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# How Big is Too Big? : The Potentially Coercive Effects of Plea Discount on Innocent Defendants

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## Abstract

In the United States, approximately 95% of all criminal cases end in guilty pleas. Many scholars are concerned with plea bargaining's potential to be coercive, and cite data on wrongful convictions as proof that an innocence problem exists. Estimates of false guilty pleas may range between 18 and 27 percent, though a true base rate is difficult to establish. Using vignettes, I examined the effects of guilt, trial penalty and plea discount size on plea decisions of adult participants recruited online through TurkPrime. Guilt was the strongest predictor of plea acceptance, but guilty plea rates increased for all participants with increasing discount and decreasing trial penalty, and the rate of false guilty pleas reached 18% in some conditions. Results are discussed in the context of the psychology of human decision making and in terms of their implications for public policy.

MONTCLAIR STATE UNIVERSITY

How Big is Too Big? The Potentially Coercive Effects of Plea Discount on Innocent Defendants

by

Ryan Schneider

A Master's Thesis Submitted to the Faculty of

Montclair State University

In Partial Fulfillment of the Requirements

For the Degree of

Master of Arts

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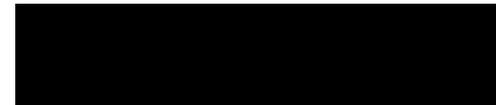
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Department: PSYCHOLOGY

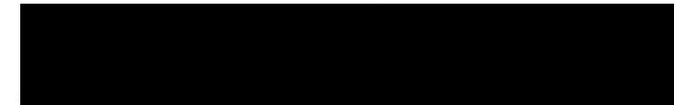
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RUNNING HEAD: THE COERCIVE EFFECTS OF PLEA DISCOUNT

HOW BIG IS TOO BIG? THE POTENTIALLY COERCIVE EFFECTS OF PLEA  
DISCOUNT ON INNOCENT DEFENDANTS

A THESIS

Submitted in partial fulfillment of the requirements  
for the degree of Master of Arts

by

RYAN SCHNEIDER

Montclair State University

Montclair, NJ

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# THE COERCIVE EFFECTS OF PLEA DISCOUNT

## Table of Contents

Introduction.....	1
Background .....	1
The Psychology of Plea Decision Making .....	3
The Present Study.....	9
Hypothesis.....	9
METHOD .....	10
Participants .....	10
Procedure.....	11
Materials.....	12
Demographics Survey .....	12
Vignettes and Manipulations.....	12
Dependent Variables .....	12
Planned Analysis.....	13
RESULTS .....	13
Statistical Model.....	13
Demographic Predictors of Plea Decisions.....	14
Guilt, Discount, and Trial Penalty.....	14
Confidence in Decision.....	15
Rationales .....	15
DISCUSSION .....	16
Discounts.....	16
Trial Penalty .....	18
Guilt Status.....	19
Implications.....	20
STUDY LIMITATIONS .....	21
FUTURE DIRECTIONS .....	22
CONCLUSION.....	25
REFERENCES .....	26
APPENDIX A.....	31
APPENDIX B .....	33
TABLE 1a.....	35
TABLE 1b.....	36

THE COERCIVE EFFECTS OF PLEA DISCOUNT

TABLE 2.....37

How Big is Too Big? The Potentially Coercive Effects of Plea Discount on  
Innocent Defendants

Of the many rights and protections afforded to Americans under the Constitution, few are as well-known by the typical American as those that attach to individuals who are accused of crimes. Procedural rights, such as the right to avoid self-incrimination or the right to a public trial, serve to protect criminal defendants in legal proceedings from government overreach, unjust punishments or unfair outcomes. Nonetheless, the vast majority of criminal defendants agree to plead guilty to their charges, effectively waiving many of these protections (Dervan, 2012; *Ex Parte Tuley*, 2002). Most commonly, this happens in the context of plea agreements, wherein defendants trade the right to trial in exchange for more lenient sentencing (Covey, 2007; Edkins & Dervan, 2012). Although this means foregoing the chance of being acquitted, plea bargains involve certain, and usually less severe, outcomes that may be appealing to defendants who are facing a risky trial with poor or uncertain odds of acquittal (Dervan, 2012; *Ex Parte Tuley*, 2002).

Plea bargaining in the United States dates back to the 1780s, though it was not until the latter part of the 20<sup>th</sup> century that it was officially sanctioned by the Supreme Court of the United States. In its landmark case *Brady v. United States* (1970), the Court opined that offering a discounted sentence to a defendant who was willing to plead guilty was permissible in cases with a strong likelihood of conviction, as long as the proffered leniency was not so large as to be coercive. The court saw plea bargaining as a mutually beneficial exchange whereby the defendant receives a lighter sentence, and the expedited return of a guilty plea reduces the load on already scarce court resources. Driven by a need for quicker convictions and better case management in an overloaded system, plea

bargaining rapidly became the dominant form of securing a guilty verdict in the U.S. (Dervan, 2012). By 1980 only 19% of federal criminal cases went to trial and by 2010, this number had dropped to 3% (Rakoff, 2014).

Despite its popularity, plea bargaining is not without controversy. While plea bargaining has been criticized for a host of issues (e.g., being largely unregulated, Dripp, 2015; unmerited leniency, Tor, Gazal-Ayal, & Garcia, 2010), recently much attention has been focused on its potential to be coercive, and by extension, its contribution to wrongful convictions (e.g., Bibas, 2004; Bushway, Redlich, & Norris, 2014; Covey, 2007; Dervan, 2012). Both field and lab research on false convictions and false guilty pleas reveal that innocent people do in fact plead guilty, although an estimate of the base rate of false guilty pleas has been difficult to establish (Dervan & Edkins, 2013; Russano, Meissner, Narchet, & Kassin, 2005). In two recent studies of individuals convicted by guilty plea, between 18% and 27% claimed that they were innocent (Malloy, 2016; Zottoli, Daftary-Kapur, Winters, & Hogan, 2016), and 77% of those who pleaded guilty in the now infamous Rampart, California, “mass exoneration” scandal were factually innocent (Covey, 2013). As of April 2018, there have been 404 documented exonerations in the U.S. of persons convicted by guilty plea (The National Registry of Exonerations, n.d.); “A number”, writes Professor Donald Dripp, “that grows continually” with each passing month (Dripp, 2015, p. 1360).

