ABSTRACT

Title of Thesis: TO DETAIN OR NOT TO DETAIN? USING PROPENSITY SCORES TO EXAMINE THE RELATIONSHIP BETWEEN PRETRIAL DETENTION AND CONVICTION

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Scholars have long known that individuals who are detained prior to their sentencing fare worse in the criminal justice system than those who are released. These defendants are more likely to be convicted, to be sentenced to prison as opposed to jail or probation, and to receive longer sentences. What is unknown is the casual mechanism behind these effects. Is this effect due to the fact of detainment, or is it merely a result of the same underlying criminal propensity being considered separately at each stage of the sentencing process? This study indicates that detention itself has an independent effect on conviction. After creating balanced groups, detention remained statistically significant, indicating that detained individuals are more likely to be convicted than undetained individuals. Sensitivity analyses indicate that there may be unobserved variables having an impact on a person's likelihood of detention which would have improved the model.

TO DETAIN OR NOT TO DETAIN? USING PROPENSITY SCORES TO EXAMINE THE RELATIONSHIP BETWEEN PRETRIAL DETENTION AND CONVICTION

by

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1. Introduction

The significance of pretrial release to defendants' criminal justice experiences cannot be overstated. Detainment in jail prior to trial has impacts on their lives both before and after trial. For one, detained offenders suffer practical disadvantages that their released counterparts do not. Offenders often lose their jobs and are unable to financially provide for their families (Frazier, Bock, & Henretta, 1980). They cannot meet family obligations such as childcare and they can lose their community ties while incarcerated (Frazier et al, 1980). Because their attorneys must take extra steps to see them in person, it is possible that detained defendants are not as able to assist in preparing their own defense and thus may have worse court outcomes than released defendants (Gottfredson & Gottfredson, 1988). There are also disadvantages to pretrial detainment, which can have long-term negative consequences. Defendants who are detained while awaiting trial tend to have harsher punishment outcomes, which often comes in the form of a higher likelihood of conviction and harsher sentences (LaFree, 1985; LaFrentz & Spohn 2006; Phillips, 2008). Scholars are becoming more and more concerned with the possibility that pretrial detainment may have long-lasting effects on criminal defendants.

There are certain aspects of the bail decision that differentiate it from other sentencing decisions. Clarke and Kurtz (1983) note that unlike other criminal justice processes, bail decisions are rarely reviewed by appellate courts. Decisions are made by a number of different individuals depending on the court and they are not closely supervised. Thus, a criminal defendant is even more at the whim of an individual decisionmaker than at other points in the criminal justice process. There are several reasons why pretrial release warrants closer attention than it has previously received.

Pretrial detention is essentially incarceration before conviction. In other countries, pretrial *release* is the default and individuals are only held in jail awaiting trial under extraordinary circumstances (Drago et al, 2009). Judges often make split-second decisions with incomplete information and there is a great deal of judicial discretion at this point in the sentencing process (Goldkamp, 1979). In addition, situations involving monetary disparity also often tend to have racial disparity. For defendants in Demuth's (2003) study, being granted financial release was tantamount to a denial of bail because so many of the defendants were unable to pay for bail or bond, and they were most often minorities. All of this highlights the need to study pretrial release both as an outcome and as a factor for future aspects of the offender's progression through the criminal justice system.

The characteristics which make a person more likely to be detained may also be the same characteristics which would increase probability of conviction or sentence length. It is unclear then, whether it is the experience of being detained prior to trial and the negative consequences often associated with it, that produce more punitive outcomes or whether there are qualities about the offender which affect both the pretrial detention decision and subsequent sentencing outcomes. A naïve comparison of individuals who are detained to those who are released is inappropriate because the very same characteristics which increase the likelihood of detainment may also affect the probability of conviction. Gottfredson and Gottfredson state this rather eloquently: "these studies leave us unsure as to whether detention itself is prejudicial or whether the factors that are influential in setting high bail (and hence detention) are the same factors that lead to

conviction or more punitive sentences" (1988: 83). In this case, propensity scores can be used as a valuable tool to disentangle the selection issue.

The current study will investigate whether being detained prior to trial is a disadvantage for criminal defendants when it comes to their likelihood of conviction, or whether the positive relationship between detention and conviction may actually be the result of selection effects that have not yet been adequately accounted for in previous studies. This paper will add to the current literature in several important ways. First, it will advance existing research on pretrial detention by conceptualizing the pretrial decision-making phase as part of a broader process of criminal punishment. Second, it will focus on the effects of pretrial detention on criminal conviction. Much of the recent literature on criminal punishment has been limited to final sentencing outcomes (Ulmer, 2012); the current study advances that work by focusing on conviction, which has been the subject of relatively little empirical research. Finally, this study will more effectively deal with the selection effects inherent in studying the relationship between pretrial detention and conviction. Prior studies suggest there may be a negative effect of pretrial detention on the likelihood of conviction, but none have yet been able to adequately address the potential for selection effects.

2. Literature Review

2.1 History of Pretrial Release

Pretrial release is an understudied part of the American criminal justice system and has experienced countless changes during its evolution. It is instructive to first study the roots of pretrial detention in the Constitution and to determine which purposes are constitutionally permissible. There have been two main points of contention regarding

the institution of pretrial detention. First, scholars questioned whether there is a "right" to bail at all, as the Constitution is arguably ambiguous on the point: it states only that "excessive bail shall not be required" (U.S. Const. Amendment VIII). Foote (1965) traced the constitutional roots of bail and concluded that the right to bail should be construed broadly, even though certain (generally capital) offenses have not historically been seen as bailable.

The other significant debate in the pretrial release arena has been establishing its legitimate purposes (Goldkamp, 1979). It has been widely accepted that assuring the defendant's appearance at trial is a legitimate purpose of detainment (Foote, 1965; Gottfredson & Gottfredson, 1988). During the 1960s and 1970s, however, questions arose about whether judges could also consider safety of the community (Gottfredson & Gottfredson, 1988). The Supreme Court settled this issue in *U.S. v. Salerno* (1987) when they stated that assuring the appearance of the defendant is a constitutionally permissible goal, but that there are other goals which may also be considered. The practice of setting monetary bail was also questioned during this time. Some argued that for indigent defendants, setting a very high monetary bail amount was a form of economic discrimination because these defendants would be more likely to be detained solely because of their economic resources (Gottfredson & Gottfredson, 1988). The two conflicting goals that continue to reappear during this debate are protecting the defendant's liberty and safeguarding the community while obtaining orderly justice.

Over the past thirty years, bail reform has been initiated in several jurisdictions and has been advocated by many criminal justice researchers. As mentioned above, the practice of setting monetary bail has been questioned as favoring defendants with

financial resources. The Federal system sought to combat some of this inequality with the Bail Reform Act of 1966, which created a presumption of release for most non-capital crimes and provided for non-surety release options such as conditional release terms and refundable bail deposits (Cohen & Reaves, 2007). The subsequent Bail Reform Act of 1984 modified this scheme slightly by providing new procedures by which defendants believed to be a danger to the community and a flight risk could be detained. Many states have followed suit and passed similar laws or initiated reform procedures.

One of the most well-known efforts at reducing pretrial detention inequalities was initiated in New York City in the early 1960s by the Vera Project and is known as the Manhattan Bail Project (Gottfredson and Gottfredson, 1988). Volunteers with the project conducted pre-bail interviews with defendants to obtain information on employment, residence, and family ties; this information was then shared with the judge making the bail decision. The purpose of these interviews was to give more background information on defendants to judges in order to increase the number of defendants released on their own recognizance. Release-on-recognizance was created in the 1960s in an attempt to eliminate bail unfairness and inequity for individuals who were not able to pay monetary bail, and the Vera Project argued that it was an appropriate and fair alternative to financial bail. The project did succeed in its goal of increasing the number of defendants who were released pending trial and some evaluations of the project found that it demonstrated the negative relationship between pretrial flight and a defendant's community ties (Freed & Wald, 1964). Release-on-recognizance was the beginning of the movement away from money bail and towards bail reform. Researchers are now

beginning to see patterns in what case and offender characteristics predict release and also how detainment can predict later court outcomes.

2.2 Factors Affecting Pretrial Release

In the past forty years, numerous alternatives to monetary bail have become available to judges and far fewer defendants are held because they cannot pay bail. These include release-on-recognizance, release to a private third-party, release to a treatment program, supervised release, and several different types of bonds (Gottfredson & Gottfredson, 1988). All of these efforts have arguably led to the improvement of the bail function, but there are also several questions left unanswered. One of them is what effects pretrial detainment or release has on the criminal defendant beyond their detention prior to trial.

When studying bail, it is important to conceptualize the process as being one of several stages and decisions. There are many different ways for researchers to tackle this problem, but it is important to consider the numerous stages of the bail process (see Nagel, 1983). First, a judge (or other decisionmaker) elects to deny or grant release at all. If the release option is chosen, there are several alternatives. Defendants may be released on their own recognizance, where the only condition for release is that they present themselves at their next scheduled hearing. Otherwise, defendants can also be granted non-financial release terms such as conditional release with monitoring or they can be granted monetary release terms. Financial terms are also available which include paying a bond such as a surety bond or paying cash bail (Cohen & Reaves, 2007). In predicting whether an individual will be released or detained, this idea of bail as a multi-stage

process as opposed to one isolated decision is important because to analyze it as one time point oversimplifies it and disregards the judicial decisionmaking process.

Factors which predict pretrial release are similar to those that affect other sentencing decisions, but it is one time point in the criminal justice process where there are specific and enumerated criteria for the decisionmaker to consider, several of which are not generally considered "legal" variables (see Nagel, 1983). State statutes which instruct the judge on what factors to consider often include items which are not related to the defendant's criminal history or the circumstances of the event, such as their community ties or employment status (Demuth, 2003). Because of the subjective nature of some factors and their differing legal relevance, extralegal information such as race and gender may more easily come into play. Overall, legal factors tend to carry the most weight for judges, but extralegal factors also influence judicial decisionmaking (see Nagel, 1983; Demuth, 2003). Table 2 summarizes recent studies of pretrial detention and their central findings.

