ABSTRACT

Title of Thesis:	INVESTIGATING THE ASSIGNMENT OF PROBATION CONDITIONS: HETEROGENEITY AND THE ROLE OF RACE AND ETHNICITY
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The study explores the assignment of probation sentencing packages using a data matching process for 3,031 adult males convicted of a felony in two urban counties. Distinct classes of combinations of probation conditions are identified using latent class analysis, and the influence of race and ethnicity on selection into probation and assignment to these classes is investigated while controlling for other relevant factors. Results indicate legally relevant factors account for much of the racial and ethnic disparity in the initial in/out decision, but not in the assignment of probation conditions. Black probationers are more likely to be assigned to a wider range of combinations of probation conditions, more likely to be assigned to combinations that impose specific restrictions, and more likely to be assigned to classes with longer jail sentences. Findings are discussed as they relate to theoretical perspectives on judicial decision making, discretion in sentencing, and court contexts.

INVESTIGATING THE ASSIGNMENT OF PROBATION CONDITIONS: HETEROGENEITY AND THE ROLE OF RACE AND ETHNICITY

by

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Chapter 1: Introduction

Close to four million probationers are supervised in the community, comprising over half of the total correctional population (Kaeble, Maruschake, & Bonczar, 2015). Although probation is the most common sentence levied by the courts, probation has received little attention from both policymakers and scholars. Probation sentences were not the focus of the sentencing reform movement in the 1980s and 1990s when judicial discretion surrounding the use of incarceration was targeted (Tonry, 1997). As such, probation sentences remain a "window of discretion" in an otherwise more formalized sentencing system (Engen, Gainey, Crutchfield, & Weis, 2003). While the general trend has been towards uniformity, proportionality, and equity in sentencing, once judges make the decision to sentence an offender to probation, they have tremendous discretion in designing the experience of probation by imposing a variety of different conditions. Judges may choose from conflicting sentencing goals with little accountability in providing a reason for the sentence. Furthermore, a lack of easily accessible and organized probation-specific data has left investigations of these sentencing decisions virtually unexplored. Probation sentences include a combination of custodial, rehabilitative, restorative, and financial requirements that may differ considerably between offenders, but most researchers treat this group as a homogeneous single noncustodial intervention.

As researchers examine sentencing disparities that may arise out of judicial discretionary decisions or policy changes, most of the attention has focused on the dramatic increase in the rates of incarceration that have disproportionately impacted

racial and ethnic minorities (Spohn, 2000; Ulmer, 2012; Bushway & Forst, 2013). The primary focus of the sentencing literature in the last several decades has been the examination of the decision to incarcerate and incarcerative sentence length (Baumer, 2013), with very little attention given to other types of sentencing outcomes (DeMichele, 2014; Corbett, 2015). The current research's aim is to introduce the discretionary sentencing practice of conditions of probation to the broader discussion of justice system inequities. In order to do so, the study will first investigate the role of race and ethnicity in selection into probation. Second, the research will examine heterogeneity in the assignment of combinations of probation conditions. Third, the study will assess whether race and ethnicity explain part of the potential heterogeneity in probation conditions among convicted probationers.

Chapter 2 provides a literature review divided into five primary sections: probation and its historical overview, perceptions of probation, probation as a 'window of discretion', disparity in the decision to grant probation, and deciding the terms of probation. In Chapter 3, existing theories and their relation to probation sentencing decisions and the current study are discussed. Chapter 4 details the methods of the current study through a description of the data collection process, the sample, and analyses. The results and supplemental analyses are discussed in Chapter 5 as they relate to the original questions addressed by the thesis. Chapter 6 concludes this work with a discussion of the limitations and implications of the thesis.

Chapter 2: Literature Review

What is Probation?

Probation is defined by the American Correctional Association as "a court-ordered dispositional alternative through which an adjudicated offender is placed under the control, supervision and care of a probation staff member in lieu of imprisonment, so long as the probationer meets certain standards of contact" (Petersilia, 1997: 149). Probation also includes correctional supervision in the community which may be combined with a jail sentence (Kaeble, Murschak, & Bonczar, 2015). The specifics of what probation entails remain vague and there is no uniform explanation for what is meant by "supervision" or "certain standards of conduct." Probation's broad definition, its disorganized evolution and administration, composition of a wide range of sanctions, and lack of in-depth research, has led probation to be referred to as "the 'dark figure' in the criminal justice world" (Beto, Corbett, & DiIulio, 2000: 1).

While the dramatic growth of the prison population coupled with the severity and costs of imprisonment has increased reliance on probation, it has also simultaneously shifted attention away from directly examining probation's growth and usage (DeMichele, 2014; Corbett, 2015). Probation is rarely examined on its own, but serves as an alternative to incarceration. Its primary appeal are its lower costs, its reduced risk of socializing offenders with criminogenic others, and its increased capacity to provide rehabilitation services (Petersilia, 1997; Corbett, 2015). As Cullen, Johnson, and Mears (2017) point out, for scholars and policy makers, community corrections has "remained an afterthought".

The Evolution of the (Dis)organization of Probation

The use of probation as a legal alternative to incarceration can be traced back to 1841 to the efforts of John Augustus, a Bostonian shoemaker, who volunteered to supervise and reform a common drunk in the community (Walker, 1998). For fifteen years, until his death, Augustus supervised over 1,800 individuals and provided help with obtaining a place to live, education, and employment, and provided progress updates to the court (Walker, 1998; Petersilia, 1997). In 1878 Massachusetts formally instituted probation, limiting its official use to juveniles. Over 20 years later, New York implemented the first formal use of probation for adults in 1901, and by 1956 juvenile and adult probation were formally implemented in all states. Initially, probation officers were volunteers from religious groups or police, but as probation grew officers were paid and worked directly for the judge (Petersilia, 1997). Probation evolved unsystematically with conflicting custodial and rehabilitative purposes, and increasing responsibilities coupled with constant or declining funding (Petersilia, 2011).

Probation is administered by more than 2,000 separate agencies with no uniform structure, resulting in both conceptual and organizational differences in its administration (Petersilia, 1997). The primary differences in the organization of probation are (a) whether the location of authority that administers probation services is centralized or decentralized, and (b) probation funding (Petersilia, 1997). In 1973, Minnesota was the first state to adopt a Community Corrections Act, which shifted state funds and responsibility for correctional services from the states to localities, with at least 18 states following since (Shilton, 1992). Other differences in funding

relate to the annual cost of probation per probationer, and the fines and fees (e.g. supervision fees) that relate to the costs of probation (Petersilia, 1997). As probation agencies are generally disconnected from one another with no systematic organization, data are not easily accessible or summarized (Petersilia, 1997).

In the 1970's probation received a short-lived spotlight when probation practices were questioned by the National Advisory Commission on Criminal Justice Standards and Goals (1973), Martinson's report (1974), and the Comptroller General's Office report (1976). The general consensus was that probation was ineffective in its current form, and a fundamental shift was necessary. Specifically, the U.S. Comptroller General's study (1976) indicated that the lack of adequate funding has deemed probation a "system in crisis". However, little was done to remedy the problem and the use of probation continued to inadvertently grow due to the general increased reach of the justice system. Since 1980, probation supervision increased by 284 percent, remaining the primary alternative to incarceration (Petersilia, 2011). Despite its increased usage, probation's lack of attention in policy decisions means it continues to receive little funding. Ten percent of all correctional spending in the United States are split between probation and all other forms of community corrections (Petersilia, 2011). More recent critiques of probation echo its original developmental issues, highlighting the lack of focus, coherent set of values (Beto, Corbett, & DiIulio, 2000), funding, and attention from policy makers (Cullen, Jonson, & Mears, 2017).

Those under probation supervision in the community make up over 56% of the total correctional population, twice as much as the correctional population who is

serving time in prison (roughly 22 percent) (Kaeble, Glaze, Tsoutis, and Minton, 2015). Close to four million offenders were under probation supervision at yearend 2014, comprising 82 percent of all adults under community supervision (Kaeble, Murschak, and Bonczar, 2015). The use of probation is not limited to certain types of offenders. About three quarters of adult state and federal probationers are male, and just over half (57 percent) are felony offenders. Fifty-five percent are white, 30 percent are black, and 13 percent are Hispanic or Latino. Property and drug offenders each make up roughly one fourth of the adult probationer population (28 and 25 percent, respectively), and slightly less are violent offenders (20 percent) (Kaeble & Bonczar, 2016). There is also tremendous heterogeneity in the number of conditions placed on these probationers, ranging from single digits to mid-twenties across offenders in various states (Corbett, 2015).

Probation Conditions

Despite the growth in caseloads and decline in funding, there has been a rise in offenders who are subject to conditions beyond the standard terms of probation (Petersilia, 2011). Probation departments followed the national "tough on crime" trend by increasing the requirements of probation, increasing the period of supervision, and increasing rates of revocation (Clear & Frost, 2015; Corbett, 2015). Between 1980 and 1997 every state adopted some form of intermediate sanction as part of the general shift away from leniency to increase the availability of sanctions that fall between standard probation and prison in terms of severity (Tonry, 1997). Intermediate punishments can include electronic monitoring, day fines, drug testing, intensive supervision, and in- or out-patient treatment programs. Many of these

'intermediate' sanctions now frequently characterize conditions of probation, further blurring the distinction between alternative and intermediate sanctions and probation (Beto, Corbett, & DiIulio, 2000). However, an investigation of the components of probation has been rare for both scholars and policy makers. As Cullen, Jonson, and Mears (2017) state, "the main utility of community corrections is that it represents a noncustodial intervention. The chief concern is *not what is actually done with offenders in the community* but only with not placing offenders in prison in the first place" (Cullen, Jonson, & Mears, 2017: 2, emphasis added).

The conditions required of probationers by the judge can be generally classified into one of three categories: (a) *standard conditions* which are required by all probationers (e.g. reporting to the probation office and remaining law abiding) (b) *punitive conditions* which increase the severity of the probation sentence (e.g. monetary penalties and frequent drug testing), and (c) *treatment conditions* which address offenders needs (e.g. substance abuse treatment, counseling, vocational training) (Petersilia, 1997). Of the 1.5 million adults convicted of a felony and sentenced to probation in 1995, 98.4 percent had at least one a non-standard condition, and about half of all probationers have five or more conditions of probation in their sentence (Bonczar, 1997). Of the adult felony probationers in 1995, 84.2 percent had a monetary component of probation, 24 percent had restrictions on their movement or interactions with people, 48 percent had alcohol or drug restrictions and mandatory testing, 37.5 percent were required to participate in substance abuse treatment, 16 percent in other counseling or treatment programs, 45 percent had employment or education related requirements, and 19 percent had other special

conditions (Bonczar, 1997). While the Bureau of Justice Statistics has released numerous publications describing the incarcerated population, no national update on the conditions of probation has been released in the last twenty years, demonstrating the lack of interest or data and gap in understanding of what probation entails.

More attention has been given to the increased risk of revocation than to the conditions of probation or the experience of individuals on probation. Probation revocation and subsequent incarceration is most likely for the commission of a new offense, but can also occur through repeated violations of conditions. Between 1990 and 2004, the number of probationers revoked for non-compliance increased by 50 percent from 220,000 to 330,000 (Burke, Gelb, and Horowitz, 2007). About 53 of every 100 probationers exit probation annually: 33 complete probation successfully, eight are incarcerated for either a new offense or revocation of probation for violating conditions, seven are discharged for failure to meet conditions of supervision but are not incarcerated,[1] and one absconds (Kaeble & Bonczar, 2016). Probation's broad usage and potential consequences have led some scholars to once again call for a fundamental shift, prescribing recommendations for limiting the types of offenders placed on probation and those receiving treatment or supervision conditions (Cullen, Jonson, & Mears, 2017).

Perceptions of Probation

Despite its increased punitive nature, probation tends to suffer from a "soft-on-crime" public image, perhaps due to an overall lack of knowledge of what

[1] These include individuals who have their probation sentence reinstated, or other types of unsatisfactory exits.

probation involves. Probation is not visible in the community, and seldom gets media attention relative to other aspects of the criminal justice system such as police and prisons (Maruna & King, 2004). Further, despite its frequent use, criminal justice policy discussions rarely include probation (Beto, Corbett, & DiIulio, 2000). A 1996 national survey by Sam Houston State University found that while a quarter of respondents expressed "a great deal" or "quite a lot" of confidence in probation, 22 percent "did not know" or refused to answer the question about probation. In the same survey, national respondents indicated a 60 percent confidence in local police and only 1 percent indicated "did not know" (Longmire & Sims, 1996). A 2012 survey by the Pew Center found that 29 percent of national respondents strongly agreed and 50 percent in total agreed that "parole and probation are just a slap on the wrist and not a substitute for prison" (Pew Center, 2012).

Although probation is generally viewed as a more lenient alternative to incarceration, survey research suggests that some offenders prefer a short period of incarceration over probation (Peterselia & Deschenes, 1994; Crouch, 1993; Wood & May, 2003). The change of attitude towards probation supervision by offenders is most likely due to the changing nature of the conditions of probation (Corbett, 2015). A third of nonviolent offenders given the option of participating in intensive supervision probation chose serving time in prison (Petersilia, 1990). Wood and Grasmick (1999) found that close to 15 percent of the males in their sample of Oklahoma inmates refused to participate in any length of regular probation to avoid a year in a medium security prison. Probation was viewed by these offenders as only extending the period of correctional supervision that will inevitably lead to

incarceration (Wood & Grasmick, 1999). Further, working every day, submitting to urinalysis, and having their privacy invaded were viewed as more punitive sanctions (Petersilia, 1990).

Research using offender generated sentence equivalencies suggests that on average probationers and parolees view two years of regular probation as roughly equivalent to spending one year in a medium security state prison (May, Wood, Mooney, & Minor, 2005; Moore, May, & Wood, 2008). Crouch (1993) used interview data from a random sample of 1,027 newly incarcerated male offenders in Texas, and found that 66 percent preferred a year in prison to ten years on probation, 49 percent to five years of probation, and 32 percent to three years on probation. Offenders also generally tend to view county jail stays less preferably than prison. Given that a significant number of probationers spend some time in jail, avoiding a prison sentence may not always be the more lenient alternative. Survey research using offender generated sentence equivalencies found that offenders equate spending approximately five to seven months in county jail with serving 12 months in a medium security prison (Wood & Grasmick, 1999; May, Wood, Mooney, & Minor, 2005; Applegate, 2014).

Research demonstrates that being African American is one of the strongest predictor of a preference for prison, suggesting a possible unique probation experience by race (Crouch, 1993; Wood & May, 2003). Black probationers in northeast Indiana were five to seven times more likely to choose prison over any length of both regular and intensive supervision probation than white probationers (Wood & May, 2003). White probationers and parolees in Kentucky were willing to

serve seven months longer under regular probation supervision than black offenders to avoid a year in prison (26.51 and 19.16 months respectively) (May, Wood, Mooney, & Minor, 2005). More recently, Applegate (2014) found an even more dramatic difference by race for inmates in a large county jail in Florida. White offenders were willing to spend 17.44 months on regular probation to avoid a year in prison, suggesting that probation is viewed as less punitive compared to prison. However, black offenders were only willing to spend 11.12 months on regular probation, six months less than the white respondents. Furthermore, Applegate (2014) tested the explanatory power of perceiving alternative sanctions to be a gamble, perceiving community corrections to be more of a hassle, neighborhood quality, respecting prison experiences, helpfulness of community corrections, community ties, prior sanction experiences, and perceiving imprisonment to be routine that may account for differential views of the relative severity of prison. Only two of these explanations had a significant but weak relationship with relative punishment severity, and the effect of race was still significant in the model, and remained largely unexplained.

Probation: A "Window of Discretion"

Indeterminate Sentencing, Reforms, and Probation

Sentencing disparities, when cases with similar attributes are sentenced differently, were a common feature of indeterminate sentencing practices prior to the 1970s (Blumstein, Cohen, Martin, Tonry, 1983). The competing goals of deterrence, incapacitation, retribution, and rehabilitation (Blumstein, Cohen, Martin, Tonry,

1983) encouraged individualized sentences through the use of extralegal factors (Ulmer & Kramer, 1996), and thereby provided judges with broad and relatively unchecked discretionary powers. Frankel (1972) led the movement against these practices by raising several core concerns over the lack of judicial accountability and formal training as well as time and information constraints in sentencing. Additionally, Frankel identified inconsistency in sentencing through conflicting sentencing goals and overly broad sentencing ranges.

Sentencing reforms since the 1970s have sought to limit judicial discretion, reduce disparity, and promote transparency through a shift in sentencing philosophies away from indeterminate sentencing. The sentencing reforms implemented structured sentences, emphasizing uniformity through the use of sentencing guidelines and mandatory sentencing laws. The creation of the sentencing guideline systems provided recommended sentences based on offense characteristics and criminal histories through grids or worksheets. Minnesota was the first to adopt sentencing guidelines in 1980, and they have since been implemented in 23 states, the District of Columbia, and in the Federal system (Kauder & Ostrom, 2008). The guidelines range in whether they are presumptive (mandatory) or advisory (voluntary), and prescriptive (describing what judges should do) or descriptive (describing what judges actually do) (Frase, 2005b; Tonry, 1997). Differences by state also exist in the scope of the guidelines, how stringent they are, and policies and procedures for judges. Despite these differences, no jurisdiction regulates probation conditions and other intermediate sanctions as much as it does prison sentences (Frase, 2005b; Gainey, Steen, & Engen, 2005).

The guidelines have limited judicial discretion in the availability of probation as a sentencing option through mandatory sentencing laws and "three strike" policies, but once offenders are sentenced to probation they provide little oversight (Petersilia, 1997). The few states that provide stricter guidance on the use of intermediate sanctions (e.g. Massachusetts, North Carolina, and Pennsylvania) still do not specify the amount of noncustodial sanctions, nor do they direct judges which sanction to choose when more than one type is allowed (Frase, 2000; Frase, 2005b; Tonry, 1997). As Frase (2005) notes, "the guidelines view the use of intermediate sanctions the way the use of prison sanctions was viewed under indeterminate sentencing" (Frase, 2005b: 1224), and judicial discretion remains fundamental in these types of sentencing decisions. Therefore, despite the efforts of sentencing guidelines to change the philosophies and uniformity of judicial sentencing, in the case of community sanctions "judges must retain discretion over their use" (Tonry, 1997: 3) and they remain characterized by competing goals and philosophies. Probation decisions have been left unchecked and unstructured, constituting a window of discretion for judges, but also comprising a large number of cases a judge sentences.

