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Examining the Criminogenic Effect of Imprisonment on Drug Offender Recidivism

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Abstract

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MS, Florida State University, 2008

BS, Mansfield University, 2005

Dissertation Submitted in Partial Fulfillment

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Abstract

Studies have found criminogenic consequences of imprisonment when testing the deterrence hypothesis, yet few studies were found that examined the magnitude of post release criminal offenses among the drug offender population. The specific deterrence and criminogenic effects of imprisonment were the theoretical frameworks that guided this study of Harris County, Texas, to determine if incarceration predicted serious reoffending among low-level drug offenders. A Journal of Science and Law (Scilaw) archival dataset based on Harris County court records was used to build the sample. Chi-squared test of association and logistic regression statistics were used to analyze a sample of first-time drug offenders, $N = 11,077$, tracked from 1992-2012. Crosstab results found a significant, $p < .05$, association between punishment and criminal class of new charges and no significant association between punishment and violence type of new charges. Yet, two logistic regressions found that sentencing, race, age, and gender significantly, $p < .05$ contributed to both the class of new charges and type of new charges with respective pseudo R-squares of .105 and .048. Imprisonment adversely affected drug offender recidivism. Findings from this study add empirical evidence to the public policy debate on the use of imprisonment as a deterrence tool for drug offenders. This is a failed strategy, as imprisonment may not cause a reduction in felony or violent reoffenses. Reducing incarceration rates for drug offenders using newer tools such as drug centers may be a more appropriate public policy and social justice approach.

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Dedication

I would like to dedicate this to my family and friends who have supported me throughout this long scholarly journey. A very special thanks to my father, Stephen, and my mother, Celeste, for always being there for me and believing in me, even when I lost faith in myself. To my loving sister, Lindsey, who inspired me to go to graduate school and finish my doctorate. Thank you, Mom, Dad, and Lindsey, so much for your resilience in pushing me to keep going, your guidance, and your unwavering support.

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Chapter 1: Introduction to the Study

Introduction

Incarceration is the primary weapon in America's drug war. Since the sentencing policy reforms of the 1980s and 1990s, people who get involved with drugs have a higher likelihood of going to jail or prison and for longer sentences (Pew Center of States, 2011). Tonry (1995) asserted that deterrence-based drug sentencing policies were the heaviest contributor to the problem of mass imprisonment in the United States. The number of people imprisoned for drug offenses rapidly increased because of the *get-tough* sentencing policies (The Sentencing Project, 2018). According to the most recent Bureau Justice of Statistics (BJS) inmate data, federal prisoners convicted of drug crimes rose from 4,700 in 1980 to 81,900 in 2016; state prisoners from 19,000 to 197,200, and jail inmates increased from 17,200 to 171,245 during the same time, respectively (Carson & Anderson, 2018). Many of these people housed in prisons and jails are low-level drug offenders with no prior record of violent criminal behavior (The Sentencing Project, 2018).

Most drug sentencing policies in the United States are built on the get-tough rhetoric modeled after the deterrence ideology. Evidence supports this by examining the incarceration rate in the United States when compared to the rates of other nations. Due to decades of fighting the war on drugs, the United States has the highest incarceration rate in the world (The Sentencing Project, 2018; Walmsley, 2018). For every 100,000 people, America incarcerates at a rate of 670, then Rwanda at 434, Russia at 413, Brazil at 325, Australia at 167, Spain 126, China 118, and Canada 114 (Walmsley, 2018). For

over a decade, the United States has held 25% of the world's prisoners and only 5% of the world's population (Hawkins, 2010; Walmsley, 2018). Housing drug offenders together with violent offenders in prisons and jails can produce collateral consequences when the individual is released back in the community (Travis, 2005). There is a gap between the intended deterrent effect of severe drug sentencing policies and the unintended criminogenic outcomes empirically found in 20 years of recidivism studies (Bales & Piquero, 2012; Durose, Cooper, & Snyder, 2014; Hutchinson, 2006; Mauer, 2009; Mitchel, Cochran, Mears, & Bales, 2017b; Spohn & Holleran, 2002; Spohn, 2007; Stemen & Rengifo, 2011; Sung, 2003).

Drug crimes plague the entire criminal justice system from policing, courts, and corrections with arrests, convictions, prison admissions, and recidivism rates (Bureau of Prisons, 2015; Duke, 2010; Durose et al., 2014; The National Center on Addiction and Substance Abuse, 2010; The Sentencing Project, 2015). The United States has over 2 million people in prison, and approximately half a million are incarcerated for drug offenses (Carson, 2018). Approximately one-third of the world's female prisoners are housed in U.S. correctional institutions, largely due the rise of female drug offenders (Kajstura, 2018). Not only are more people being arrested and housed in correctional facilities for drug crimes, but mandatory minimums and other harsh prison sentences increase the length of which they stay. Before the declared drug war in 1986 and major policy reforms, the average time in federal prison for a drug offense was 22 months, compared to a 62-month average stay recorded in 2004 (Carson & Anderson, 2018).

America has not solved its drug dilemma through mass incarceration, and some argue that the war on drugs does more harm than good (Drug Policy Alliance, 2016).

Using archival data from the Journal of Science and Law (Scilaw), collected from Harris County, Texas court records, I examined imprisonment's impact on drug offender recidivism outcomes. Adapting the concept of severe punishment in the specific deterrence and criminogenic hypotheses, felony and violent new charges were used as recidivism outcomes to analyze the imprisonment and reoffending theories. The criminogenic effect contradicts the deterrent effect intended through drug policy to dissuade future criminal acts of those who have experienced a severe sanction like imprisonment (Gendreau, Coggin, & Cullen, 2013). Few studies assessed the severity of such future criminality and explored any impact of incarceration on classes and types of crimes post sentencing (Cohen, 2000; Delisi, 2003; Durose et al., 2014; Mueller-Smith, 2015).

Recidivism for drug offenses, often creating more dangerous criminals, is a concept Stevenson (2011) referred to as *worsen recidivism.* Mueller-Smith (2015) claimed that "Few studies consider the ramifications or measure the magnitude of post release criminal behaviors" (p. 5). The potential social change implications for my study can either provide some empirical support for the widespread use of incarceration in drug sentencing policy with the outcomes being lesser new offenses compared probation or the results could elaborate on the criminogenic hypothesis by predicting the likelihood of more serious crimes.

I assessed the criminogenic effect against the deterrent effect of imprisonment on a Harris County sample of first-time drug offenders built from Scilaw's (2015) charge-based dataset. Scilaw obtained criminal charges from the Harris County Court House in Texas; and established a large data source that permits recidivism research on multiple types of crimes (Haarsma, Davenport, Ormachea, & Eagleman, 2016; Ormachea, Haarsma, Davenport, & Eagleman, 2015). Thousands of drug cases were sentenced to jail, prison, probation, deferred adjudication of guilt, etcetera from 1992-2012 (see Table 1A in Appendix) and had alphanumeric unique recidivism identifiers in place of the offender's name in order to track new charges (Ormachea et al., 2015). Scilaw created these data files for empirical research and the codebook and datasets are publicly accessible. The data analyzed to answer my research questions is described in more detail in Chapter 3.

This chapter includes the background of how drug sentencing policies have heavily contributed to mass imprisonment; the problem of criminogenic consequences unexplored in current literature, and the purpose of informing drug policy makers how incarceration may or may not be an effective deterrent in reducing recidivism outcomes. The research questions and hypotheses of the deterrence and criminogenic effects are discussed in addition to the nature of this study. The scope of this study and the various limitations when using secondary data to study recidivism among a specific type of offender are also laid out. The significance of examining the imprisonment and reoffending relationship among a sample of first-time drug offenders are elaborated on. A

summary of this chapter concludes this section before moving on to the literature review in Chapter 2.

Background

The prison population grew from a total of 500,000 prisoners in 1980, to 2.3 million people incarcerated by 2010 (Guerino, Harrison, & Sabol, 2011; Hawkins, 2010). Incarcerating over 2 million people should have resulted in a dramatic drop in both crime rates and new prison admissions, but this was not the case (Duke, 2010). Instead of a dramatic decline of people behind bars, incarceration quadrupled (Travis, 2008) with drug sentencing policies directly increasing incarceration rates, contributing to overcrowding prison and jail conditions, and recycling more people in and out of the criminal justice system (Green & Winik, 2010; Mauer & King, 2007; Shannon et al. 2017). Ormachea et al. (2016) asserted that incarceration is potentially criminogenic because it removes a person's citizenship, fails to treat or educate, has social costs to people's community, and increases the risk for reoffending.

Over 1 trillion dollars has been allocated to fight America's war on drugs (Jarecki, 2012). U.S. Attorney General Holder, and the Director of The Sentencing Project Mauer agreed that imprisonment has been too heavily relied upon when there are less expensive and more effective alternatives in drug sentencing policies (Appuzo, 2014; Cook, 2017; Matthews, 2013; Mauer & McCalmont, 2013). The country's punitive response through deterrence ideology has not produced the intended outcomes of reducing drug use and drug-related crime when measuring recidivism for this type of offender (Durose et al., 2014; Mueller-Smith, 2015). The problem of escalated drug use is evident in the current

opioid crisis (Barry & Frank, 2019). According to the Drug Policy Alliance (2016), almost 50,000 people died from drug overdose in 2014 and heroin use went up 186% during the 5-year period of 2010-2015.

Shannon et al. (2017) estimated that there are approximately 19 million people in the United States with a felony record. Since not every state reports their criminal justice statistics to the BJS, it is not possible to know the exact number of people who are convicted drug felons in the United States. A special report on the type of convictions for state prisoners identified, "Among the 404,638 prisoners released in 30 states in 2005, 31.8% were in prison for a drug offense, 29.8% for a property offense, 25.7% for a violent offense, and 12.7% for a public order offense," (Durose et al., 2014, p. 6). There are millions of Americans who have been criminally labeled as a convicted drug felon and housed as an inmate while waiting for trial or sentencing for drug-related charges (Alexander, 2012).

In 2007, 1.8 million arrests were made for drug offenses, more than any other offense category; and over 80% were for possession charges (BJS, 2012). In 2013, approximately 46% of all arrests for drug abuse violations were for possessing, manufacturing, and selling marijuana (Uniform Crime Report, 2015). According to the Addiction Center (2018), marijuana largely explains the increase in rates of illegal drug use in the United States because about 7,000 people try marijuana for the first time daily. The consensus on the topic of drug policy sentencing is that incarcerating low-level drug offenders has not only failed to address America's drug problem and deter crime (Alexander, 2012; Drug Policy Alliance, 2016; Stevenson, 2011; The Sentencing Project,

2015), but evidence suggests that drug offenders are more prone to the criminogenic effects of incarceration (CASA, 2012; Green & Winik, 2010; Mauer & King, 2007; Shepherd, 2006; Spohn, 2007; Stemen & Rengifo, 2011; Sung, 2003).

Studies report that incarcerated drug offenders have a higher frequency and have a higher estimated probability for recidivism compared to those who received a nonincarceration sentence (Gendreau et al., 2013; Spohn & Holleran, 2002; Sung, 2003). Another study found that imprisoned drug offenders reoffended at a faster rate when compared to probationers and other types of offenders, regardless of their stakes in conformity or social bonds to conventional society (Spohn, 2007). Much of research supports that treatment reduces the likelihood of drug abuse, whereas education and job training reduces the financial strain to sell drugs (Justice Policy Institute, 2009), but incarceration tends to be a significant predictor for recidivism (Bewley-Taylor et al., 2009; CASA, 2010; Cutler, 2009; Green & Winik, 2010; Mauer, 2009; Pritikin, 2009; Przybylski, 2009; Stevenson, 2011). Mueller-Smith (2015) found that incarceration increased the frequency and severity of recidivism among a sample in Harris County, Texas and noted that those imprisoned were less employable and more likely to depend on public assistance.

Most recidivism research focuses on recidivism rates and timing until next offense; however, this study filled in the gap in literature by measuring the severity of post imprisonment recidivism outcomes using a specific target population of those initially charged with drug offenses. I explored the relationship between sentencing severity and recidivism severity using statistical analyses with hypotheses testing. The

relevant variables were present in this archived data to test whether the criminogenic effect of imprisonment increased the likelihood of more serious new offenses or if there is any support for the deterrent effect in drug sentencing policies, with lower odds of serious reoffending. Proponents of specific deterrence hypothesized that the convicted drug felons sentenced to incarceration will be less likely to commit serious new offenses after release (Bales & Piquero, 2012). On the other hand, the criminogenic effect of imprisonment found in previous research (Mitchell, Cochran, Mears, and Bales, 2017a; Pritikin, 2009; Spohn & Holleran, 2002, Sung, 2003) may explain any worsen recidivism outcomes with higher odds of violent and felony new crimes.

According to the Office of National Drug Control Policy (ONDCP, 2013), criminal justice reforms based on empirical research studies are needed to decrease prison growth and lower correctional costs to state budgets, while also maintaining public safety and treating the underlying causes of addiction. Success in deterring crime is not solely based on decreasing the number of America's prisoners, but more about reducing recidivism outcomes (Wolff, 2006); whether the studies find lower rates, delays in timing, or less serious offenses (Paternoster & Piquero, 1995). The purpose of this study was to determine if imprisonment impacted the seriousness of the drug offenders' recidivism outcomes and if so, to what extent. It is important to explore the impacts of incarceration on this type of offender and contribute empirical findings to the drug policy debate (Nagin, Cullen, & Jonson, 2009).

Any adverse effects of imprisonment on drug offenders' recidivism outcomes are important to investigate because once a person experiences incarceration, their risk for

recidivism increases (CASA, 2012; Mueller-Smith, 2015; Travis, 2008). While Mitchell et al. (2017a) found that incarcerating a sample of felony offenders in Florida had no significant benefits, they also reported that males may be more prone to the criminogenic effect of prison with higher likelihoods of recidivism than females. The Pew Center for States (2011) reported that approximately four out of 10 people released from prison are reincarcerated within 3 years. Another report from the BJS found that roughly three out of four drug offenders released from state prisons recidivate within 5 years (Durose et al., 2014) and the cycle of reincarceration continues. Despite the ongoing drug dilemma, there is little current research focusing on the severity of recidivism outcomes among low-level drug offenders (Durose et al., 2014; Mitchell, Cochran, Mears, & Bales, 2017b) and only a couple older studies were found that described the recidivism outcomes among this type of offender (Cohen, 2000; Delisi, 2003). Virtually no current research was found, which, examined the concept of worsen recidivism using the criminogenic hypothesis among first-time drug offenders.

Problem Statement

Over the last few decades, people who violate drug law policies have become the fastest growing sector of the inmate population. The Center on Addiction and Substance Abuse (CASA, 2010) reported that from 1996-2006 the drug inmate population increased 43%, as 1.9 million people were arrested for illegal drug-related crimes. The BJS reported that in 2010, drug offenders still represented 51% of all federal inmates and almost one quarter of all state prisoners. By 2011, over 500,000 Americans were incarcerated for drug crimes in federal, state, local correctional facilities, and in private

prisons (The Sentencing Project, 2012), with many prisoners classified as low-level drug

offenders (Alexander, 2012). With the current opioid crisis in the America, people who

use and sell prescription drugs illegally, are also contributing to the flooding of drug

offenders in prisons and jails (National Institute on Drug Abuse, 2019).

Drug offenders are a high-frequency group who continue to be recycled in and out

of prisons and jails. By the end of 2013, there were 98,200 people in federal prisons,

210,200 people in state prisons, and another 180,600 people in jails (Carson, 2014; Glaze

& Kaeble, 2014). Moreover, prison sentences greater than 1 year and less than 5 years

have been greatly increased by year end of 2013 (Carson, 2014), a sentence typically

given to low-level drug offenders. The Sentencing Project (2015) reported that there were

still almost half of all federal prisoners incarcerated for drug-related offenses by the end

of 2013 and that state prisoners increased 13-fold for drug crimes. A more recent report

released in 2018 by the BJS saw a slight drop in the percentage of state prisoners in 2015

as drug offenders made up 15.2%, but in 2016, drug offenders made up 47.5% of all

federal inmates (Carson, 2018). One Texas study examined incarceration's impact on the

labor market and criminal behaviors and concluded that incarceration leads to increases

in frequency and severity of recidivism and "worsens the labor market outcomes"

(Mueller-Smith, 2015, [abstract]). This evidence suggests sending a mass amount of

people to prison for drug offenses may not be effective and even counterproductive in

various ways.

When addressing the *Global Commission on Drug Policy*, Stevenson (2011)

contended, "Incarceration of low-level drug offenders has criminogenic effects that

increase the likelihood of recidivism and additional criminal behavior," (p. 2) and used

the term worsen recidivism to describe the impact of harsh punishment on this type of

offender. Paternoster and Piquero (1995) defined specific deterrence as "when those who

have been punished cease offending, commit less serious offenses, or offend at lower

rates because of fear of future sanction" (p. 251). Spohn and Holleran (2002) found that

drug offenders sentenced to prison were less likely to cease in reoffending and

recidivated at a higher rate. The current study examined the imprisonment and

reoffending relationship to determine if incarcerated drug offenders committed less

serious offenses as specific deterrence theory would suggest, with quantitative methods.

There is a gap in the literature of evaluating the magnitude for post release

criminal behaviors (Mueller-Smith, 2015) among first-time drug offenders. In drug policy

research, most studies focus on the benefits of rehabilitation and use interval level data

(recidivism rates and timing) to predict what intervention decreases the likelihood of

crime (CASA, 2012; Cutler, 2009; Przybylski, 2009; Spohn & Holleran, 2002; Stemen &

Rengifo, 2011; Sung, 2003). Out of the 99 recidivism studies from 1995-2009 in all 50

states and the District of Columbia, no analyses were conducted on how prison increases

crime, specifically among a sample of first-time drug offenders (The Sentencing Project,

2010). The problem is that the concept of worsen recidivism among drug inmates is not

explored through quantitative analysis. I addressed the gap by examining the impact of

incarceration on this concept of worsen recidivism through a criminogenic lens. I did this

by calculating the likelihoods and odds of felony and violent new charges of those first-

time drug offenders sent to prison and compared the outcomes to those sent to probation. The gap in literature lead to the purpose of this study.

Purpose of the Study

The purpose of this research was to explore the impact of imprisonment on drug offender recidivism outcomes using hypothesis testing with quantitative analyses. The intent of this study was to determine if severe punishment (in other words, incarceration) was associated with and predicted the outcomes of severe reoffending, (in other words, worsen recidivism) through chi-squared test and logistic regression. Each research question based on the specific deterrent and criminogenic theories predicted how incarceration impacted the likelihood of recidivism severity among first-time drug offenders charged in Harris County, Texas from 1992-2012 (see Ormachea et al., 2015). Quantitative analyses were performed to determine if the specific deterrence effect, the criminogenic effect, or the null effect, explained the relationship between imprisonment and reoffending among a sample based on information gathered from Harris County Court records (see Haarsma et al., 2016; Ormachea et al., 2015). The information also included the person's race, gender, and age at time of initial drug charge, which were used as controls in the logistic regression models.

There were two recidivism measurements coded using the Harris County archival data source and each new offense was analyzed separately through two different research questions. New crimes were categorized by class of new charges and type of new charges. Each binary recidivism outcome was categorized to describe the severity of post release recorded criminal behaviors in this particular jurisdiction of Harris County,

Texas. This study has four theoretical research questions designed to investigate the impact severe punishment has on the severity level of drug offender recidivism outcomes.

Research Questions

RQ1: What is the relationship between punishment severity and new class of crime severity among this Harris County sample of first-time drug offenders?

$H_0 1$: There is no relationship between punishment severity and recidivism outcomes describing new class of crime.

$H_1 1_1$: There is a positive or criminogenic relationship between punishment severity and the new class of crime severity.

$H_1 1_2$: There is a negative or specific deterrent relationship between punishment severity and new class of crime severity.

RQ2: What is the relationship between punishment severity and new type of crime severity among this Harris County sample of first-time drug offenders?

$H_0 2$: There is no relationship between punishment severity and recidivism outcomes describing new type of crime.

$H_1 2_1$: There is a positive or criminogenic relationship between punishment severity and the new type of crime severity.

$H_1 2_2$: There is a negative or specific deterrent relationship between punishment severity and new type of crime severity.

RQ3: Do certain background characteristics such as race, gender, and age predict the relationship between punishment severity and new class of crime?

$H_0 3$: The likelihood of being charged with a new severe class of crime will not

depend on punishment severity, race, gender, and age.

$H_1 3$: The likelihood of being charged with a new severe class of crime will

depend on punishment severity, race, gender, and age.

RQ4: Do certain background characteristics such as race, gender, and age predict

the relationship between punishment severity and new type of crime?

$H_0 4$: The likelihood of being charged with a new severe type of crime will not

depend on punishment severity, race, gender, and age.

$H_1 4$: The likelihood of being charged with a new severe type of crime will depend

on punishment severity, race, gender, and age.

To test the imprisonment and reoffending hypotheses using the concept of worsen

recidivism, the class of recidivism outcome was characterized for either a felony or

misdemeanor new offense for RQ1 and a violent or nonviolent new charge to answer

RQ2. In addition to imprisonment and reoffending theories, certain demographic

variables may impact both predictor and outcome variables. The other purpose was to

describe outcomes for the offender's background characteristics such as age, race, and

gender, which may provide a better understanding of who was more likely to be deterred

and who may be more prone to the criminogenic effect of incarceration. The literature-

based variables were included in the regression models to gain a better perspective in the

outcomes using this data in answering RQ3 and RQ4.

The theory-driven research questions were answered through statistical analysis.

The first two research questions (RQ1 and RQ2) were answered by running a chi-squared

test examining the relationship between punishment severity and the new class of crime and punishment severity and new type of crime. The second set of research questions (RQ3 and RQ4) were answered through logistic regression models using background variables based on the literature review and the information available in the data file from the sample of Harris County charges. The literature-based forecasters for recidivism were dummy coded in SPSS and added to the regression models to account for other demographics that are not explained by either of the imprisonment and reoffending theories. More information regarding the demographics appears in Chapter 2.

Theoretical Frameworks

The two theories that guided this study were the criminogenic hypothesis and specific deterrence effect predicting the relationship between the punishment and crime. The criminogenic effect is a condition or event that increases the likelihood of future crimes, which has also been referred as the crime-increasing-impact, net destructive effect, and crime-augmentation hypothesis (Liedka, Piehl, & Useem, 2006; McGuire & Priestly, 1995; Przybylski, 2009; Stevenson, 2011; Sung, 2003). If the recidivism outcomes are supported by the criminogenic argument, then those sentenced to incarceration should be more likely to be charged with new serious offenses; hence higher odds of felony and violent recidivism outcomes, compared to those not imprisoned. Felony and violent recidivism outcomes post imprisonment sentences support Stevenson's (2011) concept of worsen recidivism among low-level drug offenders. Both theories predict how imprisonment should impact the likelihoods of more severe recidivism outcomes and can be tested with statistical analysis.

The specific deterrence theory predicts a reduction in recidivism post sentencing and has three concepts. To deter crime, an individual must receive swift, severe, and certain punishment (Gibbs, 1968). However, the focus of this investigation is the concept of severe punishment and its impact on severe reoffending. According to Paternoster and Piquero (1995), the deterrent effect also occurs when those who have been severely punished commit lesser new offenses. In this study, those who received incarceration as their sentence and were deterred should be less likely to commit new serious offenses during the tracking period, compared to those whose sentence was probation. According to Paternoster and Piquero (1995), those sentenced to incarceration should have a higher likelihood of misdemeanor and nonviolent offenses to be deterred compared to the probationers.

Nagin and Snodgrass (2013) stressed the distinction between specific and general deterrence because the threat of punishment may have an effective deterrent effect while the actual experience of punishment may be ineffective or even criminogenic. Multiple scholars have tested the specific deterrent and rehabilitation hypotheses against the null effect and then stumble upon a criminogenic effect of imprisonment on the outcome variable measuring recidivism (see Bales & Piquero, 2012; Mitchell et al., 2017a; Spohn & Holleran, 2002; Stemen & Rengifo, 2011; Sung, 2003). While there are many studies with various concepts testing the specific deterrence theory, the criminogenic effect among drug offenders is an area worth further investigation (Nagin et al., 2009). A more in-depth discussion of these theories will be presented later in Chapter 2 and operationalized in Chapter 3. In addition to hypotheses on the imprisonment and

reoffending relationship, research on other intervening factors are presented and were added to the regression models to answer my last research question. The background variables included in the analyses to answer RQ3 and RQ4 were race, gender, and age. There are many factors that contribute to sentencing and recidivism.

Other major predictors of recidivism found in the literature include race, age, gender, socioeconomic status, attorney status, employment status, and education (Bewley-Taylor et al., 2009, Cutler, 2009; Delisi, 2003; Delmeiter, 2002; Gendreau et al., 2013; Green & Winik, 2010; Harrell & Roman, 2001; Hepburn & Albonetti, 1994; Kuziemko & Levitt, 2004; Mauer & King, 2007; Nagin & Snodgrass, 2013; Pritikin, 2009; Spohn & Holleran, 2002; Stemen & Rengifo, 2011; Sung, 2003). Gender is the biggest predictor of crime as most crimes are committed by males and approximately four-fifths of prisoners are males. Another example is the many racial disparities in America's criminal justice system when handing out incarceration sentences, especially among the poor, young, minority males (Chiricos & Bales, 1991). Factors pertaining to criminal history were set for criteria sampling such as no past convictions and no previous incarceration sentences because research suggests this legal factor influences the judge's decision to incarcerate and also, influences recidivism (Jones, 2015; National Institute of Justice, 2008; Spohn, 2007). The literature-based variables of gender, age, race, and criminal history are explored more in the literature review section of Chapter 2.

Nature of the Study

The nature of this study is quantitative because statistical analyses was applied to see if either theory predicted the recidivism outcomes among the secondary data, which,

contains criminal court records from those charged in Harris County, Texas. The group of people under investigation were first-time drug offenders and I evaluated if and how imprisonment impacts recidivism outcomes through the chi-squared test and regression analyses. The independent variable was punishment severity and the dependent variable was reoffending severity. The predictor variable measuring punishment level was either incarceration or probation. The recidivism outcomes were broken down into class of new crimes and type of new crimes. Class of crimes were measured by having the most severe new charge of a felony or misdemeanor and type of crimes were if the most severe new charge was for a violent or nonviolent crime.

My rationale for selecting this approach was because recidivism studies largely prefer regression statistical analyses to predict outcomes based on certain events that have already occurred (see Spohn, 2007; Sung, 2003). Statistical analysis provides the most powerful method to examine the impact of incarceration on drug offenders' future criminal activities, especially when attempting to make predictions based on theories and calculating odds (Warner, 2008). Asking multiple research questions with both felony and violent new charges post sentencing permitted further hypotheses testing with more than one outcome variable measuring and categorizing recidivism. This method allowed the building of binary logistic regression models between incarceration and recidivism outcomes that are explained in Chapter 3. The definitions critical to understanding the concepts of this study are next and are operationalized in Chapter 3.

Definitions

Class of crime: Class of crime orders the severity in recidivism outcomes from more serious to less serious offenses (BJS, 2018). Felonies are ranked more serious offenses than misdemeanors or technical violations. Depending on the state, letters and numbers are assigned to further rank the severity of the offense such as a Class A felony or a felony in the first degree (Ormachea et al., 2015).

Drug Offenders: Drug offenders are grouped as a type of offender, whether they were convicted of selling or possessing drugs or convicted of a drug-related felony (Spohn, 2007). The data is coded as 9 for "Controlled Substances-Other" and 10 for "Controlled Substance-Marijuana" and are selected in SPSS for a sample size ($n = 111$, 155). "According to the Uniform Crime Report (UCR), drug abuse violations are defined as state and local offenses relating to the unlawful possession, sale, use, growing, manufacturing, and making of narcotic drugs including opium or cocaine and their derivatives, marijuana, synthetic narcotics, and dangerous nonnarcotic drugs such as barbiturates" (BJS, 2012, para. 2). The reason drug felons are usually set apart from non-drug felons is because they are sentenced under a separate set of statutes under state and federal drug laws. For this sampling criteria, all people are first-time drug offenders charged by Harris County court in Texas and tracked from 1992-2012 ($N = 10,077$).