Criminal History and Offense Type

Criminal history and seriousness of the offense charged are legally relevant variables which are often included in models and prove to be important. In an early study to investigate pretrial release, Bock and Frazier (1977) found that the seriousness of the charge was the best predictor for bond amount. Ilene Nagel's 1983 study was one of the first rigorous papers to examine how judges make bail-related decisions. Using data from the state of New York, she first studied the New York bail statute to determine which factors were legal and which were extra-legal. A few of her research questions were whether the legal factors were significant and how consistently (if at all) these legal

factors were considered across different stages of the bail process. She concluded that the legal factors proscribed in the New York bail statute, such as the statutory severity of the offense charged, prior criminal record, and recommendations of the Pretrial Services Agency were the best predictors of her outcomes and were significant at varying levels at different stages of the bail decisionmaking process.

Demuth (2003) found comparable results in his comprehensive study of bail decisions using State Court Processing Statistics (SCPS). Being charged with a violent crime such as rape or robbery increased the odds of being detained by approximately three times as compared to theft. In addition, having more prior arrests and convictions increased the odds of detainment. While the bail amount was larger for detained defendants in one large-scale analysis of felony defendants in state court, those detained individuals were also more likely to have committed more serious and violent crimes (Cohen & Reaves, 2007). Freiburger and Hilinksi (2010) similarly found that those with more extensive prior records and who were charged with more serious offenses were less likely to be released prior to their trial. Prior record was measured using Michigan's composite scoring system, which is based on factors such as prior convictions (felony and misdemeanor) as both a juvenile and adult and whether the offender was on probation or parole at the time of the arrest. Wooldredge's (2012) examination of an urban Ohio jurisdiction indicated that both prior felonies and prior misdemeanors predicted higher bond amounts and a lower likelihood of being offered release on recognizance. As a whole, individuals who are charged with more severe crimes and who have more extensive criminal histories are less likely to be released prior to their trial.

Prior Failure-to-Appear

Whether an individual has failed to appear for a prior criminal hearing also has a statistically significant impact on their likelihood of release. For individuals in Demuth's (2003) examination of pretrial release, having a prior FTA increased the likelihood of pretrial detainment by 1.14 times. This variable was also associated with higher likelihood of bail denial and being held on bail. Using a dataset of four New York City boroughs, Maxwell (1999) investigated what factors affected a judge's decision to grant release-on-recognizance (ROR) to felony defendants. In the overall sample and in each of the counties separately, having a prior FTA was negatively associated with being granted ROR. Judges seem then, to view defendants who have already failed to live up to the terms of a prior release condition in a negative light and these defendants are thus less likely to be released prior to their trials.

Under Criminal Justice Control at Time of Arrest

In assessing whether to release a defendant on any terms prior to trial, judges often consider whether that individual is under the supervision of the criminal justice system when they are arrested. This can take the form of being on probation or parole, or having other pending charges. In Katz and Spohn's (1995) study, individuals who were on probation at the time of their arrest were less likely to be released and were granted higher monetary bail amounts. Demuth (2003) examined five separate pretrial release outcomes and found that individuals with an active criminal justice status were more likely to be detained, denied bail, be granted financial release terms (as opposed to non-financial terms), and to be held on bail. For individuals who were granted a monetary bail term, higher bail amounts were predicted for those with active criminal justice

statuses. Based on the existing literature, individuals who are under some sort of criminal justice supervision tend to be less likely to be released.

Race/Ethnicity and Gender

The role of factors which could be considered extralegal has been investigated more extensively, with a particular focus on race and gender. Racial minorities and men tend to be less likely to be released pending trial. In LaFree's (1985:222) early study of defendants in two Southwest jurisdictions, "being Hispanic was the single best predictor of an unfavorable pretrial release decision in El Paso," even more so than the defendant's criminal history or seriousness of the offense. Katz and Spohn (1995) tested an interactive model to analyze the effects of the defendant's race and gender in a sample of Detroit felony arrests. They found that the effects were not as simple as whether race "mattered" in setting bail amounts or granting bail at all. Black females were granted lower bail amounts than black males but race and gender also affected the probability of pretrial release. White defendants were more likely to be released than black defendants and females were more likely to be released than males. They found that black males were the group with the lowest likelihood of pretrial release.

Highlighting the need to study both ethnicity and race, Holmes and colleagues (1996) included Hispanic ethnicity in their examination of pretrial release in Bexar County and El Paso County in Texas. They were particularly interested in whether being of Hispanic origin had significant impacts on pretrial release and also later sentencing outcomes. They found that ethnicity and employment had indirect effects on sentence severity through two specific variables: individuals who had a publicly-retained attorney and who were detained prior to their release had more severe sentences. These

individuals were also more likely to be Hispanic and to be unemployed. As with Nagel (1983) and some of the other researchers discussed, Holmes and colleagues also made a point to study the criminal justice process as a series of decisions as opposed to discrete events.

Demuth (2003) expanded on the Bexar County study by combining two positive aspects of prior studies: examining multiple decision points and including Hispanic ethnicity as a predictor. While Demuth (2003:894) found that legal characteristics such as type of crime charge, prior failure-to-appear, and criminal history were "the strongest determinants of whether someone [was] released or detained," he also found that Hispanics were approximately twice as likely to be detained as whites, were more likely to be denied bail, and received higher bail amounts when granted financial release. He concluded that Hispanic defendants were at a cumulative disadvantage across the multiple stages of the pretrial process.

In a very in-depth study of racial effects on pretrial detention, Wooldredge (2012) also studied bail as a multi-stage process and focused on interaction effects. Using over 5,000 felony defendants in one urban Ohio jurisdiction, he analyzed whether there were significant main effects or interaction effects of race on ROR, bond amounts, and length of prison sentence (Wooldredge, 2012). This paper followed a similar approach as Demuth in that pretrial release was examined as a series of decisions as opposed to the final outcome of whether a defendant eventually gained release. The main effects of race were insignificant for each of these, but several interaction effects emerged. Young African American males had lower odds of being released on their own recognizance and

higher bond amounts. He concluded that there is a significant need to study sentencing and detainment in more nuanced ways.

Following Katz and Spohn's idea that racial effects may not be as simple as adding a variable in a model, Freiburger and Hilinksi (2010) examined whether race, gender, and age had significant main effects or significant indirect effects on an offender's probability of pretrial release. Using a focal concerns perspective, they found that both females and younger offenders were more likely to be released. Race in itself was insignificant as a main effect as its impact disappeared when economic variables were included. However, when models were estimated with interactions, racial interactions emerged as significant. In the race/gender interaction, black females were found to be less likely to be detained than white males and white females. Overall, then, prior work suggests that race and ethnicity are often important predictors of pretrial release, with racial and ethnic minorities less likely to be released.

Defendant Age

The effects of age on pretrial release have been less consistent across studies. In Nagel's (1983) study of New York City defendants, age as an interval variable was significant and positively related to whether defendants were granted any sort of release option, indicating that older defendants were more likely than younger defendants to be given this option. Katz and Spohn (2006) also found that the age of the defendant was significant and positive for both whether the defendant was released and whether they were granted a bail option. Demuth's (2003) examination of the SCPS data similarly indicated that age was significant and positive for detainment, financial release vs. nonfinancial release, and being held on bail. A squared term of age was also included

and for these three binary outcomes was also less than one for each of these three outcomes, indicating a curvilinear relationship where the youngest and oldest members of the sample were the most likely to be detained, granted financial release, and be held on bail.

Freiburger and Hilinksi (2010), however, found that in each of their models, younger defendants (coded as a dummy of age 15-29) were actually the most likely to be released compared to their older counterparts. They also included interactions of race, gender, and age and found that black women were the most likely to be released of any of the interaction groups, regardless of their age. Overall, several studies suggest a positive relationship between age and pretrial detention, though this effect is not always consistent across studies, and some work suggests that there may be nonlinear relationships between age and pretrial release.

Summary

The literature on pretrial release has come to few definitive conclusions. In the vast majority of studies, legal factors such as crime severity, prior failures to appear, and the defendant's criminal history are the most salient factors for predicting whether an individual will be released prior to their trial or sentencing. Often (but not always), researchers have found there are certain groups of individuals who are less likely to be released prior to their trial. These groups often include young, male minority defendants. Collectively this researcher suggests that certain characteristics of criminal defendants make them more likely to be detained, whereas a related literature suggests that those who are detained often fare worse in conviction and sentencing outcomes than those who are released.

2.3 Factors Affecting Conviction

Conviction has not been studied with the same intensity as other punishment outcomes, but the work that has been done indicates that most independent variables have similar effects on pretrial detention and conviction. In most sentencing models, legal variables carry significant weight; individuals with more serious offending histories (in the form of prior arrests and prior convictions) tend to have harsher sentences (Steffensmeier, Ulmer, & Kramer, 1998; Demuth & Steffensmeier, 2004; Tartaro & Sedelmaier, 2009; Phillips, 2008). Phillips (2008) found that individuals with higher numbers of prior arrests were more likely to be convicted and that individuals charged with more serious crimes were less likely to be convicted overall. Eisenstein and Jacob's seminal (1977) work found that in Chicago, type of charge was one of the strongest predictors of conviction. There were certain charges that almost always led to acquittal and others which almost always led to conviction. Offender characteristics such as age, race, and gender are also significant for final sentence predictions. While Steffensmeier and colleagues (1998) have indicated that these relationships are complicated and often interactive, there are some main effects which are often found in the literature. In her extensive review of prior work, Spohn (2000) found that blacks were more likely to be convicted of a felony than a misdemeanor but overall, no more likely than whites to be convicted of any offense at all. While some work has found that younger, male, minority offenders are sometimes treated more harshly in the criminal justice system (Spohn & Holleran, 2006), Phillips (2008) found that gender had no significant effects on conviction. Overall, factors affecting conviction tend to follow the same pattern as other sentencing outcomes, though there are some variations among studies.

