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The Effect of Plea Bargaining Vs. Trial Conviction on the Sentencing of Offenders Charged with a Drug Offense in Cook County, Illinois

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THE EFFECT OF PLEA BARGAINING VS. TRIAL CONVICTION ON THE SENTENCING OF OFFENDERS CHARGED WITH A DRUG OFFENSE IN COOK COUNTY, ILLINOIS

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To my parents, Joe and Georgeann Dusek

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ABSTRACT

Traditional wisdom suggests those who lose at trial for a criminal charge receive a heftier prison sentence than those who plea bargain. Plea bargaining reduces strain on the courts, expedites adjudication and may indicate the defendant's propensity for rehabilitation as they accept responsibility for their actions. Some ask why two people charged with the same crime should receive different sentences based on the adjudication method. The Constitution guarantees the right to a jury trial. Innocent defendants may decide to plead guilty for a sure short sentence rather than risk a trial conviction's lengthier one. This study using statistical procedures examined 12,786 adjudicated drug crime cases between 2004 and 2007 from the Cook County Circuit Court in Illinois. It sought to determine if adjudication method, plea bargain vs. trial conviction, predicted prison sentence while controlling for independent variables such as ethnicity, gender, statute violated, offense seriousness, quantity and interaction effects.

CHAPTER 1

INTRODUCTION

For years, criminal justice experts have debated the existence of a *trial tax* with regards to sentencing. Many believe that in the case of two defendants charged with the same offense, all other conditions being equal, if one pleads guilty and the other goes to trial and is found guilty, the latter will receive a stiffer sentence than the former. Ulmer and Bradley (2006) define trial tax as occurring when, ". . . defendants are substantially penalized if they exercise their right to a jury trial and then lose." Bogira (2005) defines trial tax as, ". . . the extra punishment a defendant may face merely by virtue of exercising his right to trial."

The term trial tax has even found its way into official court publications. Illinois appellate courts have acknowledged its existence. The Alabama Sentencing Commission has debated its constitutionality. Bogira (2005) claims the use of trial tax for means of judicial efficiency declaring, "A guilty plea can be wrapped up in approximately 20 minutes, where a jury trial usually takes anywhere from two days to a week."

Does the trial tax actually exist? Controlling for other factors, are defendants who plead guilty more likely to receive leniency than those who go to trial? Among offenders who plead guilty or go to trial for a drug offense, does a disparity exist in their sentences? Assuming we find a disparity, does it remain if we control for other variables such as specific crimes, offense severity, ethnicity or gender?

This study will examine adjudication data from the Circuit Court of Cook County. The arrest, charge and disposition records of almost 13,000 defendants adjudicated for drug related offenses will be analyzed. Statistical analyses will be run to check for differences between groups based on the above noted variables.

The results of this dissertation may be used for policy development related to the alleged penalization of the constitutional right to a jury trial. It may also serve as the foundation for a future, more encompassing study of the same topic – perhaps Illinois wide or including other states. This project will be performed in conjunction with and receive assistance from the Institute for Metropolitan Affairs, a public policy institute operating within Roosevelt University.

CHAPTER 2

LITERATURE REVIEW

The primary issue for this research relates to whether a trial tax exists, or not. Anecdotal evidence supports the notion that, everything else being equal, those who plead guilty for crime *x* will receive a lighter sentence than those who got to trial and are then convicted of crime *x*, hence the term trial tax. The defendant is enticed to accept the pact – plead guilty and receive a great bargain, hence, plea bargain. However, if the criminally charged all have a constitutional right to trial why should they be penalized for exercising that right versus accepting a plea bargain? This dissertation will examine the difference, if any, between convicts who went to trial to those who plea bargained. The importance of this dissertation lies with the question of disparity in sentencing between trial and plea bargain convicts. If no inequality is found, the concerns over the use of a trial tax disappear. If those who plea bargain receive a statistically significant lesser sentence, however, then innocents may be far more likely to plead guilty to avoid a lengthy prison term. Plea bargaining becomes a way of trading the risk of a ten year sentence for the certainty of three to five, regardless of guilt. We will see the *risk-reduction* theme run throughout this literature review.

The oldest recorded use of a form of plea bargaining involves Galileo, the 15th century Italian astronomer. In 1633, he avoided death via the Inquisition by pleading

guilty to supporting Copernicus' heliocentric theory and agreeing to publicly deny said theory. The judges gave him house arrest and he agreed to recite weekly, penitent psalms, which was a better deal than being burned alive. While far removed from modern American courts, we see the seeds of the notion that pleading guilty upfront results in a lighter punishment.

The U.S. Supreme Court declared plea bargaining to be a legitimate legal tool via two landmark cases, Brady vs. United States and Santobello vs. United States. In Brady, the Court noted that a plea helped hold down costs and expedited the judicial docket. In the same case it declared that defendants were entitled to "limiting the probable penalty" by pleading guilty. In Santobello, the Court asserted this acceptance of responsibility indicated a better chance for rehabilitation and should therefore be encouraged. However, there is no research cited in the case supporting this conclusion. Neither case, however, discussed the constitutional propriety of how large the disparity in sentences may be, using plea bargains when the prosecution's case was weak or "bargaining down" to a lesser charge. In a sweeping 1969 decision, Boykin vs. Alabama, the Court declared that Constitutional right to a jury trial may be waived only if the defendant voluntarily accepted said plea bargain. Boykin, represented by a public defender, never formally, with his own words, accepted a plea bargain for the five robbery charges against him. He and his attorney remained silent while the prosecution presented the plea. The trial judge simply entered the plea without asking Boykin if he understood and accepted it. The Court reversed the conviction even though Boykin's attorney did not object to the plea.

Bargaining "down" came into being as a result of sentence guidelines and mandatory minimums. According to Kinsley (2002) with sentencing discretion limited or

removed entirely by the mandatory minimums, prosecutors found it necessary to allow defendants to plea to a lesser charge in order to get the lesser sentence. He notes that many have argued that when a guilty person plea bargains to a lesser charge, it permits the defendant to escape the legal consequences of their crimes. If they go to trial and are convicted, they will be sentenced according the actual crime committed, not a less serious offence. The flip-side of this action is those charged, but innocent, may plead guilty simply to avoid the continued trauma associated with a criminal charge or to avoid or limit a prison term.

We must study plea bargains because of their extensive use and potential for abuse. Kinsley (2002) reports that 95% of all criminal cases in the United States are settled by plea bargain.

> And when, as part of a plea bargain, innocent people confess to a crime they did not commit, that isn't a breakdown of the system. It is the system working exactly as it is supposed to. If you're the suspect, sometimes this means agreeing with the prosecutor that you will confess to jaywalking when you're really guilty of armed robbery.

Fisher (2003) quotes University of Chicago law professor Albert Alschuler as declaring the rate to be around 90%. The King (2005) study, discussed in this review, places the figure at around 98%. While precise figures are not available, legal experts agree that the vast majority of criminal cases are settled by the use of plea bargaining.

Per Fisher (2003), the earliest use of plea bargains in the United States is found in the late 18th century, Middlesex County, Massachusetts. He found strikingly similar elements to what we hear today – overburdened and underfunded courts, lack of judicial and law enforcement resources, and those with a sufficient “purse” being able to hire the best lawyers. In addition, these early plea bargains came from criminal charges against

victimless crimes such as selling or drinking alcohol. "The Middlesex County prosecutor devised a system whereby multiple charges for selling liquor without a license would be dropped to one charge, to which defendants would plead nollo contendere [no contest] and be sentenced to a pre-determined fine and court costs." Critics of the modern war on drugs would no doubt sympathize with their 18th century counterpart critics.

Fisher (2003) claims that by 1900 the criticism of what we today call a trial tax had taken root as the severity of a trial sentence ranged from twice to three times as long as those handed down after a plea bargain for the same crime. Does the trial tax exist? If so, does this disparity affect one group, such as ethnicity or gender, more than another? What types of formal research have been conducted to date?

Langer (2006) dealt solely with the improper use of plea bargains by prosecutors in terms of violating jurisdictional penal codes covering plea bargain rules and procedures. Langer performed qualitative, document analysis research by studying landmark cases, state and federal, in which Constitutional issues of lack of due process, as it relates to prosecutorial discretion, was the dominant if not sole ground for the case. He categorized the rights violations into four groups: Right to a Hearing and Knowing the Evidence, Proof Beyond a Reasonable Doubt, Right Against Self-incrimination and the Right to an Impartial Adjudicator.

Langer (2006) coined terms for two primary categories of defendants being denied due process via a prosecutor's authority. He refers to the "de facto unilateral adjudication" in which prosecutors, effectively, solely decide guilt or innocence via coercive plea proposals. As prosecutors decide charges, and in effect sentences if found guilty, the sentence differential often leaves the accused with no reasonable choice other

than to accept guilt. In addition, he describes what he labeled "de facto bilateral adjudication" where both prosecution and defense sidestep the courts to adjudicate by mutual consent. Langer argues that the former violates our fundamental due process rights guaranteed by the Constitution. However, as previously noted, the U.S. Supreme Court sanctioned the waiving of Constitutional rights via Boykin vs. Alabama, if the accused voluntarily accepts the plea bargain.

By threatening to take cases to trial where no reasonable jury would find guilt or charging defendants (guilty or not) with crimes that do not reflect the incident in question, prosecutors have created what Langer (2006) calls the informal prosecutorial adjudication system. The quintessential example remains sexual assault versus assault. A prosecutor has virtually no case against a defendant charged with rape. He offers to reduce the charge to assault with a sentence of probation if the accused pleads guilty. Granted, prosecutors cannot force a defendant to accept said plea bargain but this does not change the adjudicatory nature of this arrangement. Once again, however, the U.S. Supreme Court has authorized the process by the case Brady vs. United States, actually stating that defendants were entitled to "limit the probable penalty." Regardless, this unchecked power of prosecutors, Langer asserts, has led to uncountable numbers of coercive plea bargains.

Bibas (2004) examined the outcomes of plea bargaining in civil litigation and found results similar to Langer (2006). We see again this notion of hedging a bet with regards to a result. The defendant may truly owe $100,000 but the plaintiff, unwilling to risk a zero dollar judgment, accepts the $50,000. Conversely, the defendant may owe nothing, but, fearing a large judgment, agrees to pay the smaller amount. Similar to

Langer's concerns over defacto bilateral adjudication, effectively, the attorneys decide the outcome without input from the judge or jury.

Bibas (2004) provides a study filled with both actual and hypothetical cases for illustration. Typical examples include a plaintiff claiming $100,000 in damages with a jury only 50% likely to find the defendant negligent. Both parties should therefore settle for $50,000. Similar to Langer (2006), Bibas used document analysis by reviewing high profile civil cases across the United States for his material. He also interviewed attorneys from each side, plaintiff and defendant, asking non-case-specific questions about the process and how the parties ultimately settled.

This study proved an interesting contrast to the criminal case related research addressed elsewhere. Bibas (2004) makes little mention of Constitutional rights, loss of liberty or coercion by prosecutors. While he does note similarities between criminal plea bargains and settling tort cases, he spends most of the research considering the similarity between the self-correcting market place and logic behind plea agreements similar to the above mentioned example. While he reviews bargaining for the best financial bargain, the other studies dealt with bargaining over someone's liberty.

Bibas (2004) notes the similarities, such as plea bargaining being hidden from public view, to the criminal court's use of plea bargains. Be it neighbors feuding over a damaged lawn or a multi-billion dollar tort claim, as the discussion and settlement occurs outside of the courtroom the public will never know what transpired. Unlike a criminal case, however, they will not even know the outcome. In criminal cases, the sentence becomes public record regardless of the adjudication method. In a civil case settled outside of court, only each party knows the outcome. Another difference is that there are

no public defenders in the civil arena. An indigent criminal defendant may receive a defense attorney, paid a straight salary, to represent 10 or 100 clients. Clearly that attorney has personal incentive to plea bargain. That scenario would not exist in a tort claim where counsel is paid via a retainer or even a percentage of recovered funds.

Finkelstein (1975) found evidence of another unanticipated cost of plea bargaining, the "implicit rate of non-conviction" – the proportion of defendants pleading guilty who, in all probability, would have not been convicted in a trial. The researcher determined this unobservable variable by creating a conviction probability. If there exists two federal districts with the prosecutors from one always seeking maximum sentences and the other not doing so, logically, defendants in the first district are more likely to plea bargain than those in the second. If every defendant pleading guilty would have been convicted at trial, it stands to reason that, over time, the proportion of acquittals between the two districts would be relatively equal. If, however, the first district sees substantially fewer acquittals than the second, undoubtedly, some of the plea bargaining defendants in the first district would not have been convicted if they had gone to trial. The study tested for a statistically significant correlation between the percentage of plea bargains and acquittal probabilities.

The author says little about where he obtained the records or how he coded them. He does note that the data came from the Annual Reports of the Attorney General. Beyond that he notes two limitations to the study. First, he did not control for the variety of criminal cases per district. If one district's docket saw a disproportionate amount of a particular type of crime, that may skew the results. In addition, presumably those districts more apt to plea bargain, focused their resources on trials and were more likely

to obtain a conviction because they had the time and money to properly litigate. His study dealt only with federal cases – the situation may be different in state criminal courts.

