws, *Sexual Offending as a Public Health Problem: A North American Perspective*, 5 J. SEXUAL AGGRESSION 30, 30 (2000); Laura M. Ragusa-Salerno & Kristen M. Zgoba, *Taking Stock of 20 Years of Sex Offender Laws and Research: An Examination of Whether Sex Offender Legislation Has Helped or Hindered Our Efforts*, 35 J. CRIME & JUST. 335, 335 (2012); Gwenda M. Willis et al., *Demographic Differences in Public Attitudes Towards Sex Offenders*, 20 PSYCHIATRY PSYCHOL. & L. 230, 230–31 (2013).

²¹ See Kevin Kwok-yin Cheng, *Public Approval of Plea Bargaining in Hong Kong: The Effects*

compensated their victim.²² Judges and prosecutors often echo broader public perceptions of sex offenders as uniquely dangerous to the public or impervious to treatment.²³ Nonetheless, public mistrust in the legal system has historically resulted in a widespread belief that the system is too lenient with sex-crime defendants.²⁴

Like other types of defendants, those accused of sex crimes can often negotiate a shorter custodial sentence, a less restrictive custodial placement, as well as shorter or more favorable probation terms in exchange for a guilty plea. In addition, sex-crime defendants can engage in two types of plea-bargaining: (a) plead guilty to a less severe crime than initially charged; and/or (b) plead guilty to a related, non-sexual crime.²⁵ The emergence of sex-offender registration policies has complicated the process of plea-bargaining by making the latter type even more appealing. Letourneau et al. contrasted plea-bargaining rates in over 19,000 cases involving juvenile male defendants charged with sex crimes before registration policies were in place (1990-1994), during the onset of registration policies (1995-1998), and during the onset of revised policies that included publicly available internet registries (1999-2004).²⁶ Results demonstrated that the implementation of sex-offender registration policies coincided with an increase in rates of plea bargaining. Letourneau et al. in fact, argued that prosecutors were hesitant to subject juvenile defendants to sex offender registration, and therefore attempted to negotiate plea agreements to related, non-sexual crimes with these defendants.²⁷ The shame associated with being labeled a sex offender, along with residential, occupational, and practical restrictions imposed on registered sex offenders, are likely significant

of Offender Characteristics, 26 INT'L CRIM. JUST. REV. 31, 39 (2016).

²² See Sergio Herzog, *The Relationship Between Public Perceptions of Crime Seriousness and Support for Plea-Bargaining Practices in Israel: A Factorial-Survey Approach*, 94 J. CRIM. L. & CRIMINOLOGY 103, 128 (2003).

²³ See Jill S. Levenson et al., *Public Perceptions About Sex Offenders and Community Protection Policies*, 7 ANALYSES SOC. ISSUES & PUB. POL'Y 137, 138 (2007); James F. Quinn et al., *Societal Reaction to Sex Offenders: A Review of the Origins and Results of the Myths Surrounding Their Crimes and Treatment Amenability*, 25 DEVIANT BEHAV. 215, 219 (2004).

²⁴ Cf. Laura B. Myers, *Bringing the Offender to Heel: Views of the Criminal Courts*, in AMERICANS VIEW CRIME AND JUSTICE: A NATIONAL PUBLIC OPINION SURVEY 46, 49 (Timothy J. Flannigan & Dennis R. Longmire eds., 1996) ("In general, the public perceives that the courts are not harsh enough in the sentencing of criminal defendants.").

²⁵ See Elizabeth J. Letourneau et al., *Sex Offender Registration and Notification Policy Increases Juvenile Plea Bargains*, 25 SEXUAL ABUSE: J. RES. & TREATMENT 189, 193 (2012); see also Scott A. Johnson, *Masking a Sex Offense: When a Non-Sex Crime Really Is a Sex Crime*, FORENSIC EXAMINER, Fall 2009, at 46, 46 ("Many times plea agreements create a misleading picture of the true essence of an offender's spectra of criminal behavior.").

²⁶ Letourneau et al., *supra* note 25, at 192.

²⁷ See *id.* at 203.

factors in defendants' plea-bargaining decisions.²⁸ In some instances, plea bargaining can serve as a protective tool, especially for young offenders, enabling individuals to escape the label of sexual offender and the legal/societal treatment that comes with that label.²⁹

Defendants accused of sex crimes are often far more motivated to avoid being labeled as a "sex offender" than they are to avoid long prison sentences, GPS monitoring, mandated treatment or extended probation supervision.³⁰ The threat of being labeled a "sex offender" and the stigma associated with that label increases the vulnerability of individuals accused of, or indicted for sex crimes, to coercion by law enforcement as well as prosecutors. This increased vulnerability could significantly increase their willingness to accept a plea offer regardless of factual guilt, or the favorability of the actual terms of the offer.³¹ In addition, pretrial confinement (resulting from denied bail) can have a further coercive impact on acceptance of a plea bargain.³² Consequently, the increased vulnerability of those accused of sexual crimes, along with strong negative opinions of plea bargaining with sexual offenders, produce complex relationships that have received relatively little research attention.³³ Specifically, while plea-bargain agreements are often believed to include sentence "discounts" for defendants, this assumption may not hold true in sex-crime cases.³⁴ Plea agreements produced by sex-crime prosecution

²⁸ See *id.* at 202; Andrew J. Harris et al., *Collateral Consequences of Juvenile Sex Offender Registration and Notification: Results from a Survey of Treatment Providers*, 28 *SEXUAL ABUSE: J. RES. & TREATMENT* 770, 775 (2016); Doron Teichman, *Sex, Shame, and the Law: An Economic Perspective on Megan's Laws*, 42 *HARV. J. ON LEGIS.* 355, 392 (2005).

²⁹ See Letourneau et al., *supra* note 25, at 201–02; Nathaniel J. Pallone, *Without Plea-Bargaining, Megan Kanka Would Be Alive Today*, 3 *CRIMINOLOGY & PUB. POL'Y* 83, 87 (2003); Teichman, *supra* note 28, at 411.

³⁰ See William Edwards & Christopher Hensley, *Contextualizing Sex Offender Management Legislation and Policy: Evaluating the Problem of Latent Consequences in Community Notification Laws*, 45 *INT'L J. OFFENDER THERAPY & COMP. CRIMINOLOGY* 83, 95–96 (2001); Lisa L. Sample & Timothy M. Bray, *Are Sex Offenders Different: An Examination of Rearrest Patterns*, 17 *CRIM. JUST. POL'Y REV.* 83, 88 (2006); Willis et al., *supra* note 20, at 230.

³¹ See Scott Baker & Claudio Mezzetti, *Prosecutorial Resources, Plea Bargaining, and the Decision to Go to Trial*, 17 *J.L. ECON. & ORG.* 149, 166 (2001); Kenneth S. Bordens, *The Effects of Likelihood of Conviction, Threatened Punishment, and Assumed Role on Mock Plea Bargaining Decisions*, *BASIC & APPLIED SOC. PSYCHOL.* 59, 72 (1984); Dripps, *supra* note 6, at 1363.

³² See Allison D. Redlich et al., *Plea Decision-Making by Attorneys and Judges*, 17 *J. EXPERIMENTAL CRIMINOLOGY* 537, 555 (2016) [hereinafter Redlich et al., *Plea Decision-Making by Attorneys and Judges*]; Meghan Sacks & Alissa R. Ackerman, *Pretrial Detention and Guilty Pleas: If They Can't Afford Bail They Must Be Guilty*, 25 *CRIM. JUST. STUD.* 265, 275 (2012).

³³ See Amber Leigh Bagley, Comment, "An Ara of Human Zoning": *Banishing Sex Offenders from Communities Through Residence and Work Restrictions*, 57 *EMORY L.J.* 1347, 1384, 1390 (2008).

³⁴ See Russell D. Covey, *Fixed Justice: Reforming Plea Bargaining with Plea-Based Ceilings*, 82 *TUL. L. REV.* 1237, 1246 (2008); Kay L. Levine, *The Intimacy Discount: Prosecutorial*

may, in fact, represent a unique sub-group in plea-bargaining literature, with different predictors as well as diverging outcomes for defendants.³⁵

Research in the field of plea-bargaining with sex offenders remains limited, but it is expanding. Current research findings suggest that understanding the full impact of plea-bargaining involves a balance between securing convictions efficiently and minimizing risks to society such that plea agreements are most appropriate when the offender's risk to the community is low.³⁶ Examining instances in which plea agreements occur and how they differ across crime types is critical to improving our understanding of the implications plea practices pose for the accused, the justice system, and the public.

II. THE CURRENT PROJECT

Given the concerns regarding plea bargaining and its impact on reoffending, the current project was developed to disentangle the complex relationships among the accused, the legal system, and the community at-large, particularly in sex-crime cases. Our goal was to examine current practices in the prosecution and sentencing of sex offenders to better understand the outcomes produced when balancing competing legal demands in individual cases. We were interested in evaluating two competing hypotheses: 1) that, perhaps due to public opinion and perceptions of their dangerousness, defendants in sex-crime cases receive less favorable plea-bargaining outcomes than defendants in otherwise comparable violent, but non-sexual crimes (e.g., non-sexual assault versus sexual assault); 2) or, alternatively, that plea-bargaining outcomes for sex-crime cases are more favorable, perhaps due to difficulties in the prosecution of these cases. We were further interested in assessing whether sex-crime defendants received fewer "discounts" in plea agreements, and if so, whether any individual case characteristics affected the favorability of the plea agreement. Our research was developed to answer the following questions:

Discretion, Privacy, and Equality in the Statutory Rape Caseload, 55 EMORY L.J. 691, 729–30 (2006).

³⁵ See Kurt Hanson, *How Plea Deals Are Uniquely Negotiated for Sex Offenders*, DAILY HERALD (Aug. 20, 2017), https://www.heraldextra.com/news/local/crime-and-courts/how-plea-deals-are-uniquely-negotiated-for-sex-offenders/article_e43544f8-5b8a-5412-a275-02ed81f02aea.html.

³⁶ See Johnson, *supra* note 25, at 48; Letourneau et al., *supra* note 25, at 204; Pallone, *supra* note 29, at 83; Teichman, *supra* note 28, at 405.

- **Research Question 1:** Which factors account for variation in plea-bargain outcomes? Are these factors similar or do they differ between sexual offense (SO) and non-sexual offense (NSO) groups?
- **Research Question 2:** Do SO defendants differ from NSO defendants in plea-bargaining outcomes?

III. METHOD

A. *Participants*

Our data included public records for cases in which indictment was obtained from January 1 to December 31, 2015, in Suffolk, Essex, and Hampden county Massachusetts Superior Court districts. The data was retrieved by the research team from the www.masscourts.org public-records database. We elected to use Massachusetts because of the state's relatively low punitiveness scores, which measured the frequency of custodial sentences, along with duration of these sentences³⁷ coupled with the absence of mandatory sentencing laws for a wide variety of violent crimes³⁸ which allow plea-bargaining to occur with higher frequency.³⁹ The counties were selected for their high violent-crime rates (relative to other counties in the state), ranging from 910 to 370 incidents per 100,000 residents (United States Department of Justice, 2014).⁴⁰

³⁷ See Katharine A. Neill et al., *Explaining Dimensions of State-Level Punitiveness in the United States: The Roles of Social, Economic, and Cultural Factors*, 26 CRIM. JUST. POL'Y REV. 751, 760 fig.1, 761 tbl.1 (2015); Ouimet & Tremblay, *supra* note 4, at 122 app.