The Terms of Probation

Determining the conditions of probation is typically the highest discretionary aspect of probation sentences as the majority of terms beyond the standard conditions are left up to the judge (Vera Institute, 2013) who's knowledge of the defendant is usually limited to the information in the presentence investigation report (PSI) (Petersilia, 1997). Case law established that probation conditions must meet four general elements: (a) probation conditions must serve a legitimate purpose, (b)

conditions must be written explicitly and clearly, (c) the conditions must be reasonable, and (d) conditions must be constitutional and not violate basic human freedoms (Petersilia, 1997).

The first requirement, that probation conditions serve a legitimate purpose, illustrates the built-in broad discretion of assigning probation conditions. A variety of philosophical rationales characterize the reasons for why offenders are sentenced and punished (Blumstein, Cohen, Martin, & Tonry, 1983; Spohn, 2009). Retributive perspectives focus on the act committed, arguing that an appropriate punishment is deserved by emphasizing the harm done to society. In contrast, utilitarian perspectives suggest that the goals of punishment should be on its effects on preventing future crime. Several different philosophies fall under this broader category, including incapacitation, deterrence, rehabilitation, and to some extent restoration. Incapacitation centers on crime control, and refers to physically restraining a person from committing criminal acts through imprisonment. Deterrence also emphasizes crime control by targeting the influence punishment can have in affecting the rational cost-benefit calculations in the decision to commit crime. Deterrence refers both to deterring future crime by the individual offender who is punished (specific) and the effect punishment can have on potential offenders who learn of the sentence (general). In contrast to these, rehabilitation emphasizes offender reform and an explicit consideration of the offender's characteristics to prevent future crime by addressing criminogenic needs. Finally, reintegration or restoration also falls under the utilitarian perspective of utilizing punishment for its effects, but restoration is focused on repairing the harm to the victim and the

community rather than a direct emphasis on crime prevention (Spohn, 2009; Blumstein, Cohen, Martin, & Tonry, 1983).

Preferences for different philosophies can result in differences in punishment, as these goals often compete or conflict with each other. Probation moved away from rehabilitation, but with no clear direction and therefore the purpose and specific goals of probation remain ambiguous (Corbett, 2015; Beto, Corbett, & DiIulio, 2000). As a result, a legitimate purpose for a condition of probation can be characterized as fitting any of the goals described above.

The reasonableness (Tavill, 1988) and constitutionality (Greenberg, 1981) of conditions given by judges has also been called into question, with some claiming that the number of conditions of probation has been growing excessive (Wicklund, 2004). Some scholars have argued that "in the aggregate, the sheer number of requirements imposes a nearly impossible burden on many offenders" (Klingele, 2013: 1035), and may not be realistic, relevant, or supported by research (Wicklund, 2004). These concerns echo Frankel's (1972) core concerns with indeterminate sentencing practices, demonstrating how probation decisions still face competing goals, limited information and time, lack of judicial accountability, and relatively broad discretion.

Disparity in the Decision to Grant Probation

Evidence from Probation-Specific Literature

Although limited in scope and numbers, studies specifically exploring differences in probation sentences began before probation was even formally

instituted in all states. Early work by Gaudet (1945) examined the sentences given by six judges in a New Jersey county over nine years. Gaudet's work suggested substantial variations in the total proportion of probation sentences by judge (range from 20 to 31 percent). Larger differences were seen in the proportion of cases placed on probation by offense type and by year of study. Given the lack of analytical tools at the time beyond descriptive statistics, Gaudet suggested that some of the differences in judicial use of probation could be explained away by time trends as the proportion of property crimes increased over the study period and only one of the judges served during the entire nine year period. Still, much of the disparity remained unexplained (Gaudet, 1945).

Research examining probation after the introduction of sentencing reforms showed differences in the use of probation across jurisdictions. Cunniff and Shilton (1991) examined all convicted felons sentenced to probation in 1986 across 32 large jurisdictions and found differential use of probation ranging from 30 percent of all sentences in New York County to 75 percent of sentences in Hennepin County. The authors suggested that these differences can be accounted for both by the sentencing structure of the state and by offense categories. Courts in determinate sentencing states (with no parole board) tend to use probation more than courts in indeterminate sentencing states. Differences also exist in the offense categories seen in these jurisdictions as New York sees a much higher portion of more serious offenses which are less likely to receive probation than Hennepin County (Cunniff & Shilton, 1991).

Methodological advances have allowed studies to better capture the factors influencing the decision to grant probation. Petersilia and Turner (1986) identified

factors which explained 75 percent of the differences in who was sentenced to probation (with or without a jail term) and who was sentenced to prison for males convicted of a felony in 17 California counties. They found that having multiple convictions, prior criminal convictions, supervision status at the time of arrest, drug addiction, use of a weapon, and victim injury, as well as type of attorney and pretrial release were significant predictors of a prison sentence. However, 25 percent of the variance in the decision to grant probation versus prison remained unexplained by these factors (Petersilia & Turner, 1986).

Race/Ethnicity and Probation, Jail, and Prison

The majority of the evidence implicates race and ethnicity in the decision to incarcerate (Spohn, 2000; Ulmer, 2012). While research demonstrates that disparities do exist in the criminal justice system, racial and ethnic discrimination depends on certain contexts or circumstances (Walker, Spohn, and DeLone, 2011), and the race effect is often statistically significant but small and highly variable (Mitchell, 2005; Bales & Piquero, 2012; Ulmer, Painter-Davis, & Tinik, 2016). At first glance, it seems it would not matter whether the researcher is trying to explain incarceration or probation when examining the 'in/out' decision. However, the motivation for research and subsequent choice of a dependent variable lead to different conclusions (Baumer, 2013). Specifically, as Holleran and Spohn (2004) point out, most studies have used a "total incarceration" category. This approach solely focused on identifying any incarceration groups together in the dependent variable both prison and jail as the "in" category, and any non-custodial sanction (without a jail term) as the "out". Given that probation is often given with jail sentences, traditional research examining the

"in/out decision" does not fully capture factors influencing the imposition of probation sentences. About 30 percent of felony cases nationally utilize the combination of jail and probation, and 25 percent are sentenced only to probation (Durose & Langan, 2007). These practices vary considerably by jurisdiction which would also make the 'total incarceration' measure qualitatively different by state. For example, California and Minnesota tend to utilize these types of sentences more frequently, with 80 percent of felons in California and 60 percent of probationers in Minnesota given a jail term in addition to probation, respectively (Petersilia, 1997).

Studies that have not explicitly focused on probation but have still separated jail and prison outcomes implicate race and ethnicity as factors that affect the sentencing decision. Despite the importance of the PSI in the sentencing decision, research has not consistently identified race as a significant predictor of probation officers' recommendations (e.g. Bridges & Steen, 1998; Leiber, Reitzel, & Mack, 2011) even when it is a factor in the final judicial sentencing decision after controlling for relevant factors (Leiber, Reitzel, & Mack, 2011). Harrington and Spohn (2007) compared the treatment of black and white felony offenders using 2001 data from a Midwest county. They found that black offenders were less likely than white offenders to receive a sentence of probation without jail rather than a jail sentence, specifically for males, but were actually more likely to be given jail than prison (Harrington & Spohn, 2007). Another comparison of 2,011 felony black and white offenders in an urban county in Michigan found that black defendants were significantly less likely than whites to receive probation without jail compared to a

jail sentence, but were no different in the likelihood of receiving jail or prison sentences (Freiburger & Hilinski-Rosick, 2013).

While research comparing white and black offenders suggests that white offenders are more likely than black offenders to receive probation sentences without a jail component, studies including a Hispanic comparison group find that Hispanics may be treated differently than non-Hispanic white and non-Hispanic black offenders in some decisions. Holleran and Spohn (2004), using 1998 data from Pennsylvania, found that non-Hispanic white defendants were more likely than Hispanic defendants to receive probation (without jail) than jail, but there were no differences between black and Hispanic defendants. However, non-Hispanic black defendants were more likely to receive probation (without jail) than prison sentences compared to Hispanic defendants (Holleran & Spohn, 2004). Ulmer, Painter-Davis, and Tinik (2016) found that non-Hispanic white defendants are more likely than Hispanic and non-Hispanic black defendants to receive a non-incarceration sentence (including probation, intermediate punishments, and restorative sanctions) compared to both prison and jail in Pennsylvania. Jordan and Freinburger (2015) used a matched sample of felony defendants in 57 counties and found that black offenders were more likely than white offenders to be sentenced to jail rather than probation, and prison rather than jail. Hispanic offenders were also less likely to be sentenced to probation rather than jail compared to white offenders, but did not differ in the decision between prison and jail. Compared to black offenders, Hispanic offenders were less likely to receive probation (without jail) but were also less likely to receive a prison sentence (Jordan & Freiburger, 2015).

Studies comparing prison, jail, and probation outcomes still face a major limitation as they do not discriminate in the jail category between probation sentences that include a jail component and sentences of only jail. Providing this distinction may be important in explaining why legally relevant variables have less explanatory power in distinguishing between probation sentences with and without a jail component. Freiburger and Hilinski-Rosick (2013) found that all the legal variables included in their analysis (prior record, offense seriousness, pretrial status, type of convicted offense, and method of conviction) were significant predictors for prison sentences, but only prior record level and whether the defendant was detained prior to trial were significant in distinguishing between probation sentences with and without jail (Freiburger & Hilinski-Rosick, 2013). In Ulmer et al.'s (2016) study, including all controls in the model reduced the black male and Hispanic male effects much more for predicting prison than for predicting jail. For prison compared to non-incarceration, the black male and Hispanic male effects were reduced by 54 percent, and 26 percent respectively. For jail compared to non-incarceration, the black male and Hispanic male effects were only reduced by 23 percent and 4 percent, respectively (Ulmer, Painter-Davis, & Tinik, 2016). If jail stays are a common component of probation, these studies could hint at the highly discretionary nature of individualized probation sentences through the use of extralegal factors.

Race/Ethnicity and Alternative Sanctions

More can be learned about the influence of race and ethnicity in non-incarcerative sentencing decisions from the recently-emerged body of research examining alternative sanctions. Two studies examined judicial use of special cases

of alternative sanction packages. Engen et al. (2003) examined the application of three structured alternative sanctions in Washington State as mechanisms for departing from the state's sentencing guidelines. The three types of alternative sanctions examined consisted of: (1) jail sentence conversion to partial confinement with intermediate sanctions for offenders sentenced to 12 months or less, (2) first time offender waiver using traditional probation combined with community service or participation in treatment programs for minor offenders with no prior convictions, and (3) a special sex-offender alternative that suspends the standard sentencing range and mandates treatment for nonviolent sex offenders (Engen et al., 2003). They found that black and Hispanic offenders were less likely to receive any of these structured alternatives. Gainey, Steen, and Engen (2005) also examined structured sentencing alternatives in Washington State, focusing on felony drug offenders and specifically investigating the use of a Drug Offender Sentencing Alternative which halves the offender's prison sentence and includes chemical-dependency treatment, Work Ethic Camp (a boot camp type program), and first time offender waivers. For these drug offenders, Hispanics were less likely than whites or blacks to receive any sentencing alternatives. However, black offenders were only less likely than white offenders to receive first time offender waivers. These two studies implicate race and ethnicity in the decision to receive more rehabilitative sentences, but their focus on specific structured alternatives, narrowly defined in scope and application, are not representative of the common use of alternative sanctions.

Johnson and Dipietro (2012) examined sentencing outcomes in four broader categories. They investigated the use of intermediate sanctions compared to

probation, jail, and prison outcomes for 200,982 felony and misdemeanor criminal cases sentenced in Pennsylvania from 1998 through 2000. Pennsylvania's guidelines incorporate intermediate sanctions more than most states, but the guidelines themselves still do not provide direction for judges when more than one sanction is allowed in a given cell. In their study, the probation category was comprised of sentences to fines, restitution, probation, and time served. The intermediate sanctions included a range of restorative and restrictive punishments such as: community service, drug testing, drug and alcohol outpatient and inpatient programs, house arrest, electronic monitoring, and boot camp. They found that racial and ethnic minorities were about two thirds as likely to receive an intermediate sanction instead of a prison sentence, and even less likely to receive an intermediate sanction as a substitute for jail. Black offenders were also .83 times as likely as white offenders to receive an intermediate sanction relative to probation (Johnson & Dipietro, 2012). However, as the majority probation sentences include special conditions such as drug testing, substance abuse treatment programs, and community service as conditions, which may also be combined with fines and restitution, the distinction between intermediate sanctions and probation is still not ideal for examining the influence of race and ethnicity on probation and its components. Furthermore, given the qualitative differences in the rehabilitative and restrictive nature of these sanctions and the frequent use of combinations of requirements, it is still unknown whether race and ethnicity play a role in the combination and types of probation requirements given to offenders.

Deciding the Terms of Probation

Measurement Issues in the Terms of Probation

Once offenders are sentenced to probation, the nature of the terms of their probation can vary substantially, but measuring the components of probation has proven difficult for researchers. Gaudet (1945) first encountered the problem in quantifying probation sentences in a meaningful way. Probation at the time was less complex than it is today, and most sentencing decisions involved only the length of supervisionary period and the dollar amount to be paid. Gaudet's early work "arbitrarily" decided to rank sentences primarily based on length of time, rather than their financial component. The additional requirement (e.g. make restitution or take care of children) that appeared only for a few cases were only considered after ranking based on length of time and payment. In Gaudet's scale, "5 years plus 25 cents weekly" was a more severe sentence than "4 years plus $4.00 weekly". As Gaudet (1945) noted, the presentation of central tendencies and findings depended on the accuracy of the arbitrary classification system.

Ostrom, Ostrom, and Kleiman (2004) systematically classified the various conditions that can be given in non-incarcerative sanctions in a more methodologically advanced manner, but still faced a similar problem to Gaudet (1945). They identified 20 ideal types of sentences in the literature and surveyed a group of Michigan judges from six counties to determine the degree of similarity between sentence types. Next, they used Weighted Multidimensional Scaling (WMDS) analysis and their resulting spatial model supported a two-dimensional model of control and treatment. By grouping together alternative sentences in each

quadrant of the model, Ostrom et al. (2004) identified four distinct sets of sanctions (plus prison) as sentencing outcomes: rehabilitation, restraint, rebuke, and restitution (see Figure 1).

Treatment Dimension	**Rehabilitation** *Examples: urinalysis, educational training, outpatient treatment*	**Restraint** *Examples: day reporting, electronic monitoring*
	Rebuke *Examples: community service, mediation*	**Restitution** *Examples: restitution, child support fees, costs*
	Control Dimension	

Figure 1. Ostrom, Ostrom, and Kleiman's (2004) Typology of Community Sanctions

Given that sentences utilizing the four quadrants of alternative sanctions are not mutually exclusive, this characterization results in 16 general sentence combinations. In order to simplify their dependent variables, Ostrom et al. (2004) used the "dominant sanction type" to recode these combinations" back into the five outcomes, using 1,509 felony and misdemeanor cases disposed in 1995 in Michigan. Their coding rule classified sentences as "restraint" if they included any sanctions that fell into the restraint category. This included sanctions only in the restraint category, sanctions in restraint and rehabilitation, restraint and rebuke, restraint and restitution, restraint and rebuke and restitution, and those that fell into all four quadrants. Sentences were classified as "rehabilitation" if they only included rehabilitative

sanctions. “Rebuke” included sentences that were in the rebuke category only, rebuke and rehabilitation, and rebuke and rehabilitation and restitution. Finally, sentences were classified as “restitution” if they were only in the restitution category or if they included both restitution and rehabilitation. Ostrom et al.’s (2004) classification resulted in deciding which quadrant received priority, still masking the diversity of its components.

Gaudet’s (1945) early work also utilized a different approach that avoided the arbitrary decision of dominance by examining the frequency of the ten most common types of probation sentences compared to the total number of different types of probation sentences given at the time. Gaudet (1945) recognized that judges tend to give probation sentences as packages, and that their individual components may be equally informative and important. The study found that the explicit ten most common types of sentences ranged between 27.7 percent to 50.1 percent of all kinds of probation sentences. Most recently, Yan (2015) proposed using latent class analysis as a modeling technique, also recognizing that sanctions are given as a package, and applied it to types of sentences. Unlike previous research, this method allows for probation and jail to not be mutually exclusive, does not require ignoring some of the components of sentences, nor does it require subjective decisions of the dominant or most serious condition. However, by using latent as opposed to existing packages, it still allows for the classification of likely sentencing packages with a larger number of possible sanctions.

Heterogeneity and Disparity in the Terms of Probation

Despite the limitations of previous research, the literature suggests heterogeneity and possible disparities in the assignment of the terms of probation. In Gaudet's (1945) classification of the seriousness of probation conditions, Gaudet concluded that unexplained significant variation existed between judges in the lower quartile of sentences on the severity scale he created. Cunniff and Shilton (1991) examined the distribution of types of behavioral conditions for all convicted felons sentenced to probation in 1986 across 32 large jurisdictions, including community residential placement, alcohol treatment, drug abuse treatment, testing for drug abuse, mental health counseling, house arrest, day program, and community service. Their descriptive study demonstrated considerable heterogeneity by offense type. Probationers convicted of rape had the highest incidence of behavioral conditions (76 percent) while robbery had the lowest (36 percent). There was also substantial variability by specific types, as 23 percent of aggravated assault cases were required to participate in alcohol treatment compared to only 8 percent of drug trafficking cases, and 62 percent of rape cases were required mental health counseling compared to seven percent of larceny and seven percent of robbery cases. Similar variability was found for financial conditions and restitution. However, conditions information was only available for 73 percent of the total probation cases, and the study did not use any method beyond descriptive information (Cunniff & Shilton, 1991).