Scholars have identified several legal and structural factors that may exert undue pressure on defendants in the pre-trial process (Bibas, 2004; Covey, 2007; Dripp, 2015). In an examination of 466 exoneration cases between 1989 and 2011, Gazal-Ayal and Tor (2012) found that despite a “remarkable reluctance to plea bargain”, innocent defendants

are willing to acquiesce to offers of leniency, given certain circumstances: (A) when the chance of conviction is very likely or near certain, (B) when plea discounts are very steep and lenient, (C) when they are told that capital punishment would follow loss at trial, and (D) if the defendant had confessed during interrogation prior to plea negotiations (see also Kassin, Drizin, Grisso, Gudjonsson, Leo, & Redlich, 2010).

Laboratory studies largely mirror these real-world findings (Bordens, 1984; Dervan & Edkins, 2013; Edkins & Dervan, 2012; Gazal-Ayal & Tor, 2012; Gregory et al., 1978; Tor et al., 2010). While innocent mock defendants are substantially less likely to plead guilty, rates of false guilty pleas across laboratory studies range from 10% to 56% (Bordens, 1984; Dervan & Edkins, 2013; Gregory et al., 1978; Russano et al., 2005; Redlich & Shteynberg, 2016; Tor et al., 2010). In vignette studies, the rate of innocent pleas has been shown to substantially increase under certain circumstances, such as when the likelihood of conviction is high (Redlich & Shteynberg, 2016; Tor et al., 2010), when the plea sentence is sharply discounted from threatened trial penalty (Bordens, 1984), when incarceration is pitted against probation (Edkins & Dervan, 2013), and when defendants are “detained” pre-trial (Edkins & Dervan, 2018). Nonetheless, our understanding of the factors that contribute to false guilty pleas remains quite limited.

### **The psychology of plea decision making**

Perhaps the most significant contribution to our understanding of guilty plea decisions will come from psychological theories of decision making under conditions of uncertainty. The leading model of defendant decision making known as the Shadow of the Trial (or SOT; e.g. Mnookin, & Kornhauser, 1979) is based on the economic theory of expected utility and posits that a rational defendant should opt to plead guilty if the

value of a plea deal is less than the expected value of trial (i.e., probability of conviction times the expected trial penalty). For example, according to this model, a defendant facing 10 years at trial with an 80% likelihood of conviction, is expected to accept offers less than 8 years and reject offers that are longer. While this seems intuitive, psychological research makes clear that human decision making depends not only on expected utility (outcome benefits) but is influenced by a host of factors such as loss/gain framing (e.g., Prospect Theory; Kahneman & Tversky, 1979), anchoring effects (Tversky & Kahneman, 1974) and future discounting that varies over time and outcome magnitudes (Mukherje, Sahay, Pammi, & Srinivasan, 2017).

Moreover, SOT does not make different predictions for innocent or guilty defendants. This is problematic in light of research suggesting that innocent people are subject to several other biases and heuristics that may lead them to approach guilty plea decisions differently than guilty people; a tendency that has been coined as the “Innocence Effect” (Gazal-Ayal & Tor, 2012). For example, innocent defendants may suffer from an “illusion of transparency” (Gilovich, Savitsky, & Medvec, 1998), believing that their innocence will be self-evident to others, which in turn leads to overly optimistic appraisals of their odds at trial (Bibas, 2004; Gazal-Ayal & Tor, 2012; Gregory et al., 1978; Redlich, Bibas, Edkins, & Madon, 2017). As a result, some innocent defendants may unconsciously ignore base rates of conviction, believing that relative to others in their situation, a high conviction rate at trial doesn’t apply to them (Redlich et al., 2017). This over-optimism surrounding one’s chances of acquittal may reflect beliefs in a “just world”: That is, innocent people believe they will be treated fairly and found innocent because exculpatory evidence will appear at trial, with sufficient weight to

vindicate them. Additionally, innocent defendants may fall prey to the availability heuristic (Bibas, 2004). Essentially, a defendant's extensive familiarity with his or her own case and guilt status encourages recalling of evidence that fits with their beliefs about themselves (Gazal-Ayal & Tor, 2012), which may, in turn, bias their beliefs about both the strength and type of evidence likely to appear at trial. Finally, the unfairness of being targeted wrongfully may manifest in what has been referred to as an egocentric bias, or a tendency to think that one deserves better treatment (or a better plea offer) than one is currently receiving, increasing the likelihood that innocents will refuse to bargain (Bibas, 2004). These psychological factors, taken together, serve to push innocent defendants' decision making towards trials over plea bargains, even when it may not be in a defendant's best interest to do so and they would rationally be better off taking a deal.

This would imply, then, that innocent people are less likely to plead guilty (based on risk-preference alone), but of course, it is an empirical fact that innocent people do plead guilty, with some studies estimating rates of false guilty pleas that are alarmingly high (Dervan & Edkins, 2013; Edkins & Dervan, 2018). Clearly, as Gazal-Ayal and Tor (2012) assert, the *Innocence Effect* has definite limits.

Covey (2007) and Bibas (2004) point to several structural factors in the legal process that prosecutors can (and often do) leverage to increase a defendant's willingness to plead, resulting in plea deals that may become coercive enough to substantially increase the likelihood that innocents will plead guilty (Dervan, 2012; Gazal-Ayal & Tor, 2012). One such tactic, known as overcharging, is to threaten higher trial penalties to make plea offers seem especially lenient by comparison (Covey, 2007; Gazal-Ayal & Tor, 2012;

Kim, 2015). Research has shown that more charges and higher severity of charges may increase the perception by a defendant that conviction at trial is certain and the loss would be substantial (Gregory et al., 1978; Tor 2010). Despite the *Brady* court's acknowledgement that discount size could be potentially coercive for an innocent defendant, the Court has not defined exactly just how big a discrepancy would need to be before it becomes coercive. In *Bordenkircher v. Hayes* (1978) the Supreme Court upheld the constitutionality of the substantial sentencing disparity between a life sentence (at trial) and five-years in prison (in exchange for a guilty plea), ruling that enhanced trial sentences are permissible to persuade defendants to plead guilty, as long as the charges were permissible by law given the fact of the case (*Bordenkircher v. Hayes*, 1978).

