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Treatment Compliance and Recidivism: Following Up on the 2000 Illinois Juvenile Probation Outcome Study

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TREATMENT COMPLIANCE AND RECIDIVISM: FOLLOWING UP ON THE 2000

ILLINOIS JUVENILE PROBATION OUTCOME STUDY

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ABSTRACT

This study examines the relationship between demographic characteristics, court-mandated treatment, treatment completion, and recidivism in a cohort of Illinois juveniles discharged from probation in November 2000 (N=750). The original data were collected by Dr. David Olson of Loyola University Chicago, staff at Illinois Criminal Justice Information Authority (ICJIA) and the Administrative Office of the Illinois Courts (AOIC), in order to gain a better understanding of the characteristics of juveniles on probation in Illinois, the conditions of their supervisions, and the short-term outcomes of juveniles adjudicated delinquent in Illinois and placed on probation.

The current study expands on prior research on juvenile recidivism through the examination of recidivism both while on supervision as well as ten years following discharge from probation. Logistic regression models were created to predict the likelihood of four different outcomes: 1) any new arrests, 2) a new arrest for a violent crime while on supervision, 3) any new arrest within 10 years of discharge from supervision, and 4) a new arrest for a violent crime within 10 years of discharge from supervision. Results indicate that while treatment completion is predictive of on-probation arrests, other factors appear to be stronger predictors of post-probation recidivism.

The analyses also provide a good baseline to examine the impact of probation sentences and conditions of probation prior to the implementation of substantive reforms

to probation practices in Illinois. During the late 1990s and early 2000s, juvenile justice practice and probation in Illinois went through changes that included the incorporation of balanced and restorative justice principles, the utilization of standardized, validated risk and needs assessments that incorporated both static and dynamic factors, the utilization of evidence-based practices, and training of probation officers in the effective use of these evidence-based practices (Bostwick, 2010). Further, in 2003, Illinois implemented Redeploy Illinois, an effort to divert youth from prison and provide access to appropriate and proven treatment services in the community in lieu of prison. Thus, the findings presented here can be viewed as the outcomes of juvenile probation sentences prior to these substantive changes, and can be used in future outcome assessments of juvenile probation in Illinois to gauge the impact of these reforms.

CHAPTER ONE:

INTRODUCTION

Probation is ordered in 62 percent of adjudicated delinquency cases and has been called the 'workhorse of the juvenile justice system' (Puzzanchera et al., 2004, & Torbet, 1996). Despite the reliance on probation as the sanction of choice for adjudicated juvenile delinquents, research on the long-term outcomes of youth placed on probation is lacking. Ensuring public safety and reducing recidivism are tall orders that require the use of evidence-based practices within the juvenile system. United States Attorney General Eric Holder recently stated that improving the juvenile justice system through reduced use of incarceration and sound research makes "good economic sense by keeping [youth] out of over-stressed and under-funded corrections facilities and saving precious law enforcement resources" (Department of Justice, 2011). The current research hopes to fill the gap in knowledge concerning the outcomes of juvenile probation by first measuring the long-term recidivism rate of juveniles discharged from supervision, and second, by identifying what characteristics and probation interventions may impact these recidivism rates.

The 1990s saw a wave of sensational news reports purporting the rise of juvenile "super predators," thanks to the shocking crimes of a few youngsters and rhetoric by elected officials. One of the most frequently cited examples of "rising youth crime" was the murder of a Chicago 5 year-old by his 10 and 11 year old friends in October 1994.

Media coverage after the Chicago event suggested that America's declining crime rates were only the "calm before the storm" and *Newsweek* asked "Should we cage the new breed of vicious kids?" (Pizzarro et al., 2007). Even academics, usually resistant to moral panics, professed the rise of juvenile super predators. Professor John Dilulio wrote "America is now home to thickening ranks of juvenile super predators –radically impulsive, brutally remorseless youngsters, including ever more pre-teenage boys" (Bennett et al., p. 27, 1996). Dilulio has since recanted his statements, but the damage was done: many states in the 1990s passed laws allowing, or mandating, juvenile transfers to adult court for certain cases, as well as a growing number of mandatory minimum sentences for youth. The new laws resulted in a peak of over 12,000 juvenile cases waived to adult court nationally in 1994, up 70 percent from 1984 (Puzzanchera et al., 2004) Once the super-predator fervor subsided, multiple studies found media outlets frequently exaggerated both the frequency and severity of youth crime, particularly violent crime (Gross, 2009), and were less likely to report minor juvenile crimes (Pizzarro et al., 2007). Considering the long-term trend, delinquency petitions increased four-fold between 1960 and 2002, with many juveniles adjudicated as delinquents (found guilty) ending up on probation (Snyder & Sickmund, 2006). Despite the rhetoric and panic over the super-predator, and increased use of waiver to the adult court, the majority of adjudicated youth were placed on probation supervision, a pattern that continues today.

History of Juvenile Justice in America

Early American practices with juvenile offenders were not much different than those for adult offenders prior to the 1890s. Children under fourteen were thought not to

have the capacity to commit crime, although evidence could be submitted to show such a capacity. After fourteen, juvenile delinquents were treated like adult offenders. As of 1880, over 2,000 juveniles were listed as inmates in prisons or jails across the United States (Friedman, 1993). Reforms first began in New York, Boston, and Philadelphia in the 1820s with the creation of houses of refuge, reform schools, and industrial schools where a mix of orphans and delinquents were housed and labored for their keep. Conditions were deplorable and abuses common, which gave rise to reformers like Jane Addams, who was instrumental in the creation of the first juvenile court in Cook County, Illinois in 1899. The new court operated under the doctrine of *parens patriae* – which allowed the state to take away the rights of the parents and act as the child's guardian if his or her welfare were at risk (Spohn & Hemmens, 2009). Courts initially had the best interest of the child guiding their decisions; court founder Jane Addams hoped the court could act as a triage to identify what the youth needed.

Another pioneer transformed court practices as well: boot maker John Augustus began supervising young men and boys who had run afoul of the court in 1840s' Boston. Much like current practices, Augustus would observe his clients in the field, and ensure the probationer was attending school or doing honest work. Augustus and other early probation officers worked on a volunteer basis, although Massachusetts led the way with the first legislation for salaried officers in 1878 (National Center for Juvenile Justice, 2002). By 1930, every state except Wyoming had juvenile probation legislation on the books, using the same basic tactics as Augustus (American Probation and Parole Association, 2010). The Cook County juvenile court recognized the value of keeping

delinquent youth in the community, and relied heavily on probation as a disposition for adjudicated youth (National Center for Juvenile Justice, 2002).

In 1974, Congress passed the Juvenile Justice and Delinquency Prevention Act, which enacted major reforms in the system, among them deinstitutionalization of status offenders, sight and sound separation from adult offenders in confinement facilities, and prioritization of community-based programming and diversion.

Led by sensationalized crimes in the 1990s, the juvenile justice system shifted back to a model reminiscent of the adult system. Today 45 States have laws that allow for the transfer of juvenile delinquency petitions to adult court. These transfers can be at the discretion of the court, or mandatory based on the seriousness of the offense. Indiana allows discretionary transfers for juveniles as young as 10 accused of murder, and North Carolina has a mandatory transfer law for youth aged 13 and over accused of a capital crime (Griffin, 2003). Research has found that the public supports juvenile transfer to adult court when used "sparingly and selectively" and when a greater chance for rehabilitation can result (Applegate et al., 2008). Today, the pendulum seems to be swinging back again towards rehabilitation and treatment, as the influx of 'super predators' never materialized, and incarceration costs continue to rise.

Literature Review

Data from 2008 indicate that juveniles accounted for nearly one-third of arrests for major crimes in the United States (Archwarnety & Katsiyannis, 2000). Furthermore, Caschel (2009) contends that 30 percent of adolescents in the United States have engaged in delinquent acts. The number of juvenile court delinquency petitions in the United

States grew steadily between 1960 and the mid-1990s; juvenile courts handled more than four times as many delinquency cases in 2002 as in 1960. Petitions involving person offenses increased 113 percent, and drug law violations rose by 159 percent during this time period (Snyder & Sickmund, 2006). One overarching theme during this time period was racial disproportionality – delinquency case rates were higher among African American juveniles than any other racial group. Delinquency petitions peaked at just below two million in 1997. The number of petitions dropped nine percent between 1997 and 2005; however the number of cases in which the youth was adjudicated delinquent rose 85 percent (Snyder & Sickmund, 2006). Although the number of delinquency petitions coming to the court has dropped, the rate of a formal adjudication (or conviction) has increased.

The Office of Juvenile Justice and Delinquency Prevention estimated that of the 1.6 million delinquency petitions in the United States in 2000, about 660,000 resulted in a disposition of probation (40.3 percent), more than any other single disposition type. Between 1985 and 2002, the number of cases in which the youth was adjudicated delinquent and ordered to formal probation increased for all offense categories: person crimes by 198 percent and drug offenses by 267 percent (Snyder & Sickmund, 2006). By 2005, probation accounted for 60 percent of dispositions in which the juvenile was adjudicated delinquent (found guilty) (Livsey, 2009). By comparison, placement in residential facilities, which include juvenile "prisons" accounted for 23 percent of sanctions imposed on adjudicated dispositions during the same year.

In Illinois, the advent of juvenile probation was a direct result of the establishment of the juvenile court, although between the court's creation in 1899 and 1919, there were no provisions for the compensation of probation officers (Henry County, 2010). Today, probation is the most frequent sanction for juvenile delinquents in Illinois; caseloads increased 23 percent between 1990 and 1998. According to the ICJIA (2000), Central Illinois had the highest rate of formal active probation cases between 2002 and 2007. The amount of time a juvenile spends on probation varies. In Illinois, juveniles can be placed on probation for a maximum of five years or until age 21, whichever comes first. In delinquency petitions where the minor is not adjudicated (not found guilty), up to 24 months of informal supervision can result (Illinois Criminal Justice Information Authority, 2000).

Consistent with national trends, admissions to the Illinois Department of Juvenile Justice (prison), and the number of formal active probation cases in Illinois, both decreased by 14 percent between 2002 and 2007 (Bostwick, 2009). Also consistent with national data, African Americans, males, and older youth in Illinois were arrested, detained, petitioned, and committed to secure facilities more than any other racial groups in calendar year 2007, suggesting that racial inequality is evident in case processing at different points in the system. Campbell (2008) contends that the point of arrest holds the greatest amount of racial inequality, but differential outcomes by ethnicity are present, and vary with all stages of case processing. Female delinquent behavior is less likely to result in a petition, while African American youth are more likely to be formally processed by the court than White or other minority groups.

Rural delinquents often take a back seat to their urban counterparts, although recent research indicates rural delinquency rates are increasing. A 2006 report from the Illinois Criminal Justice Information Authority highlighted that fact: "…highly populated urban county crime statistics often mask low density rural county crime trends" (Hughes, p. 4, 2006). Environmental, individual, and social risk factors are not exclusive to urban delinquency. Parent-child relationships, aggression, anti-social attitudes, truancy, and poverty rates have the same influence on rural youth. While many of the risk factors mirror urban youth, some of them are more pronounced in rural areas. Examples of this disparity can be found in child abuse and high school dropout rates, which have risen recently in rural Illinois' counties, while falling in urban and non-rural locations (Hughes, 2006). Furthermore, juvenile justice trends in rural environments do not always mirror urban trends. Adjudicated delinquents statewide in Illinois decreased 26 percent between 1993 and 2003, while the rate increased 21 percent during the same time period in rural counties (Hughes, 2006).