Ostrom et al.'s (2004) typology also identified differences in sentence types by offense types. Using multinomial logit regression, they found that compared to violent offenders, drug offenders had a higher probability of receiving 'rehabilitation'

and ‘rebuke’ sentences, and a lower probably of receiving a ‘restraint’ sentence or being sent to prison. Similarly, property offenders were also less likely than violent offenders to receive prison or ‘restraint’ sentences. However, property offenders did have an increased probability to receive a restitution sentence compared to violent offenders, while drug offenders were less likely to receive this type of sentence. In Ostrom et al.’s (2004) four quadrant typology, being nonwhite reduced the probability of prison and ‘restraint’, and increased the probability of ‘rehabilitation’. However, the interaction of being young, non-white, and male increased the probability of prison and reduced the probability of ‘rehabilitation’. Ostrom et al. (2004) recognized restraint as the most dominant, followed by rebuke, then restitution, and rehabilitation. This ‘dominant sanction type’ classification incorporated a subjective assessment which may have influenced their results, as their classification still masks the true nature of the heterogeneity and variability of possible requirements.

Yan’s (2015) latent class analysis for sentencing used detailed data of adult cases from district attorney files of two counties in New York in 2005 and 2006. A weighted sample of 502 cases was drawn from all eligible cases, and Yan’s (2015) research used only those who were not dismissed or were sent to prison, resulting in a final sample size of 326 felony and misdemeanor cases. Six types of sentences were used in the study and coded dichotomously: jail (any post-sentencing jail sentence), probation, fines or restitution, community service, special status (additional leniency through conditional discharge and Youthful Offender status), and programs (any rehabilitative program including drug court).

Yan's (2015) study identified four latent classes in the felony and misdemeanor cases, two of which were most likely to receive probation. One of the classes with a high conditional probability of receiving probation was more likely to receive a jail sentence, more likely to pay fines or restitution and more likely to be required to participate in rehabilitative programs, but less likely to have a community service option than the other class with a high likelihood to receive probation. The remaining classes were one with a high likelihood of jail but not probation, and a class likely to receive a fine but not jail or probation requirements. In Yan's (2015) study, while legal variables were predictive of the modal jail incarceration decision, extralegal factors such as age and race played a greater role in explaining differences between classes.

Yan's (2015) work presents an innovative approach to capturing the heterogeneity in sentencing packages by examining general types of sentences. However, its small sample size limits the inferences than can be drawn on the influence of race on class assignment, as 83 percent of the sample was white. In addition, the study is limited in what can be learned on the assignment of conditions of probation. Felony probation decisions are substantially different from misdemeanor cases. Thirty-two percent of the sample pled guilty to a felony and therefore the majority of the sample was comprised of cases less likely to receive multiple combinations of conditions. The current study aims to advance this research by applying Yan's (2015) method to a different dependent variable, conditions of probation.

Summary and Conclusions

A review of the literature demonstrates that despite the evident diversity of those under probation supervision, most researchers treat this substantial population as a homogeneous and broad group and only limited work has attempted to address the difficulty of quantifying and measuring the heterogeneity in probation conditions. The need for more research focusing on probation is exemplified through research examining sentencing disparities arising out of judicial discretion. Although the sentencing reform movement has generally moved away from indeterminate sentencing practices towards uniformity, probation remains a highly discretionary decision with little judicial accountability and conflicting goals. Existing research suggests that race and ethnicity may be implicated in probation sentencing decisions and that white offenders are more likely to receive probation and rehabilitative components, but further studies are necessary to assess these claims.

Based on the gaps identified in the literature, this study seeks to answer the following three questions: (a) Are black and Hispanic offenders less likely to receive any sentence of probation compared to a prison sentence? (b) How are the combination of probation conditions assigned for those offenders that receive probation? (c) Do black and Hispanic offenders receive a wider range of and/or more punitive probation conditions? This research contributes to the existing literature by directly exploring heterogeneity within probation sentences and examining the role of race and ethnicity in assignment of probation and its conditions. The study applies the novel approach proposed by Yan (2015), latent class analysis, to newly coded data with a greater level of detail for a large number of offenders that has not been available in previous

research. The next chapter describes the contemporary theoretical perspectives that guide the analyses and predictions of this research.

Chapter 3: Theoretical Import and Hypotheses

Contemporary theories of judicial decision making have developed as specific applications of concepts from disciplines outside criminal justice. While these theories have traditionally been applied to incarceration decisions, in principle their ideas should also apply to details about probation decisions. The following review examines the perspectives and predictions of relevant theories as a guiding framework for this study's research questions and hypotheses.

Organizational and Focal Concerns Theories

Scholars from cognitive psychology and behavioral economics have developed theories attempting to explain how individuals employ "approximate rationality" in decision making processes due to limitations in information and cognitive abilities (Simon, 1979). As people are constrained by time limitations, uncertainty about future outcomes, and computational abilities of working through every possible alternative, they tend to use shortcuts of simple decision rules of heuristics and biases (Tversky & Kahneman, 1974). Organizational theories describe this process as "bounded rationality", where decision makers develop "patterned responses" and make problem solving a search for a satisfactory, rather than ideal, solution (March & Simon, 1958). This allows also for multiple goals to be incorporated in the simplified decision mechanism, because complex computational ability is not needed to find the "optimal" choice (Simon, 1979).

Albonetti (1991) drew upon the "bounded rationality" concept of organizational theory to explain the patterned responses judges make in discretionary

decisions. Judges are limited in the information they have to decide with certainty whether an offender will recidivate. Therefore, judges must make causal attributions based on the factors they do know about the potential risk of an offender. These attributions are a product of past experience and societal stereotypes, and over time judges develop "patterned responses" which incorporate these stereotypical attributions (Albonetti, 1991).

Steffensmeier, Ulmer, and Kramer (1998) expanded upon Albonetti's (1991) work focused on risk of recidivism, by adding two additional dimensions. They suggested that judges assess three focal concerns when making sentencing decisions: (a) community protection which includes both risk of recidivism and dangerousness, (b) the blameworthiness of the offender which includes wrongfulness and harmfulness of the offense, and (c) practical decision-making constraints on individual and court resources. Both Albonetti (1991) and Steffensmeier et al. (1998) implicated race as an extralegal factor which is used by judges to make attributions about the likelihood of recidivism and community protection. Albonetti (1991) found a main effect for race on sentence severity, interpreting this as evidence that judges attribute higher levels of dangerousness to black defendants, and sentence them more severely. Steffensmeier et al. (1998) demonstrated that in addition to relevant legal information, judges are more likely to view young minority males as a greater threat to the community and less likely to be rehabilitated, and therefore tend to sentence them most harshly. Research suggests that when judges are not explicitly made aware of making these attributions, they are more likely to play a role in their decision making. Rachlinski et al. (2009) found that judges harbor implicit biases towards

black defendants, showing a preference for associating white with good and black with bad. In addition, using hypothetical cases Rachlinski et al. (2009) found that when information on race was not accentuated but was present, judges made harsher judgements towards black defendants than white defendants.

Research Hypotheses

Extant research implicating race and ethnicity in the decision to incarcerate is generally consistent with organizational attribution and focal concerns theories' notion that judges associate minority offenders with future dangerousness and risk (e.g., Mitchell, 2005; Ulmer, 2012). If an individual is deemed a danger to the community (Steffensmeier et al., 1998), the judge will be more inclined to keep the offender away from the community for a longer period of time, and therefore more likely to sentence the offender to a prison term rather than probation with and without jail. The current study therefore predicts the following:

> **Hypothesis 1:** Black and Hispanic offenders will be less likely to receive any sentence of probation as opposed to prison, independent of relevant sentencing factors.

Applying the core theoretical arguments for heuristics and "bounded rationality" to probation specific decisions leads to expectations of patterning of probation conditions. Despite the almost infinite number of sentencing combinations judges can choose from, organizational theories suggest that sentences will neither be assigned stochastically nor in a perfectly individualized manner. Even with full discretion, the cognitive limitations of people will mean that judges will impose restrictions on themselves to simplify their choices. The studies described in the preceding chapter support organizational theories' predictions. Guadet's (1945) work

found that even during a period of time that was characterized by widespread judicial discretion judges were more likely to give "stereotyped sentences," and the ten most common types of sentencing packages comprised between a quarter to half of all the probation sentencing combinations in the data. Similarly, Ostrom et al.'s (2004) review of the literature identified 20 ideal types of sentences, and Yan's (2015) work shows that despite the availability of 64 (2^6) sentencing combinations in the sample, only 34 sentencing packages existed. Therefore, this study expects the following:

> **Hypothesis 2:** Distinct latent packages of probation conditions will emerge in the data that differ in the quantity and nature of their requirements.

Finally, although organizational attribution and focal concerns theories have not been tested directly with probation-related data, their core arguments imply that racial disparities seen in incarceration will be similarly evident in probation specific decisions. Furthermore, as probation decisions allow for more discretion, Steffensmeier et al.'s (1998) third focal concern, practical decision making constraints, may be different for probation conditions decisions than the incarceration decision. Given the larger amount of discretion, judges may rely more heavily on extralegal factors such as race and ethnicity to make attributions about the likelihood of recidivism and community protection. Perceptions of threat and dangerousness associated with minority defendants may be translated to imposing more conditions that serve to restrict offenders' behaviors and movements in the community. Additionally, offenders who are perceived to have a higher risk of recidivism and pose a greater threat to the community may receive more expansive combinations of conditions of probation than offenders who judges feel need a lesser amount of requirements. In line with this reasoning, the current study predicts the following:

> **Hypothesis 3:** Black and Hispanic offenders will be more likely than similarly situated white offenders to be assigned to probation packages that (a) are likely to include a large number of conditions overall than those that have limited requirements, and (b) are likely to include more sanctions aimed at monitoring and restricting their behavior than those that include more rehabilitative sanctions.

In testing these hypotheses the current study extends contemporary theoretical perspectives to probation related decisions. Furthermore, the study addresses the limitations of prior research examining probation which characterized probation conditions in broad categories rather than distinguishing both the quantity and type of conditions of probation. The next chapter discusses the data and methods used by the current study to test these theoretical predictions.

Chapter 4: Data and Methods

The Research Context

The current study uses cross-sectional observational data from (a) court documents available online on the Minnesota Trial Court Public Access website, matched by case number to (b) detailed official sentencing records from the Minnesota Sentencing Guidelines Commission (MSGC). Minnesota was the first state to enact sentencing guidelines, which went into effect May 1, 1980 (Frase, 2005a). The goal of the guidelines was to reduce sentencing and prison release discretion and disparity by abolishing parole release discretion, except for life sentences, and including recommendations for length of prison sentences. The guidelines apply only to felony offenders and encompass two major types of recommended-sentences: executed prison terms and stayed sentences. Stayed sentences consist of two subcategories, "stayed executions", when the length of the prison term is pronounced but its execution is stayed contingent on successful completion of probation, and "stayed imposition," when the judge does not state at sentencing the amount of prison time to serve if probation is violated (Robina Institute, 2016).

Minnesota has consistently had a low-incarceration rate compared to other states despite the dramatic increases in felony convictions and prison rates (Frase, 2009), and ranks fifth of all states in their probation rate, with roughly 2,625 people on probation per 100,000 (Kaeble, Maruschake, & Bonczar, 2015). While Minnesota's sentencing guidelines are relatively specific for incarceration decisions, they only provide general nonbinding recommendations for what stayed sentences

entail (Frase, 2009). The maximum length of felony probation sentences permissible in Minnesota is equivalent to the statutory maximum incarceration term for the specified offense, meaning that some offenders may be sentenced to probation for up to 40 years (Minn. Stat. Ann. §609.135; Watts, 2016).[2] Judges also have discretion in determining the type of probation (intensive, regular, or no supervision)[3] (Frase, 2009), conditions of probation (*State v. Friberg*, 1989), jail terms of up to one year (Minn. Stat. Ann. §609.135), treatment programs, fines, restitution, or community service (Frase, 2009). Therefore judges have considerable discretion in probation-related sentencing decisions in stayed sentences (Ruhland & Alper, 2016). When probationers violate any condition of probation in Minnesota, the probation revocation process may be initiated up to six months after the end of the stay (Mitchell & Reitz, 2014). Probation terms may also be extended up to two years for failing to pay restitution at least 60 days before the term of probation expires, or for those deemed likely not to pay by that time (Minn. Stat. Ann. §609.135). It can be extended up to three years if the probationer has not completed any of the court-ordered treatments at least 60 days before the term of probation expires or is likely not to complete treatment by that time (Minn. Stat. Ann. §609.135).[4]

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[2] When the statutory maximum is less than four years, judges may exceed the statutory maximum and give probation sentences of up to four years.

[3] Only 16 offenders in the sample (.007 percent) received unsupervised probation.

[4] The description of Minn. Stat. Ann. §609.135 applies both to current practices and to 2009 when the sample in the present study was collected. In 2009 Subd. 8 was repealed which stated that a defendant's obligation to pay court-ordered fines and fees will survive for six years from the date of expiration of the stayed sentence. Since then, the only update to the statute has been an introduction of a pilot project in 2014 which changed the standards for ordering offenders charged with domestic abuse to use an electronic monitoring device and indicated that violations of location restrictions in situations where the victim and the defendant are both mobile does not automatically constitute a violation of conditions. For 2009 felony offenders, electronic monitoring was explicitly specified as a condition of probation in only a handful of

Sample

The current study uses an innovative data collection process by taking advantage of recent technological advances that increase accessibility to court documents. The data used come from (a) court documents available online on the Minnesota Trial Court Public Access website, linked by case number to (b) detailed official sentencing records from the Minnesota Sentencing Guidelines Commission (MSGC). This unique data matching gives access to detailed information that has previously been unavailable in most sentencing research. The court documents contain specific probation-related information and the detailed list of conditions unavailable in many datasets and case searches. Many states that provide access to online case searches only supply the length of probation and any additional disposition given at sentencing.

The sample for the proposed study was drawn in multiple stages. First, an initial sampling frame included all adult male offenders convicted of a felony in the Twin Cities metro area (Ramsey and Hennepin Counties) in 2009. Focusing on male offenders is consistent with previous work on sentencing decisions and eliminates any possible gender effect, as females are much less likely to be both charged and convicted of felonies (Daly & Tonry, 1997; Starr, 2015). Using recent data from a single year avoids historical bias that may be present in data that span a longer period of time.

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cases, and was more commonly given as an alternative for those eligible to avoid part or all of their jail terms.

Sentencing practices are affected by location as there are substantial differences by state in sentencing laws and guidelines, and even by jurisdictions in court culture and standard sentences (Ulmer, 1997; Johnson, 2006). While there are still differences in court context by county, these differences can be controlled for using dummy variables; the two counties in the proposed study are from the same state, with the same guidelines and similar demographics. Ramsey and Hennepin counties are chosen specifically as they are considerably more urbanized than other counties in the state, and include over one-third of all felony convictions in Minnesota, ensuring a large and diverse sample of offenses. This metropolitan area also includes 70% of Minnesota's African American population, and therefore allows for a racially heterogeneous sample. Appendix 1 provides a comparison of Ramsey and Hennepin counties to the other five counties in Minnesota's Twin Cities metropolitan region.

The sample was restricted to common felony offenses eligible for probation to ensure variability.[5] The final sample included all assault-related offenses, robberies, terroristic threats,[6] stalking, any theft related offenses or receiving stolen property, all burglary offenses, criminal damages, forgeries, identity theft and counterfeit checks, and controlled substance related offenses. The frequency of these offenses can be seen in Table 1. The sample used in the present study includes all offenders identified as white (n=970), black (n=1887), and Hispanic (n=174), totaling 3,031 cases of adult

[5] 107 total criminal sexual conduct cases (55 sentenced to probation) were coded but not included in the sample. Criminal sexual conduct is treated differently by the guidelines, as these cases have their own separate sentencing grid, severity classification system, and different eligibility for terms of probation.

[6] In Minnesota many domestic assault cases are classified as terroristic threats.

males convicted of a felony offense in 2009 in Ramsey and Hennepin counties.[7] Of these 3,031 cases, a total of 2,136 were sentenced to probation: 736 white probationers, 1,280 black probationers, and 120 Hispanic probationers.

Table 1. Frequency of Conviction Offenses

Person Offense	Frequency	Property Offense	Frequency	Drug Offense	Frequency
Assault 1	34	Theft	173	Controlled Substance 1	100
Assault 2	103	Theft Firearm	3	Controlled Substance 2	97
Assault 3	116	Theft Over 35K	13	Controlled Substance 3	135
Assault 4	34	Shoplift Gear	6	Controlled Substance 4	20
Assault 5	17	Theft From Person	44	Controlled Substance 5	635
Domestic Assault	154	Theft Motor Vehicle	10		
Domestic Assault with Strangulation	98	Motor Vehicle Use	113		
Simple Robbery	61	Receiving Stolen Property	79		
Aggravated Robbery 1	135	Burglary 1 (severity =6)	52		
Aggravated Robbery 2	24	Burglary 2 (severity =5)	131		
Terroristic Threat (severity=4)	164	Burglary 2 (severity =4)	3		
Terroristic Threat (severity=1/2)	2				
Stalk (severity=4)	7				
Stalk (severity=5)	15				
Burglary 1 (severity=8)[8]	22				
Total	*986*	*Total*	*1058*	*Total*	*987*

[7] A total of 16 additional cases were dropped from the MSGC data as the detailed review of the court records indicated they were misclassified. These included 11 females, two convictions of gross misdemeanors, one dismissal (not convicted), and two who were convicted in 2008.

[8] First degree burglary with a weapon or assault is considered a person offense in Minnesota.

Measures

Outcomes and Manifest Variables

The first outcome examined is whether an offender was given any sentence of probation. Probation was coded dichotomously, with offenders given any sentence of probation coded as "1", including offenders with a stay of imposition or a stay of execution, and those sentenced to prison were coded as "0."

All conditions of probation were coded using court documents available on the Minnesota Trial Court Public Access website. The case identification number from the Minnesota Sentencing Guidelines Commission data was used in the search, and the first, middle, and last name of the offender were used to confirm the correct case was found.[9] Appendix 2 provides an illustration of a court document that was used for the creation of the data. Given the variability in the descriptions of conditions in the court documents, condition types are coded dichotomously (yes/no) rather than including the number of conditions given in each category. This allows for the results not to be highly dependent on the writing style of those who wrote the court documents.[10] For example, an offender who is given a chemical dependency evaluation and instructed to follow the recommendations of the evaluation as two separate conditions is coded in the same manner as an offender who is given these requirements as one condition. This method of coding also allows the type of

[9] There may have been clerical errors that cause omissions of conditions of probation in the court documents or changes that were not updated in the system. However, it seems unlikely that these types of errors would result in systematic differences by race that would bias the results in a significant way.