Using the Annual Reports of the Attorney General from the twenty-nine federal district courts, Finkelstein (1975) found a statistically significant, strong negative correlation between the percentage of non-convictions (the defendant would probably have been acquitted if they went to trial) to the percentage of guilty pleas. It should be noted that the data in each district was analyzed in the aggregate to provide for a larger sample and greater stability. The data points do not make a perfect line. This could be interpreted as indicating that the non-conviction rate is influenced by variables other than plea bargain rates. However, the correlation equaled -0.849. Using the least squares technique produced a -0.691 slope indicating a non-conviction rate of about 69%. Finkelstein calls this evidence that, ". . . pressures to plead guilty have been used to secure convictions that could not otherwise be obtained." (Finkelstein, p. 309)

Finkelstein (1975) comments on Boykin vs. Alabama, where the U.S. Supreme Court said a defendant may waive his right to a jury trial only if it is done so voluntarily. He notes that while the Court approved this practice, it did so, ". . . only on the assumption that defendants who were convicted on the basis of negotiated pleas of guilt would have been convicted had they elected to stand trial." (Finkelstein, p. 293) The above data seems to refute that point. Finkelstein goes on to note the temptation defendants, undoubtedly some innocent, must feel to accept a plea – again, we see evidence of bet hedging. The accused accepts a lower sentence in exchange for avoiding a possible, long sentence. He notes, ". . . prosecutors may be using threats of lengthy

sentences and other plea inducing practices to obtain convictions in case in which the government's evidence is quite insubstantial." (Finkelstein, p. 293)

Moreover, Finkelstein (1975) argues that, what Langer (2006) would call unilateral defacto adjudication, that is, the prosecutor coercing a plea bargain, negates Boykin vs. Alabama in that, ". . . when strong pressure is necessary to compel a confession in a weak case, the prosecutor's zeal to obtain a conviction by "consent" begins to collide with the defendant's privilege against self-incrimination." (Finkelstein, p. 294) Finkelstein also agrees with Langer's assessment in that, "It appears that informal, and less visible, administrative practices have been used to induce convictions by "consent" in a significant number of cases in which the protections of the formal system would have precluded a condemnation." (Finkelstein, p. 311)

The Finkelstein data analysis for the 1908 to 1928 period found a statistically significant correlation of -0.812. The correlation value is similar to the 1970 – 1974 dataset, but, the slope of the least squares line equaled -0.265 meaning that the non-conviction rate equaled about 26.5%. This slope is only 38% of the value of the first dataset indicating that while plea bargains resulted in the conviction of those who may otherwise have been acquitted, the impact was not as great for that time frame. The 1954 – 1974 dataset revealed a striking correlation of -0.977 with a slope of least squares equal to -0.791 which is higher than the percentage for 1970 – 1974.

It should be noted that Finkelstein (1975) does agree with a comment from Brady vs. United States with regards to plea bargains expediting the court docket and saving funds. He wrote, "If insistence on a trial cost nothing, presumably few of the accused

would plead guilty and forgo the chance for a dismissal or acquittal." (Finkelstein, p. 293)

The Finkelstein (1975) study offers compelling evidence that many who plead guilty may actually have been acquitted at trial. Of course, acquittal does not mean they are innocent. Perhaps the guilty received a deserved conviction; perhaps some innocent people bent to the pressure of a prosecutor. The next step would be to determine if a disparity truly exists for sentencing of plea bargained defendants and those who go to trial.

Ulmer and Bradley (2006) focus on violent crimes and the practice of plea bargaining. They did this because violent crime charges are more than twice as likely to go to trial, roughly 7%, versus 3% overall, in Pennsylvania. As previously noted by Fisher (2003), King (2005) and Kinsley (2002), the vast majority of charges are settled by plea bargains.

Using data from 1997 to 2000 from the Pennsylvania Commission on Sentencing (PCS), their study tested eight hypotheses, two of which mirrored the research in this dissertation. One hypothesis declared, "Among convicted defendants, those convicted by jury trial will be sentenced more severely than those convicted by guilty plea" (Ulmer & Bradley, 2006, p. 637). Another sought to test whether or not, "The jury trial penalty . . . will be significantly greater among those with more extensive prior criminal records" (Ulmer & Bradley, p. 639). The other hypotheses dealt with influence of course caseloads on plea bargaining and issues related to violent crimes, neither of which will play a part in this research.

Ulmer & Bradley (2006) used *sentence length* as the dependent variable, coded as probation or incarceration with the number of months and *offense severity*, *prior record*, *plea bargain* and *trial* (bench or jury) as the independent variables. Their large dataset of n = 8,585 allowed for the employment of Hierarchical Linear Modeling (HLM) to create predictor models and search for group variations using separate but interrelated units of analysis. Level 1, individual case / defendant, characteristics were nested and could interact with Level 2, county courts, individual and cross-county (statewide) outcomes, that is, the sentence length.

The authors admitted several limitations to their study, such as not measuring variables such as the socio-economic status of the subjects, whether they had public or private defense attorneys, victim characteristics (assuming harsher sentences if a child, female or elderly person fell target) or pretrial release status. Ulmer and Bradley (2006) noted that individuals held in jail, awaiting adjudication, often did not serve prison time. That is, if someone cannot afford or does not receive bail and they remain in jail for a significant period of time, if they would have received a sentence of *X* months, the judge could simply release them with time served. While that time would count towards the sentence if the defendant were sentenced to additional time, it does not appear in the Pennsylvania Commission on Sentencing dataset as incarceration time. Obviously, the fact that they studied data from only one state limits the results.

The results of this study support the existence of a trial tax. Ulmer and Bradley (2006) found that, ". . . the odds of incarceration following a bench trial are roughly 2.2 times the odds for guilty plea, while a jury trial conviction has roughly 2.7 times the incarceration odds of a guilty plea" (Ulmer & Bradley, p. 650). They concluded that,

"Overall, then, conviction by trial, especially jury trial, carries a meaningful additional sentencing penalty . . ." (Ulmer & Bradley, p. 650).

The results of this study do support the hypothesis that criminal history plays a role in the sentence depending on whether or not the defendant pleas or goes to trial; however, not in the correlation one might expect. Ulmer and Bradley (2006) determined that, ". . . the jury trial penalty decreases as the prior record score of the defendant increases" (Ulmer & Bradley, p. 653). The authors ran separate HLM models to compare jury trial sentencing results for subjects with high criminal record scores to those with low criminal record scores. The authors found that the difference between having many prior convictions and going to trial or not was not statistically significant in terms of the odds of incarceration. However, subjects with low criminal record scores had 3.5 times the probability of incarceration if they had chosen a trial vs. plea bargain. Oddly, the jury trial tax seemed heavier for subjects with less criminal histories than those with an extensive record.

Agreeing with Finkelstein (1975) and Brady vs. United States, the authors note that, "Most researchers argue that rewarding those who plead guilty and penalizing those who lose at trial reflects the need for efficiency in case processing." (Ulmer & Bradley, 2006, p. 635) However, unlike Finkelstein, the authors offer support for this scenario in that, "Rewarding those who plead guilty with lighter sentences is widely seen as necessary to encourage defendants' 'remorse,' 'acceptance of responsibility' for crimes . . . losing [at trial] may signal a defendant's lack of remorse, and therefore greater blameworthiness, to judges." (Ulmer & Bradley, p. 636) Similar to Santobello vs. United

States, accepting responsibility may be evidence of a better chance of rehabilitation, thus, the lighter sentence.

Johnson (2003) used the Pennsylvania Commission on Sentencing (PCS) data to focus on departures from sentencing guidelines, not the complete sentence itself, and then looked for differences between groups, depending on the type of conviction. A departure, in criminal sentencing terminology, refers to an allowed increase or decrease in a sentence range established by guidelines or a sentence set by statute. For example, if a guideline calls for a minimum sentence of x months for a crime, the judge may be allowed to assign a downward departure of y months for showing remorse and acceptance of responsibility. That defendant's sentence would then be x – y months. Or, if the maximum sentence for some crime equaled x months, but the convicted person acted as ring-leader, the judge may be allowed to assign an upward departure of y months. The sentence then becomes x + y months.

The author used PCS data from 1996 – 1998 to examine the likelihood of receiving a sentence that departs from the guidelines. He then searched for disparities based on conviction modes and ethnicity. The author defined the four modes as non-negotiated pleas where the accused pleads guilty without discussion, negotiated pleas where the defense and prosecution negotiated a plea agreement, bench trials where the case was tried by the judge and jury trials where a panel of jurors decided to convict or not.

The researcher formed six hypotheses. The first sought to test the question of sentence outcome disparity based on ethnicity. The second focused on sentence disparity

for those who went to trial (regardless of type) to those who plead guilty (regardless of type). For analysis he compared downward departure vs. standard sentence with n = 45,594 and upward departure vs. standard sentence with n = 109,931. Thus, the dependent variable model used a tri-variable that distinguished the sentences as having a downward departure, no departure (standard sentence) and upward departure. The independent variables were the aforementioned modes of conviction. There were a small number of cases in the dataset listed as "other" or "no contest" but these were not included due to the small number of occurrences. The seriousness of the offense was controlled by using an Offense Gravity Score (OGS) and Prior Record Score (PRS). The OGS measures the seriousness of the offense on a scale of one to thirteen, one being least serious and thirteen being the most. The PRS measures the prior criminality of the defendant by considering the number and severity of past convictions on a scale of one to eight, one being "least criminality" and eight being "most criminality" such as repeat, violent offenders.

Johnson (2003) found that overall, Blacks had a 25% less chance of receiving a downward departure than whites and Hispanics were 56% less likely than whites to receive this benefit. In addition, older and female offenders, regardless of ethnicity, were more likely to receive a downward departure than their younger counterparts.

Criminal history also affected the sentence to differing degrees, based on the mode of conviction. An increase in criminal history of five units (on the PRS scale) increased the odds of a downward departure by 1.72 overall, while a non-negotiated plea multiplied the odds by 3.69. Regardless, as with Ulmer and Bradley (2006), those with more criminal experience were more likely to receive a shorter sentence.

The results for conviction modes revealed the following. Conviction by jury trial increased the chances of an upward departure by 85%, while a negotiated plea bargain decreased the odds of an upward departure by only 20%. Conviction at a bench trial decreased the odds of an upward departure by 56%, while conviction at a jury trial decreased said odds by 62%. In summary, "For downward departure decisions, negotiating a plea increased the likelihood of departure, while going to bench or jury trial decreased the likelihood." (Johnson, 2003, p. 480) In addition, "For upward departure decisions, negotiating a plea reduced the likelihood of departure while going to jury trial increased it." (Johnson, p. 480) However, this finding did not hold true for bench trials in the upward analysis. The author suggested examining this curiosity in future research.

While Bibas (2004) noted that in civil cases settled by consent no documentation exists for the settlement, Johnson (2003) declared that no formal research had been performed on the prosecutor as an "actor" in the courtroom setting with regards to plea bargaining. He stated that while convictions and sentences became part of the court record, the actual bargaining done by prosecutor and defense attorney was not recorded and, thereby, subject to scrutiny. He also concurred with Langer's (2006) unilateral and bilateral defacto adjudication theory in that, "Because prosecutors utilize their own judgment when negotiating sentencing recommendations in exchange for guilty pleas, and because judges almost always adhere to these recommendations, prosecutors exercise more sentencing discretion than judges for these cases." (Johnson, p. 456)

Via the likelihood of receiving a downward departure, or not, Johnson (2003) found evidence of the trial tax's existence. Unlike Langer (2006), Bibas (2004) and Finkelstein (1975), he did not comment on the implications such as pleading for risk

reduction or the possibility of innocents pleading guilty due to prosecutorial coercion. Johnson provided a straightforward, quantitative project on upward and downward departure disparities.

King (2005) directly studies the disparity between trial and plea bargain sentencing, primarily focusing on the impact of sentencing guidelines and the variation that still exists, even within jurisdictions, for sentences, period. King notes that for years reformers have attempted to regulate sentence disparity for like offenders on legal issues to eliminate the disparity for non-legal factors such as ethnicity or gender. Her research focused on what she termed "process discounts", sentence differences for the same offense whether conviction occurred by trail (jury or bench) or plea bargain, in five states using sentencing guidelines. As a point of interest, she notes that only the federal criminal justice system, via the U.S. Sentencing Commission, acknowledges the plea bargain sentence discount for "acceptance of responsibility". Similar to Ulmer & Bradley (2006), she notes that pleading guilty may be evidence of the defendant's reduced likelihood to be a repeat offender and, as such, should be rewarded with a lighter sentence. She also declares that no state sentencing guidelines formally recognize plea bargains.

To collect data, King (2005) used a mixed-methods approach by obtaining archival sentencing data and conducting a series of telephone interviews with prosecutors and defense attorneys from Kansas, Maryland, Minnesota, Pennsylvania and Washington. These states were selected as they had established judicial sentencing guidelines, a sizeable number of bench trials and available data. Her study hypothesized that, controlling for other factors, sentences for the same crime would be most severe for jury

trials, then bench trials, then plea bargains, respectively. Some reasons for sentence disparity remain fundamental. Typically, a direct correlation exists between the number of past convictions and sentence severity for the most recent crime. Other potential reasons remain overtly improper – ethnicity being the prime example.

The interviews revealed some expected results with regards to the prosecutors' and defense attorneys' perceptions. Almost every subject agreed with the idea that a jury trial yields the harshest sentence, plea bargain yields softest sentence and that a bench trial produces a "middle" sentence model. They all agreed that the primary impetus for plea bargaining is to provide an incentive to avoid costly, for the courts, trials. Unexpected information arose as well, however. King (2005) noted that some factors, relating to higher sentences for trial convictions cannot be controlled for, such as a judge's emotional reaction to victim testimony, public scrutiny that accompanies trials, or the "human" perspective of the judge that going to trail demonstrates an inherent lack of remorse on the defendant's part.

Of the five states studied, only Washington failed to show a statistically significant difference that mirrored the predicted model. The other four, to varying degrees, offer substantial sentence "discounts" to defendants who plead guilty over those who go to trial. Those who do not plead guilty but accept a bench trial fare only slightly better, on average, than those who choose a jury trial. King (2005) found, ". . . a significant plea discount – the difference between the average sentence given after a guilty verdict and the average sentence given after a guilty plea for the same offense . . . but waiving a jury in favor of a bench trial has less consistent punishment consequences."