Inmate: According to the Bureau Justice of Statistics, an inmate is "A person incarcerated in a local jail, state prison, federal prison, or a private facility under contract to federal, state, or local authorities," (Carson, 2014, p. 27).

Recidivism: Durose et al. (2014) asserted that there was no universal definition for recidivism, but every definition contains three elements. The first is the starting event, such as the release from custody, completion of program, or supervision. Second, "each has a measure of failure following the starting event, such as a subsequent arrest, a subsequent arrest for a violent crime, a conviction resulting from a subsequent arrest, or a new commitment resulting from a subsequent arrest" (Durose et al., 2014, para. 1). Third is a window of time (1 year, 18 months, 3 years, etc.) to follow up on subsequent criminal activities beginning from the starting event and is recorded in that jurisdiction.

Recidivism can be measured in a variety of ways such as: new arrests, new charges, new complaints filed, new convictions, new prison sentences, or technical violations that result in parole or probation revocations (Green & Winik, 2010; Stemen & Rengifo, 2011). Using rearrest with new charges may be deemed to be a liberal measurement of recidivism, while others argue that using convictions or new incarceration sentences are too conservative (Spohn & Holleran, 2002). New charges can be a middle ground when measuring recidivism that can be described into multiple classes or degrees and types of crime categories according to state penal codes. This Harris County data has alphanumeric codes that replace the person's name for each case for identifying repeat offenders and linking them to more charges within the data over 20 years. Using both longitudinal and cross-sectional analysis with the alphanumeric codes in SPSS, recidivism outcomes were measured by type of new charge and class of new crime. Each measurement of recidivism has two binary outcomes as class of new crime

was for either a felony or misdemeanor and type of new crime was for either a violent or non-violent.

Sentencing: In this data, the disposition lists if the person's charges were dismissed, sent to local jail, state prison, probation, (in other words) through the Harris County Court System. When a person is charged and then convicted of a crime, that person is sentenced to a punitive sanction by the courts. In drug sentencing policies, there are many different levels of punishment, such as: probation, treatment programs, community-based corrections, shock boot camps, fines, and incarceration. Besides the death penalty, imprisonment is the most severe form of sentencing (Nagin et al., 2009). Judges take into consideration the type and class of current charge before making a sentencing decision because, "there are more or less serious offenses, as determined by sentence actually imposed for those crimes," (Wolff, 2006, p. 106). The Harris County dispositions of state and local jail will be combined with Texas Department of Correction (TDC) state prison terms for measuring incarceration and will be compared to the dispositions of probation and deferment of adjudication of guilt as combining the alternative.

Assumptions

The ontological and epistemological assumptions of my study dealt with finding truth in analyzing recidivism outcomes when using imprisonment as severe punishment. Although the world view assumes that sentences of imprisonment reduce recidivism, the reality is studies observe various criminogenic effects on recidivism when compared to alternative sanctions (Bales & Piquero, 2012; Nagin et al., 2009; Spohn & Holleran,

2002). From a quantitative approach, this study began with theoretical frameworks that required numerical data for hypotheses testing. The variables of punishment and class and type of recidivism outcomes were dummy coded to test the imprisonment and reoffending relationship specifically among first-time drug offenders. This causal comparison method explored the secondary data and used statistical tests among drug offenders sentenced to imprisonment and compared the odds of recidivism outcomes to the odds of those who were not given incarceration sentences.

This section lists some assumptions I believed to be true with this archival database but cannot necessarily be proven because the information was recorded, collected, and coded by other researchers. I assumed that the data was properly recorded by the Harris County Clerk's office and was copied correctly by the authors who compiled this dataset.

Scope and Delimitations

The present study was designed to question if drug offenders sentenced to incarceration were more or less likely to commit new serious offenses than those who did not receive incarceration. This study was limited to the boundaries of analyzing this archival dataset with the described theories, excluding other theories that may have explained the outcomes beyond the scope of this investigation. Although there are three concepts that predict the deterrent effect of punishment, the measurements of celerity and certainty are beyond the scope of this study because they are not easily measured in real world settings. See Chapter 3 for more detail on operational definitions that were used in the regression analysis for sentencing and outcome variables describing new offenses.

I foresaw some limitations of my study due to the dataset. Out of the population

of 496,207 cases of all Harris County charges recorded from 1992-2012, the sample of

drug charges represents about 22% of the population ($n = 111,155$) because the focus of

this study is only on people sentenced for drug offenses. The charge-based system

measures drug charges as "Controlled Substances-Marijuana" and "Controlled

Substances-Other". However, after much coding and cleaning the data to fit the criteria of

first-time drug offenders without prior recorded incarceration experiences for nondrug

crimes, the sample was much smaller but still an adequate sample size ($N = 10,077$). As

with many studies that examine recidivism, there are limitations of this research that will

be discussed.

Limitations

Sometimes it is appropriate to analyze archival data when studying a new topic

and contributing to further knowledge (American Psychological Association, 2010).

Apart from the BJS reports on released prisoners, there is limited current research on

drug offenders' recidivism outcomes (Durose et al., 2014), and no studies found within

the last 5 years that compared odds of worsen recidivism to the odds of a less severe

sanction. Recent recidivism data was hard to find and even if found, these datasets were

not easily obtainable. There are various limitations when conducting recidivism research

and relying on data collected and information often coded by someone else.

Some limitations using archival database include small sample sizes, lack of

information on relevant variables needed to answer the research questions, and control

over the dataset (Rudestam & Newton, 2007). This data contains the relevant variables to

answer my research questions and I had control of the data set to create new variables for analyses. I described severe sentencing's impact on recidivism outcomes by creating new variables based on the data's codebook (Haarsma et al., 2016).

Unfortunately, the archival database does not contain the background information of each offender's education level or employment status. To address this limitation, I tried to include whether the individual was able to afford to hire an attorney or if the court appointed a lawyer to the case and use attorney status as a proxy to socioeconomic status. This did not work because, when cleaning the data, I found that about 13% of the cases were missing information on attorney status. An additional limitation to consider is when adding more predictors (age, race, gender, etc.) for recidivism in the analyses, the cell sizes decreased, and efficient statistical power must be rechecked. There should be at least five cases in each cell of factors analyzed (Warner, 2008) and no more than 5% of the cases missing among variables investigated (Field, 2009). To address this limitation, I ran frequency distributions to make sure that no more than 5% of the variable was missing and the highest I found was 3.3% of variables that were included in the regression analyses.

There are many confounding variables that cannot all be accounted for in recidivism studies. Prisons are not solely responsible for high recidivism rates as social service agencies, parole and probation agencies, the individual's personality traits, and the lack of treatment, and community organizations all may contribute to high rates of reoffending (Pew Center on the States, 2011). Gendreau et al. (2013) recommended that the stronger recidivism research designs have at least five risk factors included in the

analyses and I had four variables with removing those who had a prior criminal history. To better examine the deterrent effect of imprisonment, I would have liked to remove the incapacitation effect; which is measured by time free in the community to reoffend, (see Gendreau et al., 2013; Green & Winik, 2010). This was not an option according to the information available in the data. Time served under certain sentences, like local jail, was not known. Where it was not clear if a person received an incarceration or probation sentence for the initial drug crime, these offenders were not included in the analyses. This is not an experimental study, which presented the limitation of causality. To address this limitation, the results cannot be generalized outside of the population of the Harris County, Texas. I examined the link between sentencing and the severity of drug offenders' recidivism in this sample of Harris County offenders and cannot infer that imprisonment deters or worsens recidivism outcomes among all drug offenders across time and space. The next section reiterates how significant exploring the unintended criminogenic consequences of imprisonment on drug offender recidivism really is for current research and policy.

Significance

Due to the rapid growth in prison and jail populations, Sung (2003) suggested that effective sanctions for drug-addicted offenders will be the center of the American criminal justice system and public policy research in the 21st century. There are currently more drug offenders behind bars than the total inmate population in the 1980s, creating a massive subpopulation of convicted drug felons (Criminal Justice Information Services Division, 2012) and costing taxpayers billions of dollars. The ONDCP (2001) estimated

that 60 to 85% of the correctional populations in the 21st century were involved with drugs. There are still about 600,000 to 700,000 people being released from prisons and jails annually (Perry, 2018). Studying the imprisonment and reoffending relationship among drug offenders is crucial to understanding any unintended consequences related to incarcerating this type of offender.

Imprisonment's impact on the reoffending among convicted drug offenders is significant for two main reasons. The first is that most drug inmates serve relatively short sentences (less than 5 years) and the majority will be released back into society, bringing any effects home with them (Travis, 2005, 2008). Florida Department of Corrections reported that approximately 87% of the state's inmate population will be released back into their communities (Jones, 2015) and roughly three out of four will recidivate (Durose et al., 2014). The second reason is the cost of imprisonment has dramatically increased through drug sentencing policies, which, continuing to house people for drug offenses cost taxpayers billions of dollars (The Sentencing Project, 2018). In many states, correctional costs drain from general funding, which is also the source that allocates monies to education (The Sentencing Project, 2018). Some argue that the war on drugs was also a war on education (see Blumenson, & Nilsen, 2002). Education, like employment, is negatively correlated with crime, incarceration rates, and recidivism (Jones, 2015; Pritikin, 2009; Spohn & Holleran, 2002) and the cycle continues.

The United States averages over 35 billion dollars a year on drug control policies and 13.5 billion dollars annually just on housing drug offenders (ONDCP, 2013). For many states, correctional cost is second only to Medicaid in terms of budgeting and

funding is taken from education and redistributes to corrections (Pew Center on the States, 2011). Supporters for continuing the war on drugs demand stricter law enforcement, severe sentencing statutes, and disenfranchisement laws for people who get involved with crack/cocaine, heroin, methamphetamine, marijuana, and other illegal drugs (Bertram, Blachman, Sharpe, & Andreas, 1996). Drug enforcement incentives and harsh mandatory prison policies for drug crimes are not methods towards deincarceration in the United States. If incarcerating people for drug crimes continue, the Sentencing Project (2005) predicted that by 2030, half of all state and federal inmates will have been incarcerated for drug offenses.

Newman and Smith (2018) reported that Trump's newest proposal reversed Obama's efforts towards drug policy reform that focused on treatment and education programs. President Trump proposed the budget for the 2019 fiscal year that may escalate the war on drugs by focusing heavily on law enforcement and interdiction (Newman & Smith, 2018). Trump plans to allocate an increase of 400 million to the Drug Enforcement Agency (DEA), decrease 20 million for the Second Chance Act Program, and increase 5 million dollars to the Interagency Crime and Drug Enforcement (Newman & Smith, 2018). The Second Chance Act Program helps inmates reenter society, while the Interagency Crime & Drug Enforcement organization encourages federal agencies to arrest and prosecute people who possess and sell drugs (Newman & Smith, 2018). According to Newman and Smith (2018), "We know from decades of locking people up for drugs that it doesn't work to curb drug use, but Trump's budget proposes wasting billions of dollars to do exactly that," (para. 2). Given its unprecedented growth,

imprisonment and reoffending relationship is important to investigate; especially among low-level drug offenders who seem to go undeterred and recycle back into prisons and jails (Alexander, 2012; Doob, Webster, & Gartner, 2014).

The purpose of this study was to provide some current empirical evidence to the drug policy debate and contribute to current recidivism research. This study was significant because I statistically analyzed if and how drug offenders were more prone to this criminogenic effect of incarceration by categorizing future crimes and comparing the odds to those who were not sentenced to imprisonment. Through deductive theory testing, I hope to advance further knowledge and provide scientific research to drug sentencing policy on whether the punishment of imprisonment was effective, ineffective, or counterproductive in this Texas sample. The social change implication of this study is to inform drug policies about any impacts of imprisonment on first-time drug offender recidivism by describing the seriousness of those new charges and calculating the likelihoods of felony and violent outcomes. The odds of felony and violent reoffending for those drug offenders sentenced to incarceration were compared to those who were not giving an incarceration sentence, and I used the most serious new charge recorded in the data set for each other.

Summary and Conclusions

Sentencing policies for drug offenses are still the most significant contributor to the mass imprisonment problem in the United States (Glaze, Kaeble, Minton, & Tsoutis, 2015). Many drug offenders plaguing the criminal justice system are addicted to an illegal substance and many of these labeled drug offenders also have untreated mental

illnesses (Substance Abuse and Mental Health Services Administration, SAMHSA, 2014). Over 20 million Americans older than 12 years of age reported having a drug addiction in 2011 and only around 3 million received the treatment that they needed (Addiction Center, 2018). There is little scientific evidence that incarceration deters crimes for this type of offender (Mitchell et al., 2017a). Instead, there is support that incarcerated drug offenders are more prone to the criminogenic effect (Spohn & Holleran, 2002) and this population may even become more dangerous criminals post imprisonment (Stevenson, 2011). About two-thirds of released inmates are rearrested during the first 3 years of release from custody and this is a significant problem (NIJ, 2014). If mounting empirical evidence supports the use of rehabilitative alternatives to prison, current budget allocations for incarceration should be reevaluated.

Drug laws that require time behind bars during the criminal justice proceedings under penal crimes for possessing or selling banned substances initiated the tool to fight the drug war (Bertram et al., 1996). Law enforcement agencies were given incentives to make drug arrests, commonly found among young males in poor communities of color. According to the Criminal Justice Information Services Division (CJISD, 2012), there were over 1.5 million arrests for drug abuse violations - the highest of all crime categories. The background of the current inmate demographics involving non-violent drug offenders can be traced back to the get-tough laws that corroborated the war on drugs rhetoric, which, remains a persistent problem (Newman & Smith, 2018; The Sentencing Project, 2015).

Perry (2018) reported that "Trump is, however, supporting the First Step Act, a prison reform bill that recently passed the House and pushes for increased rehabilitative services within federal prisons," (para. 8.). Unfortunately, this backend policy reform does not address the large scale of drug offenders entering the front end of the criminal justice system, with mandatory minimums and other punitive drug sentencing policies (Stemen & Rengifo, 2011).Drug enforcement incentives and harsh mandatory prison policies for drug crimes are not methods towards deincarceration in the United States. Few empirical studies statistically explore imprisonment's impact on drug offenders post release criminal behaviors and describe the seriousness of any recorded new crimes (Cohen, 2000; Delisi, 2003; Durose et al, 2014; Mueller-Smith, 2015).

The problem is that Stevenson's (2011) claim remains unexamined in current drug sentencing policy and recidivism research. There may be unintended consequences of incarcerating people who get involved with drugs. Stevenson (2011) wrote that there is a criminogenic effect of imprisonment among drug offenders by developing additional criminal behaviors and called this new concept worsen recidivism. I sought to fill in the gap by adding current empirical evidence on the imprisonment and reoffending relationship to drug sentencing policy and recidivism research using archival data from Harris County, Texas.

The purpose of this study was to statistically test the specific deterrence, criminogenic, or null effects in drug sentencing policies to examine the imprisonment and reoffending relationship and contribute empirical findings to the drug policy debate. There is not much research that tests these two conflicting hypotheses: the criminogenic

and specific deterrence rationales (Bales & Piquero, 2012) specifically, among the drug

inmate population (Mitchell et al., 2017b). These key factors were defined in Chapter 1

and studies analyzing similar concepts are explained in the literature review in Chapter 2.

The next chapter of this proposal presents the magnitude of America's problem with

mass incarceration, particularly the influx of drug inmates, because of the decades of

fighting the war on drugs.

Chapter 2: Literature Review

Introduction

People charged and sentenced for drug offenses have become the fastest growing sector of the nation's prisoner population (Mauer, 2009). By the end of the 20th century, the amount of people serving time for drug offenses was equal to the total population living in Washington D.C. (Schiraldi et al., 2000). There are over 19 million felons in the United States, and many carry the stigma of a convicted drug felon (Shannon et al., 2017). After 40 years, 45 million arrests, and over 1 trillion dollars, America continues their longest war (Jarecki, 2012). With incarceration as the preferred weapon enforced in the war on drugs. The criminal justice system is still heavily arresting and incarcerating people who get involved with prohibited substances through drug laws, drug enforcement, and drug sentencing policies (Vulliamy, 2011). Despite some 21st century law reforms, there are still approximately half a million people incarcerated for drug offenses on any given day in the United States (The Sentencing Project, 2018). The methods of how the U.S. criminal justice system has dealt with drug problem continues to be a major social issue.

With the current 21st century opioid crisis, the interdiction for drug offenses has been at an unprecedented scale, reaching urban cities and rural towns alike, without prejudice to race, sex, or class (Kajstura, 2018). In many jurisdictions, most of arrests are for drug-related crimes. A report released by the BJS (year) claimed that prison sentences of greater than 1 year but less than 5, are also on the rise (Carson, 2014; Durose et al., 2014). Most drug felons, who are not heavy kingpins (Mauer & King, 2007), serve a few

years and then come back to their communities with little or no prospects but returning home with a criminal label (Travis, 2005; 2008).

A thorough literature review is presented in this chapter on examining the imprisonment and reoffending theories and other predictors for recidivism, particularly among the drug offender population. Many scholars agree that those drug users and those who deal to support their addictions would be better served through the public health system with treatment and educational objectives and away from punitive sanctions like prisons and jails in the criminal justice system (Bewley-Taylor et al., 2009; Caulkins et al., 1997; Cutler, 2009; Justice Policy Institute, 2010; King & Mauer, 2002; McGuire & Priestly, 1995; ONDCP, 2001; Phelps, 2011; Przybylski, 2009; Schiraldi et al., 2000; Sung, 2003). Drug users seem to have less reoffending when their addiction is treated as a patient (Caulkins et al., 1997). Low-level dealers who receive education and job training tend to have a greater likelihood of supporting their families with legitimate means (Alexander, 2012). Even though decades of recidivism studies provided statistical support for the rehabilitative approach when compared to imprisonment, widespread incarceration for drug offenses continues.

This literature review presents the various ways the criminal justice system has failed with its war on drugs and how rehabilitative interventions are more affordable and effective in reducing drug use and drug-related crimes. The theoretical section of this chapter displays little support for the deterrence rationale behind imprisonment for drug offenses; as many analyses have found the opposite, with some statistically significant increases in recidivism. Any adverse effects of putting people in prison for drugs and

drug-related crimes needs further examination (Mitchell et al., 2017b), especially when most research supports rehabilitative treatment over the punishment of imprisonment.

Criminologists came to a consensus back in the 1970s that prisons don't work, but the backlash of racial tensions and the increasing crime rates justified the prison boom (Alexander, 2012). The former U.S. Attorney General Holder made the following public statement: "High incarceration rates and longer than necessary prison terms have not played a significant role in materially improving public safety, reducing crime, or strengthening communities. In fact, the opposite is often true" (Cook, 2017, [Documentary]). Current literature does not describe how imprisoned drug offenders are more prone to a criminogenic effect vs. a specific deterrence effect on class and types of recidivism outcomes. The purpose of this study was to apply the regression statistic predicting the imprisonment and reoffending hypotheses. This was done by using a sample of offenders from Harris County, Texas acquired through the Journal of Science and Law (Scilaw). Scilaw provides a data source with over 22 million county court records which, provides information on each offender's charges, dispositions, background variables, and an alphanumerical identifier permitting exploration of reoffending. Scilaw offers a meta-database on archival data from three cities that is publicly available and one of the few sources that permit recidivism research through recording class of crime with degree, 32 broad categories, and over 150 specific types of charges.

A goal of the present study was to determine if severe punishment or incarceration predicted the outcomes of severe reoffending or worsen recidivism among a

sample of first-time drug offenders. There is very little research that examines imprisonment's effect on drug offender recidivism and describes the new types of crimes (see Cohen, 2000; Delisi, 2003; Durose et al., 2014). Stevenson (2011) asserted that there is a criminogenic effect of imprisonment among drug offender reoffending, or worsen recidivism, but no recent research was found that empirically tested this claim in the extensive 5-year literature review. Further research is needed to focus on the possibility that there may be unintended consequences of incarceration with this type of offender.

The topics of the criminal justice system, drug policy, and recidivism are all broad areas of study in the field of public policy, criminal justice administration, and criminology. For the present research project, certain key words were searched for alone and in combination with each other, to narrow in on the focus of the criminogenic effect of incarceration on drug offender recidivism. This research is driven by the imprisonment and reoffending theoretical frameworks among a certain type of offender, while also considering some background variables based on prior evidence. The background variables intended for analysis were race, age, gender, and criminal record.

Research on literature-based covariates outside of the two theories are described in depth later in this chapter. Demographic variables are important to account for when examining the imprisonment and reoffending relationship and these background variables are explored. Each empirical study in this literature review synthesizes and presents the authors' research questions, theories, methods, variables, analyses, results, and conclusions. Many studies that aim to predict recidivism outcomes use regression

analyses and this was the appropriate method for this study, which will be addressed in the research methods in Chapter 3.

Throughout this review of the literature, some studies are summarized while others have more detail, particularly, the research more relevant to the current study. The layout of this chapter begins with the literature search strategy, followed by the theoretical frameworks that drive this investigation. The theories will provide origins for the specific deterrence and criminogenic effects of imprisonment on drug offender recidivism outcomes. The history of drug policies, why this type of offender was chosen for the present study, and how drug offenders are treated differently compared to other offenders are subjects in the literature review. The drug-crime nexus, the prison boom, and recidivism research are areas of interest and covered later in Chapter 2. Although the research design and archival data will be presented in Chapter 3, this section explores what has already been analyzed and what remains to be studied. To learn more about this topic, I started working with the following sources: books, library data bases, search engines, and online journals.

Literature Search Strategy

Many books, journals, commentaries, and policy reports on drug sentencing were read for the current study. This dissertation contains a variety of sources, such as peer-reviewed articles, state statutes and federal laws, documentaries, websites, and newspapers. This paper covers a vast array of deterrence-based research on the relationship of punishment and crime, from the original works of Beccaria (1764) to Gibbs (1968) first empirically testing the deterrent hypothesis, with a heavy focus on

drug offenders. The search terms used to conduct research for this proposal included *imprisonment*, *recidivism*, and *drugs*. Eventually I searched the *criminogenic effect of imprisonment on drug offender recidivism* after discovering Spohn and Holleran's work (2002) and did not find many recent studies following up on this specific research area. Reoccurring statistics on prisoners in the 21st century and recidivism outcomes also are cited throughout this chapter, to show how far back America's drug problem goes, in addition to how recent and relevant this issue still is.

Websites from organizations such as Drug Policy Alliance, CASA, United States Sentencing Commission, and The Sentencing Project are included in my references. The research strategies and databases used to collect research on this topic included Google, Google Scholar, Walden's library, Thoreau, and Sage, to name just a few. Information was also gathered from governmental websites like the Justice Policy Institute, BJS, NIJ, SAMHSA, NIDA, Bureau of Prisons (BOP), and the National Archives of Criminal Justice Data. Certain journals read for this study were: *The Journal of Drug Issues, American Journal of Criminal Justice, Criminology, Punishment and Society; Journal of Quantitative Criminology, Criminology and Public Policy,* and *Journal of Offender Rehabilitation. The Journal for Science and Law* (Scilaw) was the source the data was acquired from to answer the theory-driven research questions and to account for some demographics. The specifics on the Scilaw data are explained in more detail in the next chapter, but this chapter reviews the works of scholars, policies, and professionals in this field for the last 30 years.

The scope of my study narrowed in on incarceration's impact on the outcomes of drug offender recidivism through hypotheses testing and applied statistical analyses to answer the research questions. The theoretical foundation is based on the specific deterrent effect of imprisonment and the observed criminogenic outcomes that was found in many empirical studies. While there are books written about the drug war and drug policies, few current studies examine imprisonment's effect on drug offender recidivism (see Mitchell et al., 2017b; Mueller-Smith, 2015) and no studies were found that empirically examined the concept of worsen recidivism for this type of offender. Next, is the theoretical foundation section, reviewing empirical research that statistically test the relationship between punishment and crime.

Theoretical Foundation

The theoretical foundation of this research begins with the specific deterrence intention behind tough drug sentencing policies and ends with the criminogenic effect discovered in many empirical studies during the literature review. The deterrence and criminogenic theories are in conflict when predicting imprisonment's impact on recidivism. While deterrence predicts a negative relationship between sentencing severity and recidivism severity, research staggers on the criminogenic effect, which; foretells a positive relationship between these two concepts. Even though the drug war was built on the foundation that severe sentencing guidelines should reduce recidivism among this type of offender, empirical studies uncovered unintended consequences when using incarceration as punishment for drug-related crimes.

It was initially intended that people who were sentenced to imprisonment for drug charges, for example, getting involved with illegal street drugs or prescription drugs illegally, would refrain from crime for fear of getting locked up through specific deterrence theory. Unfortunately, studies are finding that drug offenders who were incarcerated are more prone to a criminogenic effect, or displayed worsen recidivism (Spohn, 2007; Stevenson, 2011). The findings of increases in crime are often measured through higher recidivism rates, faster timing until rearrests, and more serious criminal behaviors post imprisonment, when compared to a less severe sanction like probation or treatment (Durose et al., 2014; Mitchell et al., 2017b; Mueller-Smith, 2015; Spohn & Holleran, 2002; Sung, 2003). These findings contradict the deterrence ideology intended behind imprisonment as punishment in drug sentencing policies. First, the origins of deterrence theory and how it relates to punishment and crime are discussed.

Specific Deterrence Effect

The origin of the deterrence philosophy dates back centuries in Europe when there were over 200 capital offenses and punishments were enforced arbitrarily (Bernard et al., 2010). In 1764, Beccaria wrote for people to be deterred from committing crime; punishment should be certain, swift, and severe (as cited in Young, 1986). Utilitarian thinkers such as Beccaria and Bentham (1789) advocated for penal reform and recommended that the punishment should fit the offense. To the classical criminologist, crime comes from within the individual and people are naturally hedonistic. To maximize pleasure and minimize pain, it was argued, that rational calculating people will refrain from crime if the punishment was severe enough (Bernard et al., 2010). In my study, I

focused on the severity concept of punishment (sentencing) in predicting deterrence among drug offenders. The data on certainty and celerity is more difficult to access and measure in real life settings (Gendreau et al., 2013).

According to Gendreau et al. (2013), specific deterrence is based on the theory that prisons reduce the likelihood of future criminal behaviors for the individual who experiences the severe punishment, while general deterrence sends a message to others what will happen when they break the laws. Furthermore, deterrence explains why laws are structured the way they are and why there is a severe response to crime in policy. Blackman defined the behavioral, functional definition of punishment as "the suppression of behavior by response-dependent events" (as cited by Gendreau et al., 2013, p. 4). Some drug policy experts and criminologists call this a false assumption, which presumes that increased penalties will alter criminal behaviors (Ruth & Reitz, 2003; Spohn & Holleran, 2002).

In drug sentencing policies, there are many levels of severity in punishment, such as: probation, treatment programs, community-based corrections, shock boot camps, fines, incarceration sentences, and even, the death penalty (The Sentencing Project, 2018). Drug laws provide the power for police to make arrests on drug charges, which keeps the jails and prisons filled beyond capacity (Mauer, 2009). Some people are stuck in jail on drug charges who cannot afford to pay their bail and are just too poor to get out (Alexander, 2012). As people charged with drug offenses are often placed behind bars while waiting for the court's proceedings, this creates an *incapacitation effect* which is different than the specific deterrence (Green & Winik, 2010). To properly test the

concept of severe penalties for drug crimes and any adverse effects on recidivism, a window of time to failure (Spohn, 2007) would have had to exist in the data to account for incapacitation effects (Gendreau et al., 2013). However, this measure could not be accounted for in my study.