2.4 Effects of Pretrial Release on Conviction and Other Outcomes

Scholars have postulated for some time that pretrial detainment may have negative effects on an offender's likelihood of conviction or final sentence. It has been argued that detained defendants may be more likely to plead guilty in order to be freed from the confinement of jail (Gottfredson & Gottfredson, 1988). In addition, detained individuals may not be able to assist in their defense as well as those who are free prior to trial. Judges may view detained individuals as being more of a danger to the community and thus punish them more severely. This is a very complicated question which would be best answered with an experiment, but that is not a possibility. Researchers have been examining this issue for some time and pretrial detention often is associated with higher likelihood of conviction and longer sentences (Phillips, 2008; Spohn, 2009). The current literature and statistical methods demonstrate a detrimental effect of pretrial detainment on later conviction and sentencing outcomes, but the causal mechanism is still unclear. As there is sparse research on conviction as an outcome, this literature review will also include studies that have examined other sentencing outcomes such as sentence length. Prior work has indicated that predictors for both outcomes tend operate similarly (Phillips, 2008).

In an early and less sophisticated study of pretrial detainment, Clarke and Kurtz (1983) used multivariate analysis to examine several hypotheses and to study the importance of what they termed "interim decisions," which includes pretrial case processing decisions, to final sentencing dispositions. Their research used number of days in detention as the independent variable as opposed to merely using pretrial detention, but the effects they found were similar to other studies – the longer that a defendant spent in

pretrial detention, the less likely they were to have their case dismissed. Longer pretrial detention was also associated with longer sentence lengths. They concluded based on their statistical analyses that pretrial detention had a significant independent effect on these later sentencing outcomes.

LaFrentz and Spohn (2006) studied a sample of drug offenders in federal court and also found that being detained prior to trial had negative effects on the final sentencing outcome. Using an OLS model and controlling for independent variables such as race, gender, age, employment status, they found that individuals who were detained prior to trial had significantly longer sentences than those who were released. When models were estimated for different racial groups, pretrial detainment held up as significant and positive for black and white offenders, but not Hispanic. They concluded that for Hispanics defendants, the race of the offender had an indirect effect on sentencing because it worked through the pretrial status of the offender.

Spohn (2009) built upon her prior work with LaFrentz and examined the effects of race, gender, and pretrial release to determine if there were indirect effects and/or cumulative disadvantage for certain defendants in federal court. Spohn's paper tested the question of whether drug offenders who were minority males are at a cumulative disadvantage due to their higher likelihood of pretrial detention and higher likelihood of receiving a longer prison sentence than other similarly situated white offenders. Like Nagel (1983), she examined the federal bail statute to determine which factors were considered legally relevant and which were not.

Spohn's (2009) findings support the notion of a cumulative disadvantage for certain types of offenders. While legally relevant variables were significant predictors of

the release decision, offender characteristics such as race and sex also played a role. Males and minority offenders were less likely to be released prior to their trials. She found that pretrial release status also affected sentence length; offenders who remained detained had longer sentences. Females received shorter sentences, but race did not emerge as a significant predictor for sentence length. After analyzing all of the results, Spohn concluded that male offenders were at a cumulative disadvantage because they were more likely to be detained and also likely to receive longer sentences when convicted. She suggests also that merely including dummies for race and sex may downplay the complex nature of that relationship.

Similarly, Tartaro and Sedelmaier (2009) found that in their sample of two large Florida counties, pretrial detainment was significantly related to later punishment outcomes even after controlling for other important variables. Models were estimated separately for each county and pretrial detention was positively related to both the in/out decision and the sentence length of convicted defendants in almost every instance.

In a recent report commissioned by the New York City Criminal Justice Agency, Inc., pretrial detention was found to have negative effects on several different sentencing outcomes. This study is instructive because it operationalized detention in three different forms: whether the individual was detained at arraignment; the length of detention in days; and combinations of whether the individual was initially detained, detained pretrial, or detained for the entirety of their process (Phillips, 2008). For each of these independent variables, detention increased the probability of conviction. The most striking is for individuals who were not released at all: they were 9.61 times more likely than entirely released counterparts to be convicted. This study used data from New York

City and included many independent variables, such as the number of arrest charges, offense type, criminal history, and offender characteristics and is a good example of a study that attempts to control for as many factors as are available, but that is still unable to truly tease apart selection into detention and into conviction.

Knowing that pretrial detention can have such significant impacts on a person's life both during detention and at their trial or sentence, coupled with the fact that these decisions are not often reviewed by any higher authority, highlights the reasons why more research attention should be geared towards judicial decisions that occur prior to the final sentencing outcome. The existing literature on the long-term effects of pretrial detention begs an important question. Are these negative outcomes associated with pretrial detainment a result of something about pretrial detention itself, or are there uncaptured characteristics related to these defendants that make both outcomes (detainment and conviction) more likely? Prior literature has not yet been able to determine whether detainment itself has negative effects on conviction and punishment outcomes or whether this apparent relationship might be the result of unaccounted for selection effects. For instance, criminal propensity could be a preexisting difference between those who are detained and those who are not, which also affects conviction and subsequent sentencing outcomes. Perhaps a judge who evaluates a defendant as being more dangerous or more likely to abscond prior to trial finds that the same characteristics warrant conviction. Differing theoretical perspectives provide divergent hypotheses regarding answers to this question.

3. Theory and Hypotheses

Criminological theory has not paid as much attention to judicial decisionmaking as offender decisionmaking, in part due to the difficulty in obtaining judicial and court cooperation. Most theories concerning how judges and other court actors make decisions focus on the actors' attempts to make sense of the limited information that is given to them at the time they are required to make decisions. Focal concerns and bounded rationality have the most practical relevance to the decision whether to release or detain criminal defendants and whether to convict and will thus be the main theoretical approaches applied here.

Albonetti's (1991) bounded rationality theory describes the decisiomaking process for courtroom actors in various situations. In her integrated theory of judicial and court actor decisionmaking, she sought to answer the question of the effect that race, gender, and SES have on sentencing outcomes. Her theoretical approach combines the organizational approach with traditional social science concepts to develop a new way of thinking about judicial decisionmaking. She posited that all people are trying to make rational decisions, but they are often forced to act with incomplete information and thus use various techniques to avoid uncertainty. One such technique is relying on "bounded rationality," which involves a court actor estimating offender dangerousness by relying on prior experiences and knowledge which may sometimes include reliance on stereotypes. Utilizing these stereotypes may result in discrimination and disparity in sentencing, particularly because stereotypes are not often based in reality. Albonetti's theory is particularly applicable to the research question at hand due to its focus on interdependence across stages of the judicial process. She concluded that the "finding of

a substantial positive interaction effect [between race and financial bail terms] is instructive of the complex relationship between uncertainty avoidance, racial stereotypes, and levels of punishment" (1991: 261).

This desire to reduce uncertainty may also extend to prosecutors and defendants who are negotiating a plea bargain. Each party in a judicial setting desires certainty and for prosecutors, this involves obtaining convictions. A conviction is assured with a plea deal and it is a much more uncertain possibility with trial. Defendants also desire certainty and this can come in the form of wanting to know their future. A sentence length obtained through a plea bargain is far more certain than a potential sentence from a jury, or even a judge. Individuals who are detained prior to trial may be even more desirous of certainty because they are unhappy with their living conditions. Kellough & Wortley (2002:186) argue that "the detention of accused persons is a rather important resource that the prosecution uses to encourage (or coerce) guilty pleas from accused persons." In their view, detained individuals plead guilty because they feel pressure and fear due to their detainment; prosecutors are aware of this and can manipulate defendants to make plea deals.

In addition, Albonetti's findings indicated that when there is uncertainty at one point in the judicial process, it becomes relevant at a later decision point; in her study, pretrial release became relevant for the final sentencing decision. When a judge or other decisionmaker attributes a stable and enduring cause of crime to race (or some other trait about a defendant), that factor is affecting the exercise of discretion at that particular point and possibly others down the line. Tartaro and Sedelmaier (2009) expanded on this idea by applying bounded rationality to study the effects of race and pretrial detainment

on sentence length. They noted that there might be a "domino effect" where individuals who are disadvantaged at one point in the sentencing process are also disadvantaged at a later point (2012: 206). It is possible that an actor may consider an individual to be dangerous at the first stage (i.e. the pretrial release phase) and the next judge or decisionmaker involved will be influenced by this and also find the offender to be dangerous. This may not be a problem if the initial judge was making a decision based upon appropriate factors, but if they are influenced by extralegal factors such as race and gender, then the disadvantage for those offenders can follow them throughout the process and compound on itself.

In the same vein as other pretrial release studies (see Demuth, 2003 & Freiburger & Hilinski, 2010), the theoretical underpinning for this paper will be rooted in Steffensmeier and colleagues' (1998) focal concerns theory. This paper will build upon focal concerns perspective by incorporating some of the ideas found in Tartaro & Seidelmaier (2009) which predict a "domino effect" of court actor use of stereotypes and mental shortcuts to make decisions. This theory states that judicial decisions are guided by three "focal concerns": offender blameworthiness, community protection, and practical constraints/consequences. Blameworthiness encompasses the defendant's guilt and offending history as well as the seriousness of the current offense. Decisionmakers may also consider biographical factors such as prior victimization from others and how involved the offender was in the crime. Community protection is similar but is more focused on incapacitating the offender to reduce possible harms and deterring the offender from committing future offenses. Predictions about offender dangerousness often consider attributions based on the type of offense, information regarding the case,

and the offender's criminal background. Practical constraints take into account the resources of the jurisdiction in the different levels of the criminal justice process and the disruption of family and community ties for the offender. Organizational constraints may be working relationships between different members of the courtroom workgroup, overcrowding in jails, or the cost to the criminal justice system. Offender consequences may also include any health consequences or ability to be incarcerated.