[10] Information is not available on Minnesota Trial Court Public Access website or otherwise on the specific court clerk writing each court document.

conditions to be used as manifest variables in latent class analyses. Table 2 provides a description of all conditions of probation included in the study. These categories are not mutually exclusive, as offenders are often given more than one type of condition.

Table 2. Types of Conditions of Probation

Type of Condition	Description
Drug/ alcohol restrictions	Conditions restricting the use or behavior related to drugs and alcohol. Includes conditions mandating drug or alcohol testing, and limiting the number of pharmacies/doctors
Drug/ alcohol treatment	Conditions related to chemical dependency treatment, assessment or programming. Includes 12 step meetings
Obtaining/ maintaining employment/ education	Conditions requiring the offender to obtain or maintain employment, school, or GED
Evaluation/ counseling for employment/ education	Conditions requiring the offender to participate in employment or educational assessments, counseling, or programming
Cognitive skills training	Conditions specifying participation in cognitive skills training programs
Mental health	Conditions requiring offenders to participate in mental health or psychiatric evaluations and counseling. Includes conditions requiring offenders to take psychiatric medications
Anger management and domestic abuse counseling/ treatment[11]	Conditions specifying participation in anger management or domestic abuse counseling or treatment
Weapon restrictions	Conditions relating to the use, transfer, ownership, or forfeiture of any firearms or other weapons
Vulnerable person and location restrictions	Conditions prohibiting the offender from contact with certain vulnerable persons, such as victims, minors, or domestic contact, or conditions prohibiting the offender from accessing certain locations
Any restitution	Conditions allowing for restitution to be mandated. The amount to be paid is specified at sentencing in some cases, and in others remains undecided until a later date

[11] Offenders are occasionally permitted to choose between anger management and domestic abuse counseling in the conditions listed in the court documents and therefore the two were combined for the purposes of this study.

Community service	Includes offenders who are given community service either as a condition of probation or instead of a jail term or fine
Fines[12]	Offenders required to pay any dollar amount of fines
Other restraint	Includes restrictions such as conditions prohibiting the offender contact with codefendants or gang members, conditions relating to following child protection, child visitation restrictions, obeying family court rules and child support, conditions mandating the offender to register as a predatory offender, curfew restrictions, occupation restrictions, restricting offenders from gambling, computer supervision, pawning at pawnshops, using metro transit system, possessing pornography material, and using business sales sites such as Craigslist, E-bay, and Amazon
Other rehabilitation	Includes requirements such as general programs, adult group, parenting classes, support group participation, or residential programs not specific for substance abuse, unidentified specific programs, gambling assessments or treatment, reading a book and submitting a report to the judge, unidentified specific programs, psychological-sexual evaluation or treatment, and applying for developmental disabilities services
Jail	Offenders sentenced to serve one or more days in local confinement
Basic probation	Conditions required by all offenders in standard probation including remaining law abiding, following the rules of probation, supplying a DNA sample[13]

Covariates and Predictors

The main predictor variable for this work is categorical race and ethnicity, as recorded in the Minnesota Sentencing Guidelines Commission official data. The race and ethnicity of the offender was coded in the presentence investigation (PSI) of the offender, using the answer given by the offender during the interview about his racial and ethnic identification. The categories are mutually exclusive, and include

[12] The majority of fines were of $50 (1,143 of 1,797 who were required to pay a fine) but ranged from $10 to $75,000.

[13] All convicted persons in Minnesota who were charged with committing or attempting to commit a felony offense must submit a DNA sample if they have not already done so (Minn. Stat. Ann. §609.117)

offenders identifying as white, black, and Hispanic. Dummy variables for "black" and "Hispanic" are included in the subsequent analyses with "white" serving as the reference group.

The additional covariates that are used are offense type, offense severity, total history of prior criminality, county sentenced, presumptive sentence, age, and mode of conviction. Since some conditions relate to specific crimes, such as drug related crimes, offense type is an important predictor of the conditions of probation. Three mutually exclusive offense type categories for the most serious conviction are in the dataset: person, property, and drug offenses. Dummy variables are included in the subsequent analyses for "person" and "drug" offenses, with "property" serving as the reference category. The severity score of the current offense, measured on a scale from 1 to 9[14] is included as offense severity would likely be related to the disposition and custodial nature of conditions. The presumptive sentence is coded as a dummy variable with cases where the recommended disposition is a prison sentence scored as 1. A measure is also included for total criminal history, measured on a scale from 1 to 6 by assigning weights to prior offenses according to the Minnesota Sentencing Guidelines.[15] Categorical age is included in the model with categories created by the Minnesota Sentencing Guidelines Commission of 18-21, 22-25, 26-30, 31-40, 41-50, and 50 and older. A dummy is included for each age group, with "31-40" used as the reference category. The county where the offender was sentenced (Hennepin County=1 or Ramsey County=0) is also used to account for different court contexts in

[14] Levels 10 and 11 are for murder offenses which are not included in the sample.
[15] See https://mn.gov/sentencing-guidelines/assistance/criminal-history-calculation/

the two counties (Eisenstein & Jacob, 1977). The mode of conviction is included as a dummy, as the acceptance of a plea deal may affect the severity of the sentence as some offenders may pay a 'trial tax' if they do not plead guilty (Ulmer & Bradley, 2006). Cases that went to trial are scored 1 and guilty pleas are scored 0.

Analytic Plan

The data are analyzed in several stages. First, descriptive statistics are examined for the entire sample. Second, I use a logistic regression model to investigate whether race and ethnicity contribute to the likelihood of receiving probation compared to prison after controlling for other potentially relevant factors as given by Equation 1:

$$\Pr(y_i = 1|\boldsymbol{x_i}) = \Lambda(\boldsymbol{x_i}\beta) = \frac{e^{\boldsymbol{x_i}\beta}}{1+e^{\boldsymbol{x_i}\beta}} \quad (1)$$

Where $y_i = 1$ indicates an individual's probability of being sentenced to probation conditional on the individual's $\boldsymbol{x_i}$, the observed values to each of the regressors included in the model. The parameters β of the logit model are estimated using maximum likelihood estimation for the sample log-likelihood function given by Equation 2:

$$\boldsymbol{\mathcal{L}}(\boldsymbol{\beta}; y_1, y_2, , y_n) = \sum\{y_i \log\big(\Lambda(\boldsymbol{x_i}\mathbf{b})\big) + (1 - y_i) \log\big(\Lambda(\boldsymbol{x_i}\mathbf{b})\big)\} \quad (2)$$

The remaining analyses focus only on the subsample who received probation sentences to explore how probation conditions are assigned. First, descriptive statistics of the conditions of probation are presented for the subsample. Both theory and prior literature suggest that it is reasonable to expect that conditions will tend to cluster with one another in terms of how they are imposed by judges. Correlations

between the conditions of probation as well as real combinations of conditions existing in the data are then used to explore observable heterogeneity in the assignment of probation conditions.

It is unwarranted to assume that the data will be perfectly divided into combinations of conditions, and therefore a more rigorous model to define groupings is necessary to investigate unobservable heterogeneity in the assignment of probation conditions. Latent class analysis (Lazarsfeld & Henry, 1968) has several advantages as an exploratory analysis for this question and has only recently been used for sentencing data analysis. The latent class model is a special case of mixture models that assumes that the data are generated by random draws from a set of discrete probability distributions (McCutcheon, 1987; Hagenaars & McCutcheon, 2002). In this case, these discrete probability distributions represent distinct unobservable types of combinations of probation conditions and are identified through latent class analysis. The potential heterogeneity that emerges through the application of this method reflects the underlying distribution of the data without necessarily imposing additional a priori expectations upon the distribution (McCutcheon, 1987; Hagenaars & McCutcheon, 2002). Latent class analysis is commonly used as an exploratory tool to identify unobserved heterogeneity in a population in behavioral and social science research, and is generally seen as more advantageous to standard cluster analysis for exploratory studies (Hagenaars & McCutcheon, 2002).

The classes are predicted from the set of observed categorical variables, called manifest variables. The latent class method does not determine definitely which class type of combination of probation conditions each offender belongs to, but provides

posterior probabilities for the likelihood that each observation falls into each class (Hagenaars & McCutcheon, 2002; Lanza et al., 2015). This method also allows an estimation for the proportion of the probation population who receive each type of combination of probation conditions. The latent class model for the response vector of *Z* (z=1, …, *Z*) manifest variables with J classes (j= 1, …, J) is given by:

$$f(x_i) = \sum_{j=1}^{J} \pi_j \prod_{z=1}^{Z} p_{jz}^{x_{iz}} (1 - p_{jz})^{1-x_{iz}} \quad (3)$$

Where π_j is the probability that any offender is a member of class *j* (which must sum to one), x_{iz} is the observed response of individual *i* to condition z, and p_{ij} is the probability of being assigned condition *z* from an individual from class *j*. The parameters of this model are estimated using maximum likelihood estimation.

Before beginning estimation using the latent class model, the number of classes need to be specified based on fitting statistics and theoretical value. The latent class model is estimated using the latent class analysis plugin for Stata version 1.2 (Lanza et al., 2015). The Bayesian Information Criterion (BIC) is used to select the model with the best predictive utility (Schwarz, 1978) using the following:

$$BIC = q\ log(N) - 2\ logL \quad (4)$$

Where *q* is the number of parameters, *N* is the number of observations, and *logL* is the log likelihood function. The model with the global maximum or minimum BIC value is considered optimal (Raftery, 1995). The BIC is recommended for latent class analysis (Hagennars & McCutcheon, 2002; Magidson & Vermunt, 2004) and outperforms Akaike Information Crioterion (AIC) (Akaike, 1973) especially with large samples (Nylund, Asparouhov, & Muthen, 2007). The BIC favors parsimony by including a penalty term for additional parameters, and the size of the penalty is

proportional to the natural logarithm of the sample size (Kass & Raftery, 1995), but in some cases the penalty for large *N* may be too small and possibly indicate too many classes. Therefore, additional diagnostics are necessary to further assess model adequacy suggested by Nagin (2005) are assessed.

The classes identified by the model are not real, and offenders are not definitely assigned to one class over another. Latent class analysis provides posterior probabilities for each observation, the probability that the observation falls into class x conditional on the observed response pattern $\boldsymbol{y}$ to the manifest variables, which sum to one, given by $Pr(X = x|\boldsymbol{Y} = \boldsymbol{y})$. By using the highest posterior probability for each observation, I assign each observation into a class, and then examine the mean of the posterior probabilities from all observations in each class. Ideally, the average posterior probabilities should be as close to 1 as possible, and above .70 to be considered adequate (Nagin, 2005). Latent class analysis also provides the mixing probabilities, the proportion that any observation falls into a class, given by $Pr(X = x)$. These probabilities are compared to the proportion of the sample assigned to class using the maximum posterior assignment classification, given by N_j/N. Reasonable close correspondence between the two provides support for the model's adequacy (Nagin, 2005). The final diagnostic tool used is the odds of correct classification for each group using the formula:

$$\frac{(avgPP_j)/(1-avgPP_j)}{(N_j/N)/(1-(\frac{N_j}{N}))} \tag{5}$$

where $avgPP_j$ is the average posterior probability for each class and N_j/N is the proportion of the sample that is in each class. If using maximum probability

assignment is as good as random chance, the odds of correct classification would equal 1. Larger values indicate better assignment accuracy, with odds greater than 5.0 for all groups indicating high assignment accuracy (Nagin, 2005).

The classes of probation conditions that emerge in the data are described qualitatively and probabilistically. First, the likely conditions characterizing each class are discussed using the conditional probabilities $Pr(\boldsymbol{Y} = \boldsymbol{y}|X = x)$, the probability that an individual conditional on being in class *x* has the manifest variables. Next, the hard-classification of offenders to classes using the maximum posterior probability rule is used to discuss the likely characteristics of the classes. Descriptive statistics are used to examine the expected length of jail sentence and likely characteristics of the offenders and their cases conditional on class. This process is repeated in sensitivity analyses using subsamples.

Finally, the relationship between race and ethnicity and assignment of combinations of probation conditions is investigated using a multinomial logistic regression, given by Equation 6:

$$\Pr(y = j|\boldsymbol{x}) = \frac{e^{x\beta_j}}{1+\sum_{h=1}^{J} e^{x\beta_h}} \quad (6)$$

The outcome variables in the model are the J (j= 1, …, J) distinct classes of combinations of probation conditions that are identified using the latent class analysis. The multinomial logistic regression model includes relevant factors to isolate the unique effects of race and ethnicity on group membership. Supplementary analyses are again discussed using the latent classes identified in the subsamples.

Chapter 5: Results

Descriptive Analyses

Table 3 provides the summary statistics for the sample. The majority of the sample is black, approximately one-third is white, and six percent are Hispanic. Slightly over one-third of the sample was recommended a prison sentence by the guidelines (presumptive sentence). The average offender's criminal history score is relatively low, around 2 on the scale from 1 to 6. The average offense committed is of moderate severity (4, ranging from 1 to 9), and the sample is relatively equally distributed by offense type. The average offender in the sample is slightly more likely to be between the ages of 31 and 40 years old[16] and from Hennepin County and is very unlikely to have gone to trial.

Table 3. Descriptive Statistics of Sample[17]

Variable	**Total** (n=3,031)	**Prison** (n=895)	**Probation** (n=2,136)
	Mean (SD)	**Mean (SD)**	**Mean (SD)**
Race/Ethnicity			
- White	.320	.261	.344
- Black	.622	.678	.599
- Hispanic	.057	.060	.056
Presumptive Sentence	.367	.882	.152
Criminal History	2.170 (2.100)	3.811 (2.129)	1.483 (1.660)
Offense Severity	4.047 (2.128)	5.199 (2.462)	3.564 (1.760)
Offense Type			
- Property	.349	.340	.353
- Drug	.326	.320	.328

[16] The average age in sample is 32.5 years. The average age of offenders sent to prison is 33.77 years (SD=10.33) and the average age of offenders sentenced to probation is 31.96 years (11.05).

[17] Standard deviations not reported for binary variables.

- Person	.325	.341	.319
Hennepin County	.623	.638	.616
Age			
- 18-21	.212	.158	.235
- 22-25	.153	.128	.163
- 26-30	.173	.189	.167
- 31-40	.224	.261	.208
- 41-50	.178	.208	.166
- 51+	.059	.056	.061
Trial	.037	.078	.020

Are Minority Offenders Less Likely to Receive Proabtion?

The first question investigated by this study is whether black and Hispanic offenders are less likely to receive any sentence of probation compared to prison. Returning to the summary statistics provided in Table 3, I examine the characteristics of those who received prison and probation in the sample. Compared to their proportion in the overall sample (62.2 percent), black offenders seem to be overrepresented in those sentenced to prison (67.8 percent) and underrepresented in the probation subsample (59.9 percent). White offenders are underrepresented in the prison subsample (26.1 percent compared to 32 percent of the total sample) and overrepresented in the probation subsample (34.4 percent). Hispanic offenders follow a similar pattern to black offenders but to a lesser extent, and their overall contribution to the sample is relatively small (5.7 percent) that the differences are relatively minute (6 percent of the prison subsample and 5.6 percent of the probation subsample).

Several other differences are evident between those sentenced to probation and those sentenced to prison in the descriptive statistics in Table 3. Those sentenced to prison are more likely to have had a prison sentence recommended (88.1 percent

compared to 15.2 percent), have a higher criminal history score and are convicted of a more severe offense. As expected, the average criminal history score of the probation group (1.483) is lower than the prison group (3.811) but both include individuals ranging from scores of 0 to 6. Similarly, for offense severity the average probationer score was 3.564, again lower than the average severity score of those sentenced to prison (5.199). Both those sentenced to probation and those sentenced to prison include a range of severity scores from 1 to 9. The offense type distributions are split evenly and are relatively similar between those sentenced to prison and probation. Of those sentenced to probation, 35.3 percent are property offenders, 32.8 percent drug offenders, and 31.8 percent are convicted of a person offense. Offenders sentenced to prison tend to more likely to be convicted of a person offense (34.1 percent). Less than four percent of the total sample went to trial, but those who did were more likely to be sentenced to prison than probation.

Given the apparent differences between those sentenced to probation and those sentenced to prison, the main question of interest is whether race and ethnicity are still important factors in sentencing to probation as opposed to prison after controlling for other relevant factors. Results for the logistic regression model are presented in Table 4. The odds reported are in the expected direction, with both black and Hispanic offenders less likely to receive a sentence of probation than white offenders. However, neither race nor ethnicity is significantly predictive of a sentence of probation compared to prison, suggesting that legally relevant variables likely explain most of the racial disparities in the in/out decision for this sample. Given the structured nature of the sentencing guidelines, it is not surprising that the most

predictive covariates are prior criminal history, severity of the offense, and the presumptive sentence. The odds of receiving a sentence of probation are 0.075 times lower for those who are recommended a prison sentence than those who are not. Offenders who go to trial are also significantly less likely to receive a sentencing of probation (.297 times the odd of those who take a plea). Those in the youngest age category of 18 to 21 are also slightly less likely to receive a probation sentence, and offenders sentenced in Hennepin County are slightly more likely to receive probation.

Table 4. Logistic Regression of Probation Compared to Prison

	Logit	**S.E.**	**Odds Ratio**
Race/Ethnicity			
- Black	-0.197	0.135	0.821
- Hispanic	-0.322	0.259	0.724
Presumptive Sentence	-2.595	0.184	0.075***
Criminal History	-0.465	0.041	0.628***
Offense Severity	-0.195	0.040	0.823***
Offense Type			
- Drug	-0.099	0.163	0.906
- Person	0.298	0.163	1.347†
Hennepin County	0.273	0.125	1.313*
Age			
- 18-21	-0.385	0.194	0.680*
- 22-25	-0.319	0.202	0.727
- 26-30	-0.149	0.185	0.861
- 41-50	0.125	0.181	1.134
- 51+	0.053	0.285	1.054
Trial	-1.215	0.278	0.297***
N		3,031	
Pseudo R^2		0.4678	

†p<.1; *p<.05; **p<.01; ***p<.001

Is There Heterogeneity in the Assignment of Probation Conditions?