The lack of clear or consistent guidelines from the courts on the acceptable sizes of plea discounts, combined with the nearly unfettered charging discretion of prosecutors, has resulted in offers of leniency that many are concerned can be coercive (Dervan, 2012; Drupp, 2015). Archival sentencing data reveal that defendants receive average discounts of 39% at the Federal level, and as high as nearly 60% in some specific cases (Kim, 2014); similar studies at the state level reveal steeper discounts still (Redlich, Yan, & Bushway, 2017; Ulmer & Bradley, 2006). Importantly, archival research compares actual plea sentences with actual trial sentences across similar cases, and as a result do not necessarily capture the *threat* of trial sentence that defendants face in the context of plea negotiations, which may be quite a bit higher. For example, interviews with individuals who pleaded guilty to felonies in NYC and were asked about the sentences they were told they could receive if convicted at trial revealed average discounts in excess of 80%

(Zottoli et al., 2016), a number that Russell Covey (2007) writes may be "...common, if not routine" (p. 227).

Overcharging may invite exploitation of the anchoring and adjustment heuristic, as initial sentences offered by the prosecution may serve as a reference point for defendants against which they judge all subsequent offers (Bibas, 2004). That is, a defendant may (unconsciously) use initial offers by the prosecution as a baseline for determining the fairness of a subsequent offer (Covey, 2007). While effective at getting guilty people to plead guilty, overcharging may also overcome innocent defendants' natural aversion to pleading guilty by making losses at trial appear too "catastrophic" to be worth the risk (Dripp, 2015). Indeed, Kim (2015) argues that that given the high discrepancies between trial and plea penalties, "...very few defendants can rationally choose to exercise their constitutional right to trial" (p. 1249).

Importantly, threat of trial penalty is only one side of the coin. A plea offer, by definition, involves a reduction (or "discount") from some threatened charge. The rate of this discount may be important on its own, or its importance may be moderated by the magnitude of the trial penalty threat. That is, the discrepancy between penalty offered in exchange for a guilty plea and the penalty threatened should the defendant lose may bear most strongly on the decision to plead guilty (Covey, 2007), and innocent defendants may be at greatest risk when deep discounts are combined with substantial overcharging (Dervan, 2012; Gregory et al., 1978; Kim, 2015). It's also possible that once a certain threshold of discount size or sentence disparity is reached, the benefits of the plea deal will always outweigh the risks associated with losing at trial, regardless of a defendant's factual guilt or innocence (Dervan & Edkins, 2013). Professor Dripp (2015) writes that

the combined use of high trial penalties and deep discounts results in guilty pleas with such sizable sentencing discrepancies, that they are “constitutionally indistinguishable” from coerced confessions. In the face of absurd trial penalties, defendants may be too afraid to invoke their rights to trial when a deeply discounted offer is an available alternative (Dripp, 2015, p. 1364).

Laboratory research on the effects of trial penalty and plea discount is nascent, and findings have been inconsistent across studies, reflecting differences in methodologies (e.g., vignette versus *in vivo*), populations studied, sizes of penalties/discounts used and context/severity of crimes. The most consistent finding, perhaps unsurprisingly, is that guilty participants plead guilty substantially more often than the innocent, and that willingness to plead guilty among guilty participants increases with increasing trial penalty and discount (Bordens, 1984; Gregory et al., 1978; Redlich & Shteynberg, 2016). These effects are less consistently reported for innocent participants, however, most studies have been successful at compelling guilty pleas from innocent participants under conditions of increasing threat of trial penalty (Bordens, 1984; Edkins & Dervan, 2013; Edkins & Dervan, 2018; Gregory et al., 1978; Redlich & Shteynberg, 2016; Russano et al., 2005; Tor et al., 2010).

While this research base is growing, researchers have yet to arrive at an answer for *how big is too big?* and significant questions remain as to the exact point at which sentencing disparities get coercive enough to influence a false guilty plea (Dervan & Edkins, 2013). Furthermore, it is also unknown if high trial penalties and steep plea discounts, particularly when combined, can become so extreme as to make innocent defendants equally, or nearly equally, likely to plead guilty as guilty defendants. It is

possible that trial penalty and discount can combine in such a way that once a certain disparity is reached, there is a sudden and “overwhelming” influence on the defendant to plead guilty (Dervan & Edkins, 2013).

### **The present study**

In the current study, I examine the effect of plea discount and sentence disparity on defendants’ plea decisions, in an attempt to establish the “breaking point” at which plea acceptance rates among innocent and guilty mock defendants begin to converge. Importantly, if sentencing differentials are driving plea acceptance rates, it will be helpful to examine whether the effects are due to the *relative* discount, the *absolute sentencing difference* or some combination of the two. As noted above, although discount rates and sentence disparities both represent changes in the size of a sentence, it is important to consider each separately, as they may evoke different psychological responses. To illustrate, consider two defendants who are offered 50% sentence reductions, one of whom is facing 20 years and the other 10. Assuming all else (e.g., conviction likelihood) is equal, it is yet unknown if these defendants would be equally likely to accept or reject their offers, despite SOT predictions that they would. To my knowledge, there has been no prior effort to examine these relationships systematically and such data have clear policy implications.

To establish if, and under what conditions, guilty and innocent plea rates will converge, I manipulated guilt status, plea discount rate, and trial penalty and examined their independent and interactive effects on plea acceptance rates.

### **Hypotheses**

I expected that guilty participants would be more likely than innocent to plead guilty overall, and that plea acceptance rates would increase with both increasing trial penalty and increasing plea discount. Based on the results of a pilot study with 489 Montclair State University undergraduate students in which I examined the effects of guilt (guilty/innocent), discount size (.2/.5/.7) and trial penalty (5/10/20/25-years) on likelihood to accept a plea offer, I also anticipated that plea discount would be the strongest predictor of plea decisions for all participants, and would potentially have a stronger effect than trial penalty. This study is designed to examine interactions between guilt and trial penalty and guilt and discount size, but, no *a priori* hypotheses as to the point at which guilty and innocent participant's plea acceptance rates will converge are proposed and post-hoc corrections will be employed for analyses of any significant interactions. I also collected data on confidence in and rationales for plea decisions, but these data will only be reported descriptively.