³⁸ See Christina N. Davilas, *Prosecutorial Sentence Appeals: Reviving the Forgotten Doctrine in State Law as an Alternative to Mandatory Sentencing Laws*, 87 CORNELL L. REV. 1259, 1261–62 (2002); *see also* Richard S. Frase, *State Sentencing Guidelines: Diversity, Consensus, and Unresolved Policy Issues*, 105 COLUM. L. REV. 1190, 1197 (2005) (explaining that commission-based sentencing guidelines is under consideration in Massachusetts).

³⁹ See Covey, *supra* note 34, at 1265–66.

⁴⁰ Calculation by authors using the Federal Bureau of Investigation's 2014 Uniform Crime Report. *See* U.S. DEP'T OF JUSTICE, UCR DATA ONLINE, <https://www.ucrdatatool.gov/> (last visited Feb. 2, 2019).

Table 1⁴¹
Population Demographics by County

	<i>Suffolk County</i>	<i>Essex County</i>	<i>Hampden County</i>
<i>Population total</i>	778,121	776,043	470,690
<i>Race</i>			
<i>White (non-Hispanic)</i>	46.20%	72.40%	64.10%
<i>African American /</i>	24.70%	6.50%	10.80%
<i>Hispanic / Latino</i>	22.10%	19.20%	24%
<i>American Indian</i>	0.40%	0.40%	0.40%
<i>Asian</i>	9.10%	3.90%	2.50%
<i>Foreign Born Persons</i>	28.40%	15.40%	8.90%
<i>Education</i>			
<i>High School graduates</i>	84.30%	89.30%	84.80%
<i>Bachelor's degree or higher</i>	41.70%	37.50%	25.80%
<i>Persons in Poverty</i> <i>(Percent)</i>	19.80%	11.50%	17.10%

Indictment inclusion criteria in the present study were charges that involved violence. This criterion resulted in the inclusion of 791 cases in the present study.⁴² Of these, 188 (23.8%) were SO indictments where 95 (50.5%) of these cases had reached disposition by the beginning of data collection.⁴³ Plea agreements were used to settle 57 (60.0%) of the disposed SO cases.⁴⁴ The most common SO indictment charges were rape (31 cases), statutory rape of a child (31 cases) and statutory rape with a 5-year age difference (22 cases).⁴⁵

Our data also included 603 NSO indictments.⁴⁶ Of these, 412 (68.7%) cases had reached disposition, and 250 (60.7%) cases were settled in a plea agreement.⁴⁷ The most common charges were armed robbery (112 cases), armed non-lethal assault (95 cases), murder (68 cases), and home invasion (36 cases).⁴⁸ Given our election to consider only crimes of violence, murder cases were the only cases in our sample for which mandatory minimum sentences existed, and were included as a control.

⁴¹ U.S. CENSUS BUREAU, AMERICAN FACTFINDER, http://factfinder.census.gov/home/saff/main.html?_lang=en; search "Suffolk, County, Massachusetts," "Essex County, Massachusetts," or "Hampden, County" refer to 2015 American Community Survey data (last visited Feb. 2, 2019). Percentages were calculated by dividing the number of individuals reported for each category by the total population estimate.

⁴² See *infra* Table 2.

⁴³ See Dataset (on file with authors).

⁴⁴ See *infra* Table 2.

⁴⁵ Dataset (on file with authors).

⁴⁶ See *infra* Table 2.

⁴⁷ See *id.*

⁴⁸ See Dataset (on file with authors).

Defendants in our data set ranged in age from 14 to 81 ($M = 33.13$, $SD = 11.37$) at the time of the indictment, and were indicted for a total of 0-29 charges ($M = 3.1$, $SD = 3.11$).⁴⁹ SO defendants were older ($M = 38.64$, $SD = 12.28$) on average than NSO defendants ($M = 31.41$, $SD = 10.51$).⁵⁰ Defendants' sex, race, and other demographic characteristics were not available for inclusion. Available defendant characteristics are presented in Table 2.

⁴⁹ Dataset (on file with authors).

⁵⁰ *Id.*

Table 2⁵⁰
Average Defendant Characteristics and Case Proceedings by County and Charge Type

	<i>Suffolk County</i>		<i>Essex County</i>		<i>Hampden County</i>	
	Sexual Offenses	Non-Sexual Offenses	Sexual Offenses	Non-Sexual Offenses	Sexual Offenses	Non-Sexual Offenses
Cases	77	255	60	141	51	207
Number of Charges	4.3	3.09	3.42	2.36	4.12	2.79
Age of Defendant	36.25	30.88	40.18	33.58	40.43	30.58
Seriousness Rating	6.13	6.04	6.08	5.7	6.03	6.02
Dispositions	35 (44.5%)	169 (66.3%)	30 (50%)	99 (70.2%)	30 (58.8%)	144 (69.6%)
Plea Disposition	22 (28.6%)	125 (49%)	18 (30%)	36 (25.5%)	17 (33.3%)	89 (43%)
NolleProsequi Disposition	1 (1.3%)	12 (4.7%)	6 (10%)	10 (7.1%)	7 (13.7%)	37 (17.9%)
Days to Disposition	338	277.22	223.9	287.16	388.6	319.9
Custodial Sentence Months	48.7	31.14	40.1	29.44	33.9	21.86

⁵¹ *Id.*

B. Measures

Offense Characteristics. The primary crime on the defendant's indictment, with associated penal code, was recorded for each case. This typically represented the most serious of the defendant's criminal charges within the indictment. Using the Massachusetts Sentencing Commission's sentencing seriousness grid (2013),⁵² the primary charge for indictment was rated on a scale of 2-9 (M=5.99, SD=1.71), where 2 indicated minor crimes typically resulting in probationary sentences, and 9 indicated murder charges with a mandatory life-sentence.⁵³ Ratings of 1 represented misdemeanors and minor, non-violent civil offenses that were, consequently, omitted given our inclusion criteria. These ratings were developed by the sentencing commission to improve consistency (and reduce variability) in sentencing across judges and districts, and they are regularly evaluated for this purpose.⁵⁴ Distributions of the seriousness ratings (by county) for NSO and SO are presented in Tables 1 and 2, respectively.⁵⁵ The mean seriousness rating for all SO indictments was 6.09 (SD=1.41). For NSO indictments, the mean seriousness rating was 5.96 (SD=1.79).⁵⁶ In addition, we recorded the total number of charges in the indictment. A dichotomous variable to identify whether the defendant's indictment involved SO was also included, along with the date of indictment.

Case Parties. Prior research has supported the importance of judicial, prosecutorial, and defense attorney roles in plea dispositions, specifically in regard to prosecutors' ability to offer and approve plea agreements, defense attorneys' ability to encourage clients to accept these deals, and judges' ultimate decision-making regarding their legal acceptance.⁵⁷ To account for these factors, we recorded names of the prosecutor (referred to as Assistant District Attorney, or ADA) as well as the names of public or private defense attorney(s) assigned to each case, and the names of all judge(s) who have made rulings on the case. For each case, we identified the judge

⁵² See MASS. SENT'G COMMISSION, SURVEY OF SENTENCING PRACTICES FY 2013, at 3 fig.1 (Dec. 2014), <https://www.mass.gov/files/documents/2016/08/00/fy2013-survey-sentencing-practices.pdf>.

⁵³ See *id.*; Dataset (on file with authors).

⁵⁴ See *id.* at 4.

⁵⁵ See *infra* Tables 1, 2.

⁵⁶ See Dataset (on file with authors).

⁵⁷ See, e.g., Oren Bar-Gill & Omri Ben-Shahar, *The Prisoners' (Plea Bargain) Dilemma*, 1 J. LEGAL ANALYSIS 737, 769 (2009); George Fisher, *Plea Bargaining's Triumph*, 109 YALE L.J. 857, 859, 864-65 (2000); Redlich et al., *Plea Decision-Making by Attorneys and Judges*, *supra* note 32, at 553, 554, 555, 557.

who presided over the reading of the defendant's bail hearing and identified that judge as the "opening" judge, and for cases that had reached disposition, we also identified the judge who presided over the sentencing, plea, or disposition hearing in the case. This latter judge was identified as the "closing" judge. Our records therefore contained 317 unique defense attorney names, 134 unique ADA names, and 47 unique closing judges.⁵⁸

Case Outcomes. As several analyses have done,⁵⁹ we recorded whether the defendant in each case was allowed to post a collateral bond (bail) to avoid pretrial confinement. Prior analyses have indicated that pretrial confinement (through denied or unattainably high bail) increases the likelihood of case disposition by plea which is important to consider.⁶⁰ We also recorded whether defendants actually posted bail (and therefore resided in the community) during their trial, and whether bail was revoked or changed at any time during the proceedings. For cases that have reached disposition, we included a notation of the verdict or finding reached including pleas, guilty and not guilty jury verdicts, and prosecutorial dismissals. We identified whether the case was settled in a plea agreement, and whether the defendant was required to register with the Sexual Offender Registry Board (SORB). Cases in which a defendant was acquitted, or where charges resulted in prosecutorial dismissal, were coded zero for sentencing outcomes, as in Abrams (2011⁶¹; 2013⁶²). Finally, we calculated the number of days between the date of indictment and the date of disposition for all settled cases.

Disposition Characteristics. For settled cases, we utilized the minimum total of months (across multiple offenses when applicable) of incarceration for each case. In addition, we included the type of prison facility in which the defendant must serve his/her sentence - Mass. Committing Institution (MCI) or House of Corrections (HOC), and the minimum number of months' probation to which the defendant was sentenced. For defendants who were credited for time served while in pretrial confinement, we also included the total

⁵⁸ See Dataset (on file with authors).

⁵⁹ See J.C. Oleson et al., *The Effect of Pretrial Detention on Sentencing in Two Federal Districts*, 33 JUST. Q., 1103, 1104-05 (2014); Marian R. Williams, *The Effect of Pretrial Detention on Imprisonment Decisions*, 28 CRIM. JUST. REV. 299, 307 (2003).

⁶⁰ See Gail Kellough & Scot Wortley, *Remand for Plea: Bail Decisions and Plea Bargaining as Commensurate Decisions*, 42 BRIT. J. CRIMINOLOGY 186, 198 (2002); Allison D. Redlich et al., *The Psychology of Defendant Plea Decision Making*, 72 AM. PSYCHOLOGIST 339, 344 (2017) [hereinafter Redlich et al., *The Psychology of Defendant Plea Decision Making*].

⁶¹ See Abrams, *Is Pleading Really a Bargain?*, *supra* note 12, at 209.

⁶² See David S. Abrams, *Putting the Trial Penalty on Trial*, 51 DUQ. L. REV. 777, 781 (2013).

number of days credit the defendant received. As such, our data provided a more holistic representation of sentences than previous work in which only custodial sentence length was used. Descriptive statistics of case and disposition characteristics are presented in Table 2.