King (2005), just as do Langer (2006) and Johnson (2003), notes the one-way street often associated with prosecutor offered plea bargains to reduce the sentence by pleading to a less severe crime. She notes that, ". . . prosecutorial discretion in charging, which produces vast differences in the punishment of similarly situated offenders, even where sentencing guidelines limit sentence disparity per charge (King, p. 960)."

Plea bargaining began as a means to lessen the burden on courts. In 1970 the U.S. Supreme Court declared, via Brady vs. United States, that plea bargains reduce the expense of running courts and speed up the dockets. After all, if the prosecution's case is so strong why bother with a trial if the defendant waives that right? By Boykin vs. Alabama, the Court asserted that those charged may indeed waive Constitutional rights, so long as it is done voluntarily. However, Langer (2006) noted the appearance of de facto adjudication where prosecutors effectively become the judge and jury by coercive or enticing plea offers. Langer felt this violated the fundamental right to due process. The U.S. Supreme Court suggested that this willingness to accept responsibility for a crime may indicate a better chance at rehabilitation. A decision by the Court in 1971, Santobello vs. United States, indicated that accepting a plea bargain may be a good sign that a defendant was ready to be reformed.

Like many good ideas, however, it seems to have had unintended consequences. Fisher (2003), King (2005) and Kinsley (2002) all state that less than 10% of all convictions are the result of a trial. To avoid the chance of prison, i.e. avoid the risk, innocents may plead guilty. While this is bad enough, it also means the guilty party remains free. However, in Brady vs. United States, the Court openly acknowledges that plea bargains "limit the probability of penalty". Both Langer (2006) and Bibas (2004)

detail the enticement of hedging bets in terms of a consequence. Langer notes the injustice to the victims via examples such as a sexual assault charge being changed to simple assault. Here we see how prosecutors circumnavigate minimum sentencing laws – to entice the rapist to plea bargain; in order to guarantee a shorter sentence, the prosecutor reduces the charges. Here we see his de facto adjudication in play. If truly guilty, why should the convict get a bargain with a reduced charge and/or sentence? If the Constitution guarantees a jury trial, should the accused be penalized if convicted, via sentence, for exercising that right?

The primary question of whether or not plea bargains result in statistically significant different sentences compared to those who are convicted at trial will be studied. We have seen how Fisher (2003) declares the trial tax to be as much as two to three times the sentence compared to plea bargaining. Finkelstein (1975) found an implicit rate of non-conviction of 69% - that is, per his data, 69% of those who plead guilty probably would have not been convicted by a jury. Ulmer & Bradley (2006) found that a jury trial has 2.7 times the chance of resulting in incarceration than a plea bargain. Johnson (2003) stated that a jury trial conviction increased the chances of an upward sentence departure by 85%, while plea bargaining actually decreased the odds of getting an upward departure by 20%. Four out of five states studied by King (2005) found a statistically significant increase in sentences for those going to trail compared to those who plea bargained.

This dissertation will focus on drug crimes committed in Cook County, Illinois and whether or not those who went to trial and were found guilty received a harsher sentence than those who accepted a plea bargain. While the sentence received will serve

as the dependent variable, numerous independent variables will be controlled for to look for differences. Based on analysis performed by studies noted in this literature review, the key independent variables seem to be trial vs. plea bargain, specific offense, offense severity, ethnicity and gender. Unfortunately, the dataset to be received from the Circuit Court of Cook County will not contain information regarding the defendant's criminal history. As such, that variable will not be considered in this study.

The specific crime as defined by Illinois statute, gender, ethnicity and offense severity will be employed to search for differences between groups. We must study these variables to search for disparity in sentencing based on what group a subject may belong. This may suggest discrimination and point out the need for future research.

This can only be accomplished by knowing the statute a defendant has been charged with violating. The scope of this study will be limited to the twenty-five drug statutes found in Table 2. The inclusion of initial charge and amended charge will reveal if a defendant has "plead down" to a lesser charge or simply plead guilty to the initial crime with which he had been charged. For example, a defendant may have an initial charge of violating statute 720 ILCS 570/402 (a) (1) (B), 100 – 399 grams of heroin. If the record shows an amended charge of violating statute 720 ILCS 570/402 (a) (1) (A), 15 – 99 grams of heroin, and a plea bargain, this indicates a plea down to a lesser charge to receive a lighter sentence.

The groups, in aggregate, will be those convicted by plea bargain and those convicted by jury trial. However, these groups may be analyzed further by the specific offense, the offense severity, gender and ethnicity. For example, a statistically significant difference may or may not exist for the whole sample, but, the study will investigate for

differences between genders, ethnicity, etc. A sub-question may be to investigate whether those convicted of a specific crime, plead guilty, received a statistically significant difference in sentence based on gender, ethnicity, etc.

From 1980 to 2005, the U.S. prison population increased six-fold from 250,000 to 1,500,000 inmates. In 2006, the most recent year for which Department of Justice, Bureau of Justice Statistics are available, over 7,000,000 Americans, about 2.5%, were under some form of correctional supervision such as incarceration, jail (awaiting adjudication), probation or parole. Approximately 70% were convicted of a drug related crime. By the end of 2006, the female inmate population, state and federal, increased 2.6% from 2005 while the male population increased by 1.9%. Females made up 7% of all U.S. inmates. African-American females were twice as likely as Hispanic females, and three times as likely as White females, to be incarcerated.

One possible use of the results of this research might be to determine an eligible pool for implementation of a statewide treatment plan alternative to incarceration. At this time, the Cook County State's Attorney maintains that the majority of those convicted of drug possession have accepted plea agreements from sales offenses. In order to determine the potential cost savings of treatment for those charged with drug possession offenses and incarcerated for these offenses, analysis of plea bargaining is required.

This research will be a part of *Drug Possession Impact Study* by the Institute for Metropolitan Affairs scheduled for a late 2010 publication. It will study the criminal justice system's changing impact on Chicago's non-violent drug offenders in a comprehensive, systematic manner to create research-informed policies for increased, adequate and appropriate drug treatment.

CHAPTER 3

METHODOLOGY

The primary issue for this research relates to whether a trial tax exists for defendants charged with drug crimes in Cook County, Illinois. Finkelstein (1975), Johnson (2003), King (2005), Langer (2006) and Ulmer and Bradley (2006) all declared that everything else being equal, those who plead guilty of a certain crime will receive a lighter sentence than those who got to trial and are convicted of the same crime; hence the term trial tax.

Does the trial tax exist in Cook County – that is, are defendants who plead guilty more likely to receive leniency than those convicted at trial? Assuming a disparity is discovered, does it remain when controlling for other variables such as offense type, offense severity, ethnicity or gender?

Data Description

This study examined adjudication data from the Circuit Court of Cook County, Illinois. The charge and disposition records of almost 13,000 defendants sentenced for drug related offenses were analyzed.

Data was requested, via the Freedom of Information Act, from the Cook County Circuit Court for drug-related offenses. The court tracks adjudication, along with other identifiers, by Illinois Statute. Subjects must have been charged between 2004 and 2006 with final disposition occurring no later than 2007.

Data Permissions

All data obtained is publicly available through the Freedom of Information Act. Case numbers were used as identifiers for the adjudication data. Names, social security numbers, driver's license numbers or any other personal information were not part of the dataset. There is no way to identify a specific individual with a specific case from the dataset short of going to a Cook County courthouse and requesting to see the file for a specific criminal case using the case number provided. Such records, however, are public information. Anyone may search criminal records by name or case number at any Cook County courthouse.

The investigation is limited to adjudication data. Adjudication data from the Circuit Court of Cook County is not comparable to Illinois Department of Corrections (IDOC) prisons admission data which represents anyone entering prison in a given year. Since violent offenders, for example, generally get longer sentences, they tend to represent more of the total prison population at any given time. But since violent offenders are less common than drug offenders, they make up much less of the population entering prison at any point in time.

Variables in Dataset

Dependent Variables

The single dependent variable studied was "sentence" – the amount of prison time an offender must serve for a crime. Cook County judges sentence offenders to a minimum amount of time, expressed in months, to the custody of IDOC. Occasionally judges also impose a maximum term. Inmates are frequently released prior to the minimum sentence in accordance with IDOC regulations. Illinois currently uses the "day

for a day" good behavior policy. For every day of the sentence an inmate maintains good behavior, he or she gets one day reduction in their sentence. In addition, if they are eligible for and complete substance abuse or vocational/employment training they may receive additional time off. It would be impossible to track each convict's actual incarceration time without comparing individual case numbers. The IDOC often determines actual incarceration time, but for this study the judge's minimum month sentence was used.

Independent Variables

Independent variables were controlled for and used to predict the outcome, or dependent variable, sentence. Sentences may vary by whether the defendant plea bargained or went to trial, the offense severity, ethnicity, gender and interaction effects. The following table lists the independent variables.

Table 1

Independent Variables

1. Conviction Mode – Jury Trial or Plea Bargain
2. Gender
3. Ethnicity
4. Seriousness – Possession or Sales
5. Quantity (<15g or ≥15g)
7. Gender * Conviction Mode
8. Ethnicity * Possession vs. Sales
9. Ethnicity * Quantity

Convictions and sentences were analyzed in the aggregate and then studied based on the violation of specific statute groups in an attempt to determine if one type of crime is more likely to yield a disparity in sentence based on a plea bargain or trial conviction. Severity was classified as possession vs. distribution and the quantity of narcotics involved. For example, statutes 1 through 4 represent the sale of heroin in various quantities. Statutes 16 through 19 represent the possession of cocaine in various quantities. The following table lists statues by citation and description.

Table 2

Statutes and Their Descriptions

Sales Crimes

1. 720 ILCS 570/401 (a) (1) (A)	Heroin, 15-99g
2. 720 ILCS 570/401 (a) (1) (B)	Heroin, 100-399g
3. 720 ILCS 570/401 (a) (1) (C)	Heroin, 400-899g
4. 720 ILCS 570/401 (a) (1) (D)	Heroin, 900+g
5. 720 ILCS 570/401 (a) (2) (A)	Cocaine, 15-99g
6. 720 ILCS 570/401 (a) (2) (B)	Cocaine, 100-399g
7. 720 ILCS 570/401 (a) (2) (C)	Cocaine, 400-899g
8. 720 ILCS 570/401 (a) (2) (D)	Cocaine, 900+g
9. 720 ILCS 570/401 (c) (1)	Heroin, 1-14 g
10. 720 ILCS 570/401 (c) (2)	Cocaine, 1-14 g
11. 720 ILCS 570/401 (d)	Heroin and Cocaine, < 1g

Possession Crimes

12. 720 ILCS 570/402 (a) (1) (A)	Heroin, 15-99g
13. 720 ILCS 570/402 (a) (1) (B)	Heroin, 100-399g
14. 720 ILCS 570/402 (a) (1) (C)	Heroin, 400-899g
15. 720 ILCS 570/402 (a) (1) (D)	Heroin, 900+g
16. 720 ILCS 570/402 (a) (2) (A)	Cocaine, 15-99g
17. 720 ILCS 570/402 (a) (2) (B)	Cocaine, 100-399g
18. 720 ILCS 570/402 (a) (2) (C)	Cocaine, 400-899g
19. 720 ILCS 570/402 (a) (2) (D)	Cocaine, 900+g
20. 720 ILCS 570/402 (c)	Heroin and Cocaine, < 15g

The results of Johnson (2003), King (2005) and Ulmer and Bradley (2006) suggest that ethnicity plays a role in how the criminal justice system treats a defendant. In addition, according to The Sentencing Project, Blacks make up approximately 46% of the U.S. prison population while they account for only 13% of the U.S. population. Between 1994 and 2002, the mean sentence for Blacks convicted of drug crimes increased 73% compared to a 28% increase for White drug offenders. Blacks serve almost as much time in prison for drug offenses, on average 57.2 months, as Whites do for violent offenses, about 58.8 months.

Analyses Performed

The central research question associated with this study asks whether a statistically significant difference exists between the sentences of those convicted of a crime by plea bargain versus jury trial while controlling for background and context variables.

Chi-square tests were performed to compare differences between groups such as ethnicity and gender in an attempt to determine whether or not these variables may be used to predict sentence across those groups. Chi-square tests were run to check for sentence differences for those who plea bargained or lost at trial, based on gender and then ethnicity. As with all analyses performed in this study, the two main groups were *plea bargain* and *convicted at trial*.

The chi-square test determines whether an association exists between two or more categorical variables. With two categorical variables this results in a two-dimensional contingency table illustrating frequency and proportions; three categorical variables results in a 2 x 3 table as illustrated below.

For example, a chi-square test of association may be run comparing the number of African Americans, Hispanics and Whites who plea bargained or were convicted at trial. Such a contingency table may appear as follows, with *a* through *f* representing frequency counts.

Table 3
Example of a Contingency Table

	Conviction Mode		
Ethnicity	Plea Bargain	Trial Conviction	Row Total:
Black	a	b	a + b
Hispanic	c	d	c + d
White	e	f	e + f
Column Total:	a + c + e	b + d + f	

From this a test-statistic is calculated and compared to a critical value from a chi-square table. If the test-statistic is larger than the critical value, it lends credence to the assumption that the categorical variables have some association. If the test statistic exceeds the critical value, then ethnicity is associated with the sentence received. If the test-statistic is smaller than the critical value, ethnicity is not associated with sentence.

Two-sample t-tests were performed to assess whether the mean from a variable differed from a determined constant. A two-sample t-test compares the mean difference between each value of the variable and a test value which assumes no variation. This analysis was used to test for significant differences between means.