## **Method**

### **Participants**

The sample comprised 1,551 participants recruited through TurkPrime (Prime Research Solutions, 2018). Registration was limited to those who passed exclusion criteria. Namely, these were being at least 18 years of age or older at the time they signed up, being fluent in English, and residing in the United States. Additionally, those individuals who had previously participated in a similar guilty plea decision making study conducted by our lab were also excluded.

All participants who successfully completed the survey and passed all qualifying and attention-check questions were compensated for their time with \$1, paid through

TurkPrime. In total, 584 participants were disqualified for failing attention checks or not completing all relevant survey questions. The final sample comprised 996 participants<sup>1</sup>. The mean age was 38.8 ( $SD = 11.1$ ). Fifty percent of the sample identified as male. Seventy-nine percent of the sample identified as Caucasian, 9.5% as Black or African American, 7.42% Asian, and 3.1% other. Six percent of the sample identified as Hispanic.

### **Procedure**

All data for this study were collected through an online survey hosted by Qualtrics, Inc. (2018). Participant data was collected from January 5<sup>th</sup> through January 13<sup>th</sup>, 2018. Eligible participants were recruited through TurkPrime where they obtained a link to the online survey. The link directed participants to an informed consent page, which was followed by a short four-item demographic survey. After being told that the study entailed imagining themselves as a college student who was charged with a drug crime, participants were asked how difficult it would be for them to do so. Any participant responding “Very difficult” or “Difficult” were disqualified from the study. Qualified participants were randomly assigned to one of 12 experimental conditions.

After being assigned to a condition, participants received a short vignette, written in the 2<sup>nd</sup> person perspective, and were asked to imagine themselves as the main character in the story. Participants were asked three comprehension-check questions and then presented with a decision-making survey. When participants reached the end of the survey, they received a unique code to enter on TurkPrime to receive compensation. This

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<sup>1</sup> Based on expectations of small to moderate effects (depending upon condition & reflecting results of prior research), the planned sample size was 1200 (100 per condition). The final sample size fell somewhat short (approx. 83 per cell).

study was approved by the Montclair State University IRB on September 13, 2017 (IRB-FY17-18-723).

## **Materials**

**Demographics Survey.** Participants were asked to provide their age, sex, race, and ethnicity.

**Vignettes and Manipulations.** Each participant read a vignette in which they were cast as a defendant charged with a campus-based drug offense. Vignettes varied according to guilt of the defendant (Guilty/Innocent), the penalty faced at trial (5 years / 25 years), and the sentence discount offered by the prosecutor through a plea deal (20% / 50% / 70%). The middle Trial Penalty conditions (10 years and 20 years) were excluded from the main study for this thesis, because of the weaker observed effects in these conditions in the pilot study. This reduced the number of levels for this variable from four to two, resulting in a 2X2X3 between-subjects design for the main study. All participants were randomly assigned their guilt status, trial penalty, and discount size. To maintain external validity of trial/plea penalties, the amount of the drug found by authorities in the vignettes varied with trial/plea penalties, according to the laws of the state of New Jersey (where this study took place). This design allowed for evaluation of the relative impact of trial penalty and discount while controlling for the (certain) plea sentence.

Examples of a guilty and an innocent vignette are provided in Appendix A. The text that was altered across penalty and discount conditions is highlighted in bold font, and the sample vignettes are followed by the text manipulations for the other conditions.

**Dependent Variables.** After reading the vignette and answering comprehension questions, participants were asked to indicate whether or not they would accept the deal

or proceed to trial; this is a dichotomously scored variable. Participants were also asked to rate their confidence in their decision on a 6-point Likert-type item, ranging from Extremely Unsure to Extremely Sure. Finally, participants were asked to select from a list of possible reasons for their decision to accept or reject their deals. Available options for rationales differed slightly depending on guilt status and participant choice to accept or reject the deal. For example, the rationale “I pleaded guilty because I was guilty” was not presented to *innocent* participants who accepted their deals, and “I pleaded not guilty because I am not guilty” was not presented to the *guilty* participants who rejected their deals. Participants had the option to select “None of the above” and to provide an alternative reason. Rationales offered to participants, by condition, are presented in Appendix B.

### **Planned Analyses**

Logistic regression analyses were run to evaluate the main and interactive effects of guilt status, discount and trial penalty on plea acceptance rates, above and beyond the effect of demographic variables. Participants who did not complete the full survey (i.e., surveys with missing data) will be excluded from the analysis. Data on participant confidence and decision rationales will be presented descriptively.

## **Results**

### **Statistical Model**

Hierarchical binomial logistic regression analyses were performed to test the effects of the manipulations on plea acceptance rates, above and beyond any effects of demographic differences (i.e., sex, race, ethnicity and age). For model parsimony, the Race categories of *Asian* and *Other* were collapsed into *Other non-White* and the Gender

categories of *Other* (n=3) and *Female* were analyzed as a single category *Female*. Model assumptions regarding collinearity were confirmed by near-zero correlations among the covariates. Odds ratios and their respective confidence intervals (at 95%) are reported.

### **Demographic Predictors of Plea Decisions**

Gender and race were significantly associated with plea acceptance rates in a demographics-only model, but their overall contribution was small, Model  $\chi^2$  (5, N= 996) = 12.858,  $p$ = .025, Nagalkerke  $R^2$ =.18, and only gender remained significant after accounting for the independent variables. Specifically, females were 1.38 times more likely to accept plea deals than men, Wald  $\chi^2$ (1, N= 996) = 4.19,  $p$ = .041, CI for odds ratio: 1.1 - 1.89.

### **Guilt, Discount and Trial Penalty**

As shown in Table 1, plea acceptance rates were higher for guilty participants, and increased substantially for all participants with increasing plea discount. Plea acceptance rates were also associated with trial penalty, though contrary to expectations, overall acceptance rates were higher in the low trial penalty condition, all effects appear to be stronger for guilty than innocent participants.