Steffensmeier and colleagues acknowledge that these three factors have a complex relationship with one another and that prosecutors, judges and other court actors almost always act without complete information, which results in the use of perceptual shorthands in order to make decisions in the absence of all of the desired information. Their main proposition was that certain extralegal factors would interact to influence judicial sentencing for young, black, male offenders due to attributions of dangerousness based on membership in each of these groups. The authors concluded "many similar interpretations underlie race, gender, and age differences in sentencing" (Steffensmeier et al, 1998: 787). Court actor perceptions of dangerousness and "ability to do time" are related to stereotypes of young and minority offenders. These offenders are considered to be more capable of enduring a prison sentence and thus judges may be more inclined to hand down a more severe punishment. In the end, Steffensmeier and colleagues found that judges made attributions about blameworthiness, dangerousness, risk of recidivism, and practical considerations based on mostly legally relevant considerations such as offense history, but that they are also influenced by racial variables. The interaction effects that emerged also demonstrate that there is a complex relationship between the three factors, which can act to disadvantage certain offenders.

This theory, coupled with Tartaro & Sedelmaier's (2009) expounding on bounded rationality is well-suited to studying pretrial release because of the parallels with the competing goals of pretrial release: ensuring a defendant's appearance at trial and protecting the community/victim while the defendant awaits trial. These two objectives pair well with the focal concerns of blameworthiness, community protection, and practical considerations. For the first, when contemplating whether a defendant will re-appear for subsequent court dates, the judge will likely consider the probability the offender is actually responsible for the crime they are charged with and practical considerations of whether monetary bail is an appropriate and feasible option. Second, community protection is enumerated both as a focal concern for court actors and as a purpose of pretrial detention. Bounded rationality ties into these because judges are generally going to be quite uncertain about whether a defendant will return for court dates or whether they will pose any harm to the community while they are released. For both of these stated purposes of pretrial detention, judges and other decisionmakers are essentially being asked to look into their crystal ball and predict offender behavior. If an offender is released on their own recognizance and fails to return for their hearing, the judge may be seen as responsible for their absence. Even worse, if an offender commits another crime while released, the individual responsible for their release terms may be blamed for that crime. When acting with such uncertainty and possibly severe consequences, judges and other court actors will be likely to rely on their own stereotypes and perceptual shorthand. Subsequent judges and actors may take into account the initial dangerousness determination and alter their own perceptions.

Based on the focal concerns theory of court actor decisionmaking and Albonetti's bounded rationality theory, I hypothesize that the most important factors for conviction will be legally relevant variables such as seriousness of the offense and criminal history, but that pretrial detention will still have an effect on conviction likelihood. However, it is uncertain whether pretrial detainment itself is the reason for conviction, or whether some characteristic of the offender is responsible for both pretrial detainment and conviction.

3.1 Research Questions and Hypotheses

There are two main research questions. The first pertains to whether pretrial detention predicts the probability of conviction. This variable has proven to be statistically significant in many prior studies, but first it must be seen whether these data exhibit the same pattern.

RQ 1: Do criminal defendants who are detained have a higher likelihood of conviction than defendants who are released prior to trial/sentencing?

I predict based on the prior literature that detained defendants will be more likely to be convicted. The causal mechanism involved cannot be determined from this finding alone, but by answering the second research question, it can be explored in more depth.

After models are tested to determine whether pretrial detainment is predictive of later outcomes, the second (and more novel question) is whether this effect can be attributed to the experience of being detained or due to other underlying factors about the person that are present both before and after their initial pretrial hearing but that are typically unaccounted for by standard regression models investigating conviction or sentencing outcomes.

RQ2: Does pretrial detainment truly affect the likelihood of conviction?

This hypothesis makes no directional predictions because this is an exploratory question and there are theoretical bases for each possible result. On one hand, it is possible that pretrial detainment has an independent negative impact because individuals cannot assist in their own defense and may be more likely to accept a plea deal because they are desperate. Or, it is possible that something such as criminal propensity or judicial perceptions of dangerousness which cannot be measured or quantified impacts court actor decisions at both decision points and thus detention itself has no independent effect. This second possibility is more in line with the focal concerns perspective; as court actors decide cases, they are trying to take into account as many factors as possible and sometimes discretion/past experience comes into play. Propensity score matching allows the statistical model to capture potential selection effects, thus making it an appropriate and useful technique to answer this question. Its ability to create matched groups whereby one can assume that the treatment has been randomly assigned can help in ameliorating any potential selection effects.

4. Methods And Data

4.1 Data

The data used for this study will come from a large national dataset of sentencing information, State Court Processing Statistics (SCPS) from the Bureau of Justice Statistics. From 1990-2006, SCPS was collected every two years for a sample of 40 of the 75 largest counties in the United States. All offenders included in the dataset were charged with a felony offense in the year that data was collected. Information is included

for a wide spectrum of criminal justice decisionmaking points, making it ideal for this study. Information is included on the offender's demographics, criminal history, and the offense they were charged with. There is data on their behavior while on release as well as the final sentencing outcome. This includes whether it was a plea or trial and if convicted, what was the final sentence/punishment. The one drawback to this data, which will be discussed at further length in the limitations section of this paper, is that information is lacking on the community ties aspect of the bail decision. However, most wide-scale sentencing datasets do not include such variables so this is not uncommon.

4.2 Current Research Context

The data for this study will come from six Florida counties: Broward, Dade, Hillsborough, Orange, Palm Beach, and Pinellas. They are aggregated from 2002, 2004, and 2006 in order to increase statistical power. The total N after including 6 counties for 3 years of data collection is 4,669. Florida was chosen as a state for several reasons. First, it had several counties to aggregate and it also had very low levels of missing data.[1] In addition, the bail statute in Florida remained unchanged from 2002-2006, so a judge would have been expected to consider the same factors for all three years of data included in the study. This study focused on one state and urban counties within that state to limit the potential influence of geographic variations in bail outcomes and a dummy variable for each county will be included in all models. Because each state has unique bail statutes it is important to examine individual states separately.

[1] For example, only 24 cases of approximately 4,700 (.5%) were missing information on release or detained status. Other jurisdictions had rates of missing data up to 25% for important independent and control variables.

[2] Specifically, when determining whether to release a defendant on bail or other conditions, and what that

Florida's bail statute states first that there are dual purposes to bail in the state: to ensure that the defendant appears at subsequent proceedings and to protect the community from danger (Fl. Rev. Stat. 903.046(1)). The statute then provides judges with guidance on how to determine the most appropriate release decision.[2]

Based on this, the judge is instructed to consider a long list of factors: the nature/circumstances of the offense, how much evidence there is against the defendant, the defendant's ties to the community and family as well as mental condition, their criminal history, their possible danger to the community, how they might make bail, whether they are already under some sort of supervision, what quantity of drugs may have been in their possession, and their ability and propensity to intimidate witnesses, the judge's assessment of the defendant's possibility for recidivating while awaiting trial, and anything else the judge believes to be relevant. This list is quite lengthy and includes a variety of factors that are both related and unrelated to the offense at hand. The vast majority of these factors can be elaborated on using variables that are available.

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[2] Specifically, when determining whether to release a defendant on bail or other conditions, and what that bail or those conditions may be, the court shall consider:

> (a) The nature and circumstances of the offense charged.
> (b) The weight of the evidence against the defendant.
> (c) The defendant's family ties, length of residence in the community, employment history, financial resources, and mental condition.
> (d) The defendant's past and present conduct, including any record of convictions, previous flight to avoid prosecution, or failure to appear at court proceedings [. . .]
> (e) The nature and probability of danger which the defendant's release poses to the community.
> (f) The source of funds used to post bail.
> (g) Whether the defendant is already on release pending resolution of another criminal proceeding or on probation, parole, or other release pending completion of a sentence.
> (h) The street value of any drug or controlled substance connected to or involved in the criminal charge [. .]
> (i) The nature and probability of intimidation and danger to victims.
> (j) Whether there is probable cause to believe that the defendant committed a new crime while on pretrial release.
> (k) Any other facts that the court considers relevant. (Fl. Rev. Stat. 903.046(2)).

4.3 Dependent Variables

Pretrial Detainment

The first dependent variable examined will be pretrial detainment. This variable is measured as "1" if the individual was detained prior to trial and "0" if they were released.

Criminal Conviction

The second dependent variable will be whether the individual was convicted of any crime. It is coded as "1" if they were and "0" if they were not. It will be predicted in two separate ways. First, it will be examined using pretrial detainment as a binary predictor in a logistic regression model. Second, a propensity score matching algorithm will be used to predict criminal conviction using a matched sample of detained and released offenders to determine if the effects of conviction are alleviated when detention can be assumed to be randomly assigned.

4.4 Independent Variables

Legal Variables

In the original dataset, crime type is a series of fifteen dummy variables. To increase simplicity and efficiency, these were collapsed into eleven categories: rape, robbery, assault/other violence, burglary, theft, forgery/fraud, other property, drug sales, other drugs, weapons, driving/public order. Murderers were removed because all were detained. These are all dummies, so if the individual was arrested for that primary charge, they are coded as "1" and otherwise are coded as "0." This variable is also used to predict conviction because there is very little variation between an individual's primary initial charge and the charge of conviction. Whether an individual has failed to appear

for a prior court appearance will be coded as "1" if they do have an FTA on their record and "0" if they do not.

Two variables will be used to describe the defendant's criminal history. The number of total prior arrests is coded continuously, starting with 0 and up to 10. Second, the data will include a continuous number for the number of prior felony convictions, ranging from 0-10. If the offender had an active criminal justice status (on probation, parole, or out awaiting another judicial proceeding) they will be coded as "1" and otherwise as "0."

Extralegal Variables

Race and ethnicity will both be controlled. There are dummy variables for black, white, and Hispanic. Individuals fall into only one of these categories. There were only two individuals who were in the "other" category and they were dropped from the analysis. Age is coded as three dummy variables: under 20, 20-40, and 41 years and above. Age was also included continuously and with a squared term and the squared term never emerged as significant. Gender is a dummy variable coded as male, with men coded as "1" and women coded as "0." Because the prior literature has indicated that there may be interaction effects between some of these variables, race and gender were interacted and included in various models to determine the best fit. Several race/gender/age interactions were included but only being under twenty and male emerged as significant and this effect was only marginally significant so no interactions are included in the the final models.