The main rationale for selecting this theoretical framework is because the war on drugs was fueled by the philosophy of deterrence; the idea that raising penalties decreases crime and drug use. Specific deterrence theory predicts that the severe punishment of imprisonment, longer prison sentences, and the social stigma of being incarcerated; suppresses, or deters, future criminality for the individual who experiences it (Gendreau et al., 2013). Nagin and Snodgrass (2013) claimed that specific deterrence is when the individual has a chastening effect from the experience of imprisonment compared to the threat of punishment for the public in general deterrence. Deterrence theorists further suggest that if a person does reoffend, it will be a minor offense (Paternoster & Piquero, 1995; Spohn & Holleran, 2002). The severity level of the new offenses post punishment that theorists Paternoster and Piquero referred to; Stevenson's concept of worsen recidivism for drug inmates has not been explored in the literature (Durose et al., 2014; Mueller-Smith, 2015).

Deterrence research has generally been mixed. When first empirically testing the deterrence hypothesis using the certainty and severity concepts of punishment, Gibbs (1968) found that more certain and severe punishments reduced the probability of homicides in all 50 states. Some older studies not including drug prisoners support the deterrence ideology as imprisonment reduced crime significantly when focusing on

violent and property offenders (Marvell & Moddy, 1994) and additional incarceration eliminated 15 index crimes (Levitt, 1996). NIJ (2008) examined prisoners released in 1994 and found that (a) 56% of the sample was deterred within a 3-year period, (b) 40% recidivated and it was predicted by their prior criminal history, and (c) about 4% displayed a criminogenic effect as the rate of crime post imprisonment increased. NIJ's study presented support for the specific deterrence effects as there were no new offenses recorded in the tracking period of three years in over half of the sample and only a small percentage of the released prisoners displayed worsen recidivism.

Nagin and Snodgrass (2013) examined incarceration's impact of reoffending in Pennsylvania through the deterrence theoretical lens. The authors had access to information that contained data on offenders who were randomly assigned to judges who had varying sentencing policies. Their study found little evidence that imprisonment impacted rearrests (Nagin & Snodgrass, 2013). The United States Sentencing Commission reported that released federal offenders from either prison or probation were tracked for 8 years (Hunt & Dumville, 2016). When examining the impact of imprisonment on recidivism rates, Hunt and Dumville (2016) found that (a) almost half were rearrested, (b) almost one-third were reconvicted, and (c) about one-quarter were reincarcerated. Whether an individual who is sentenced to incarceration is deterred from further crime commission once released has been applied to the context of recidivism and are presented in the current chapter.

Specific deterrence effects require time as a measurement of tracking criminal behaviors in between criminal justice interventions and is claimed to work when the

person who is released back into the community refrains from committing crime, for fear of getting reincarcerated. Spohn and Holleran (2002) recommended at least three years of tracking an individual post criminal justice intervention when examining recidivism or desisting in crime while Gendreau et al. (2013) included six months as the time recorded as window of time free in the community. Free will and rational choice of the individual who experienced imprisonment to desist in committing further crimes, are major theoretical concepts for specific deterrence.

Gendreau et al. (2013) tested three theories using quantitative research methods on a variety of prior studies involving sentencing and crime. Using the concept of severe punishment in the specific deterrence hypothesis, the authors' first theory was that prison sentences and for longer terms deters reoffending. The second theory was the schools of crime theory or the criminogenic effect that predicts increases in some form of crime. The third theory tested was the minimal/interaction theory, which postulates that imprisonment has a minor impact on recidivism by adversely effecting lower risk offenders. Gendreau et al. (2013) conducted a meta-analysis on 50 studies involving 336,052 offenders since 1958 that produced 325 correlations between 1.) recidivism and prison length or, 2.) recidivism and prison versus community-based sanctions. Each study included in the meta-analysis had to have information on the treatment condition, such as prison sentence or alternative, and recidivism with effect sizes on the following factors: age, race, risk level, sample size, design quality, and, the decade the study was published (Gendreau et al., 2013). The authors uncovered that prison sentences produced minor increases in recidivism and found statistical support that lower risk offenders were more

adversely affected by the experience of prison sentences when compared to those in the samples who received alternative sentences.

Out of 23 studies examining correlations between more and less time in prison on recidivism outcomes for all types of offenders, the meta-analysis produced 222 effect sizes and discovered people who spent more time in prison had a 3% increase in recidivism when compared to those who spent less time in prison (Gendreau et al., 2013). While analyzing the 27 studies with incarceration versus community-based sanctions, there were 103 effect sizes in recidivism, resulting in an overall 7% increase in recidivism. In the recidivism studies that authors compared more to less time spent in prison, most of the outcomes (77%) were parole violations. The more evenly distributed outcomes in the incarceration compared to community-based group were "split among arrest (22%), conviction (32%), and incarceration (30%)" (Gendreau et al., 2013, p. 15). Both more and less prison time studies, and incarceration compared to alternative punitive sanctions, produced a slight increase in 3 out of 4 outcomes in measuring post release criminality.

This study presented strengths and had some limitations. However, the findings presented more research questions on the deterrent and criminogenic effects of imprisonment (Gendreau et al., 2013). The authors broke down studies into weak and strong quality designs, discussed the validity of instruments used to assess levels of risks, and suggested that stronger studies account for at least five risk factors in statistical analyses (Gendreau et al., 2013). One limitation of this study is that the minimum follow-up period of only six months was required to be included in this meta-analysis, when the

preferred window in recidivism research is at least 36 months (Spohn & Holleran, 2002).

This is because the longer the window of time in measuring new crimes, the greater the

likelihood of more recidivating offenders (Gendreau et al., 2013). In addition, other

limitations were that most (90%) of the studies consisted of only male offenders and race

was not specified for effect sizes (75%) (Gendreau et al., 2013).

     Other limitations were (a) many of the studies were conducted during the decade

of the 1970s, (b) the authors claimed the incarceration vs. alternative sanctions studies

were rated as weak, (c) descriptions of the characteristics of the offenders in the samples

were inconsistent, and (d) the level of risk was often measured by the number of priors

(61%) (Gendreau et al., 2013). The authors admitted most of the studies lacked

knowledge about the prison environments and lacked randomization needed for true

experiments. To account for this, the authors adjusted for demographic differences

reported between groups and some other various discrepancies (Gendreau et al., 2013).

Prior to this research, Spohn and Holleran (2002) found that when compared to other

types of offenders and another form of punishment (probation), imprisoned drug

offenders were significantly more prone to the criminogenic effect using multiple

measurements for recidivism.

     Studies that take drug offenders into account suggest that prison growth has no

significant deterrent effect on violent and property crimes (Kuziemko & Levitt, 2004);

drug offenders sentenced to prison were twice as likely to recidivate when compared to

treatment participants (Belenko, Foltz, Lang, & Sung, 2004), while others reported that

adding more prisoners to already overcrowded prisons caused an increase in crime

(Green & Winik, 2010; Liedka et al., 2006). Sung (2003) tested the specific deterrence theory using number of days in jail and the rehabilitation effect using the number of days in drug treatment on recidivism rates. The population were drug offenders in New York City incarcerated compared to those who completed treatment under the Brooklyn's Drug Treatment Alternative to Prison (DTAP) program (Sung, 2003). These findings supported the rehabilitative effect on recidivism among drug offenders who graduated from DTAP but a criminogenic effect of those who spent more time behind bars (Sung, 2003). Imprisoned drug felons in Arizona and Colorado also had higher recidivism measurements compared to those who were sentenced to rehabilitative treatment (Cutler, 2009; Przybylski, 2009).

Spohn and Holleran (2002) conducted statistical analyses on the deterrent effect of imprisonment, with a specific focus on drug offenders, and used multiple measures of reoffending. There were three types of offenders (a) drug offenders, (b) drug-involved offenders, and (c) non-drug offenders. Spohn and Holleran (2002) examined those placed in an incarceration group and included a probation group, for a total of 6 groups to investigate. The accumulative new complaints filed permitted Spohn and Holleran to have a continuous outcome variable to analyze recidivism rates using multivariate regression models. The recorded types of recidivism in their database were new arrests, new charges, new convictions, new prison sentences, and parole/probation revocations. There were small cell frequencies when they analyzed new convictions and new prison sentences as their recidivism measurements. To address this, most of their analyses combined new arrest with a new charge to measure recidivism rates (Spohn & Holleran,

2002). Timing until new offense (or window of time to failure) was also an interval

outcome measurement in this study (Spohn & Holleran, 2002).

The empirical evidence presented by Spohn and Holleran (2002) did not support a

deterrent effect of imprisonment when answering their research questions regarding types

of offenders, recidivism rates, and timing until next recorded offense. Instead, results

supported a criminogenic effect among prisoners compared to the probationers,

particularly among the incarcerated drug offender group. A study using this same data

revealed that both imprisoned drug offenders and drug-involved offenders were

significantly more likely to recidivate and sooner when compared to incarcerated non-

drug offenders (Spohn, 2007). Further analyses revealed that the likelihood of recidivism

did not depend on the offenders' stake in conformity (Spohn, 2007). However, one

limitation of this study was that Spohn and her colleagues did not consider the

incapacitation effect of incarceration and control for time free in the community to

reoffend between prisoner groups and probationer groups (Green & Winik, 2010).

Green and Winik (2010) argued that once the incapacitation effect is removed

from incarcerating drug offenders, evidence refutes the specific deterrence hypothesis

and supports that imprisonment has criminogenic consequences. Green and Winik

attempted to remove the bias assessments of examining the causal relationship between

punishment and recidivism on drug felons. This jurisdiction used random assignments for

judges in sentencing decisions. The authors claimed that few researchers take advantage

of random assignments and mostly use observational data when conducting recidivism

studies. Green and Winik (2010) analyzed 1,003 felony drug offenders sentenced

between June 1, 2002 and May 9, 2003 in the District of Columbia using random assignment of judges, who varied in sentencing tendencies from lenient to more punitive. The tracking period for measuring recidivism was four years. The scholars used new arrests as their dependent variable to test the effects of randomized punishment in terms of months in prison or probation as their independent variable (Green & Winik, 2010).

Green and Winik (2010) established that longer prison terms had no detectable deterrent effect on drug offenders' rearrest rates and reached a similar conclusion for longer probation sentences. One of the limitations of this study was that the authors recorded sentences that the judge imposed, instead of the length of time that was served by the defendants. The authors did this as an attempt to preserve the symmetry of different defendants being randomly assigned to different judges with various sentencing tendencies. At first, Green and Winik measured both the incapacitation and deterrent effect in combination with multiple covariates like age, race, gender, and prior criminal history. After the authors started the clock from release, Green and Winik (2010) came across a more pronounced criminogenic effect among prisoners as their likelihood of rearrests increased with length of imprisonment. Green and Winik (2010) suggested that information diffusion could explain why the specific deterrent effect fails in a jurisdiction where drug offenders know there are more lenient judges. For the current analysis, the two theories of the criminogenic and minimal/interaction effects that were described by Gendreau et al. (2013) were applied together to analyze the concept of worsen recidivism with the Harris County sample. The criminogenic and minimal/interaction effects both predict increases in criminality and can be applied in the current study to determine if

incarcerating people for drug charges, increased the likelihood of worsen recidivism (Stevenson, 2011).

When testing deterrence theory specifically among drug offenders, Green and Winik (2010) came to similar conclusions as prior research (Belenko et al., 2004; Caulkins & Chandler, 2005; Cutler, 2009; Przybylski, 2009; Spohn & Holleran, 2002; Sung, 2003). Green and Winik (2010) found that prisoners had higher recidivism rates and the statistical analyses failed to support the deterrent effect of imprisonment. Instead, the results stumbled upon evidence supporting a criminogenic effect resembling the findings of Spohn and Holleran (2002). Alternative sanctions for non-violent drug offenders could be imposed outside of the traditional overwhelmed criminal justice system (Green & Winik, 2010; Nagin & Snodgrass, 2013; NIDA, 2019).

To reiterate, the deterrent hypothesis is a theoretical foundation of this study because drug laws are based on the premise that imprisonment will reduce the likelihood of recidivism. In sentencing, imprisonment and probation serve as two levels of punishment, incarceration being more severe than probation (Green & Winik, 2010). The idea behind specific deterrence in drug policy is if there is an increase in penalty severity, then there will be a decrease in the likelihood of those offenders committing severe future crimes. Furthermore, if any crimes are committed, they will be less severe (Paternoster, & Piquero, 1995), especially when compared to those less severely punished. Both criminal justice interventions have the same goals: reduce any subsequent criminal behaviors, rehabilitate offenders, and increase public safety.

Policymakers assume that prison sentences predict deterrent effects in recidivism, but empirical research finds little support in decreases in crime and some even report increases in crimes in some form (Cutler, 2009; Duke, 2010; Durose et al., 2014; Gendreau et al., 2013; Green & Winik, 2010; Guerino et al., 2011; Mauer & King, 2007; Mueller-Smith, 2015; Schiraldi et al., 2000; Spohn & Holleran, 2002; Sung, 2003; The Sentencing Project, 2012). The current study explored Stevenson's concept of worsen recidivism through the criminogenic effect of imprisonment, to understand why incarcerating people for drug law violations may not deter crime (Mauer, 2009).

Criminogenic Effect

Although the criminogenic effect is relatively recently empirically tested, crime scholars dating back centuries; like Bentham, Lombroso, and Tocqueville, have claimed that prisons are breeding grounds for crime (Gendreau et al., 2013; Lilly, Cullen, & Ball, 2007). Ironically, the classical criminologist, Beccaria (1764), asserted in his essay that excessive punishments will not only fail to deter crime, but actually increase criminal behaviors (as cited by Bernard et al., 2010; Young, 1986). This concept is analogous to the adverse or criminogenic effects of incarcerated drug offenders that research has supported (Belenko et al., 2004; Caulkins & Chandler, 2005; Cutler, 2009; Mauer & King, 2007; Price, 2011; Shepherd, 2006; Spohn and Holleran, 2002; Spohn, 2007; Stevenson, 2011; Sung, 2003). The current study analyzed Stevenson's concept of worsen recidivism through the lens of the criminogenic effect of imprisonment.

When addressing the Global Commission on Drug Policies, Stevenson (2011) warned that incarcerating low-level drug offenders has criminogenic consequences. This

criminogenic effect of imprisonment increases the likelihood of recidivism and is claimed

to encourage the development of additional criminal behaviors after that person is

incarceration. Stevenson referred to the outcomes of this criminogenic effect as "worsen

recidivism" and cautioned that continuing to send low-level drug offenders to prison may

make them more dangerous criminals. When testing the deterrence theory in sentencing

and recidivism, authors reported that some incarcerated drug offenders were more prone

to the criminogenic effect by having higher rates and faster timing to recidivate compared

to those not incarcerated (Spohn & Holleran, 2002; Stemen & Rengifo, 2011; Sung,

2003). Other scholars have found that incarcerated drug offenders are more likely to

reoffend when compared to other types of interventions and other types of offenders

(Caulkins et al, 1997; Cutler, 2009; Green & Winik, 2010; King & Mauer, 2002; Phelps,

2011; Pritikin, 2009; Przybylski, 2009; SAMSA, 2014). Testing the criminogenic

hypothesis against the specific deterrence theory is justified because incarceration may

not only fail to deter crime, but could make people worse criminals (Mauer, 2009;

Ormachea et al., 2016; Stevenson, 2011).

The schools of crime position assumes that prison increases criminality (Gendreau

et al., 2013) and that "Jailing people who are guilty only of drug use exposes them to a

prison culture that all too often encourages further drug use and more serious crime after

release" (MacCoun & Reuter, 2001; p. 220). Spohn wrote that although there is no causal

relationship between prison and recidivism, "I do contend, as have others, that the prison

experience may be criminogenic in itself; that is prison breeds crime" (2007, p. 46).

Some policy makers argue that prison grants Ph.D.'s in criminality and researchers

Jaman, Dickover, and Bennett claimed that "the inmate who has served a longer amount of time, becoming more prisonized in the process, has had tendencies toward criminality strengthened and is therefore more likely to recidivate than the inmate who has served a lesser amount of time" (as cited by Gendreau et al., 2013, p. 6). Research on more time spent behind bars predicting recidivism rates have been mixed. Spohn (2007) did not find that the length of prison sentences predicted recidivism for the Kansas City population of felons convicted in 1993, but Green and Winik (2010) found support for length of time predicting a criminogenic effect on recidivism using their Washington, DC data.

Those studying the criminogenic effect proposed that the inhumane conditions and the psychological destructive nature of prisonization increases crimes (Gendreau et al., 2013). Explanations for why prison enhances criminality include (a) the emotional and psychological destruction of a person's well-being (Pritikin, 2009), (b) the inability to adjust and integrate back into society after being incarcerated (Travis, 2005; 2008), (c) and the social learning environment of associating with more hardened criminals (Camp & Gaes, 2005). The interventions should address the reasons why someone might get involved with drugs in the first place, like the financial strain to sell drugs and the addiction to the specific drug (Alexander, 2012). From a public health perspective, drug addiction is a disease and many drug users sell or commit other crimes to support their own addiction. Currently, the system punishes more people who get involved with drugs, rather than treat or educate them, and the interdiction often creates a ripple effect for the individual and their families.

Many drug offenders sent to prison are socially integrated offenders, meaning these people have strong bonds to society with ties to family, education, and the workforce (Dejong, 1997; Spohn, 2007). There is evidence that incarcerating low-level drug offenders when alternatives are available undermines these communities and increases crime as 90% of incarcerated drug offenders will be released back into society (Lynch & Sabol, 1997; Travis, 2008). Dejong (1997) found that some offenders, such as those with stronger bonds to society, may be more deterred by severe sentences of imprisonment. However, Spohn (2007) found that prisoners were more likely to recidivate than probationers, regardless of their stakes in conformity.

Spohn (2007) concluded that sentencing people to prison with strong bonds to society, for example, employment, ties to community, and family, may turn low stake offenders into high stakes offenders with little or nothing to lose by returning to crime. This practice of incarcerating non-violent drug offenders at an unprecedented rate lead to the research questions of this study that other researchers have suggested but not empirically tested: The aim was to explore any net destructive effect between incarceration sentences and worsen recidivism among first time, low-level drug offenders.

All over jails and prisons, people charged with non-violent offenses are housed every day with people who are prone to violence. Current drug sentencing policies have amassed social problems like economic burdens and family dissolution; a disproportionate number of men and minorities incarcerated, and displaces violent and more dangerous predators (Delisi, 2003). Others claim prison offers the positive

reinforcement for antisocial behaviors, the lack of opportunity for treatment, and the

interactions with staff who promote a procriminal environment (CASA, 2012; Gendreau

et al., 2013). Stevenson (2011) asserted by sending non-violent, low-level drug offenders

to the same places the criminal justice systems sends rapists and murderers, this practice

creates more dangerous criminals. My analysis focused on the criminogenic effect of

incarceration on drug offender recidivism outcomes to see if there was any support for

Stevenson's claim of worsen recidivism.

Nagin (1998) argued that the experience of prison is degrading and dehumanizing

to the individual and the social stigma of being an ex-con is meant to have a deterrent

effect on future criminality. Gendreau et al. (2013) argued 15 years later that the

unintended consequences of using prison as punishment may expose lower risk

individuals to more dangerous, hard core criminals; prevent ex-felons from gaining

adequate employment upon release; and increase their likelihood of recidivism. One older

study found when analyzing recidivism among three states: Texas, California, and

Michigan that nearly half of released prisoners were rearrested within 3 years (Klein &

Caggiano, 1986). Most of these prisoners who were rearrested after experiencing

imprisonment sentences were convicted of serious crimes such as assault, robbery, rape,

and murder (Klein & Caggiano, 1986). Chiricos, Barrick, Bales, and Bontrager (2007)

studied over 95,000 Florida men and women and found that the felony conviction label

significantly increased recidivism rates within two years. Listwan, Sullivan, Agnew,

Cullen, and Colvin (2013) tested general strain theory (GST) against the deterrence

rationale of the prison environment on recidivism using the elements of hostile

relationships with correctional officers, perceived threatening situations, and the strains

of victimization on 1,613 Ohio released inmates. The results supported that certain strains

of the prison experience increased the probability of recidivism, which, refutes that

painful prison experiences reduce crime intended through specific deterrence (Listwan et

al., 2013).

Pritikin (2009) cataloged the criminogenic effects of imprisonment with the

experience of prison itself, the consequences post release, and the third-party effects.

Examples of the experience during incarceration includes losing ties to family and the

community, being exposed to a college for criminals, and the brutalization effect that

hardens the individual as a psychological defense mechanism (Pritikin, 2009). After

release, the individual is labeled criminal, is often denied political rights and social

programs, and may have a hard time finding employment (Pritikin, 2009). Third party

effects include delegitimization of authority, effects on family members, and the

aftermath of exposure effects (Pritikin, 2009). Exposures to people with higher

propensities to commit crime have been linked to reinforcing antisocial attitudes and

increase criminal behaviors post release (National Institute of Justice, 2008; Pritikin,

2009).

Camp and Gaes (2005) claimed that the criminogenic effect of imprisonment

contains multiple factors (a) the criminal propensity of the inmate's individual

characteristics, (b) the inmate culture of the prison, and (c) the prison regime. The

criminal propensity can be measured through the individual's criminal history or the

personal characteristics that a person brings with them to prison (Camp & Gaes, 2005).

The informal inmate culture that is developed by the inmates and the formal prison

structure are termed as environmental influences on inmates' behaviors (Camp & Gaes,

2005). When examining California's new classification system, the authors analyzed a

subset of 561 male inmates assigned to level 1 or level 3 to determine if inmates with

similar criminal propensities behaved differently in different levels of security in prison

facilities. Level 1 was ranked lower security and level 3 was ranked the second highest

security level in the new California classification system and the outcome variable was

inmate misconduct (Camp & Gaes, 2005). The results showed that the inmates were

equally likely to commit misconduct regardless of whether they were assigned to a higher

level of security (level 3) or the lower level of security (level 1). The authors concluded

that in this study, the criminogenic effect did not exist (Camp & Gaes, 2005). For the

current study, the criminogenic and the deterrence theories have different assumptions

about imprisonment's impact on drug offender recidivism.

Assumptions and Applications of Theories

Specific deterrence theory stems from the Classical School of Criminology,

applying to the individual who receives severe punishment, like imprisonment, for a

crime and then decides to commit further crime or reform after sanction. This school of

thought applies the notion that people are naturally hedonistic, want to maximize gain

and minimize costs, and the choice to commit crime lies within the individual. Therefore,

the individual faced with punishment for certain behaviors, applying the specific

deterrence model, would likely behave in a manner to avoid punishment. The application

of the specific deterrence theory from the Classical School of Thought is different than

the other two frameworks explaining crime causation, which, are the Positivist School of Criminology and the Behavioral of Law (Bernard et al., 2010). The Positivist School of Criminology explains crime causation through external forces beyond the criminal's control like one's genes in biology. The Behavioral of Law focuses on the way a society's laws are written, how they are enforced, and who is most likely to be punished under the regime (Bernard et al., 2010). The examination of drug sentencing policies could be studied using any one of the broad criminological schools of references, but the specific deterrence effect predicts the relationship between incarceration and recidivism. This premise is based on the individual's choice to recidivate or desist in criminal behavior after the punishment has been served and originates in the Classical School of Criminology.

This examination of the criminogenic effect of imprisonment among drug offenders integrated Stevenson's (2011) concept of worsen recidivism to contribute to the literature on this viewpoint. The major proposition in both theoretical frameworks was to predict the relationship between punishment and crime through statistical analyses (Gendreau et al., 2013; Spohn, 2007; Spohn & Holleran, 2002; Sung, 2003). The criminogenic hypothesis predicts that the drug offenders sentenced to incarceration will have higher odds of more severe crimes or worsen recidivism, when compared to those who received an alternative intervention like probation sentences. Felony crimes are more severe than misdemeanors and violent crimes are considered worse than non-violent new charges. The deterrence theory predicts prisoners will have lower odds of worsen recidivism than the probationers. When conducting quantitative methods on data for

hypotheses testing, the null hypothesis is always statistically analyzed first. The null

hypothesis in this study states that severe punishment or incarceration, does not have any

impact on worsen recidivism outcomes, for example new felony or violent recorded

crimes. Literature-based covariates outside of these theories are presented later in the

background characteristics section, but first there are more assumptions on drug

sentencing policy.

The assumptions behind severe sentencing policies like three strikes, you're out

and mandatory minimums are to teach offenders that punishment for committing crime

will be swift, severe, and certain (Gendreau et al., 2013). The message that crime does

not pay is implemented through tough sentencing policies with the assumption that longer

prison terms will specifically deter offenders when rationally choosing to commit future

crimes (Becket, 1997; Gendreau et al., 2013). After experiencing the costs, for example

time in prison, then the premise is that the individual should be less likely to break the

law for fear of going back to prison (Gendreau et al., 2013). Expanding on each

imprisonment and reoffending theory, this study explored the impact of incarceration on

the gravity of the new offenses and calculated the likelihoods of felony and violent

recidivism outcomes among first-time drug offenders. The current study was designed to

challenge the specific deterrence effect of imprisonment and build on the criminogenic

effect of imprisonment on drug offender recidivism by selecting reoffenders.

The next section focuses on the background of drug sentencing policies and

recidivism. Drug policy research has gained in popularity since the get-tough drug law

reforms in the 1980s and 1990s as incarcerating people for drug law violations

contributed to the massive prison boom (Mitchell et al., 2017b). Now some states are changing their drug sentencing policies and diverting drug offenders away from prison to community-based sanctions. For example, from 2011-2012, approximately half of the decline in the prison population was due to the 15,035 inmates who were diverted from prison to treatment in California, in response to a Supreme Court order to relieve the overcrowding prison conditions (Goode, 2013). While there are books about deterrence-based drug laws (Bertram et al., 1996; MacCoun & Reuter, 2001), a brief history of how millions of people have been labeled drug offenders and sentenced to imprisonment, warrants a brief summation.

Literature on Drug Laws, Imprisonment, and Recidivism

A Brief History of Drug Laws

Drug laws are relatively recent in the history of United States. People who used substances like cocaine, heroin, opium, and marijuana did not always get arrested, locked up, and labeled criminals for doing so (Bertram et al., 1996). A hundred years ago, there was no such criminal class of *convicted drug felons* or drug offenders. Drugs were ubiquitous and not really considered a social problem as using substances like indigo, opium, and laudanum were considered private affairs. The United States military used hemp rope; cocaine was originally an ingredient in tonic products like Coca-Cola, and a person could walk into their local pharmacy and buy laudanum. Over the last century, politicians, pharmaceutical companies, doctors, law makers, and the criminal justice system all contributed to the creation of a new class of criminals with millions of people now labeled convicted drug felons, disenfranchised, and social outcasts (MacCoun &

Reuter, 2001; Potash, 2015). Professionals began to recognize drug addiction in the end of the 19th century during the nation's first opioid epidemic.

Physicians first recognized drug addiction as a disease after the Civil War. Soldiers were returning home addicted to morphine and the medical community advocated for medicines to have prescriptions and labels of the ingredients for public safety (Bertram et al., 1996).Drug addiction at the turn of the 20th century was treated through the public health system as drug addicts were patients, not criminals. It was proposed that drugs like opium and cocaine were to be controlled by medical professionals and prescriptions would permit habitual users the necessary treatment by a "lawfully authorized practitioner" (Bertram et al., 1996, p. 63).