Although their role in the criminal justice system is increasing in number and seriousness, female delinquents are an understudied group. Recent analysis of national arrest data shows that in 2006, 31 percent of all arrests of juveniles for assault involved females (Gross, 2009). Historically, males accounted for the majority of juvenile arrests, but during the 1990s, female arrest rates declined more slowly than male rates (Gross, 2009). For instance, between 1980 and 2006, the male arrest rate for aggravated assault rose by 13 percent while the female rate rose by 94 percent (Snyder, 2006). Snyder (2006) also found similar disparities in drug arrest rates: male rates decreased by 14

percent, while female rates increased 2 percent. The court system also diverts females out of the juvenile justice system more often than males. Females are more likely to receive alternative sentences, such as home supervision and residential treatment than males. Puzzanchera et al. (2000) found that 25 percent of males adjudicated delinquent were sent to out-of-home placements, compared to 19 percent of females adjudicated delinquent, although the analysis did not control for the effects of race or socio-economic status.

What is Recidivism?

Despite the wealth of data available on the demographics of those involved in the juvenile justice system, a key metric of system effectiveness, recidivism, is a moving target. That target is fluid, and depends on how recidivism is defined and the length of the follow-up period used. Unique to the juvenile system is the wrinkle of age and jurisdiction – youth involved in the juvenile justice system "age out" and become subject to the adult correctional system. The Illinois Department of Juvenile Justice (IDJJ) reported its recidivism rate (defined as a return to IDJJ facilities) as 48 percent (based on Fiscal Year 2003 releases), while Boulger (2009) calculated a recidivism rate of almost 61 percent based on returns to either IDJJ or the Illinois Department of Corrections (adult prisons) within six years of release. The absence of a standard is not unique to Illinois.

The Virginia Department of Juvenile Justice (VDJJ) conducted a nationwide survey in 2005 to determine how recidivism was measured among juvenile justice departments, and concluded that across the states what is used to measure recidivism is a 'fruit salad' (VDJJ, 2005). Depending on the state, recidivism could be defined as re-arrest, reconviction, or re-incarceration, which results in a funneling effect, as many

youth in the cohort may be arrested, but less are reconvicted, and even less are re-incarcerated. Furthermore, the follow-up period is not standardized, and ranged between 12 and 36 months based on the survey. Within the follow-up period are unique definitions of when the period begins: Colorado tracks for 12 months following release from all services, whereas Missouri and Louisiana start tracking after release from parole services, and most other responding states use the date of release from secure facilities. Of the 27 states that responded to the survey, six (including Illinois) used returns only to the juvenile system, and one (Massachusetts) used returns to the adult system only.

The Virginia Department of Juvenile Justice also noted that many recidivism studies only examine cohorts released from secure facilities, although the bulk of youth are involved with the juvenile justice system at lower levels such as probation and court supervision. Given the scope of the current research, new arrests will be the metric used in this study. As seen above, it is the most inclusive of recidivism measures (one must be arrested before conviction or incarceration), and the only one that makes sense in the context of probation. Juveniles could be diverted to treatment or restitution in lieu of formal court processing, which would also serve to reduce incarceration for new offenses. These factors could work to artificially reduce the rate of recidivism, whereas arrests are not subject to such diversions.

The literature examining both long-term recidivism by juveniles and long-term probation recidivism is scarce, but there is extensive research on juvenile recidivism and its correlates. Cottle et al. (2001) conducted a meta-analysis of 23 published studies with a sample of over 15,000 on juvenile recidivism (defined as any new arrest), and found

over 30 statistically significant predictors of juvenile recidivism. Chief among them were variables concerning the offense history of juvenile delinquents. Age at first contact with law enforcement and commitment, number of prior arrests, and the types of crime were all found to be major predictors of recidivism by multiple studies (Archwarnety & Katsiyannis 1998 & Myner, et al., 1998). Gang involvement and delinquent peers are well-documented risk factors for juvenile delinquents (Cottle et al., 2001). Even those with loose affiliations with gangs are at-risk: one study found that juveniles who identified as 'gang-involved' were more likely to self-report delinquency than full 'gang members' (Curry et al., 2002).

Also predictive of new arrests among juvenile delinquents were the results of risk assessment instruments, gender, race, family or mental health issues, offense type, extent of substance abuse, and history of treatment of any kind (Cottle et al., 2001). These factors are not surprising given our understanding of criminal behavior, and remain significant in adult recidivism research as well. For example, Gendreau et al. (1996) also conducted a meta-analysis and found criminal history, gender, race, and family variables to also be predictive of new arrests among adult offenders.

Although race was found to be predictive of new arrests in the meta-analyses discussed above, individual studies have not always reached this conclusion, and thus there is not always consensus within the research community regarding the role of race in recidivism. A number of studies claim that minorities have significantly higher odds of recidivating than white offenders (DeComo, 1998, and Strom, 2000), while other studies suggest that in fact there is *no* statistically significant difference in the recidivism rates of

minority and white juveniles (Mbuba, 2005). Differing methodologies and control variables may result in the contrasting results, and the dispute only increases the value of the current study.

The relationship between substance abuse and recidivism is well known in juvenile and adult recidivism and criminal behavior, but substance abuse is also intertwined with other traits and characteristics, such as parental involvement and supervision and living situations of youth. One small qualitative study of youth in a correctional facility identified substance use as a both a crutch and release for youth with chaotic family lives: "I fear my dad, I get scared of him, he's like unpredictable…and I don't know what he's gonna do so I just sit there and be quiet and listen to it. And then leave and go do drugs" (Wester et al., p. 106, 2008). Some of the youths' use may be learned behavior from parental figures: "a few even had a "do as I do" attitude, given that some of the youths used drugs and alcohol for the first time with their parents" (Wester et al., 2008). A number of youth in the study identified their drug and alcohol abuse as a reason for their current placement in a correctional setting, but also expressed uncertainty about what they could do about their use. The relevant literature does not just associate hard drug use with future delinquency: Windle and Wiesner (2004) found that chronic marijuana use made youth more prone to risk factors that contributed to delinquency.

As discussed above, family life can also play a role in drug use and delinquency. Cottle et. al (2001) found that family problems, single parents, and a history of abuse were predictive of recidivism in a meta-analysis of 25 juvenile recidivism studies; only basic demographics and offense history were more predictive of recidivism.

Another factor somewhat unique to juvenile recidivism research is education. Although adult recidivism research certainly recognizes the role education plays in employment and subsequent recidivism, school attendance is compulsory for juveniles. Some studies have found that youth in special education were more likely to recidivate (Archwamety & Katsiyannis, 2000; Cottle et al., 2001) than those in traditional educational environments. There is no consensus, however, about the relationship between school achievement and recidivism, with some studies asserting no role in recidivism, and others contending there is a relationship between the two (Baltodano et al., 2005; Cottle et al., 2001).

Another important topic in juvenile justice literature is the use of assessment tools. The use of assessment instruments began in the 1980s as a way to reduce prison overcrowding by predicting which offenders were likely to have success upon release. The practice is now commonplace in the adult and juvenile systems. Commonplace risk factors include early aggression, running away from home, early substance use, and weak connections to peers and family (Cottle et al., 2001).

Early on, the tools were less than ideal. Preliminary studies had disappointing results: Ashford and LeCroy (1990) studied three juvenile assessment instruments; one tool predicted recidivism only 9% more than if by chance. A Rand Corporation study of six juvenile risk-prediction instruments found that none of the instruments could predict better than "10% of the variance in release outcomes" (Klein & Caggiano, 1986). As the tools improve, the predictive ability is improving. Quist & Matshazi (2000) studied the Child and Adolescent Functional Assessment Scale (CAFAS) and found youth's scores

on the tool to be significantly related to recidivism. Even if the tools are not foolproof, standardized assessment is a step in the right direction if only for the appropriate allocation of personnel and resources to delinquents most at risk of reoffending.

Treatment completion is also tied to recidivism. Results from the 2000 Illinois *Adult* Probation Outcome Study indicated that probationers that failed to fulfill treatment requirements were almost twice as likely to be arrested again compared to those who did fulfill treatment requirements, although this was found only among probationers with histories of drug use (Huebner, et al., 2007). A number of other studies have examined the effect of various treatments and subsequent completion on recidivism; in general, those that complete programming fare better than those who do not (see Anaforian, 2008; Rasmussen, 1995; and Vappie-Aydin, 2007). However, research on the long-term effects of treatment completion on a cohort of juvenile probationers is lacking, so the current study is of great value. Further value is derived from the fact that the current study includes multiple treatment types in the analysis of treatment completion, and is not limited to one specific type of juvenile offender.

The preceding review of the literature suggests a number of somewhat confusing themes for juvenile justice research: while the definitions of juvenile recidivism vary across jurisdictions, research on juvenile delinquency identifies a number of risk factors shared with adult criminal behavior (offense history, drug use, results of assessment tools) as well as juvenile-specific factors (family functioning and educational performance). The literature review has also identified gaps or inconsistencies within the

current research on juvenile recidivism, such as the effect of race and gender, as well as

the effect of treatment completion on recidivism.

CHAPTER TWO:

METHODS AND ANALYSIS

Research Questions and Hypotheses

The goal of the current study is to examine the overall effect of treatment compliance with the short and long-term outcomes of juvenile probation. Although varying definitions and methodologies have been used to study juvenile recidivism, the probation context (as opposed to incarceration) renders new arrests the obvious measure of recidivism. The current study seeks to advance the knowledge of both juvenile justice practitioners and researchers through the study of short- and long-term outcomes for youth on probation. Three main research questions will be answered:

1. At what rate are juvenile probationers arrested for new crimes after supervision ends?

2. What individual characteristics and legal factors are predictive of new arrests (overall and for a violent offense) while on probation and during the follow up period?

3. What effect do treatment orders and treatment completion have on recidivism during probation, and after discharge?

Based on the relevant literature and the overall goal of a better understanding of Illinois' juvenile justice system, a few distinct hypotheses were developed. The

hypotheses cover three broad categories in their search for factors predictive of new arrests: individual level demographic and socio-economic characteristics (such as age, race, gender, etc.) and risk factors (drug use, gang membership and prior criminal history); and sentence-related factors (treatment and compliance).

In light of prior research it was hypothesized that certain probationer characteristics, such as educational status, gang membership, and drug use, would be influential in predicting new arrests (both on probation and in the follow up period) after statistically controlling for other relevant variables. Finally, the combination of treatment orders and treatment completion was hypothesized to be influential in predicting new arrests.

Data Sources

In order to answer the research questions, this study examined data collected by the 2000 Illinois Juvenile Probation Outcome Study, conducted by Dr. David Olson of Loyola University Chicago, and staff from the Illinois Criminal Justice Information Authority (ICJIA) and Administrative Office of the Illinois Courts (AOIC). The study asked probation officers in every Illinois county to complete a data collection instrument for all probation discharges between November 1, 2000 and November 30, 2000. Olson's sample size was just over 820 probationers; the current study uses 750 of those probationers; some cases had to be discarded because of incomplete information. The instrument included information regarding the juvenile's family structure, gang membership, school involvement, drug use, previous delinquency petitions, current

offense, participation in any court-ordered services, the type of discharge (positive or negative), and whether any new arrests occurred while on probation.