IV. PROCEDURE

A. *Analysis Plan*

Analysis of case resolutions and outcomes consisted of two distinct stages. Stage 1 involved the iterative testing of outcome data for dependencies due to the hierarchical nature of observations (i.e., cases nested ADAs and closing judges who are important parties to the case due to their expected impact on case resolution and outcomes), and stage 2 involved the application of logistic regression (i.e., dichotomous outcomes) or linear regression models to identify significant predictors of case resolution and outcomes. All modeling of data will be conducted using the R statistical platform.⁶³

1. Assessing Nested Structure of Cases

We identified multiple potential sources of case outcome dependency. Specifically, we considered the structure of indictments nested within ADAs, closing judges, and both ADAs and closing judges. These dependencies can be problematic when interpreting results as they can result in inflated standard errors for parameter estimates.⁶⁴ While regression models that assume independence of observations cannot account for these dependencies, multilevel modeling allows researchers to specify sources of common variance in which observations are nested or grouped (e.g., students by schools, patients by hospitals, cases by judges, etc.) in order to account for variability due to grouping of observations.⁶⁵ By accounting for these sources of variability, estimation of standard errors are less likely to be biased by grouping hierarchy and this modeling approach has been successfully implemented in previous research on sentencing.⁶⁶

⁶³ See *The R Project for Statistical Computing*, R PROJECT, <https://www.r-project.org/> (last visited Nov. 7, 2018) (“R is a free software environment for statistical computing and graphics.”).

⁶⁴ See Brian D. Johnson, *The Multilevel Context of Criminal Sentencing: Integrating Judge- and County-Level Influences*, 44 *CRIMINOLOGY* 259, 274 (2006).

⁶⁵ See *id.* at 277.

⁶⁶ See *id.*; Brian D. Johnson, *Cross-Classified Multilevel Models: An Application to the*

To test for variability in indictment outcomes due to hierarchical grouping, four variations of an intercept-only model were estimated for each outcome under the following conditions: (a) no nesting of cases; (b) cases nested within ADAs; (c) cases nested within closing judges; and (d) cases nested within ADAs and closing judges. Models were then compared using -2 log-likelihood ratio tests, which tested for improvements in model fit by comparing the model with no-nesting structure against models where cases are nested within ADAs or closing judges, to models where cases are nested within both ADAs and closing judges.⁶⁷ Additionally, the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) were evaluated and compared among models for convergent validity of nesting-selection decisions (we refer readers unfamiliar with the use of AIC and BIC to Heck & Thomas⁶⁸, Kuha⁶⁹, Raudenbush & Bryk⁷⁰; Vrieze⁷¹)

2. Modeling Indictment Disposition and Outcomes

Based on nesting evaluation and data type, there are four candidate regression models to be used for analyses: (a) logistic regression; (b) linear regression; (c) multilevel logistic regression; and (d) multilevel linear regression. Models A and B will be used for outcomes found to have no significant variance due to nesting, while models C and D will be used for those outcomes that show significant variability due to nesting variables.⁷² Further, Models A and C will be used for dichotomous outcomes, while models B and D will be used for all other outcomes.⁷³ All models of indictment resolution and

Criminal Case Processing of Indicted Terrorists, 28 *J. QUANTITATIVE CRIMINOLOGY* 163, 164 (2012); Jeffery T. Ulmer & Brian Johnson, *Sentencing in Context: A Multilevel Analysis*, 42 *CRIMINOLOGY* 137, 152 (2004).

⁶⁷ See RONALD H. HECK & SCOTT L. THOMAS, *AN INTRODUCTION TO MULTILEVEL MODELING TECHNIQUES: MLM AND SEM APPROACHES USING MPLUS* 281 (3d ed. 2015); STEPHEN W. RAUDENBUSH & ANTHONY S. BRYK, *HIERARCHICAL LINEAR MODELS: APPLICATIONS AND DATA ANALYSIS METHODS* 259 (2d ed. 2002).

⁶⁸ See HECK & THOMAS, *supra* note 67, at 172–73.

⁶⁹ See Jouni Kuha, *AIC and BIC: Comparisons of Assumptions and Performance*, 33 *SOC. METHODS & RES.* 188, 191 (2004).

⁷⁰ See RAUDENBUSH & BRYK, *supra* note 67 at 401–02.

⁷¹ See Scott I. Vrieze, *Model Selection and Psychological Theory: A Discussion of the Differences between the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC)*, 17 *PSYCHOL. METHODS* 228, 231 (2012).

⁷² See ANDREW GELMAN & JENNIFER HILL, *DATA ANALYSIS USING REGRESSION AND MULTILEVEL/HIERARCHICAL MODELS* 212 (2007); HECK & THOMAS, *supra* note 67, at 30; RAUDENBUSH & BRYK, *supra* note 67, at 23.

⁷³ See generally JACOB COHEN ET AL., *APPLIED MULTIPLE REGRESSION/CORRELATION ANALYSIS FOR THE BEHAVIORAL SCIENCES* 482–519 (3d ed. 2003) (explaining how to apply

outcomes will include seriousness ratings of the primary charge, age of the indicted, the number of additional charges for the indicted, whether the indicted was in detention, and whether the indicted is a sexual offender or non-sexual violent offender. In models of resolution outcomes, we also included resolution method (i.e., plea vs. no plea disposition) as a predictor.

V. RESULTS

Our analytic plan was applied to six outcome variables: (a) whether the case was resolved with a plea; (b) whether those indicted for a sexual offense had to register as a sex offender; (c) sentence length; (d) probation length; (e) credit earned for time served; (f) facility type; and (g) duration from indictment to case resolution. Each of these outcomes were first evaluated for significant variability due to nesting and then evaluated for their relation to case features.

A. Disposition by Plea

Comparisons of an intercept-only model without random effects and intercept-only models with random effects showed that nesting of log-likelihood of case disposition by plea within ADAs or closing judges (ICC=0.19 and 0.17, respectively⁷⁴) resulted in a significant improvement in model fit.⁷⁵ However, when moving from one random effect to two, we only observed a significant improvement in model fit when adding nesting of cases within closing judges to a model already nesting cases within ADAs, and not when adding nesting of cases within ADAs to a model already nesting cases within closing judges.⁷⁶ Further evaluation indicated a considerable decrement in outcome dependence explained by ADA-based clustering (63%; ICC = 0.07), but a small decrement in outcome dependence explained by closing judges-based clustering (6%; ICC = 0.16) when concurrently accounting for sources of non-independence. This suggests that relative to closing judges, ADAs were not a significant source of

logistic regression with dichotomous outcome).

⁷⁴ The intraclass correlation coefficient (ICC) is a measure of the proportion of variance in the outcome attributable to a grouping variable that may invalidate an assumption of independence between observations. See RAUDENBUSH & BRYK, *supra* note 67, at 36. Readers unfamiliar with ICC should consult Gellman and Hill (2007) and Raudenbush and Bryk (2002). See generally GELMAN & HILL, *supra* note 72, at 258, 448–49 (explaining how to apply ICC); RAUDENBUSH & BRYK, *supra* note 67, at 36, 71 (explaining how to apply ICC).

⁷⁵ See *infra* Table 3.

⁷⁶ See *infra* Table 3.

variability in average log-likelihood of case disposition by plea. These findings are also reflected in comparisons of AIC and BIC for these models.⁷⁷ Based on these findings, subsequent models assumed a multilevel structure where cases were nested within closing judges.

Table 3⁷⁸
Evaluation and selection of nesting variables for cases

	<u>Likelihood Ratio Test χ^2</u>		
	<i>Resolve w/ Plea</i>	<i>Register as SO</i>	<i>Sentence Length</i>
No Nesting vs. ADA	17.73*	58.58*	24.30*
No Nesting vs. Judge	44.89*	-2.84	4.34*
ADA vs. Judge & ADA	29.86*	-	2.12
Judge vs. Judge & ADA	2.7	-	21.35*
	<i>Probation</i>	<i>Credit</i>	<i>Facility</i>
No Nesting vs. ADA	17.52*	8.29*	2.32
No Nesting vs. Judge	11.47*	6.28*	1.02
ADA vs. Judge & ADA	1.77	-	-
Judge vs. Judge & ADA	8.04*	-	-
	<u>AIC (BIC)</u>		
	<i>Resolve w/ Plea</i>	<i>Register as SO</i>	<i>Sentence Length</i>
No Nesting	707.20 (711.45)	370.70 (374.93)	5,013.78 (5,022.17)
Nested in ADA	691.47 (699.97)	314.12 (322.58)	4,991.47 (5,004.06)
Nested in Judge	664.31 (672.81)	-	5,011.43 (5,024.02)
Nested in ADA & Judge	663.61 (676.35)	-	4,991.18 (5,007.96)
	<i>Probation</i>	<i>Credit</i>	<i>Facility</i>
No Nesting	4,677.25 (4,685.64)	6,621.52 (6,629.91)	410.24 (414.02)
Nested in ADA	4,661.73 (4,674.32)	6,615.23 (6,627.81)	409.92 (417.49)
Nested in Judge	4,667.78 (4,680.36)	-	-
Nested in ADA & Judge	4,661.70 (4,678.48)	-	-

Analyses indicated that age ($b = -0.03$, $SE = 0.01$, $95\% CI = -0.05, -0.01$, $\delta_T = 0.01$, $p = 0.01$) is negatively associated with the probability

⁷⁷ See *infra* Table 3.

⁷⁸ Dataset (on file with authors). Note: All nested likelihood ratio tests comparing models had a difference of 1 *df*. Asterisks denote a statistically significant likelihood ratio test result given $\alpha = 0.05$.

of case disposition by plea.⁷⁹ While additional charges ($b = 0.09$, $SE = 0.04$, 95% CI = 0.01, 0.17, $\delta_T = 0.04$, $p = 0.03$), detention ($b = 0.73$, $SE = 0.24$, 95% CI = 0.26, 1.20, $\delta_T = 0.36$, $p = 0.002$) and indictment of a sex crime ($b = 4.38$, $SE = 1.44$, 95% CI = 1.56, 7.20, $\delta_T = 0.001$, $p = 0.002$) were positively associated with probability of case disposition by plea.⁸⁰ There was a significant interaction between indictment of a sex crime and indictment seriousness ratings indicating a significantly stronger negative association between probability of disposition by plea and seriousness ratings for those indicted of a sex crime ($b = -0.67$, $SE = 0.23$, 95% CI = -1.12, -0.22, $\delta_T = 0.33$, $p = 0.004$) compared to those indicted for a violent crime.⁸¹

Table 4⁸²
Fixed effects from multilevel logistic regression model predicting disposition by plea

Predictor	Estimate	SE	95% CI	β	p-value	δ_T
Intercept	2.17	0.65	0.90, 3.44	-	< .001	1.08
Age	-0.03	0.01	-0.05, -0.01	-0.59	0.01	0.01
Seriousness	-0.24	0.08	-0.40, -0.08	-0.8	0.001	0.12
Additional Charges	0.09	0.04	0.01, 0.17	0.57	0.03	0.04
Detention	0.73	0.24	0.26, 1.20	0.69	0.002	0.36
Duration	-0.001	0.001	-0.003, 0.001	3.51	0.14	2.17
Sex Crime	4.38	1.44	1.56, 7.20	-0.35	0.002	0.001
Sex Crime: Seriousness	-0.67	0.23	-1.12, -0.22	-3.16	0.004	0.33

Note: $N_{\text{Cases}} = 522$, $N_{\text{Closing Judges}} = 46$. Estimates are unstandardized coefficients with their standard error, SE, and 95% CI. β indicates the standardized coefficients. δ_T is the effect size of the unstandardized coefficients.