In 1903, the Pharmaceutical Association argued that medical practitioners should regulate, not prohibit, drug use. In 1906, the U.S. government passed the *Pure Food and Drug Act*, which ultimately led to the first federal policy against drugs: *The 1914 Harrison Narcotics Act* (Bertram et al., 1996, Janssen, 2011; MacCoun & Reuter, 2001)Many federal policies would follow the *Narcotics Act of 1914*, including the *Marijuana Tax Act in 1937*, the *Controlled Substance Act of 1970*, and the *Anti-Drug Abuse Act of 1986 and 1988*. During the creation of new drug laws, the federal government set a trend in strict drug sentencing policies and states quickly followed suit. Drug sentencing policy reforms occurred in 1980s and then mandatory minimums were implemented in the 1990s. The strict sentencing guidelines encouraged severe sanctions, (in other words), increasing the likelihood of getting arrested, put in jail or prison, and for longer sentences.

Politicians plead to public support of get-tough drugs laws that would lock up more people who used and sold illicit drugs like marijuana, heroin, and crack cocaine because people were dying from drug overdoses and the violence associated with drug trafficking. While Nixon declared a rhetoric war on drugs as part of his political campaign, President Ronald Regan declared a literal war on drugs in 1982 and expanded anti-drug laws with austere penalties during his administration (Alexander, 2012; DuVernay, 2016). Former President Nixon's approach focused more on the treatment aspect of drug addiction, but the Regan years focused on strict drug law sentencing reforms that pushed for enforcement and incarceration. It is important to note that the second opioid epidemic occurred after Vietnam, when soldiers got hooked on opium and then came home and turned to heroine in the 1960s and 1970s. President Bush and President Clinton presented a law and order image and put policies into place that would exacerbate the war on drugs with mandatory minimums, truth in sentencing laws, and three strikes, you're out. Billions of dollars were allocated in these policies to build more prisons, put more law enforcement out on the streets, and gave law enforcement the tools to apprehend more people to fill up the beds of the new penal institutions. These tough on crime sentencing policies to exacerbate the drug war explain the mass incarceration problem in the United States in the 21st century (DuVernay, 2016). A recent study by the United States Sentencing Commission (USSC, 2017) found that the typical sentence under mandatory minimum sentencing policies were approximately 110 months, a sentence more than four times the length of prison terms where a mandatory minimum penalty does not apply.

In addition to tough sentencing policies for people who get arrested for using or selling street drugs (cocaine, heroin, LSD, marijuana), obtaining prescriptions illegally often result in a person spending time behind bars. Given the current opioid crisis in the 21st century, America's drug problem is worse than ever and weighs on state budgets, local economies, and the criminal justice system (NIDA, 2019; Rudd et al., 2016). The current opioid epidemic can be traced back to the opium wars (1839-1842, 1856-1860, 1893) as European merchants, like the East India Company, made huge profits from the opium trade when China lost control to Britain of the poppy field located in the golden triangle of Asia (Potash, 2015).

The opium derived from the poppy plants that permitted the manufacturing of pain killers by European and American pharmaceutical companies, like the painkiller hydrocodone that was manufactured in a German lab in 1920. A fast-acting opioid, hydrocodone, was known to be highly addictive and is no longer prescribed in Germany and much of Europe. The chemical compound of prescription pain killers like hydrocodone and oxycodone are very similar to heroin, but one is legally prescribed and orally ingested while heroin is an illicit street drug used intravenously. When people can no longer get a prescription for narcotic pain killers and cannot afford to pay street prices for these drugs illegally, many of them to heroin because it is cheaper and easily found on the black market. Today, 80% of all heroin users reported they got addicted to opioids from prescription pain killers (NIDA, 2019; Rudd et al., 2016). Often with an addiction and no resources, some opioid abusers end up on the streets with little or nothing to lose by committing crimes.

According to NIDA (2019), the opioid epidemic burdens the nation with 78.5 billion dollars per year in loss of income, healthcare, and criminal justice interventions (Rudd et al., 2016). Prescription drugs have become such a problem recently that there are more deaths per year caused by pharmaceutical medications than deaths caused by cocaine and heroin combined (Addiction Center, 2018). About 130 people die every day from drug overdose and it is now the number one killer of Americans under 50 years old, surpassing automobile accidents and guns (NIDA, 2019). Barry and Frank (2019) reported that about two thirds of the 70,000 drug overdoses in 2017 were opioid fatalities, largely due to the spike of the pharmaceutical fentanyl and car fentanyl, which causes more deaths than heroin. Fentanyl is 50 times more potent than heroin and 100 times stronger than morphine and takes very little to cause death. Fentanyl has caused at least 68,000 deaths since its induction to U.S. streets in 2013, almost 30,000 deaths in 2017 alone, doubling those deaths attributed to heroin overdoses that same year (Barry & Frank, 2019). With drug dealers putting fentanyl in heroin, fatalities have skyrocketed. While many drug sentencing policies are specific to the type of drug, class of substance, and quantity, the label of drug offender is the same in the eyes of society, regardless of illegal street drugs or misusing prescriptions. Unlike other types of offenders, drug offenders have penalties only applicable to them.

Why This Type of Offender?

Larkin Jr. (2014) wrote that ever since the federal government passed *the Anti-Drug Abuse Act* during Regan's War on Drugs campaign; the criminal justice system, drug policies, and racial discrimination have been linked, studied, and debated. States

followed the federal trend of tough drug sentencing policies and by the beginning of the 21st century, there was a population the size of Washington DC held in U.S. prisons and jails for drug offenses (Schiraldi et al., 2000). Decades of new tough drug sentencing policies at the state and federal levels led to a spike in drug-involved offenders on parole and probation as well. SAMSA (2014) reported that 27% of the 1.7 million adults on parole in 2013 used illegal drugs, while over 31% of the 4.5 adult probationers were current drug users. Since staying drug free is part of parole and probation stipulations, many of these people who fail drug tests end up going back to prison. The criminal justice system is trounced by the number of drug cases, and some jurisdictions have drug courts to deal with this type of offender. Unfortunately, some estimate as low as 10-15% of those people in the criminal justice system who need treatment for a drug addiction, are truly getting the treatment they need (Addiction Center, 2018).

The rationale behind studying a sample of drug offenders is because they have been the fastest growing inmate population overcrowding prisons and jails since the harsh drug sentencing policies (Shannon et al., 2017). Director, Matthew Cook (2017), claimed that the U.S. incarcerates more people for drug offenses than any other country in the world and this statement is corroborated by governmental statistics (BJS, 2018). Drug enforcement, recycling people in and out of corrections, and high recidivism rates, all shed light on how the United States became a mass carceral state (Beckett, 1997). For instance, in 1980, approximately 19,000 were incarcerated in state prisons for drug crimes compared to 242,200 in 2010 (Guerino et al., 2011). Many people in jail have not even been convicted and are awaiting court action but simply cannot afford bail to get

released (BJS, 2018). Most convicted drug felons end up in prison as a result of a plea bargain for fear of getting more time if lost at trial. Furthermore, of those convicted on drug charges on probation and parole, many end up back in jail for failure to pay court fines on the back end and the cycle of recidivism persists. Drug sentencing policies appear to be heavily affecting the destitute or as Chiricos and Bales (1991) described, the penalties for a surplus population.

CASA (2010) presented evidence that substance-involved inmates rose 43% from 1996-2006 to a total of 1.9 million prisoners. Drug sentencing policies are responsible for the hike in female inmates (646%) and the increase of men (419%) in prison from 1980-2010 (Mauer & McCalmont, 2013). In late spring of 2015, the Bureau of Prisons (BOP) reported approximately 95,165 people were still in federal lock up on drug convictions. Harsh drug sentencing policies are responsible for leading the world in prisoners, as 1 out of 4 of the world's prisoners are housed in the United States (Cook, 2017; Hawkins, 2010). The Sentencing Project reported that in 2015, there were over 500,000 people locked up due to anti-drug laws. Regardless of type of drug, drug offenders are different than non-drug offenders in various ways.

Why Are Drug Offenders Treated Differently by the Criminal Justice System?

People who violate drug laws are punished under drug specific statues, which may not apply to any other type of offender (Matthews, 2013). Many states now incentivize drug law enforcement as bonuses for drug arrests (Pritikin, 2009). In some states where convicted drug felons lose their driver's license, like Texas, they have difficulty finding adequate transportation to gain employment. The drug offender stigma

means that person broke the law and got involved with drugs and therefore must check the box of convicted drug felon on every job application, which hinders gainful employment and potential earnings. People convicted of a drug offense cannot hold public offices or get business loans, and many are denied educational assistance and public services (Pritikin, 2009). Federal regulations prohibit financial assistance to many people who were convicted with any type of drug law violation under the Free Application for Federal Student Aid (FAFSA). Policies designed to deter drug offenses may contribute to the recidivism when social programs are denied to individuals released from prison. For the rest of that person's life, they will be introduced to society as a criminal, even after their time has been served (Travis, 2008).

President Clinton signed the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) on August 22, 1996, which is still practiced in 10 states (Mauer & McCalmont, 2013). This Act put a lifetime ban in all 50 states by default at the federal level for programs such as the Supplemental Nutrition Assistance Program (SNAP) and Temporary Assistance to Needy Families (TANF) for convicted drug felons but permitted states to opt out of the policy. This federal lifetime ban is specific to people convicted of drug-related crimes which could have unintended consequences with increases in recidivism. One study found that when being eligible for food stamps access to these benefits decreased recidivism among drug offenders by 10 percent in the first year (Yang, 2017). The people being released for a drug conviction are disqualified from most financial programs during the transitioning period from being locked up to becoming a productive member of society.

In addition to mandatory minimums that often came with drug sentencing policies, President Clinton brought the three strikes, you're out legislation which permitted life sentences for multiple drug infractions (Mauer & McCalmont, 2013). There are many people serving life sentences in prison for drug crimes, some for multiple convictions of simple possession. Drug possession, manufacturing or distributing drugs, and even committing certain property crimes while under the influence or as means to buy drugs, are all classified as drug-related crimes.

Drug-Crime Nexus

Literature establishes that the relationship between drugs and crime is intimately linked (Cohen, 2000; Delisi, 2003; ONDCP, 2001). The drug-crime nexus is tautological because some argue that drug use causes crime and then others assert crime causes drug use (MacCoun et al., 2003). It is also difficult to distinguish the "criminality" effect within the individual from the "use" effect of the drug (Cohen, 2000). There are a variety of environmental, situational, dispositional, and biological factors that influence the relationship between drug use and criminality (MacCoun et al., 2003). One theory is the moral poverty perspective that insists that drugs, crime, and vice are highly related, and the result is moral poverty (Delisi, 2003). Another theory is Goldstein's Taxonomy that focuses on the triparate relationship between drugs and crime. Regardless of these theories between drugs and crime, without successful treatment or drug involved offenders desisting from drug abuse on their own, these types of offenders increase repeated contact with the criminal justice system (Belenko et al., 2004).

Some argue that if drug involvement was not illegal, then the street prices would fall and the purchase of drugs would lose its inelasticity along with any economic motive to commit drug related crimes (MacCoun et al., 2003; Price, 2011; Shepherd, 2011). Under this perspective, it is the prohibition of drugs that creates a class of criminals known as drug felons who would not otherwise have much contact with the criminal justice system if drug policies were different. Delisi (2003) refuted this perspective and asserts that drug offenders are career criminals. Delisi (2003) claimed that drug offenders are more than capable of committing violent crime and are not the benign martyr or blameless innocent that is described in drug policy literature. Drug use can play a role on other types of criminal behaviors, such as violent and property crimes, but many of drug using incidents do not coincide with other forms of criminality (MacCoun et al., 2003).

The inability to legally enforce property rights in the illegal drug markets has been linked to violent crime because of the rise in prices, the possible profits of drug distribution; the diversion of police, court, and incarceration resources from other crimes, disrupting the allocation of drug markets, and increasing the replacement effect of drug distributors who fight over turf to sell drugs (Kuziemko & Levitt, 2004). A study conducted by arrestee drug abuse monitoring (ADAM) across 35 cities found that 40-80% of males tested positive for drug abuse at the time of their arrest (as cited by MacCoun et al., 2003). The Bureau Justice of Statistics reported that 22% of the federal inmates and 33% of the state inmates surveyed who had convictions of robbery, motor vehicle theft, or burglary claimed to be using drugs at the time they committed their crimes (as cited by MacCoun et al., 2003). Drug trafficking has been associated with an

increase in drug related homicides as Fitzpatrick discovered that there was "a high prevalence of homicide deaths among identified drug addicts" (as cited by Cohen, 2000, p. 1). Arrests for drug law violations include the number of people arrested (offenders) and the total number of violations (offenses) by such offenders (MacCoun & Reuter, 2001). Someone arrested as a drug offender can be convicted of multiple drug offenses, including possession that is often associated with drug use and intent that is often distribution.

Public opinion in drug sentencing research has been mixed. Doob, Sprott, Marinos, and Varma (1998) found that the public surveyed had inconsistencies because although the vast majority supported prison as an effective deterrent to crime, over 70% preferred to allocate monies on preventative and educational alternatives to incarceration. Another source indicated that offenders and the public agree that prison sentences are the most severe and effective punishment for criminal behavior (Gendreau et al., 2013). Green and Winik (2010) suggested that for drug-related offenders, neither incarceration nor probation sentences seemed to be effective sanctions in reducing crime in their sample. Hepburn and Albonetti (1994) found no difference when analyzing recidivism outcomes among two groups of probationers: those who received drug monitoring only and those who received drug treatment along with drug monitoring. Recidivism studies from Cohen (2000), Stemen and Rengifo (2011), and Delisi (2003) are presented next in the sections of drug use, incarceration in drug sentencing, and recidivism outcomes research. As possessing drugs are against the law, drug use is another measurement for recidivism. The argument is if we can reduce drug use, then we can reduce crime.

Drug Use

While incarcerating people for drug offenses is relatively high in the United States, the drug use rates have not significantly decreased as policy makers intended. One source reported on a study conducted through the Substance Abuse and Mental Health Services Administration (SAMSHA), using the National Survey on Drug Use and Health (NSDUH), estimated that about 24 million Americans reported using illicit drugs in the past month (National Institute of Drug Abuse, NIDA, 2015). NIDA (2015) commented that the use rates of people of 12 years and older increased from 8.3% in 2002 to 9.4% in 2013 and that marijuana largely explains the increases in rates of current illegal drug use. For instance, about 7,000 people try marijuana for the first time daily (Addiction Center, 2018) and this drug has seen an increase of over 5 million users from 2007 to 2013 (NIDA, 2015). The SAMSHA survey in 2013 also reported that current users of cocaine declined by about 25%, but saw an increase in Methamphetamine use rates, and claimed that the rest of the drugs went relatively unchanged from 2002 and 2007, respectively (NIDA, 2015). Imprisoning so many drug offenders over decades should have resulted in a drastic decrease in drug use, but instead, rates of drug overdose deaths tripled over the last 20 years (Addiction Center, 2018; NIDA, 2019).

> Observers of the criminal justice system who in general agree on little else have joined in arguing that increased penalties for drug use and distribution, at best, have had a modest impact on the operation of illicit drug markets, on the price and availability of illicit drugs, and on consumption of illicit drugs (Cohen, Nagin, Wallstrom, & Wasserman, 1998; p. 1260).

Mounting empirical support suggests that incarceration increases the chances for

recidivism and is less effective in reducing drug use, intervention costs, and reoffending,

when compared to alternatives like rehabilitative services and educational resources

(Mueller-Smith, 2015; Rodriguez & Saunders, 2009). For instance, SAMSA (2014)

reported that sending a drug addict to a community-based program saves on average

$20,000 annually per person when compared to incarceration. While interdiction focuses

on reducing the supply side of the drug problem, the demand in America is much higher

than in other countries, which could be addressed through education and treating drug

addiction (Rudd et al., 2016). With the current opioid epidemic, use rates, loss of

productivity, and deadly overdoses are of national concern in the public health system

(Rudd et al., 2016).

In some jurisdictions, arresting people for drug use and possession supersedes all

other types of offenses. In 2013, approximately 46% of all arrests for drug abuse

violations were for possessing and manufacturing and selling marijuana (Uniform Crime

Report, 2015). In 2014, almost 50,000 people died from drug overdoses and from 2010-

2015, it was reported that heroin use skyrocketed 186% (Rudd et al., 2016). In 2011,

800,000 U.S. citizens admitted to having an addiction to cocaine and from 2007-2011,

the amount of people addicted to heroin doubled (Addiction Center, 2018; NIDA, 2015).

Approximately 7,000 people reported that they tried marijuana for the first time per day

(Rudd et al., 2016), 800,000 reported addictions to cocaine, 1.7 million reported a pain

killer addiction, and 652,000 people claimed they had a heroin addiction (NIDA, 2019).

It seems problematic to lock all these people up, especially when most of these people

will not receive treatment while incarcerated. As demonstrated through this literature review, there may be criminogenic consequences in putting this type of offender behind bars to begin with.

In drug policy, studies have evaluated the links between types of drugs, use effects, and types of recidivism (Cohen, 2000; Delisi, 2003). When examining drug use and its relationship to violent offending, Cohen (2000) analyzed the relationships between the types of drug used, the drug use status, the timing of rearrests rates, and the level of new offense committed. The author measured individual offending levels and examined rates at which the arrests occurred, based on drug use status. Cohen tried to distinguish between evidence of criminality and the psychopharmacological induced behavioral effects of such ingested drugs.

Among the same sample of subjects in a longitudinal study, Cohen differentiated between the effects of individual criminality and the use effects and justified why she incorporated transitory periods in her analysis:

> "Use" effects refer to the transitory effects arising from the actual ingestion of drugs or the influence of the settings where drugs are used, while "criminality" effects refer to more enduring traits of individuals that contribute to both drug use and offending by the same persons. (2000, p. 5)

The types of crimes were categorized as predatory crimes, personal-violence crimes, property/theft offenses, public order/vice crimes, and drug offenses. In this study, robbery would be a predatory crime; assault would be a personal-violence crime, and prostitution would be a public order/vice crime (Cohen, 2000). The type of drugs studied in this

sample were heroin, cocaine, and PCP. Cohen observed the subjects' status at different times of the study and recorded them as either users or nonusers.   The results of her study concluded that there were inhibiting effects of heroin and cocaine use on most crimes; there were aggravated effects during withdrawal periods of cocaine use on predatory offending, and the short and long-term effects of PCP use aggravated most crimes, particularly personal violence offenses.

Heroin users displayed a higher annual number of arrests for property crimes and drug offenses when compared to nonusers of heroin (Cohen, 2000). There was no difference between heroin users and nonusers in personal violence and public order/vice crimes. Heroin users in the study also had lower rates of predatory crime compared to nonusers. When trying to examine the transitory from using heroin and getting clean at different time intervals throughout the study, Cohen suggested that perhaps in chronic offending heroin users, there is more of a criminality effect of the individual propensity to be predisposed to use drugs instead of the use effect of ingesting drugs.

Cocaine users (also included crack users) had no difference in property crimes and predatory crimes compared to nonusers of cocaine, but users had lower rates for public order/vice and personal violent offenses than nonusers (Cohen, 2000). In fact, Cohen reported a 40 to 50% decline in arrest rates for personal violent, property, and drug offenses from the participants transitioning from clean back to using cocaine again. When people in this sample stopped using cocaine, there was a 6.57-fold increase in predatory offenses, which is consistent with the withdrawal effects from going off the drug. Cohen summarized that during withdrawal periods as a nonuser of cocaine, these

individuals were more likely to commit predatory offenses like robbery to acquire money to buy drugs.

For PCP users, arrests for property offenses declined compared to nonusers, but chronic PCP use was associated with an increase in arrests rates for personal violence, predatory, drug, and public/vice offenses (Cohen, 2000). PCP users were four times more likely to be arrested for predatory offenses than nonusers (Cohen, 2000). During the transitory periods from being clean (a nonuser of PCP) to using the drug (PCP users), arrest rates doubled for predatory offending (Cohen, 2000). From a social policy change perspective, Cohen suggested that crime could be reduced by reducing drug use. Drug use, for the most part, is criminalized in the United States through illegal possession laws based on the quantity and type of drug.

Barry and Frank (2019) argued that drug sentencing policies should be based on evidence-based treatment with a focus on harm reduction, as incarceration has proved highly inefficient and may have unintended consequences in drug-related crimes. Studies have reported a negative effect between the severity of punishment and higher drug consumption (Chaloupka, et al., 1999; Desimone, 1998). Furthermore, money invested in incarceration increased the odds of cocaine use compared to money invested in treatment (Caulkins et al., 1997). Most incarcerated drug abusers do not get the treatment they need in prison, but many still have access to drugs (Duke, 2010: Lynch & Sabol, 1997; MacCoun et al., 2003; The National Center on Addiction and Substance Abuse, 1998). Using imprisonment as the primary tool in America's drug problem is aimed at decreasing drug consumption by lowering the supply of drugs, but this approach does not

take into account the existence of prison drug markets, a very lucrative market (Bewley-Taylor et al., 2009). Addicts who do not get clean are more likely to continue committing crimes to support their habits inside and outside of prisons (Price, 2011). Untreated individuals increase the likelihood of returning to drug use and criminal activity, which ultimately, leads to reincarceration (Belenko et al., 2004).

Belenko et al. (2004) performed a longitudinal quasi-experimental research design on 150 drug offenders sentenced to the diversion treatment alternative to prison (DTAP and compared their recidivism rates, timing, and outcomes to 130 state prisoners. This was a follow up to Sung's (2003) earlier study on drug offenders diverted away from prison in Brooklyn, New York. Out of the 150 DTAP participants, 90 drug felons completed the program and 60 dropped out or failed. The authors matched the drug offenders' arrest charges, prior felony convictions, race, gender, age, drug use, and desire for treatment. Belenko et al. (2004) also controlled for time at risk in the community and any prior misdemeanor convictions with a follow-up range of 0-103 months. Their multiple measurements of recidivism were new arrest post-admission, and new convictions after release of prison or DTAP. Belenko et al. (2004) also controlled for the severity of the new charge, for example, either a felony or misdemeanor, and the new charge type that was categorized as either a drug or non-drug crime.

One difficult measurement that Belenko et al. (2004) accounted for was time in the community to reoffend, also known as censoring, which is a major limitation in recidivism studies. If this factor is not controlled for, the results "can artificially inflate estimates of rearrest rates and distort effect sizes, so paradoxically, higher-risk offenders

may appear to have lower rearrest prevalence due to reduced time in the community," (Belenko et al., 2004, p. 109). Results suggests that the punitive paradigm of zero tolerance towards drug involvement has had more costs than benefits when evaluating the outcomes for drug offenders, imprisonment, and recidivism (Belenko et al., 2004).

Censoring is not a major necessity for my study because I am not comparing rates or conducting a survivor analysis on timing until next offense. While the current study is not using type of drug charge in the analyses like others have (Cohen, 2000), information obtained from the Harris County archival database detailing the type of drug charge to determine the target sample size will be presented in Chapter 3. There are millions of Americans with the stigma convicted drug felon who probably spent some time in jail or prison under drug sentencing policies for using controlled substances (Shannon et al., 2017).

Incarceration in Drug Sentencing Policy

America has been incarcerating its way out of illegal drug use to solve the drug problem (Price, 2011), leaving the criminal justice system overwhelmed with the large influx of drug offenders (Belenko et al., 2004). There are still about 600,000 to 700,000 people being released from prisons and jails annually and many of them are kept prisoner for drug-involved charges, plea bargains, and convictions (Perry, 2018). In some jurisdictions, the courts are more treatment oriented and drug offenders are more likely to be sentenced to probation and or treatment. In many jurisdictions, such as Harris County, prison is still widely used as a severe form of punishment for drug offenses (Mueller-Smith, 2015). The draconian drug sentencing policies have resulted in expensive costs for

society and unintended consequences for the individual and their families (Doob,

Webster, & Gartner, 2014; Foster, 2012).

Although rehabilitation is the preferred method in treating the underlying causes

of drug involvement, current drug policies lean more towards the punishment approach

with some amount of time deserved behind bars and heavy fines are usually a given to

cover court costs. CASA (2010) found that in 2005, federal, state, and local governments

spent around 74 billion dollars on probation, court proceedings, incarceration, and parole

services for substance involved offenders (including juveniles), but only 632 million

dollars (less than 1% of what was allocated to punishment) on treatment and education

for these offenders. From 2012-2013, the ONDCP reported that an increase of 15.8

million dollars of the drug control budget was allocated to BOP treatment efforts while

there was an increase in 141.8 million dollars funded to Incarceration Operations. During

the federal budget of fiscal year 2013, President Obama announced the allocation of 28

billion dollars to be spent on policing and prison and a large portion of that money was

allocated to enforcing drug laws and housing drug offenders (Justice Policy Institute,

2012).

Stemen and Rengifo (2011) examined the new mandatory drug policy in Kansas

and found mixed results on recidivism when compared to other sanctions. Stemen and

Rengifo (2011) studied the individual and system impact of imprisonment on recidivism.

In Kansas under the new SB123 policy, the authors' examination included two different

time periods with multiple criminal justice interventions. People with a first or second

simple drug possession offense and with no prior person offenses, were diverted from

incarceration to a community-based program for up to 18 months. To be eligible for

SB123, the criminal criteria E-I had to be met; meaning no prior criminal history or only

misdemeanor convictions, and these drug offenders could have no prior drug trafficking

convictions. SB123 was made mandatory for judges in sentencing certain offenders who

met the criteria. These drug offenders had to serve their sentence in a community-based

program under strict supervision (Stemen & Rengifo, 2011). The authors matched

offenders of SB123 participants to standard probation, community-based program, and

prison to attempt a quasi-experimental design in two cohorts: one group sentenced

between November of 2003 through November of 2005 and the second cohort was

sentenced from 2005 through 2008 (Stemen & Rengifo, 2011).

Stemen and Rengifo (2011) began their analysis with unmatched samples between

alternative sanctions and SB123 two cohorts at two different times. The independent

variable was sentence: SB123 or alternative sanctions and the dependent variable of

recidivism study was failure measured by reconviction and revocation. The first cohort

had a higher chance of recidivism when compared to the other sanctions. Through

logistic regression analysis, SB123 participants had no significant difference in

recidivism compared to community corrections of those match-pairs in second cohort.

The authors also measured time to failure and controlled for time free in the community

to offend. They concluded that SB123 offenders recidivated faster and had a lower

survivor time than drug offenders in the court services group (Stemen & Rengifo, 2011).

Other findings were that urban offenders were more likely to fail than rural offenders and

the court service group had lower likelihoods of recidivism compared to other sanctions.

Stemen and Rengifo (2011) established that when compared to prison, courts services, and community corrections, SB123 sentences were more likely to recidivate during the 24-month follow up period.

One limitation of this study is the authors had no control over the selection process of which offenders got to participate in SB123, court services, community-based corrections, or prison. This is a major limitation in recidivism research. The authors tried to address the lack of controls by using different time periods and, running multiple analyses on unmatched and matched pairs in the samples according to various sentences (Stemen & Rengifo, 2011). The authors reported that 70% of statewide eligible drug offenders are being sentenced to SB123 with increased supervision. The authors suggest that 1.) the increase of supervision in SB123 and treatment and, 2.) a lower amount of supervision in court services, could explain why there are higher recidivism rates among the SB123 participants. The systematic impact has lowered the amount of low-level drug offenders sentenced to prison by diverting them to SB123 in the front end but is linked to high revocation rates which result in net widening on the backend of incarceration (Stemen & Rengifo, 2011). Mueller-Smith (2015) studied the various sentencing options and found that sentences of incarceration and longer terms are not cost effective.

Mueller-Smith (2015) examined imprisonment's impact on recidivism and labor markets using new data from Harris County, Texas. The rather large sample included approximately 1.5 million misdemeanor offenders and over 750,000 felony offenders sentenced between 1980-2009. The author took advantage of the random courtroom assignments of two sources of bias: (a) The various levels of sentencing, (in other words),

fines, incarceration, probation, and, (b) The non-monotonic tendencies of the judges, (in other words), easy on property offenders but tough on drug offenders (Mueller-Smith, 2015). Although the research design did not account for general deterrence, his study found that incarceration increased the frequency and severity of recidivism, increased welfare dependence, and decreased employment outcomes.