This study also utilized the two-way ANOVA procedure to test whether the means of certain groups are equal considering the possible interaction of independent variables.

Parameter estimates from a general linear model, an analysis of the relationship between independent variables and a continuous dependent variable, modeled by a least squares function, was used in an attempt to predict sentence. Models indicate which independent variables, if any, are predictors of the dependent variable. A common example is socioeconomic status and academic achievement. A positive, linear relationship is usually found when comparing socioeconomic status and academic achievement. In this study, independent variables such as plea bargaining vs. trial, the offense severity, ethnicity, gender and interaction effects were studied for their predictive power on sentencing.

By creating different models, this study attempted to discover a coefficient estimate for conviction type – plea bargain vs. trial, while considering contact variables. That is, can sentence length be predicted by adjudication method while controlling for independent variables such as ethnicity, gender, offense seriousness, quantity and interaction effects?

Coding

Coding was created for the independent variables of gender, ethnicity, conviction type and the different types of offense severity – sales vs. possession and then quantity. Those variables may then be incorporated into a variety of models to search for statistically significant results relating to the application of said variables as a function of the adjudication method to predict sentence length.

Interaction occurs when a mixed effect may be present. An interaction is associated with the effect of an independent variable on the dependent variable based on the values of another predictor. For example, there may be a difference in sentence based on ethnicity but that may come about from the conviction mode. As such, the correlation between variables may depend on the value from other variables.

Comparison of variable interaction may be obtained by assigning specific dummy values for data from each variable. Hays (1994) and Pedhazur (1997) discuss a code scenario for defining independent variables as dummy or group variables. Categorical variables are effect coded, that is, each category's mean is compared to a grand mean where each category's intercept is compared to the reference group's intercept.

Schemes for Codes

The following table illustrates the codes used in this study for the independent variables. The dependent variable, sentence, was coded as a continuous variable.

Table 4

Summary of Independent Variable Coding Schemes

Conviction Mode	Code
Plea Bargain	0
Trial Conviction	1

Probation or Prison	Code
Probation	0
Prison	1

Seriousness	Code
Possession	0
Sales	1

Quantity	Code
< 15 g	0
≥ 15 g	1

Gender	Code
Male	0
Female	1

Ethnicity	Ethnic Group	Not of that Group
Black	1	0
Hispanic	1	0

Dummy codes were used for these categorical variables. Seven of the almost thirteen-thousand offenders were noted as being other than Black, Hispanic or White and were ignored in this study as they make up only 0.05% of the sample. The following table displays the ethnicity coding.

For gender, male was coded as 0 while female was coded as 1. This again allows for a comparison; men will make up approximately 87% of the convictions. Johnson (2003) found that sentence received correlates to gender.

For conviction type, plea bargain was coded 0 while convicted at trial was 1. This set-up will create a coefficient estimate of the trial tax, net of everything else in the model. Probation will be coded 0 while having received prison time will be coded 1.

Selling of narcotics was coded 1 while possession was coded 0 for the analysis. Therefore, the coefficient result will tell the "extra" sentence, if any, for the more serious offense of selling. Quantity was considered by coding less than 15 grams as 0 while equal to or greater than 15 grams as 1. This may reveal an "extra" sentence impact for the greater quantity of drugs involved.

For the two-sample t-tests and ANOVAs used in this study making Group A = 0 and Group B = 1 or the other way around does not impact the output from any analysis as this is dummy coding.

However, this study utilized parameter estimates from a general linear model analysis to estimate sentence. In such analyses the largest categorical value serves as the reference point for comparison purposes. For example, coding the variable named conviction mode with plea bargain = 0 and trial conviction = 1 allows for the comparison of any "extra" sentence received associated with a trial conviction.

Interaction effects occur when the interfacing of two or more independent variables creates its own effect beyond the main effect of the independent variables themselves. In this study the interaction effect coding occurred within the software utilized for running single dependent variable general linear models.

The combination of chi-square analyses, two-sample t-tests, two-way ANOVAs and general linear models yielded answers to this study's focus on the possible existence of a trial tax and what independent variables may be used to predict sentence.

CHAPTER 4

RESULTS

This study utilized two-way ANOVA, chi-square tests, two-sample t-tests and general linear models in an attempt to answer the following questions. Does the trial tax exist in Cook County, Illinois? In other words, are defendants convicted at trial more likely to receive heftier sentences than those who plea bargain? Assuming a disparity, does it remain when controlling for other variables such as gender, ethnicity, offense seriousness, quantity and interaction effects?

Before proceeding, a review of the dataset's characteristics was performed. First, an analysis of the statutes was effected to determine if any, or a group, dominate the dataset. The influence of prevailing statutes may skew the results of this study. An investigation of offense severity was performed to search for its effect on results. The more serious a crime should, in theory, lead to a higher sentence, thus also possibly distorting the results. To further guide the analyses used in this study an examination of the subjects was conducted. With all, the main group remained those who plea bargained vs. those convicted at trial, while considering other independent variables.

Dominant Statutes

The analysis began by creating a frequency distribution of statutes violated. This was done to determine if a statute or group of statutes might skew the results by their domination of the dataset. It yielded the following results.

Table 5

Frequency Distribution of Statutes Violated

Statute	Frequency	Percent
Sales:		
1. Heroin 15-99g	104	0.8%
2. Heroin 100-399g	5	0.0%
3. Heroin 400-899g	3	0.0%
4. Heroin 900+g	3	0.0%
5. Cocaine 15-99g	376	2.9%
6. Cocaine 100-399g	62	0.5%
7. Cocaine 400-899g	17	0.1%
8. Cocaine 900+g	40	0.3%
9. Heroin 1-14g	1,389	10.9%
10. Cocaine 1-14g	1,964	15.4%
11. Heroin or Cocaine <1g	3,163	24.7%
Possession:		
12. Heroin 15-99g	2	0.0%
16. Cocaine 15-99g	79	0.6%
17. Cocaine 100-399g	14	0.1%
19. Cocaine 900+g	1	0.0%
20. Heroin or Cocaine < 15g	5,564	43.5%

Four statutes, 13 – 15 and 18 were not represented. Of the 12,786 cases, 94.5% related to just four of the remaining statutes. Statute 20, possession of less than 15g of cocaine or heroin accounted for 43.5% of all violations in this study. Statutes 9, 10 and 11, distribution of 1 – 14g of heroin, distribution of 1 – 14g of cocaine and distribution of less than 1g of cocaine or heroin, respectively, made up 51% of all cases studied.

Statute 20 represents possession crimes with 43.5% of all cases while Statutes 9, 10 and 11 characterize the impact of sales crimes making up 51% of all violations. Almost 95% of the convictions in this study relate to quantities less than 15g. However, traditional wisdom suggests that larger quantities result in longer sentences. As such, the impact of crimes dealing with quantities of 15g or more was studied separately. This was done both in comparison to crimes dealing with less than 15g and for the interaction effect between quantity and possess vs. sell to study seriousness.

Probation vs. Prison

Considering all statutes, just over 5% of the subjects in this dataset received a sentence of probation as indicated by a sentence length of zero. As noted previously, some consider plea bargaining an indicator of the willingness to accept responsibility and perhaps a propensity to reform. In addition, those who plead guilty may receive a *bargain* on their sentence. Over 93% of the subjects plea bargained. The following tables illustrate both distributions.

Table 6

Comparison of Probation vs. Prison

	N	Percentage
Probation	682	5.3%
Prison	12,104	94.7%
Total	12,786	100%

Table 7

Comparison of Plea Bargain vs. Trial Conviction

	N	Percentage
Plea Bargain	11,903	93.1%
Trial Conviction	883	6.9%
Total	12,786	100%

Conviction Mode

The following table shows that, of those who received a prison sentence, almost 95% received the sentence through plea bargaining. Thus, the majority of subjects in this study plea bargained and received a prison sentence.

Table 8

Prison Time by Conviction Mode

	Prison
Plea Bargain	11,437 (94.5%)
Trial Conviction	667 (5.6%)
Total	12,104 (100%)

The following table presents the comparison of conviction mode to whether the subject received prison or probation. For the entire data set, over 96% of those who plea bargained received a prison sentence. Plea bargainers and those who receive a prison term dominate the data set.

Table 9

Conviction Mode Compared to Probation or Prison

	Plea Bargain	Trial Conviction	All
Probation	466 (3.9%)	216 (24.5%)	682 (5.3%)
Prison	11,437 (96.1%)	667 (75.5%)	12,104 (94.7%)
Total	11,903 (100%)	883 (100%)	12,786 (100%)

An analysis of this data found a significant association between conviction mode and probation vs. prison ($\chi^2 = 683.22$, $p < 0.0001$).

Subjects not receiving a prison sentence will no longer be considered in the analyses for this study. The data set is dominated by those who received a prison sentence – almost 95% of all subjects. In addition, the study's intent is to test for the presence of a trial tax and if it is found, attempt to measure it. Those receiving a sentence of zero months did not receive a trial tax, regardless of their conviction mode. By definition of this study's intent they should be excluded.

The following table shows the comparison of sentence means, for those receiving prison time, based on conviction mode.

Table 10

Comparison of Sentence and Conviction Mode for Mean Sentence (in Months)

Conviction Mode	N	M	SD
Plea Bargain	11,437	25.87	17.05
Trial Conviction	667	42.59	37.64
Total	12,104	26.79	19.16

Those convicted at trial received a statistically significant, greater sentence than those who plea bargained – almost 17 months or 65% more prison time ($t = 153.882$, $p < 0.0001$). A check of the distribution of means was performed. For plea bargainers, their sentences ranged from 0.03 months to 204.00 months. For those convicted at trial the sentences ranged from 0.20 months to 420.00 months. In answer to this study's primary research question, this evidence suggests a trial tax does exist. The study will now focus on contextual variables.

Offense Seriousness

As noted earlier in this study, offense seriousness is classified according to whether the crime relates to possession or selling narcotics and the quantity involved, less than 15g or equal to or greater than 15 g. The more serious a crime, traditional wisdom suggests, the more lengthy the sentence. A frequency distribution for this dataset revealed the following.

Table 11

Convictions for Quantity Compared to Offense Seriousness

Seriousness	< 15g	≥ 15g
Possession	5,395 (47.0%)	79 (12.6%)
Sales	6,082 (53.0%)	548 (87.4%)
Total	11,477 (100%)	627 (100%)

A simple visual inspection reveals that, for equal to or greater than 15g crimes, over 86% related to narcotics distribution, not simple possession. This strongly suggests that quantity associates with whether the crime related to possession or sales. A chi-square analysis affirms the supposition ($\chi^2 = 282.74$, $p < 0.0001$) that quantity relates to

possession or sales. The subsequent table illustrates the mean sentence in months for quantity by offense seriousness. Convictions involving < 15g dominate the dataset making up almost 95% of all cases while possession compared to sales crimes is about equally split. A check of the distribution of means was performed. For those convicted of crimes relating to < 15g, the sentences for possessors ranged from 0.03 to 168.00 months; for those who sold, 0.07 months to 240.00 months. For those convicted of ≥ 15g crimes, the sentences for possessors ranged from 0.10 to 144.00 months; for those who sold, 0.07 months to 420.00 months.

Table 12

Mean Sentence (in Months) for Seriousness Factors

	< 15g			≥ 15g		
	N	M	SD	N	M	SD
Possession	5,395	18.46	8.72	79	41.26	25.72
Sales	6,082	31.67	18.98	548	52.64	40.30
Total	11,477	25.46	16.44	627	51.20	38.94

Next, a two-way ANOVA was run to test for interaction between quantity and offense seriousness for mean sentences. As noted in the next table, no interaction was detected ($F = 0.775$, $p = 0.379$, Levene's test of equality $p < 0.0001$, Observed Power = 0.142).

Table 13

Analysis of Variance for Sentence Length

Variable	df	F	η^2	p
Possess vs. sell	1	139.356	0.011	0.000
Quantity	1	441.163	0.035	0.000
Interaction	1	0.775	0.000	0.379
Subjects within-group error	12,103	(0.203)		

Selling, as opposed to possession, leads to a higher prison sentence regardless of quantity. The quantity ≥ 15g results in a greater sentence than < 15g regardless of whether the defendant sold or simply possessed the narcotic. As such, quantity and possession vs. sales should be used in the general linear model as independent variables. In terms of mean sentence, there is no interaction between possession vs. sales and quantity. Based on the statistical results, this study will not utilize an interaction effect for seriousness and quantity.

Gender

The next table illustrates the frequency distribution of gender in the aggregate and by conviction mode.

Table 14

Comparison of Gender and Conviction Mode

Gender	Plea Bargain	Trial Conviction	All
Male	9,892 (86.5%)	590 (88.5%)	10,482 (86.6%)
Female	1,542 (13.5%)	77 (11.5%)	1,622 (13.4%)
Total	11,437 (100%)	667 (100%)	12,104 (100%)

As noted earlier, over 93% of the subjects chose to plea bargain and almost 87% of those were male. 86.5% of those who plea bargained were male and 88.5% of those convicted at trial were male. Females made up 13.5% of all plea bargainers and 11.5% of all those convicted at trial. A review of the breakdown by gender shows neither males nor females were more likely to plea bargain or have lost at trial ($\chi^2 = 1.89$, $p = 0.169$). It seems gender is not associated with whether a subject plea bargains or loses at trial even though males dominate the dataset. However, the possible interaction may be veiled as the dataset is so dominated by males.

As noted previously, a review of sentence means from this dataset revealed that those who plea bargain receive a significantly lighter sentence than those convicted at trial. If there is no difference between males and females plea bargaining, as indicated above, it seems logical that their sentences would be similar unless an interaction effect exists.