This is apparent when looking at the predicted probability of indictment disposition by plea.⁸³ Non-sexual indictments had a near-linear decline of plea probability from low- to high-indictment seriousness ratings with little discrimination.⁸⁴ In contrast, SO indictments were more likely to be resolved by plea when indictment seriousness ratings were low.⁸⁵ However, as SO indictment seriousness ratings increase, there is an accelerated decline of likelihood of resolving the case by plea, with greatest discrimination occurring between seriousness scores from 6 through 7, such that

⁷⁹ See *infra* Table 4.

⁸⁰ See *infra* Table 4.

⁸¹ See *infra* Table 4.

⁸² Dataset (on file with authors).

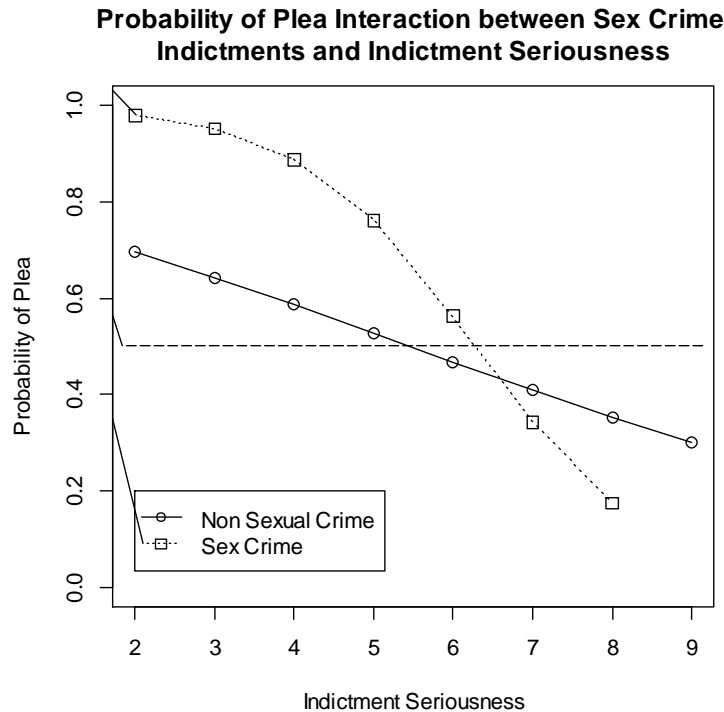
⁸³ See *infra* Figure 1.

⁸⁴ See *infra* Figure 1.

⁸⁵ See *infra* Figure 1.

disposition by plea is less likely for SO indictments relative to NSO indictments.⁸⁶

*Figure 1*⁸⁷



B. Registration as Sex Offender

Comparisons of an intercept-only model without random effects and intercept-only models with random effects showed that nesting of log-likelihood of registering with the SORB within ADAs (ICC = 0.71), but not closing judges (ICC < 0.001), resulted in a significant improvement in model fit.⁸⁸ Given that closing judges accounted for virtually none of the variability in outcomes, and evidence that nesting cases within closing

⁸⁶ See *infra* Figure 1.

⁸⁷ Dataset (on file with authors). Interaction of indictment seriousness and sex crime categorization in predicting probability of resolution of case by plea deal. Predicted scores only consider indictment seriousness and sex crime categorization for defendants aged 33.13 years — i.e., the average age of defendants in the sample. All other predictors' in the model are treated as values of zero in these estimates. $N_{\text{Cases}} = 522$, $N_{\text{Closing Judges}} = 46$.

⁸⁸ See *supra* Table 3.

judges resulted in worse fitting models, subsequent models assumed a multilevel structure where cases were nested within ADAs.

Analyses indicated that for those with SO indictments, additional charges were positively related to the log-likelihood of registering with the SORB ($b = 1.61$, $SE = 0.76$, 95% CI = 0.12, 3.10, $\delta_T = 0.02$, $p = 0.03$).⁸⁹ It was also determined that defendants who were in detention were more likely to be required to register with the SORB compared with those who were released ($b = -18.16$, $SE = 6.24$, 95% CI = -30.39, -5.93, $\delta_T = 0.26$, $p = 0.004$).⁹⁰ Finally, those defendants who resolved their case by plea were significantly more likely to be required to register with the SORB ($b = 83.79$, $SE = 23.34$, 95% CI = 38.04, 129.54, $\delta_T = 1.18$, $p < 0.001$).⁹¹

Table 5⁹²
Fixed effects from multilevel logistic regression model
predicting registration as a sex offender

Predictor	Estimate	SE	95% CI	β	p-value	δ_T
Intercept	-63.68	22.94	-107.62, -19.74	-	0.006	0.9
Age	1.59	0.4	0.81, 2.37	42.27	< .001	0.02
Seriousness	-1.61	2.15	-5.80, 2.60	-0.5	0.45	0.02
Additional Charges	1.61	0.76	0.12, 3.10	-0.69	0.03	0.02
Detention	-18.16	6.24	-30.39, -5.93	0.19	0.004	0.26
Plea	83.79	23.34	38.04, 129.54	-0.79	< .001	1.18
Age: Plea	-1.02	0.44	-1.88, -0.16	0.79	0.02	0.01

There was a significant interaction between indictment resolution using a plea bargain and age of the indicted. Specifically, the indicted whose cases were not resolved by plea were more likely to need to register with the SORB

⁸⁹ See *infra* Table 5.

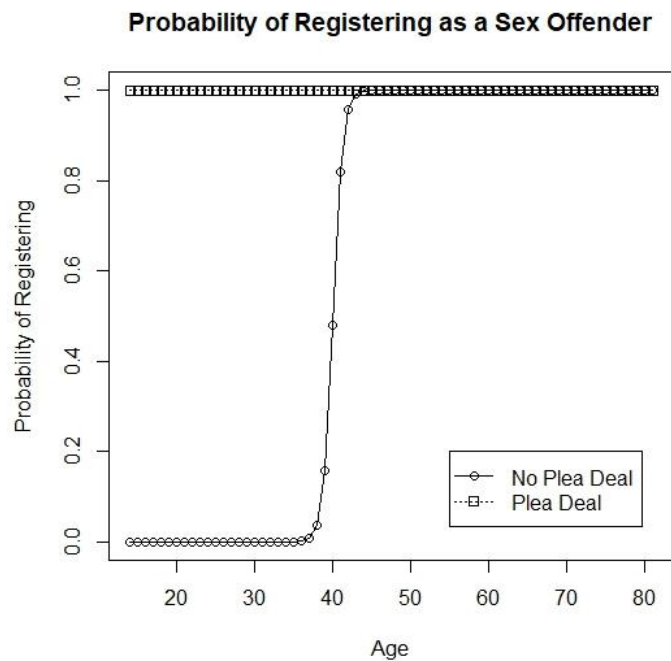
⁹⁰ See *infra* Table 5.

⁹¹ See *infra* Table 5. Note that our final multilevel logistic regression model of being required to register with the SORB does not include duration from indictment to case resolution as a predictor. This is because inclusion of the duration variable and rescaled variants of the duration variable resulted in non-convergence of the model when duration was included concurrently with other predictors, rendering the model uninterpretable. See, e.g., HECK & THOMAS, *supra* note 67, at 172–73. The inclusion of the z-scored duration variable as the only predictor did result in model convergence, but duration was not a significant predictor of being required to register with the SORB. To further assess the value of including duration as a predictor of this outcome, we conducted a likelihood ratio test of the intercept only and intercept with duration variable models and found that inclusion of duration as a predictor did not significantly improve model fit to the data ($\chi^2(1) = 0.08$, $p = 0.78$). This result was further supported by comparisons of the intercept-only model and the model including duration as a predictor using both BIC (127.94 and 132.39, respectively) and AIC (122.87 and 124.79, respectively). Taken together, we concluded that consideration of a final model that did not control for case duration was appropriate.

⁹² Dataset (on file with authors). Note: $N_{\text{cases}} = 94$, $N_{\text{ADAs}} = 53$. Estimates are unstandardized coefficients with their standard error, SE, and 95% CI. β indicates the standardized coefficients. δ_T is the effect size of the unstandardized coefficients.

as a function of increasing age ($b = 1.59$, $SE = 0.40$, $95\% \text{ CI} = 0.81, 2.37$, $\delta_T = 0.02$, $p < 0.001$), whereas the relationship between age and likelihood of needing to register with the SORB significantly declined in relative magnitude for the indicted whose cases were resolved by plea ($b = -1.02$, $SE = 0.44$, $95\% \text{ CI} = -1.88, -0.16$, $\delta_T = 0.01$, $p = 0.02$).⁹³ In Figure 2 it is evident that the indicted who resolve their case by plea are consistently predicted to register with the SORB, regardless of age.⁹⁴ In contrast, those indictments not resolved by plea are highly unlikely to require registration with the SORB when the indicted is younger than 40-years-old, at which point sharp discrimination occurs such that those offenders who do not plea and are over 40-years-old are much more likely to be required to register with the SORB.⁹⁵

Figure 2⁹⁶



⁹³ See *supra* Table 5.

⁹⁴ See *infra* Figure 2.

⁹⁵ See *infra* Figure 2.

⁹⁶ Dataset (on file with authors). Interaction effect of resolving a sex crime indictment by plea deal and age of the offender. Note that if case is resolved by plea, registration probability is 100% across the entire range of ages observed in the considered data set. In contrast, those cases not resolved by a plea are unlikely to result in sex offender registration for defendants under the age of 40. For those defendants who are 40 and older, registration is highly likely.

C. Sentence Length

Comparisons of an intercept-only model without random effects and intercept-only models with random effects showed that nesting of sentence length within ADAs or closing judges resulted in a significant improvement in model fit (ICC = 0.29 and 0.02, respectively).⁹⁷ While nesting within closing judges did result in a significantly better model fit than a model that did not control for closing judges-based clustering, it accounted for a small proportion of outcome variability. Additionally, when moving from one random effect to two, we only observed a significant improvement in model fit when adding nesting of cases within ADAs to a model already nesting cases within closing judges, and not when adding nesting of cases within closing judges to a model already nesting cases within ADAs.⁹⁸ This suggests that relative to ADAs, closing judges were not a significant source of variability in average sentence length. These findings are also reflected in comparisons of AIC and BIC for these models.⁹⁹ Based on these findings, subsequent models assumed a multilevel structure where cases were nested within ADAs.