Time also impacted outcomes such as those felony offenders who had stable employment prior to conviction, as one or more years behind bars led to post release drop in earnings of 24 percentage points (Mueller-Smith, 2015). The author concluded that the short-term incapacitation benefits of imprisonment did not outweigh the criminological effects, administrative expenses, and the negative economic impacts. Particularly among property and drug offenders, Mueller-Smith (2015) determined that incarceration did not deter crime in his sample but encouraged new types of criminal behaviors. The current study used a smaller sample from Harris County where judges were more tough on drug offenders and imprisonment increased recidivism in the general population.

The goals of incarceration as punishment in drug policy are primarily for deterrence, incapacitation, retribution, and rehabilitation (Stemen & Rengifo, 2011). Sentences to imprisonment and longer lengths of prison time are the most severe punishment when compared to community-based sanctions such as probation, substance abuse treatment, community service, etcetera (Gendreau et al., 2013). There are also different levels of incarceration, like federal and state prisons or local jails, which may depend on factors like length of sentence. Mandatory minimums and other get-tough policies like three strikes you're out laws are also reasons why drug offenders have

figured prominently in overcrowding prisons because of increases of incarceration and for longer sentences (Cohen et al., 1998; Gendreau et al., 2013). Longer periods of imprisonment are supposed to deter criminality for that person who serves their sentence because time is another measurement of punishment severity (Gendreau et al., 2013). Time in prison has shown both criminogenic and deterrence effects on recidivism (Mears, Cochran, Bales, & Bhati, 2016). Mears et al. (2016) showed recidivism patterns going up, down, and then no effect, after a couple of years. Their study found that time initially increased recidivism until around one year served, and then there was a drop in recidivism. After spending 2 years behind bars, the analysis showed no effect on recidivism (Mears et al., 2016). The measurement of time is very critical in recidivism studies, especially because time matters in sentencing, tracking period, and time free in the community to reoffend.

The deterrent effect of imprisonment is often sought after in recidivism research with the expectation of finding some empirical evidence supporting reductions in crime to justify this type of sanction. Like Green and Winik, Gendreau et al. (2013) also concluded that the specific deterrent effect of imprisonment should not be the rationale behind excessive use of prison sentences. Furthermore, Gendreau et al. (2013) argued that prison should not be used with the expectation of reducing criminal behavior but be only used to incapacitate and exact retribution from chronic, high risk offenders for reasonable periods of time.

Recidivism Outcomes

As previously defined in chapter 1, recidivism is when a person who has been previously arrested, convicted, or incarcerated for a crime, returns to crime post criminal justice intervention, after a certain tracking period like 6 months, 1 year, 3 years, 5 years, etc. There are various measurements of recidivism: rearrest rates and timing until new charge (Spohn and Holleran, 2002), reconvictions (Mitchell et al., 2017a), or describing new offenses (Cohen, 2000; Delisi, 2003). Spohn and Holleran (2002) referred to the 4-year tracking period in their study as the window of time to failure and claim that at least 36 months should be the minimum time frame to track recidivism. The researchers included time (in months) in their analyses for an interval level measurement of recidivism (Spohn & Holleran, 2002). In recidivism research, multiple measures of recidivism are preferred as noted by a recent study by the United States Sentencing Commission that examined rearrests, reconvictions, and reincarcerations (Hunt & Dumville, 2016). The present study focused on linking multiple charges to each offender to gain a sample of drug offenders. This way, the magnitude of post release recorded criminal behaviors for each Harris County drug case could be examined using dates over the 20-year span, along with dispositions (jail, probation), recidivism outcomes (felony or misdemeanor), and background information.

Reoffending post sentencing is of grave interest in mainstream criminology and public policy (Bales & Piquero, 2012; Mueller-Smith, 2015), particularly among drug offenders (Mitchell et al., 2017b). When measuring recidivism, describing the level of new offenses can enrich our understanding of the criminogenic effect of imprisonment

and fill in the gap in literature. "Few studies consider ramifications or measure the magnitude of post release behavior," (Mueller-Smith, 2015, p. 4). One study found evidence that drug offenders are no different than other types of offenders when committing a variety of new crimes (Delisi, 2003).

To address the debate on whether most non-violent drug offenders are generally benign or versatile offenders, Delisi (2003) empirically examined the versatility hypothesis. Using a simple random sample taken from a sampling frame of 5,000 defendants, Delisi (2003) examined the results in types of criminal behaviors among 500 arrested adults in western urban jails. The author conducted interviews, analyzed self-report surveys, and used the National Crime Information Center (NCIC) to validate claims by the arrestees about prior criminal histories. The independent variables used in the analyses were sex, age, race, history, and arrest onset (Delisi, 2003). The outcome variables in types of arrests were: violent crime (murder, rape, robbery, and aggravated assault); property crime (motor vehicle theft, burglary, larceny or theft, and arson); white collar crime (embezzlement, fraud, and forgery), and nuisance crime (prostitution, vandalism, disorderly conduct, and vagrancy).

Delisi used a zero-inflated negative binomial regression analyses. The author justified this appropriate statistic as criminal careers are usually not linear, count variables are highly skewed, and have heteroskedastic error terms. "The results reveal that drug offenders are significantly more likely to have arrests for a variety of crimes, including violent Index offenses ($b = 1.61$, $z = 3.17$, $p = .002$), property Index offenses ($b = 1.15$, $z = 2.58$, $p = .010$), and nuisance offenses ($b = 1.19$, $z = 1.97$, $p = .049$)" (Delisi,

2003, p. 174). Delisi also reported that arrestees who had prior prison commitments had more arrests for property crimes, but there was no statistical difference in arrests for the other crime categories.

Delisi (2003) conducted supplemental regression models to examine the criminal measures without the drug offender variable. Delisi did this to determine how much variation this factor contributed to the model. The drug offender variable explained 7.5% of the variance for the violent crime model, increased 3% for the property crime model, and 2% for the white-collar crime model (Delisi, 2003). Delisi concluded that non-violent drug offenders are criminally versatile and commit a little bit of everything as career criminals. There were certain limitations of this study.

The first limitation questions external validity, as there was a rather small sample size that was geographically limited (Delisi, 2003). Delisi admitted these results cannot be generalized to other drug offenders in other locations. The group of drug offenders did not include drug dealers because the author claimed that these individuals are more likely to commit high rates of different types of crimes (Delisi, 2003). Some drug dealers use extreme violence to preserve territory, recruit young gang members to deal drugs, and possess firearms to enforce their power on the streets. However, low-level drug dealers who have no history of violence can still be classified as non-violent drug offenders. While 9% of Delisi's sample ($n = 43$) were sentenced to state or federal prison for a prior conviction, only 5% ($n = 24$) had a prior drug conviction. To gain the sample of first-time drug offenders for the current study, initial crimes are for drug charges only and these offenders are linked to any post punishment crimes according to their id in the data. Any

subsequential offending is coded according to the most severe class or type of new crime

and measurement is dichotomized for each recidivism outcome, which is different than

Delisi's methods.

Based on prior drug policy and recidivism studies, my current study incorporated

similar and different methods, variables, and statistical analyses to examine the

criminogenic effect of incarceration on drug offender recidivism. The type of drug was

not a predictor factored in my analyses the way Delisi used it. The type of crime was used

to select a sample of people initially charged with drug offenses ($n = 111, 155$). This

sample was drawn from a larger sample ($n = 496, 207$) based on 25% of 3.1 million court

records from Harris County (Houston), Texas. Furthermore, when predicting

punishment's impact on crime, those selected drug offenders included the severity of

disposition such as local jail, county jail, or state prison sentence (imprisonment) and,

other less punitive sanctions like shock camp, probation, and deferment of adjudication of

guilt.

Stemen and Rengifo (2011) used revocations and reconvictions as their outcome

variable, where the recidivism outcomes of the current study are the class and types of

new charges. Cohen (2000) focused on the type of drug and user status and impacts on

the type of recidivism outcomes, and Spohn and Holleran (2002) analyzed the effects of

imprisonment on recidivism rates and timing until next offense. None of these studies

examined the effect of incarceration on the magnitude of post release criminal behaviors

(Mueller-Smith, 2015) for first-time drug offenders, which could have expanded on the

concept of worsen recidivism (Stevenson, 2011). The next section presents more

literature related to the demographic variables outside the theoretical frameworks of this study.

Background Characteristics

There were many factors found in the literature review that contribute to sentencing and recidivism. Background characteristics are what the individual brings with them into the criminal justice system, some beyond the individual and the system's control. Gendreau et al. (2013) asserted that strong recidivism research designs contain at least 5 other risk factors in the regression models. Nagin et al. (2009) advised that the information on the offenders' demographic variables like race, age, sex, prior record and criminal offense, should be statistically accounted for. For the current study, the demographics available in the archival data that were included in analyses to answer RQ3 and RQ4 were race, age, gender, and criminal history.

Race

Examining the relationship between race and sentence severity (imprisonment) has been a heated debate; especially when research finds that young, Brown and Black, uneducated, unemployed, males, are currently being over represented in the inmate population (Bertram et al., 1996; Bewley-Taylor et al., 2009; Brennan & Spohn, 2008; Chiricos & Bales, 1991; Mauer, 2009; Spohn & DeLone, 2000; Spohn & Holleran, 2000; Steffensmeier, Ulmer, & Kramer, 1998; The Sentencing Project, 2015). Not only are young, minority, males more likely to be arrested and convicted for drug crimes, but they also have a higher likelihood going to prison and for longer sentences (Cook, 2017; Spohn & Holleran, 2002). The incarceration rate in the United States for Whites is 450

per 100,000, for Hispanics, 831 per 100,000, and Blacks are 2,306 per 100,000 (Carson, 2016). The incarceration rates show the sentencing disparities among minorities.

Spohn (2007) found that certain demographic factors seemed to predict recidivism more among low-stakes offenders. Race, age, gender, and the number of prior convictions all impacted the dependent variables, whether it was a new arrest and new charge, timing (in months) until next arrest, or the index of recidivism (Spohn, 2007). She found that, among this subgroup of Jackson County felons, people having certain characteristics recidivated more quickly and more often in comparison: Blacks more than Whites, males more than females, and young more than old, respectively. These findings suggest that low or minimal stakes offenders, for example; those people who lack employment, education, marriage, and dependents to support, may be more prone to the criminogenic effect of imprisonment.

Many argue that the war on drugs is really a war on people. More specifically, drugs were used as weapons to subdue minorities in this country that threatened the white middle class and the ruling elite (Potash, 2015). Ehrlichman was Nixon's domestic policy chief when the war on drugs was declared in 1971 and stated the following in a 1994 interview with Dan Baum:

> You want to know what this was really all about? The Nixon campaign in 1968, and the Nixon White House after that, had two enemies: the antiwar left and black people. You understand what I'm saying? We knew we couldn't make it illegal to be either against the war or black, but by getting the public to associate the hippies with marijuana and blacks with heroin, and then criminalizing both

heavily, we could disrupt those communities. We could arrest their leaders, raid

their homes, break up their meetings, and vilify them night after night on the

evening news. Did we know we were lying about the drugs? Of course, we did.

(Lopez, 2016, para. 3)

This recording of policy advisor Ehrlichman supports that the development of drug

policies were politically and racially motivated. This is evident in the demographics of

today's prison population and how the war on drugs has been more about a war on certain

people.

Over the last year of researching drug sentencing policies and predictors for

recidivism, three documentaries were found in which, one or two people compared

America's Drug War to the Holocaust (Cook, 2017; DuVernay, 2016; Jarecki, 2012).

Historical expert, Richard Miller, claimed that the war on drugs has never really been

about drugs; it is about people (Jarecki, 2012). Michelle Alexander argues that the war on

drugs was created with a specific target population in mind; poor communities of color,

and the rise of white folks being incarcerated became a collateral consequence

(Alexander, 2012; Cook, 2017). While the number of white drug offender inmates have

been on the rise (Mauer, 2009), the racial disparities of drug law violators in prisons and

jails are still overwhelmingly minorities and poor people of color (Alexander, 2012;

DuVernay, 2016). Whites represent 64% of the general population and 39% of the inmate

population, compared to Hispanics who represent 16% of the general population and 19%

of the prison population, and Blacks make up 13% of the general population and 40% of

those incarcerated in the U.S. (Carson, 2016). However, with the current opioid epidemic

across America, people who get addicted to prescription painkillers and turn to illicit street narcotics, come from all ethnic backgrounds.

Drug laws disproportionately target minorities and the shocking statistics support this statement in 21st century America (Bureau Justice of Statistics, 2014; Carson & Golinelli, 2013; Durose et al., 2014; The Sentencing Project, 2015, UCR, 2015). Of the released prisoners in 2005, 40.1% were non-Hispanic Black compared to 39.9% non-Hispanic White (Durose et al., 2014), which is disproportionate when compared to the general population. Although 13% of the general population are African Americans and Whites use drugs more than Blacks, up to 90% of federal prison drug admissions have been minorities (Schiraldi et al., 2000). In state prisons, out of the 216,254 drug offenders recorded in 1997, 80% were African American and Hispanic (King & Mauer, 2002). According to a National Institute of Justice study, the crack epidemic peaked in the mid-1980s and began to lose its popularity in the 1990s among young people, but crack cocaine offenders still make up the bulk of federal prisoners (Mauer, 2009). "As a result of a variety of law enforcement policies and practices, people of color are far more likely to be subject to drug arrests than are Whites who use or sell drugs" (Mauer, 2009, p. 8). Although there has been an increasing trend in incarcerating Whites for drug offenses at the state level during the 21st century, many drug offenders incarcerated at the federal level are African Americans (Mauer, 2009).

Research suggests that there are interacting and intervening effects of background characteristics on crime and punishment. Chiricos and Bales (1991) found a significant relationship between unemployment and imprisonment, particularly among Black

criminal defendants. After a Pennsylvania study concluded there was a high penalty price to pay for being young, Black, and male in the criminal justice system (Steffensmeier et al., 1998), Spohn and Holleran (2000) responded to their request for further research on the mediating factors between race and sentence severity.

After 30 years of researching the race sentencing linkage, Spohn (2000) summarized the effect of race/ethnicity on sentencing severity based on the findings of 40 studies, 32 in obtaining information through state courts and 8 from the federal system. Her purpose of writing the essay was to "inform on the debate of race, crime, and justice" (Spohn, 2000, abstract). Spohn later worked with other researchers on testing the effect of race/ethnicity with additive and interactive factors on sentencing severity (Spohn & Holleran, 2000; Spohn & DeLone, 2002; Spohn & Spears, 2003). More recently, the Bureau of Justice reported that 35-38% of drug admissions were Black inmates in 2006 declining to 24% in 2011 (Carson & Golinelli, 2013). Mauer (2009) noted the recent increase in White drug inmates is because of a national rise in incarceration for meth offenses. According to *The New Jim Crow* author, there are more Blacks in prisons and jails now than were enslaved in 1850 and the enforcement and punishment under strict drug laws are reasons why (Alexander, 2012).

Spohn & Spears (2003) built on previous research and examined the relationship between race and imprisonment among drug offender cases in all three jurisdictions: Jackson County, Cook County, and Dade County. They did not find much support for their hypotheses involving race and sentencing severity among the three drug offender

samples. Race did not predict greater odds for imprisonment among convicted drug

felons in Kansas City (Jackson County). Spohn and Spears wrote:

> In Chicago, both black and Hispanic offenders faced greater odds of incarceration
>
> than white offenders, while in Miami Hispanic (but not black) offenders were
>
> more likely than white offenders to be sentenced to prison. In Kansas City, black
>
> offenders were sentenced to prison at the same rate as white offenders. The effect
>
> of gender is similarly variable-males were significantly more likely than females
>
> to be sentenced to prison in Chicago and Kansas City, but not in Miami. (2003,
>
> pp. 291-292)

Race did impact the likelihood of in/out of incarceration variable for Hispanics in Miami

(Dade County), but further analyses revealed that judges were more inclined to send

Hispanic drug offenders to prison, rather than jail or probation (Spears & Spears, 2003).

After controlling for other factors, race affected the length of prison sentences only in

Jackson County, as Black drug offenders received around 15 months longer terms than

White drug offenders (Spohn & Spears, 2003). As there is evidence that race impacts

sentencing and recidivism found in the literature, age has a more complex relationship.

Age

Age can have a negative effect, a curvilinear effect, and interaction effects on

crime. People tend to commit delinquent and criminal behaviors at a significantly higher

rate when they are younger and usually grow out of it with time. Age was included in this

study because age is negatively related to crime; meaning, as age increases, crime

generally decreases for many individuals as they become more mature. Youthfulness has

been shown to be a main predictor of reoffending (Sung, 2003). Age may also interact with other characteristics in sentencing and recidivism severities (Belenko et al., 2004; Chiricos & Bales, 1991; Spohn, 2007; Steffensmeier et al., 1998). Hepburn and Albonetti (1994) found when analyzing recidivism outcomes among two types of interventions that younger offenders have a shorter time until reoffending when focusing on probation revocation. Steffensmeier et al., (1998) supported the inverted U-shape or "curvilinear age effect," while Spohn and Holleran's study (2002) reported interacting effects of age that varied between race and gender groups.

Spohn and Beichner (2000) found that age and family situations were significant predictors of sentencing for females, depending on the location. Age mattered in Chicago and Kansas City as older women were sentenced to imprisonment more often than younger women, but age had no significant effect on males in these jurisdictions. Older people have had more time to commit crimes than younger people and time aids in becoming a recidivist. Belenko et al. (2004) found that being arrested before the age of 16 was a statistically important predictor for recidivism. SAMSA (2012) reported on the most frequent age group to use illegal drugs,

In 2011, adults aged 26 or older were less likely to be current users of illicit drugs than youths aged 12 to 17 or young adults aged 18 to 25 (6.3 vs. 10.1 and 21.4 percent, respectively). However, there were more current users of illicit drugs aged 26 or older (12.6 million) than users aged 12 to 17 (2.5 million) and users aged 18 to 25 (7.4 million) combined. (Illicit Drug Use, Age, par. 2)

In previous studies, age was grouped in ranges such as 17-20, 21-29, 30-39, and 40+ (Spohn and Holleran, 2000) and juvenile offenders (those less than 17 years old) were omitted from the analyses. Spohn and Holleran (2000) found in all three jurisdictions: Chicago, Miami, and Kansas City; that felons between the ages of 21-29 were 10% more likely to be sentenced to incarceration than those in the 17-20 age group. The continuous measurement for calculated age in the archival data was entered in the regression analyses with the other literature-based variables to answer RQ3 and RQ4, which may be impacted by gender.

Gender

Gender is the biggest predictor of crime as most criminal activities are committed by male offenders. Durose et al. (2014) reported that 9 out of 10 released prisoners from 30 states in 2005 tracked through 2010 were male. Research found that many of the alternative factors increased the likelihood that men would be incarcerated more than women, such as race in Miami and Chicago, employment status in Kansas City, and the number of current convictions in Chicago and Kansas City (Spohn & Beichner, 2000). "In all three jurisdictions, court officials apparently stereotype Black and Hispanic male defendants as particularly blame-worthy, violent, and threatening. Conversely, they appear to view all female defendants as less culpable, less likely to recidivate, and more amenable to rehabilitation," (Spohn & Beichner, 2000, pp. 174-175). Drug sentencing policies are responsible for the dramatic increase of females in prisons and jails (Bewley-Taylor et al., 2009; Merolla, 2008).

Drug laws contribute to the statistic that one third of the world's female prisoners are locked up in the America (Kajstura, 2018). On average, the incarceration rate for females is 133 per 100,000, reaching historic levels as only 4% of the female population lives in the U.S., but accounts for 30% of the world's female prisoners (Kajstura, 2018). Female inmates have increased 646% compared to a 419% increase in the number of men in prison from 1980-2010 (Mauer & McCalmont, 2013). Studies find mixed results when analyzing the gender and crime relationship depending the on population, methods, and punishments under investigation (Mauer & McCalmont, 2013; Spohn & Beichner, 2000; Spohn & Spears, 2003). In an earlier study, the authors wrote, "Male offenders were over 20% more likely than females to be sentenced to prison in both Chicago (a difference of 22.8%) and Kansas City (a difference of 21.1%)" (Spohn & Holleran, 2000, p. 293). One Florida study found that women were more likely to recidivate within two years who had a criminal conviction label (Chiricos et al., 2007). Another study found that overall; the criminogenic effect of imprisonment did not exist for their sample of Florida drug offenders, except among White males (Mitchell et al., 2017b).

Spohn and Beichner (2000) analyzed the effects of race and gender on sentencing outcomes. The authors tested the "gender neutrality" hypothesis with the archival data that was collected from three large urban counties: Chicago, Miami, and Kansas City (Nobiling et al., 1998). The purpose of conducting this study was to examine the factors that impacted sentencing severity which was the judge's decision to incarcerate and the length of the sentence. The methods were mixed as Spohn and Beichner used multivariate statistical analyses and conceptual interviews with court officials to answer their research

questions. The authors addressed limitations in previous research, such as controlling for extralegal factors like prior criminal records and accounting for the seriousness of current offense.

To determine if leniency in sentencing females to imprisonment was a thing of the past, Spohn and Beichner analyzed archival data and hypothesized that there was no significant difference in sentencing outcomes among males and females in the multiple sites. For all three sites, the 3 theoretical assumptions were: 1.) women would face lower odds of incarceration sentences compared to men; 2.) Black men would face the harshest punishment, and 3.) White women would receive more lenient sentences than any other race/gender combination. Furthermore, the authors included other explanations for incarceration sentences. Spohn and Beichner attempted to answer Wonders' question (1996) "When does the particular social characteristic matter-under what circumstances, for whom, and in interaction with what other factors?" (2000, p. 150). Their study produced mixed results for their first research question as it depended on the jurisdiction (Spohn & Beichner, 2000).

Results showed women faced significantly lower odds of incarceration in all three samples compared to their male counterparts. In addition, certain conditions interacted with gender and affected the likelihood of incarceration in each sample of offenders. While imprisonment was conditioned by race in Miami and Chicago and females faced lower odds of incarceration in all three counties, the gender/race specific model analysis unmasked other conditions for the typical offender (Spohn & Beichner, 2000).

Spohn and Beichner (2000) concluded that treating women more lenient in sentencing is not a thing of the past and had statistical evidence that refuted the gender-neutral hypothesis. In all three jurisdictions, men faced significantly higher odds of incarceration than female offenders, whether it was Black and White women in Chicago and Kansas City, or Black women in Miami. The authors claimed that "one of the most interesting findings of this study is that the effect of race was conditioned by gender, but the effect of gender was, with only one exception, not conditioned by race," (Spohn & Beichner, 2000, p. 174). In Miami and Chicago, Hispanic and Black offenders faced greater odds of incarceration than White males, but there did not appear to be any impact of race among either gender in Kansas City. In Kansas City, having children lowered the likelihood of female defendants going to jail and prison compared to women without dependents, but had no bearing among males or among women in Chicago (Spohn & Beichner, 2000).

A three-year study in Bedford Women's maximum-security prison in New York supported that college programs in prison lowered recidivism rates, lowered prison disturbances, and increased higher education and community leadership after release (Fine et al., 2001). The authors found that compared to nonparticipants, the inmates who participated in the college program were significantly less likely to be reincarcerated and more likely to have an economic wellbeing (Fine et al., 2001). Out of the inmates without college ($N = 2031$), 29.9% were reincarcerated within 36 months compared to 7.7% of the female inmates who participated in college in prison ($N = 274$). Women who enrolled in the prison's college program were more likely to have academic persistence and

achievements, expressed responsibility for past crimes, and made positive personal transformations that were long-lasting for the students and their children.

Even though this Bedford Hills study only included the reductions in recidivism among female prisoners who participated in college programs (Fine et al., 2001), education and employment status reduces the likelihood of recidivism for both males and females. As noted, many of these typical offender covariates interact with sentencing and recidivism, such as gender, education, and criminal history (Blumenson & Nilsen, 2002; Fine, 2001).

Criminal Record

Factors describing an individual's criminal history are important to consider for recidivism research because past behaviors have shown to resurface (Sung, 2003). There are various terms and measurements describing a person's recorded criminal history, such as prior convictions, past sentences of imprisonment, and previous violent criminal behaviors. Criminal history, prior criminal records, or raps sheets are taken into consideration before sentencing and tend to predict recidivism (Jones, 2015; National Institute of Justice, 2008; Spohn, 2007). Measurements pertaining to a criminal record should be taken to account and controlled for because there may be interaction effects between sentencing and recidivism. For the current project, those with extensive rap sheets were not selected for analyses to account for criminal history.

The National Institute of Justice (2008) found that 40% of recidivating offenders were predicted by their criminal history. The Bureau Justice of Statistics reported, "An estimated 25.7% of the released prisoners had 4 or fewer prior arrests, while 43.2% had

10 or more. Half of the released prisoners had 3 or more prior convictions," (Durose et al., 2014, p. 6). When studying federal offenders released from prison or probation in 2005 and tracked for 8 years, criminal history points were found to be significantly related to recidivism rates (Hunt & Dumville, 2016). About 30% of people who had 0 criminal history points recidivated, compared to 80% of those recidivating with the highest criminal history points (Hunt & Dumville, 2016). Out of the multiple measures accounting for criminal history, Spohn and Holleran (2000) found the number of previous incarceration sentences greater than 1 year was the strongest predictor for incarceration sentences.

Criminal history, race, age, and gender tends to be important variables in sentencing and recidivism studies. Like the Pennsylvania study (Steffensmeier et al., 1998), Spohn and Holleran (2000) found support for a direct relationship between age, gender, and race on sentencing outcomes in at least one of the three different samples of Miami, Kansas City, and Chicago felons. Unlike Steffensmeier et al. (1998), Spohn and Holleran found no evidence that length of prison sentence was predicted by age, gender, race/ethnicity, or employment status. However, the interaction of these four variables on the likelihood of incarceration demonstrated harsher sentencing for certain types of offenders, thus supporting prior studies that stereotypes may influence the judge's decision to impose harsher sentences (imprisonment) on those deemed dangerous or more threatening (Chiricos & Bales, 1991; Steffensmeier et al., 1998). For the present study, information on each drug offender's age, gender, race, and the criminal history, were

available in the data and part of the analyses to investigate imprisonment's impact on recidivism outcomes.

Summary

In summary, Chapter 2 addressed how the problem of mass incarceration of people for drug offenses has led to this type of offender becoming the fastest growing inmate subpopulation and flooding the criminal justice system. In the current literature, the gap that fails to examine the criminogenic effect of imprisonment on this type of offender was emphasized. The literature search strategy unit covered the library databases, search engines, and key searched terms used during the literature review. The origins of specific deterrence and the criminogenic effect, studies related to the current study, their methods and findings, and certain limitations of prior research were presented in the theoretical foundation section of this paper.

The literature on drug laws, imprisonment, and recidivism area gave a presentation on the brief history of drug laws, how drug offenders heavily contribute to the prison problem in the United States and why they are treated differently in the criminal justice system through certain policies. Research describing the drug-crime nexus, drug use, incarceration used in drug policy, and various measurements of recidivism in past works were discussed. After an exhaustive demonstration of theory driven research and drug sentencing policies, the literature-based covariates of race, age, gender, and criminal records were assessed.

What is known is that treatment reduces the likelihood of crime among drug offenders and that incarceration tends to increase the odds of recidivism (Bales &

Piquero, 2012; Mueller-Smith, 2015; NIJ, 2014; Spohn & Holleran, 2002; Sung, 2003).

What is not known is if imprisonment increases the likelihood of severe crime among

first-time drug offenders. I intended to close the gap in literature by exploring this

criminogenic effect further and see which criminal justice intervention worsens

recidivism, where much of drug policy research focuses on what sanction reduces

recidivism.