The post-discharge re-arrest data were generated in October 2012 from the Criminal History Record Information system maintained by the Illinois State Police by an extraction process performed by the ICJIA. This information included the dates, arresting agency, and statutory codes of any arrests between November 2000 and November 2011 (an 11 year follow-up period). In order to ensure the confidentiality of the data being used, randomly generated research study identification numbers were used to merge the criminal history information from the ICJIA and the probation outcome data provided by AOIC.

Variables

Dependent Variables

Four dichotomous dependent variables were used in these analyses – the presence of any new arrest on probation, the presence of a new arrest for a violent crime while on probation, the presence of any arrest post-discharge from probation, and the presence of a new arrest for a violent crime post-discharge from probation (see Table 5). In the 2000 Illinois Juvenile Probation Outcome Study data, just over a third (35.9 percent) of the sample was arrested while on probation, and less than one out of ten (8.8 percent) was arrested for a violent crime. The follow up data, which covers 12 years of post-probation risk, revealed much higher rates of recidivism: almost two-thirds (65.7 percent) of the

sample were arrested for any new offense and about two-fifths (38.5 percent) were rearrested specifically for a new violent offense.

There are some methodological concerns with these measures of recidivism; chief among them is the handling of juveniles by the legal system: younger juveniles might have more time to engage in delinquency, be apprehended but be processed informally or diverted from the legal process, in turn influencing recidivism analyses. According to the probation officer data, about three quarters of the sample (74.3 percent) was under seventeen years old at probation discharge. Further possible limitations concerning the age of juvenile jurisdiction and matching procedures will be discussed in limitations section.

Table 1: Dependent Variables (N=750)

On-Probation Arrests		
None	483	64.40%
One or More	267	35.60%
On-Probation Arrests for Violent Crimes		
None	684	91.20%
One or more	66	8.80%
Post-Probation Arrests		
None	257	34.30%
One or More	493	65.70%
Post-Probation Arrests for Violent Crimes		
None	461	61.50%
One or more	289	38.50%

Independent Variables

Previous research has linked a number of independent variables to recidivism outcomes. The effect of age, race, and gender on recidivism is well known. Mental health, drug abuse, and educational factors also are known to play a role in the cycle of criminality. This study expands on previous research by examining the effect of treatment (and treatment progress) on recidivism, both in the short term (during probation), and through an elongated follow up period (the data received from the Illinois State Police).

The measurement of drug use will be accomplished through two variables. A dichotomous variable was created to identify those who admitted to using marijuana prior to, or at probation intake, with over forty percent of the sample (45.8 percent) reporting use. A second dichotomous variable was created to identify those who had used "hard drugs" prior to or at intake, with hard drugs defined as cocaine, heroin or amphetamine/methamphetamine: just over eight percent of the sample reported hard drug use.

The educational status of probationers is also of interest: a variable concerning the type of educational environment the probationer participated in was created. Most (60 percent) were in traditional educational settings or had already graduated, and a smaller number were enrolled in alternative programs, or had dropped out. A dichotomous variable was also created to identify those involved in gangs: only about nine percent reported gang membership.

Previous criminal history is also a well-documented predictor of future behavior in the recidivism literature. The number of prior adjudications (findings of guilt in the juvenile justice system) was used in this study. Prior adjudications was a ratio-level measure ranging from zero to eleven, with a large standard deviation compared to the mean, so the variable was recoded to capture those who had no prior adjudications, those with one or more, and those who did not have any information reported. Almost three-quarters of the sample had no prior adjudications. Probation officer risk assessments (from intake and discharge) were also used, and the analyses will serve as a check on their accuracy. Another legal variable examined was the current offense class. Almost 60 percent (58.8 percent) of the sample was adjudicated of a misdemeanor.

Table 2: Treatment Orders and Completion (N=750)

	Number	Percent
No Treatment Ordered	356	47.50%
Treatment Ordered, Not Completed	133	17.70%
Multiple Treatments Ordered, Some Completed	22	2.90%
All Treatment(s) Completed	239	31.90%

The court had the option to order a variety of treatment requirements on the probationers: inpatient substance abuse treatment, outpatient substance abuse treatment, inpatient mental health treatment, outpatient mental health treatment, sex offender treatment, and domestic violence treatment. The current study examines the effect of compliance with those treatment requirements on future delinquent and criminal behavior (i.e., re-arrests). The original data collection instrument included questions that gauged

the progress of probationers in fulfilling each of the various requirements. The variable originally included four types of outcomes: "successful completion", "still enrolled", "discharged unsuccessfully", and "did not attend". These were collapsed into dichotomous variables: positive outcome (completion or still enrolled) and negative outcome (discharged unsuccessfully or did not attend). To support later analyses, the variable regarding treatment outcome and mandated treatment types were combined, resulting in four possible outcomes: no treatment orders (and none completed), one treatment order (and none completed), two or more treatment orders (but only one completed), and all treatment orders completed successfully. Below is the distribution of treatment orders and completion in the sample.

Control Variables

This study is no different in recognizing the need to examine demographic variables and their effects on recidivism; gender, race, and committing county were used in the analysis as control variables. Previous research has found relationships between gender, race, and geography and criminal and delinquent behavior, and although there is hardly consensus in the literature about the degree to which these things affect anti-social behavior, they are important characteristics to consider.

Sample Characteristics

The sample is comprised of 750 youth, or all those discharged from juvenile probation in Illinois in November 2000. Just over three-fourths are male (76 percent) and

most are White (56.5 percent) or Black (32.4 percent) (see Table 1). Hispanics account

for the remaining 10 percent of the sample. About 30 percent of the sample was

discharged from probation in Cook County (Chicago), 17 percent from the suburban

collar counties that surround Cook County, and the remainder (53 percent) from other

"downstate" counties. Twenty-seven percent of the juveniles in the sample were

identified as being on public assistance, and nine percent of the probationers were parents

themselves. Fewer than 10 percent were identified as gang involved by the probation

officer.

Table 3: Demographic and Socio-Economic Characteristics of Sample (N=750)

	Number	Percent
Age (years, median)	16	
Gender		
Female	180	24.00%
Male	570	76.00%
Race		
White	424	56.53%
African-American	243	32.40%
Hispanic/Other	83	11.07%
Committing County		
Cook/Collar	401	53.47%
Other Downstate	349	46.53%
Highest Education Level		
Traditional School/Graduated	451	60.13%
Alternative School/Special Ed	189	25.20%
Drop Out/Truant	92	12.27%
Missing	18	2.40%
Marijuana Use		
No	406	54.13%
Yes	344	45.87%
Hard Drug Use		
No	686	91.47%

	Number	Percent
Yes	64	8.53%
Gang Membership		
No	588	78.40%
Yes	72	9.60%
Missing	90	12.00%
Prior Adjudications		
None	551	73.47%
One or More	114	15.20%
Missing	85	11.33%

About three-quarters (73.4 percent) of the sample had no previous adjudications (findings of guilt in juvenile court). Over two-thirds (66.2 percent) of the offenses were classified as non-violent, and almost 60 percent of the sample was deemed to be a medium level risk by their probation officer. Overall, a majority of probationers (68 percent) were discharged positively, defined as either early termination or regularly scheduled termination of probation supervision. Technical violations and new offenses were the main reasons for negative discharges, which included unsatisfactory probation termination, absconding or the revocation of the probation sentence.

Table 4: Offense and Risk Characteristics of Sample (N=750)

	Number	Percent
Current Offense Class		
Misdemeanor	441	58.80%
Felony	308	41.07%
Missing	1	0.13%
Current Offense Type		
Non-Violent	497	66.27%
Violent	253	33.73%
Initial Risk Classification		
Maximum	79	10.53%
Medium	440	58.67%

Minimum	185	24.67%
Missing	46	6.13%
Final Risk Classification		
Maximum	58	7.73%
Medium	341	45.47%
Minimum	286	38.13%
Missing	65	8.67%

Over half (52.5 percent) of the probationers were ordered to some type of

treatment; and 13 percent were ordered to more than one treatment type. The most

common types were outpatient substance abuse (30.8 percent) and outpatient mental

Table 5: Court Ordered Treatment Types and Degree of Completion (N=750)

	Number	Percent
Treatment Status		
No Treatment Ordered	356	47.50%
Treatment Ordered, Not Completed	133	17.70%
Multiple Treatments Ordered, Some Completed	22	2.90%
All Treatments Completed	239	31.90%
Inpatient Substance Abuse		
No	690	92.00%
Yes	60	8.00%
Outpatient Substance Abuse		
No	519	69.20%
Yes	231	30.80%
Inpatient Mental Health		
No	735	98.00%
Yes	15	2.00%
Outpatient Mental Health		
No	581	77.47%
Yes	169	22.53%

health (22.5 percent) treatment. A smaller number were referred to inpatient modalities or other, specialized, services (see Table 3). Upon discharge, probation officers indicated whether the treatment was completed, ongoing, unsuccessfully discontinued, or had never occurred. Of the 231 cases referred to outpatient substance abuse programs, 53 percent had positive outcomes (i.e. completed or were still enrolled at discharge). Over 60 percent of those referred to outpatient mental health services had positive outcomes at the time of discharge. Inpatient substance abuse and inpatient mental health treatments all had positive outcomes between 70 and 80 percent at the time of discharge, although the sex offender and domestic batterer treatment modalities had very low frequencies in the sample, and therefore cannot be examined with a high degree of confidence.

Methodology

Two different types of statistical analyses were used to compare the independent variables to the outcomes of new arrests. The first set was bivariate analyses, to examine the relationships between the independent variables and each of the dependent variables. To determine the existence of a relationship between predictor variables and the outcome of new arrests, cross tabulations and the Chi square statistic were used, since most variables were either dichotomous or nominal in nature. The relationship between probationer age and the dependent variables was ascertained using an independent samples t-test. Two variables, measuring race and living situation, had to be collapsed into fewer categories to meet an assumption of the Chi-square test, which requires an adequate number of cases in each cell of a cross-tabulation. If the Chi-square test

indicated the existence of a statistically significant relationship, a Phi or Cramer's V test was performed to determine the strength and direction of the relationship.

The Phi statistic provides the strength of the relationship if both variables have only two categories; Cramer's V is used for variables with more than two categories, or in the instance of an asymmetrical cross tabulation. The Phi and Cramer's V tests can range between -1 and 1, 1 indicates a perfect, positive relationship. As a rule of thumb, correlations under .29 were considered 'weak', those between .30 and .60 'moderate', and those over .61 as 'strong' (Bachman & Paternoster, 2008). The presence and strength of any relationships between independent variables and the dependent variable were instrumental in the development of multivariate statistical models.

Multivariate analysis examined the relationships between two or more independent variables and the outcome of interest, in this case new arrests, while statistically controlling for differences between probationers within the sample. The current study used a type of multivariate test called logistic regression, and developed four logistic regression models – one for each of the dependent variables. Logistic regression is appropriate when attempting to predict a dichotomous outcome, which in this case is the presence or absence of a new arrest. The study built models based on the 2000 Illinois Juvenile Probation Outcome study data, and the data obtained from the Illinois State Police. From these two data sources, models were developed to predict any new arrests, and arrests for violent offenses, in each of the time periods. The multiple models – any new arrests versus a new arrest only for a violent crime - are necessary,

because a majority of the sample (almost two-thirds) was arrested during the 11-year follow up period. For this reason, models were also created using the more infrequent occurrence of an arrest for a violent crime.   Across the bivariate and multivariate analyses, the threshold for statistical significance was $p < .05$, the standard in social sciences.