Analyses indicated significant, positive associations of age ($b = 0.48$, $SE = 0.15$, 95% CI = 0.18, 0.78, $\delta_T = 0.01$, $p = 0.002$) and number of additional charges ($b = 1.28$, $SE = 0.52$, 95% CI = 0.27, 2.29, $\delta_T = 0.03$, $p = 0.01$) with sentence length.¹⁰⁰ We also observed a significant increase in sentence length for the indicted who were in detention compared with those who were released ($b = 16.94$, $SE = 3.61$, 95% CI = 9.86, 24.02, $\delta_T = 0.45$, $p < 0.001$).¹⁰¹ In addition to these main effects, we observed two significant interactions: (a) a significant increase in the relation of indictment seriousness ratings and sentence length for indictments resolved by plea compared to those not resolved by plea ($b = 4.62$, $SE = 2.05$, 95% CI = 0.60, 8.65, $\delta_T = 0.12$, $p = 0.02$); and (b) a significant increase in the relation of indictment seriousness ratings and sentence length for SO indictments compared to NSO indictments ($b = 5.91$, $SE = 2.76$, 95% CI = 0.49, 11.32, $\delta_T = 0.16$, $p = 0.03$).¹⁰²

$N_{\text{Cases}} = 94$, $N_{\text{ADAs}} = 53$.

⁹⁷ See *supra* Table 3.

⁹⁸ See *supra* Table 3.

⁹⁹ See *supra* Table 3.

¹⁰⁰ See *infra* Table 6.

¹⁰¹ See *infra* Table 6.

¹⁰² See *infra* Table 6.

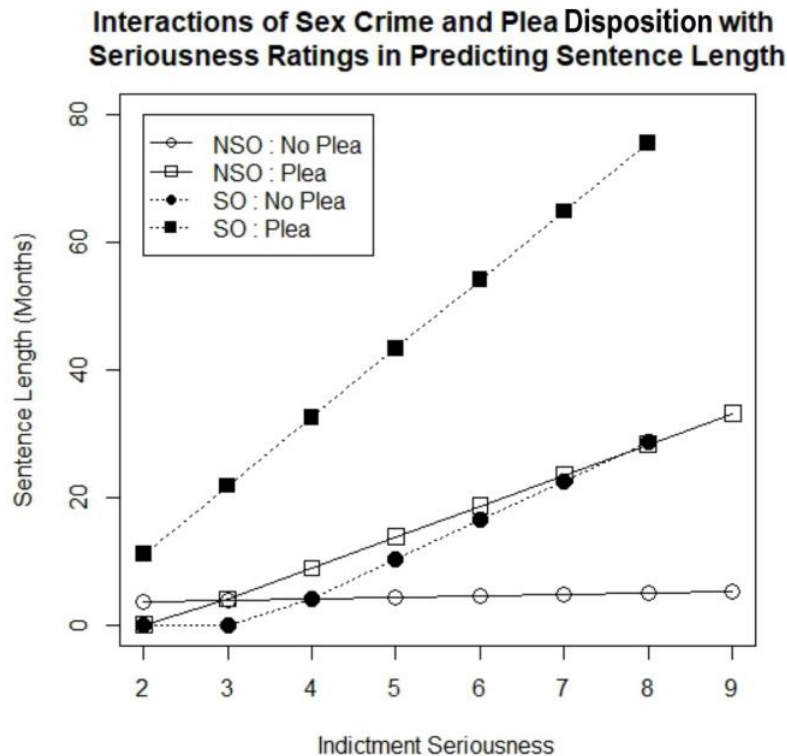
*Figure 3*¹⁰³

Figure 3 depicts the trajectories of sentence length across indictment seriousness ratings given SO or NSO indictment classification, and disposition by plea or not by plea. Specifically, seriousness ratings did not have a significant main effect and showed little relation with sentence length for NSO indictments that were not resolved by plea. In contrast, the trajectory of sentence length across seriousness ratings was stronger and comparable between those indictments for SO indictments resolved by plea and those NSO indictments that were not resolved by plea.¹⁰⁴ Finally, SO

¹⁰³ Dataset (on file with authors). Prediction of sentence length by interactions of plea disposition and sex crime with indictment seriousness ratings. White fill points indicate non-sexual crimes and black fill points indicate sexual crimes. Circle points indicate non-plea disposition and square points indicate plea disposition. Predicted scores consider the terms comprising the interactions and an average defendant age of 33.13—i.e., the average defendant age in the present sample. $N_{\text{Cases}} = 492$, $N_{\text{ADAs}} = 110$.

¹⁰⁴ See *supra* Figure 3.

indictments resolved by plea demonstrated the strongest relation across indictment seriousness ratings.¹⁰⁵

Table 6¹⁰⁶
Fixed effects from multilevel regression model predicting sentence length

Predictor	Estimate	SE	95% CI	β	p-value	δ_T
Intercept	-12.59	11.95	-36.00, 10.83	-	0.29	0.33
Age	0.48	0.15	0.18, 0.78	0.14	0.002	0.01
Seriousness	0.23	1.62	-2.94, 3.40	0.01	0.89	0.006
Additional Charges	1.28	0.52	0.27, 2.29	0.1	0.01	0.03
Detention	16.94	3.61	9.86, 24.02	0.2	< .001	0.45
Duration	0.015	0.01	-0.01, 0.04	0.06	0.17	0.0004
Sex Crime	-23.68	16.58	-56.18, 8.81	-0.24	0.15	0.63
Plea	-13.73	12.38	-38.00, 10.54	-0.17	0.27	0.37
Plea : Rating	4.62	2.05	0.60, 8.65	0.34	0.02	0.12
Sex Crime : Seriousness	5.91	2.76	0.49, 11.32	0.35	0.03	0.16

D. Probation Length

Comparisons of an intercept-only model without random effects and intercept-only models with random effects showed that nesting of probation length within ADAs or closing judges resulted in a significant improvement in model fit (ICC = 0.16 and 0.09, respectively).¹⁰⁷ However, when moving from one random effect to two, we only observed a significant improvement in model fit when adding nesting of cases within ADAs to a model already nesting cases within closing judges, and not when adding nesting of cases within closing judges to a model already nesting cases within ADAs.¹⁰⁸ Further evaluation of models concurrently accounting for ADA and closing judges clusters indicated a decrement in outcome dependence explained by closing judges-based clustering reducing the outcome variance explained to a very small proportion (56%; ICC= 0.04), whereas the decrement in outcome variance explained by ADA-based clustering was relatively small(12.5%; ICC= 0.14).¹⁰⁹ This suggests that relative to ADAs, closing judges were not a significant source of variability in average probation length. These findings are also

¹⁰⁵ See *supra* Figure 3.

¹⁰⁶ Dataset (on file with authors). Note: $N_{\text{Cases}} = 492$, $N_{\text{ADAs}} = 110$. Estimates are unstandardized coefficients with their standard error, SE, and 95% CI. β indicates the standardized coefficients. δ_T is the effect size of the unstandardized coefficients.

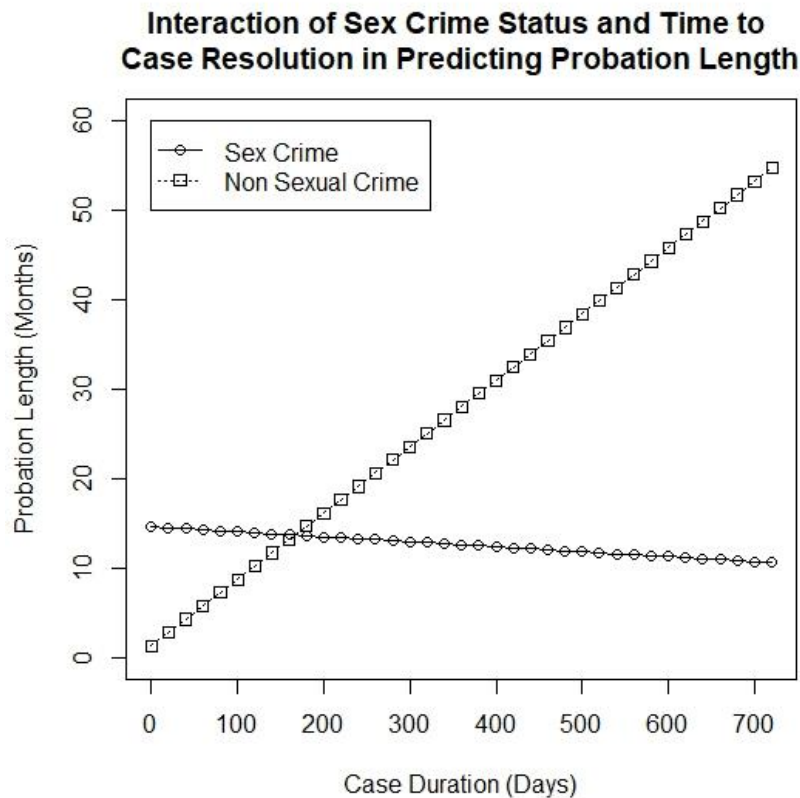
¹⁰⁷ See *supra* Table 3.

¹⁰⁸ See *supra* Table 3.

¹⁰⁹ See *supra* Table 3.

reflected in comparisons of AIC and BIC for these models. Based on these findings, subsequent models assumed a multilevel structure where cases were nested within ADAs.

*Figure 4*¹¹⁰



Analyses indicated a significant, positive association between additional charges and probation length ($b = 1.42$, $SE = 0.39$, 95% $CI = 0.65, 2.18$, $\delta_T = 0.05$, $p < 0.001$).¹¹¹ We also found a significant increase in probation length for indictments resolved by plea compared with those not resolved by plea ($b = 11.62$, $SE = 2.57$, 95% $CI = 6.58, 16.67$, $\delta_T = 0.43$, $p < 0.001$).¹¹² Finally, there was a significant interaction between SO indictment and case duration (b

¹¹⁰ Dataset (on file with authors). Interaction of sex crimes and indictment seriousness ratings in predicting probation length. Predicted scores only consider the terms comprising the interaction. $N_{Cases} = 491$, $N_{ADAs} = 109$.

¹¹¹ See *infra* Table 7.

¹¹² See *infra* Table 7.

= 0.08, SE = 0.02, 95% CI = 0.04, 0.12, $\delta_T = 0.003$, $p < 0.001$), such that SO indictments had a stronger relation between case duration and probation length.¹¹³ This relation is expressed in Figure 4. NSO indictments show a slight, nonsignificant negative trajectory across indictment seriousness ratings, while SO indictments show a significant, positive trajectory of probation length across indictment seriousness ratings.¹¹⁴

Table 7¹¹⁵
Fixed effects from multilevel regression model predicting probation length

Predictor	Estimate	SE	95% CI	β	p-value	δ_T
Intercept	14.61	7.22	0.45, 28.76	-	0.04	0.54
Age	-0.03	0.11	-0.25, 0.19	-0.01	0.78	0.001
Seriousness	-0.21	0.81	-1.79, 1.37	-0.01	0.8	0.008
Additional Charges	1.42	0.39	0.65, 2.18	0.15	< .001	0.05
Detention	0.67	2.7	-4.63, 5.97	0.01	0.8	0.02
Duration	-0.01	0.01	-0.02, 0.01	-0.03	0.54	0.0002
Sex Crime	-13.32	7.01	-27.07, 0.43	-0.18	0.06	0.49
Plea	11.62	2.57	6.58, 16.67	0.2	< .001	0.43
Sex Crime : Duration	0.08	0.02	0.04, 0.12	0.4	< .001	0.003

E. Credit for Time Served

Comparisons of an intercept-only model without random effects and intercept-only models with random effects showed that nesting of credit for time served within ADAs or closing judges resulted in a significant improvement in model fit (ICC= 0.07 and 0.00, respectively).¹¹⁶ Given that closing judges-based nesting accounted for none of the variability in outcomes, and evidence from AIC and BIC indicated ADA-based nesting resulted in the best intercept-only model,¹¹⁷ subsequent models assumed a multilevel structure where cases were nested within ADAs.