I next examine the conditions of probation for the subsample who was sentenced to probation. The proportion of probationers who receive each condition

type is provided in Table 5[18], along with proportions by race and ethnicity of the probationers. As expected, the data show that 98 percent of the sample had basic conditions required of all offenders specified in the court documents. The most common type of special condition was a jail stay of at least one day, received by over 92 percent of probationers in the sample, with 72.5 percent of probationers receiving a stay of 30 days or more, and 21.1 percent spending at least six months in jail. Figure 2 shows the distribution of lengths of jail stays for the probation sample by race. White probationers were least likely to spend time in jail as a condition of probation, followed by black probationers, and Hispanic offenders were most likely. This pattern is demonstrated regardless of the length of stay examined for jail. The second most common type of special condition is drug and alcohol restrictions, received by 66.3 percent of the total sample, 62.5 percent of Hispanic probationers, and 67.2 percent of black probationers. White offenders were more likely than black and Hispanic offenders to receive conditions related to mental health treatment, with 22.8 percent of white probationers receiving these conditions, compared to 16.9 percent of black probations and 16.7 percent of Hispanic probationers. Black probationers are least likely to have restitution payments as a condition of probation, as 35.5 percent of black probationers received this option, compared to 45.2 percent of white probationers and 44.2 percent of Hispanic probationers.

[18] See Appendix 3 for descriptive statistics of probation and jail lengths by race.

Table 5. Proportion of Probationers Receiving Each Condition Type by Race/Ethnicity

Type of Condition	Proportion of Total probationers (n=2,136)	Proportion of White Probationers (n=736)	Proportion of Black Probationers (n=1,280)	Proportion of Hispanic Probationers (n=120)
Basic probation	0.980	0.970	0.986	0.975
Jail				
- 1+ days	0.922	0.909	0.926	0.958
- 30+ days	0.725	0.698	0.733	0.800
- 180+ days	0.211	0.193	0.219	0.242
Drug/ alcohol restrictions	0.662	0.652	0.672	0.625
Drug/ alcohol treatment	0.558	0.567	0.557	0.508
Obtaining/ maintaining employment/ education	0.300	0.232	0.338	0.317
Evaluation/ counseling for employment/education	0.103	0.075	0.123	0.058
Cognitive skills training	0.101	0.073	0.123	0.042
Mental health	0.189	0.228	0.169	0.167
Anger management and domestic abuse counseling/ treatment	0.200	0.159	0.215	0.292
Weapon restrictions	0.532	0.504	0.549	0.517
Vulnerable person and location restrictions	0.346	0.308	0.354	0.492
Any restitution	0.393	0.452	0.355	0.442
Community service	0.106	0.136	0.091	0.083
Fines	0.613	0.624	0.604	0.650
Other restraint	0.057	0.039	0.063	0.108
Other rehabilitation	0.080	0.077	0.080	0.083

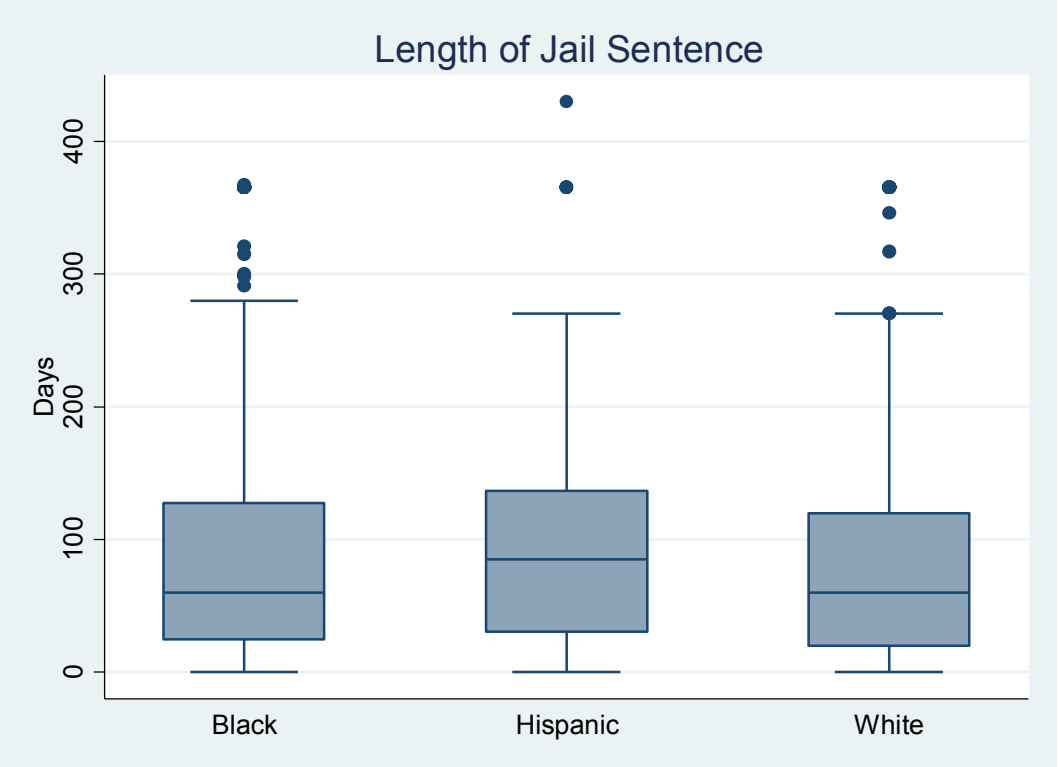

Figure 2. Length of Jail Sentence as a Condition of Probation by Race/Ethnicity

These conditions of probation are not mutually exclusive and offenders are often given them in combination with other types of conditions. Given the high likelihood of some conditions to be assigned with each other, Table 6 provides the correlation matrix of the types of conditions. Since almost all probationers spent some time in jail as a condition of probation in the data, little is gained by including jail or the basic probation requirements in the analyses using binary indicators of probation conditions. Differences in the length of jail stays will be addressed later in the analyses. As expected, drug and alcohol restrictions and drug and alcohol treatment are the most highly correlated (.642). Fifty-two percent of all probation sentences are subject to both types of conditions. However, while drug and alcohol treatment is rarely assigned without drug and alcohol restricting conditions (only in 3.75 percent

of all sentences), a substantial portion of all cases, 14.23 percent are assigned conditions relating to drug and alcohol restrictions without mandating treatment. The correlation matrix also suggests that fines and weapons restrictions are negatively correlated. Over 93 percent of cases received one of these two types of conditions, with 40.59 percent subject to fines but not conditions specific to restrictions on weapons, and 32.44 percent subject to conditions restricting use, transfer, or ownership of any weapons but not required to pay fines.

Table 6. Correlation Matrix

	X1	*X2*	*X3*	*X4*	*X5*	*X6*	*X7*	*X8*	*X9*	*X10*	*X11*	*X12*	*X13*	*X14*
Drug/ alcohol restrict (X1)	1.000													
Drug/ alcohol treatment (X2)	0.642	1.000												
Obtain/ maintain employ/ school (X3)	0.180	0.143	1.000											
Evaluate/ counseling employ/ school (X4)	0.059	0.068	0.166	1.000										
Cognitive skills training (X5)	0.098	0.052	0.231	-0.078	1.000									
Mental health (X6)	0.183	0.139	-0.032	0.093	0.009	1.000								
Anger management/ domestic abuse counseling (X7)	0.102	0.061	0.046	-0.026	0.030	0.153	1.000							
Vulnerable person/ location (X8)	0.076	0.018	0.099	-0.025	0.171	0.146	0.466	1.000						
Any restitution (X9)	-0.250	-0.234	-0.013	0.000	0.064	0.017	-0.033	0.188	1.000					
Community service (X10)	-0.098	-0.072	-0.053	0.014	-0.060	-0.031	-0.070	-0.062	0.065	1.000				
Fines (X11)	0.013	-0.014	0.071	0.224	-0.072	0.089	0.096	0.024	0.047	0.056	1.000			
Other rehab (X12)	0.042	0.004	0.019	0.152	-0.036	0.074	0.091	0.037	-0.024	0.033	0.120	1.000		
Other restraint (X13)	0.048	-0.033	0.059	0.023	0.051	0.067	0.054	0.105	0.017	-0.026	0.017	-0.005	1.000	
Weapons (X14)	0.045	0.031	-0.043	-0.308	0.212	-0.110	0.021	0.065	-0.013	-0.063	-0.489	-0.178	-0.004	1.000

Using the 14 types of conditions, judges can ultimately choose from 87,178,291,201 (14!+1) different combinations to sentence each offender.[19] However, there are only a total of 717 real combinations of the manifest variables which exist in the data. The ten modal combinations are listed in Table 7, and were assigned to 25 percent of cases. The three most frequent combinations included conditions relating to the use, transfer, ownership, or forfeiture of any firearms or other weapons. Six of the ten most frequent combinations include fines as a condition of probation. Five of the ten include both drug and alcohol restrictions and drug and alcohol treatment and three allow for restitution to be mandated. Twenty-eight kinds of combinations were assigned between 10 and 24 times, and 244 kinds of combinations were assigned more than once but less than 10 times. The remaining 435 combinations were uniquely assigned.

Table 7. Ten Modal Actual Combinations of Probation Conditions

Combination of Conditions	Frequency	% of Offenders Assigned	Cumulative %
Drug/ alcohol restrictions + drug/ alcohol treatment + weapons restrictions	132	0.062	0.062
Any restitution + weapons restrictions	74	0.035	0.097
Weapons restrictions	52	0.024	0.121
Drug/ alcohol restrictions + drug/ alcohol treatment + fines	49	0.023	0.144
Any restitution + fines	45	0.021	0.165

[19] It is possible than an offender is only assigned the standard conditions and then will not receive any of the 14 types of conditions.

Drug/ alcohol restrictions + drug/ alcohol treatment + weapons restrictions + fines	43	0.020	0.185
Fines	38	0.018	0.203
Any restitution + weapons restrictions +fines	34	0.016	0.219
Drug/ alcohol restrictions + drug/ alcohol treatment + obtaining/ maintaining employment/education + weapons restrictions	34	0.016	0.235
Drug/ alcohol restrictions + drug/ alcohol treatment + obtaining/ maintaining employment/education + fines	33	0.015	0.250

Examining the actual combinations of conditions which exist in the data illustrates the heterogeneity in the assignment of probation conditions, but does not provide an organized way of looking at all probation sentences. The unique assignment of 435 combinations does not mean that these combinations are all equally different from each other. Similarly, even commonly occurring combinations may be more comparable to other combinations and more divergent from others. As described earlier, the latent class method allows the identification of latent types of combination conditions in the data.

Identifying Latent Classes of Probation Conditions

A seven-group model is identified as optimal by the Bayesian Information Criterion (Table 1 in Appendix 4). All statistical diagnostics, shown in Appendix 4,

suggest the seven group model to be appropriate and meaningful. First, the mixing probabilities, the estimated group probabilities, are all above .05 (see Table 2 in Appendix 4). The large size of the classes gives support that the method is identifying distinct classes as opposed to finding "classes" simply as a consequence of having a lot of observations. Comparing the estimated group probabilities to the proportion of the sample assigned to each class using the maximum posterior assignment classification shows reasonably close correspondence between the two. Next, I examine the mean posterior probabilities for each of the classes. For all the classes, the mean posterior probabilities are all above .70, ranging from .718 to .938 (see Table 3 in Appendix 4). The high probabilities indicate that there is relative certainty in the distinction between classes (Nagin, 2005). Finally, Table 4 in Appendix 4 shows the odds of correct classification for each group are all well above 5, ranging from 23.387 to 77.687 and demonstrating very high assignment accuracy (Nagin, 2005).

Demonstrating statistical support for the seven group model using latent class analysis is crucial, but the most important support comes from identifying meaningful differences between the classes identified by the method. The latent class model assumes local independence, meaning that conditional upon class, the conditions of probation are independent. While this assumption is not testable statistically, violations of this assumption lead to additional latent classes in order to fit the data. Table 8 and Figure 3 illustrate the substantive differences by characterizing them by their likely assigned conditions, demonstrating that each class identified by the model

is important. Figure 4 portrays differences between the classes in the probabilities that they include each type of condition.

Table 8. Conditional Probabilities by Class

Type of Condition	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
Drug/ alcohol restrictions	0.972	0.156	0.245	0.023	0.964	0.924	0.803
Drug/ alcohol treatment	0.811	0.061	0.005	0.026	0.889	0.823	0.680
Obtaining/ maintaining employment/ education	0.453	0.274	0.502	0.002	0.202	0.410	0.218
Evaluation/ counseling for employment/ education	0.022	0.209	0.021	0.000	0.009	0.288	0.205
Cognitive skills training	0.301	0.032	0.298	0.000	0.033	0.005	0.000
Mental health	0.301	0.153	0.107	0.003	0.045	0.266	0.450
Anger management and domestic abuse counseling/ treatment	0.370	0.081	0.439	0.002	0.009	0.016	0.910
Vulnerable person and location restrictions	0.653	0.236	0.755	0.124	0.000	0.129	0.915
Any restitution	0.443	0.612	0.602	0.583	0.020	0.298	0.365
Community service	0.039	0.182	0.127	0.150	0.085	0.131	0.082
Fines	0.431	0.989	0.599	0.368	0.260	0.971	0.991
Weapon restrictions	0.904	0.001	0.715	0.760	0.872	0.003	0.126
Other rehabilitation	0.051	0.112	0.097	0.007	0.007	0.157	0.207
Other restraint	0.090	0.033	0.172	0.012	0.000	0.063	0.079

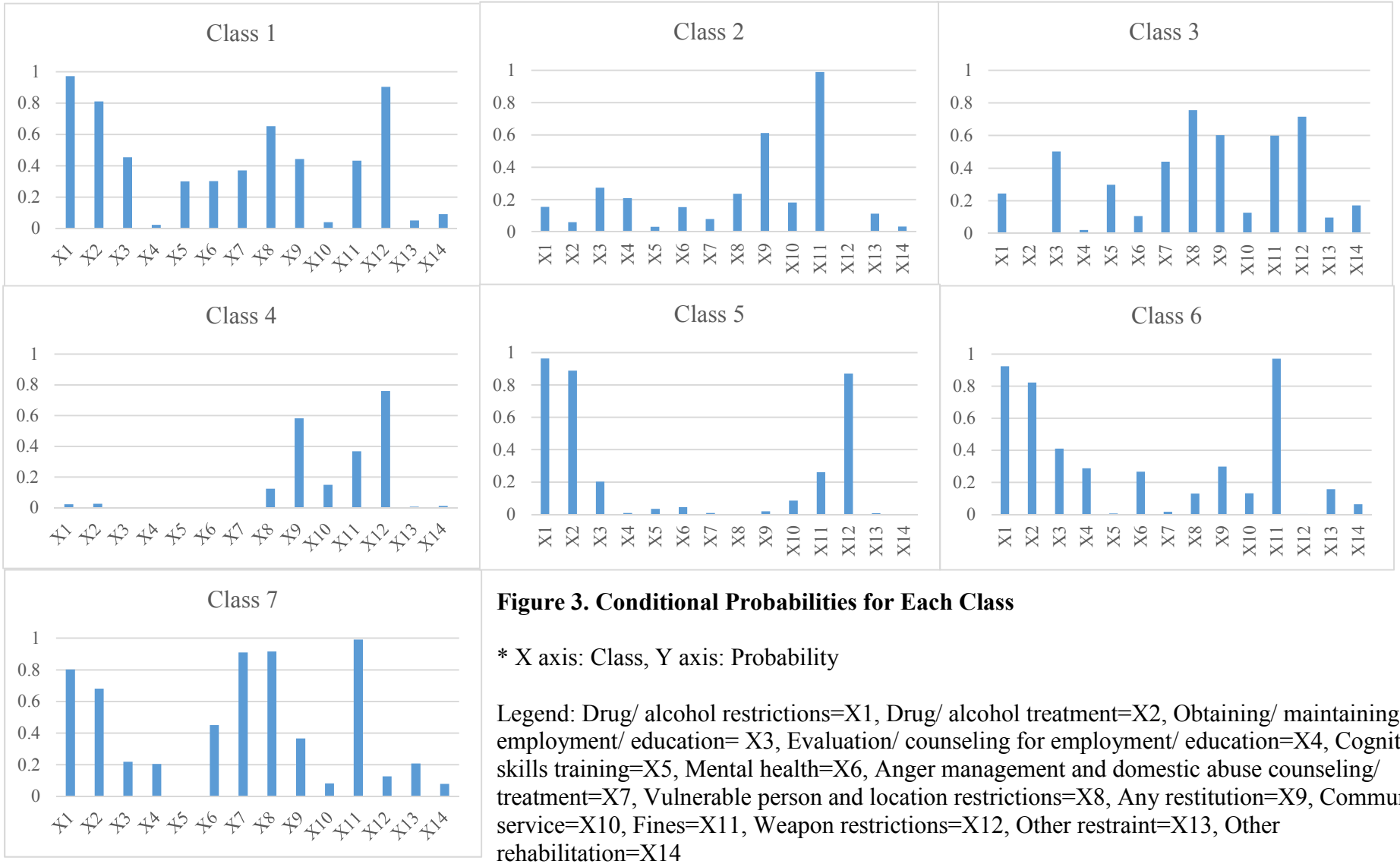

Figure 3. Conditional Probabilities for Each Class

* X axis: Class, Y axis: Probability

Legend: Drug/ alcohol restrictions=X1, Drug/ alcohol treatment=X2, Obtaining/ maintaining employment/ education= X3, Evaluation/ counseling for employment/ education=X4, Cognitive skills training=X5, Mental health=X6, Anger management and domestic abuse counseling/ treatment=X7, Vulnerable person and location restrictions=X8, Any restitution=X9, Community service=X10, Fines=X11, Weapon restrictions=X12, Other restraint=X13, Other rehabilitation=X14