Bivariate Results

On Probation Bivariate Results

Bivariate analyses were performed to determine if there were any statistically significant relationships between probationer demographics, legal history, and completion of treatment mandates and whether or not they were arrested while on probation. A total of 18 variables were examined using Chi Square and the Phi or Cramer's V test, 15 had statistically significant relationships with new arrests while on probation (Table 6). A number of variables were not related to on-probation arrests. Age, county type, and offense type (violent or non-violent) were not correlated with on-probation arrests of any kind.

The strongest correlation with on-probation recidivism was found in the variable measuring the final risk assessment category ($V = .326$, $p < .000$), which is not surprising, since the presence of a new arrest was known to the probation officer when discharging the youth from probation. The treatment completion scale also had a moderate correlation with new arrests ($V = .300$, $p < .000$), and was more strongly correlated with new arrests than marijuana use ($Phi = .255$, $p < .000$), prior adjudications ($V = .206$, $p < .000$),

or gang membership (V=.206, p<.000). These results lend initial support for the hypotheses that demographic, offense and treatment completion characteristics are significantly related to new arrests. Examined individually, most of the different treatment types and court ordered sanctions did not have statistically significant or strong correlations with new arrests; the strongest was outpatient substance abuse (Phi=.176, p<.000) (the most frequently court-ordered treatment condition), and the weakest was inpatient mental health treatment (Phi=.092, p<.012) (the most infrequent of the court-ordered conditions of probation).

Some variables originally hypothesized to have strong relationships with new arrests in fact had very weak relationships: hard drug use had the weakest statistically significant correlation with new arrests (Phi=.110, p<.003), perhaps because only about eight percent of the sample reported using cocaine, heroin or amphetamines. It was not surprising that age was not found to be correlated with new arrests; the range of ages in the sample was small (between nine and nineteen); and 75 percent of the sample was between fifteen and seventeen at probation discharge.

Table 6: Comparison of Demographic, Legal, and Treatment Characteristics among Probationers Not Arrested During Probation and Those Arrested During Probation (N=750)

	No Arrests on Probation (N=481)	One or More Arrests on Probation (N=269)	
Total	64.1%	35.9%	100.0%
Age (Mean, Years) t=-1.238, p<.216	15.33	15.49	15.39
Gender**	X^2=6.73, 1df, p< .009, Phi=.095, p<.009		
Male	61.6%	38.4%	100.0%

Female	72.2%	27.8%	100.0%
Race*	X^2=11.49, 1df, p<.001, Phi=.124, p<.001		
White	69.3%	30.7%	100.0%
Non-White	57.4%	42.6%	100.0%
County Type	X^2=.032, 1df, p<.858		
Downstate	63.8%	36.2%	100.0%
Cook/Collar	64.5%	35.5%	100.0%
Educational Status*	X^2=16.56, 3df, p<.001, V=.149, p<.001		
Traditional/Graduated	69.6%	30.4%	100.0%
Alternative/Special Ed.	58.2%	41.8%	100.0%
Dropout/Truant	53.3%	46.7%	100.0%
Missing	44.4%	55.6%	100.0%
Marijuana Use*	X^2=48.58, 1df, p<.000, Phi=.255, p<.000		
No	75.4%	24.6%	100.0%
Yes	50.9%	49.1%	100.0%
Hard Drug Use**	X^2=9.06, 1df, p<.003, Phi=.110, p<.003		
No	65.7%	34.3%	100.0%
Yes	46.9%	53.1%	100.0%
Gang Member*	X^2=31.76, 3df, p<.000, V=.206, p<.000		
No	68.4%	31.6%	100.0%
Yes	36.1%	63.9%	100.0%
Missing	59.6%	40.4%	100.0%
Prior Adjudications*	X^2=31.74, 2df, p<.000, V=.206, p<.000		
None	69.6%	30.4%	100.0%
One or More	43.0%	57.0%	100.0%
Missing	56.5%	43.5%	100.0%
Offense Class*	X^2=19.35, 3df, p<.000, V=.161, p<.000		
Misdemeanor	67.4%	32.6%	100.0%
Felony	54.9%	45.1%	100.0%
Other	81.3%	18.7%	100.0%
Missing	64.3%	35.7%	100.0%
Offense Type	X^2=.014, 1df, p<.905		
Non-violent	64.0%	36.0%	100.0%
Violent	64.4%	35.6%	100.0%
Initial Risk Assessment*	X^2=36.22, 3df, p<.000, V=.220, p<.000		
Minimum	75.7%	24.3%	100.0%

Medium	61.8%	38.2%	100.0%
Maximum	40.5%	59.5%	100.0%
Missing	80.4%	19.6%	100.0%
Final Risk Assessment***	X^2=79.65, 3df, p<.000, V=.326, p<.000		
Minimum	78.3%	21.7%	100.0%
Medium	57.2%	42.8%	100.0%
Maximum	22.4%	77.6%	100.0%
Missing	75.4%	24.6%	100.0%
Treatment Completion***	X^2=67.65, 3df, p<.000, V=.300, p<.000		
Treatment Completed	66.5%	33.5%	100.0%
Multiple Types Ordered, Only One Completed	40.9%	59.1%	100.0%
One Ordered, None Completed	36.1%	63.9%	100.0%
No Treatment Ordered	74.4%	25.6%	100.0%
Inpatient SA Ordered***	X^2=8.65, 1df, p<.003, Phi=.107, p<.000		
No	65.7%	34.3%	100.0%
Yes	46.7%	53.3%	100.0%
Outpatient SA Ordered***	X^2=23.10, 1df, p<.000, Phi=.176, p<.000		
No	69.7%	30.3%	100.0%
Yes	51.5%	48.5%	100.0%
Inpatient MH Ordered*	X^2=6.31, 1df, p<.012, Phi=.092, p<.012		
No	64.8%	35.2%	100.0%
Yes	33.3%	66.7%	100.0%
Outpatient MH Ordered***	X^2=11.22, 1df, p<.001, Phi=.122, p<.001		
No	67.3%	32.7%	100.0%
Yes	53.3%	46.7%	100.0%

*p<.05 **p<.01 ***p<.001

Similar analyses were performed to determine the existence and strength of any relationships between the same probationer demographics and legal sanctions and new arrests for violent crimes. A much smaller group of the sample (8.8 percent) was arrested for violent crimes while on probation compared to the overall arrest rate (35.9 percent), and with the combination of a rare outcome and small sample, it is more difficult to

establish statistically significant relationships between the independent variables and the dependent variable. Compared to the 18 variables that had statistically significant correlations with any new arrests, only eight were correlated with violent arrests. As in the on-probation any arrest correlations, neither age nor county type were significantly related to on-probation violent arrests, along with gender, offense class, either type of drug use, prior adjudications, and two of the individual treatment types (Table 7). The final risk assessment held the strongest correlation in both models, with Cramer's V values of .326 (p<.000) in the any arrests model, and .222 (p<.000) in the violent arrests model.

There are further differences in the strength of correlations between the two models. The treatment completion scale has a weaker correlation (V=.147, p<.001) in the violent arrests model compared to the any arrests model (V=.300, p<.000). The probation officer's initial risk assessment is less correlated with violent arrests (V=.149, p<.001) than with any new arrests (V=.220, p<.000). The offense class is correlated with any new arrests, but not with violent arrests; the offense type is correlated with violent arrests but not any new arrests. No doubt playing a role in the decreased strength of the correlations between the independent variables is the small number (66, 8.8 percent) of probationers who were arrested for a violent crime while on probation.

Table 7: Comparison of Demographic, Legal, and Treatment Characteristics among Probationers Not Arrested For Violent Crimes During Probation and Those Arrested For Violent Crimes During Probation (N=750)

	No Violent Arrests on Probation (N=684)	One or More Violent Arrests on Probation (N=66)	
Total	91.2%	8.8%	100.0%
Age (Mean, Years) t=.987, p<.324	15.41	15.20	15.39
Gender	X^2=.064, 1df, p< .800		
Male	91.7%	8.3%	100.0%
Female	91.1%	8.9%	100.0%
Race**	X^2=11.98, 1df, p<.001, V=.126, p<.001		
White	94.3%	5.7%	100.0%
Non-White	87.1%	12.9%	100.0%
County Type	X^2=.034, 1df, p<.854		
Downstate	91.0%	9.0%	100.0%
Cook/Collar	91.4%	8.6%	100.0%
Educational Status	X^2=6.82, 3df, p<.070		
Traditional/Graduated	93.1%	6.9%	100.0%
Alternative/Special Ed.	86.8%	13.2%	100.0%
Dropout/Truant	91.3%	8.7%	100.0%
Missing	88.9%	11.1%	100.0%
Marijuana Use	X^2=3.02, 1df, p<.082		
No	92.9%	7.1%	100.0%
Yes	89.2%	10.8%	100.0%
Hard Drug Use	X^2=.398, 1df, p<.528		
No	91.4%	8.6%	100.0%
Yes	89.1%	10.9%	100.0%
Gang Member***	X^2=16.01, 3df, p<.001, V=.146, p<.001		
No	93.2%	6.8%	100.0%
Yes	87.5%	12.5%	100.0%
Missing	80.9%	19.1%	100.0%
Prior Adjudications	X^2=1.13, 2df, p<.566		
None	91.7%	8.3%	100.0%
One or More	88.6%	11.4%	100.0%
Missing	91.8%	8.2%	100.0%

Offense Class	X^2=2.63, 3df, p<.452		
Misdemeanor	92.3%	7.7%	100.0%
Felony	89.0%	11.0%	100.0%
Other	93.8%	6.3%	100.1%
Missing	90.5%	9.5%	100.0%
Offense Type*	X^2=18.40, 1df, p<.000, Phi=.157, p<.000		
Non-violent	94.4%	5.6%	100.0%
Violent	85.0%	15.0%	100.0%
Initial Risk Assessment*	X^2=16.74, 3df, p<.001, V=.149, p<.001		
Minimum	93.5%	6.5%	100.0%
Medium	91.6%	8.4%	100.0%
Maximum	79.7%	20.3%	100.0%
Missing	100.0%	0.0%	100.0%
Final Risk Assessment*	X^2=37.02, 3df, p<.000, V=.222, p<.000		
Minimum	95.8%	4.2%	100.0%
Medium	89.4%	10.6%	100.0%
Maximum	72.4%	27.6%	100.0%
Missing	98.4%	1.6%	100.0%
Treatment Completion*	X^2=16.12, 3df, p<.001, V=.147, p<.001		
Treatment Completed	92.5%	7.5%	100.0%
Multiple Types Ordered, Only One Completed	86.4%	13.6%	100.0%
One Ordered, None Completed	82.7%	17.3%	100.0%
No Treatment Ordered	93.8%	6.2%	100.0%
Inpatient SA Ordered	X^2=1.67, 1df, p<.196		
No	91.6%	8.4%	100.0%
Yes	86.7%	13.3%	100.0%
Outpatient SA Ordered	X^2=.035, 1df, p<.851		
No	91.3%	8.7%	100.0%
Yes	90.9%	9.1%	100.0%
Inpatient MH Ordered*	X^2=11.47, 1df, p<.001, Phi=.124, p<.001		
No	91.7%	8.3%	100.0%
Yes	66.7%	33.3%	100.0%
Outpatient MH Ordered*	X^2=13.99, 1df, p<.000, Phi=.137, p<.000		
No	93.3%	6.7%	100.0%
Yes	84.0%	16.0%	100.0%

*p<.05 **p<.01 ***p<.001

Post Probation Bivariate Results

Bivariate tests were also performed on the follow up data concerning arrests in the 11 years since probation discharge (both any arrests and violent arrests). The follow up data also allowed for the use of two new independent variables: dichotomous variables indicating the presence of both types of arrests while on probation (for a total of 20 variables) (Table 8). A much larger percentage of the sample was arrested during the follow up period (65.7) than while on probation (35.9 percent), which would be expected given the much longer periods of time at risk, and which led to both similarities and differences in the subsequent correlations with independent variables.