*Table 1 about here*

Accordingly, adding the three IVs into the logistic regression significantly increased predictive utility of the model above the contribution of the demographic variables alone,  $\Delta\chi^2$ = 306.13;  $p$ <.001; Nagalkerke  $R^2$ = .38, yielding an overall classification rate of 76.5%. Guilty participants were 11.65 times more likely than Innocents to accept the plea deal, Wald  $\chi^2$  (1, N= 996) = 193.34,  $p$ = <.001, CI for odds ratio: 8.25-16.48. Regardless of guilt, participants in the Low Trial Penalty condition

were 1.4 times as likely to accept the plea deal, Wald  $\chi^2(1, N= 996) =9.52, p= .002$ , CI for odds ratio: 1.17 - 1.56, and relative to the lowest discount condition, participants in the 50% discount condition were 3.4 times more like to accept the deal. Interaction terms were non-significant and did not improve the model<sup>2</sup>.

*Table 2 about here*

### **Confidence in Decision**

In general, the confidence of innocent defendants who accepted their plea offers increased with increasing plea discount and was unaffected by trial penalty. The confidence of guilty participants and of innocent participants who rejected their offers were unaffected by the manipulations. The overall means for innocent defendant's confidence was 4.0, and the overall mean for guilty defendant's confidence was 4.3; resulting in a total sample mean of 4.1 across all participants. Table 2 provides the means for plea acceptors and rejecters, by experimental condition.

*Table 2 about here*

### **Rationales**

Innocent and Guilty participants differed in the rationales they selected for their plea decisions. Among individuals who accepted their plea offers, guilty participants were more likely than innocent to endorse the utilitarian rationale "To get less time" (30% of guilty acceptors; 22% of innocent); whereas, innocent participants were more

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<sup>2</sup> Although descriptive data shows a stronger effect of trial penalty for guilty participants, this interaction was not significant. and its presence in the model did not improve prediction. However, given our sample size, it is possible that the substantially skewed proportions (i.e., many more guilty participants pleaded guilty than innocent) may have limited our power to detect this effect.

likely to cite concerns about the uncertainty of trial (71% of innocent; 40% of guilty).

Similarly, among the participants who rejected their offers, guilty participants were more likely to cite facts related to their case (e.g. “less time was not enough incentive”, Guilty = 31.44%, Innocent=11.88%; “The evidence was weak”, Guilty = 27.84%, Innocent= 6.59%); while innocent participants instead emphasized their factual innocence (68%).

### **Discussion**

This study utilized vignettes to examine the impact of guilt status, trial penalty, and discount size on mock-defendants’ plea choices. All independent variables had significant main effects on acceptance decisions. Consistent with a wide body of literature (Bordens, 1984; Dervan & Edkins, 2013; Edkins & Dervan, 2012; Gregory et al., 1978; Zottoli et al., 2016), guilty participants pleaded guilty at higher rates than innocent, but, remarkably, I obtained acceptance rates of 18% among innocent participants in the 5-year/70% discount condition. As hypothesized, discount size was the driving factor in plea decisions for both innocent and guilty participants, but while trial penalty also had an effect on decisions, contrary to our expectations, the guilty plea rate was higher in the 5-year condition. In the following sections I outline the implications of these findings and how they may prove informative to current policy.

### **Discounts**

Although I did not find a point where the plea rates of innocent and guilty defendants converged, I found that the higher the discount, the more likely anyone was to plead guilty. Upping discount sizes from 20% to 50% resulted in an alarming *nine-fold* increase in the number of false guilty pleas in the five-year condition, and a *five-fold* increase in the twenty-five-year condition. Considering these effects were found in a

vignette study, it is likely that the real-world effects of discount are even stronger still; and by proxy, that the plea rates here could be a conservative underestimate. Also, although the vignettes used crimes and penalties consistent with NJ laws, most participants would be unfamiliar with the severity of sentences attached to drug crimes. They may therefore think their sentences (particularly in the high trial penalty condition) are unrealistic or unfair, despite being legally supported by Federal policy; thus further depressing the rate of guilty pleas. The Court in *Brady* deemed offers of leniency permissible in cases with strong evidence of guilt, insofar as those offers were not so lenient as to overwhelm defendants' free choice, or "substantially increase" the likelihood of false guilty pleas (Dervan, 2012, p. 87-88). Although the *Brady* court does not specify the size of a discount that would tip the scales, it seems reasonable to consider a 9-fold increase as substantial (see also Dervan, 2012, for similar comment).

This naturally leads one to the question; if discounts are so influential, how big a discount is too big to be declined by a rational defendant? The answer may depend on more variables than discount alone. Human decision making is often determined by how the outcome is framed (i.e., either as a gain or a loss relative to their current circumstances), and the expected probability for the occurrence of said outcome (Tversky & Khaneman, 1974). At least two studies have shown that plea decisions are influenced according to the chance of conviction occurring (which changes risk-preference) (Bartlett & Zottoli, 2018; Tor et al., 2010); and a recent study found that pre-trial detention can flip a plea bargain's loss-frame into a gain frame, making innocent people twice as likely to plead guilty when compared to bargaining from a position of freedom (Edkins &

Dervan, 2018). Furthermore, as I show here, the effect of discount may depend on the size of the trial penalty to which it is applied.

### **Trial Penalty**

The second hypothesis in this study predicted that an anchoring and adjustment bias would result in increased plea acceptances in the 25-year trial penalty condition relative to the 5-year. Essentially, the large initial threat of a high trial sentence would make losses more extreme and plea bargains seem fairer by comparison, increasing (as prior studies suggested) the belief by the defendant that conviction was likely (Gregory et al., 1978; Tor et al., 2010). Somewhat unexpectedly, I found the opposite to be true. The lower trial penalty condition had equal or higher rates of acceptance for both guilty and innocent participants. This resembles the findings of Bartlett & Zottoli (2018), who also discovered that lower trial penalty conditions were associated with higher rates of deal acceptance.