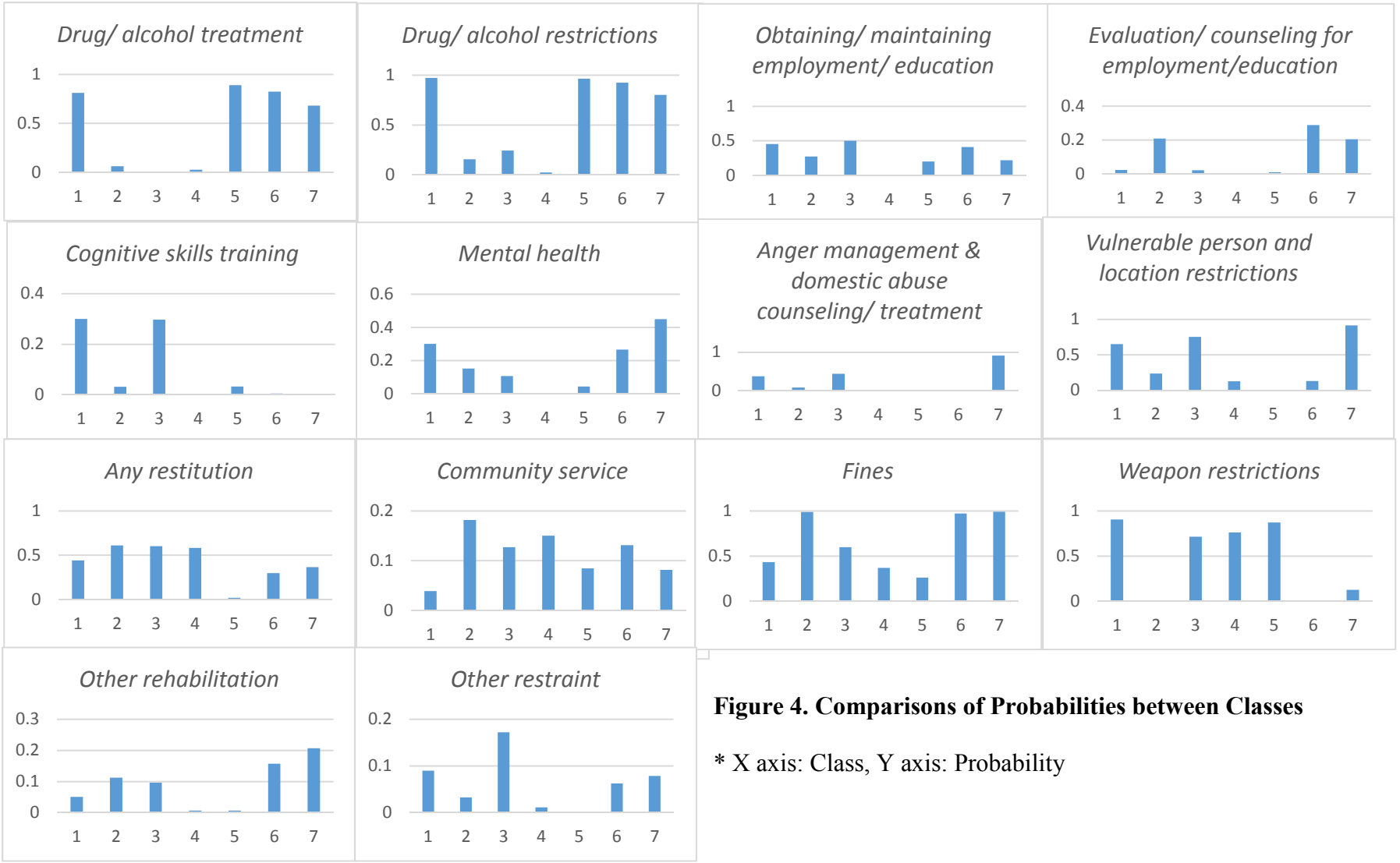

Figure 4. Comparisons of Probabilities between Classes

* X axis: Class, Y axis: Probability

Overall, class 1, class 3, and class 7 appear to be the classes receiving the most expansive combinations of conditions, and class 4 and class 5 seem to receive the most limited combinations of conditions. Class 1 is much more likely than class 2 to involve drug and alcohol restrictions or treatment. It is also almost twice as likely to require obtaining or maintaining employment or school, but is substantially less likely than class 2 to require evaluation or counseling for employment or education. Compared to class 2, class 1 has a much higher likelihood of requiring cognitive skills training and anger management or domestic abuse counseling while class 2 is very unlikely to involve these conditions. Additionally, class 1 is twice as likely to involve conditions related to mental health as class 2, and almost three times as likely to restrict offenders from being around certain people or locations. While class 1 is very likely to include weapons restrictions, and class 2 is very unlikely, class 2 is about a third more likely to give an option for restitution, and over four times more likely to give an option for community service. Class 2 also has a very high likelihood for including fines, more than twice as high as class 1. For other conditions related to rehabilitation, class 2 is more than two times more likely to include them, but has a third of the likelihood of class 1 of having other conditions related to restraint.

Class 3 has a slightly higher likelihood than class 2 of including drug and alcohol restrictions, but still almost a quarter of the likelihood of class 1. Class 3 has a similar likelihood to class 1 for employment and education related conditions, as well as cognitive skills training, but is a third as likely to involve conditions related to mental health. It is slightly more likely to include conditions mandating anger management or domestic abuse counseling, limiting access to certain people or

locations, and including fines than class 1. While class 3 has a similar likelihood to class 2 for giving restitution as an option, it is a third less likely to give community service as an option (but still more than three times more likely than class 1). Class 3 is also much more likely than any of the other class to include other restraint related conditions, almost twice as much as class 1, and is somewhat likely to include weapons restrictions.

Class 4 is extremely unlikely to include any conditions related to drugs or alcohol, employment and education, cognitive skills training, mental health, anger management and domestic violence treatment, restitution, and other conditions related to rehabilitation or restraint. However, class 4 is still relatively likely to include weapons restrictions, and has only a slightly lower likelihood of having restitution or community service as an option. Class 4 has a low probability of including restrictions limiting interactions with certain populations or certain locations, and is unlikely to include fines, but still more likely than class 5.

Class 5 is very likely to include drug and alcohol restrictions and is the most likely to include drug and alcohol treatment. It has only a slightly lower likelihood than class 2 for conditions related to obtaining or maintaining employment or education, but is very unlikely to include conditions related to evaluation or counseling for employment or school. Like class 4, class 5 has a low likelihood for including cognitive skills training, mental health conditions, anger management and domestic counseling, or other conditions related to rehabilitation or restraint, and is extremely unlikely to include conditions restricting contact with certain people or locations. Unlike the other classes, class 5 is also extremely unlikely to provide an

option for restitution and is the least likely to include fines. However, class 5 has a highly likelihood, only second to class 1, of including conditions related to weapons restrictions.

Class 6 is similar to class 1 in terms of conditions relating to drugs and alcohol, and obtaining or maintaining employment or education. However, class 6 has the highest of all the classes for requiring evaluation or counseling for employment or education, but is not likely to include conditions related to cognitive skills training, anger management and domestic abuse counseling and treatment. Like class 2, class 6 has a high likelihood of including fines but a very low likelihood or having weapons restrictions. However, it is half as likely to include an option for restitution, restrict contact with certain people or places, and twice as likely as class 2 to include other conditions related to restraint.

Finally, class 7 is notable as it has a very high likelihood of including anger management or domestic counseling, restricting contact with certain people or places, and has the highest likelihood of all the groups of including conditions related to mental health and other rehabilitation conditions. Class 7 is likely to include fines and conditions related to drug and alcohol restrictions and treatment. It is as likely to have condition mandating employment and education as conditions requiring evaluation or counseling for employment and school. While unlikely to include cognitive skills training, class 7 is not remarkable in its likelihood of having any of the other types of conditions of probation. As can be seen from the above description and Table 8 and Figure 3, meaningful differences between the groups exist, and no two groups seem similar enough to each other that they should be combined.

The seven classes also differ in the expected length of time sentenced to jail.[20] Using the hard classification rule by assigning offenders into the class for which they have the highest probability of belonging, Table 9 illustrates the differences by class in expected jail sentences. All classes include a wide range of lengths of sentences and all include offenders who did not spend any time in jail and offenders who spent a full year in jail. Given the wide range, both the mean and median expected jail sentence by class are examined. Class 1 has both the highest mean (131 days) and median (91 days) length of sentence. Class 3 follows closely with a 90 day median length of sentence but an average of 104 days. Next is Class 5 with an average length of 105 days, but 67 days median. Class 2 has the shorter average (52 days) and median (30 days) length of sentence.

Table 9. Length of Jail sentence

Class	Observations	Mean (SD)	Median	Min	Max
1	503	131.052 (108.239)	91	0	365
2	239	51.791 (63.904)	30	0	365
3	115	103.504 (96.966)	90	0	365
4	320	65.484 (76.214)	34.5	0	365
5	342	105.605 (97.234)	67	0	365
6	467	76.454 (84.112)	46	0	367
7	150	83.207 (79.826)	60	0	430

[20] Additional information on the length of expected probation sentences by class are given in Appendix 5.

Overall, class 1, class 3, and class 7 emerge as the classes likely to receive the most expansive combination of probation conditions, with classes 1 and 3 likely to be sentenced to the longest stays in jail. None of these classes emerge as clearly restrictive, rehabilitative, financial, or restorative, demonstrating the competing goals of probation. Class 2, class 4, and class 5 seem to be most lenient, with classes 2 and 4 expected to receive the shortest stays in jail. Class 2 has the strongest financial component, with high likelihoods of restitution and fines. Class 4 seems to be more restorative and financial, including restitution, community service, fines, and weapons restrictions. Class 5 is focused on drugs and alcohol treatment and restrictions, as well as weapons restrictions, but is not likely to include financial components. Overall, the results provide support for Hypothesis 2 as distinct combinations of probation conditions emerge in the data, differing in the number and combinations of likely types of conditions. The complicated nature of the classes provide further support for this method as opposed to the typologies used by previous research.

Characteristics of the Classes of Probation Conditions

Next, I examine the expected characteristics of those likely sentenced to each latent class. Table 10 provides descriptive statistics for the classes after assigning each offender into the class which they have the highest probability of belonging to. All the classes contain a distribution of black, white, and Hispanic offenders relatively similar to the full sample. However, class 3 has the highest proportion of black offenders and class 5 has the highest proportion of both white offenders and Hispanic offenders and the lowest proportion of black offenders. Class 6 has the

largest portion of offenders who were recommended a prison sentence by the guidelines and went to trial, but is not remarkable in terms of prior criminal history or severity of the offense. Classes 2 and 3 include a much larger portion of young offenders aged 18-21 than the other classes.

Table 10. Descriptive Statistics by Class Assignment[21]

	1 (n=503)	**2** (n=239)	**3** (n=115)	**4** (n=320)	**5** (n=342)	**6** (n=467)	**7** (n=150)
Variable	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**	**Mean (SD)**
Race/Ethnicity							
- White	.322	.389	.217	.403	.463	.383	.280
- Black	.616	.548	.696	.544	.476	.563	.653
- Hispanic	.062	.063	.087	.053	.184	.054	.067
Presumptive Sentence	.278	.033	.226	.109	.140	.315	.107
Criminal History	1.600 (1.746)	.937 (1.417)	1.009 (1.542)	1.684 (1.761)	1.570 (1.681)	1.580 (1.624)	1.387 (1.413)
Offense Severity	4.453 (1776)	3.343 (1.417)	4.426 (1.370)	2.9 (1.379)	2.953 (1.937)	3.229 (1.798)	4.127 (.838)
Offense Type							
- Property	.262	.657	.339	.756	.058	.330	.067
- Drug	.127	.105	0	.156	.883	.555	.007
- Person	.610	.238	.661	.088	.058	.116	.927
Hennepin County	.980	.184	.826	.981	.944	.049	.167
Age							
- 18-21	.254	.400	.417	.209	.149	.236	.160
- 22-25	.149	.188	.157	.178	.132	.178	.167
- 26-30	.189	.142	.148	.156	.187	.154	.167
- 31-40	.197	.167	.165	.200	.251	.206	.267
- 41-50	.157	.117	.096	.206	.196	.171	.160
- 51+	.054	.075	.017	.050	.085	.056	.080
Trial	.016	.025	.017	.006	.012	.041	.007

[21] Standard deviations not reported for binary variables

The most prominent feature of the table is that the classes are distinctly characterized by the county they were sentenced in. Offenders from Hennepin County make up a large majority of cases assigned to class 1 (98.0 percent), class 3 (82.6 percent), class 4 (98.1 percent), and class 5 (94.4 percent). The classes also look divided but to a lesser extent by offense type, with class 7 consisting of almost all person offenses (92.7 percent), and classes 1 and 3 containing roughly two-thirds person offenses. Classes 2 and 4 include a majority of property offenders, class 5 is mostly drug offender, and class 6 is slightly more than half drug offenders. This breakdown suggests that county and offense type strongly influence class assignment, which I return to in the final supplemental analyses.

Do Race and Ethnicity Predict Assignment into Classes?

Given the heterogeneity in the patterns of conditions between classes, and the likely characteristics of the offenders mostly likely to be classified as belonging to each class, I next explore whether race and ethnicity predict assignment into classes, after holding all other factors constant. Table 11 presents the results of the multinomial logistic regression run for the seven classes, using class 1 (the modal class) for comparison. Race and ethnicity do seem to play a part in some of the assignment of probation conditions. Specifically, being black almost doubles the odds of being in class 3 ($p=0.008$), even after controlling for all the relevant factors discussed. Class 3 was characterized by having the highest likelihood of including other restraint related conditions such as prohibiting contact with criminogenic others, mandating registration as a predatory offender, child protection or visitation restrictions, curfew or occupation restrictions, etc. Class 3 was also much less likely

to include alcohol and drug related conditions than class 1, and a third as likely as class 1 to include conditions related to mental health. Although class 3 had a shorter average typical jail stay than class 1 (104 days and 131 days, respectively) the median jail stay was very similar between the two classes (90 days and 91 days).

Table 11. Multinomial Logistic Regression with Robust Standard Errors (Class 1 for Comparison)

	Class 2			Class 3			Class 4			Class 5			Class 6			Class 7		
	b	S.E.	e^b	*b*	S.E.	e^b	*b*	S.E.	e^b	*b*	S.E.	e^b	*b*	S.E.	e^b	*b*	S.E.	e^b
Race/Ethnicity																		
- Black	.15	.25	1.16	.68	.25	1.96**	-.07	.18	.93	-.41	.22	.67†	-.01	.26	.99	.26	.30	1.30
- Hispanic	.41	.52	1.50	.64	.45	1.90	.97	.46	2.62*	-.35	.45	.70	.29	.55	1.34	.16	.60	1.18
Presumptive Sentence	-.37	.49	.69	.52	.40	1.69	.83	.32	2.28*	.72	.36	2.05*	.05	.46	1.05	-.68	.50	.51
Criminal History	-.40	.10	.67***	-.29	.09	.75**	-.32	.07	.73***	-.27	.07	.77***	-.09	.09	.91	-.06	.11	.94
Offense Severity	-.27	.09	.76**	-.15	.09	.87	-.63	.08	.53***	-.43	.07	.65***	-.11	.09	.90	-.04	.14	.97
Offense Type																		
- Drug	-2.33	.44	.10***	-16.04	.28	.00***	-1.07	.25	.34***	3.42	.30	30.67***	.10	.37	1.11	-2.74	1.10	.07*
- Person	-1.82	.29	.16***	-.29	.26	.75	-2.96	.26	.05***	-.78	.34	.46*	-1.88	.32	.15***	1.80	.42	6.05***
Age																		
- 18-21	-.41	.36	.66	.26	.32	1.30	-.47	.27	.63†	-.53	.29	.59†	-.49	.35	.61	-1.33	.44	.27**
- 22-25	.30	.39	1.35	.10	.38	1.10	.16	.29	1.17	-.21	.34	.81	.09	.38	1.10	-0.06	.42	.94
- 26-30	-.28	.38	.76	-.10	.37	.91	-.21	.28	.81	-.31	.30	.74	-.60	.38	.55	-.40	.40	.67
- 41-50	-.25	.42	.78	-.29	.41	.75	.12	.28	1.13	-.21	.32	.81	-.05	.38	.96	-0.35	.43	.70
- 51+	.70	.47	2.01	-0.96	0.80	.38	.50	.44	1.65	.43	.39	1.54	.15	.49	1.16	-0.18	.54	.84
Hennepin County	-5.42	.41	.00***	-2.55	.42	.08***	.41	.56	1.50	.14	.47	1.16	-6.57	.41	0.00***	-5.85	.43	.00***
Trial	1.11	1.22	3.02	-0.19	.83	.83	.15	1.02	1.16	-.26	1.15	.78	1.62	1.16	5.07	-1.01	1.45	.36
N	2,136																	
Pseudo R^2	0.4628																	

†p<.1; *p<.05; **p<.01; ***p<.001

Race is also a marginally significant predictor for being assigned to class 5, as black offenders are about two-thirds as likely to be assigned to class 5 than white offenders, (p=0.062) holding all else constant. Class 5 has a very low probability of having multiple types of conditions of probation other than drug and alcohol and weapons related conditions. Class 5 was about half as likely as class 1 to require offenders to obtain or maintain school or employment, and half has likely to include fines. However, those in class 5 were about twice as likely to be required or offered community service as an option. Class 5 also has a shorter expected jail stay than class 1, with an average of 106 days and a median of 67 days for class 5 compared to class 1's 131 days average and 91 days median.

Finally, being Hispanic increases the odds of being assigned to class 4 by over two and a half times (p=0.036), opposite of the predicted direction. Unlike the other classes, class 4 had almost no chance of being required any conditions related to drug and alcohol restrictions or treatment. Overall, class 4 had a generally low likelihood of being assigned most conditions compared to class 1 was associated with shorter expected jail stays (65 days average and 35 days median). In addition, the results show that, as expected, county and offense type significantly predict assignment into classes. Legal characteristics like offense severity and offending history are also significant determinants of class assignment. Younger offenders are less likely to be assigned to Class 7, and somewhat less likely to be assigned to classes 4 and 5.

Table 12 presents the post-estimation comparisons of the coefficients for all possible comparisons between the classes for race and ethnicity rather than relying on comparisons only to the modal class. The strongest effect of race is seen in the comparison between class 5 and class 3. Black offenders are almost three times as likely to be assigned to class 3 compared to class 5 (p<.001). Class 3 is characterized as having a much more expansive combination of conditions of both treatment, restrictions, and financial components, and longer stays in jail than

class 5, which is only likely to include weapons restrictions and drug and alcohol related conditions. A similar pattern is seen for Hispanic offenders (p=.094), who are also more than two and a half times more likely to be assigned to Class 3 than Class 5.