The variables that had the strongest relationship with any post-probation arrest were gender (Phi=.193, p<.000), the presence of an on-probation arrest (Phi=.188, p<.000), and marijuana use (Phi=.157, p<.000). Gang membership was not correlated with any post-probation arrest, in comparison to the moderate relationship with any on-probation arrest (V=.206, p<.000). Similarly, the original offense class (misdemeanor, felony, or other) was not correlated to a post-probation arrest, although it was correlated to on-probation arrests (V=.161, p<.000). The treatment completion scale was not significantly related to post-probation arrests, compared to the moderate correlation (V=.300, p<.000) in the on-probation bivariate analyses. Similar to the on-probation correlations, none of the individual treatment mandates (regardless of completion) were correlated to post-probation arrests, with the exception of outpatient substance abuse (Phi=.176, p<.000); this was also the most frequently imposed treatment condition.

Table 8: Comparison of Demographic, Legal, and Treatment Characteristics among Probationers Not Arrested Post Probation and Those Arrested Post Probation (N=750)

	No Arrests Post Probation (N=257)	One or More Arrests Post Probation (N=493)	
Total	34.3%	65.7%	100.0%
Age (Mean, Years) t=-.110 p<.912	15.38	15.39	15.39
Gender*	X^2=27.89, 1df, p<.000, Phi=.193, p<.000		
Male	29.1%	70.9%	100.0%
Female	50.6%	49.4%	100.0%
Race	X^2=2.27, 1df, p<.132		
White	36.6%	63.4%	100.0%
Non-White	31.3%	68.7%	100.0%
County Type*	X^2=5.64, 1df, p<.017, Phi=-.087, p<.017		
Downstate	30.4%	69.6%	100.0%
Cook/Collar	38.7%	61.3%	100.0%
Educational Status*	X^2=10.82, 3df, p<.013, V=.120, p<.013		
Traditional/Graduated	38.6%	61.4%	100.0%
Alternative/Special Ed.	30.2%	69.8%	100.0%
Dropout/Truant	22.8%	77.2%	100.0%
Missing	27.8%	72.2%	100.0%
Marijuana Use*	X^2=18.52, 1df, p<.000, Phi=.157, p<.000		
No	41.1%	58.9%	100.0%
Yes	26.2%	73.8%	100.0%
Hard Drug Use	X^2=1.17, 1df, p<.279		
No	34.8%	65.2%	100.0%
Yes	28.1%	71.9%	100.0%
Gang Member	X^2=4.71, 3df, p<.194		
No	35.7%	64.3%	100.0%
Yes	23.6%	76.4%	100.0%
Missing	33.7%	66.3%	100.0%
Prior Adjudications*	X^2=6.45, 2df, p<.040, V=.093, p<.040		
None	36.8%	63.2%	100.0%
One or More	25.4%	74.6%	100.0%
Missing	29.4%	70.6%	100.0%

Offense Class	X^2=2.21, 3df, p<.528		
Misdemeanor	35.2%	64.8%	100.0%
Felony	31.8%	68.2%	100.0%
Other	40.6%	59.4%	100.0%
Missing	31.0%	69.0%	100.0%
Offense Type*	X^2=.289, 1df, p<.591		
Non-violent	33.6%	66.4%	100.0%
Violent	35.6%	64.4%	100.0%
Initial Risk Assessment*	X^2=10.27, 3df, p<.016, V=.117, p<.016		
Minimum	41.6%	58.4%	100.0%
Medium	33.6%	66.4%	100.0%
Maximum	21.5%	78.5%	100.0%
Missing	32.6%	67.4%	100.0%
Final Risk Assessment**	X^2=13.95, 3df, p<.003, V=.136, p<.003		
Minimum	40.2%	59.8%	100.0%
Medium	32.8%	67.2%	100.0%
Maximum	15.5%	84.5%	100.0%
Missing	32.3%	67.7%	100.0%
On-Probation Arrest***	X^2=26.64, 1df, p<.000, Phi=.188, p<.000		
No	41.0%	59.0%	100.0%
Yes	22.3%	77.7%	100.0%
On-Probation Violent Arrest*	X^2=5.47, 1df, p<.019, Phi=.085, p<.019		
No	35.5%	64.5%	100.0%
Yes	21.2%	78.8%	100.0%
Treatment Completion	X^2=7.47, 3df, p<.058		
Treatment Completed	36.4%	63.6%	100.0%
Multiple Types Ordered, Only One Completed	36.4%	63.6%	100.0%
One Ordered, None Completed	24.1%	75.9%	100.0%
No Treatment Ordered	36.5%	63.5%	100.0%
Inpatient SA Ordered	X^2=3.46, 1df, p<.063		
No	35.2%	64.8%	100.0%
Yes	23.3%	76.7%	100.0%
Outpatient SA Ordered**	X^2=8.17, 1df, p<.004, Phi=.104, p<.004		
No	37.6%	62.4%	100.0%
Yes	26.8%	73.2%	100.0%

Inpatient MH Ordered	X^2=.223, 1df, p<.636		
No	34.1%	65.9%	100.0%
Yes	40.0%	60.0%	100.0%
Outpatient MH Ordered	X^2=1.70, 1df, p<.192		
No	33.0%	67.0%	100.0%
Yes	38.5%	61.5%	100.0%

*p<.05 **p<.01 ***p<.001

The same bivariate tests were performed using the presence of a post-probation arrest for a violent crime, which had a lower prevalence (38.5 percent of sample) than the presence of any post-probation arrest for any offense (65.7 percent) (Table 9). Consistent with some literature on juvenile recidivism, gender and race had moderate correlations with post-probation violent arrests (Phi=.169, p<.000 and V=.184, p<.000), although the new variables indicating both types of on-probation arrests had the strongest correlations with post-probation violent arrests: any on-probation arrest had a Phi value of .190 (p<.000), while any on-probation violent arrest had a Phi value of .141 (p<.000).

There were some differences between the two types of arrests (any and violent) in the follow up data and relationships with independent variables. Given the results from any post-probation arrests, it was not surprising that none of the individual treatment mandates or the treatment completion scale was correlated to the follow up arrest data. The treatment completion scale, however, approached statistical significance (X^2=7.47, 3df, p<.058). Gang membership, however, was correlated with the post-probation violent arrests (V=.136, p<.002) but not with any post-probation arrests. Marijuana (but not hard

drug) use held one of the stronger correlations with any post-probation arrest (Phi=.155, p<.000), although neither drug use variable was related to post-probation violent arrests.

Table 9: Comparison of Demographic, Legal, and Treatment Characteristics among Probationers Not Arrested for Violent Crimes Post Probation and Those Arrested for Violent Crimes Post Probation (N=750)

	No Violent Arrests Post Probation (N=461)	One or More Violent Arrests Post Probation (N=289)	
Total	61.5%	38.5%	100.0%
Age (Mean, Years) t=1.52 p<.129	15.46	15.27	15.39
Gender**	X^2=21.45, 1df, p<.000, Phi=.169, p<.000		
Male	56.8%	43.2%	100.0%
Female	76.1%	23.9%	100.0%
Race***	X^2=15.94, 1df, p<.000, Phi=.146, p<.000		
White	67.7%	32.3%	100.0%
Non-White	53.4%	46.6%	100.0%
County Type	X^2=.680, 1df, p<.410		
Downstate	60.1%	39.9%	100.0%
Cook/Collar	63.0%	37.0%	100.0%
Educational Status*	X^2=10.44, 3df, p<.015, V=.118, p<.015		
Traditional/Graduated	66.1%	33.9%	100.0%
Alternative/Special Ed.	55.6%	44.4%	100.0%
Dropout/Truant	53.3%	46.7%	100.0%
Missing	50.0%	50.0%	100.0%
Marijuana Use	X^2=2.02, 1df, p<.155		
No	63.8%	36.2%	100.0%
Yes	58.7%	41.3%	100.0%
Hard Drug Use	X^2=.394, 1df, p<.530		
No	61.8%	38.2%	100.0%
Yes	57.8%	42.2%	100.0%
Gang Member**	X^2=13.89, 3df, p<.003, V=.136, p<.003		
No	64.8%	35.2%	100.0%
Yes	48.6%	51.4%	100.0%
Missing	50.6%	49.4%	100.0%

Prior Adjudications	X^2=3.01, 2df, p<.221		
None	62.8%	37.2%	100.0%
One or More	61.4%	38.6%	100.0%
Missing	52.9%	47.1%	100.0%
Offense Class	X^2=6.73, 3df, p<.081		
Misdemeanor	65.0%	35.0%	100.0%
Felony	55.3%	44.7%	100.0%
Other	65.6%	34.4%	100.0%
Missing	59.5%	40.5%	100.0%
Offense Type*	X^2=3.94, 1df, p<.047, Phi=.072, p<.047		
Non-violent	64.0%	36.0%	100.0%
Violent	56.5%	43.5%	100.0%
Initial Risk Assessment*	X^2=11.11, 3df, p<.011, V=.122, p<.011		
Minimum	69.2%	30.8%	100.0%
Medium	61.1%	38.9%	100.0%
Maximum	48.1%	51.9%	100.0%
Missing	56.5%	43.5%	100.0%
Final Risk Assessment*	X^2=10.54, 3df, p<.014, V=.199, p<.014		
Minimum	67.8%	32.2%	100.0%
Medium	58.4%	41.6%	100.0%
Maximum	48.3%	51.7%	100.0%
Missing	61.5%	38.5%	100.0%
On-Probation Arrest***	X^2=27.21, 1df, p<.000, Phi=.190, p<.000		
No	68.4%	31.6%	100.0%
Yes	49.1%	50.9%	100.0%
On-Probation Violent Arrest*	X^2=14.88, 1df, p<.000, Phi=.141, p<.000		
No	63.6%	36.4%	100.0%
Yes	39.4%	60.6%	100.0%
Treatment Completion	X^2=4.31, 3df, p<.229		
Treatment Completed	65.7%	34.3%	100.0%
Multiple Types Ordered, Only One Completed	63.6%	36.4%	100.0%
One Ordered, None Completed	54.9%	45.1%	100.0%
No Treatment Ordered	61.0%	39.0%	100.0%
Inpatient SA Ordered	X^2=3.62, 1df, p<.057		
No	62.5%	37.5%	100.0%

Yes	50.0%	50.0%	100.0%
Outpatient SA Ordered	X^2=.104, 1df, p<.747		
No	61.8%	38.2%	100.0%
Yes	60.6%	39.4%	100.0%
Inpatient MH Ordered	X^2=.427, 1df, p<.513		
No	61.6%	38.4%	100.0%
Yes	53.3%	46.7%	100.0%
Outpatient MH Ordered	X^2=.314, 1df, p<.575		
No	60.9%	39.1%	100.0%
Yes	63.3%	36.7%	100.0%

*p<.05 **p<.01 ***p<.001

Across the four dependent variables used in bivariate analyses, some trends emerged. Risk assessments were significantly related to all four dependent variables, race, gender, gang membership and educational status were correlated with three of the dependent variables. Offense class, offense type, and on-probation arrests of any kind were correlated with two of the dependent variables each.