One possible explanation for this is that participants are more likely to plead to a sentence that they can realistically imagine or conceptualize. Defendants may not be able to imagine what life would be like past a certain number of years, or what spending a longer time (7.5 years for example) in prison might be like, as opposed to a shorter period (e.g. 2.5 years). This effect may be explained by hyperbolic discounting (Seinstra, Sellitto & Kalenscher, 2018; see also Edkins & Dervan, 2018 for a discussion of hyperbolic discounting in the context of guilty pleas). Hyperbolic discounting describes the way we subjectively assign value to potential rewards, with those that are attainable at a period closer in time being valued more highly than those farther in the future, and over a "non-constant decay rate" (Seinstra et al., 2018). In my study, the reward of freedom

necessitates one completing a period of incarceration to obtain it; and the longer it takes to get said reward/freedom, the less subjective value it may hold for the defendant. Thus, steep discounts may hold less subjective value in high penalty conditions because the delay in time to obtain the same reward (i.e., freedom) is very long, relative to the lower penalty conditions. Essentially, there is a diminishing rate of return for discount size as trial penalties become higher. To wit, the 50% discount reduces a 5-year penalty to only 2.5 years, while the same discount in the 25-year penalty would still leave the participant in incarcerated for more than a decade. By extension, it is possible that exorbitant trial penalties increase risk-seeking in defendants, particularly in the guilty, who tend to be more risk-averse on average. As penalties get higher and losses more severe, defendants will be less likely to see their deal as a “gain” relative to the punishment they would receive if they risked conviction. As a result, they may be more willing to risk a chance at freedom than take a reduced but still undesirably long sentence. Regardless, the results in this study point towards lower trial penalty cases as an area of heightened sensitivity to discounts for all defendants. Although this study examined felony convictions, misdemeanor cases are those most likely to involve smaller trial penalties. In these misdemeanor cases, a partial answer to *how big is too big* may be smaller discounts than were anticipated.

### **Guilt Status**

Finally, consistent with nearly all research on guilty pleas (e.g., Edkins & Dervan, 2018; Gazal-Ayal & Tor, 2012; Gregory et al., 1978), actual guilt proved to be the most significant predictor of deal acceptance in this study. Guilty participants were more than 11 times as likely as innocent participants to plead guilty. Nonetheless, nearly 12% of the

innocent defendants in our study pleaded guilty, and in some conditions the rate of innocent pleas reached 18%, providing further evidence that the Innocence Effect has its limits (Bibas, 2004; Gazal-Ayal & Tor, 2012). An examination of our participants' decision rationales supports this: Innocent participants who rejected deals, were overwhelmingly more likely to say they did so because they were factually innocent, whereas guilty participants cited fact-specific concerns about their case. However, when innocent defendants pleaded guilty, their rationales reflected that they were afraid to lose at trial, suggesting that the effect of the discount was able to overpower the cognitive biases behind the Innocence Effect. This is further supported by data from the confidence measure: As innocent participants faced steeper and steeper discounts, those that accepted their deals grew more confident in their decisions. Combined with the substantial increase in acceptance rates as discounts rose, the fact that innocent participants become *more* confident in their decision to plead guilty further affirms that even the innocent are not altogether immune to the lure of a steep discount. As research continues to find ways in which innocent and guilty defendants differ from one another, newer models may be needed in order to better account for the differences in the ways these defendants approach their decisions and think about their cases.

### **Implications**

The main findings of this study point to discounts as significant drivers of plea deal acceptance, second only to guilt status. Importantly, even innocent defendants were not immune to high discounts and showed considerable hikes in plea acceptance as discounts got more lenient. Thus, a prosecutor's ability to overcharge defendants to enable use of higher and more lenient discount sizes during plea negotiations may be a

coercive tactic. Lower trial penalties also had a significant impact on acceptance, with lower levels increasing acceptance rates. Given this study's finding on the strong influence of discounts in producing guilty pleas, and replicating Bartlett & Zottoli's (2017) findings on lower penalties increasing acceptance, this naturally leads to the question: How voluntary are the pleas being entered by defendants who are faced with such conditions? The significance of these findings cannot be overstated. If we are to reduce the number of false guilty pleas occurring- and involuntary pleas for defendants in general- it is most important to examine discount size restrictions in misdemeanor cases, where both conditions are most frequently present. The lower threatened penalties in misdemeanor cases may exacerbate the effects of discounting, and the dual combination of low-penalty/high-discount may put innocent defendants at increased risk of pleading guilty. Public policy should take into account defendant's higher sensitivity to discount in lower trial penalty cases and the potential for involuntary pleas that this creates.

### **Study Limitations**

Several limitations exist in the current study (e.g., our sample was not drawn from a population of individuals who are involved in the criminal justice system), but, by far the most important limitation is the study's use of vignette. Vignette studies sacrifice external validity in order to maximize internal validity and control over the independent variables of interest. The choices that participants made in our vignettes will vary in real life due to confounding variables both realistically and ethically beyond our control in the laboratory, such as the drawn-out nature of legal proceedings, the stress of being indicted and facing real jail/prison time, having to pay for lawyers, missing work or other obligations to attend trial and legal proceedings, and so forth. Stress alone is a significant

variable in decision making that limits attention to fewer cues and narrows one's consideration of possible outcomes (Galván & Rahdar, 2013). Relying on participant's ability to imagine the situation cannot match a paradigm that replicates the scenario in some fashion (see Russano, Meissner, Narchet, & Kassin, 2005). An additional threat to study validity was a lack of exclusion criteria based on completion time and relying on attention-check questions to catch non-effortful responses. By not eliminating responses that were much faster than the sample average or the expected completion time I was able to analyze all of our completed response data, but respondents seeking to finish the study quickly without fully considering the questions therein may have altered results.

### **Future Directions**

The central aim of this study was to discover if it is discount sizes, trial penalties, or the combined effects of both that are driving the acceptance of plea bargains. Future studies will seek to replicate and expand on the results here in several key areas, including: (a) how different developmental stages moderate the observed effects, (b) how cognitive processing style (e.g., Fuzzy Trace Theory; Brainerd & Reyna, 1990; Corbin, Reyna, Weldon, & Brainerd, 2015) may affect how participants make comparative evaluations of sentences pre-trial, (c) how discount effects are moderated by strength of evidence and beliefs about conviction likelihood, (d) how defendants estimate their odds to win at trial and how this affects plea acceptance rates, and (e) how vignette studies might be improved (e.g., use of crime types that more realistically supports the high trial penalty condition).