Case Processing Variables

To control for the fact that some individuals are granted bail but unable to pay, a variable will be coded for whether monetary bail was granted at all, regardless of whether the individual could pay.[3] This will be coded as "1" for individuals who were given the option of paying monetary bail. This variable will attempt to capture some variation for those who are financially unable to pay but would otherwise be released.

The dependent and independent variables examined in this study are reviewed in Table 1, along with a description of their coding specifics.

4.5 Analytic Strategy

There were five main steps in the analytical process for this paper. First, a model was properly specified to predict pretrial detention. Second, logistic regression was used to determine if detention did in fact affect conviction rates. Third, the process continued by identifying detention as a "treatment" and then a set of observed covariates about the individuals (or other unit, depending on the unit of analysis) was utilized to calculate the conditional probability of each defendant being in the treated or non-treated group. Fourth, an average treatment effect was calculated using a propensity score matching procedure. After this prediction was completed, balance between treated and untreated groups was checked by examining whether the covariates were significantly different between groups. Fifth, sensitivity analyses were performed to determine the robustness of the findings.

Logistic Regression

In analyzing the hypotheses, logistic regression was first used to determine the effect of legal and extralegal variables on detention and then the effect of detention on

[3] Only 7% of the sample was denied bail.

conviction. This technique works with maximum likelihood estimation calculating the natural log odds of an event occurring. In this study, the first dependent variable is binary because a "1" indicates detainment and "0" indicates release. The following equation was used to evaluate the impact of the independent and control variables on detention, where j stands for the dependent variable of detention, and the log odds of detention were predicted with a vector of covariates (X_1 *to* X_k) and their associated coefficients (B_1 *to* B_k):

$$\log\left(\frac{j}{1-j}\right) = \alpha + \beta_1 X_1 + \ldots + \beta_k X_k + \varepsilon \qquad [1]$$

In this propensity model, j stands for the treatment condition of detainment, and the log odds of detainment will be predicted with a vector of covariates (X_1 *to* X_k) and their associated coefficients (B_1 *to* B_k). The covariates incorporate a range of observable factors, including legal, extralegal, and case processing characteristics.

The second dependent variable is binary in that "1" indicates pretrial conviction and "0" indicates lack of conviction. The following equation was used to evaluate the impact of the independent variable of detention and other control variables on the dependent variable of conviction:

$$\log\left(\frac{j}{1-j}\right) = \alpha + \beta_1 Detention + \ldots + \beta_k X_k + \varepsilon \qquad [2]$$

After confirming that detention did in fact have an effect on conviction in an ordinary logistic regression model, the analysis returned to the propensity for detention calculated for each individual with Equation 1. After this, a matching algorithm was used to create a matched sample of detained and released defendants, which is discussed further below.

Propensity Score Matching

After the logit model was used to predict each defendant's likelihood for detainment, a propensity score matching methodology was used to answer the presented research questions due to its ability to help eliminate selection bias. The selection effect inherent in studying the questions posed in the present research is the fact that individuals who are detained (in propensity score language, those who are "treated") are likely to be different from those who are released in ways that would also affect their probability of being convicted. These differences may be due to demographics like gender or age, or because both groups may be more likely to have more extensive criminal histories. Due to the fact that the treatment assignment is correlated with the outcome, one cannot assume that coefficients from regular regression are unbiased and consistent (Apel & Sweeten, 2010). The "golden standard" for eliminating such bias is using an experiment, but with sentencing, this is rarely possible. Propensity score matching is a viable method for addressing the selection problem inherent in this research question: individuals who are detained may possess characteristics that also make them more likely to be convicted.

The most important aspect of any propensity score model is that it includes a sufficient and appropriate number of covariates. For the current study, these covariates include information on the offender's criminal history, demographics, and information on the offense of arrest. The most important assumption necessary for propensity score matching is the strong ignorability assumption. For two individuals who have the same propensity score, there should not be one particular covariate which can be used to determine treatment status (Apel & Sweeten, 2010). This assumption cannot be mathematically proven but is based on the belief that the propensity score includes all of

the necessary observables to truly predict treatment status. If the strong ignorability treatment assumption is met, then the treatment is assumed to be conditionally independent based on the observed covariates (Rosenbaum & Rubin, 1983). Based on the bail statute from Florida and other prior studies of pretrial detainment, many of the important variables are included and the available variables are similar to those which have been used in published research before (see Demuth, 2003; Tartaro & Sedelmaier (2009)).

Sensitivity Analysis

When creating a propensity score model, there are many choices for a researcher to make, with the end goal being the lowest possible amount of bias with the highest amount of data points matched. The dimensions on which one can tweak the model are numerous, but for this study, the model was specified using different combinations of replacement/non replacement, differing numbers of nearest neighbors, and differing calipers when choosing a match. This is discussed further in the results section.

Because a propensity score model is only as good as the covariates included to predict the treatment, further sensitivity analysis was performed to determine if there were any important excluded variables. Gamma is one method for determining this and was calculated in this instance using the "rbounds" package in STATA. This analysis asks "how much hidden bias can be present – that is, how large can gamma be – before the qualitative conclusions of the study begin to change" (Rosenbaum, 2005: 1-2). First, one creates a variable for "delta" which is the difference in treatment effect between treated and untreated. Using the Rosenbaum bounds log odds are computed for differential assignment into either the treated or untreated group due to any possible

unobserved heterogeneity. The difference in the response variable between treated and untreated cases is represented by delta, and how delta changes based on gamma is then assessed. Large gammas provide more confidence in the treatment effect. If gamma is equal to one, then there is essentially no treatment effect found; past research indicates that studies vary strikingly in sensitivity to hidden bias.[4]

5. Findings

5.1 Descriptive Statistics

In observing the results in Table 3, one can see that in the full sample, 41% were detained. Of those detained, 71% were convicted, as compared to 57% of those who were released prior to their trial. This indicates that a larger percentage of detained individuals were convicted than released. Both samples are largely male (87% for detained and 80% for released), and have similar distributions for both race and age. Approximately 10% of the sample is under twenty, 60% is 20-40, and 30% is over 40, for both detained and released individuals. Again, for both samples, blacks comprise approximately 50%, Hispanics 20%, and whites 30%. Notable differences between the groups include having a prior FTA (23% for detained, 16% for released) and public defender status (79% for detained, 66% for released). Detained individuals had more prior arrests (average of 6.63) compared to released individuals (average of 5.35). They also had higher numbers of prior convictions (2.91) as compared to released defendants (1.87).

[4] For example, the gamma for smoking and lung cancer is 5, while the gamma for coffee and heart attacks is 1.3, indicating that the relationship between smoking and lung cancer is much less susceptible to unobserved bias than the relationship between coffee and heart attacks (Rosenbaum, 2005).

5.2 Results from Logistic Regression

The first logistic regression was performed to determine the proper determinants of pretrial detention. Table 4 presents results from that logistic regression. Males are more likely to be detained. As for age, males under 20 years old did not differ from those over 40, but those between 20 and 40 were more likely to be detained than their older counterparts. Inversely from the conviction model, more serious and violent crimes were more likely to be detained than driving/public order crimes.[5] Individuals charged with rape are 5.3 times more likely to be detained than those charged with driving/public order. No racial effects emerged, which is an interesting finding. This may be because there are only six counties included and because whites are actually the minority overall, comprising only 31% of the overall sample. In addition, one can see from Table 4 that there are not obvious racial differences between individuals who were detained and individuals who were released. And as predicted, individuals with a prior FTA or an active criminal justice status were more likely to be detained. Surprisingly, the number of prior arrests did not seem to matter, but having a prior felony conviction does significantly increase the odds of detainment. Interestingly, individuals with a public defender or assigned counsel were far more likely to be detained than those with private attorneys (approximately 3 times greater for both). Also, at the detention stage, only Broward County differed significantly from the reference category of Palm Beach. Again, with the exception of the lack of racial effects, the model predicting detention follows what prior literature would predict.

[5] Rape was the most serious crime included in the final model. All defendants charged with murder (4) were detained.

The second model confirmed that pretrial detention has an effect on a defendant's likelihood of conviction. From the results in Table 5 one can see that it has a statistically significant effect on conviction rates. After transforming the log-odds into an odds ratio, one can say that being detained increases the odds of conviction by 1.77. As expected, males are more likely to be convicted than females. Age had no significant effects, but this is not surprising given that the prior literature is inconsistent on age. With driving/public order as the reference category, more serious crimes such as robbery and burglary were less likely to be convicted. The only crimes more likely to be convicted were drug crimes and these results were insignificant. Private attorneys were the reference category for lawyer type. They fare no different than public defenders, but individuals with assigned attorneys are more likely to be convicted. There were county differences; defendants in Dade and Orange counties were less likely to be convicted than individuals in Palm Beach, while those in Hillsborough and Pinellas were no different. Overall, the results of the original model predicting conviction are consistent with prior literature. The one caveat is that no racial effects were found, but there is little prior literature on conviction as an outcome so this result is not entirely unanticipated.

5.3 Results from Propensity Score Matching

Propensity score matching was chosen for this study because of its ability to reduce the potential selection effects when studying the effects of detention on conviction. Individuals who are detained may also be more likely to be convicted due to some unobserved factor and through a properly specified propensity score matching model, potential selection effects may be controlled for. Before examining any results from a propensity score model, it is necessary to first ensure that the samples of those

predicted to be treated and non-treated are balanced on the covariates used to predict the treatment because without balance, the treatment cannot be assumed to be randomly assigned.