Multivariate Results

Bivariate analyses revealed the presence of statistically significant relationships between the independent and the dependent variables, but do not provide the entire picture. The shortcoming of bivariate testing is that the tests concern only the relationship of one variable to another. Multivariate testing accounts for the effect of each predictor on the dependent variable, controlling for the effect of the other predictors, providing a more complete understanding of what factors are important in predicting outcomes. Not all of the variables used in the bivariate analyses were used in the

multivariate analyses however. Age was not correlated with any of the four dependent variables, and was dropped from multivariate analyses.

In general, the data were complete and the analyses did not suffer from problems due to missing information. However, the variables concerning gang membership, prior adjudications, initial risk assessment, and final risk assessment had a number of missing cases. In terms of gang membership, probation officers had the option to select 'yes', 'no', or 'unknown' when completing the data collection instrument, and 12 percent of the sample fell into the 'unknown' category. This is not surprising, given the fluid nature of youth gang involvement. Probationers may have contended they were not part of a gang, but probation officers may have had evidence to the contrary, leading them to check the 'unknown' box. A logistic regression model was created using the same independent variables mentioned above (as well as the four dependent variables), and those missing gang membership information as the dependent variable. The regression model indicated that those missing gang membership information were about twice as likely to be non-white, male, and about nine percent more likely to have one or more prior adjudications in juvenile court.

The same type of regression model was created for 11 percent of the sample that was missing prior adjudication information. The logistic regression model indicated no significant predictors of those who were missing prior adjudication information. Similarly, the risk assessment variables were missing a small percentage of cases (about 6 percent for the initial, and 9 percent for the final risk assessment). Regression models

indicated no significant relationships between those cases missing the assessment
information and any of the independent variables.

On Probation Results

Model 1, which predicted the presence of any new arrests while on probation,
used the 17 variables discussed above. Overall, the model was statistically significant (χ^2
=140.84, 23df, p<.000), and explained about 27 percent of the variance in on-probation
arrests according to the Nagelkerke R-square statistic (pseudo-R^2=.274). The inclusion
of the 17 independent variables improved correctly classified cases by about 14 percent
over the constant-only model, to 72.4 percent. Of the 17 variables tested, six were found
to be statistically significant in predicting on-probation arrests when all other factors were
held equal. According to the Wald statistic, the most influential of the independent
variables tested concerned marijuana use (Wald = 14.52): those admitting use were
almost two and a half times more likely to be arrested while on probation than those that
did not admit marijuana use (Odds Ratio = 2.48). Race also played a role in predicting
new arrests: Non-White probationers were about 72 percent more likely to be arrested on
probation than Whites (OR = 1.72).

Next most influential were the results of the probation officer's final risk
assessment. Those classified as 'medium' risk were over twice as likely to be arrested on
probation than the reference group ('minimum' risk probationers), and those classified as
'maximum' risk were over four and a half times more likely to be arrested on probation
than the reference group (OR = 2.38 and OR = 4.58, respectively). It should be noted

that probation officers were likely aware of any arrests of their clients during supervision, and a higher risk assessment likely resulted. There was no evidence of multicollinearity however, the Cramer's V value representing the bivariate correlation between the final risk assessment and on-probation arrests was a moderate .326. The follow-up models may indicate the predictive ability of the final risk assessment, but in the on-probation models, it is prudent to recognize the potential shortcoming.

The next most predictive variable tested concerned one aspect of the treatment completion scale. Those who were ordered to one treatment and did not complete it were over two times as likely to be arrested while on probation, compared to those who completed treatment (the reference group) (OR = 2.26). The importance of this part of the treatment completion scale was also confirmed by the Wald statistic, which measures the influence of each variable. Those who did not complete treatment had a Wald Statistic surpassed by only the marijuana use and final risk assessment variables (Wald = 8.79). Those who were ordered to two or more treatments, and completed one of them were not predictive of new arrests, likely due to the small number of probationers that were in this category (2.9 percent of the sample), and the ambiguous nature of the category (some success and failure are indicated). Almost half of the sample was not ordered to any treatment, which was not found to be predictive of any on-probation arrests when all other factors were held equal. Only one of the individual treatment types was found to be predictive of on-probation arrests: those ordered to outpatient mental

health treatment (about 22 percent of the sample) were over twice as likely to be arrested during probation than those not ordered to the treatment modality (OR = 2.18).

It was somewhat surprising that a number of variables (gender, county, educational status, gang membership, hard drug use, prior criminal history, initial risk assessment, and three individual treatment types) were not influential in predicting on-probation arrests, given the bivariate relationships and prior research. The only variable related to the instant offense that proved statistically significant dealt with the offense class. Those adjudicated of 'other' offenses (ordinance or conservation violations) were over 60 percent less likely to be arrested on probation than the reference group (those adjudicated of misdemeanors) (OR = .37). For this group of minor delinquents, formal probation might be a waste of probation resources, and take probation resources away from the serious delinquents who require more intensive supervision and services.

Table 10: Model 1: Logistic Regression Results for Any On-Probation Arrest (N=630)

	B	S.E.	Wald	Odds Ratio
Race				
White (Reference)				
Non-White	0.545*	0.219	6.180	1.725
Gender				
Female (Reference)				
Male	0.233	0.228	1.046	1.263
County of Conviction				
Downstate (Reference)				
Cook/Collar	-0.142	0.216	0.432	0.868
Educational Status				
Traditional or Graduated (Reference)				
Alternative or Special Ed	0.084	0.222	0.144	1.088

Dropout or Truant	0.223	0.298	0.560	1.250
Gang Membership	0.148	0.145	1.043	1.159
Marijuana Use	0.909***	0.238	14.526	2.481
Hard Drug Use	0.250	0.352	0.505	1.284
Prior Adjudications				
None (Reference)				
One or More	0.031	0.033	0.833	1.031
Violent Offense	-0.041	0.210	0.039	0.959
Offense Class				
Misdemeanor (Reference)				
Felony	0.349	0.205	2.902	1.417
Other	-0.970*	0.412	5.560	0.379
Initial Risk Assessment				
Minimum (Reference)				
Medium	-0.457	0.277	2.718	0.633
Maximum	-0.221	0.403	0.299	0.802
Inpatient Substance Abuse	0.460	0.380	1.465	1.584
Outpatient Substance Abuse	-0.068	0.352	0.038	0.934
Inpatient Mental Health	1.116	0.752	2.205	3.054
Outpatient Mental Health	0.782*	0.319	5.998	2.185
Treatment Status				
Treatment Completed (Reference)				
Two Ordered, One Completed	-0.022	0.564	0.002	0.978
One Ordered, Not Completed	0.817**	0.276	8.790	2.264
None Ordered	0.342	0.379	0.813	1.408
Final Risk Assessment				
Minimum (Reference)				
Medium	0.868***	0.241	12.933	2.382
Maximum	1.524***	0.452	11.355	4.589
Constant	-2.366***	0.453	27.334	0.094

*$p<.05$ **$p<.01$ ***$p<.001$

The mandate that all juveniles attend school may have played a role in the lack of the educational status' predictive ability. Almost 90 percent of the sample was attending

some type of school (either traditional or alternative) or had already graduated. The remaining 10 percent, those who had dropped out or were truant, likely did not have predictive influence because of the low prevalence, and the fact that they were roughly split down the middle in terms of the presence of on-probation arrests. Furthermore, the data collection instrument did not ask about the level of attachment or achievement within the probationer's school, only the most general type of educational environment. The type of county was also roughly half and half, so no clear relationship could be established in multivariate analysis, although there was also not a statistically significant bivariate relationship with the dependent variable, which likely also played a role in the lack of predictive ability. Low frequencies in the non-significant variables likely played a role: only eight percent of the sample admitted hard drug use, and only two percent were ordered to inpatient substance abuse treatment.

Model 2, predicting violent arrests while on probation, did not perform as well as the first. Although the model was statistically significant (χ^2=80.53, 23df, p<.000), there was no increase in the number of correctly classified cases. Despite the lack of increase in correctly classified cases, the addition of the independent variables accounted for over 25 percent of the variance in violent, on-probation arrests, roughly the same amount of variance as model 1 (preudo-R^2 = .261). The low prevalence of the model's dependent variable: on-probation violent arrests, might account for the low number of variables found to be significant. Fewer than one in ten (8.8 percent) incurred an on-probation arrest for a violent offense.

The same 17 variables were tested in the second model; only six had significant results. Most predictive of an on-probation arrest for a violent crime was the result of the probation officer's final risk assessment. Those classified as 'maximum' risk were over five and a half times more likely, and those classified as 'medium' risk were over three times more likely to be arrested for a violent offense on probation than the reference group ('minimum' risk) (OR = 5.66, and OR = 3.27). These coefficients may suffer from the limitation mentioned earlier: probation officers were likely aware of any arrests of their clients, and the results of the risk assessments were probably influenced as a result. One of the components of the initial risk assessment was also significant. Surprisingly, those classified as 'medium' risk were about 70 percent less likely to be arrested for a violent offense on probation than those classified as 'minimum' risk (OR = .28).

Some of the significant factors in model 2 were similar to model 1. One aspect of the treatment completion scale was significant: those who were ordered to one modality and failed to complete it were over two and a half times more likely to be arrested for a violent offense on probation than those who completed treatment (the reference group) (OR = 2.64). Non-Whites were over two and a half times more likely to be arrested for a violent offense than Whites (OR = 2.53). Finally, those ordered to outpatient mental health were over three times to be arrested for a violent offense while on probation than those not ordered to the treatment type (OR = 3.39). Gang membership, which was not significant in model 1, was predictive of violent, on-probation arrests. Those admitting membership were almost 60% more likely to be arrested for a violent offense during

probation than those not admitting membership (OR = 1.58). Marijuana use, which was

significant in model 1, was just barely over the p<.05 threshold for statistical

significance, at p<.052.

Table 11: Model 2: Logistic Regression Results for Any On-Probation Violent Arrest (N=630)

	B	S.E.	Wald	Odds Ratio
Race				
White (Reference)				
Non-White	0.931**	0.355	6.863	2.537
Gender				
Female (Reference)				
Male	-0.144	0.391	0.137	0.866
County of Conviction				
Downstate (Reference)				
Cook/Collar	-0.452	0.349	1.678	0.637
Educational Status				
Traditional or Graduated (Reference)				
Alternative or Special Ed	0.378	0.349	1.177	1.460
Dropout or Truant	-0.276	0.526	0.276	0.759
Gang Membership	0.459*	0.204	5.086	1.582
Marijuana Use	0.760	0.391	3.766	2.137
Hard Drug Use	0.093	0.574	0.026	1.097
Prior Adjudications				
None (Reference)				
One or More	-0.028	0.058	0.234	0.972
Violent Offense	1.226***	0.331	13.687	3.408
Offense Class				
Misdemeanor (Reference)				
Felony	0.195	0.341	0.325	1.215
Other	-0.341	0.673	0.256	0.711
Initial Risk Assessment				
Minimum (Reference)				
Medium	-1.248*	0.482	6.712	0.287

Maximum	-0.664	0.604	1.207	0.515
Inpatient Substance Abuse	0.868	0.580	2.236	2.382
Outpatient Substance Abuse	-0.157	0.470	0.112	0.854
Inpatient Mental Health	1.051	0.852	1.523	2.861
Outpatient Mental Health	1.221**	0.463	6.940	3.390
Treatment Status				
Treatment Completed (Reference)				
Two Ordered, One Completed	-0.541	0.934	0.336	0.582
One Ordered, Not Completed	0.972*	0.429	5.137	2.643
None Ordered	0.928	0.620	2.241	2.528
Final Risk Assessment				
Minimum (Reference)				
Medium	1.186*	0.460	6.640	3.275
Maximum	1.734**	0.618	7.884	5.664
Constant	-4.840***	0.789	37.616	0.008

*p<.05 **p<.01 ***p<.001

Post Probation Results

The follow up data was concerned with the presence of any arrests between probation discharge in November 2000 and the end of the follow up period, November 2011, as well as the presence of arrests for violent crimes in that time period. A greater proportion of the sample was arrested in the years following probation; about two-thirds were rearrested for any crime (65.7 percent), and almost two in five (38.5 percent) were arrested for a violent crime. Although more of the sample was arrested post-probation than during probation, the logistic regression models predicting both types of post-probation arrests explained less of the variance than the on-probation arrest models. Still, the results are significant: both in the statistical sense and with regard to the value they hold for juvenile justice practitioners.