Gender and Conviction Mode Compared to Sentence

The subsequent table shows the mean sentence by gender in the aggregate and then by conviction mode. A check of the distribution of means was performed. For plea bargainers the males' sentences ranged from 0.03 months to 204.00 months. Female plea

bargainer sentences ranged from 0.03 months to 96 months. For those convicted at trial, male sentences ranged from 0.20 months to 420.00 months while female sentences from 0.67 months to 96 months.

Table 15

Comparison of Gender and Conviction Mode for Mean Sentence (in Months)

	Male			Female			All		
Conviction Mode	N	M	SD	N	M	SD	N	M	SD
Plea Bargain	9,892	26.49	17.65	1,545	21.92	11.84	11,437	25.87	17.05
Trial Conviction	590	44.36	38.93	77	29.05	20.26	667	42.59	37.64
Total	10,482	27.50	20.35	1,622	22.26	12.45	12,104	26.79	19.16

It appears that males tended to receive heftier prison sentences regardless of conviction mode. A two-way ANOVA was run to check for interaction between gender and conviction type considering sentence. A significant interaction was found ($F = 21.398$, $p < 0.0001$, Levene's Test of Equality $p < 0.0001$, Observed Power = 0.996) as illustrated in the next table.

Table 16

Analysis of Variance for Gender and Conviction Mode Regarding Sentence

Variable	df	F	η^2	p
Gender	1	73.384	0.006	0.000
Conviction Mode	1	115.995	0.009	0.000
Interaction	1	21.398	0.002	0.000
Subjects within-group error	12,103	(0.049)		

In partial answer to the research question related to controlling variables, the interaction between gender and conviction mode matters in terms of sentence. Males receive a heftier sentence than their female counterparts.

Figure 1 illustrates the gender disparity. The x-axis shows sentence in months. The y-axis indicates the categorical variable plea bargain vs. trial conviction. Regardless of conviction mode, males received the higher sentence. However, males appear to have received a much heftier sentence than females when convicted at trial. Females receive the least hefty sentence, period. However, being female and plea bargaining produces the lowest sentence.

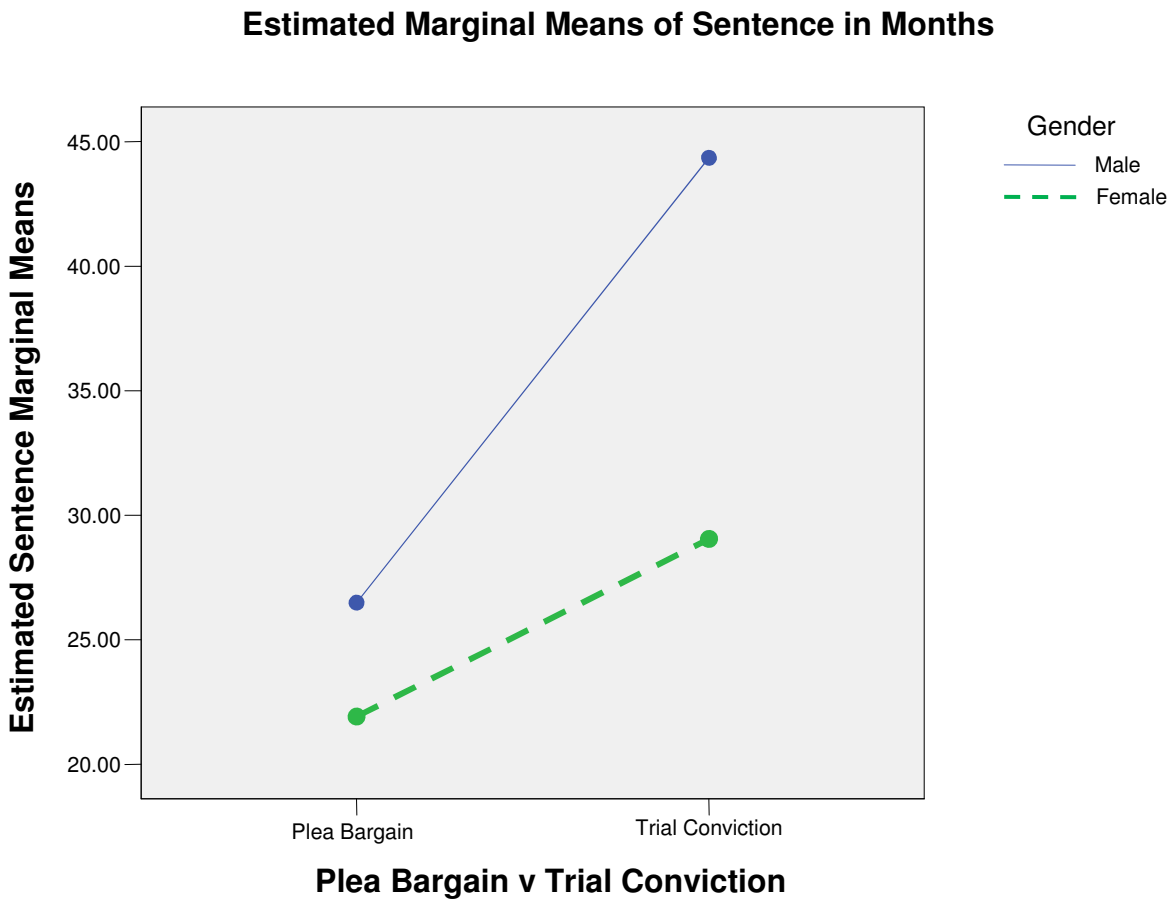

Figure 1. Comparison of sentence means considering conviction mode and gender.

The next controlling variable to be explored is ethnicity.

Ethnicity

The below tables illustrate ethnic distribution by conviction mode and in the aggregate.

Table 17

Comparison of Ethnicity and Conviction Mode

Conviction Mode	Black	Hispanic	White	All
Plea Bargain	9,360 (94.2%)	900 (95.4%)	1,177 (96.2%)	11,437 (94.5%)
Trial Conviction	577 (5.8%)	43 (4.6%)	47 (3.8%)	667 (5.5%)
Total	9,937 (100%)	943 (100%)	1,224 (100%)	12,104 (100%)

Ethnicity is significantly associated with choosing to plea bargain vs. receiving a trial conviction ($\chi^2 = 9.87$, $p = 0.0072$). It appears that Whites are more likely to plea bargain compared to Blacks who are more likely to have not taken the plea bargain and then lost at trial. As noted earlier, those who plea bargain receive a statistically significant lower sentence than those convicted at trial. If Blacks receive a higher mean sentence, their propensity to go to trial and lose (not to plea bargain), may explain that group's higher mean sentence.

Ethnicity and Conviction Mode compared to Sentence

Table 18

Comparison of Ethnicity and Conviction Mode for Mean Sentence (in Months)

	Plea Bargain			Trial Conviction			Total		
Ethnicity	N	M	SD	N	M	SD	N	M	SD
Black	9,360	26.20	16.28	577	43.10	34.42	9,937	27.18	18.23
Hispanic	900	26.17	22.47	43	36.17	36.74	943	26.63	23.38
White	1,177	23.05	17.95	47	42.14	60.05	1,224	23.78	22.10
All	11,437	25.87	17.05	667	42.59	37.64	12,104	26.79	19.16

The above table illustrates the mean sentence received based on conviction mode and ethnicity. A check of the distribution of means was performed. For plea bargainers, Blacks' sentences ranged from 0.03 months to 192 months, Hispanics' from 0.07 months to 204.00 months and for Whites the mean sentence ranged from 0.03 to 180.00 months. For those convicted at trial, Blacks' sentences ranged from 0.20 months to 240.00 months, Hispanics' from 0.67 to 180.00 months and for Whites, from 0.20 months to 420.00 months.

A two-way ANOVA was run to check for interaction between ethnicity and conviction mode regarding sentence length. None was found ($F = 2.024$, $p = 0.132$, Levene's Test of Equality $p < 0.0001$, Observed Power = 0.586) as illustrated below.

Table 19

Analysis of Variance for Ethnicity and Conviction Mode Regarding Sentence

Variable	df	F	η^2	p
Ethnicity	2	3.405	0.001	0.082
Conviction Mode	1	124.435	0.010	0.000
Interaction	2	3.016	0.000	0.089
Subjects within-group error	12,103	(0.042)		

No effect was found for ethnicity or the interaction of ethnicity and the conviction mode. However, there was a main effect for conviction. As such, controlling for ethnicity, there is still a trial tax effect, that is, an association between sentence length and conviction mode. Regardless of ethnicity, sentence length is greater for those convicted at trial compared to those who plea bargained.

The next analysis performed tested for an association between ethnicity and the seriousness categories.

Ethnicity and Offense Seriousness

Frequency distribution tables of ethnicity and possession vs. sales and then ethnicity and quantity appear next.

Table 20

Comparison of Ethnicity and Offense Seriousness

Seriousness	Black	Hispanic	White	All
Possession	3,908 (39.3%)	578 (61.3%)	988 (80.7%)	5,474 (45.2%)
Sales	6,029 (60.7%)	365 (38.7%)	236 (19.3%)	6,630 (54.8%)
Total	9,937 (100%)	943 (100%)	1,224 (100%)	12,104 (100%)

Table 21

Comparison of Ethnicity and Quantity

Quantity	Black	Hispanic	White	All
< 15g	9,532 (95.9%)	815 (86.4%)	1,130 (92.3%)	11,477 (94.8%)
≥ 15g	405 (4.1%)	128 (13.2%)	94 (7.7%)	627 (5.2%)
Total	9,937 (100%)	943 (100%)	1,224 (100%)	12,104 (100%)

A chi-square analysis found a significant association between ethnicity and possession vs. sales ($\chi^2 = 756.54$, $p < 0.0001$). Another chi-square analysis found a significant association between ethnicity and quantity ($\chi^2 = 32.3$, $p < 0.0001$). It seems Blacks are convicted more often of sales crimes but Whites are more often convicted of the larger quantities. Whites seem to receive possession convictions for larger quantities while Blacks receive sales convictions for the smaller quantities.

The subsequent table presents a comparison of sentence means based on ethnicity and possession vs. sales. A check of the distribution of means was performed. For possession crimes, Blacks' sentences ranged from 0.03 months to 168.00 months, Hispanics' from 0.07 months to 84.00 months and for Whites the mean sentence ranged

from 0.03 to 72.00 months. For sales crimes, Blacks' sentences ranged from 0.07 months to 240.00 months, Hispanics' from 0.07 to 204.00 months and for Whites, from 0.27 months to 420.00 months.

Table 22

Comparison of Ethnicity and Possession vs. Sales for Mean Sentence (in Months)

	Possession			Sales			Total		
Ethnicity	N	M	SD	N	M	SD	N	M	SD
Black	3,908	18.66	9.79	6,029	32.71	20.27	9,937	27.18	18.23
Hispanic	578	18.88	9.30	365	38.91	32.10	943	26.63	23.38
White	988	19.25	8.87	236	42.76	42.00	1,224	23.78	22.10
All	5,474	18.79	9.58	6,630	33.41	22.31	12,104	26.79	19.16

The next offense seriousness analysis relates to quantity. The below table presents a comparison of sentence means based on ethnicity and quantity. A check of the distribution of means was performed. For < 15g crimes, Blacks' sentences ranged from 0.03 months to 240.00 months, Hispanics' from 0.07 months to 72.00 months and for Whites the mean sentence ranged from 0.03 to 108.00 months. For ≥ 15g crimes, Blacks' sentences ranged from 0.07 months to 192.00 months, Hispanics' from 0.07 to 204.00 months and for Whites, from 0.10 months to 420.00 months.

Table 23

Comparison of Ethnicity and Quantity for Mean Sentence (in Months)

	< 15g			≥ 15g			Total		
Ethnicity	N	M	SD	N	M	SD	N	M	SD
Black	9,532	26.34	17.06	405	46.92	30.61	9,937	27.18	18.23
Hispanic	815	21.40	11.71	128	59.92	43.38	943	26.63	23.38
Whites	1,130	20.95	12.25	94	57.77	57.78	1,224	23.78	22.10
All	11,477	25.46	16.44	627	51.20	38.94	12,104	26.79	19.16

The mean and standard deviation for Whites convicted of crimes relating to ≥ 15g both being so close to 57.8 is pure coincidence. Again, for that group the ninety-four subjects had sentences varying from 0.10 months to 420 months.

To examine the effects of ethnicity, quantity and seriousness a three-way factorial ANOVA was conducted. Its output appears in the table below.

Table 24

Analysis of Variance for Ethnicity and Quantity and Seriousness Regarding Sentence

Variable	df	F	η^2	p
Ethnicity	2	3.618	0.001	0.027
Quantity	1	359.942	0.029	0.000
Seriousness	1	126.420	0.010	0.000
Ethnicity * Quantity	2	4.162	0.001	0.016
Ethnicity * Seriousness	2	14.992	0.002	0.000
Quantity * Seriousness	1	2.802	0.000	0.094
Three-way Interaction: Ethnicity * Quantity * Seriousness	2	13.964	0.002	0.078
Subjects within-group error	12,103	(0.210)		

No three-way interaction was detected ($F = 13.964$, $p = 0.078$, Levene's Test of Equality $p < 0.0001$, Observed Power = 0.387). However, there was a main effect for ethnicity, quantity and seriousness. The interaction between ethnicity and quantity and ethnicity and seriousness was again noted. There was no significant interaction between quantity and seriousness.

An interaction between ethnicity and possession vs. sales as it relates to sentence was found ($F = 14.992$, $p < 0.0001$). As an interaction was found, there was no need to interpret the main effect. Differences in sentence based on ethnicity appear to depend on the statutory seriousness of the crime – possession or sales. Whites receive the heftiest sentences while Blacks receive the least severe sentences for sales crimes.