Table 7 presents both before-and-after bias estimates for the samples. One can see that before matching, 22 of the 34 (65%) of the covariates were unbalanced, indicating that there were statistically significant differences in the covariates between those who were detained and those who were not detained. Overall, this demonstrates that detained and released defendants are not generally comparable. After matching, only two (other property offenses and Palm Beach County) are unbalanced. This is a significant improvement and suggests that the matching procedures were effective at creating comparable treated and control groups. While some propensity score models are balanced on all covariates, these two covariates represent only a small fraction (2/34, or 6%) of the included variables and are not central to the hypotheses. The number of balanced covariates is also better than randomization, with a .10 probability for error. There is no reason to believe that a lack of matching on either of these covariates would change the results of the study. Overall, then, the matched sample is balanced and conditional independence exists between the observed covariates and the treatment of detention because one assumes that the required covariates are included and no one particular covariate predicts treatment.

Table 6 presents final results from propensity score matching. After matching, there continues to be a statistically significant effect of detention on conviction.[6] While

[6] Approximately 1.8% (80 individuals) of the sample was found guilty at trial and the remainder (2831) pled guilty. These 80 individuals were included in the final analysis. Each model was specified without the guilty pleas and the results were unchanged. In addition, conviction was not included as a predictor for

the effect is reduced, it is still present. For the unmatched sample, the difference between treated and controls is 14%, with a t-score of 9.96. After matching, the difference is lower at 9% but the t-score remains significant at 4.39, for a percent reduction in effect of 36%. These results indicate that the treated and untreated groups were balanced on a vast majority of covariates and even after balancing, detention exerts a significant effect on a defendant's likelihood of conviction. The next step in this research was determining how sensitive this significant result is to model specification and to unobserved bias.

5.4 Sensitivity Analysis

To ensure that the model was properly specified, two sets of sensitivity analyses were performed. The first centered on the specification of the propensity score model predicting detention and the second determined the robustness of the treatment effect. The propensity model was specified numerous times with different combinations of replacement vs. non-replacement, matching approaches and calipers in an attempt to keep the bias low and to include as much of the data as possible in the final model.[7] With each combination of these three factors, detention remained statistically significant, with a t-score range of 3.12 to 4.96. Without replacement, the loss of data ranged from 4 to 408 cases. Replacement is often necessary when there are major differences between the number of treated and non-treated cases. The issue with replacement is that there is potential for a few cases to be used repeatedly, which can inflate the variance. However, since there were 2,765 untreated cases and 1,904 treated cases, replacement was preferable to non-replacement due to the large number of released individuals compared

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the propensity score model due to temporal issues, though there is a known relationship between detention and conviction.

[7] Propensity score models were specified both with and without replacement using nearest neighbor, 1-to-1, and 1-2 matching approaches, with calipers of .01 and .05. In each of these alternative specifications pretrial detention was statistically significant and positively associated with the likelihood of conviction.

to detained individuals. With the current methodology, all of the data (4,669 cases) were included. There are no agreed-upon appropriate widths for calipers, but leading researchers in the field of propensity score matching have suggested that a caliper that is .25 times the width of the standard deviation of the estimated propensity score is appropriate (Rosenbaum & Rubin, 1985). The estimated propensity score in this model has a standard deviation of .19, so a caliper that is .25 times this width is equal to .475; a caliper of .05 is quite close to the suggested range. In addition, other work has found that using calipers between .05 and .30 the times of the standard deviation of the logit minimized the mean square error in the final propensity model when at least one of the covariates was continuous (Austin, 2011). Based on these considerations, the utilized caliper of .05 is suitable. This final model was chosen because it kept in the largest amount of data while still keeping bias as low as possible.

Sensitivity analysis is crucial in propensity score matching because, as discussed earlier, a propensity score model is only as reliable as the covariates used to calculate the propensity for treatment. Gamma is a useful method for assessing the robustness of propensity score matching because it provides a concrete number for how an unobserved factor could alter the results of the treatment effect. Gamma represents an unobserved factor that, if included, could potentially change the significance of treatment. Table 8 presents the results for sensitivity analysis for this study. The largest gamma that can be accepted with a 95% confidence interval is 1.4. This number indicates that an unobserved factor which changes the likelihood of being placed into the treatment group by 1.4 times could alter the results of the treatment effect found. As discussed previously, a gamma of one indicates that the treatment effect is essentially null and prior studies have found

treatment effects ranging from 1.3 to 5 (Rosenbaum, 2005), so based upon that prior work, 1.4 indicates that this study could potentially be sensitive to small amounts of unobserved bias. There are unobserved variables such as community ties which could be leading to this sensitivity, which will be discussed further in the next section.

6. Summary and Discussion

The results of the propensity score model strongly support the idea that pretrial detention has independent effects on conviction rates, but the sensitivity analysis detracts from their strength. The final specified propensity model achieved much better balance than the unmatched sample, with only two of thirty-four covariates remaining significantly different between matched and unmatched groups. This model found that detention was associated with a significantly higher risk of conviction, which is consistent with the initial logit model (and other prior literature) that examines conviction as the final outcome. However, the sensitivity analysis indicates that only a small amount of unobserved bias could be necessary to potentially alter the results of the propensity score model. Implications of this are discussed below.

The model predicting detention followed the findings of prior literature very similarly. As a whole, the factors which have been found to significantly predict detention were found here. Males are detained at significantly higher rates than females. Individuals with more serious criminal histories (as measured by prior arrests and prior felony convictions) were more likely to be detained. Those with an active criminal justice status or a prior failure to appear are also less likely to be released. Individuals between the ages of 20 and 40 were the most likely to be detained. Defendants represented by public defenders were more likely to be detained but this finding may be

reflective of the financial circumstances of those defendants as opposed to the effectiveness of counsel, an issue that would be interesting to study further. There were few significant county effects for the model predicting detention; it seems that counties in Florida do not differ significantly in their practices regarding detention. Interestingly, individuals who were offered a chance at paying bail were more likely to be detained than those who were not. In the same vein as the public defender finding, this may indicate that many of the people who are given the option of using financial resources to be released are unable to do so and thus remain detained while awaiting their trial for solely financial reasons. The one finding that did not comport with prior literature is the lack of racial effects. However, this could be due to the racial makeup of the offender pool, where whites are in the minority and because there are not significant differences in race by detention as seen in Table 3. Overall, the data in this study follow the pattern of prior studies that investigate pretrial detention.

After using a logit model to ascertain the proper determinants of pretrial detention, this study confirmed that detention does emerge as significant in a separate model predicting conviction. In a basic logit model with the current dataset, detainment increased odds of conviction by 1.77 times. Again, the remainder of the model is in line with prior work predicting conviction, though there is far less work on conviction as an outcome than detention. More serious crimes were less likely to be convicted than less serious crimes. This is an interesting finding, particularly because it is the opposite of the effect of offense seriousness on detention. There are several possible explanations for this. There are often evidentiary problems when prosecuting rape (Seelinger, Silverberg, & Mejia (2011), which is the most serious crime (and reference category) included in this

study. Victims of sexual violence often lack the motivation and social backing to testify in a trial. Their privacy and dignity may be compromised by a trial where their sexual history is put on display, leading them to abstain from pressing forward with charges. Some scholars have also argued that male judges may have unconscious gender biases which also affect the outcome of the trial. In addition, more serious crimes are also more likely to go to trial, which takes longer and has a lower likelihood of conviction than a plea.[8] Defendants with more serious criminal histories may have less to lose and be more willing to go to trial (see Ulmer, Eisenstein, and Johnson, 2009). The finding that offense seriousness is negatively associated with likelihood of conviction is remarkable and should be explored in future work.

Males were also more likely to be convicted than females. The effect of a public defender was not present for conviction, but significant differences between the counties emerged. Again, there were no racial effects present, but this may not be as unexpected as the lack of racial effects for pretrial detention simply because there are fewer studies examining the predictors of conviction.

For the third step, individuals were matched based on their propensity for detention, which was previously estimated using a basic logit. A matching algorithm was used with two nearest neighbors, with replacement, and a caliper of .05. After this matching process, the difference in conviction for detained vs. released offenders was calculated. Detention maintained its statistical significance after matching, but the effect was overall reduced by 36%. After matching, balance was achieved as only two of the thirty-four covariates were any different between groups and they were not central to the

[8] For example, in the current dataset, violent crimes such as rape (16%) and robbery (8%) all had much higher rates of involving a trial (conviction or acquittal) than nonviolent crimes such as driving/public order (1%) and forgery/fraud (4%).

hypotheses of the study. This indicated that detention had a significant and independent effect on conviction rates and that it was not the exact same factors increasing the likelihood of both detention and conviction. This finding supports the argument that individuals who are detained experience hardships that released defendants do not.

Further work would be necessary to determine the causal mechanisms at play, but several possibilities exist. Individuals who are detained may be less able to assist in preparing their own defense due to the increased difficulties in meeting with their attorneys or witnesses, thus leading them with weaker cases that lead them to be more likely to plead guilty. In addition, as suggested by Kellough and Wortely (2002), detained defendants may be more willing to plead guilty because they are already detained and would like to speed up the process and start serving their actual sentence. This higher likelihood of pleading guilty may be due to a desire for certainty on both the part of the defendant and the prosecutor; a defendant wants to know his or her future and a prosecutor is seeking a conviction. This lends support to Albonetti's (1991) bounded rationality perspective in that actors will behave in such a way as to increase the certainty of their future.

This motivation to plead guilty may apply in particular to individuals who are detained yet offered a plea deal to a nonincacerative sentence. When facing the option of waiting for a trial or a new plea in jail, or being released, these defendants may be more inclined to plea guilty in order to reduce their time in confinement. This situation is particularly concerning due to the high number of individuals who are unable to pay monetary bail to ensure their release. These defendants are then doubly disadvantaged due to their initial inability to secure release from jail while awaiting trial or sentencing.