Using the post-probation arrest data as the dependent variables allows the use of the on-probation arrest data as new independent variables. Prior to inclusion in multivariate analyses, both variables were tested for multicollinearity among the rest of the independent variables. No abnormally high correlations were found; the largest correlations were between the variables measuring any on-probation arrest and treatment completion (V=.300, p<.000), and violent on-probation arrests and final risk assessment (V = .222, p<.000). Since no evidence of multicollinearity was found, the post-probation multivariate analyses included two variables previously used as dependent variables as predictors of future arrests.

A logistic regression model was created using post-probation arrests for any crime as the dependent variable, and 19 independent variables: 17 from the first two models and two additional measures (the dependent variables from the first two models). The model, while statistically significant (χ^2=82.42, 25df, p<.000), only accounted for about 17 percent of the variance in post-probation arrests (pseudo-R^2=.169), and increased correctly classified cases by just under 10 percent, from 65.4 to 71.9 percent. In contrast to the on-probation multivariate results, no part of the treatment completion scale was significant in predicting post-probation arrests.

In line with previous literature, there were differences between gender and recidivism, though there were no significant differences in the first two models. Males were over twice as likely to be arrested then females when all other factors were held equal (OR = 2.43) and according to the Wald statistic, the gender of the probationer was

most predictive of any post-probation arrest (Wald = 18.76). After gender in terms of predictive power was the county measure: former probationers adjudicated in Cook or collar counties were about half as likely to be arrested post-probation than those from other counties in Illinois (OR = .52).

A number of factors could make sense of this finding. Criminal history data concerning juveniles arrest or arrests of any persons in Chicago are not always uploaded to the CHRI system correctly. Juveniles in Chicago might be subject to this issue in two ways, which would influence the rate at which the current study's data indicate recidivism. Finally, since this study concerns juveniles, station adjustments or other informal processes (that may not be uploaded to the CHRI system) could influence the final recidivism variables.

Probationers reporting marijuana use at probation intake were about 60 percent more likely to be arrested post-probation than those who did not report any use at intake (OR = 1.58). According to the Wald statistic, the marijuana use variable was least influential of the statistically significant variables, though this finding does lend support to the notion that marijuana use, especially during one's formative years, can have long-term negative consequences (Wald = 3.82). Reporting hard drug use did not seem to have value in predicting arrests post-probation.

The inclusion of both types of on-probation arrests as independent variables yielded interesting results. Those arrested during probation (for any offense) were almost twice as likely to be arrested post-probation than those who were not arrested during

probation (OR = 1.95). The presence of an on-probation arrest for a violent crime was not predictive of any post-probation arrest, likely because of the small percentage of probationers arrested for violent crimes during probation (8.8 percent). In line with the literature review, these simplified measures of criminal history were found to be predictive of new arrests. The other measures of criminal behavior, prior adjudications, violent offense, and offense class were not predictive of future arrests.

Finally, neither race, educational status, gang membership, initial risk assessment, final risk assessment, nor the degree of treatment completion were found to be predictive of any post-probation arrests when all other factors were held equal. Both post-probation models were run with and without the specific treatment type variables, and their inclusion or exclusion did not change the results.

Table 12: Model 3: Logistic Regression Results for Any Post-Probation Arrest (N = 630)

	B	S.E.	Wald	Odds Ratio
Race				
White (Reference)				
Non-White	0.296	0.217	1.869	1.345
Gender				
Female (Reference)				
Male	0.889***	0.205	18.760	2.432
County of Conviction				
Downstate (Reference)				
Cook/Collar	-0.648**	0.211	9.413	0.523
Educational Status				
Traditional or Graduated (Reference)				
Alternative or Special Ed	0.208	0.218	0.912	1.231
Dropout or Truant	0.523	0.319	2.682	1.687

Gang Membership	0.007	0.153	0.002	1.007
Marijuana Use	0.463*	0.236	3.826	1.588
Hard Drug Use	-0.183	0.376	0.237	0.833
Prior Adjudications				
None (Reference)				
One or More	0.056	0.036	2.408	1.058
Violent Offense	0.044	0.204	0.046	1.045
Offense Class				
Misdemeanor (Reference)				
Felony	-0.108	0.204	0.278	0.898
Other	0.032	0.327	0.010	1.033
Initial Risk Assessment				
Minimum (Reference)				
Medium	0.078	0.253	0.095	1.081
Maximum	0.254	0.412	0.381	1.289
Inpatient Substance Abuse	0.284	0.428	0.440	1.329
Outpatient Substance Abuse	0.061	0.356	0.029	1.063
Inpatient Mental Health	-0.197	0.754	0.069	0.821
Outpatient Mental Health	-0.281	0.321	0.765	0.755
Treatment Status				
Treatment Completed (Reference)				
Two Ordered, One Completed	-0.624	0.577	1.171	0.536
One Ordered, Not Completed	0.199	0.300	0.440	1.220
None Ordered	0.071	0.361	0.038	1.073
Final Risk Assessment				
Minimum (Reference)				
Medium	-0.032	0.230	0.019	0.969
Maximum	0.251	0.505	0.247	1.285
On-Probation Arrest	0.672**	0.234	8.251	1.957
On-Probation Violent Arrest	0.128	0.405	0.101	1.137
Constant	-0.493	0.417	1.395	0.611

*p<.05 **p<.01 ***p<.001

Finally, a logistic regression model was run using the dependent variable of any post-probation violent arrest; the results were similar to model 3. The model, while

statistically significant (χ^2 = 79.85, 25df, p<.000), only accounted for about 16 percent of the variance in post-probation violent arrests (Nagelkerke pseudo-R^2 = .162), and only improved the classification of cases by about 10 percent over the constant-only model. Minorities were about 85 percent more likely to be arrested for violent crimes post probation than Whites, and males were about twice as likely to be arrested post-probation for a violent crime than females (OR = 1.85 and 2.05, respectively). Those arrested (for any crime) while on probation were about 1.7 times more likely to be arrested for a violent crime during the follow up period, although the presence of an on-probation violent arrest was not significant in predicting a violent arrest in the follow up period.

Those on probation in Cook and the collar counties were almost 40 percent less likely to be arrested for a violent crime than those from other areas of Illinois after probation discharge (OR = .62). Only one variable serving as a proxy for criminal history proved significant: those originally sentenced to probation for a violent offense were 50 percent more likely to be arrested for a violent offense post-probation than those sentenced to probation for a non-violent offense. This was the only model in which the violent offense variable was significant.

Much like model 2, predicting on-probation violent arrests, most variables were not predictive of post-probation violent arrests. Educational status, gang membership, drug use, prior adjudications, offense class, individual treatment orders, treatment completion, and results of risk assessments had no value in the prediction of post-probation arrests for violent crimes.

Table 13: Model 4: Logistic Regression Results for Any Post-Probation Violent Arrest (N=630)

	B	S.E.	Wald	Odds Ratio
Race				
White (Reference)				
Non-White	0.619**	0.208	8.869	1.857
Gender				
Female (Reference)				
Male	0.722***	0.223	10.465	2.058
County of Conviction				
Downstate (Reference)				
Cook/Collar	-0.465*	0.210	4.910	0.628
Educational Status				
Traditional or Graduated (Reference)				
Alternative or Special Ed	0.261	0.208	1.564	1.298
Dropout or Truant	0.294	0.282	1.089	1.342
Gang Membership	0.186	0.141	1.751	1.205
Marijuana Use	0.187	0.229	0.669	1.206
Hard Drug Use	-0.264	0.364	0.525	0.768
Prior Adjudications				
None (Reference)				
One or More	0.037	0.031	1.413	1.038
Violent Offense	0.410*	0.199	4.234	1.506
Offense Class				
Misdemeanor (Reference)				
Felony	0.252	0.195	1.668	1.287
Other	0.119	0.334	0.128	1.127
Initial Risk Assessment				
Minimum (Reference)				
Medium	-0.133	0.255	0.269	0.876
Maximum	0.456	0.372	1.500	1.578
Inpatient Substance Abuse	0.634	0.389	2.658	1.885
Outpatient Substance Abuse	-0.128	0.333	0.148	0.880
Inpatient Mental Health	-0.123	0.713	0.030	0.884
Outpatient Mental Health	-0.096	0.304	0.100	0.908

Treatment Status				
Treatment Completed (Reference)				
Two Ordered, One Completed	-0.790	0.613	1.664	0.454
One Ordered, Not Completed	0.312	0.272	1.310	1.366
None Ordered	0.295	0.349	0.713	1.343
Final Risk Assessment				
Minimum (Reference)				
Medium	0.160	0.225	0.504	1.173
Maximum	-0.424	0.419	1.027	0.654
On-Probation Arrest	0.532*	0.214	6.162	1.702
On-Probation Violent Arrest	0.199	0.337	0.348	1.220
Constant	-2.037***	0.426	22.860	0.130

*p<.05 **p<.01 ***p<.001

CHAPTER THREE:

DISCUSSION AND CONCLUSIONS

One of the primary reasons for conducting this study was to present a more complete picture of the juvenile probation system in Illinois. In contrast to correctional agencies, which regularly publish and use recidivism figures as a performance indicator, Illinois' juvenile probation departments do not seem to make any figures available regarding the efficacy of programs or outcomes of those under supervision. This may be due in part to the administration of probation (both juvenile and adult) at the county, rather than the state level, which likely makes standardized reporting by the State an unenviable task.   Nevertheless, just analyzing one month's worth of discharge data provided insights into the functioning and effectiveness of juvenile probation in Illinois. Matching probationer information to any criminal history records in the decade since discharge adds even more value to the current research, providing a long-term view of the effects probation supervision had on the individual.

The analyses also provide a baseline of juvenile probation practices in Illinois prior to substantive reforms. In the late 1990s and early 2000s, juvenile justice practice and probation in Illinois began incorporating balanced and restorative justice principles, standardized risk assessment tools, and the use of and training of probation officers in evidence-based practices. Further, in 2003, Illinois implemented Redeploy Illinois, an effort to divert youth from prison and provide access to treatment services in the community. Thus, the findings presented here can be viewed as the outcome of juvenile

probation sentences prior to these substantive changes, and can be used in future outcome assessments of juvenile probation in Illinois to gauge the impact of these reforms.