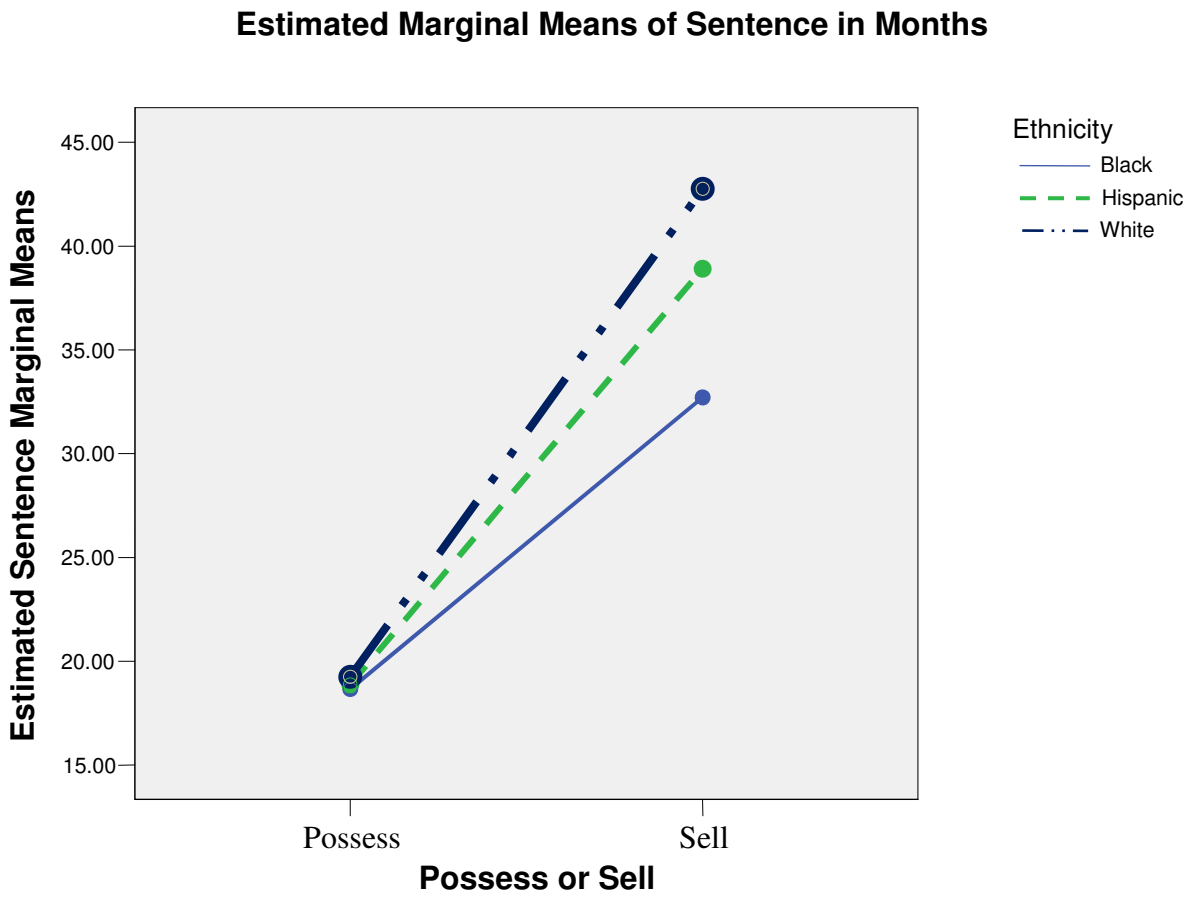

Figure 2. Comparison of sentence means considering ethnicity and possess vs. sell.

Figure 2 illustrates the interaction of ethnicity compared to possession vs. sales in terms of sentence. The x-axis represents sentence in months. The y-axis represents the categorical variable possess vs. sell. Sentences appear not that different, in terms of ethnicity, for possession crimes. For sales crimes, however, Whites tend to receive the highest mean sentence and Blacks the lowest.

An interaction between ethnicity and quantity as it relates to sentence was found ($F = 4.162$, $p = 0.016$). As an interaction was found, there was no need to interpret the

main effect. Differences in sentence based on ethnicity appear to depend on the quantity involved.

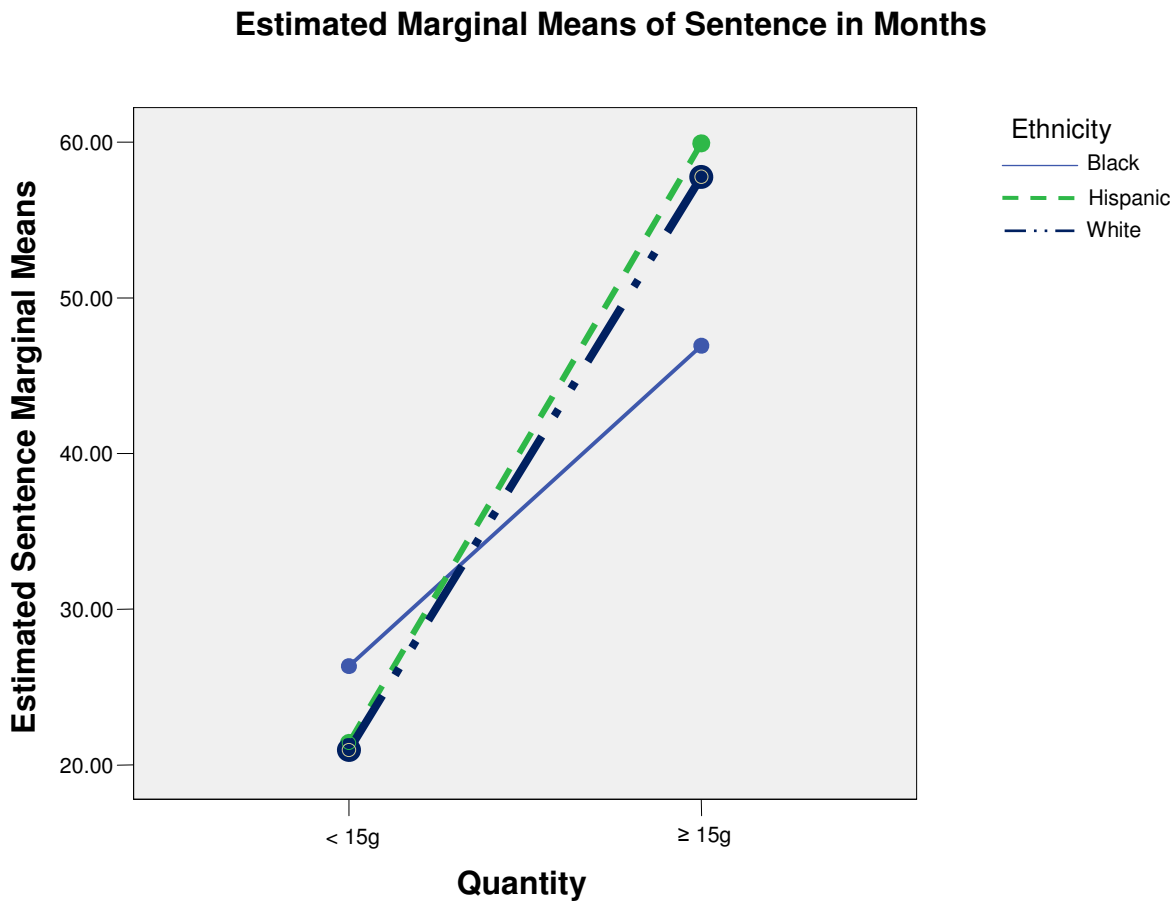

Figure 3. Comparison of sentence means considering ethnicity and quantity.

Figure 3 illustrates the interaction of ethnicity compared to quantity in terms of sentence. The x-axis shows sentence in months. The y-axis represents the categorical variable < 15g or ≥ 15g. For the smaller quantity of < 15g the sentences do not appear that far apart. For the larger quantities, ≥ 15g, a greater disparity is indicated.

Sentence means by ethnicity do not vary much for lower quantities, which make up, as noted earlier in Table 8, almost 95% of all convictions in this dataset. Overall, it seems Blacks tend to have longer sentences for sales crimes for quantities < 15g while Whites have longer sentences for possessing quantities ≥ 15g. However, most convictions in this data set, 95%, were for < 15g and Blacks dominate the dataset, 82%.

In addition to using ethnicity as an independent variable in the general linear model, interaction variables for ethnicity and possession vs. sales and ethnicity and quantity will also be utilized.

Summary

Overall, trial convictions are significantly associated with a higher sentence than plea bargain convictions. Almost 95% of the subjects of this dataset plea bargained which may skew analyses results toward the plea bargain characteristic of lesser sentence. As such, interaction effects between the controlling variables and conviction mode, compared to sentence, were analyzed. Males made up 87% of all subjects and minorities accounted for 90% of all subjects. The dataset's domination by certain groups based on gender and ethnicity led to the analysis of interaction effects between those independent variables and conviction mode compared to sentence.

Crime seriousness, based on possession or sales and then quantity, showed no interaction effect. Crimes involving < 15g made up 95% of all cases but were relatively evenly split between possession or sales convictions. Statutes for ≥ 15g, 5% of all cases, showed 86% of those convictions were for sales crimes. Possession vs. sales associated with quantity.

Sales crimes netted the greater sentence when compared to simple possession. ≥ 15g crimes made up only 5% of the dataset but produced a greater mean sentence than crimes of < 15g. Overall, the dataset is dominated by convictions for the smaller quantities. Offense seriousness, possession vs. sales and quantity, ties directly to the results for ethnicity as explained below. Regardless of any other independent variable, increased seriousness resulted in increased sentence. As such, the independent variables of possession vs. sales and then quantity will be used in the upcoming general linear models.

Males dominate the data set. Gender was not associated with conviction mode. That is, being male or female didn't matter in terms of predicting conviction mode. However, gender did associate to sentence. The interaction of gender and conviction mode was also significantly associated with sentence. Males tended to receive a higher sentence regardless of conviction mode. However, for those convicted at trial, they received a much higher sentence than their female counterparts. As such, gender itself and the interaction effect between it and conviction mode will be utilized as predictor variables in the upcoming general linear model section.

Minorities dominate the dataset as Blacks make up 82% and Hispanics 8% of all subjects. Ethnicity showed a significant association in terms of whether the subject plea bargained or lost at trial and in terms of sentence. Blacks seem less likely to plea bargain, which at first may seem to explain their higher overall mean sentence as trial convictions result in more hefty sentences. However, no evidence was found for an interaction between ethnicity and conviction mode. Regardless of ethnicity, a trial conviction resulted in a greater sentence than a plea bargain.

In terms of offense seriousness, Blacks associated more with sales crimes while Whites associated more with ≥ 15g convictions. It should be remembered, however, that the greater quantity accounted for only 5% of all cases. Evidence was found for an interaction between ethnicity and possession vs. sales and then for quantity. Blacks, compared to Whites, were more often convicted of and received higher sentences for sales crimes involving < 15g. Whites, compared to Blacks, were more often convicted of and received heftier sentences for possession crimes of ≥ 15g. Differences in sentence based on ethnicity depend on the seriousness of the crime, that is, whether it was for possession or sales and the quantity. Based on these results, ethnicity and the referenced interactions will serve as independent variables in the general linear models.

In an attempt to measure the noted associations, parameter estimates from general linear models were computed.

General Linear Models

Does plea bargaining vs. a trial conviction predict sentence duration when controlling for predictor variables?

General linear models, an analysis of the linear relationship between independent variables and a continuous dependent variable, modeled by a least squares function, was used in an attempt to predict sentence. Models indicate which independent variables, if any, are predictors of the dependent variable and to what degree. As always in this study, the single dependent variable remains sentence, measured in months. The following table notes the independent variables used.

Table 25

Independent Variables

1. Conviction Mode – Jury Trial or Plea Bargain
2. Seriousness – Possession or Sales
3. Quantity (<15g or ≥15g)
4. Gender
5. Gender * Conviction Mode
6. Black
7. Hispanic
8. Black * Seriousness
9. Hispanic * Seriousness
10. Black * Quantity
11. Hispanic * Quantity

Based on t-test, chi-square and two-way ANOVA analyses, each of the above independent variables showed an association with sentence.

Analyses suggested a significant association between conviction mode and sentence – trial convictions, resulted in more hefty sentences. However, an interaction effect was found between conviction mode and whether the defendant received probation or prison.

Previous analyses in this study showed a significant association between sentence and whether the related crime was for possession or sales of narcotics and the quantity involved. Sales and greater quantity crimes correlated with increased sentences.

Other analyses indicated that females tend to get a lighter sentence than males and that an interaction effect between gender and conviction mode exists. Males received heavier sentences regardless of conviction mode, but especially heavy sentences for trial convictions when compared to females.

Still other analyses indicated that Whites received lighter sentences than minorities, overall and for plea bargaining cases but not for trial convictions. Minorities tended to be convicted more often of sales crimes involving < 15g and Whites received the higher sentences for possessing ≥ 15g – a significant interaction effect occurred for ethnicity and offense severity in terms of being Black and possession vs. sales crimes, Black and quantity and Hispanic and quantity.

The next table summarizes the coding scheme used for the independent variables.

Table 26

Summary of Independent Variable Coding Schemes

Conviction Mode	Code
Plea Bargain	0
Trial Conviction	1

Seriousness	Code
Possession	0
Sales	1

Quantity	Code
< 15 g	0
≥ 15 g	1

Gender	Code
Male	0
Female	1

Ethnicity	Ethnic Group	Not of that Group
Black	1	0
Hispanic	1	0

The use of coding allows for the creation of multiple linear models based on a subject's characteristics. For example, one convict may be a White male convicted at trial for possessing < 15g. Another subject may be a Black male who plea bargained his conviction for selling ≥ 15g. A foundational linear model appears below; it accounts for all independent variables. See Appendix A for a complete listing of models.

$$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + (\beta_7)(\text{Hispanic}) + (\beta_8)(\text{Black} * \text{Sell}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + (\beta_{10})(\text{Black} * \geq 15g) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$$

The subsequent table displays the output using all predictor variables. Defendants who received probation were not included. The central theme of this study relates to testing for and measuring the trial tax, that is, the additional sentence received for a trial conviction compared to a plea bargain. Those who received probation did so whether they plea bargained or lost at trial; as such, they were excluded from in the analysis.