Paternoster and Piquero defined specific deterrence as "when those who have

been punished cease offending, commit less serious offenses, or offend at a lower rate

because of fear of future sanction" (1995, p. 251). Spohn and Holleran (2002) found that

drug offenders sentenced to prison were less likely to cease in offending and recidivated

at a higher rate, but do they commit less serious offenses as specific deterrence theory

would suggest? The gap is that no studies have been found that explore this concept of

worsen recidivism among this type of offender, to further elaborate on the criminogenic

effect of incarceration. In addition to hypotheses testing, background characteristics were

entered in the regression models for RQ3 and RQ4, to determine if these factors predict

the outcomes of this data.

The literature contained much information on drugs, crime, and incarceration, but

there is limited scholarly research on the unintended consequences of incarceration

among drug offenders. Policy makers are finally beginning to apply research-based

alternatives to reduce prison populations in a more effective and less expensive way

(Appuzo, 2014; Goode, 2013; Matthews, 2013). To reduce prison overcrowding and

address budget constraints (Hutchinson, 2006), many states began operating drug courts

and mandated treatment programs for drug abusers (Brennan & Spohn, 2008). More research needs to be done on the impact of imprisonment on drug offender recidivism for social policy to progressively change, especially since sentences of imprisonment are massively given out under deterrence-based drug sentencing policies. Guided by conflicting theoretical effects, I describe the steps I took in Chapter 3 to answer the research questions and justify why the quantitative method of inquiry was most appropriate in this drug offender recidivism study.

Chapter 3: Research Methods

Introduction

While drug war opponents claim that incarceration corrupts low-level drug offenders into becoming more dangerous criminals, few studies analyze future crimes post imprisonment (Durose et al., 2014; Mueller-Smith, 2015; Rodriguez & Sanders, 2009; Przybylski, 2009). The specific deterrence component of severe punishment is based on if a prisoner does reoffend, it will be less severe than those who received a less severe sanction like probation (Bernard et al., 2010; Paternoster & Piquero, 1995; Spohn & Holleran, 2002). This is where the gap between theory and reality resides because severe drug sentencing policies intend to reduce crime, but evidence suggests that incarcerating low-level drug offenders may increase it, coined as worsen recidivism (Stevenson, 2011). Spohn and Holleran (2002) observed a criminogenic effect when testing the deterrence theory of incarceration and recidivism rates, particularly among incarcerated drug offenders. However, no analysis was performed to see whether the new crimes of those sentenced to imprisonment were less serious than those not sentenced to incarceration, as the specific deterrence would predict. My study is important because it aimed to determine if incarceration predicts the odds of new violent or felony charges among people in Harris County, Texas initially charged with drug offenses.

The research design and rationale sections contain much of the operationalization of pertinent concepts under investigation. Through theory-driven research questions, the variables of interest are sentencing severity and level of new offenses measured in the recidivism outcomes. Alternative factors that also may explain recidivism outcomes

based on the literature review are mentioned in addition to the design's relevance to the research questions. The methodology section discusses the population, sampling procedures, and statistical power analysis. The secondary database, how the original authors gathered and coded the information, and permission to gain access precedes the data rationale section in this chapter. The theoretical frameworks that drive the research questions are also revisited.

The goal was to examine imprisonment's impact on recidivism outcomes among adult drug offenders from Harris County, Texas, using quantitative methods. A detailed plan of analysis section describes the appropriate statistic using the database in SPSS software. The analysis plan was to apply the chi-squared test for association and logistic regression statistics and this part of the chapter includes the statistical assumptions along with the procedures for multiple tests. I inserted some literature-based predictors of recidivism in the model to account for individual demographics which could influence the outcomes of this study. Threats to internal and external validity and ethical procedures are discussed before summarizing the chapter.

Research Design and Rationale

In this quantitative causal-comparison research design, analyses were performed to determine if the likelihood of severe reoffending was explained by the severity level of the imposed sanction and whether these outcomes were predicted by either theory. This cross-sectional approach permitted analyses of likelihoods among those whose sentence was incarceration and those whose sentence was probation for comparison among the Harris County sample of drug offenders. Recidivism studies require time to serve

sentences and track individual criminal reoffending. In this particular jurisdiction, repeat

offending is tracked by Harris County for almost 20 years, from 1992-2012. Conducting

a binary regression model of sentenced drug offenders allows closer examination on

imprisonment's effect on recidivism outcomes through probabilities, odds, and odd ratios

between the predictor and outcome variables in the present dissertation.

Predictor and Outcome Variables

To examine the imprisonment and reoffending relationship with hypotheses

testing, sentencing severity was the predictor variable and recidivism severity was the

outcome variable. My study focused on the relationships between incarceration and

felony and incarceration and violent crimes among a sample of first-time drug offenders.

The predictor variable was whether the drug offender was sent to jail/prison or probation

and of those who reoffended, which sentence significantly predicted the class and type of

new crime. Classes of crime in the Harris County sample included felony and

misdemeanor offenses and were originally ranked in the dataset as F1, F2, F3, FS, MA,

MB, and MC. When measuring the recidivism outcome as class of crime, felonies are

more severe than misdemeanors (Ormachea et al., 2015). This recidivism measurement

was recoded binary and coded 1 for felony and 0 for misdemeanor.

The second recidivism outcome variable was type of reoffending. There are 32

categories describing the type of crime in the Harris County sample that was used to

determine the starting sample of drug offenders and linked to reoffenses through a unique

alphanumeric ID in SPSS. The second research question aimed to reveal which theory, if

either, predicts the impact of incarceration on violent crime. The FBI describes violent

crimes as, "The descending order of UCR violent crimes are murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault" (UCR, 2012, para. 2). In 1985, the term rape was replaced with *sexual assault* in Harris County (Ormachea et al., 2015), which was coded as a violent crime outcome for analysis. The crime of *robbery* in this dataset is detailed under the broad category of *assault nonsexual* (Ormachea et al., 2015) and was also included as a violent crime. Violent crimes were coded 1 and nonviolent charges will be coded 0. Background characteristics may also impact recidivism outcomes not predicted by the guided punishment/crime theories.

Other Relevant Predictor Variables

The deterrence and criminogenic effects of imprisonment predict the relationship between sentencing severity and reoffending severity. Neither theory predicts how other factors, such as age, race, and gender, could influence recidivism outcomes. Information on offender's background permitted analysis of mediating and moderating effects on recidivism. Gendreau et al. (2013) asserted that strong recidivism research designs contain at least five other risk factors. Nagin et al. (2009) advised that age, sex, race, prior record, and criminal offense should be controlled for in regression-based and precision matching research models.

The other possible predictors inserted in the analysis came from an exhaustive literature review on how other factors may influence both sentencing and recidivism and information provided in the archival data source. Some researchers suggested that severe sentencing (incarceration) is more prevalent among young, minority, unemployed, undereducated, males (see Alexander, 2012; Chiricos & Bales, 1991; Steffensmeier et al.,

1998). Spohn and Holleran (2000) revealed that the differences in probabilities in

incarceration sentences between males and females in Kansas City was +21.1%, between

employed and unemployed was +9.3%, and those felons aged 21-29 was +10.8%

compared to other age categories. Judges may perceive those who are unemployed as

threatening and dangerous which may propel the judge's decision to sentence more

harshly (Chiricos & Bales, 1991; Spohn & Holleran, 2000). Alternative variables that

were known in the data source were age, gender, criminal history, and race. I did not code

measurements describing the person's criminal history the way I did the other predictors

but accounted for them during the sampling process. Instead, I did not select those drug

offenders who had a history of violent charges, past incarceration sentences, and previous

convictions for nondrug crimes to accumulate my sample of first-time drug offenders.

The research design is relative to the research questions because recidivism

studies predict through a theoretical framework tested with statistical analyses. To

explore any association between punishment and crime, the chi-squared statistic is

appropriate to test the relationship of two categorical variables (Field, 2009). The use of

logistic regression is justified when testing theories have uneven groups in the sample,

and where the outcome variable is binary (Warner, 2008). Even though interval level data

is strongly recommended in recidivism studies, there are some instances where the mean

is meaningless and categorical dependent variables are more appropriate (Field, 2009).

I did not analyze recidivism rates, but instead tested whether those sentenced to

incarceration were more likely to commit felony and violent new crimes compared to

those who received probation. In prior research, the binary outcome variable was whether

an offender was sentenced to incarceration (Nobiling et al., 1998) where it is the predictor variable in this study. With this type of ordinal level data, outcome variables can be dichotomized so odds can be calculated using binary logistic regression analyses in quantitative methodology and save time to advance scientific knowledge in the drug sentencing policy debate.

Methodology

Population and Setting

The population under investigation are adult first-time drug offenders and the setting is Harris County (Houston), Texas. Convicted drug offenders have been the fastest growing inmate population for decades now (Alexander, 2012; BJS, 2012; King & Mauer, 2007; Spohn & Holleran, 2002; The Sentencing Project, 2015). Specifically, this inquiry focused on the positive or negative impacts of imprisonment on the severity of reoffending among a sample of first-time Harris County drug offenders who were charged, sentenced, and tracked from 1992-2012.

The data source I chose, the CRD contained millions of court records collected from three jurisdictions and permits the "identification of high-frequency offenders….and quantification of legislative efficacy - giving policy makers the best data upon which to base law enforcement decisions," (Ormachea et al., 2015, abstract). The CRD contained courthouse information on more than 22 million charges pertaining to offenders' criminal records ranging from 1977 to 2012 in counties in Texas, New York, and Florida. I chose to sample from the Harris County population over Miami and New York City because when Mueller-Smith (2015) studied over a million defendants drawn from a population in

Harris County, he found that those sentenced to imprisonment were more likely to recidivate and commit more serious offenses. To study a sample of drug inmates and any unintended consequences of incarceration on recidivism, I created a new database in SPSS based on the raw Excel data of Harris County court records emailed to me by Scilaw. This provided a starting population and helped me determine my target sample size for analyses.

Sampling and Sampling Procedures

Accessing individual specific data to study the imprisonment and reoffending relationship among a population of drug offenders was challenging to find. This data source was found through convenience sampling by reaching out to Scilaw's organization, per recommendation of Mueller-Smith. The CRD has rich data to study recidivism because of the case specific information in millions of anonymous records. This information contains the most recent recidivism data that has only been made publicly available over the last couple years and is still a growing project, working on other jurisdictions in states like New Mexico (Ormachea et al., 2015). The followed excerpt was taken from the beginning of the data' source's codebook:

> Harris County, TX, is the 3rd most populous county in the United States and is the county seat of Houston, TX. It consists of 3.1 million records, spanning from 1977 to April, 2012. The data contains 61 variables and was obtained from the Harris County District Clerk's Office in September, 2013. (Haarsma et al., 2016, p.1)

Scilaw's query system gives the option for randomly selecting a sample from the Harris County population of recorded charges and the researcher can select variables of interest like years, type of offense, dispositions, and recidivism identifiers (Ormachea et al., 2015). Scilaw emailed me a zip file containing information in an Excel spreadsheet and a codebook. In February of 2018, I ran two queries (export.SciLaw.org). The first query was for drug charges and I randomly selected a portion of controlled substance charges from 1977-2012 (N = 107,960). After learning more from primary author, Ormachea, about the database, I ran a second query (Export 30) with a wider range of variables but a shorter time-period and the recidivism identifier variable that was previously missing in the first query. This recidivism identifier is very important to studying the magnitude of reoffending among a certain type of offender within the same jurisdiction (Ormachea et al., 2015). Without this identifier, there is no way to connect charges to one offender and study recidivism.

Using a random sample of 25% of the total Harris County population charged between 1992-2012 and selecting all variables, Scilaw emailed me another zipped file with a codebook and an Excel spreadsheet of information based on charges (N = 496,207). Of these the 496,207 charges, 38,722 charges were categorized as Controlled Substance Marijuana and 70,893 charges were labeled Controlled Substance Other (N = 109,615). Sampling from the period of 1992-2012 is justified because the drug war brought an influx of people incarcerated for drug charges over the last couple decades. The tracking of criminal charges of people in this particular jurisdiction for over 20 years is valuable for recidivism research. With the rich data offered through Scilaw, there are

many opportunities for further research projects as research was what this criminal record database was intended for.

Since this is a charged-based system (Ormachea et al., 2015), there were people charged with numerous offenses categorized in broad and detailed terms, seven disposition types (dismissed, found guilty, etc.), and various sentencing outcomes (sentenced to probation, sentenced to jail, etc.). There were approximately 319,681 unique defendant identifiers (people) with 496,207 charges to link to offenders. It appears that more drug offenders were sentenced to jail or prison when compared to those who were sent to probation and treatment programs in this sample during the 20-year span.

Based on the Harris County Codebook attached with the Excel database, this sample also contained information regarding race, gender, age, and dates (for sequence of charges) for each case. The sampling frame kept getting smaller after removing duplicates, cleaning, coding, linking, and measuring the magnitude of recidivism from drug offenders who reoffended. People who did not have new charges will be excluded from the baseline as this inquiry is focused on the odds of worsen recidivism. Statistical power analysis will determine how many recidivating drug offenders are needed in this sample to apply regression.

Statistical Power Analysis.

The components of statistical power analysis are sample size, effect size, level of significance, and power level (Field, 2009; Rudestam & Newton, 2007). In a quantitative analysis, Long (1997) recommended to have a large sample size (100-500) in order to achieve adequate statistical power. The sample size is how many people are needed in the

study to have statistical significance. The effect size refers to mean differences relative to

the standard deviation and the effect one variable has on another (Cohen's D is

commonly used), and these are small, medium, and large effects (Rudestam & Newton,

2007). In chi-squared, Phi and Cramer's V is used to account for effect size and in

logistic regression, the Cox and Snell and Nagelkerke's tests are used. The level of

significance of the proposed study is set at .05 a priori, a power level of .80, and a small

effect size to increase the statistical validity of my study.

I chose a small effect size because this is a rather large sample and the goal was to

detect any significant effect between the predictor and outcome variables using the

deterrent and criminogenic hypotheses. Another justification for choosing a small effect

size with a large sample is because other correctional treatment effects use this option

(Andrews et al., 1990; Losel & Koferil, 1989). The Nagelkerke's R^2 statistic provided the

overall model's effect size and any statistical significance was provided by the chi-square

test (see Warner, 2008). Alpha is the level of significance that is generally set at .05 a

priori and the power level of .80 is a standard accepted level (Frankfort-Nachmias &

Nachmias, 2008; Rudestam & Newton, 2007). Hence, the level of significance assists in

avoiding Type I errors and the power level assists in avoiding Type II errors (Rudestam

& Newton, 2007). This means when looking for statistical significance, five out of 100

times the results will happen by chance and my analyses had a 95% confident interval to

avoid Type I errors (see Frankfort-Nachmias & Nachmias, 2008). By setting a power

level of .80, I attempted to avoid Type II errors in the results of my statistical analyses.

However, for logistic regression, the goal was to get a detectable odds ratio and the

sample was obtained through convenience sampling using publicly available archival data. Computing software like G-Power permits the calculations needed if one knows three of the components but needs to find the fourth.

To approximate how many first-time drug offenders that I needed in the sample size, I used the G-Power software and conducted a power analysis to ensure that I had a big enough sample size to avoid Type II errors. To achieve statistical power for my study when predicting outcomes in regression, I need sample size of 143. Sentence was the first independent variable in each logistic regression model per question as incarceration was included in the goodness of fit model using odds ratio. Since these two independent groups (prisoners and probationers) were uneven, logistic regression was an appropriate statistic to predict the odds based on severe sentencing conditions. I examined each group's recidivism outcomes of felony (yes or no) and violent (yes or no) new crimes with the chi-squared test because they are categorical and then logistic regression with all the predictor variables. The sample size of this archival database was large enough to achieve statistical power.

Archival Data

Locating and obtaining access to recent relevant recidivism archival data was quite difficult because of the rich information needed to study repeated recorded criminal behaviors. A secondary database was created using information gathered from "the Center for Science and Law's Criminal Record Database (CRD), a collection of tens of millions of U.S. courthouse records," (Ormachea et al., 2015, abstract) and I have corresponded repeatedly with the individuals working on this massive research project.

This organization has worked with county courts, lawyers, coders, and scholars to provide databases of criminal records from three jurisdictions: Harris County, Texas; Dade County, FL; and New York City. With over 22 million records of criminal charges ranging from 1977 to 2014, there are identifiers that "support exploration of criminal re-offense within the same jurisdiction," (Ormachea et al., 2015, abstract). The database permits recidivism research through an alphanumeric variable describing a unique defendant identifier in place of a name to link charges by dates. This original database is publicly available, and anyone can run queries for research.

Operationalization

As stated previously, I received an email from Scilaw with an Excel file attached and a codebook. Many of the columns from the Excel file were recognized as string variables in SPSS so I coded some variables into numeric according to the information from Scilaw's codebook (Haarsma et al., 2016). The focus of this study is on drug offenders so coding type of charge was the priority to get a sample size and determine frequencies. The first variable to operationalize was the 36th variable in the spreadsheet called *calc.broad* that described 32 types of charges in the recode column. Before I present my sample, Table 1A (see Appendix) shows the frequency of Harris County's types of offenses in this entire charge-based system containing information from over three million court records.

Table 1A (see Appendix) is directly from Scilaw's Codebook to show all information on the frequencies of types of charges in the entire data file gathered from Harris County Court's population of 3.1 million records (Haarsma et al., 2016). For the

sake of space, I inserted the two tables showing the frequencies of charges in the entire Harris County population and the frequencies in my sample in the Appendix because they are rather large. This Table 1A is very important to compare to Table 2A that shows the types of charges represented in my starting sample (n =496,207). From Scilaw's database on Harris County charges recorded from 1977-2012, I randomly selected 25% of the cases recorded from 1992-2012 (N = 496, 207). I chose to begin with the year 1992 because this period received the backlash of the harsh drug sentencing policy reforms and mandatory minimum imprisonment policies during the mid to late 1980s (Alexander, 2012). With the present research designed as both cross sectional and longitudinal in nature, this selected 20-year span also gives me enough time to study recidivism in this specific jurisdiction to track reoffenses.

By utilizing the random selection function offered through Scilaw's query system and including all available information (mostly string variables), the goal was for my sample of drug charges to closely represent the overall percentage of drug charges in the Harris County population. Depending on the jurisdiction, reports vary on the percentage of drug-related offenses in proportion to other non-drug offenses. A recent estimate says that 1/5 of people incarcerated are locked up for drug-related crimes and about ½ of all inmates in federal prisons are for there for drug charges (Carson, 2018), while others argue that more like 80% of people involved in the criminal justice system are for drug-related charges (BJS, 2012; Cook, 2017). Using the random sampling feature presented an opportunity to gather a large sample of charges to build a dataset of first-time drug offenders.

To obtain a sample of drug offenders, I started coding the calc.broad string variable into the same numeric variable in SPSS. To determine how many drug charges were in this large sample ($N = 496,207$), I coded the calc.broad variable of types of criminal charges 1-32 and assigned 99 for the value of missing data. Next, I ran frequencies of all types of criminal charges in the database that are reported in Table 2A, from *Alcohol – Driving* coded as 1, through *Weapons – Unlawful Possession/Conduct* coded as 32 (see Table 2A in the Appendix). The category of *Controlled Substance-Marijuana* was assigned 9 and *Controlled Substance-Other* was coded 10. Those selected cases whose charge was for either a category of Controlled Substance-Marijuana or Controlled Substances-Other ($n = 111,155$) became the 40th row in the SPSS spreadsheet's variable view as a numeric code to filter for drug charges as demonstrated in Table 2A (see Appendix).

Animal violence, assault-nonsexual, child sex crime, disorderly conduct, homicide, sexual assault (rape), and sexual non-assault were coded as 1 for violent crimes and the rest were coded 0 for non-violent crimes, with the exceptions of weapons charges, low-level crime, and unclassifiable as these cases were omitted. I omitted these because it was not clear if these were for violent crimes. I considered classifying weapon charges as violent crimes but the calc.broad variable did not specify if the weapons were possession or misconduct. Table 2A in the Appendix list the frequencies of types of criminal charges in my original sample ($N = 496,207$) and the output case summary in SPSS.

There were no missing cases for this variable describing the type of criminal

charge. If you compare Table 1A to Table 2A in the Appendix, the percentage of drug

charges (controlled substances) represents about 1/5 of the total charges the Harris

County population, like my sample. Drug charges represented about 19.5% of all charges

in the Harris County population recorded from 1977-2012 in Table 1A compared to

representing 22.4% in the current sample recorded from 1992-2012 in Table 2A. To keep

it simple, Table 1 demonstrates those charges not selected (non-drug charges) compared

to those charged with controlled substances-marijuana and controlled substance-other

(drug charges). Those selected were linked to all crimes in the database after reaching a

starting sample of first-time drug offenders. However, Table 1 shows the frequencies of

charges and not offenders as the first-time drug offenders ($n = 11,077$) were drawn later

from those selected ($N = 111,155$) in the cleaning process.

Table 1

Selected Drug Charges in Harris County Sample Recorded from 1992-2012 (N = 496,207)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Selected	385052	77.6	77.6	77.6
	Selected	111155	22.4	22.4	100.0

The next step was to determine how many drug charges were incarcerated and

how many criminal records had an alternative such as probation. The database contains

information for each charge's disposition, (in other words), whether the person was sent

to jail, probation, shock, dismissed, and many more. In SPSS, I filtered for dispositions of

drug charges compared to non-drug charges. The results of the SPSS output are included in Table 3A in the Appendix, which, displays the frequencies of dispositions under variable 31 (labeled disp.literal in data view) and, compares the dispositions of those selected (drug charges) with those not selected (non-drug charges). As Table 3A shows (see Appendix), there were much more incarceration sentences (local jail, state jail, committed to TDC) when compared to alternatives (the multiple types of probation) for those selected for drug charges. Those who were sentenced to prison or jail for a drug charge were in the incarceration group and coded as 1 while those who were sentenced to probation or deferred adjudication were placed in the non-incarceration group and coded as 0.

For the outcome variable, those who recidivated are the focus of this study and those who did not have new charges were not selected for analyses. Those who reoffended were broken down into the categories of class and type of new charge linked through an alphanumeric code. This alphanumeric identifier took place of the name of the person charged to protect the identity of people in this data source. Under class of crime, those who were charged with a new felony were given 1 and those charged with a misdemeanor offense were coded 0. For those who had a new charge that was violent, a code of 1 was assigned for analysis and those who were charged with a new non-violent offense were assigned 0.

Outside of the theoretical frameworks of this study, literature-based predictors of sentencing and recidivism outcomes were included in the quantitative inquiry. For example, many criminologists argue that the biggest predictor of crime is gender as most

criminals are male as demonstrated in Chapter 2. Gender, race, and age were included

with sentence in the regression models to answer RQ3 and RQ4. See Table 2 of

covariates, their labels by Scilaw's codebook, and coding in SPSS.

Table 2

SPSS Variables and Codes Describing Offenders' Background Characteristics

Column	Label	Type of Variable	Codes
34	Calc.gender	Numeric	Female = 0, Male = 1
33	Cal.race	Numeric	Black = 1, White = 2, Hispanic = 3, other = 4, unknown = 99
32	Calc.age	Numeric	17, 18, 19, 20…76

I will describe how logistic regression uses coefficients to obtain information

about the outcome variables next in the data analysis plan.

Data Analysis Plan

I used a different approach and created new recidivism coded data to examine any

relationship between sentencing severity and recidivism severity predicted by either

theory. Using this sample obtained through Harris County Courts, the quantitative

analysis begins with the following sections: software, data cleaning and screening

procedures, and the research questions and hypotheses that drive this study. The data

analysis plan also includes statistical tests, statistical assumptions, and procedures for

multiple testing. The rationale for covariates outside of the theoretical frameworks are

explored and the results are interpreted for the cases sampled from the Harris County

Criminal Record Database (CRD).

Statistical Software

The three software programs used to access, clean, code, and analyze this dataset

were Excel, SPSS, and Matlab. The original email from Scilaw was in a zipped file that

contained a Microsoft Excel database and codebook. I imported the Excel file into IBM's

Statistical Package for the Social Sciences (SPSS) Version 24 for Windows. I used this

software for storage, coding, and analyses. Most of the variables under investigation were

string variables and had to be recoded into numeric variables so the statistical software

could recognize the information. There was a lot of data cleaning, coding, and screening

with the raw data Excel in Matlab and then was imported to the statistical software

(SPSS).

Data Cleaning and Screening

The preliminary data cleaning is important in quantitative research methods.

Identifying the relevant variables needed to answer research questions, the correct levels

of measurement, and the appropriate statistical tests and assumptions were all considered

pre-analyses. There should be at least 5 cases in each cell of factors analyzed (Warner,

2008) and no more than 5% of the cases missing among variables investigated (Field,

2009) during the data cleaning stage. The research questions and the levels of the

variables' measurement determine which statistical test should be applied when

conducting hypothesis testing. This raw data had to be worked with extensively to

remove duplicates, deleing nonrecidivists, date sequences, and coded before analysis

could test the imprisonment and reoffending hypotheses that guided my research

questions.

Research Questions and Hypotheses

RQ1: What is the relationship between punishment severity and new class of

crime severity among this Harris County sample of first-time drug offenders?

$H_0 1$: There is no relationship between punishment severity and recidivism

outcomes describing new class of crime.

$H_1 1_1$: There is a positive or criminogenic relationship between punishment

severity and the new class of crime severity.

$H_1 1_2$: There is a negative or specific deterrent relationship between punishment

severity and new class of crime severity.

RQ2: What is the relationship between punishment severity and new type of

crime severity among this Harris County sample of first-time drug offenders?

$H_0 2$: There is no relationship between punishment severity and recidivism

outcomes describing new type of crime.

$H_1 2_1$: There is a positive or criminogenic relationship between punishment

severity and the new type of crime severity.

$H_1 2_2$: There is a negative or specific deterrent relationship between punishment

severity and new type of crime severity.

RQ3: Do certain background characteristics such as race, gender, and age predict

the relationship between punishment severity and new class of crime?

$H_0$3: The likelihood of being charged with a new severe class of crime will not

depend on punishment severity, race, gender, and age.

$H_1$3: The likelihood of being charged with a new severe class of crime will

depend on punishment severity, race, gender, and age.

RQ4: Do certain background characteristics such as race, gender, and age predict

the relationship between punishment severity and new type of crime?

$H_0$4: The likelihood of being charged with a new severe type of crime will not

depend on punishment severity, race, gender, and age.

$H_1$4: The likelihood of being charged with a new severe type of crime will depend

on punishment severity, race, gender, and age.

The criminogenic effect hypothesizes that those drug offenders who were

sentenced severely (incarceration) will have higher odds of being charged with a new

felony class of crime for RQ3 and new violent type of crime for RQ4, when compared to

those not put in prison. The specific deterrence effect of imprisonment predicts lower

odds of felony and violent new charges when compared to those given a less severe

alternative, like probation. Although the deterrence and criminogenic hypotheses do not

necessarily predict how certain offender characteristics impact recidivism outcomes, I

will include other factors all at once for RQ3 and RQ4. Table 3 displays the predictors,

outcomes, and background characteristics included in quantitative analysis using

regression models to answer the last two research questions.

Table 3

Drug Charges, Imprisonment, and Literature-based Predictors Intended for Analysis for the Severity of Recidivism Outcomes

Drug Charges (*N* = 111,155)		New Felony Yes (1) No (0)	New Violent Yes (1) No (0)
Punishment			
Imprisonment	Yes (1)		
Probation	No (0)		
Race			
Age			
Gender			

When testing theories, applications of the null hypothesis statistical test (NHST) are most often used to determine if there is a difference, relationship, or a significant statistical effect of the independent variable on the dependent variable (Warner, 2008). In logistic regression, the null model just examines the *Y* scores and no predictor variables are included in this model. This is the amount of people in the sample for a drug offense who went on to commit another crime that was for a violent or felony charge.