Analyses indicated a significant interaction between disposition by plea and indictment seriousness ratings ($b = 22.57$, SE = 10.22, 95% CI = 2.54, 42.60, $\delta_T = 0.13$, $p = .03$).¹¹⁸ This effect indicates that for

¹¹³ See *infra* Table 7.

¹¹⁴ See *supra* Figure 4.

¹¹⁵ Dataset (on file with authors). Note: $N_{\text{Cases}} = 491$, $N_{\text{ADAs}} = 109$. Estimates are unstandardized coefficients with their standard error, SE, and 95% CI. β indicates the standardized coefficients. δ_T is the effect size of the unstandardized coefficients.

¹¹⁶ See *supra* Table 3.

¹¹⁷ See *supra* Table 3.

¹¹⁸ This interaction is not significant when considering only defendants who were in

low indictment seriousness, the difference in credit earned for non-plea dispositions vs. plea dispositions (e.g., seriousness = 2, $M_{\text{difference}} = 45.14$ days) is significantly smaller than the difference in credit earned that is observed for non-plea dispositions vs. plea dispositions (e.g., seriousness = 8, $M_{\text{difference}} = 180.56$ days) for higher-indictment seriousness ratings.¹¹⁹ The model controlled for the duration of each case, from date of indictment to date of disposition, though case duration did not significantly predict these differences. Consequently, this interaction is best interpreted as an indicator of differences in credit earned for cases disposed through plea, based on the varying seriousness of charges.

detention or those who were free—i.e., when using simple effects to interpret the three-way interaction of plea disposition, detention, and case duration. However, this discrepancy appears to be a function of reduced sample size, as the coefficient estimates are relatively stable in the subset samples compared to the total sample, suggesting the observed effect in the total sample is not a byproduct of detention status—also evidenced by the absence of a significant three-way interaction between plea disposition, detention, and indictment seriousness.

¹¹⁹ See *infra* Figure 5.

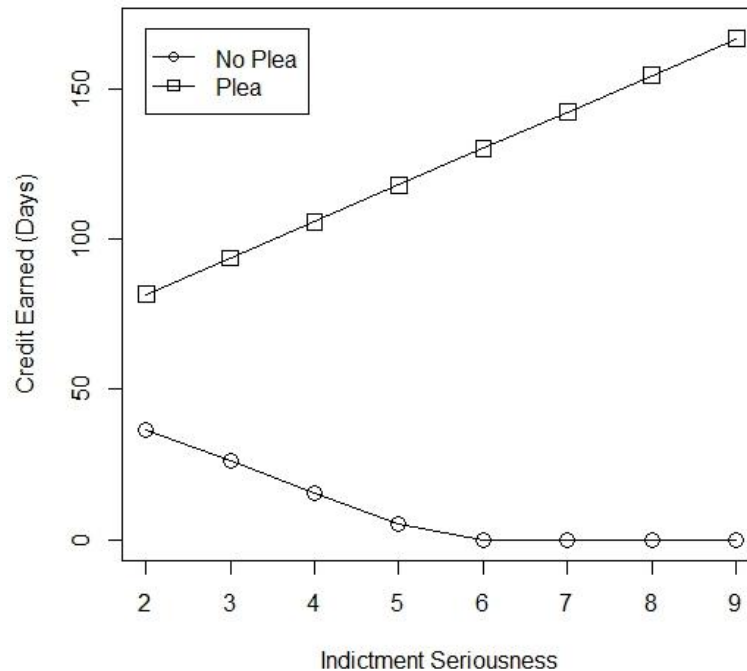
Table 8¹²⁰
Fixed effects from multilevel regression model predicting credit for time served

No Detention						
Predictor	Estimate	SE	95% CI	β	p-value	δ_T
Intercept	15.79	88.68	-158.03, 189.60	-	0.86	0.11
Age	2.04	1.08	-0.07, 4.15	0.17	0.06	0.01
Seriousness	-13.61	13.54	-40.15, 12.93	-0.14	0.32	0.09
Additional Charges	5.11	4.69	-4.08, 14.29	0.09	0.28	0.04
Duration	0.03	0.1	-0.16, 0.22	0.04	0.74	0.0002
Sex Crime	28.38	29.51	-29.46, 86.22	0.08	0.34	0.2
Plea	-65.1	100.49	-262.06, 131.86	-0.22	0.52	0.45
Plea : Rating	29.17	16.98	-4.11, 62.45	0.55	0.09	0.2
Plea : Duration	-0.25	0.15	-0.54, 0.05	-0.3	0.1	0.002
Detention						
Predictor	Estimate	SE	95% CI	β	p-value	δ_T
Intercept	152.82	77.04	1.81, 303.82	-	0.048	0.85
Age	-0.04	0.96	-1.92, 1.84	-0.002	0.97	0.0002
Seriousness	-9.4	9.75	-28.52, 9.71	-0.07	0.34	0.05
Additional Charges	2.28	3	-3.61, 8.17	0.04	0.45	0.01
Duration	0.2	0.1	0.001, 0.40	0.14	0.049	0.001
Sex Crime	-21.42	28.29	-76.87, 34.04	-0.04	0.45	0.12
Plea	-116.17	82.65	-278.17, 45.82	-0.28	0.16	0.65
Plea : Rating	20.92	12.63	-3.84, 45.67	0.304	0.1	0.12
Plea : Duration	0.41	0.14	0.14, 0.68	0.36	0.004	0.002

¹²⁰ Dataset (on file with authors). Note: $N_{\text{Cases}} = 492$, $N_{\text{ADAs}} = 110$. Estimates are unstandardized coefficients with their standard error, SE, and 95% CI. β indicates the standardized coefficients. δ_T is the effect size of the unstandardized coefficients.

*Figure 5*¹²¹

**Interaction of Plea Resolution and Seriousness Ratings
when Predicting Credit Earned**



A significant three-way interaction between plea disposition, detention, and case duration was also found ($b = 0.63$, $SE = 0.22$, 95% $CI = 0.20, 1.05$, $\delta_r = 0.004$, $p = 0.004$).¹²² To interpret this three-way interaction, simple effects were used and the sample was grouped based upon defendants' detention experience.¹²³ Because detention status was dummy coded to exclude all defendants who were ever out on bail (even briefly), it was possible for defendants whose detention status was zero (0) to have been granted credit for time served. No significant predictors of credit earned were identified for those cases where defendants were out on bail, at some point, from their date of indictment to their date of disposition. However, for those defendants in detention, there was a significant interaction between

¹²¹ Dataset (on file with author). Predicting credit earned using interactions between plea disposition and indictment seriousness ratings. Predicted scores only consider the terms comprising the interactions. $N_{Cases} = 492$, $N_{ADAs} = 110$.

¹²² Dataset (on file with authors).

¹²³ See *supra* Table 8.

disposition by plea and case duration ($b = 0.41$, $SE = 0.14$, $95\% CI = 0.14, 0.68$, $\delta_T = 0.002$, $p = 0.004$).¹²⁴ Specifically, defendants whose cases were not resolved by plea had a significant, positive relationship between case duration and credit earned ($b = 0.20$, $SE = 0.10$, $95\% CI = 0.001, 0.40$, $\delta_T = 0.001$, $p < 0.05$), such that for every day spent in pretrial detention they could expect to get an average of 0.20 days in credit.¹²⁵ In contrast, defendants whose cases were resolved by plea received an average of 0.61 days of credit for every day their case went unresolved.¹²⁶ The interaction of plea disposition and case duration for defendants who were in detention is depicted in Figure 6. When duration was low, the difference between average credit earned for plea versus non-plea dispositions was small.¹²⁷ However, as case duration increases, plea versus non-plea credit earned diverges quickly, resulting in an estimated maximum average difference of 294 more days of credit for time served when cases were resolved by plea.¹²⁸

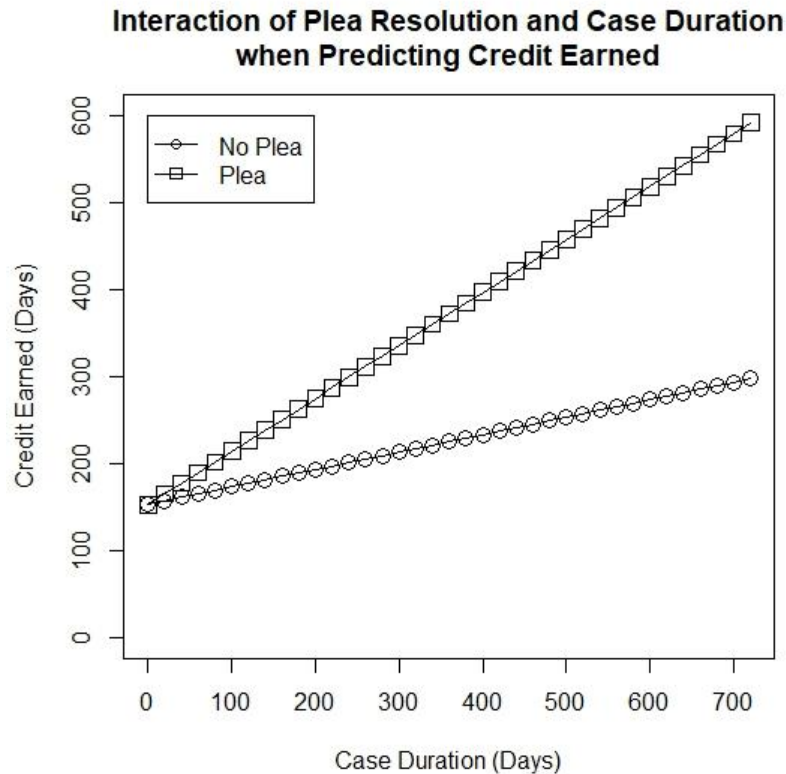
¹²⁴ See *supra* Table 8.

¹²⁵ See *supra* Table 8.

¹²⁶ See *supra* Table 8.

¹²⁷ See *infra* Figure 6.

¹²⁸ Dataset (on file with authors).

Figure 6¹²⁹

F. Facility Type

Comparisons of an intercept-only model without random effects and intercept-only models with random effects showed that nesting of the log-likelihood of being sentenced to MCI rather than HOC within ADAs or closing judges did not result in significant improvement of model fit (ICC= 0.07 and 0.03, respectively)—no subsequent comparisons of nesting within both ADAs and closing judges were warranted by these findings.¹³⁰ Model comparisons using AIC indicated weak support for nesting cases in ADAs, and no support for nesting cases in closing judges or both ADAs and closing judges.¹³¹ BIC comparisons agreed with the results of the likelihood

¹²⁹ *Id.* Credit earned as predicted by an interaction between plea disposition and case duration for defendants who were in detention. Predicted scores only consider the terms comprising the interactions. $N_{\text{Cases}} = 492$, $N_{\text{ADAs}} = 110$.