Table 27

Summary of Linear Model Analysis to Predict Sentence Using All Independent Variables

Variable	b	SE(b)	p.
Constant	18.846	0.543	0.000
Trial Conviction	3.306	0.593	0.000
Sell	7.419	1.846	0.000
≥ 15 g	20.467	2.771	0.000
Female	-14.469	2.025	0.000
Female X Trial Conviction	11.445	2.076	0.000
Black	-13.807	1.945	0.000
Hispanic	-1.535	2.298	0.504
Black X Sell	2.612	1.363	0.055
Hispanic X Sell	5.184	1.814	0.404
Black X ≥ 15 g	10.830	2.131	0.000
Hispanic X ≥ 15 g	-4.253	2.636	0.107
R Square 0.239			

Interpreting the output from the previous table must be done in comparison to "the other" from the variable noted. For example, the variable Trial Conviction is the comparison of being convicted at trial to plea bargaining. The variable *Sell* refers to selling a narcotic as opposed to simply possessing it. The variable *Female* refers to the coefficient for females when compared to males.

The output begins with a constant of regression equal to 18.846 months. Every subject begins with that as a sentence and then the contextual variables may add or subtract time, via the model, to that time. Being convicted at trial adds 3.306 months to the sentence. Continuing, if it was a sales crime another 7.419 months is added to the sentence. Selling the larger quantity of narcotics, ≥ 15g, will increase sentence by 20.467 months. As predicted, a trial conviction and greater seriousness is associated with a heftier sentence.

Being female reduces sentence by 14.469 months. As predicted, being female was associated with a reduced sentence but a female convicted at trial received less of a reduced sentence than one who plea bargained. Females who lose at trial, however, receive an additional 11.445 months on top of the constant.

This initial coefficient of Blacks receiving a sentence reduction of 13.807 months may be explained by the domination of minorities in this dataset – almost 90% (χ^2 = 9.13, p = 0.0025). Blacks made up 82.2% and Hispanics 7.7%. As noted previously, for the mean sentence, by ethnicity, for quantities equal to or greater than 15g, Blacks received the lowest mean sentence of 41.86 months. Whites received a mean sentence of 48.49 months while Hispanics received 55.18 months. In addition, 92.7% of all Blacks plea bargained. Since a plea bargain seems to yield a lighter sentence, and as the

overwhelming majority of subjects plea bargaining were minorities, this may explain the lower coefficient.

In addition, the interaction between *Black* and *Sell* was not statistically significant in this linear model. This may be due to the fact that, as noted Figure 2, the mean sentence of all ethnicities for possession crimes varied by only about two weeks ($t = -1029.498$, $p = 0.615$). However, it yielded a p value of 0.055 which is close to being significant. As such, the variable will be included in subsequent tables. For sales crimes, the mean sentence for Whites exceeded Blacks by about eight months ($t = -108.953$, $p < 0.0001$) and the mean sentence for Whites exceeded Hispanics by about two months ($t = -102.300$, $p < 0.0001$). The co-mingling of mean sentences for ethnicities in this variable, significant for sales crimes but not for possession crimes, produced a result that was not statistically significant.

However, the interaction between Black and ≥ 15 g yielded an extra 10.830 months.

Being Hispanic did not produce a statistically significant difference in sentence nor did the interaction effects.

The R Square value for this model equaled 0.239. This means that the model accounts for only 24% of the variance in the dependent variable, sentence.

Grand Summary

Overall, trial convictions are significantly associated with a higher sentence than plea bargain convictions. In the general linear models, a trial conviction resulted in a positive, significant coefficient. Per results from analyzing this dataset, a trial tax exists

in Cook County – plea bargainers tend to receive lesser sentences than those convicted at trial.

Factoring out the impact of a sentence equal to zero, that is, receiving probation, also showed a significant coefficient for measuring sentence. This variable elucidated sentence by considering the fact that a sentence of zero skews the mean value for sentence. As such, those receiving probation were not included in the general linear model.

The seriousness of the crime, quantity and then possession vs. sales also yielded an increased sentence as evidenced by the positive, significant coefficient.

Females received a significantly less sentence than males, but suffered an increased sentence, just like their male counterparts, when convicted at trial. As such, this study concluded that the controlling variable gender is associated with sentence. In addition, the interaction between gender and conviction mode proved to be a good predictor of sentence. Being female results in a lower sentence, period; however, that gender reduction disappears for females convicted at trial. The sentence for male plea bargainers was greater than that of their female counterparts, but both suffered increased prison time for not plea bargaining.

In terms of ethnicity, only being Black yielded a significant result as did the interaction between being Black and quantity. The following table illustrates a summary of statistically significant predicted values.

Table 28

Predicting Sentence Summary

Predictor	Additional Sentence
Step 1 All Statutes, Defendants sentenced to prison	
Constant	18.8 months
Trail Conviction	3.3 months
Sell	7.4 months
≥ 15 g	20.5 months
Female	-14.5 months
Female X Trial Conviction	11.4 months
Black	-13.8 months
Black X Sell	2.6 months
Black X ≥ 15 g	10.8 months

The associated effect of being convicted at trial vs. plea bargaining, selling as opposed to possessing narcotics, having the quantity involved be ≥ 15g not < 15g, gender, the interaction between being female and convicted at trial, being Black and the interaction effects of being Black may all be compared to a baseline sentence to obtain a predicted sentence based on a convict's inclusion in a particular subgroup. From that a trial tax may be calculated.

Table 29

Predicting Sentence by Gender for Possession Crimes Considering Quantity

	Possess < 15g			Possess ≥ 15g	
Plea Bargain	Male	Female		Male	Female
Constant	18.8	18.8	Constant	18.8	18.8
Female	0.0	-14.5	Female	0.0	-14.5
Sentence	18.8	4.3	≥ 15g	+20.5	+20.5
			Sentence	39.3	24.8
Trial Conviction	Male	Female		Male	Female
Constant	18.8	18.8	Constant	18.8	18.8
Female	0.0	-14.5	Female	0.0	-14.5
Trial Conviction	+3.3	+3.3	Trial Conviction	+3.3	+3.3
Female X Trial Conviction	0.0	+11.4	Female X Trial Conviction	0.0	+11.4
Sentence	22.1	19.0	≥ 15g	+20.5	+20.5
Trial Tax	**3.3**	**14.7**	Sentence	42.6	39.5
			Trial Tax	**3.3**	**14.7**

For plea bargained possession crimes of < 15g, males receive a sentence 14.5 months greater than their female counterparts, 18.8 vs. 4.3 months. For the same crime but involving a trial conviction, males receive a sentence 3.1 months greater than females in the same circumstance, 22.1 compared to 19.0 months. By not pleading guilty, the female gender discount disappears. There is, in effect, an interaction effect.

Plea bargained possession crimes involving ≥ 15g produce similar results. Males receive 39.1 compared to females' 24.8 months, again due to the 14.5 month gender

discount. For trial convictions, the comparative sentences become 42.6 months for males and 39.5 months for females.

This results in a net trial tax, regardless of quantity, for men of 3.3 months. However, females are hit hardest as the gender discount fades away due to the trial conviction. By not pleading guilty, females lose their gender discount if convicted at trial. This results in a net trial tax for females of 14.7 months.

The next table provides a similar display for sales crimes.

Table 30

Predicting Sentence by Gender for Sales Crimes Considering Quantity

	Selling < 15g			Selling ≥ 15g	
Plea Bargain	Male	Female		Male	Female
Constant	18.8	18.8	Constant	18.8	18.8
Sell	7.4	7.4	Sell	7.4	7.4
Female	0.0	-14.5	Female	0.0	-14.5
Sentence	26.2	11.7	≥ 15g	+20.5	+20.5
			Sentence	46.7	32.2
Trial Conviction	Male	Female		Male	Female
Constant	18.8	18.8	Constant	18.8	18.8
Sell	7.4	7.4	Sell	7.4	7.4
Female	0.0	-14.5	Female	0.0	-14.5
Trial Conviction	+3.3	+3.3	Trial Conviction	+3.3	+3.3
Female X Trial Conviction	0.0	+11.4	Female X Trial Conviction	0.0	+11.4
Sentence	29.5	26.4	≥ 15g	+20.5	+20.5
Trial Tax	**3.3**	**14.7**	Sentence	50.0	46.9
			Trial Tax	**3.3**	**14.7**

For plea bargained sales crimes of < 15g, males receive a sentence 14.5 months greater than their female counterparts, 26.2 vs. 11.7 months. For the same crime but involving a trial conviction, males receive a sentence 3.3 months greater than females in the same circumstance, 29.5 compared to 26.4 months. Again, by not pleading guilty,

females' gender discount disappears. There is, again, an interaction tax that leads to increased sentence.

Plea bargained sales crimes involving ≥ 15g produce similar results. Males received 46.7 compared to females' 32.2 months, again due to the 14.5 month gender discount. For trial convictions, the comparative sentences become 50.0 months for males and 46.9 months for females.

This results in a net trial tax, regardless of quantity, for men of 3.3 months. However, females are hit hardest as the gender discount fades away due to the trial conviction. By not pleading guilty, females lose their gender discount if convicted at trial. This results in a net trial tax for females of 14.7 months.

This holds true regardless of the crime's seriousness with regards to possessing vs. selling and whether the quantity involved < 15 g or ≥ 15g.

The next table provides a similar comparison but based on ethnicity. Hispanics were not included as that group did not produce any statistically significant results.

Table 31

Predicting Sentence by Ethnicity for Possession Crimes Considering Quantity

	Possess < 15g			Possess ≥ 15g	
Plea Bargain	Not Black	Black		Not Black	Black
Constant	18.8	18.8	Constant	18.8	18.8
Black	0.0	-13.8	Black	0.0	-13.8
Sentence	18.8	5.0	≥ 15g	+20.5	+20.5
			Sentence	39.3	25.5
Trial Conviction	Not Black	Black		Not Black	Black
Constant	18.8	18.8	Constant	18.8	18.8
Trial Conviction	+3.3	+3.3	Trial Conviction	+3.3	+3.3
Black	0.0	-13.8	Black	0.0	-13.8
Sentence	22.1	8.3	≥ 15g	+20.5	+20.5
			Black X ≥ 15g	0.0	+10.5
Trial Tax	**3.3**	**3.3**	Sentence	42.6	53.1
			Trial Tax	**3.3**	**3.3**

For plea bargained possession crimes of < 15g, non-Blacks receive a sentence of 18.8 months while Blacks received a 5.0 month sentence. For the same crime but involving a trial conviction, Non Blacks receive a sentence 3.3 months greater than Blacks in the same circumstance, 22.1 compared to 8.3 months. Ethnicity did not associate with conviction mode so the trial tax remains the same regardless of ethnicity.

Plea bargained possession crimes involving ≥ 15g produce similar results. Non Blacks received 22.1 compared to Blacks' 8.3 months. For trial convictions, the

comparative sentences become 42.6 months for non-Blacks, and 53.1 months for Blacks due to the interaction effect of being Black and the crime involving the larger quantity of ≥ 15g. There again appears to be an interaction tax. This results in a net trial tax, regardless of quantity or ethnicity of 3.3 months. Table 32 illustrates sales crimes.

Table 32

Predicting Sentence by Ethnicity for Sales Crimes Considering Quantity

	Selling < 15g			Selling ≥ 15g	
Plea Bargain	Not Black	Black		Not Black	Black
Constant	18.8	18.8	Constant	18.8	18.8
Black	0.0	-13.8	Black	0.0	-13.8
Sell	+7.4	+7.4	Sell	+7.4	+7.4
Black X Sell	0.0	+2.6	Black X Sell	0.0	+2.6
Sentence	26.2	15.0	≥ 15g	+20.5	+20.5
			Black X ≥ 15g	0.0	+10.5
			Sentence	46.7	46.0
Trial Conviction	Not Black	Black		Not Black	Black
Constant	18.8	18.8	Constant	18.8	18.8
Trial Conviction	+3.3	+3.3	Trial Conviction	+3.3	+3.3
Black	0.0	-13.8	Black	0.0	-13.8
Sell	7.4	7.4	Sell	+7.4	+7.4
Black X Sell	0.0	+2.6	Black X Sell	0.0	+2.6
Sentence	29.5	18.3	≥ 15g	+20.5	+20.5
			Black X ≥ 15g	0.0	+10.5
Trial Tax	**3.3**	**3.3**	Sentence	50.0	49.3
			Trial Tax	**3.3**	**3.3**

For plea bargained sales crimes of < 15g, non-Blacks receive a sentence of 26.2 months while Blacks received a 15.0 month sentence. For the same crime but involving a trial conviction, non-Blacks receive a sentence 11.2 months greater than Blacks in the same circumstance, 29.5 compared to 18.3 months. Ethnicity did not associate with conviction mode so the trial tax remains the same regardless of ethnicity.

Plea bargained sales crimes involving ≥ 15g produce similar results. Non Blacks received 46.7 compared to Blacks' 35.5 months. For trial convictions, the comparative sentences become 50.0 months for non Blacks and 49.3 months for Blacks due to the interaction effect of being Black and the crime involving the larger quantity of ≥ 15g. There appears to be, again, an interaction tax. This results in a net trial tax, regardless of quantity or ethnicity of 3.3 months.