Table 12. Post-estimation Comparisons of Multinomial Logit Coefficient for Race and Ethnicity

Class Comparisons			Black (SD=0.490)		Hispanic (SD=0.230)	
			b	**e**^{b}	***b***	**e**^{b}
1	vs.	2	-0.146	0.865	-0.405	0.667
1	vs.	3	-0.675	0.509**	-0.643	0.526
1	vs.	4	0.069	1.072	-0.965	0.381*
1	vs.	5	0.407	1.502†	0.352	1.422
1	vs.	6	0.013	1.013	-0.293	0.746
1	vs.	7	-0.262	0.770	-0.163	0.850
2	vs.	1	0.146	1.157	0.405	1.499
2	vs.	3	-0.529	0.589†	-0.238	0.788
2	vs.	4	0.215	1.239	-0.560	0.571
2	vs.	5	0.552	1.737†	0.757	2.131
2	vs.	6	0.159	1.172	0.112	1.118
2	vs.	7	-0.116	0.890	0.242	1.274
3	vs.	1	0.675	1.963**	0.643	1.902
3	vs.	2	0.529	1.697†	0.238	1.269
3	vs.	4	0.744	2.104**	-0.322	0.725
3	vs.	5	1.081	2.949***	0.995	2.704†
3	vs.	6	0.688	1.989*	0.350	1.419
3	vs.	7	0.413	1.511	0.480	1.616
4	vs.	1	-0.069	0.933	0.965	2.624*
4	vs.	2	-0.215	0.807	0.560	1.751
4	vs.	3	-0.744	0.475**	0.322	1.380
4	vs.	5	0.338	1.402	1.317	3.731*
4	vs.	6	-0.056	0.946	0.672	1.958
4	vs.	7	-0.331	0.718	0.802	2.230
5	vs.	1	-0.407	0.666†	-0.352	0.703
5	vs.	2	-0.552	0.576†	-0.757	0.469
5	vs.	3	-1.081	0.339***	-0.995	0.37†
5	vs.	4	-0.338	0.713	-1.317	0.268*
5	vs.	6	-0.394	0.675	-0.645	0.525
5	vs.	7	-0.669	0.512*	-0.515	0.598
6	vs.	1	-0.013	0.987	0.293	1.340
6	vs.	2	-0.159	0.853	-0.112	0.894
6	vs.	3	-0.688	0.503*	-0.350	0.705
6	vs.	4	0.056	1.057	-0.672	0.511
6	vs.	5	0.394	1.482	0.645	1.906
6	vs.	7	-0.275	0.760	0.130	1.139
7	vs.	1	0.262	1.299	0.163	1.177
7	vs.	2	0.116	1.123	-0.242	0.785
7	vs.	3	-0.413	0.662	-0.480	0.619
7	vs.	4	0.331	1.392	-0.802	0.448
7	vs.	5	0.669	1.951*	0.515	1.673
7	vs.	6	0.275	1.317	-0.130	0.878

†p<.1; *p<.05; **p<.01; ***p<.001

Black offenders are also more than two times more likely to be assigned to class 3 than class 4 (p=.007), and almost two times as likely to be assigned to class 3 as class 6 (p=.030). Class 4 includes a very limited number of conditions and the expected stay in jail is also substantial shorter in class 4 than class 3. Class 6 includes fewer likely conditions than class 3, has a much higher likelihood of including drug and alcohol conditions and fines, and shorter stays in jail. Black offenders also have a much higher likelihood of being assigned to class 7, characterized by a much more expansive combination of financial, restrictive, and rehabilitative conditions, than class 5 (p=.047). Finally, Hispanic offenders are more than three and a half times more likely to be assigned to class 4 than class 5 (p=.017). Although both classes included a limited number of conditions, class 5 is much more likely to include drug and alcohol related conditions while class 4 is characterized by more financial components.

Overall we see clear differences in the effects of race but less so for ethnicity on the assignment of combinations of probation conditions. Black offenders are much more likely to receive more expansive combinations of conditions and be assigned to classes with longer stays in jail than similarly situated white offenders. Both black and Hispanic offenders are much less likely to be assigned to combinations of conditions which include drug and alcohol related treatment and restrictions. Given the overall findings through all the analyses, I fail to reject Hypothesis 3, as black offenders are more likely to be assigned to combinations of conditions requiring them to abide by an extensive list rules, are more likely to be assigned to classes with special sanctions that are aimed more at monitoring and restricting their behavior, and are more likely to be assigned to classes with longer expected stays in jail.

Supplemental Analyses

Supplemental assessments of these groups is presented in Appendices 6 and 7, which examine the sample by offense type and county given their strong predictive power in assignment to classes in the full model.[22] In Appendix 6 I divide the full sample into three subsamples by offense type. The BIC identifies four latent classes in the property offenses-only subsample, and three in the drug offenses-only and person offenses-only subsamples. As expected, the classes differ somewhat from those identified in the full model. Race is only marginally significant in the assignment of classes for property offenders, and is not significant in any of the comparisons for drug and person offenders. However, being Hispanic seems to predict membership in classes for drug offenders, with Hispanic offenders actually being less likely to be assigned to the more expansive classes, but much less likely to be assigned conditions that target their offense and require drug and alcohol treatment or restrictions. For property offenders, Hispanic offenders are much more likely to be assigned to a class consisting mostly of financial obligations and weapons restrictions.

Next, I examine the latent classes that emerge when the data are split by county, as the county the offender was sentenced in is highly predictive of class assignment in both the full model and the offense type subsamples. Appendix 7 provides the latent classes in Hennepin and Ramsey counties, finding very similar class types to those found by latent class analysis in the full sample. Four classes are

[22] Additional tables of diagnostics, descriptive statistics, and multinomial logit models are available upon request.

identified in Hennepin County, closely resembling classes 1, 3, 4, and 5 in the full model, and three classes are identified in Ramsey County, similar to classes 2, 6, and 7 in the full model. Overall, the classes in Hennepin County are all much more likely to include weapons related conditions, but are less likely to include fines than classes in Ramsey County. These county-level differences explain the findings in the earlier correlation matrix, which showed weapons restrictions and fines to be negatively correlated. The classes in Hennepin County are also all very unlikely to receive conditions related to evaluation or counseling for employment or education compared to Ramsey County, but some classes in Hennepin County are much more likely to include cognitive skills training while the classes in Ramsey County have a much lower likelihood of requiring cognitive skills training.

Clear differences emerge by county in the influence of race and ethnicity (see Tables 1c and 2c in Appendix 7). In Hennepin County, being black and, to a lesser extent, being Hispanic are highly predictive of class assignment, while minority status has no explanatory power after controlling for other relevant factors in Ramsey county. Black offenders were almost two to three times as likely to be sentenced to the classes with the most extensive combination of conditions including multiple restrictive, rehabilitative, financial, and restorative components in Hennepin County. These classes were also characterized by having a much higher likelihood of including special restrictive conditions.[23]

[23] Legal factors as well as being a young offender continue to be significant predictors of class assignment in the subsample analyses. Additional supplemental analyses, available by request, were also performed after dividing the full sample into six subsamples by county and offense type. Most of the significant effects disappear, but being Hispanic shows up a very

Summary of Findings

The results suggest that while black and Hispanic offenders are less likely to receive any sentence of probation compared to a prison sentence in this sample, legal factors were mostly able to account for these differences. For those sentenced to probation, there is tremendous heterogeneity in the assignment of probation conditions. The descriptive analyses suggest that judges may impose cognitive restrictions on themselves as only 717 of a total of over 87 billion possible combinations exist in the data. The ten modal combinations account for 25 percent of the data, while about 60 percent were uniquely assigned. Latent class analyses identified seven distinct unobservable classes in the data with high predictive accuracy, which differed in the quantity and types of probation conditions likely to be assigned. Black offenders are more likely to be assigned to classes including an extensive combinations of conditions and serving longer time in jail after controlling for other relevant factors. However, the role of race in assignment to probation conditions varied by county, with no effect of minority status seen in assignment to probation conditions in Ramsey County. The next chapter discusses the implications of these results and suggests avenues for future research.

strong predictor for class assignment for drug offenders in Hennepin County. However, given the restricted samples and limited variability, these results are examined with caution.

Chapter 6: Discussion and Implications

One in 53 adults in the United States is under community supervision, 81 percent of whom are on probation (Kaeble & Bonczar, 2016). Although probation is the most commonly used sentence by the courts, it has received relatively little attention from both policymakers and scholars, leading probation to be referred to as "the 'dark figure' in the criminal justice world" (Beto, Corbett, & DiIulio, 2000: 1). Although some offenders sentenced to probation may complete their sentence simply by remaining crime-free and checking in occasionally with their probation officers, others must abide by an extensive list of rules restricting their movement and behaviors in the community, mandating specific activities and treatment, and specifying financial obligations, or risk violating their probation sentence. To date, limited research has investigated how these conditions of probation are assigned, and has generally been constrained by the difficulties of capturing heterogeneity in combinations of probation conditions.

The current study investigated sentencing practices that directly affect over half of the correctional population in the broader context of racial and ethnic inequalities in the justice system (Laub, 2014). This study examined the role of race and ethnicity in the initial decision to sentence offenders to probation as opposed to prison. For those sentenced to probation, the study assessed the assignment of probation conditions as patterned sentencing packages, and examined whether race and ethnicity predicted assignment of certain combinations of conditions. The questions posed were addressed using data from the Minnesota Sentencing Guidelines

Commission and corresponding court documents for felony offenders in the Twin Cities metro area in Minnesota. Focusing on felony sentences explored the discretion remaining within sentencing systems that have otherwise shifted towards accountability and uniformity. Potential confounding factors related to the current offense, the offender's prior criminal history, age, and the local court context were controlled for to identify the unique effect of race on the relevant outcome variables. The research used an innovative analytic strategy for sentencing research, latent class analysis, to investigate a substantial population that has been overlooked in sentencing research and expose the heterogeneity within probation sentences. Furthermore, the comprehensive data coded for this study enabled an investigation of a sample of offenders that is significantly larger than samples available in past studies of this kind.

The first notable finding of the present study was that after controlling for legally relevant factors, race and ethnicity did not predict probation sentences compared to prison sentences. These findings do not imply that racial disparities in sentencing do not exist, but rather indicate that legally relevant factors are able to explain existing disparities in this sample. The structured nature of the sentencing guidelines in Minnesota which limits judicial discretion and emphasizes uniformity (Frase, 2009) most likely account these results. The findings do not support or diminish the efforts of sentencing reform movements as the lack of significance for race and ethnicity in this context is not necessarily indicative of a non-racially biased criminal justice system. Disparities in the legally relevant variables used in this study may capture disparities present in previous discretionary decision points (Miethe,

1987; Bushway & Piehl, 2007). The severity of the current offense is a product of not only the act that was committed, but also of the prosecutor's charging decisions and the offender's history is contingent on previous decisions made by both prosecutors and judges.

Second, the study examined the assignment of conditions of probation. A tiny fraction of the total possible combinations of conditions actually exist in the data, congruent with an explanation that judges do employ a simplification process in their decision making before finding a satisfactory and relatively individualized sentence (Tversky & Kahneman, 1974). Meaningful patterns were not able to be captured for the entire sample in a systematic manner through descriptive analyses alone. The use of latent class analyses identified discrete classes in the data that ranged in their likely combinations, type, and number of conditions. The identification of meaningful classes with high assignment accuracy support organizational theories that suggest bounded rationality in the judicial decision making process which results in distinct latent groups of combination conditions. Furthermore, the complex composition of the classes identified though the main and supplemental analyses demonstrate continued support that previous research's methods of collapsing multiple conditions into a single category masks the heterogeneity in probation sentences. While the relative punitive nature of the classes differed, no single class emerged as completely financial, restrictive, restorative or rehabilitative. This reflects the multiple and often competing goals of probation that are being balanced as judges assign the conditions

of probation.[24] The important role of county in the assignment of conditions supports prior research which implicates substantial differences between jurisdictions in court culture and standard sentences (Einstein & Jacob, 1977; Johnson, 2006).

Lastly, the current research investigated the role of race and ethnicity in the assignment of conditions of probation. Although race and ethnicity did not predict assignment to probation compared to prison after controlling for legally relevant factors, race did play a role in the assignment to certain classes of probation conditions. Specifically, black offenders had a higher likelihood of being assigned to classes with more expansive combination of conditions, to classes more likely to have specialized restrictive conditions, and to classes expected to serve longer jail terms. The study found no consistent effect of ethnicity, but that may reflect a lack of power as the data were limited by the number of Hispanic offenders in the sample. Determining the conditions of probation is the highest discretionary aspect of probation sentences, and judges are limited in the information they have of the defendants. Therefore, if in addition to relevant legal information judges are still more likely to view minority offenders as a greater threat to the community and less likely to be rehabilitated (Steffensmeier et al., 1998), the discretionary nature of probation sentences must further be evaluated. As race still remains a factor after controlling for legally relevant factors in probation decisions, the "window of discretion" left by the

[24] The classes that emerged in the data were left unnamed for this reason. While clear differences were evident between the classes in the number types of likely combinations of conditions, most classes contained conditions motivated by different goals. Latent class analysis was chosen as a method to demonstrate potential heterogeneity in sentences masked in prior research, not to reify existing combinations of conditions.

sentencing reforms in probation practices emerges as an important decision point (Engen et al., 2003).

The results of the present study also suggest a unique probation experience by race, which may partially explain prior research's findings that being African American is one of the strongest predictors of a preference for prison over probation (Crouch, 1993; Wood & May, 2003). Furthermore, differential conditions of probation by race may lead to differential violations of conditions. The majority of failures of community supervision come from a technical or condition violation rather than committing a new offense (Petersilia, 2011). If black offenders are more likely to receive extensive combinations of conditions, they in turn may have a higher likelihood of violating conditions of probation than offenders who receive fewer conditions, regardless of the nature of those conditions. Violating the terms of probation can result both from commissions of restricted acts, but also from failure to attend treatment programs, classes, pay fines or restitution. Therefore, simply being assigned more conditions may place the individual at a higher risk of revocations or extended probation terms. The sizeable increase in the total number of probationers revoked for non-compliance over the past several decades (Burke et al., 2007) gives credence to the need for future research to examine whether the differential assignment of number of conditions is linked to disparities in revocations and additional sanctions or incarceration.

In the present study the significant effects of race were primarily observed in Hennepin County.[25] The unstructured nature of probation (Petersilia, 1997) coupled with different court contexts and sentencing practices (Ulmer & Johnson, 2004) may explain why differences by race were seen in one county but not the other. Although most of the research to date on contextual variations in sentencing practices focuses on other sentencing decisions (Ulmer, 2012), it is important for future studies to evaluate differing court practices in regards to probation. The disorganized nature of the administration and assignment of probation sentences along with limited accountability and oversight (Petersilia, 1997) leaves these sentencing practices vulnerable to undetected disparities.

Although common practice in the sentencing literature is to limit studies to a single area, findings from Hennepin and Ramsey counties in Minnesota may not necessarily be generalizable to the rest of more rural Minnesota, or to other areas in the United States with different demographic compositions or different sentencing guidelines. Minnesota is also unique in its use of jail as a condition of probation, which increased substantially after the implementation of the sentencing guidelines (Miethe & Moore, 1989; D'Alessio & Stolzenberg, 1995). Future work should investigate whether the results of this study are applicable to other jurisdictions in other locations. As race effects in the criminal justice system are contextual, more

[25] None of the coefficients for race and ethnicity in the multinomial logit models for Ramsey County came even close to approaching significance. Although more than sixty percent of the cases in the sample were from Hennepin County, Ramsey County still accounted for over 800 observations. Therefore, it is unlikely that this finding is caused by a lack of power.

research is needed to see whether there are similar findings for misdemeanor offenders or female population samples.

Given the exploratory nature of the current study, strong caution is recommended in drawing direct conclusions from the results for policy. However, several potential avenues regarding current policy discussions do relate to the current study. Scholars have called for an overall reduction in the conditions of probation and the implementation of "zero-based condition setting" where assigning conditions other than a general requirement to obey the law requires collaborative and careful consideration by judges and probation officers (Klingele, 2013; Corbett, 2016). Even larger shifts in the community corrections paradigm have recently been proposed by the Executive Session on Community Corrections (2017), with overwhelming consensus by leading academics and practitioners to change the system from punishment for violations to a system of rewards. Other recommendations include promoting the transparency of agency policy and practices to those under supervision, victims and the public (Executive Session on Community Corrections, 2017). Evidence from the current study would support to widen these recommendations to include promoting awareness of the sentencing practices in probation conditions as well. Cultivating a greater awareness and education on implicit bias in the courts may also promote fairness in sentencing (Casey et al., 2013) that does not necessary have to change the current discretionary structure of probation sentencing decisions.

Limitations of the study arise from the measurement of variables existing and omitted in the present study. First, the measure of race is created using the self-identified race of the offender during the presentence investigation. A more accurate

measure of race for sentencing would be the perceived race of the offender, as the study is investigating the effect of race on judge's decisions. However, it is unlikely that differences between self-identified and perceived race are large enough to influence findings. Also, according to the Minnesota sentencing Guidelines Commission variable description document, in practice the value recorded for race may be observed race rather than the offender's self-reported race. Second, despite the detailed information available in the data used for this study, several potentially important variables are omitted from the analysis, which may bias results. This problem plagues much of the sentencing literature, as variables such as these are difficult to collect since they are usually recorded through other agencies specific to them. Information on offenders' previous experience with probation and prison are not available in the data which would be important if judges are familiar with offenders' prior sentences beyond the criminal history score used in the sentencing grid. The data also do not include measures for socioeconomic status or pretrial detention which may be correlated both with race and judges' sentencing decisions (D'Alessio & Stolzenberg, 1993; Demuth, 2003; Kutateladze et al., 2014).