¹³⁰ *See supra* Table 3.

¹³¹ *See supra* Table 3.

ratio tests and indicated that the model without random effects of average log-likelihood of being sentenced to MCI rather than HOC yielded the best fit to the data. Based on these findings, subsequent models assumed a relative independence of observations regardless of nesting within common ADAs or closing judges and did not include random effects.

Analyses indicated a positive, significant relationship between indictment seriousness ratings and likelihood of being sentenced to MCI vs. HOC ($b = 0.40$, $SE = 0.09$, $95\% CI = 0.23, 0.56$, $OR = 0.06$, $p < 0.001$).¹³² There was also a significant increase in likelihood of being sentenced to MCI vs. HOC for the indicted who were detained rather than freed ($b = 1.17$, $SE = 0.31$, $95\% CI = 0.55, 1.78$, $OR = 0.76$, $p < 0.001$).¹³³ There were no other main effects or interactions detected between the considered predictors and likelihood of sentence facility.¹³⁴

Table 9¹³⁵
Effects from logistic regression model predicting log-likelihood of MCI vs. HOC

Predictor	Estimate	SE	95% CI	β	p-value	odds
Intercept	-2.76	0.8	-4.33, -1.19	-	< .001	0.06
Age	0.02	0.01	-0.002, 0.05	0.52	0.08	0.51
Seriousness	0.4	0.09	0.23, 0.56	1.33	< .001	0.6
Additional Charges	0.03	0.04	-0.06, 0.11	0.18	0.54	0.51
Detention	1.17	0.31	0.55, 1.78	0.997	< .001	0.76
Duration	0.0002	0.001	-0.002, 0.002	0.06	0.84	0.5
Sex Crime	0.08	0.35	-0.61, 0.77	0.07	0.82	0.52
Plea	-0.57	0.32	-1.21, 0.07	-0.51	0.08	0.36

VI. DISCUSSION

To date, the differences in judicial and prosecutorial treatment of those accused of sexual crimes have been largely ignored by research¹³⁶ despite significant public debate surrounding legal and

¹³² See *infra* Table 9.

¹³³ See *infra* Table 9.

¹³⁴ See *infra* Table 9.

¹³⁵ Dataset (on file with authors). Note: $N_{Cases} = 329$. Estimates are unstandardized coefficients with their standard error, SE, and 95% CI. β indicates the standardized coefficients. We also report the change in Odds for each coefficient.

¹³⁶ See Jason Rydberg et al, *Punishing the Wicked: Examining the Correlates of Sentence Severity for Convicted Sex Offenders*, 34 J. QUANTITATIVE CRIMINOLOGY 943, 944, 947 (2018).

policy issues related to effective responses to sexual offending.¹³⁷ For instance, few projects have assessed the differences between SO and NSO defendants in the area of plea agreements, despite their frequent use among these defendants.¹³⁸ The limited available research has also relied on a rather narrow definition of favorable (and unfavorable) outcomes for those convicted, focusing specifically on custodial sentence length¹³⁹ while ignoring other factors that may be equally important to defendants' outcomes and post-release trajectories. In addition, while prosecutorial and judicial influences were often presumed to exist,¹⁴⁰ we have been unable to locate any research that investigated these influences. We sought to address these gaps by comparatively analyzing a broad range of outcomes for sexual and non-sexual crime indictments. Several substantive contributions of our investigation are noteworthy.

Results of our analysis support the assertion by Abrams, that in violent-crime cases, plea-bargaining produces few, if any, true benefits for the accused, as compared to a myriad of other possible outcomes in the absence of a plea agreement.¹⁴¹ In fact, cases settled by plea generally produced more severe sentences than those settled without a plea.¹⁴² Utilizing nested models, we were able to identify unique prosecutorial and judicial areas of contribution to variation in plea outcomes for our sample. For instance, our analysis indicated that variation among sentencing judges ultimately accounted for variability in average plea agreement outcomes, yet differences among prosecutors accounted for the specific characteristics of these average outcomes (e.g. sentence length, duration of probation, and credit awarded for time served), as well as for variability in the likelihood of plea agreements in sex-crime cases in general.¹⁴³ Contrary to public perceptions¹⁴⁴ those accused of sexual crimes were treated more harshly by the justice system than those accused of other violent crimes, receiving longer sentences in higher security facilities, less credit for time spent in pretrial detention, and

¹³⁷ See Pallone, *supra* note 29, at 83–84; Quinn et al., *supra* note 23, at 216, 226; Willis et al., *supra* note 20, at 231.

¹³⁸ See Johnson, *supra* note 25, at 47; Letourneau, *supra* note 25, at 202.

¹³⁹ See, e.g., Rydberg et al., *supra* note 136, at 949; Williams, *supra* note 59, at 307.

¹⁴⁰ See, e.g., Bar-Gill & Ben-Shahar, *supra* note 57, at 758; Williams, *supra* note 59, at 303.

¹⁴¹ See Abrams, *Is Pleading Really a Bargain?*, *supra* note 12, at 201.

¹⁴² See *supra* Figure 3.

¹⁴³ See *supra* Table 3.

¹⁴⁴ See Levenson et al., *supra* note 23, 140; Pallone, *supra* note 29, at 85.

subsequently longer probation terms.¹⁴⁵ In sex-crime cases resolved by plea agreement, these differences were more pronounced.

A. Plea Agreement Frequency

Our results indicate that, for NSO indictments, increases in seriousness of the primary charge, as well as increases in age, reduce the likelihood of a plea. For the “average” defendant (whose charge seriousness rating is 5.99 and whose age is 33.13), the probability of a plea agreement is 0.51.¹⁴⁶ For SO indictments specifically, the reduction in the likelihood of plea outcomes is substantially larger, with a probability of 0.064.¹⁴⁷ The presence of additional charges, as well as pretrial detention, increases the probability of case disposition by plea.¹⁴⁸ Since most misdemeanors and non-violent drug crimes were excluded from our analysis, the results reflect a trend toward avoiding pleas in violent-crime prosecutions. Despite the significantly lengthier prosecutions described in prior research,¹⁴⁹ case duration was not significant in predicting plea dispositions. These results confirm our hypothesis that, contrary to public perceptions, defendants accused of very serious crimes are unlikely to receive a bargain when they accept a plea. These results also fit with prior findings by Letourneau, Armstrong, Bandyopadhyay, and Sinha, who found plea agreements to be more frequently used with younger defendants whose charges were less serious.¹⁵⁰

Interestingly, our analysis identified significant variation between closing judges (and not between prosecutors) with respect to plea outcomes. Several possible explanations exist for this finding. First, it is possible that judges differ in their acceptance of proposed plea agreements, resulting in a better match between some judges and plea outcomes. However, this is unlikely given the absence of any record of unaccepted plea hearings in our reviewed court records. It is also possible that prosecutors elect to have their proposed plea agreements heard before judges who would support these agreements. This practice, referred to as “judge shopping,” has been

¹⁴⁵ See *supra* Figures 3, 4; Tables 8, 9.

¹⁴⁶ See Dataset (on file with authors).

¹⁴⁷ See *id.*

¹⁴⁸ See *id.*

¹⁴⁹ See Theodore P. Cross, et al., *Criminal Justice Outcomes of Prosecution of Child Sexual Abuse: A Case Flow Analysis*, 19 CHILD ABUSE & NEGLECT 1431, 1432 (1995); Walsh et al., *How Long to Prosecute Child Sexual Abuse*, *supra* note 13, at 7–8.

¹⁵⁰ See Letourneau et al., *supra* note 25, at 197.

described in legal research.¹⁵¹ Given the frequent changes in justices on the cases in our sample, it is possible that judge shopping occurred in these cases. Alternatively, it is also possible that prosecutors use their courtroom experience to tailor plea-agreement proposals to the sentencing style of each case judge.

B. Plea Agreement Favorability

Our results significantly contradict the perception of plea agreements as “favorable” to sentences imposed after trial and other non-plea outcomes.¹⁵² In our NSO sample, disposition by plea increased custodial sentence length and probation length.¹⁵³ In our SO sub-sample, these consequences were more severe, though SO cases received more credit for time served as a function of detention and based on their crime’s seriousness rating.¹⁵⁴ In addition, the likelihood of a requirement to register with the Sex Offender Registry Board (SORB) increased substantially.¹⁵⁵ Given the novelty of these findings, we sought to further unpack them and consider their possible implications.

1. Custodial Sentence Length

In our sample, case disposition by plea interacted with the seriousness of the primary charge to increase the defendant’s custodial sentence length. Older defendants and those who were in pre-trial detention were also likely to receive longer sentences.¹⁵⁶ In our SO group, an interaction between the seriousness rating of the primary charge and plea status produced a significant increase in sentence length.¹⁵⁷ The increase in sentence length associated with pretrial confinement is a particularly concerning finding, since it may suggest increased vulnerability to coercion,¹⁵⁸ whereby any plea

¹⁵¹ See Don Weatherburn, & Bronwyn Lind, *Sentence Disparity, Judge Shopping and Trial Court Delay*, 29 AUSTL. & N.Z. J. CRIMINOLOGY 147, 151 (1996).

¹⁵² See Stephanos Bibas, *The Myth of the Fully Informed Rational Actor*, 31 ST. LOUIS U. PUB. L. REV. 79 (2011).

¹⁵³ See *supra* Figure 3; *supra* Table 7.

¹⁵⁴ See Dataset (on file with authors); *supra* Figure 3; *supra* Table 7.

¹⁵⁵ See *supra* Table 5; *supra* Figure 2.

¹⁵⁶ See *supra* Table 6.

¹⁵⁷ See *supra* Figure 3.

¹⁵⁸ See Gail Kellough & Scot Wortley, *Remand for Plea: Bail Decisions and Plea Bargaining as Commensurate Decisions*, 42 BRIT. J. CRIMINOLOGY 186, 205 (2002); Charlie Gerstein, Note, *Plea Bargaining and the Right to Counsel at Bail Hearings*, 111 MICH. L. REV. 1513, 1532 (2013).

agreement is acceptable when the defendant is already serving time. It is important to note that, within our sample, a significant number of cases (73 total, 14 of which were SO cases) were dismissed by prosecutors before a verdict was reached. These cases did not represent false indictments that were quickly abandoned, but rather cases in which a *nolle prosequi* was entered subsequent to significant case activity. This subset of cases may be an outcome of those defendants who did not enter a plea agreement, and the prosecutor could not build a strong enough case to proceed with trial. Overall, it is apparent that in our sample of defendants, proceeding to trial resulted in a shorter mean custodial sentence.

2. Probation Length

For our sample, entering a plea agreement nearly doubled the length of a probation supervision sentence.¹⁵⁹ In SO cases, an interaction with the duration of the proceedings resulted in a further lengthened probationary sentence.¹⁶⁰ This finding would be logical in the case of shorter prison sentences for these defendants, since it could be argued that a plea deal was favorable in that it decreased prison time, in favor of community supervision. However, this is not the case for our sample, in which prison sentences produced by pleas were longer as well.¹⁶¹ It was further surprising that no case characteristic (e.g. a defendant's age) acted to decrease the duration of probation.