While I did not find a condition wherein innocent and guilty plea acceptance rates converged, the development of experimental conditions that better reflect the factors that

are most salient to defendants in the plea negotiation process may help us hone in on the conditions that put innocent defendants at greatest risk. An important consideration to be explored in future studies is how the specific sizes of plea sentence outcomes and sentencing differentials are affecting plea acceptance rates. Extant literature suggests that as the size of sentencing disparities created by discounts grows larger and the gap widens between the plea bargain and trial penalty, plea acceptance will rise (Dervan & Edkins, 2013). However, it is still unknown how defendants are comparing their sentences and from where the discounts in our study drew their power: is it the absolute number of years that is saved by pleading (or conversely, served by pleading) or the meaning attached to the discount irrespective of the absolute sentence reduction in years. For instance, a thought based on the former could look like “I will **spend 5 years** in prison if I plead, as opposed to losing 10 if convicted.” A thought considering only the meaning behind the discount however may look like “I will spend **half as much time** in prison if I plead”. Future studies should explore what happens to rates of acceptance with pleas of the same magnitude (e.g. 5 years in prison) as it changes from “half as much time” relative to the trial penalty, to “a little less” or “substantially less” time. On the flip side of the same coin, the absolute differences between sentence *reductions* should be examined in the same manner; in other words, does a plea deal that is 3.5 years less than the trial sentence produce a similar rate of acceptance to a deal that is 5 years less than the trial sentence, regardless of initial trial penalty size? Given that I reported increased plea acceptance in lower trial penalty conditions, I suspect it will be the floor (that is, the value of the plea sentence) that will drive decisions, but to date, no study has systematically tested these relationships. No such comparisons could be made in the

current study, as only one condition enabled a comparison of like-reductions in years-off trial penalty and no conditions resulted in equivalent plea sentences. The weight that participants place on one or the other has important implications for the influence of discount and discrepancy sizes, and consequently, where the more coercive deals might be encountered.

Theories on cognitive processing style might be useful in helping us study these effects. For example, Fuzzy Trace Theory (Brainerd & Reyna, 1990) postulates that people encode and process information in two primary ways: the first (typically found in younger populations) is a more literal, *verbatim* encoding of exact details, while the second way (typically found in more developmentally advanced populations) focuses only on the underlying *gist* meaning of a situation. Relying on this theoretical backdrop, I may be able to experimentally shift defendants' focus away from discounts (the "half as much" type-thought that makes one sentence relative to another) and instead focus on the total amount in years; this may invert our finding that lower trial penalty conditions elicit more pleas by giving more power to the higher disparity window only possible in higher trial penalty conditions (e.g. 70% off of 25= 17.5 year difference; 70% off of 5= 3.5 year difference). Helm and colleagues recently did something similar, and found that offering categorically different sentences (i.e. a misdemeanor vs. a felony charge) increased willingness to plead guilty among participants relying on gist-processing (Helm & Reyna, 2017). While they did not find a difference in pleading preference due to a sentencing differential, they note this may have been because of their comparatively small disparity; and they go on to suggest that larger, "non-trivial" sentencing differentials (such as in the

present study) may produce stronger, categorical distinctions between sentences, and thus raise likelihood to plead guilty (Helm & Renya, 2017, p. 10).

### Conclusion

In *Brady* the Supreme Court opined that should plea bargains become powerful enough to influence innocent defendants to plead guilty, plea bargaining's constitutionality should be questioned. Today, research is clear in that innocent people *do* plead guilty, and that there are a host of psychological and structural-legal factors that may be to blame (Covey, 2007; Bibas, 2004; Tor et al., 2010). This study found that, as scholars have warned, the size of plea discounts is a powerful contributor to plea acceptance, carrying the ability to markedly increase willingness to plead guilty among both the guilty and the innocent. Steep discounts created substantial increases in plea acceptance, with nearly a fifth of innocents in high discount conditions willing to plead guilty. Moreover, as discounts rose, innocent participants who accepted their deals got more confident that they were making the right choice. Lower trial penalties exacerbated these effects, suggesting that the innocent are most at risk of pleading guilty in misdemeanor cases where lower penalties are routine and discounts may be higher. The assumption by the Court in *Bordenkircher* that rational defendants would not falsely condemn themselves does not seem to hold: When a strong resistance to bargaining can be flipped into confident acceptance, it may be time to admit the "*Brady* safety-valve" (Dervan, 2012) has failed and we need to reexamine the permissible sizes of discounts and penalties that are wielded against defendants.

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## Appendix A

*Innocent / High Trial Penalty / High Discount condition*

You are a senior in college and you live in a dorm room on campus. Your roommate has ADHD and takes a medication called Adderall. **Three weeks ago you told an acquaintance that he could probably talk to your roommate about how to get a prescription for Adderall.**

What you did not know, is that your roommate had actually been selling Adderall on campus for the past year.

A week later you lost your job and your roommate told you about his drug operation. He said he would cut you in if you referred buyers to him.

**You said “Absolutely not.”**

Last week, after receiving a tip from an informant, officers raided your dorm room and found **five filled prescription bottles of Adderall (about 175 pills).**

You and your roommate were both arrested.

Your acquaintance will testify in court that you told him he could buy Adderall from your roommate.

You **explained** to the officers that you did tell your acquaintance that he **could talk to** your roommate about how he could get a prescription for the drug, but **you did not know at the time that your roommate was a dealer.**

The prosecutor, who has been cracking down hard on campus drug cases, has brought charges against you and your roommate. You are charged as an accomplice. **You know that you are innocent**, but you are worried about the evidence against you.

The judge has released you on bail and you are at home awaiting trial. If convicted, you will receive **25 years** in prison. Your attorney has told you that in his experience and based on the evidence the police have, cases like yours end in guilty verdicts about 75% of the time. In other words, 7.5 out of ten times, defendants in your position are found guilty at trial and go to prison **for 25 years.**

Your attorney told you that the prosecutor is unwilling to reduce your charges, but has offered you the following plea deal: If you plead guilty to the charges against you, you will go to prison for **only 7 years and 6 months.**

*Guilty / High Trial Penalty / High Discount condition*

You are a senior in college and you live in a dorm room on campus. Your roommate has ADHD and takes a medication called Adderall.

What you did not know, is that your roommate had actually been selling Adderall on campus for the past year.