According to probation officer's files, about 36 percent of the sample was arrested while under supervision. One of the research questions asked at what rate juvenile probationers recidivated after probation discharge. Matching subsequent criminal history records indicated that between 27 and 50 percent were re-arrested after discharge from probation (1 and 3 year follow up, respectively), and that almost two-thirds (65.7 percent) were arrested in the 11 years since probation discharge. The review of literature highlighted the myriad definitions, follow up periods, and jurisdictional challenges ingrained in the measurement of juvenile recidivism, and as such, it would be unwise to extrapolate anything based on the figures obtained here, or to compare them to other jurisdictions.

The answer to the second research question, concerning the individual and legal factors predictive of new arrests, differs based on the time period and types of arrests being examined. Certain probationer and legal characteristics were significant in predicting new arrests in each time period, although they differed in size, strength and significance. The literature seemed split on the role of race in recidivism. The logistic regression results from this sample indicate that non-Whites are in fact more likely to be arrested than Whites, a finding that was predictive in three of four models, and one that is in line with most literature that posits minorities as most at risk of recidivism. This was found despite the demographics of the Chicago area and inconsistencies in reporting of juvenile arrests. As mentioned earlier, not all juvenile arrests are entered into the CHRI

system, nor are all Chicago arrests. Since Chicago has a larger minority population than many other areas of the state, the follow up data may not have identified subsequent arrests of minority youth in Chicago. Despite this issue, minorities were still found be more at risk of arrest in a majority of the models; it would not be surprising if their actual rate of re-arrest (assuming improved data reporting) were even higher.

For the most part, only the results of the probation officer's final risk assessment were predictive of arrests during probation. The result of the probation officer's final risk assessment was a good measure of on-probation arrests: those classified as 'medium' or 'maximum risk were more likely to be arrested than those classified as 'minimum risk, though the assessment may have just combined the juvenile's previous offense, drug, and/or gang history to arrive at the risk level. Furthermore, the assessment was most likely influenced by the probation officer's knowledge of any arrests during supervision. The assessment instrument did not, however, have any value in predicting post-probation arrests. This could be considered evidence that the juvenile psyche is still developing, and that those considered being at high risk for re-offending can still turn their lives around.

Consistent with the literature, males were about twice as likely to be arrested, although this was only significant in the two post-probation models. Reporting marijuana use was another variable significant in both the original and follow up data: those reporting use were about two and a half times more likely on probation and about one and a half times more likely to be arrested post-probation than those who did not report any use. Gang involvement was also predictive of new arrests, although only in model 2,

predicting arrests for violent offenses during probation. Those reporting gang membership were about 60 percent more likely to be arrested for a violent offense during probation than those who did not. This could be the result of supervision methods within probation departments. Youth reporting gang membership or affiliation could be subject to more intensive supervision, which could lead to arrests for delinquent acts that might have gone undetected if gang membership were not reported.

Highly predictive of post-probation arrests was the presence of any on-probation arrests (whether violent or not). Those arrested while on probation were between 70 and 95 percent more likely to be arrested post-probation. The presence of an on-probation arrest was the only non-demographic predictor that was significant in the follow up models (aside from a violent original offense).

The main goal of the current study is to examine the overall effect of treatment compliance with the short and long-term outcomes of juvenile probation. Although no statistically significant relationship between overall treatment compliance and post-probation recidivism was found, it is possible that if compliance with specific types of treatment orders, such as substance abuse treatment, were examined, or the degree of treatment matching (i.e., those in need ordered to treatment), that findings more consistent with the literature on treatment effectiveness would have been revealed.

Despite the results of the logistic regression models, it could be argued that those who completed treatment had better long-term outcomes than those who did not. Those who did not complete their treatment requirements were about two-and-a-quarter times more likely to be arrested for any offense while on probation than the reference group -

those who completed treatment requirements (OR=2.26). Those who did not complete their treatment mandate were also over two-and-a-half times more likely to be arrested for a violent offense while on probation than the reference group, those who completed all treatment mandates (OR=2.64). Unfortunately, the treatment completion scale held no predictive ability in models 3 or 4, which concerned post-probation arrests, but a connection might still be made between treatment completion and long-term recidivism.

Probationers who completed treatment were less likely to be arrested in the short-term, but no significant results were found using the long-term recidivism measures. Those arrested in the follow-up data were almost twice as likely to have been arrested on probation, suggesting an indirect link between treatment completion and long-term success facilitated by on-probation arrests. Probationers with treatment requirements hanging over them, as well as the inclination to take them seriously (whether from parental or probation officer monitoring), likely had fewer opportunities to associate with delinquent peers or engage in the activities which resulted in the original probation sentence. In turn, these probationers were not arrested as much as those without treatment orders or those who disregarded theirs, and those not arrested on probation were less likely to be arrested in the follow up data. Further evidence can be gleaned from the relationships between treatment types and recidivism measures: few were related to recidivism, and none had stronger relationships than the treatment completion scale. This suggests that the type of treatment is not as important as either the presence or completion of treatment orders.

The first of two hypotheses presented posited that some probationer-level characteristics and legal variables would be influential in predicting new arrests, and it should be considered confirmed. In both the bivariate and multivariate analyses, many factors were found to be related to recidivism. The most influential were race, gender, gang membership, on-probation arrests and marijuana use. Although these were powerful in the multivariate analyses, the best of the four models created only explained about 27 percent of the variance in recidivism, suggesting that the inclusion of other variables could result in increased predictive ability. Subsequent studies of juvenile probationers should strive for more information on probationers and their families, as well as an effort to gather more complete data.

The second hypothesis argued that treatment orders and treatment completion would play a role in both short and long-term recidivism. The results of this hypothesis are a bit more complex than the first, but could be considered confirmed. Some specific treatment types were related to short-term recidivism (in the bivariate analyses), but the degree of completion was much more predictive when all other factors were held equal. Regarding long-term recidivism, the effect of treatment completion is not so clear. However, as discussed above, highly predictive of post-probation arrests are any on-probation arrests, of which treatment completion was predictive. In circuitous route, yes, treatment completion is predictive of post-probation arrests.

Implications

The current study expanded on previous juvenile recidivism studies with an extended follow up period of 11 years. Inherent in this type of study are implications for

the operation of the juvenile probation system in Illinois. First and foremost, the current

study confirmed the findings of numerous previous studies: certain offender

characteristics seem to be universally predictive of recidivism. Variables measuring

gender, race, drug use, and the results of risk assessment tools were most predictive of

recidivism. Given the racial makeup and data reporting issues in Chicago, and

subsequent effects on the recidivism rates, it might be prudent to assume the role race

plays in juvenile recidivism in Illinois is even greater than the one reported here.

Probation officers and other juvenile justice practitioners, if they are not already,

should be aware of these baseline risk factors and their potential influence on the success

or failure of those under their supervision. For instance, juveniles adjudicated of minor

crimes ('other' in the offense class variable) are at a much lower risk for reoffending

when all other factors are held equal, and might benefit from less formal supervision

resources; those adjudicated of more serious offenses might also benefit from the

increased resources available to meet their needs. On the other hand, probationers

admitting marijuana use should be afforded an extra sliver of supervision resources, as

this study indicates they are at increased risk for both on-probation and post-probation

arrests. Although society in general is taking a more accepting view of marijuana use,

the results of this study indicate the negative effects on involvement with the juvenile

justice and criminal justice systems.

Also important for the operation of juvenile justice agencies is the effect of

treatment completion on recidivism, which might occur in an unexpected way. Although

only found in the on-probation models, those who did not complete treatment were about

three times more likely to be arrested on probation than those who did, and it was

estimated that those arrested on probation were almost two times as likely to be arrested

after discharge from probation. Probation officers should be aware that individual

treatment modalities may have less of an impact on the probationer than the obligation of

a court mandate. Effectively forcing young people to engage in treatment through the

mandate might have an ancillary effect of instilling a sense of responsibility and

commitment – traits which are undoubtedly present in adults not engaged in criminality.

That is not to say that all juvenile probationers need to be mandated to some type of

treatment to ensure future success: those not ordered to treatment were not found to be at

higher risk of recidivism in any of the four models when all other factors were held equal.

In an era of meager government funding, juvenile justice is an institution that

cannot afford wasted efforts and misused resources. Yet the mandate for community

protection and effective rehabilitation of juvenile delinquents remains unchanged, if not

increasing in importance. In order to do more with less, juvenile justice agencies should

be aware of the factors that contribute to the successes and failures of those under their

supervision, and ensure that their mandate is fulfilled effectively.

Limitations

In any study, there are going to be limitations and methodological issues that can

undermine the analysis; the current study is no different. First, the information collected

as part of the 2000 Illinois Juvenile Probation Outcome Study came from probation

officer case files. If information about a particular variable in the data collection

instrument was unknown or unavailable to the officer, or the instrument did not

encompass all possible answers, subsequent analysis could be flawed due to missing or inaccurately recorded information. Similarly, some of the information from officer files likely came from self-reports by the probationer themselves, who may not always be truthful. For example, most assessments of prior substance use or abuse require the disclosure of that behavior from the probationer, who may not be forthcoming given their involvement in the justice system. Additionally, the procedure used to match probationers with their criminal history may not be perfect, especially if some probationer identifiers were missing or incorrect.

Although the matching procedure used to identify criminal history record information after probation discharge used a number of identifying characteristics (first and last name, date of birth, race, and gender), it is possible that some cases slipped through the cracks. Former probationers may have moved, died, used aliases or alternate dates of birth in subsequent arrests, or in the case of female probationers, changed their names, all of which could affect the matching procedure with the criminal history record information (CHRI) system, and subsequent recidivism analyses.

Another issue that could present itself deals with the processing of juveniles by law enforcement agencies. Juveniles could have future delinquent acts resolved by station adjustments or other diversionary measures, which might not be reported to the CHRI system (ICJIA, 2009). Former probationers that appeared to be at risk of future criminal behavior because of demographics or treatment compliance might not match with any re-arrest data (at least as a juvenile) from the CHRI system. Younger probationers might have more time to reoffend and have the matter not go 'on the

record', or avoid arrest because of their age. Almost three-fourths (74.3 percent) of the sample was under 17 at discharge, so there is the potential for delinquent acts to go under reported.

Furthermore, while felony arrests must be submitted to the Illinois State Police, misdemeanors may not be submitted, which could result in decreased recidivism rates if some of the sample was arrested for misdemeanor crimes (ICJIA, 2011). Finally, personal communications with ICJIA staff have uncovered the fact that arrests of juveniles by the Chicago Police Department are not always uploaded correctly to the CHRI system. This wrinkle in reporting juvenile arrests has the potential to greatly influence the results of the current study: the analyses show that Chicago or Cook County youth are less likely to be arrested when in fact it is the result of reporting deficiencies. It was hoped that the extended follow up period mitigated the above concerns, since all of the sample will have entered adulthood in the eyes of the criminal justice system, where reporting of arrests is more standardized than as juveniles.

Finally, the statistical technique used in the current study may have masked the degree to which treatment completion and other factors affected recidivism. A different technique, like survival analysis, might have shown the benefits of treatment completion in a different light – those completing treatment might have longer times to arrest than those who did not. Survival analysis could also be used to discover the length of post-probation time that treatment completion could be considered effective. The current study does not differentiate between a new arrest on the first day or the last day of the follow up period, something that subsequent research could benefit from.

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