There was also support for focal concerns theory. As predicted, the most salient factors for detention were legally relevant factors such as offense severity and prior criminal history. Judges seem to be concerned with offender blameworthiness and community protection; by detaining the more experienced offenders, they are sending a message that they are harsher on more serious crimes and may be concerned that those charged with violent crimes are more likely to commit further crimes while released. These legal factors were also highly predictive for conviction. However, the results from propensity score matching indicate that the fact of detention continued to be significant for predicting detention. While the race/age interactions did not emerge as significant in this model as they did in Steffensmeier and colleagues' (1998) paper, the fact that detention independently predicts conviction indicates that there may be an underlying process whereby judges or other decisionmakers involved in the conviction/plea process are influenced prejudicially by the defendant's detention status. This may be the dangerousness determination hypothesis, where a decisionmaker views a detained offender as more dangerous and thus more deserving of punishment. Or, it could relate to the prosecutor's discretion as discussed above, where a prosecutor is aware of their increased bargaining power with a detained defendant and uses that (fairly or unfairly) to their advantage. Again, both of these possibilities can be tied back to an actor's desire for increased certainty. A subsequent judge or prosecutor who is utilizing the fact of detention to assist them in their own determination of dangerousness or blameworthiness is acting with incomplete information and using another's prior judgment to help them make a decision.

The next step was to perform a sensitivity analysis to determine how much unobserved bias would be necessary to alter the results of the propensity score matching model. The gamma calculated was 1.4, meaning that unobserved factors which increased the odds of detention by 1.4 could potentially render the treatment effect moot. This indicates that while the results indicate that pretrial detention does have independent effects on the probability of conviction, this finding could be sensitive to only small amounts of unobserved bias.

This study provides several advantages over prior work. By including the variable for whether an individual was granted bail to begin with, this study acknowledges that pretrial release is a many-staged process. Too often, studies view release or detention as a single-step routine whereby judges merely assign a defendant to be released or not. A properly specified model for pretrial detention is critical to understanding its intricate processes and the variables included in this model improved over prior studies. Second, very little prior work focuses on conviction as a dependent variable so this paper will add to that scarce literature. The reasons for the paucity of literature examining conviction are unknown, but with the large numbers of criminal defendants who plead guilty or who are convicted at trial every year and the growing finding that having a criminal conviction can have significant and lengthy negative impacts on an offender's life (see, e.g. Pager, 2003; Blumstein & Nakamura, 2009), the field should pay more attention to how and why these individuals are convicted.

In addition, many of the prior studies addressing the effects of detention on conviction do not attempt to correct for the potential selection effects. This study sought to answer the question of whether detention did in fact affect conviction and if detention

itself had any independent effects on conviction. If detention itself has an independent negative effect on a criminal defendant, that is something that should be rectified; individuals who are financially unable to meet monetary bail terms should not be disadvantaged merely due to their income and financial resources. However, if detention itself is not having any effects on conviction, then this is another story entirely. This study found that detention continued to be significantly significant, even after matching criminal defendants on a number of covariates. This indicates that there is still something going on with the fact of detention that needs to be teased out. Answering the questions posed by this study provides valuable insight for studying judicial decisionmaking and also criminal justice processes in general.

However, there are some important limitations. As with any propensity score model, the constraint is that individuals can be matched only on observed covariates. Recent work on pretrial detainment has found that factors relating to community ties/stakes in conformity are important predictors of whether an individual is detained or not (Spohn, 2009). Unfortunately, the majority of sentencing data does not include defendant characteristics such as employment and whether they reside with a family member. And there is reason to believe that certain individuals in the dataset may be more or less likely to be employed. For instance, individuals of low SES may be less likely to have a stable job and thus less likely to be granted pretrial release. Even though this dataset lacks employment and community tie information, past studies have found that the legal factors are the strongest predictors of pretrial release (Nagel, 1983; Demuth, 2003). There are many variables included in the model that do provide significant

information regarding the factors that judges in Florida are instructed to consider and with the available data, most were present.

This lack of community tie variables brings to light a larger issue in the study of pretrial release. If much of the literature examining release is lacking these variables and the sensitivity analysis for this propensity score model indicates that only a small amount of unobserved bias is necessary to alter the results, then perhaps the field needs to re-think its study of release as a whole. Few large-scale sentencing datasets include information for offender employment/financial resources, marital status, or living situation. Studies that do have access to this information often find that community ties are important (Nagel, 1983; Spohn, 2009) but there are also many studies which do not include these sorts of variables at all (Maxwell, 1999; Demuth, 2003). Future directions of research could also try to determine which factors could potentially serve as appropriate representations of community ties, such as living situation, marital status, employment status, and whether the offender has children. Going forward, the field should focus more on a wider representation of the defendant's situation and which factors that jurisdiction deems relevant in order to paint a more accurate picture of the pretrial release process in the United States.

Table 1: Variable Coding		
Variable	**Coding**	**Description**
Dependent Variables		
Pretrial detention	Yes '1" No '0"	A binary variable that indicates whether the defendant was detained prior to trial
Conviction	Yes '1" No '0"	A binary variable that indicates whether the defendant was convicted (by any means) of an offense
Independent Variable		
Estimated Propensity for Pretrial detention	Yes '1" No '0"	A binary variable that predicts whether the defendant was detained prior to trial, matched after a propensity score algorithm
Legal Control Variables		
Granted Bail	Yes '1" No '0"	A binary variable that indicates whether the defendant was granted monetary bail (regardless of whether they were released)
Crime of Arrest	Yes '1" No '0"	A series of 11 binary variables that indicate the most serious offense for which a defendant was charged. See Table 3 for the full list of offenses.
Prior Failure-to-Appear	Yes '1" No '0"	A binary variable that indicates whether the defendant had failed to appear as scheduled for any prior criminal hearing
Prior Arrests	Continuous variable	Total number of prior arrests (felony and misdemeanor)
Prior Felony Convictions	Continuous variable	Total number of prior felony convictions
Active Criminal Justice Status	Yes '1" No '0"	A binary variable that indicates whether an individual had any active criminal justice status when arrested for this crime. This could be probation, parole, or awaiting a hearing on a separate charge.

Attorney Type	Yes “1” No “0”	A series of 3 binary variables that indicate the type of attorney a defendant had: private, public defender, assigned, or other/missing.
Extra-Legal Control Variables		
Black; Hispanic; White	Yes '1" No '0"	A series of three binary outcome variables that identify individuals as being from a certain racial group with White as reference category
Age	Yes “1” No “0”	A series of three binary variables of age categories; 13-20; 21-40; 41-81. 41-81 is the reference group.
Male	Yes '1" No '0"	A binary variable differentiating between males and females.

Table 2: Prior Studies				
Author	**Year**	**Dataset**	**DV**	**Findings**
Clarke and Kurtz	1983	Felony defendants in 12 North Carolina Counties	Sentence length	The longer a defendant awaited trial in jail, the longer their sentence was
Demuth	2003	SCPS	Detainment; Bail denial; Financial Release; Bail Amount; Held on bail	Hispanic defendants at "triple disadvantage" compared to whites and blacks
Eisenstein & Jacobs	1977	Felony defendants in Chicago	Conviction	Type of charge best predictor of conviction
Freiburger and Hilinski	2010	Felony defendants in urban Michigan county	Pretrial detention	Being under the control of the CJ system at time of arrest is associated with pretrial detention; younger female offenders more likely to be released
Holmes, Hosch, Daudistel, Perez, Graves	1996	Felony defendants in Bexar County, TX and El Paso County, TX	Sentence severity (ordinal scale)	Ethnicity (Hispanic) and employment had indirect effects on sentence severity, through pretrial detention variable
Katz & Spohn	1995	Violent felony defendants in Detroit, MI	Pretrial detainment; Bail amount	For pretrial release, economic status but not race was important; for bail amount, race didn't matter but gender did. Also, extralegal variables interacted with other defendant and case characteristics
LaFree	1985	Robbery and burglary defendants in Pima County, AZ and El Paso County, TX	Pretrial detainment	Being Hispanic was best predictor of unfavorable release decision in El Paso
LaFree	1985	Robbery and burglary defendants in Pima County, AZ and El Paso County, TX	Sentence severity (ordinal scale)	Pretrial detention associated with more severe sentences

LaFrentz & Spohn	2006	Federal drug offenders in 3 districts: Minnesota, Nebraska, S. District of Iowa	Sentence length	Pretrial detention associated with longer sentence lengths
Maxwell	1999	National Pretrial Reporting Program, felony defendants in NYC	RoR	Prior FTA negatively associated with granting of RoR
Nagel	1983	NYC felony and misdemeanor cases	RoR; Bail amount; Cash alternative	Legal factors present in NY statute prevailed but other extra-legal factors (gender, race) also had effects
Phillips	2008	Felony offenders in NYC	Conviction, incarceration, and sentence length	Pretrial detention (measured as days in detention; detained at arraingment; detained at sentencing) generally increases likelihood of conviction, incarceration, and sentence length
Spohn	2009	Federal drug offenders in 3 districts: Minnesota, Nebraska, S. District of Iowa	Pretrial detention	Offenders with more serious histories more likely to be detained; stakes in conformity and community ties also relevant
Tartaro and Sedelmaier	2009	Felony offenders in two Florida counties	Incarceration; length of incarceration	Pretrial detention increases likelihood of incarceration. Race and ethnicity had some effects on final sentence length, but were not consistent.
Wooldredge	2012	Felony defendants from an urban Ohio jurisdiction	RoR; bond amount; incarceration	When controlling for legal factors, main effects of race insignificant. Interactions showed that young African American men had lower likelihood of RoR, higher bail amounts, and higher odds of incarceration than other racial and age groupings