The main lesson seems to be, regardless of crime, gender or ethnicity, criminal defendants reap a *bargain* by pleading guilty. They may otherwise face a trial tax. However, regardless of conviction mode there seems to be a "Black tax" but only in terms of the interaction between being Black and selling and then between Black and the crime involving ≥ 15g.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

This study began with the notion of a trial tax. Though no standard definition exists, for the purposes of this research, the descriptions provided by Bogira (2005) who characterize it as, ". . . the extra punishment a defendant may face merely by virtue of exercising his right to trial." and Ulmer and Bradley (2006) who declared it existed when, ". . . defendants are substantially penalized if they exercise their right to a jury trial and then lose." were used.

No writings were found that debated its existence; indeed, the Illinois appellate courts have openly discussed it. Some, however, notably the Alabama Sentencing Commission, have debated its constitutionality on the grounds that utilizing a Constitutional right should not impair one's liberty.

This runs counter to the concept of plea bargaining, a legal tool affirmed by the U.S. Supreme Court in Brady vs. U.S. (1970) and Santobello vs. U.S. (1971). If a defendant pleads guilty to an offense, they get a *bargain* in the form of a lesser sentence. The Court openly encouraged plea bargaining on the basis it creates a speedier court docket, lowers operating expenses for the courts and may indicate a defendant's greater likelihood to reform via their acceptance of responsibility. According to King (2005), the

U.S. Sentencing Commission openly declared that plea bargains should generate a "sentence discount" for acceptance of responsibility.

Langer (2006), however, argued that plea bargaining creates de facto unilateral adjudication where prosecutors may solely decide guilt or innocence through coercive plea bargains, thus effectively denying the defendant of the right to due process. Finkelstein (1975) wrote of finding evidence that, ". . . pressures to plead guilty have been used to secure convictions that could not otherwise be obtained." Bibas (2004) noted that low income defendants may be assigned a public defender handling a large caseload. Counsel for defense would have personal incentive to plea bargain the case, again effectively denying due process. Regardless, Kinsley (2002) estimated that almost 95% of all criminal cases in the U.S. are settled by plea bargaining over going to trial.

Plea bargaining will remain in the legal landscape for sometime. By default it appears the trial tax will also. This study examined whether the trial tax existed, to a statistically significant degree, for cocaine and heroin crimes in Cook County, Illinois. This was accomplished by comparing sentences based on whether the defendant plea bargained or lost at trial. It then attempted to measure that degree while controlling for contextual variables such as gender, ethnicity, crime seriousness, drug quantity along with interaction effects.

Data and Analyses

Data was received from the Circuit Court of Cook County, Illinois after submission of a Freedom of Information Act request. The records of 12,786 offenders who plead guilty or were convicted at trial for cocaine or heroin offenses were used. All subjects were initially charged in 2004, 2005 or 2006 with sentence being passed no later

than the end of 2007. All information obtained remains a matter of public record available to anyone who requests it. However, by request, no personal identifiers such as name or driver's license number were included in the dataset.

Throughout this research, the single dependent variable was sentence, in months. Independent variables included conviction mode, whether the defendant received probation or not, gender, ethnicity, crime seriousness, quantity and interaction effect variables.

Chi-square tests were used in this study to check for significant associations between categorical variables. Two-sample t-tests were performed to test for significant differences between means. Two-way ANOVA assessments were run to examine the possible interaction effect of independent variables. Finally, general linear models were developed in an attempt to measure any statistically significant associations.

Discussion of Findings Related to Trial Tax Existence

The mean sentence for the dataset used in this study equaled 25.36 months. Those convicted at trial received a mean sentence of 32.17 months compared to the plea bargainers who received a mean sentence of 24.86 months. That results in a 23% less and a statistically significant difference between groups. The trial tax does exist in Cook County, Illinois as far as this dataset is concerned.

In her study, King (2005) found evidence of a trial tax using data from Kansas, Maryland, Minnesota, Pennsylvania and Washington. Only in Washington State was there not a statistically significant difference between sentence and conviction modes. Overall, however, King found, ". . . a significant plea discount – the difference between

the average sentence given after a guilty verdict and the average sentence given after a guilty plea for the same offense . . .”

Ulmer and Bradley (2006) found the same effect in that, “. . . the odds of incarceration following a bench trial are roughly 2.2 times the odds for guilty plea, while a jury trial conviction has roughly 2.7 times the incarceration odds of a guilty plea.” They concluded that, “Overall, then, conviction by trial, especially jury trial, carries a meaningful additional sentencing penalty . . .”

Discussion of Findings Related to Contextual Variables

This study found that gender is not associated with conviction mode but it is to sentence length. Females receive a lighter sentence, period, but not so light a sentence if convicted at trial. In this study, women received a trial tax of 10.4 months compared to 4.5 months for men. This was due, primarily, to interaction of gender and conviction mode. By not pleading guilty women tended to lose their gender discount. Johnson (2003) came to the conclusion that female offenders were more likely to receive a downward departure in their sentence than males.

Unlike gender, ethnicity was significantly associated with conviction mode and sentence but no interaction effect was found. Blacks received a 4.5 month trial tax, the same as Whites, for crimes involving < 15g. However, once the crime involved ≥ 15g, the trail tax for Blacks increased to 5.4 months. Johnson found that Blacks had a 25% less chance of receiving a downward departure than Whites, and Hispanics were 56% less likely than whites to receive this benefit.

Comparing Blacks to Whites, this study found that Blacks were more often convicted of and received more hefty sentences for the more serious crime of sales. For

quantity, however, more Whites than Blacks were convicted of the larger amount and Whites received a greater sentence than their Black, greater quantity counterparts. This study discovered an interaction effect between ethnicity and quantity.

Discussion of Findings Related to Measuring Associations

Females faced a trial tax of 10.4 months, compared to 4.5 months for males. This was due, however, to a reduction in gender discount from 8.8 months to 2.9 months that came with a trial conviction. This was due to the gender and conviction mode interaction effect as it related to sentence.

Blacks and Whites received the same trial tax of 4.5 months for crimes involving < 15g, regardless of whether it related to possession or sales. Once the larger quantity of ≥ 15g was reached, however, Blacks received a net trial tax of 5.4 months while Whites maintained 4.5 months. This was due to the ethnicity and quantity interaction effect as it related to sentence. The negative coefficient for Black went from 4.8 to 3.9 using this interaction variable.

Limitations

The study is limited to heroin and cocaine crimes committed in Cook County, Illinois from 2004 to 2006. The results may not be extrapolated to other crimes where a defendant may be more or less likely to go to trial. Ulmer and Bradley (2006) found that violent crime defendants were two times more likely to go to trial than non-violent defendants. Beyond that, all limitations were related to using sentence as the dependent variable.

This study made no account for a defendant's criminal history. Traditional wisdom suggests that having a criminal history would lead to a longer sentence.

However, Johnson (2003) found that those with more criminal experience were more likely to receive a shorter sentence. Ulmer and Bradley (2006) determined that, ". . . the jury trial penalty decreases as the prior record score of the defendant increases." In spite of not agreeing with traditional wisdom, criminal history may be associated with sentence length.

Certain characteristics of the dataset may tend to dominate the analyses. Most of the convictions were for smaller quantities, < 15g. In addition, the dataset is dominated by Blacks and males.

The R Square value for this model equaled 0.239. This means that the model accounts for only 24% of the variance in the dependent variable, sentence. There are other factors impacting sentence not accounted for by the linear model utilized. Another study may be performed to explain that variance.

This dataset did not allow for determining a defendant's socioeconomic status or the type of counsel they may have employed, private or public defender. As noted by Bibas (2004), if they had a public defender they may be more likely to plea bargain than work to have charges dismissed or provide a rigorous defense at trial. A top-notch defense attorney may provide expertise available only to those who can afford it.

There was no way in this study to account for victim characteristics that may lead to a stiffer sentence, i.e. if the victim was a child or elderly person. King (2005) noted that some factors, relating to higher sentences, may be a judge's emotional reaction to victim testimony, public scrutiny that accompanies trials, or the "human" perspective of the judge that going to trial demonstrates an inherent lack of remorse on the defendant's part.

Implications and Recommendations for Future Research

This research will be a part of *Drug Possession Impact Study* by the Institute for Metropolitan Affairs scheduled for a late 2010 publication. The results may be used for policy development related to the alleged penalization of the constitutional right to a jury trial.

It may serve as the foundation for future, larger scale research such as an Illinois wide study or another in Cook County but including all crimes. A study may be performed to determine if public defender attorneys are more likely to have their clients plea bargain than private counsel.

In the spirit of Ulmer & Bradley (2006) and King (2005) an examination could be performed to study the association between criminal history and sentence. Also using those same studies research could be done on the association between sentence and jury trial vs. bench trial sentences. King (2005) found that, ". . . waiving a jury in favor of a bench trial has less consistent punishment consequences."

A qualitative study interviewing judges regarding their feelings about those who go to trial compared to plea bargaining, in terms of accepting responsibility and remorse could also be performed.

Conclusion

Plea bargaining and the trial tax will not soon disappear from our legal system. Studies regarding their impact will inspire debate about their constitutionality and overall fairness. The debate may never be settled but it appears that if a defendant is guilty and given the option to plea bargain, pleading guilty will be rewarded with a lighter sentence.

APPENDIX A:

GENERAL LINEAR MODELS

The below equations represent White male plea bargainers.

White male plea bargainer for possession of < 15g:
$Y' = \beta_0 + e$

White male plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + e$

White male plea bargainer for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_3)(\geq 15g) + e$

White male plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + e$

The below equations represent White males who were convicted at trial.

White male trial convicted for possession of < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + e$

White male trial convicted for selling < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + e$

White male trial convicted for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_3)(\geq 15g) + e$

White male trial convicted for selling ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + e$

The below equations symbolize White female plea bargainers.

White female plea bargainer for possession of < 15g:
$Y' = \beta_0 + (\beta_4)(\text{Female}) + e$

White female plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_4)(\text{Female}) + (\beta_2)(\text{Sell}) + e$

White female plea bargainer for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_4)(\text{Female}) + (\beta_3)(\geq 15g) + e$

White female plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_4)(\text{Female}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + e$

The below equations correspond to White females who were convicted at trial.

White female plea bargainer for possession of < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + e$

White female plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + (\beta_2)(\text{Sell}) + e$

White female plea bargainer for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + (\beta_3)(\geq 15g) + e$

White female plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + e$

The below equations represent Black male plea bargainers.

Black male plea bargainer for possession of < 15g:
$Y' = \beta_0 + (\beta_6)(\text{Black}) + e$

Black male plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + e$

Black male plea bargainer for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_3)(\geq 15g) + (\beta_6)(\text{Black}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

Black male plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

The below equations characterize Black males who were convicted at trial.

Black male trial convicted for possession of < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_6)(\text{Black}) + e$

Black male trial convicted for selling < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + e$

Black male trial convicted for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_3)(\geq 15g) + (\beta_6)(\text{Black}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

Black male trial convicted for selling ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

The below models correspond to Black female plea bargainers.

Black female plea bargainer for possession of < 15g:
$Y' = \beta_0 + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + e$

Black female plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + e$

Black female plea bargainer for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

Black female plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

The below models correspond to Black females convicted at trial.

Black female trial convicted for possession of < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + e$

Black female trial convicted for selling < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + e$

Black female trial convicted for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_6)(\text{Black}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

Black female trial convicted for selling ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) (\beta_6)(\text{Black}) + (\beta_8)(\text{Black} * \text{Sell}) + (\beta_{10})(\text{Black} * \geq 15g) + e$

The below equations represent Hispanic male plea bargainers.

Hispanic male plea bargainer for possession of < 15g:
$Y' = \beta_0 + (\beta_7)(\text{Hispanic}) + e$

Hispanic male plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + e$

Hispanic male plea bargainer for possessing ≥ 15g:

$Y' = \beta_0 + (\beta_3)(\geq 15g) + (\beta_7)(\text{Hispanic}) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$

Hispanic male plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$

The below equations represent Hispanic males who were convicted at trial.

Hispanic male trial convicted for possession of < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + e$

Hispanic male trial convicted for selling < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + e$

Hispanic male trial convicted for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_3)(\geq 15g) + (\beta_7)(\text{Hispanic}) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$

Hispanic male trial convicted for selling ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$

The below models characterize Hispanic female plea bargainers.

Hispanic female plea bargainer for possession of < 15g:
$Y' = \beta_0 + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + e$

Hispanic female plea bargainer for selling < 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + e$

Hispanic female plea bargainer for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$

Hispanic female plea bargainer for selling ≥ 15g:
$Y' = \beta_0 + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15g) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + (\beta_{11})(\text{Hispanic} * \geq 15g) + e$

The below models characterize Hispanic females convicted at trial.

Hispanic female trial convicted for possession of < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + e$

Hispanic female trial convicted for selling < 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + e$

Hispanic female trial convicted for possessing ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_3)(\geq 15\text{g}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + (\beta_{11})(\text{Hispanic} * \geq 15\text{g}) + e$

Hispanic female trial convicted for selling ≥ 15g:
$Y' = \beta_0 + (\beta_1)(\text{Trial Conviction}) + (\beta_2)(\text{Sell}) + (\beta_3)(\geq 15\text{g}) + (\beta_4)(\text{Female}) + (\beta_5)(\text{Female} * \text{Trial Conviction}) + (\beta_7)(\text{Hispanic}) + (\beta_9)(\text{Hispanic} * \text{Sell}) + (\beta_{11})(\text{Hispanic} * \geq 15\text{g}) + e$

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VITA

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The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

_____ _____

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