3. Credit for Time Served

Given the lengthy case duration (297 days on average) for cases in which bail was not allowed (n = 353), we expected to find significant credit given for time served, particularly in cases resolved by plea.¹⁶² Indeed, an increase in the duration of the case predicted a small increase in the amount of credit given (each day's increase in duration resulted in a 0.24 day increase in credit).¹⁶³ For those who were in pretrial detention, an interaction between pleading and the duration of the case increased the amount of credit given to 0.61 days per day in detention.¹⁶⁴ In looking at our entire sample, SO who

¹⁵⁹ See *supra* Table 7.

¹⁶⁰ See *supra* Figure 4; *supra* Table 7.

¹⁶¹ See *supra* Table 7.

¹⁶² See Dataset (on file with authors).

¹⁶³ See *supra* Table 8; *supra* Figure 6.

¹⁶⁴ See *supra* Table 8.

accepted a plea received significantly more credit for time served than NSO defendants, though defendants in either group did not receive full credit for time served.¹⁶⁵

4. SORB Registration Requirements

In evaluating SO cases, the likelihood that a defendant would be required to register with the SORB was positively related to the number of additional charges brought against a defender.¹⁶⁶ We also found that likelihood of registration with the SORB was higher for plea dispositions, and that plea dispositions had a significant interaction effect with the defendant's age, such that those who pled had a weaker positive association between their age and likelihood they would be required to register.¹⁶⁷ It is clear that this interaction effect is driven by a greater likelihood that at younger ages (< 38 years),¹⁶⁸ defendants whose cases are not resolved by plea are very unlikely to be required to register with the SORB, whereas those defendants whose cases are resolved by plea are likely to be required to register regardless of their age. Since Massachusetts law mandates that those found guilty of a sex crime register with the SORB,¹⁶⁹ it is likely that cases resolved by trial resulted in fewer sex crime convictions, and more dismissals. Hence, our analysis did not find that plea agreements substituted non-sexual crimes for sexual crimes.

It is interesting to note that cases in which bail was denied (either due to the defendant's perceived dangerousness or flight risk) ultimately had more plea dispositions but fewer SORB registrations.¹⁷⁰ Perhaps these cases are the exception to our overall finding, and in these cases, charges were more likely to be modified as part of a plea agreement. If this is indeed the case, these outcomes are quite concerning in that the most dangerous of defendants would receive the least amount of post-release supervision.

¹⁶⁵ See Dataset (on file with authors).

¹⁶⁶ See *supra* Table 5.

¹⁶⁷ See *supra* Table 5.

¹⁶⁸ See *supra* Figure 2.

¹⁶⁹ *Commonwealth v. Ventura*, 987 N.E.2d 1266, 1269–70 (Mass. 2013) (citing MASS. GEN. LAWS ANN. ch. 6, § 178E (a)–(d) (2018)).

¹⁷⁰ See Dataset (on file with authors).

VII. LIMITATIONS

Although the current analysis utilized novel approaches to understanding plea agreements and outcomes among different offenders, several limitations exist within the study. The study utilized a crime-seriousness rating system that quantified offenses based on the Massachusetts Sentencing Commission guidelines. However, the scale is limited to the ways in which the offenses were classified. Notably, many of the offenses in the study were clustered between five and seven seriousness ratings. Due to the volume of offenses within these ratings, it may be possible that smaller subgroups exist within these scores. For instance, there may be some discernable differences between those charged with sexual crimes against adults rather than children, but this could not be assessed in our analysis. In addition, our results may indicate issues specific to the Massachusetts courts, and may not generalize in states whose sentencing and legal practices differ significantly from those in our data. However, because of our local focus, our analysis may prove particularly interesting for future comparisons with other sentencing guidelines states.

The current study also assessed the role of the ADA and judges in explaining variability in each of the outcomes, but did not explore how ADA and judge variables were related to variability within or between these persons (e.g. interactions between defendants' gender and that of prosecutors, or the impact of prosecutor or judge experience level). Understanding how the individual predictors impact ADA and judges may help to explain differences in plea frequency as well as favorability of sentencing outcomes. Our data also did not contain information to ascertain whether these attorneys were privately retained or public defenders. Similarly, due to limited recurrence of unique defense attorneys in our data, we were unable to include them in the nesting structure of our analysis. Our study provides several interesting starting points for future exploration of these factors.

Further, our analysis was also limited to information publicly available on the database. Much of the information unavailable to us is typically absent in plea research utilizing administrative data.¹⁷¹ The whole plea agreement process could not be captured in the study, and we are unable to report on negotiations, revisions, or rejected

¹⁷¹ See Redlich et al., *The Psychology of Defendant Plea Decision Making*, *supra* note 60, at 350.

plea offers. We were also unable to distinguish between voluntary guilty pleas and plea-bargaining agreements. Similarly, defendants' prior arrest and conviction history, which plays a part in sentencing decisions, was not available for analysis. For instance, it is possible that SO defendants had, on average, longer arrest histories than NSO defendants, or had a greater number of prior convictions, on average, as compared to NSO defendants. Yet, it is also possible that those charged with crimes, such as armed robbery, assault, and murder, were sometimes subject to "career criminal" or "bad actor" statutes that may affect sentencing outcomes.¹⁷² However, influences of prior criminal acts are unlikely to fully account for the difference between sexual and non-sexual crime defendant groups, since research has consistently shown those convicted of NSO (e.g. robbery) to have much higher recidivism and reconviction rates than those convicted of SO.¹⁷³ Demographic information on the offenders including race, ethnicity, and gender was also not available for analysis. Past research suggests that offenders from minority backgrounds and offenders who are male are treated more harshly in the justice system, and we are unable to confirm this finding or assess its impact on case outcomes.¹⁷⁴

Additionally, our data included a variety of indictment outcomes, including prosecutorial dismissals and not guilty verdicts. Because our goal was to predict disposition by plea (and subsequently, the favorability of these outcomes), those cases that were ultimately abandoned by prosecutors or reached a favorable outcome for the defense represented valid alternate outcomes to a disposition by plea. Prosecutorial dismissals, akin to cases resolved by plea, made up a minority of our sample, and were quite lengthy in duration (M=272).¹⁷⁵ Given the reported propensity of prosecutors to offer plea agreements in weak cases,¹⁷⁶ these may represent cases in which a

¹⁷² See Jill Rafaloff, *The Armed Career Criminal Act: Sentence Enhancement Statute or New Offense?*, 56 FORDHAM L. REV. 1085, 1087–88 (1988).

¹⁷³ See Patrick A. Langan & David J. Levin, *Recidivism of Prisoners Released in 1994*, 15 FED. SENT'G REP. 58, 64 (2002).

¹⁷⁴ See Mindy S. Bradley & Rodney L. Engen, *Leaving Prison: A Multilevel Investigation of Racial, Ethnic, and Gender Disproportionality in Correctional Release*, 62 CRIME & DELINQ. 253, 273 (2016); Victor H. Elion & Edwin I. Megargee, *Racial Identity, Length of Incarceration, and Parole Decision Making*, 16 J. RES. CRIME & DELINQ. 232, 241 (1979); David B. Mustard, *Racial, Ethnic, and Gender Disparities in Sentencing: Evidence from the U.S. Federal Courts*, 44 J.L. & ECON. 285, 296 (2001); Darrell Steffensmeier et al., *Gender and Imprisonment Decisions*, 31 CRIMINOLOGY 411, 435 (1993).

¹⁷⁵ See Dataset (on files with authors).

¹⁷⁶ See Oren Gazal-Ayal, *Partial Ban on Plea Bargains*, 27 CARDOZO L. REV. 2295, 2300 (2006).

plea offer is made and rejected by the defendant. Ultimately, we are unable to draw conclusions regarding the reasons for these alternate outcomes.

Lastly, our data contain a significant number of cases that had not reached disposition by the time of study and were therefore not included in our analyses. Many of the unresolved cases involve sexual offenses. This aligns with past research that has shown that in most cases, prosecution of sexual offenses takes an average of sixty days to file charges or proceed to indictment, and total case resolution takes over six months.¹⁷⁷ It is possible that some significant differences exist between concluded and pending cases, which we are currently unable to assess at this time. However, these as yet unresolved cases may provide opportunities for replication of the present findings.

VIII. FUTURE DIRECTIONS

To better understand the variability across models when predicting case and plea outcomes with the ADA, the closing judge, and the pairing of the two, future analyses should examine the individual variability between ADA and closing judges. Gathering data from ADA and judges would allow for study of prosecutorial and judicial characteristics that impact case outcomes. Characteristics to consider include demographics of the individuals such as gender, age, race and ethnicity, type of education, history of prior cases, as well as the county or state in which they are operating.

One of the limitations of our analysis was its relatively small sample size, particularly with regard to SO dispositions. Expanding upon the number of counties may help to increase the sample size of resolved SO cases for analysis, judges and ADAs that are examined, while also capturing a more-representative trajectory of case outcomes. Similarly, comparisons among states can further inform the ability to predict outcomes for defendants.

The current analysis focused on the nature of the primary charge in terms of crime seriousness when predicting case outcomes, along with a count of the number of additional charges against the defendant. Capturing the specific nature and seriousness of the additional charges in future analyses may further strengthen our ability to predict the trajectory of cases and case outcomes. The number of cases that remain unresolved in the current data also

¹⁷⁷ See Walsh et al., *How Long to Prosecute Child Sexual Abuse*, *supra* note 13, at 7, 8 tbl.2.

suggests that follow-up analysis with such cases may be important to understanding the complexity of case outcomes.

IX. CONCLUSION

The current study sought to address several gaps in research relating to sexual and violent crime prosecution. Specifically, we sought to follow up on Abrams's conclusion that plea-bargaining does not, in fact, result in sentence reductions for defendants.¹⁷⁸ This conclusion was particularly interesting to evaluate with a sex-crime sample, given the dearth of research on sex-offender sentencing and the highly-negative public reaction to perceived sentencing "discounts" received by these defendants in plea deals.¹⁷⁹ To accomplish this, we utilized public record data from three counties in a sentencing guidelines state, to assess both plea frequency and predictors of a favorable plea outcome in violent crime prosecution cases.

Overall, our analysis demonstrated that, contrary to public perceptions, plea dispositions with violent crime defendants are infrequent, and do not appear to result in shortening of prison and probation sentences, or other benefits. In sex-crime cases, these results are substantially more pronounced, suggesting that those accused of sexual offenses are treated more harshly, given offenses of comparable seriousness ratings. These results support Abrams's view that plea agreements were not a "bargain," and present several novel findings for consideration.¹⁸⁰ Specifically, our results highlight the need to further assess additional outcomes for sex-crime defendants, beyond custodial sentence length, with particular care in considering the impact of SORB registration. In addition, the impact of prosecutors and judges should be further explored, given the observation of the varying impact of judges and ADA in different aspects of plea outcomes. Ultimately, we believe this research demonstrates the need to reassess the utility of plea agreements, particularly from a criminal defense standpoint.

¹⁷⁸ See Abrams, *Is Pleading Really a Bargain?*, *supra* note 12, at 201.

¹⁷⁹ See Rydberg et al, *supra* note 136, at 944.

¹⁸⁰ Abrams, *Is Pleading Really a Bargain?*, *supra* note 12, at 221.