A week later you lost your job and your roommate told you about his drug operation. He said he would cut you in if you referred buyers to him.

You agreed, and subsequently told an acquaintance that he could probably talk to your roommate about how to get a prescription for Adderall.

Last week, after receiving a tip from an informant, officers raided your dorm room and found **five filled prescription bottles of Adderall (about 175 pills)**.

You and your roommate were both arrested.

Your acquaintance will testify in court that you told him he could buy Adderall from your roommate.

You admitted to the officers that you did tell your acquaintance that he could talk to your roommate about how he could get a prescription for the drug, but that you didn't exactly say that your roommate was a dealer.

The prosecutor, who has been cracking down hard on campus drug cases, has brought charges against you and your roommate. You are charged as an accomplice. You know that you are guilty, but you are worried about the evidence against you.

The judge has released you on bail and you are at home awaiting trial. If convicted, you will receive **25 years** in prison. Your attorney has told you that in his experience and based on the evidence the police have, cases like yours end in guilty verdicts about 75% of the time. In other words, 7.5 out of ten times, defendants in your position are found guilty at trial and go to prison **for 25 years**.

Your attorney told you that the prosecutor is unwilling to reduce your charges, but has offered you the following plea deal: If you plead guilty to the charges against you, you will go to prison for **only 7 years and 6 months**.

***Penalty and Discount Manipulations<sup>3</sup>:***

*Discount—Low.* In the low condition, participants were offered a plea deal that was 20% lower than their original sentence.

*Discount—Medium.* In the medium condition, participants were offered a plea deal that was 50% lower than their original sentence.

*Discount—High.* In the high condition, participants were offered a plea deal that was 70% lower than their original sentence.

*Trial Penalty—Low.* "If convicted, you will receive 5 years in prison".

*Trial Penalty—High.* Participants in the high trial penalty condition are told that "If convicted, you will receive 25 years in prison".

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<sup>3</sup> Drug quantities varied from 5 to 175 pills, depending on penalty conditions, as allowed by law.

## Appendix B

**Options offered to participants in the guilty condition who accepted offers**

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To get less time  
The evidence was strong  
I was afraid to lose at trial  
I didn't like the uncertainty associated with going to trial  
I knew I would lose at trial  
I deserve the punishment  
I felt guilty for the crime  
Almost everyone gets convicted at trial  
I am guilty  
Other/None of the above

---

**Options offered to participants in the guilty condition who rejected offers**

---

I pleaded not guilty because less time was not enough incentive  
I pleaded not guilty because the evidence was weak  
I pleaded not guilty because I was not afraid of losing at trial  
I don't mind the uncertainty associated with going to trial  
I knew I would win at trial  
I do not deserve the punishment  
I did not feel guilty for the crime  
Almost everyone is found innocent at trial  
Other/None of the above

---

**Options offered to participants in the innocent condition who accepted offers**

---

To get less time  
The evidence was strong  
I was afraid to lose at trial  
I didn't like the uncertainty associated with going to trial  
I knew I would lose at trial  
I deserve the punishment  
I felt guilty for the crime  
Almost everyone gets convicted at trial  
Other/None of the above

---

**Options offered to participants in the innocent condition who rejected offers**

---

I pleaded not guilty because I am not guilty

I pleaded not guilty because less time was not enough incentive

I pleaded not guilty because the evidence was weak

I pleaded not guilty because I was not afraid of losing at trial

I don't mind the uncertainty associated with going to trial

I knew I would win at trial

I do not deserve the punishment

I did not feel guilty for the crime

Almost everyone is found innocent at trial

Other/None of the above

---

**Table 1a.** Logistic regression analysis examining the predictive utility of demographics, Trial Penalty, Discount, and Guilt for the prediction of plea acceptance

Variable	Wald $\chi^2$	Sig.	Exp (B)	95% Confidence interval	
				Lower	Upper
Step 1: $\chi^2= 12.473$ , $\Delta\chi^2= 12.473$ , $p < .005$ , Nagelkerke $R^2=.018$					
Sex (Female)	7.18	.007	1.44	1.10	1.87
Race (White)	6.6	.037			
Race (Black)	.75	.386	.86	.51	1.3
Race (Other)	5.33	.021	1.63	1.08	2.46
Step 2: $\chi^2= 318.873$ , $\Delta\chi^2= 306.131$ , $p < .000$ , Nagelkerke $R^2= .379$					
Sex (Female)	4.19	.014	1.39	1.01	1.9
Race (White)	5.26	.072			
Race (Black)	.30	.581	.86	.498	1.48
Race (Other)	4.63	.031	1.74	1.01	1.90
Discount (20%)	55.01	<.001			
Discount (50%)	34.95	<.001	3.4	2.27	5.11
Discount (70%)	50.63	<.001	4.3	2.9	6.51
Trial Penalty (25 years)	9.52	.002	.61	.44	.83
Guilt Status (Innocent)	193.3	<.001	11.66	8.25	16.48

*Note.* Step  $\chi^2$  reflects change from constant-only model; Rows with missing values indicate the comparison group against which the other variables were judged; Only significant predictors from demographics-only model were included in Step 1. All significance tests were two-tailed.

**Table 1b.** Rates of Plea Acceptance Among Innocent and Guilty Participants by Trial Penalty and Discount

	Five Years			Twenty-Five Years			Total
	20%	50%	70%	20%	50%	70%	
Innocent	2.40%	18.30%	18.20%	2.50%	10.10%	17.90%	11.7%
Guilty	47.70%	65.10%	75.90%	24.30%	61.90%	59.80%	56.8%

*Note.* Percentages indicate the total participants in each condition that accepted the deal offered to them.

**Table 2.** Means of participant's confidence by condition.

	Guilty		Innocent	
	REJECT	ACCEPT	REJECT	ACCEPT
5 years				
20%	4.2	4.5	4.8	3.0
50%	3.6	4.3	4.6	3.3
70%	4.4	4.4	4.8	4.4
25 years				
20%	4.7	4.5	5.3	2.0
50%	4.1	4.0	4.5	3.4
70%	4.1	4.4	4.3	3.9

*Note.* Ratings are from 1 to 6 on a Likert-type item, ranging from Extremely unsure (1) to Extremely sure (6)