This null model or logit score based on the outcome variables, predicts a constant for all members before the predictor variables are added to the full model. Based on the criminogenic and deterrent hypotheses, added the predictor of punishment severity (imprisonment-yes or no) into the model and use the Wald chi-square statistic to see if sentencing severity is statistically significant in predicting worsen recidivism outcomes among this sample compared to the null model.

Depending on the results of the statistical analyses ((in other words), reject null or fail to reject the null), the criminogenic or deterrent hypotheses could support the

recidivism outcomes of this data. If incarcerated drug offenders were more prone to the

criminogenic effect (Spohn & Holleran, 2002), then logically, Stevenson's concept of

worsen recidivism could be explained by the crime-increasing hypothesis of

imprisonment. The criminogenic hypothesis of severe punishment (incarceration)

predicts more serious offenses post sentencing compared to those who were not

sentenced to prison (probationers). However, the deterrent effect is supposed to produce

lower likelihoods of felony or violent new offenses. When measuring class of new

charge, felony is more severe than a misdemeanor. In addition, there is a second

recidivism outcome, which measures the type of new criminal charges. For this

categorical recidivism outcome, violent charges are more severe that non-violent

reoffending. These research questions require certain statistics aimed at testing theories

and making predictions.

Statistics

The statistical tests of chi-squared and logistic regression analyses were used to

answer the four research questions. The chi-squared was used to determine if there is a

relationship between punishment severity and recidivism severity. Logistic regression

was chosen to answer if a drug offender later committed a more dangerous crime, what

was the likelihood that the offender was sentenced to prison. The chi-squared test just

tells us if there is a significant relationship and whether this relationship is positive or

negative between the two nominal variables. Pearson's chi-square test compares

frequencies in the observed data to the frequencies in a certain category that may occur

by chance (Field, 2009). This statistic is often used in grouping variables, demonstrated

in a 2 x 2 contingency table with four categories, and displays each category's frequency and percentages observed in the data. The chi-squared test is a nonparametric test that uses Phi and Cramer's V to determine the direction and the strength of the relationship, whether small, moderate, or large.

Logistic regression is a statistic that is used to predict the likelihood of an outcome given a certain event has occurred when such outcome is categorical (Field, 2009). Binary logistic regression is also appropriate for comparing two or more models with multiple categorical and continuous predictors and when groups are uneven (Warner, 2008). This statistic was used to answer the research questions through hypotheses that predict the imprisonment and reoffending relationship. Logistic regression is widely applied to non-experimental research designs and is the preferred statistic in prediction studies (Warner, 2008). Using regression for RQ3 and RQ4 analyzed if sentences, race, gender, and age were significant predictors for the type and class of new crimes charged post sentencing.

Binary logistic regression analysis can estimate the probability based on the coefficients, and from that, the odds of a dichotomous outcome occurring based on the scores of the predictor variables, can be calculated and compared between groups or conditions (Warner, 2008). Pearson correlation coefficient r^2 uses the observed and predicted values to assess the fit of the model (Field, 2009). I was interested in determining if the punishment of imprisonment significantly predicts the likelihood of what Stevenson (2011) referred to as worsen recidivism.

Unlike linear regression, logistic regression analyzes the nonlinear relationships between *X* and *Y*, which takes a sigmoidal or S shape curve on a plot because the dichotomous outcome variable is often coded 0 or 1 (Warner, 2008). Instead of using the ordinary least squares (OLS) when the dependent variable is discrete, this analytical approach uses maximum likelihood estimation (MLE) in search of how well the model predicts the actual outcomes (Warner, 2008). I examined the odds ratio of worsen recidivism based on sentencing severity. "An odds ratio is a comparison of the odds of some target event across two different groups or conditions," (Warner, 2008, p. 938). The condition in my study was incarceration, and the target event was worsen recidivism. Worsen recidivism was measured as new felony under class of crime and new violent under type of recidivism outcome. For example, I compared the odds of the prisoners being charged with new felony crimes to those odds to the probationers. The same approach was applied to compare prisoners and probationers charged with violent crimes. I presented the SPSS results for odds ratios in Chapter 4.

Logistic regression is used to analyze dichotomous outcome variables that are usually coded with 0's and 1's. The new recidivism outcome in measuring class of crime was assigned a 1 for a felony complaint filed and 0 for nonfelony charge recorded post sentencing. For the type of new offense, a 0 was assigned to non-violent charges and a 1 was assigned to violent new offenses. This is a binary logistic regression analysis because the outcomes are dichotomous and are mutually exclusive; meaning the most serious class of new charge can only be for a felony or nonfelony and the most serious type of

new charge can only be for a violent or non-violent offense when "measuring the magnitude of post release behavior," (Muller-Smith, 2015, p. 4).

According to Field (2009), the baselines in logistic regression are the actual outcomes in the data without any predictors. Below are the proposed statistical models for analyses.

$\chi2 = 2\,[LL(new) - LL(baseline)]$

(df = knew – kbaseline)

Assessing the model: the log-likelihood statistic equation:

$$log - likelihood = \sum_{i=1}^{N} [Y_i\,In(P(Y_i)) + (1 - Y_i)\,In(1 - P(Y_i))]$$

The log-likelihood is based on the sum of probabilities associated with predicted and actual outcomes. Large logs are poor fitting models meaning the more unexplained observations there are in data (Field, 2009). In addition to the logistic regression and log-likelihood equations, the Wald's statistic (chi-squared distribution) and Hosmer and Lemeshow's test was also part of analyses. The Wald statistic determines whether the *b* coefficient for *X* is significantly different from 0 or that the *X* variable significantly predicts the outcome (Field, 2009).

Assessing the model: *R* and *R²*

Wald Statistic $\frac{b}{SE_b}$

$R = \pm\sqrt{\dfrac{Wald - (2\,x\,df)}{-2LL(original)}}$

Hosmer and Lemeshow's R^2 varies between 0-1 and is calculated:

$$R_L^2 = \frac{-2LL\ (model)}{-2LL\ (orginal)}$$

Cox & Snell R_{cs}^2 :

$$R_{cs}^2 = 1 - e[-\frac{2}{n}\left(LL(new)\right) - (LL(baseline))]$$

Nagelkerke's R_N^2

$$R_N^2 = \frac{R_{CS}^2}{1-e\,[\frac{2\,(LL(\,baseline))]}{n}}$$

If the value is greater than 1 then the relationship is positive. Conversely, if the value is

less than 1, then the relationship is negative (Field, 2009).

The probability of Y when more than 1 X value in logistic regression equation:

$$P\ (Y) = \frac{1}{1 + e - (b_0 + b_1 X_{1i} + b_2 X_{2i} \dots b_n X_{ni})}$$

Where $b_{0\,=}$ is constant, b_1 = coefficient (weight) attached to the predictor, i = the ith

person, e = the base of natural logarithms, and X_1 = predictor.

Statistical assumptions.

There are two important statistical assumptions for using the chi-square test of

association and should not be violated. The first is that each case should be in its own cell

of the contingency table and cannot be measured repeatedly (Field, 2009). This is not an

appropriate statistic for a repeated-measures design as this statistic assumes the

independence of the data and the same cases cannot be measured over time. The second

statistical assumption for the chi-squared test is there must be more than 5 cases per cell

in the smallest expected count because if not, there could be a loss of statistical power

(Field, 2009). For the current study, these two assumptions have been met as each drug offender appears once in the data and there are over 5 cases for each cell frequency.

The statistical assumptions for logistic regression are like simple and multiple regressions' assumptions, such as independence of errors, linearity, and multicollinearity (Field, 2009; Green & Salkind, 2011). As in ordinary regression, cases of data should not be related as the same cases should not be measured at different points in time so the assumption of independence of errors is not violated (Field, 2009). In logistic regression, the outcome variable is categorical, so the assumption of linearity is violated and that is why it is important to compute the log-likelihood by summing up the probability associated with predicted and actual outcomes (Field, 2009). The *Y* or outcome variable must be binary and mutually exclusive and there should only be relevant factors in the model (Warner, 2008).

Class and type of crime are two different, but intertwined, recorded post sentencing criminal behaviors in my study. For example, an individual may be charged with a felony class and a violent type of crime post sentencing. This may appear to violate the binary mutually exclusive statistical assumption of the outcome variable, but it does not because each outcome variable is a separate research question and was analyzed in separate models. Even though I analyzed two recidivism descriptions: class and type of most serious new charge filed; and each category has two outcomes for example, felony or misdemeanor and violent or non-violent, there were only two possible outcomes per question.

To correctly analyze any impact of sentence severity on drug offender recidivism, my research requires a less restrictive statistical test. Strict statistical assumptions that require linear relationships between *X* and *Y* variables, interval level *Y* values, and normally distributed *Y* scores, would not work for this study. Analysis of variance (ANOVA), an independent samples t-test, and ordinary linear regression, would not be appropriate statistical tests to answer my research questions. Discriminate analysis (DA) would also not answer my research questions because I did not include quantitative dependent variables measuring new crimes. Logistic regression is widely applied in social science research and permits the investigation of categorical and continuous predictor variables on mutually exclusive outcomes.

The assumption of multicollinearity states that the predictor variables should not be too highly correlated which can be examined in SPSS using the tolerance and VIF statistics (Field, 2009). Tests for multicollinearity were conducted as part of the statistical analyses and are reported in Chapter 4. To answer my research questions based on the conflicting theories between punishment and crime, I performed multiple statistical analyses with this sample.

Procedures for multiple tests.

Various analytical procedures are required to answer multiple research questions guided by more than one theory and are also needed when including research-based alternatives. Depending on the results of multiple analyses using this dataset, evidence could support the deterrence rationale in drug offender recidivism research, or, could advance knowledge about the criminogenic hypothesis; if and how there could be

unintended consequences with sentencing this type of offender to imprisonment. Multiple statistical tests permit closer examination of the overall impact of incarceration on the seriousness of drug felons' recidivism outcomes. Running multiple tests also may produce mixed results when using other predictors of recidivism. To better understand how these concepts related to each other, other factors were added to the analyses, such as age, race, and gender, to turn down the noise not explained by either theory (Newton & Rudestam, 2007).

      Rational for covariates.

      Covariates are very important and describe mediating tools added in regression analysis. Using regression analysis implies directionality and this statistic is most used when data is collected over time, there is lack of randomization and matching pairs, and covariates are added as statistical controls (Lockwood et al., 2010). Although, mediating, moderating, covariates, and confounding variables are used to describe anything but the intervention (X) influence on the outcome variable (Y), there are differences in how they impact the X/Y causal pathway. Moderating variables have interaction effects; mediators have intervening effects; covariates are not changed by the intervention but are present in the sample, and confounding variables relate both to the predictor and the outcome variables but are not observed in the causal pathway (Lockwood et al., 2010). Age, race, gender, and criminal history may interact between the X/Y causal pathway of sentencing severity and severe recidivism outcomes which, may be explained by the criminogenic hypothesis when empirically testing this concept of worsen recidivism (Stevenson, 2011)

or deter those with certain background characteristics compared to others like differences between male and female offenders.

The rational for trying to include at least four other covariates that may better explain the actual recidivism outcomes of this research, is based more on literature than theory. Since sentence severity (imprisonment) is my (*X*) and recidivism severity is my (*Y*) for my research questions, it is very important to account for other variables in recidivism studies which allow for a more precise estimation of the impact of imprisonment on reoffending (Lockwood et al., 2010). Black, young, unemployed males tend to receive more harsh sentences as race and employment status tends to interact with the greatest likelihood of incarceration (Chiricos & Bales, 1991; Spohn & Holleran, 2000). Steffensmeier et al. (1998) identified statistically significant interrelationships between race, age, gender, and severe sentencing, (in other words), greater odds of getting incarceration sentences and for longer terms. Age, race, and gender are used as control variables in my analyses.

As a response to Steffensmeier et al.'s (1998) call for "further research analyzing how race effects may be mediated by other factors," (p. 789), Spohn and Holleran (2000) also found in an earlier study that, "Young black and Hispanic males face greater odds of incarceration than middle-aged white males, and unemployed black and Hispanic males are substantially more likely to be sentenced to prison than employed white males," (p. 281). In a sample of drug felons convicted in North Carolina in 2000, Blacks and Hispanic defendants received harsher sentencing outcomes than their White counterparts (Brennan & Spohn, 2008).

Spohn and DeLone (2000) found no race effects in the Kansas City sample and limited impacts of race effecting severe sentencing outcomes in Miami and Chicago. After conducting further analyses including multiple measures of criminal history, the authors found support that the race/ethnicity effect on sentencing severity was really conditioned by the seriousness of the offenses and the defendant's prior criminal record (Spohn & DeLone, 2000). Spohn and Holleran (2000) focused on the interrelationships of other factors on race and sentencing outcomes among three felony populations and found that at least one of the four variables (age, race/ethnicity, gender, and employment status) had a direct effect on the likelihood of incarceration sentences in at least one of the three jurisdictions. Another study tested the specific deterrence hypothesis of incarceration on multiple measures of recidivism in this Jackson County sample of convicted felons based on type of offense, background characteristics, and criminal history (Spohn & Holleran, 2002). In Jackson and Cook Counties, the male drug offenders were significantly more likely to be imprisoned than their female counterparts; while in Dade County, male drug offenders got longer incarceration sentences than female drug offenders (Spohn & Spears, 2003). Based on the literature review and what others have found, it is justified to include race, gender, and age into the analyses to have some net controls.

How results will be interpreted.

Warner (2008) cautioned that using logistic regression and not reporting odds along with probabilities can have misleading interpretations. Odds ratios are also important when comparing conditions or groups under investigation and I examined the probabilities, odds, and any differences among two different severity levels of

punishment among drug offenders. Depending on the results of the odds ratios and

probabilities of the binary logistic regression models, I discuss in chapter 4 if the results

supported the criminogenic effect, the deterrence effect, or the null effect of how

imprisonment impacts recidivism outcomes among drug offenders sampled from Harris

County. See the following probability, odds, and odds ratio calculations.

$$\text{Odds} = \frac{P\,(event)}{P\,(no\;event)}$$

Where the probability of Y when 1 X value in logistic regression equation:

$$P\,(event\;Y) = \frac{1}{1+e-({b_0}+{b_1}{X_{1i}})} \text{ and } \text{ P (no event)} = 1\text{- P }(event\;Y)$$

The proportionate change in odds in the odds ratio:

$$\Delta\;odds = \frac{odds\;\;after\;a\;unit\;change\;in\;the\;predictor}{orginal\;odds}$$

The results of my study were interpreted based on the analyses of this sample and

specific to the cases and characteristics available in this archival data. Since this was a

nonexperimental research design and the independent or predictor variables could not be

manipulated, these people were not randomly assigned to imprisonment sentences, so

there can be no causal inferences made (Warner, 2008). Although "no statistical test

proves causality" (Lockwood, DeFrancesco, Elliot, Beresford, & Toobert, 2010, p. 755),

regression analysis is helpful in exploring the impact of incarceration on the Harris

County drug offenders because events have already occurred. However, I did randomly

select 25% of 3.1 million cases using Scilaw's query system and narrowed the timeline to

20 years (1992-2012) to give time to study recidivism in the same jurisdiction. For the

present study, I ran logistic regression analyses based on my research questions,

interpreted the influence of each predictor variable on the outcomes, and reported if the predictors together impact recidivism outcomes overall within this sample.

Limitations in recidivism studies include: the lack of randomization, the use of aggregate data, and not accounting for all the factors that could explain crime during statistical analyses (Gendreau et al., 2013). Causality between imprisonment and severe recidivism cannot be proved because it is not possible to control for all factors that predict recidivism, such as demographics, individual characteristics, economic factors, and incapacitation effects (Gendreau et al., 2013). The confidence level is .95 and the probability that the results occurred by chance was set at .05 alpha before any statistical analyses. The results can only support or refute the hypotheses that frame the research questions. In conducting research in social sciences with archival data, there are always many threats to the validity to consider and since I am studied people, ethical procedures.

Threats to Validity

The research design, the data collections, data analysis, and interpreting the results are all stages where threats to reliability and threats to validity should be addressed**.** Validity means that the study measures what it is supposed to measure, while reliability means that the methods are consistent and could be replicated by other researchers (Creswell, 2009). The various types of validity include internal and external, construct, and statistical conclusion (Creswell, 2009). Threats to construct validity happen when the researcher uses the wrong definitions and variables. Violating statistical assumptions increases the threats to statistical conclusion validity (Creswell, 2009). I addressed these threats by being consistent with variable coding and running pre-tests

before regression analyses. There are internal and external threats to validity in quantitative analysis.

Internal Threats to Research

Internal threats to validity are maturation, history, selection, mortality, diffusion of treatment, regression, testing, compensatory/resentful demoralization, compensatory rivalry, and instrumentation (Creswell, 2009). Recidivism can only be studied in the Harris County jurisdiction over time, and people can commit crimes in other jurisdictions. Another possibility is crime goes underreported and a person may have committed a criminal act but was not charged and documented in this data source. Also, each facility is different to each offender and offenders pass away. Selection of first-time drug offenders was based on their history of past criminal charges available in the data and the instrument followed was Scilaw's codebook and the codebook I created for analyses. There was no compensation to conduct this study and there was no information on any drug treatment that an offender may or may not have received in this particular database. As there are internal threats to validity, there are also external concerns to address.

External Concerns of Research

Threats to external validity include selection bias, interaction of setting and treatment, interaction of history and treatment, and interaction of selection and treatment (Creswell, 2009). Section bias is an issue as not all charges have the same background characteristics, and therefore covariates such as age, race, gender, and criminal history were taken into consideration to address this limitation. The treatment of incarceration or

probation cannot be randomly assigned to each charge in this real-world setting because the courts have their own sentencing guidelines based on written laws. However, the data was sampled using a random selection of 25% of the 3.1 million Harris County records available from the query system at Scilaw's data source, which is intended to represent this population. Since this is not an experiment, the goal was to use statistical analyses to determine if either hypothesis predicts the relationship between incarceration and recidivism outcomes from the information obtained by SciLaw from Harris County court records. The results cannot be generalized outside the population, setting, and timespan of the particular jurisdiction. More research will need to be conducted in other counties to analyze the impact incarceration has on the recidivism outcomes in other drug offender populations.

Ethical Procedures

Ethical procedures are important when conducting research, especially giving the people who were charged with a crime in Harris County, Texas. This data source is publicly available and the excel exports contain a code book from Scilaw. I submitted the appropriate documents through the institutional review board (IRB) to gain approval before analyzing the SPSS variables with regression. This research was conducted under the IRB number 06-20-19-0308345. The preliminary coding was done to determine who was charged with drug crimes, calculate the frequencies of dispositions, and convert string variables into numeric. The day of the month for defendant date of birth was removed and there are no names of the defendants in the CRD Excel spreadsheet as this is a charge-based system. To link people to charges, I had to use an alphanumeric unique

identifier code as the only way to evaluate reoffenses, so the individuals in this jurisdiction cannot be identified. I practiced ethical conduct by reporting the findings accurately and to the best of my ability. Next, I will briefly summarize the research plan that was used to examine the relationship between severe sentencing and recidivism outcomes among those who were charged with controlled substances offenses in Harris County, TX from 1992-2012.

Summary

In summary, Chapter 3 demonstrated how the purpose of this causal-comparison research design is to conduct hypotheses testing on the archival data using quantitative methods. The research design section defined the predictor variables of incarceration or probation and the recidivism measurements of class and type of new charges. The methodology segment described the population and setting in Harris County, sampling procedures from gaining access to Scilaw's data source, and the statistical power analysis. The archival data piece further described how this data was obtained in an Excel file by running a query using Scilaw's software and was imported to SPSS.

The operationalization section described how these variables were coded for analysis and included frequency tables based on Scilaw's codebook taken from the entire population of 3.1 million court records and my random sample of 25% of this data. Using the theory driven research questions and literature-based factors, the data analysis plan section covered the SPSS software that was used for data storage, data cleaning and coding, and statistical analyses. Statistical assumptions for logistic regression, procedures for multiple tests, the rational for covariates, and how the results should be interpreted

were enclosed. The threats to internal and external validity and ethical procedures were also mentioned.

What remains to be studied are the odds of an incarceration sentence on felony recidivism outcomes and the odds of an incarceration sentence on violent recidivism outcomes for this type of offender. The present study filled in a gap by empirically examining incarceration's impacts on the likelihood of recidivism outcomes and categorizing such outcomes in logistic regression models. Results discussed in Chapter 4 may elaborate on what this criminogenic effect of imprisonment means or could lend some support to the deterrence rationale of drug policy, showing less serious crimes recorded post incarceration sentence.

Chapter 4: Results

Introduction

This research was designed to examine how certain sentences affect recidivism, among people initially charged with drug crimes in Harris County, Texas, by using Scilaw's archival data. This study tested the specific deterrence hypothesis against the criminogenic effect that focused on the relationship between punishment and crime. For my study, each theory statistically predicts the relationship between imprisonment on reoffending among a sample of first-time drug offenders. The analyses included predictor variables of describing the level of punishment and literature-based variables to study the impact on outcomes measuring recidivism severity. Multiple predictors were used to get a deeper understanding of who is more likely to be charged with felony and violent new offenses.

The predictor of this study is punishment severity, in a dichotomous measure; the two attributes were incarceration and probation. The recidivism outcomes, class of new crime (felony or misdemeanor) and type of recidivism outcome (violent or nonviolent), were binary variables. They met the major assumption of logistic regression. Grounded on specific deterrence theory, my statistical analysis examined whether people for drug crimes placed behind bars were less likely to reoffend with serious new charges (felony or violent crime) than those placed on probation. The statistical methods employed for this analysis were chi-square test and logistic regression. The analyses were aimed to answer the following research questions:

RQ1: What is the relationship between punishment severity and new class of crime severity among this Harris County sample of first-time drug offenders?

RQ2: What is the relationship between punishment severity and new type of crime severity among this Harris County sample of first-time drug offenders?

RQ3: Do certain background characteristics such as race, gender, and age predict the relationship between punishment severity and new class of crime?

RQ4: Do certain background characteristics such as race, gender, and age predict the relationship between punishment severity and new type of crime?

This chapter will present the data collection process, including the setting, the sampling method, and access to this large database. The steps of cleaning, coding, and sampling criteria are described under the data collection section of this chapter. The different software used to access, import, store, and analyze the data are also mentioned. The results section displays the descriptive statistics observed in this Harris County sample, and the statistical assumptions are addressed prior to reviewing the hypotheses and the statistical tests used to answer the four research questions. A summary of this chapter will precede Chapter 5.

Data Collection

The Scilaw authors created a CRD containing 22.5 million records sentenced in the jurisdictions of Miami, New York City, and Houston, spanning from 1977 to 2014 (Ormachea et al., 2015). I chose the Harris County, TX database of charges because Mueller-Smith (2015) found that incarceration increased recidivism severity in a Harris County sample that he studied. To acquire this data, a query was run at export.scilaw.org

as this information is publicly available. This database provides unique identifiers to

study recidivism, dispositions describing the sentences, the type and class of initial and

repeating charges, and demographic variables such as age, gender, and race. This data file

provided rich information to answer a variety of research questions regarding legislative

efficacy and criminological theories. An introduction article to this data was published in

2015, but public access to this data and its codebook became available in 2016. After

receiving IRB approval in June of 2019, it took a little over 6 months to clean and code

this data to prepare it for analysis.

Setting

The data was collected from the criminal courts in Houston, Texas by Scilaw,

which is the third most populous city in the United States (Haarsma et al., 2015). Out of

3.1 million Harris County, TX records collected from 1977-2012, I requested a random

sample of 25% of the cases tracked from 1992-2012 ($N = 496,207$). I received this

sample in an Excel spreadsheet in an email with the codebook from Scilaw under Export

30. Since I focused on drug offenders' recidivism based on punishment severity, I wanted

to make sure that this sample represented the Scilaw's original Harris County population

of charges and more particularly, its drug offenses. My sample's percentage of drug

offenses were close to the total Harris County drug charge percentages. Of the 3.1 million

charges available through Scilaw's database in Harris County, (see Table 1A in

Appendix) 19.5% ($n = 594,625$) were for drug charges. Of the 594,625 drug crimes in the

original Harris County charge-based system, 7.2% ($n = 220,124$) were for offenses

involving Marijuana and other controlled substance charges made up 12.3% ($n =$

374,501), respectively. Roughly 22% of people were arrested for drug charges (n = 111,155). To be more specific, 7.9% (n = 39,425) were for marijuana charges and 14.5% (n = 71,730) involved other controlled substance crimes, including illegal prescription drugs (see Table 2A in the Appendix). The percentages of drug charges of the sample that I gathered when randomly selecting 25% of the available data closely resembled the percentages of drug charges in the original sample of 3.1 million records (Haarsma et al., 2015).

One discrepancy in Chapter 3 was the sample size of 111,155 as these were drug charges and not first-time drug offenders. The units of analysis were individual people, but I used charges to create a sample to measure recidivism. Originally this was a charge-based system dataset and it was a complex process to link recidivism identifiers to charges according to date sequences. By starting with the charge, I was able to use the recidivism identifier in place of a person's name and only select those offenders who met the criteria for inclusion in the sample. The sample of drug charges of 111,155 that was proposed in Chapter 3 was drastically reduced to equal the unit of analysis, the number of first-time drug offenders who later were charged with another crime. The sample size (n = 11,077) was narrowed through the data cleaning and coding stages but it was still a rather large sample to answer my research questions.

Data Cleaning

The data cleaning and coding was crucial to working with such a very large dataset requiring 2 giga bites of memory in operation. The data contains much more information than my study needed to conduct the analysis such as the height, weight, case

status, citizenship, offense bond amount, detailed description of charge, and grand jury

status (Ormachea et al., 2015). Therefore, the first thing I did with the data was to reduce

it to a limited number of variables and cases. While this database was supposed to be free

of duplicates, I found thousands of duplicated cases while cleaning the data. Duplicate

cases were those having the same identification number, case date, case code, and case

statement as a case in another row. Approximately 55,795 duplicate records had to be

removed from the original dataset. The next step was to remove all charges where the

identification number only appeared once in the database as these people did not

reoffend. Almost half of the charges were not followed by another crime ($n = 214,837$)

and since this study focuses on recidivism, any one-time offenses were deleted. After

duplicates and nonrecidivists were removed from the data, this left a starting sample of

225,575 charges. However, since this was a charge-based data file and this study focuses

on people, further cleaning had to link charges to the recidivism unique alphanumeric

identifier according to date of first offense.

The software SPSS was not useful in linking identifiers by date sequence to charges

to create offenders that only appeared as one row in the database. A consultant performed

automated coding in MatLab after exporting the original data from Excel. The consultant

and I cleaned, coded, and sorted the original Harris County sample of charges ($N =$

496,207) according to the following criteria with the following steps:

- Headers were removed to process in MatLab and added in later.

- Periods in variables were removed that the software could not recognize.

- Added 99 to account for empty cells that would be recognized in SPSS as system missing.

- Added a column to dataset to create numeric value of date for sorting purposes.

- Found duplicate cases as previously defined.

- Deleted all duplicate cases from database.

- Deleted all cases where the identification number (in place of name) only appeared one time in the database.

- A numerical sequence was created so that offenses were numbered 1st offense, 2nd offense, 3rd offenses, and so forth under each identification number according to date beginning with first offense.

At this stage, the data was still a charge-based system because one identification number could appear many times in rows after the initial charge. This process arranged all charges under the first case to identify repeat offenses organized by date. Coding was then used to sort the data and if then statements were used in MatLab to get to the sample.

Coding and Sample Criteria

- Coded sentences binomially as dispositions to probation was assigned 0 and incarceration assigned 1.

  - With the disposition variable (see Appendix 3A), those who were coded 9, 10, or 57 were assigned 1 for incarceration.