Several additional directions for future research emerge from the findings from the present study. Studies can continue to investigate this study's findings of county-level differences in the assignment of probation conditions by exploring the specific community characteristics as well as judicial and courtroom-level factors (Johnson, 2006) which may play an important role in this discretionary decision-making point. The current study also did not address the length of probation received by the offenders. While the most common lengths of probation sentences in this

study's sample are three and five years, some offenders were assigned to probation sentences of 25 and 30 years. Individuals supervised for longer terms on probation have more opportunities to violate their probation than probationers assigned similar conditions serving shorter sentences. As discussed earlier, sentencing to probation and the assignment of probation conditions are only two decision points within the "life course" of a criminal case (Johnson, 2015). Future research can examine probation decisions within this larger framework by tracing the cascading effects of cumulative disadvantage, recognizing both the impact of earlier decision points, and also linking the assignment of probation sentences and their length and conditions to the future likelihood of revocations and incarcerations. The decision by a police officer to stop and arrest an individual has a subsequent impact on prosecutorial decisions and plea bargaining (Kutateladze & Lawson, 2016). Arrests practices that disproportionately affect minorities such as stop-and-frisk (Gelman, Fagan, & Kiss, 2007) may contribute to disadvantages faced by minorities in subsequent decision points before sentencing such as pretrial detention and release (Ulmer, 2012; Kutateladze et al., 2014). The important role of the probation officer in the enforcement of probation conditions and revocation decisions, and the heterogeneity in probation officer supervision styles and engagement levels (e.g., Clear & Latessa, 1993; Steiner et al, 2011; Miller, 2015), suggest for future research to also investigate the mediating influence of the probation officer in the relationship between probation conditions assigned at sentencing and probation revocations. In the pursuit of understanding the whole criminal justice process and the connections between

decision points it is critical that scholars do not continue to overlook cases than that do not initially result in incarceration.

Appendices

Appendix 1: Metropolitan Area County Profiles

County	Total Population	% White	% Black	% Hispanic	% Asian	% Other[26]	Agricultural and Undeveloped Land
Ramsey	508,640	66.88%	10.78%	7.17%	11.61%	3.56%	8%
Hennepin	1,152,425	71.73%	11.65%	6.74%	6.21%	3.67%	28%
Anoka	330,844	85.22%	4.32%	3.63%	3.87%	2.96%	50%
Carver	91,042	90.66%	1.17%	3.86%	2.70%	1.61%	77%
Dakota	398,552	82.29%	4.58%	6.01%	4.35%	2.77%	64.60%
Scott	129,928	84.52%	2.54%	4.44%	5.62%	2.88%	70.30%
Washington	238,136	85.71%	3.52%	3.41%	5.05%	2.31%	56%

Source: Metropolitan Council Community Profiles (using data from US Census Bureau 2010; Metropolitan Council Generalized Land Use Historical Data Set 2010)[27]

[26] Other category includes American Indian and Alaska Native alone, some other race alone, two or more races, Native Hawaiian and Other Pacific Islander alone

[27] The Metropolitan Council is the regional policy-making body, planning agency, and provider of essential services. The US Census Bureau 2010 indicates that the population of the United States is 63.7% white, 12.2% black, and 16.3% Hispanic.

Appendix 2: Sample Court Document

Identifying information omitted

1. Burglary-3rd Deg-Steal/Commit Felony or Gross Misd	609.582.3	Felony	01/04/2008	02/02/2009 Convicted	02/02/2009 Convicted of a Felony

EVENTS & ORDERS OF THE COURT

DISPOSITIONS

03/07/2008 **Plea** (Judicial Officer: Judge, Presiding)
1. Burglary-3rd Deg-Steal/Commit Felony or Gross Misd
Not guilty

04/21/2008 **Amended Plea** (Judicial Officer: Wilson, Edward) Reason: Amended complaint, Plea agreement
1. Burglary-3rd Deg-Steal/Commit Felony or Gross Misd
Guilty

02/02/2009 **Disposition** (Judicial Officer: Wilson, Edward)
1. Burglary-3rd Deg-Steal/Commit Felony or Gross Misd
Convicted

02/02/2009 **Sentenced**
1. Burglary-3rd Deg-Steal/Commit Felony or Gross Misd
01/04/2008 (FEL) 609.582.3 (6095823)

Commit to Commissioner of Corrections - Adult:
MN Correctional Facility - St. Cloud 24 Mo
Stay for 5 Yr
Departure: Dispositional
Status: Active 02/02/2009
Local Confinement:
Agency: Ramsey County Correctional Facility
Term: 74 Days
Time To Serve: 74 Days
Stay 0 Yr 0 Mo 0 Days
Credit For Time Served: 74 Days
Status: Active 02/02/2009
Monitoring - Adult:
Type: Supervised probation
Agency: Ramsey County Community Corrections (Retired)
Term of 5 Yr
02/02/2009 - 02/02/2014
Status: Closed 06/24/2011
Fees - Adult: (Grand Total: $178.00)
Due 02/02/2009
Fine: $100.00
Fees: (Fees Total: $78.00)
Criminal Surcharge: $73.00
Law Library: $5.00
Condition - Adult:
1. Pay restitution, Out-of-pocket costs. 02/02/2009, Active 02/02/2009
2. Follow all instructions of probation, 02/02/2009, Active 02/02/2009
3. Remain law-abiding, 02/02/2009, Active 02/02/2009
4. Chemical dependency evaluation/treatment, 02/02/2009, Active 02/02/2009
5. No alcohol/controlled substance use, 02/02/2009, Active 02/02/2009
6. Random testing, 02/02/2009, Active 02/02/2009
7. Educational assessment/program, 02/02/2009, Active 02/02/2009
8. Obtain employment, 02/02/2009, Active 02/02/2009
Level of Sentence:
Convicted of a Felony

Conditions of Probation:

- Restitution (condition 1)
- Standard conditions (conditions 2 and 3)
- Drug/alcohol restrictions (conditions 5 and 6)
- Drug/alcohol treatment (condition 4)
- Obtaining/maintaining education/employment (condition 8)
- Evaluation/ counseling for employment/education (condition 7)
- Jail (local confinement)

Appendix 3: Descriptive Statistics of Length of Probation and Jail Sentence by Race/Ethnicity

	Total probationers (n=2,136)	**White Probationers (n=736)**	**Black Probationers (n=1,280)**	**Hispanic Probationers (n=120)**
Probation (Years)[28]				
Mean	4.232	4.406	4.099	4.590
(SD)	(3.120)	(3.546)	(2.749)	(3.904)
Median	3	3	3	3
Minimum	0.247	0.417	.5	.247
Maximum	30	30	30	30
Jail (Days)				
Mean	91.506	86.503	92.602	110.508
(SD)	(93.911)	(92.800)	(93.110)	(106.438)
Median	60	60	60	85
Minimum	0	0	0	0
Maximum	430	365	367	430

[28] Seventeen observations are missing and not included in descriptive statistics for probation length: 6 white, 10 black, and 1 Hispanic.

Appendix 4: Model Selection and Diagnostics

Table 1. Model Selection Using the Bayesian Information Criterion

Groups	BIC
4	3476.361
5	3295.841
6	3206.871
7	3188.874
8	3231.072
9	3256.315

Table 2. Mixing Probabilities (π_j) and Proportion of Sample Assigned to Groups (N_j/N) in the Seven-Class Model

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7
π_j (S.E.)	.237	.098	.069	.163	.154	.203	.076
	(.017)	(.016)	(.012)	(.012)	(.013)	(.018)	.(013)
N_j/N	.235	.112	.054	.150	.160	.219	.070

Table 3. Mean Posterior Probabilities for Each Class in the Seven-Class Model

Class	Observations	Mean Posterior Probability
1	503	.879
2	239	.718
3	115	.831
4	320	.938
5	342	.865
6	467	.864
7	150	.850

Table 4. Odds of Correct Classification for Each Class in the Seven-Class Model

Class	Odds of Correct Classification
1	23.387
2	23.435
3	66.346
4	77.687
5	35.199
6	24.942
7	68.895

Appendix 5: Expected Length of Probation Sentence (Years) by Class

Class	Observations	Mean (SD)	Median	Min	Max
1	498	3.335 (1.224)	3	1	20
2	236	4.917 (3.349)	5	0.417	20
3	115	3.557 (1.505)	3	2	10
4	315	2.949 (.942)	3	1	10
5	340	3.134 (.894)	3	1	10
6	466	6.489 (4.968)	5	0.247	30
7	149	4.826 (2.640)	5	1	20

Appendix 6: Sample Separated by Offense Type

Table 1a. Property Offenders Only: Mixing Probabilities (π_j) and standard errors

Class 1	Class 2	Class 3	Class 4
.262	.233	.149	.356
(.020)	(.019)	(.022)	(.024)

Table 1b. Property Offenders Only: Conditional Probabilities by Class

Type of Condition	Class 1	Class 2	Class 3	Class 4
Drug/ alcohol restrictions	0.788	0.874	0.016	0.013
Drug/ alcohol treatment	0.694	0.722	0.006	0.004
Obtaining/ maintaining employment/education	0.453	0.393	0.345	0.009
Evaluation/ counseling for employment/education	0.023	0.254	0.248	0.000
Cognitive skills training	0.323	0.001	0.060	0.008
Mental health	0.242	0.331	0.124	0.000
Anger management and domestic abuse counseling/ treatment	0.067	0.042	0.038	0.000
Vulnerable person and location restrictions	0.587	0.215	0.165	0.144
Any restitution	0.732	0.731	0.695	0.741
Community service	0.092	0.152	0.212	0.184
Fines	0.370	0.963	0.999	0.411
Weapon restrictions	0.861	0.003	0.004	0.793
Other rehabilitation	0.044	0.168	0.106	0.007
Other restraint	0.093	0.038	0.015	0.009

Table 1c. Property Offenders Only: Post-estimation Multinomial Logit Coefficient Comparisons for Race and Ethnicity

Class Comparisons			Black (SD=0.500)		Hispanic (SD=0.189)	
			b	**e^b**	***b***	**e^b**
1	vs.	2	-0.056	0.946	1.014	2.756
1	vs.	3	-0.536	0.585	1.331	3.784
1	vs.	4	-0.274	0.760	-0.591	0.554
2	vs.	1	0.056	1.057	-1.014	0.363
2	vs.	3	-0.480	0.619†	0.317	1.373
2	vs.	4	-0.218	0.804	-1.605	0.201
3	vs.	1	0.536	1.710	-1.331	0.264
3	vs.	2	0.480	1.617†	-0.317	0.728
3	vs.	4	0.262	1.300	-1.922	0.146*
4	vs.	1	0.274	1.315	0.591	1.806
4	vs.	2	0.218	1.243	1.605	4.978
4	vs.	3	-0.262	0.769	1.922	6.834*

†p<.1; *p<.05; **p<.01; ***p<.001

Table 2a. Person Offenders Only: Mixing Probabilities (π_j) and standard errors

Class 1	Class 2	Class 3
.500	.262	.239
(.026)	(.024)	(.027)

Table 2b. Person Offenders Only: Conditional Probabilities by Class

Type of Condition	Class 1	Class 2	Class 3
Drug/ alcohol restrictions	0.976	0.834	0.119
Drug/ alcohol treatment	0.740	0.721	0.013
Obtaining/ maintaining employment/education	0.408	0.255	0.280
Evaluation/ counseling for employment/education	0.026	0.229	0.063
Cognitive skills training	0.237	0.000	0.100
Mental health	0.322	0.476	0.096
Anger management and domestic abuse counseling/ treatment	0.593	0.674	0.468
Vulnerable person and location restrictions	0.760	0.796	0.638
Any restitution	0.381	0.364	0.471
Community service	0.033	0.092	0.138
Fines	0.488	0.999	0.718
Weapon restrictions	0.908	0.031	0.441
Other rehabilitation	0.056	0.184	0.130
Other restraint	0.091	0.097	0.084

Table 2c. Person Offenders Only: Post-estimation Multinomial Logit Coefficient Comparisons for Race and Ethnicity

Class Comparisons			Black (SD=0.487)		Hispanic (SD=0.286)	
			b	**e^{b}**	***b***	**e^{b}**
1	vs.	2	0.011	1.011	0.314	1.369
1	vs.	3	-0.368	0.692	0.412	1.510
2	vs.	1	-0.011	0.989	-0.314	0.730
2	vs.	3	-0.379	0.685	0.098	1.103
3	vs.	1	0.368	1.445	-0.412	0.662
3	vs.	2	0.379	1.461	-0.098	0.907

†p<.1; *p<.05; **p<.01; ***p<.001

Table 3a. Drug Offenders Only: Mixing Probabilities (π_j) and standard errors

Class 1	Class 2	Class 3
.482	.139	.379
(.024)	(.018)	(.022)

Table 3b. Drug Offenders Only: Conditional Probabilities by Class

Type of Condition	Class 1	Class 2	Class 3
Drug/ alcohol restrictions	0.999	0.143	0.935
Drug/ alcohol treatment	0.908	0.204	0.815
Obtaining/ maintaining employment/education	0.287	0.005	0.427
Evaluation/ counseling for employment/education	0.005	0.000	0.303
Cognitive skills training	0.127	0.000	0.012
Mental health	0.061	0.019	0.194
Anger management and domestic abuse counseling/ treatment	0.009	0.000	0.004
Vulnerable person and location restrictions	0.036	0.011	0.041
Any restitution	0.009	0.020	0.053
Community service	0.075	0.033	0.115
Fines	0.277	0.357	0.964
Weapon restrictions	0.925	0.500	0.017
Other rehabilitation	0.015	0.000	0.150
Other restraint	0.027	0.024	0.074

Table 3c. Drug Offenders Only: Post-estimation Multinomial Logit Coefficient Comparisons for Race and Ethnicity

Class Comparisons			Black (SD=0.472)		Hispanic (SD=0.206)	
			b	**e^{b}**	***b***	**e^{b}**
1	vs.	2	-0.320	0.726	-1.582	0.206*
1	vs.	3	0.052	1.053	-0.761	0.467
2	vs.	1	0.320	1.377	1.582	4.865*
2	vs.	3	0.372	1.450	0.821	2.274
3	vs.	1	-0.052	0.950	0.761	2.140
3	vs.	2	-0.372	0.690	-0.821	0.440

†p<.1; *p<.05; **p<.01; ***p<.001

Appendix 7: Sample Separated by County

Table 1a. Hennepin County Only: Mixing Probabilities (π_j) and standard errors

Class 1	Class 2	Class 3	Class 4
.250	.372	.200	.258
(.021)	(.029)	(.020)	(.015)

Table 1b. Hennepin County Only: Conditional Probabilities by Class

Type of Condition	Class 1	Class 2	Class 3	Class 4
Drug/ alcohol restrictions	0.986	0.971	0.346	0.028
Drug/ alcohol treatment	0.881	0.845	0.009	0.027
Obtaining/ maintaining employment/education	0.226	0.429	0.451	0.002
Evaluation/ counseling for employment/education	0.007	0.030	0.024	0.000
Cognitive skills training	0.064	0.275	0.316	0.001
Mental health	0.060	0.315	0.132	0.003
Anger management and domestic abuse counseling/ treatment	0.014	0.416	0.385	0.002
Vulnerable person and location restrictions	0.001	0.697	0.729	0.130
Any restitution	0.030	0.458	0.541	0.580
Community service	0.078	0.046	0.145	0.155
Fines	0.256	0.456	0.550	0.358
Weapon restrictions	0.919	0.876	0.788	0.776
Other rehabilitation	0.007	0.061	0.076	0.008
Other restraint	0.007	0.083	0.154	0.011

Table 1c. Hennepin County Only: Post-estimation Multinomial Logit Coefficient Comparisons for Race and Ethnicity

Class Comparisons			Black (SD=0.487)		Hispanic (SD=0.227)	
			b	**e^b**	***b***	**e^b**
1	vs.	2	-0.480	0.619*	-0.769	0.464
1	vs.	3	-1.095	0.334***	-1.377	0.252*
1	vs.	4	-0.428	0.652†	-1.486	0.226*
2	vs.	1	0.480	1.616*	0.769	2.157
2	vs.	3	-0.616	0.540*	-0.608	0.544
2	vs.	4	0.052	1.054	-0.718	0.488
3	vs.	1	1.095	2.99***	1.377	3.964*
3	vs.	2	0.616	1.851*	0.608	1.837
3	vs.	4	0.668	1.950*	-0.109	0.897
4	vs.	1	0.428	1.534†	1.486	4.421*
4	vs.	2	-0.052	0.949	0.718	2.049
4	vs.	3	-0.668	0.513*	0.109	1.115

†p<.1; *p<.05; **p<.01; ***p<.001

Table 2a. Ramsey County Only: Mixing Probabilities (π_j) and standard errors

Class 1	Class 2	Class 3
.210	.546	.244
(.026)	(.034)	(.032)

Table 2b. Ramsey County Only: Conditional Probabilities by Class

Type of Condition	Class 1	Class 2	Class 3
Drug/ alcohol restrictions	0.731	0.894	0.123
Drug/ alcohol treatment	0.597	0.829	0.014
Obtaining/ maintaining employment/education	0.256	0.415	0.278
Evaluation/ counseling for employment/education	0.217	0.273	0.194
Cognitive skills training	0.000	0.007	0.035
Mental health	0.440	0.240	0.125
Anger management and domestic abuse counseling/ treatment	0.750	0.020	0.097
Vulnerable person and location restrictions	0.930	0.086	0.199
Any restitution	0.434	0.272	0.633
Community service	0.057	0.132	0.170
Fines	0.994	0.955	0.981
Weapon restrictions	0.025	0.019	0.017
Other rehabilitation	0.196	0.145	0.121
Other restraint	0.111	0.057	0.032

Table 2c. Ramsey County Only: Post-estimation Multinomial Logit Coefficient Comparisons for Race and Ethnicity

Class Comparisons			Black (SD=0.495)		Hispanic (SD=0.235)	
			b	**e^b**	***b***	**e^b**
1	vs.	2	0.042	1.043	0.027	1.027
1	vs.	3	-0.125	0.883	-0.093	0.911
2	vs.	1	-0.042	0.959	-0.027	0.974
2	vs.	3	-0.167	0.846	-0.120	0.887
3	vs.	1	0.125	1.133	0.093	1.098
3	vs.	2	0.167	1.182	0.120	1.127

†p<.1; *p<.05; **p<.01; ***p<.001

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