Table 3: Descriptive Statistics					
Variable	Overall average	Detained Average	Detained SD	Released Average	Released SD
Dependent Variables					
Detained	.41	n/a		n/a	
Conviction	.62	.71	.45	.57	.50
Independent Variables					
Male	.82	.87	.34	.80	.40
Female	.18	.13	.34	.02	.40
Under 20	.10	.11	.31	.10	.30
20-40	.60	.58	.05	.62	.49
40 and up	.30	.32	.47	.28	.45
Rape	.005	.07	.08	.004	.06
Robbery	.05	.07	.26	.03	.16
Assault/violent	.22	.19	.40	.24	.43
Burglary	.09	.12	.33	.06	.25
Theft	.13	.13	.33	.14	.34
Forgery/fraud	.03	.03	.18	.04	.19
Other property	.02	.02	.15	.02	.14
Drug Sale	.12	.13	.33	.12	.33
Other Drugs	.21	.20	.40	.22	.42
Weapons	.015	.01	.11	.02	.13
Driving/public order	.10	.08	.27	.11	.32
Black	.48	.50	.50	.47	.50
Hispanic	.21	.20	.40	.21	.41
White	.31	.30	.46	.32	.47
Granted Bail	.70	.78	.41	.64	.48
Prior FTA	.19	.23	.23	.16	.37
Active CJ status	.23	.32	.47	.18	.39
Prior Arrests	8.9	6.6	3.9	5.4	4.2
Prior felony convictions	2.3	2.9	3.4	1.9	2.8
Public Defender	.71	.79	.41	.66	.48
Assigned Attorney	.04	.05	.22	.04	.19
Private Attorney	0.13	.07	.26	.18	.38
Attorney other/missing	.12	.09	.29	.13	.34
Broward County	.11	.10	.30	.12	.33
Dade County	.42	.41	.49	.42	.49

Hillsborough County	.11	.10	.30	.11	.31
Orange County	.06	.06	.23	.05	.23
Pinellas County	.17	.18	.38	.16	.36
Palm Beach County	.14	.15	.35	.14	.35
N		1904		2765	

Table 4: Logistic Regression Predicting the Log Odds of Detention in 6 Florida Counties				
Independent Variables	**b**	**S.E.**	**Odds**	
Male	.47	.09	1.60	***
Under 20	-.13	.12	.88	
Age 20-40	-.22	.07	.80	**
Rape	1.66	.45	5.28	***
Robbery	1.78	.19	5.93	***
Assault/violent	.34	.13	1.40	**
Burglary	1.11	.15	3.05	***
Theft	.46	.14	1.58	**
Forgery/fraud	.34	.21	1.40	
Other property	.81	.24	2.25	***
Drug sale	.44	.14	1.55	**
Other drugs	.35	.13	1.41	**
Weapons	.09	.30	1.09	
Black	-.02	.08	.98	
Hispanic	.02	.10	1.02	
Granted Bail	.98	.08	2.67	***
Prior FTA	.23	.09	1.25	**
Active CJ Status	.80	.08	2.23	
Prior Arrests	.02	.01	1.02	
Prior Felony	.07	.01	1.07	***
Public Defender	1.17	.11	3.23	***
Assigned attorney	1.23	.19	3.41	***
Attorney other/missing	.63	.14	1.88	***
Broward	-.41	.13	.66	**
Dade	-.12	.11	.89	
Hillsborough	-.10	.13	.90	
Orange	-.34	.16	.71	*
Pinellas	-.15	.12	.86	
Constant	-3.13	.21	.04	

*p≤.05 **p≤.01 ***p≤.001

Table 5: Logistic Regression Predicting the Log Odds of Conviction in 6 Florida Counties				
Independent Variables	**b**	**S.E.**	**Odds**	
Detainment	.57	.07	1.77	***
Male	.24	.09	1.28	**
Under 20	.01	.13	1.01	
Age 20-40	-.07	.08	.93	
Rape	-1.58	.47	.21	***
Robbery	-.96	.20	.38	***
Assault/violent	-1.56	.14	.21	***
Burglary	-.70	.17	.50	***
Theft	-.57	.15	.57	***
Forgery/fraud	-.60	.22	.55	***
Other property	-.83	.25	.44	**
Drug sale	.16	.16	1.17	
Other drugs	.09	.15	1.09	
Weapons	-.79	.29	.46	**
Black	.01	.09	1.01	
Hispanic	-.05	.11	.95	
Prior Arrests	.05	.01	1.05	***
Prior Felony	.01	.02	1.01	
Public Defender	.05	.10	1.05	
Assigned attorney	.95	.22	2.59	***
Attorney other/missing	-2.12	.15	.12	**
Broward	.34	.15	1.41	*
Dade	-1.03	.12	.36	***
Hillsborough	.28	.15	1.32	
Orange	-.89	.17	.41	***
Pinellas	-.21	.13	.81	
Constant	1.06	.20	2.88	0.000

*p≤.05 **p≤.01 ***p≤.001

Table 6: Results of Propensity Score Matching Model						
Dependent Variable	**Sample**	**Treated**	**Controls**	**Difference**	**S.E.**	**t**
Conviction	Unmatched	.71	.57	.14	.01	9.96
	ATT	.71	.62	.09	.02	4.36

Treatment Assignment	On support	Total
Untreated	2,765	2,765
Treated	1,904	1,904
Total	4,669	4,669

Table 7: Balance Statistics							
Variable		Treated Mean	Control Mean	Percent Bias	Percent Reduction in Absolute Value of Bias	t	p
Male	Unmatched	.87	.80	19.50		6.46	.00
	Matched	.87	.87	-1.30	93.10	-.46	.65
Under 20	Unmatched	.11	.10	1.30		.43	.67
	Matched	.11	.12	-3.90	-202.60	-1.15	.25
Age 20-40	Unmatched	.58	.62	-8.10		-2.73	.01
	Matched	.58	.57	2.30	72.30	.69	.49
Age 40 - 81	Unmatched	.32	.28	7.80		2.64	.01
	Matched	.32	.32	.20	97.80	.05	.96
Rape	Unmatched	.01	.00	3.90		1.34	.18
	Matched	.01	.01	-3.60	7.80	-.90	.37
Robbery	Unmatched	.07	.03	21.70		7.61	.00
	Matched	.07	.08	-1.80	91.70	-.46	.65
Assault/Violent	Unmatched	.19	.24	-12.40		-4.13	.00
	Matched	.19	.21	-3.90	68.60	-1.24	.22
Burglary	Unmatched	.12	.06	19.60		6.74	.00
	Matched	.12	.12	.30	98.60	.07	.94
Theft	Unmatched	.13	.14	-2.50		-.85	.40
	Matched	.13	.12	2.40	5.30	.76	.45
Forgery/Fraud	Unmatched	.03	.04	-3.70		-1.22	.22
	Matched	.03	.03	2.50	32.30	.84	.40
Other property	Unmatched	.02	.02	2.90		.99	.33
	Matched	.02	.01	6.30	-115.30	2.05	.04

Drug Sale	Unmatched	.13	.12	1.70		.58	.56
	Matched	.13	.12	3.30	-87.40	1.01	.31
Other Drugs	Unmatched	.21	.22	-3.00		-1.02	.31
	Matched	.21	.20	.80	74.60	.24	.81
Weapons	Unmatched	.01	.02	-5.90		-1.92	.06
	Matched	.01	.01	-1.10	80.80	-.39	.70
Driving/public order	Unmatched	.08	.11	-10.80		-3.56	.00
	Matched	.08	.09	-4.30	59.80	-1.40	.16
White	Unmatched	.29	.32	-5.70		-1.92	.06
	Matched	.29	.29	.50	92.00	.14	.89
Hispanic	Unmatched	.20	.21	-3.00		-1.01	.31
	Matched	.20	.20	.30	91.40	.08	.94
Black	Unmatched	.51	.47	7.80		2.61	.01
	Matched	.51	.51	-.60	91.90	-.19	.85
Granted Bail	Unmatched	.79	.64	34.30		11.33	.00
	Matched	.79	.79	.10	99.80	.02	.98
Prior FTA	Unmatched	.23	.16	17.50		5.96	.00
	Matched	.23	.22	2.20	87.50	.64	.52
Active CJ Status	Unmatched	.31	.17	32.90		11.27	.00
	Matched	.31	.32	-2.70	91.90	-.75	.46
Prior Arrests	Unmatched	6.61	5.34	31.50		10.52	.00
	Matched	6.61	6.50	2.70	91.30	.86	.39
Prior Felonies	Unmatched	2.93	1.88	33.80		11.53	.00
	Matched	2.93	2.77	5.10	84.80	1.46	.14
Private Attorney	Unmatched	.07	.18	-31.10		-10.13	.00
	Matched	.07	.07	1.50	95.10	.60	.55

Public Defender	Unmatched	.79	.66	29.00		9.61	.00
	Matched	.79	.78	.70	97.50	.24	.81
Assigned Counsel	Unmatched	.05	.04	6.60		2.24	.03
	Matched	.05	.05	-2.20	66.60	-.62	.54
Attorney other/missing	Unmatched	.09	.13	-12.90		-4.28	.00
	Matched	.09	.09	-1.20	90.90	-.39	.69
Broward	Unmatched	.10	.12	-7.20		-2.39	.02
	Matched	.10	.10	-1.40	80.10	-.46	.65
Dade	Unmatched	.42	.42	-.60		-.19	.85
	Matched	.42	.40	4.60	-692.60	1.42	.16
Hillsborough	Unmatched	.10	.11	-1.10		-.35	.72
	Matched	.10	.10	3.10	-190.10	.97	.33
Orange	Unmatched	.06	.05	1.90		.63	.53
	Matched	.06	.06	-1.70	10.00	-.51	.61
Pinellas	Unmatched	.17	.15	5.10		1.72	.09
	Matched	.17	.17	.10	97.20	.04	.97
Palm Beach	Unmatched	.14	.14	1.50		.52	.61
	Matched	.14	.17	-6.90	-351.10	-2.05	.04

Table 8: Gamma Calculations				
Gamma	sig+	sig-	CI+	CI-
1.0	.00	.00	.00	.25
1.4	.04	.00	.00	.25
1.5	.27	.00	.00	.25
1.6	.68	.00	.00	.25
2.0	1.00	.00	.00	.25

gamma - log odds of differential assignment due to unobserved factors

sig+ - upper bound significance level

sig- - lower bound significance level

CI+ - upper bound confidence interval (a= .95)

CI- - lower bound confidence interval (a=.95)

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