- With the disposition variable, those who were coded 19, 20, 21, 22, 23, 46, 47, 48, 49, 52, 54, 55, and 56 (see Appendix 3A) were assigned a 0 for probation.
- Coded type of offense under variable labelled calc.broad 1-32
  - Selected those assigned 9 and 10 in type of charge category to determine which were drug charges (see Appendix 1A for 32 charge codes) as first offense.
  - Found first-time drug offender whose sentence was to either probation or prison.
- Coded new class of crime as misdemeanors MA, MB, and MC = 0 and felonies F1, F2, F3, FS = 1.
- Coded new type of crime as animal violence, assault-nonsexual, child sex crime, homicide, disorderly conduct, sexual assault (rape), and sexual non-assault as violent = 1 and the rest non-violent = 0 (see Appendix 2A)-removed charges involving weapons, low-level crime, and unclassifiable charges.
- Created columns based on "if, then" statements in MatLab for criteria inclusion in which the first case was excluded.
  - If the first-time drug offender sentenced to prison or probation was ever charged with a new felony offense, coded 1, if not, coded 0-placed under class of new crime column.

- If the first-time drug offender sentenced to prison or probation was ever

  charged with a new violent offense, coded 1, if not, coded 0-placed under

  type of new crime column.

- A 1-month window from first offense to next offense was established.

- Created column for total amount of new charges (did not include first offense).

- Extracted unique identification number, new binomial disposition column, sex,

  race, age, new class of charge, new type of charge, and total number of new

  charges into separate datafile.

- Placed headings back into the datafile according to MatLab codes.

After completing the previous steps, the last subset displayed offenders rather than charges. There were 11,095 first-time drug offenders where it was clear that each offender was sent to probation or incarceration and was charged with a new offense after the date of the first drug charge. The new dichotomous class and type of charges were presented in a column in the final Excel file, along with the binomial sentences of probation or prison. The probation group included those sentenced under the deferred adjudication of guilt and the incarceration included those sent to local jail, state jail, and TDC for state prison terms (see Table 3A in the Appendix).

The consultant exported the MatLab extracted database into Excel and I saved the file on my USB drive. When I imported the Excel file into SPSS, the cells were in text form. This means the variables were string variables in text like White, Black, Hispanic, other and male or female for gender. Also, if they were charged with a misdemeanor or felony, felony was coded true and misdemeanor was coded false. For type of crime,

violent crimes were coded true and non-violent crimes were coded false. I created

numeric variables and coded true statements as 1 and false statements as 0 in order to

analyze the data. I assigned 0 to females and 1 for males under gender and 1 to Blacks, 2

to Whites, 3 to Hispanics, and 4 to other under the race variable. To perform the logistic

regression analyses, I dummy coded 0 for Black, Hispanic, and other for the minorities

category and assigned 1 for White. The race reference category was coded 0 in SPSS for

regression and comparison of recidivism outcomes.

The unit of analyses were people sentenced initially for a drug crime and later

were charged with an additional new crime after serving time in jail/prison or on

probation. After reaching a sample of 11,095 first time drug offenders, I had learned that

there were juveniles in my sample and a very small number of people categorized as

"other" under the race variable. This research focuses on the adult first-time drug

offender population and there was an offender as young as 11 years old in this sample.

Since the age Texas draws the juvenile/adult line for criminal court proceedings is 16, I

removed the cases where offenders were 11-16 years of age ($n = 18$). While there were

only 50 people whose race was classified as other (non-White, non-Black, and non-

Hispanic), I chose to include them in my analyses since my race variable was dummy

coded into 0 for minorities and 1 for White and I did not think this would skew my

results. The sample size was finally cleaned and coded to include a rather large sample

size ($N = 11,077$) to answer my research questions and test the criminogenic hypothesis

against the specific deterrence effect. The variables included in the completed SPSS

storage file were the unique identifier (UID), dispositions, gender, race, age, new crime

class, new crime type, and total number of charges. Next, the results of the data analyses are presented.

Results

Descriptive Statistics

This section presents each factor's frequency and percentage for the nominal variables and the measures of central tendency for the continuous variable observed in the data. IBM SPSS Statistics Version 24 for Windows was used to run these descriptive statistics. As gender is said to be the biggest predictor of crime, most of recidivating drug offenders in this sample were males. Approximately 8,933 (80.6%) were males and 2,131 (19.3%) were females of the 11,064 where this information was available. SPSS presents a table in the output which shows how many cases pertaining to a certain variable were unknown under System Missing. The System Missing showed 13 (.1%) cases out of the total ($N = 11,077$) drug offenders where this demographic variable was unknown in the sample. Like the sentencing disparities in the prison population, minorities were overrepresented in this dataset.

Out of the total number of first-time drug offenders that this information was available ($N= 11,002$), 6,715 (60.6%) were Black, 2,736 were White (24.7%), 1,501 (13.6%) were Hispanic, and 50 (.5%) were labelled other. Out of the total amount of cases, only 75 recidivists (.7%) lacked this demographic variable under System Missing. In the interval level measurement of age, out of the total ($n = 11,077$) there were 10,715 (96.7%) valid cases and 362 missing (3.3%). The levels of central tendency for age were: $M = 28.53$, $SD = 10.146$, Minimum = 17, Maximum = 76, and Range = 59.

Approximately, 60.5% of all drug offenders in this data were under 30 years of age at the time they were initially charged. The overall descriptive statistics are representative of the characteristics found in the literature, with the typical offender reported as young, Black, and male (Chiricos, & Bales, 1991; Spohn, 2007). It is worth noting how the data represents the difference in sentencing severity based on demographics which may impact the recidivism outcomes in Table 4.

Contrasting what is generally reported in the literature, female first-time drug offenders were sentenced to jail or prison about 5% more often than males. Females were assigned a 0 and males were coded as 1 (refer to Table 2 in chapter 3 for coding). Imprisonment sentences under the disposition variable were coded 1 and probation 0. When looking for correlations between these two predictor variables of sentencing and gender, I ran a chi-squared test in SPSS. The results were $\chi^2 (1, N = 11,064) = 26.74$, $p < .001$. With a Phi and Cramer's V of -.049, the results show a small, but significant relationship between sentencing severity and gender as females were less likely to receive probation compared to males. While Table 4 showed the differences in sentencing and gender, Table 4 also presents the differences in dispositions according to race.

Table 4

Descriptive Statistics (N = 11,077)

Charges of New offense & demographics	Disposition	
	Probation/Deferred	Incarceration
	Frequency (%)	Frequency (%)
Class of Crime		
Misdemeanor	1298 (61.7)	2658 (29.6)
Felony	805 (38.3)	6316 (70.4)
Type of Crime		
Non-violent	1817 (86.4)	7765 (86.5)
Violent	286 (13.6)	1209 (13.5)
Gender		
Female	320 (15)	1811 (20.0)
Male	1778 (85)	7155 (80.0)
Race		
Black	740 (35.5)	5975 (66.6)
White	894 (43.0)	1842 (20.6)
Hispanic	424 (20.0)	1077 (12.0)
Other	26 (12.0)	24 (0.3)
Age		
Mean (SD)	23.2 (7.9)	29.8 (10.2)

This data's demographics were like what was found in the literature review, as Blacks were 77% more likely to be sentenced to incarceration than probation. Whites were 34.6% more likely to be sentenced to incarceration than probation. Hispanics were 43.6% more likely to receive a prison sentence when compared to probation. Those categorized as other in the data were 2% more likely to be sentenced to probation than incarceration but it is a very small cell frequency. When comparing between the races, Blacks were 21.7% more likely to be sentenced to incarceration compared to Whites, 17.2% more likely to go to jail than Hispanics, and 41% more likely than those labelled as other to get incarcerated for a first-time drug offense. When conducting a chi-squared test, I dummy coded race as 0 for minorities and included Black, Hispanic, and other and labelled 1 for Whites. The results were $\chi^2 (1, N = 11{,}077) = 442.75, p < .01$. This suggested that there is a moderate relationship between race and sentencing severity (Phi & Cramer's V = -.20) as overall, Whites were less likely to be sentenced to prison when compared to minority first-time drug offenders.

The age of the offender is also claimed in the literature to matter greatly when examining sentencing and recidivism (Belenko et al., 2004; Chiricos & Bales, 1991; Spohn, 2007; Steffensmeier et al., 1998). Younger offenders are usually sentenced to probation more often than older offenders with the perspective that they will age out of crime and are more likely to be rehabilitated through early intervention. Older offenders tend to have more time to commit crime and are therefore are more likely to recidivate when compared to younger offenders. Some suggest a curvilinear relationship between age in crime as presented in Chapter 2 because many crimes are committed when people

are young and immature, but then those chronic reoffenders who live a life of crime tend

to keep recidivating with time.

There were 362 cases where the calculated age at time of initial offense was not

available, leaving a reduced sample of first-time drug offenders ($N = 10,715$). Across all

ages, incarceration was widely sentenced, but it appears that probation sentences

decreased with age. The data is not normally distributed and has an asymmetrical

distribution of the age of offenders and sentencing (see Figure 1 in Appendix). The

frequency of age is positively skewed to the right, meaning there are less older offenders

and the highest frequency appears in the age group of 17-23 years of age. Table 5

presents the directional measures between age and sentencing for the first drug offense.

Table 5

Directional Measures Between Age and Sentencing (N = 10,713)

			Value
Nominal by Interval	Eta	age Dependent	.256
		dispositions Dependent	.305

To determine the relationship between the interval level of age and sentencing, I

calculated Eta-Squared because of the different levels of measurement presented in Table

5. Like Phi and Cramer's V, the eta-squared value determines effect size between

variables. Generally, values of Eta-Squared of .02 are small, .13 are medium, and .26 is

large. When age is dependent on the sentencing severity, the coefficient of determination

value = .066 and when the sentencing depends on age, the value of Eta-Squared is .09.

This is a small to medium association as when age is dependent on sentencing, the

variation in sentencing only explains 7% of the variance in age and when the sentence is dependent on age, it only explains 9% of the variance, respectively. However, when running a t-test between those sent to prison and those sentenced to probation, there was a significant difference in mean ages between the two groups as $t(10,713) = -27.433$, $p < .001$. As shown in Table 4, those sentenced to probation were generally younger ($M = 23.2$) while those sent to prison or jail were, on average, older *(M = 29.8)*. The average age for females in this data was slightly older ($M = 30.87$) compared to males ($M = 27.98$). The difference in average age according to gender was significant between males and females as $t(10,713) = 11.628$, $p < .001$. When using dummy codes for $0 =$ minorities ($M = 28.62$) and $1 =$ Whites ($M = 28.28$), there was no significant difference among the race variable and average age per group as $t(10,713) = 1.479$, $p = .139$.

To understand how many times certain variables occurred in this Harris County dataset of drug offenders sentenced to incarceration or probation from 1992-2012, I ran descriptive statistics using crosstabs and pivot tables in SPSS. For clarity purposes of these tables, I put the outcome variable describing the recidivism measurement in the columns and combined the covariates of dispositions, gender, and race in the rows to show frequencies and percentages of these categorical variables. My only continuous variable in this analysis is age, so I created a pivot table for the recidivism outcomes and the information on mean, standard deviation, minimum, maximum, and the range of ages in this data (see Table 8). Table 6 condenses the frequencies of dispositions, gender, and race according to new classes of charges.

Table 6

The Frequencies and Percentages of Predictors and Class of New Charges

		Class of Crime				Total
		Misdemeanor		Felony		
		f	%	*f*	%	%
Dispositions	Probation/Deferred	1298	61.7%	805	38.3%	2103
	Incarceration	2658	29.6%	6316	70.4%	8974
	Total	3956	35.7%	7121	64.3%	11077
Gender	Female	677	31.8%	1454	68.2%	2131
	Male	3275	36.7%	5658	63.3%	8933
	Total	3952	35.7%	7112	64.3%	11064
Race	Black	1979	29.5%	4736	70.5%	6715
	White	1264	46.2%	1472	53.8%	2736
	Hispanic	652	43.4%	849	56.6%	1501
	Other	27	54.0%	23	46.0%	50
	Total	3922	35.6%	7080	64.4%	11002

This was a sufficient database to examine incarceration's impact on recidivism as under the disposition variable, Tables 6 and 7 demonstrate there were about 4 times more first-time drug offenders sentenced to jail/prison compared to those sent to probation or those whose adjudication was deferred. There was almost twice the amount of felony crimes when compared to misdemeanor new charges as shown in Table 6. This data is representative of demographics found in the literature on crime and punishment as there are approximately 5 times more males than females and a disproportionate number of minorities when compared to White offenders. When combined, minorities made up around 75% of this sample of Harris County drug offenders. Table 7 provides descriptive statistics on the predictor variables and the recidivism outcome for the most serious new type of crime.

Table 7

The Frequencies and Percentages of Predictors and Type of New Charges

		Type of Crime				
		Non-violent		Violent		Total
		f	%	f	%	f
Dispositions	Probation/Deferred	1817	86.4%	286	13.6%	2103
	Incarceration	7765	86.5%	1209	13.5%	8974
	Total	9582	86.5%	1495	13.5%	11077
Gender	Female	2018	94.7%	113	5.3%	2131
	Male	7553	84.6%	1380	15.4%	8933
	Total	9571	86.5%	1493	13.5%	11064
Race	Black	5750	85.6%	965	14.4%	6715
	White	2450	89.5%	286	10.5%	2736
	Hispanic	1274	84.9%	227	15.1%	1501
	Other	40	80.0%	10	20.0%	50
	Total	9514	86.5%	1488	13.5%	11002

Approximately 86.5% of the types of new charges were for non-violent crimes compared to 13.5% for violent offenses. It appears that males had a higher frequency of violent new charges when compared to their female counterparts and the race other had the highest percentage (20%) of violent new charges when compared to Blacks, Whites, and Hispanics. However, there is a very small cell frequency ($n = 10$) so this difference may not be significant. There were no missing cases under sentencing type for either incarceration or probation. There were 13 missing cases under the gender variable and 75 cases where the race information was unavailable. Since there were less than 5% missing under these demographic variables, these cases were left in the data but could not be analyzed with regression. There were also no missing cases under class of new charge and no missing information under type of new crime. Table 8 shows the descriptive

statistics for age and class of most serious new charge and the descriptive statistics for

age and type of most serious new charge.

Table 8

The Descriptive Statistics on Age and Recidivism Outcomes (N = 10,715)

		Age				
		M	*SD*	Min	Max	Range
Class of Crime	Misdemeanor	27	9	17	69	52
	Felony	30	10	17	76	59
Type of Crime	Non-violent	29	10	17	76	59
	Violent	26	9	17	63	46

The average age of a first-time drug offender who is later charged with a felony

was 30 years old compared to the relatively younger 27-year-old who was later charged

with a new crime classified as a misdemeanor. Adversely, those charged with non-violent

new crimes were on average around 29 years of age at time of first offense, compared to

the younger 26-year-old, on average, who were later charged with a new violent offense.

Statistical Assumptions

Both chi-squared test and logistic regression share one statistical assumption and

that is the independence of errors. The independence of data assumption has been met for

both statistics. The second statistical assumption for chi-squared is that all cells should

exceed the expected count of 5, which has also been met in this rather large sample. The

main statistical assumption in logistic regression is that the outcome variable is binary.

This means there is a categorical outcome in which is mutually exclusive from one

another and is dichotomous. In this study for measuring recidivism, I coded those who were charged with a new felony offense as their worst charge as a 1 and if the drug offender was not later charged with any felonies, the charges of misdemeanors were coded 0. Therefore, I did not violate this assumption as cases that were coded 1 could not also be in the misdemeanor group coded 0. I followed the same procedure to measure violent crime as people charged with assaults, for example, could not be in the non-violent crime coded outcome of 0.

According to Field (2009), logistic regression shares similar statistical assumptions as linear regression such as the independence of errors, linearity, and multicollinearity. The independence of errors assumption is violated when the same cases of data are related as measuring the same cases over time creates overdispersion (Field, 2009). Measuring criminal behavior over time to conduct research on recidivism naturally will violate the assumption of the independence of errors. Every person in this data recidivated at some point during the 20-year tracking period in Jackson County. To address this limitation, the data was compiled by converting multiple cases with repeating ids to one person with one id based on what their most serious new class and the most severe type of charges were. This means that each row in the data represents one person and that person is only in the data once ($N = 10,077$). Furthermore, one person is not related to the next case, so the assumption of the independence errors was met.

The linearity assumption is automatically violated because the outcome is categorical and to address this, the logit is used to determine the linear relationship between the continuous predictor variable and the logit of the outcome variable. To

determine that the linearity assumption was not violated between age and the logit of

class of new crime and the logit of type of crime, I transformed and computed a new

variable in SPSS labelled "logage." The new target variable had the function of the

natural log transformation of age and I reran each logistic regression analysis the same as

I did for RQ3 and RQ4, but combined age and logage in the covariate box, along with the

main covariates of age, race, gender, and dispositions. The results were not significant for

the class of crime model for age ($p = .96$) and logage ($p = .75$) and not significant for the

type of crime model for age ($p = .33$) and logage ($p = .190$). Since the results were not

significant, this means that the main effect of age did not violate the linearity of the logit

(Field, 2009), therefore the assumption of linearity was met (see Tables 4A through 9A in

the Appendix).

Multicollinearity is an issue that could diminish the reliability of the regression

model and happens when predictor variables are highly correlated (Field, 2009). As

mentioned in chapter 3, I addressed this issue by running linear regression analyses

between all four predictor variables in SPSS (see Tables 10A through 14A in the

Appendix). I alternated between each predictor in the dependent variable box four times

with the other three variables. For example, I put dispositions in the dependent variable

box and dummycodeWhite, gender, and age in the independent variables and then

switched out the predictors. I selected multicollinearity diagnostics and removed all

default selections. If the tolerance coefficient is less than .1 or the VIF value is over 10, it

indicates multicollinearity problems (Field, 2009). For all four analyses, the tolerance

scores were all around .92 and the VIF values were all slightly over 1.02, indicating there

were no multicollinearity issues between dispositions, race, age, and gender. An example

of multicollinearity diagnostics is shown in Table 9 where dispositions were in the

dependent variable box and age, gender, and the race variable dummycodeWhite were in

the independent variable for the linear regression analysis.

Table 9

Coefficients for Multicollinearity of Predictors

		Collinearity Statistics	
Model		Tolerance	VIF
1	gender	.968	1.033
	RaceDummyWh	.980	1.020
	age	.987	1.014

a. Dependent Variable: dispositions

Research Questions

The section that follows reviews the research questions and the hypotheses. Each

research question contains the results of the statistical analyses. I have presented many of

the findings in text and some are displayed in tables. There are also tables placed in the

Appendix for additional tests performed.

Research question 1.

RQ1: What is the relationship between punishment severity and new class of

crime severity among this Harris County sample of first-time drug offenders?

$H_0 1$: There is no relationship between punishment severity and recidivism

outcomes describing new class of crime.

H_11_1: There is a positive or criminogenic relationship between punishment

severity and the new class of crime severity.

H_11_2: There is a negative or specific deterrent relationship between punishment

severity and new class of crime severity.

The nonparametric statistical test chi-squared was performed in SPSS using the

crosstabulation function to determine if there was a criminogenic, specific deterrent, or

no relationship between two nominal categories. This test was justified because there

were two levels of punishment and two levels of new classes of crime (Field, 2009). The

two levels of punishment were incarceration or probation and the classes of new charges

were felony or misdemeanor as presented in Table 10.

This RQ focused on the recidivism outcome describing the most severe class of

new crime charged within the 20-year tracking period (1992-2012) and whether the new

offense was for a felony or a misdemeanor. The listed dispositions for a sentence coded 1

was the incarceration group and included those sentenced to local jail, state jail, or state

prison through Texas Department of Corrections (TDC). Those assigned a 0 under

probation also included deferred adjudication sentences; a program like community

supervision, but without necessarily having a conviction in Texas, provided that the

person complied with the court's stipulations. Classes of crime recorded by the Center for

Science and Law's Criminal Record Database (CRD) in the Harris County sample

included felony and misdemeanor offenses and were ranked in the dataset as F1, F2, F3,

FS, MA, MB, and MC. Regardless of rank, if a person's most serious new charge was for

a felony, that offender was assigned a 1 under class of recidivism outcome and

misdemeanors were coded 0 for the purpose of this analysis.

Most recidivism outcomes were found to be for the more severe felony charges (n

= 7,121; or 64.3%) and a less amount was found to be categorized as a misdemeanor (n =

3,956, or 35.7%), respectively as presented in Table 10. Of the sample of first-time drug

offenders (N = 11,077) and who were later found to recidivate in Harris County, 81% (n

= 8,874) were sentenced to imprisonment, while 19% (N = 2,103) were given probation.

The odds of felony new charges in the incarceration group were about 3.83 that of those

in the probation group.

The results of the Chi Squared Test of Association (2 x 2) show that there is a

significant association between punishment severity and new class of crime χ^2 $(1, N =$

11,077) = 764.76, $p < .01$. The symmetric measures on effect sizes of Phi and Cramer's V

were significant ($p < .01$) with a value of .263. This value suggests there is a medium

effect size or a moderate criminogenic effect between severe punishment and the severity

of the new class of crime charged among recidivating drug offenders. Those sentenced to

probation were 32.1% more likely to be charged with a misdemeanor (61.7%) over a

felony (29.6%) as presented in Table 10. On the other hand, those sentenced to

incarceration were 32.1% more likely to be charged with a new felony crime (70.4%)

than a misdemeanor (38.3%). The findings reject the null hypothesis *(H$_0$)* of there being

no relationship between the two variables and back up the first alternative research

hypothesis *(H$_1$)*. The results support a criminogenic effect of imprisonment on new

felony charges among the first-time drug offenders from Harris County, Texas.

Table 10

Crosstabulation of Dispositions and Class of New Charge (N = 11,077)

			Dispositions		Total
			Probation	Prison	
Class of Crime	Mis-demeanor	*n*	1298	2658	3956
		% within dispositions	61.7%	29.6%	35.7%
	Felony	*n*	805	6316	7121
		% within dispositions	38.3%	70.4%	64.3%
	Total	*n*	2103	8974	11077
		%	100%	100%	100%

Note: $\chi^2\,(1, N = 11,077) = 764.76, p < .01$

Research question 2.

RQ2: What is the relationship between punishment severity and new type of crime severity among this Harris County sample of first-time drug offenders?

$H_0 2$: There is no relationship between punishment severity and recidivism outcomes describing new type of crime.

$H_1 2_1$: There is a positive or criminogenic relationship between punishment severity and the new type of crime severity.

$H_1 2_2$: There is a negative or specific deterrent relationship between punishment severity and new type of crime severity.

The nonparametric statistical test of chi-squared was used to determine if there was a criminogenic, specific deterrent, or no relationship between the severity of punishment and the recidivism outcome describing the new type of crime for first-time drug offenders. This RQ focused on the type of new crime, and whether a first-time drug

offender who was sentenced to prison or probation later was charged with a violent or

non-violent crime. The distinction between violent and non-violent recidivism outcomes

is important because Stevenson's (2011) concept of worsen recidivism claimed that low-

level drug offenders who are incarcerated become more dangerous criminals. Violent

crimes recorded in the Center for Science and Law's Criminal Record Database (CRD)

were animal violence, assault-nonsexual, child sex crime, homicide, disorderly conduct,

sexual assault (rape), and sexual non-assault and were coded as 1 for violent crimes and

the rest were coded 0 for non-violent crimes, with the exceptions of weapons charges,

low-level crime, and unclassifiable as these cases were omitted. I omitted these cases

from the sample criteria because it was not clear if these charges were actually violent

crimes. There were more non-violent new charges observed in this data compared to

violent charges among the drug offender recidivists. Table 11 shows the frequencies and

percentages of sentences and type of new crimes.

Table 11

Crosstabulation of Punishment and New Crime Type (N = 11,077)

			dispositions		
			Probation	Prison	Total
Type of Crime	Non-violent	n	1817	7765	9582
		% within dispositions	86.4%	86.5%	86.5%
	Violent	n	286	1209	1495
		% within dispositions	13.6%	13.5%	13.5%
	Total	n	2103	8974	11077
		%	100%	100%	100%

$\chi^2 (1, N =11077) = .024, p = .878$

Those initially sentenced to probation and those initially sentenced to prison were

about equally likely to reoffend for violent (13.6% vs. 13.5%) or for non-violent crime

(86.4% vs. 86.5%). The difference in type of new offense by dispositions was not

statistically significant, χ^2 (1, $N =11077$) = .024, p = .878 (see Table 11). Therefore, I

failed to reject the null hypothesis and found no significant support for either the specific

deterrence or the criminogenic hypothesis for RQ2.

Research question 3.

RQ3: Do certain background characteristics such as race, gender, and age predict

the relationship between punishment severity and new class of crime?

$H_0 3$: The likelihood of being charged with a new severe class of crime will not

depend on punishment severity, race, gender, and age.

$H_1 3$: The likelihood of being charged with a new severe class of crime will

depend on punishment severity, race, gender, and age.

A binary logistic regression analysis was conducted to determine if dispositions,

race, gender, and age are factors that predict whether a first-time drug offender will be

later charged with a new severe class of crime. The level for significance was set at .05 a

priori. The outcome of interest describing the new class of crime was for a felony charge

to measure recidivism severity and was coded 1. The nonevent was a misdemeanor less

serious offense and coded 0. The predictor variable of dispositions that measured

punishment severity was coded 1 for incarceration and 0 for probation along with

demographic predictor variables such as gender, race, and age.

The analysis on new class of crime included 10,715 (96.7%) recidivating first-

time drug offenders and 362 (3.3%) cases were missing for the regression model due to

missing demographics. The percentage correct listed in the first classification of the SPSS

output in the null model without any predictor variables was 64.3%, compared to second

classification table with the predictors accounting for 69% of the predicted outcomes

displayed in Table 12. Additionally, the -2 log likelihood = 13116.13 and the Nagelkerke

R^2 = .105 tests are shown in Table 13. The Hosmer-Lemeshow's goodness-of-fit test

shown in Table 13 was not significant (p = .153), indicating that the model is correctly

specified.

Table 12

Classification of Class of New Crime with Predictors (N = 10,715)

| | | Predicted | | Percentage |
| | | class of crime | | |
Observed		misdemeanor	felony	Correct
class of crime	misdemeanor	1245	2585	32.5
	felony	741	6144	89.2
Overall Percentage				69.0

According to the classification Table 12, this model was better at predicting

felony new charges over misdemeanors. The unstandardized Beta weight for the Constant

shown in Table 13 was B = -.508, SE = .090, Wald = 31.990, p < .001. When controlling

for race, gender, and age, the predictor variable describing punishment severity in the

logistic regression analysis was found to contribute to the model. For the predictor of

disposition, the unstandardized B = 1.163, SE = .054, Wald = 466.802, p < .001. The

estimated odds ratio favored a positive relationship of nearly (20%) increase [$Exp (B)$ =

3.198, 95% CI (2.878, 3.554)] for an increase in punishment severity. This means there

was a significant criminogenic effect of imprisonment on worsen recidivism when

predicting felony new crimes compared to those who were sent to probation for the initial

drug charge in this data. The model resulted in the independent variables dispositions,

gender, race, and age all being significant ($p < .001$) (see Table 13).

Table 13

Logistic Regression for Predictors on Class of New Offense Among Harris County First-

Time Drug Offenders (N = 10,715)

Predictor	B	S.E.	Wald	df	p	Exp (B)	95% C.I. for EXP(B) Lower	Upper
Constant	-.508	.090	31.990	1	.000	.602		
Dispositions	1.163	.054	466.802	1	.000	3.198	2.878	3.554
Race	-.416	.049	72.167	1	.000	.660	.599	.726
Gender	-.202	.056	13.123	1	.000	.817	.733	.912
Age	.016	.002	51.396	1	.000	1.016	1.012	1.020
Test	log	R²	X²	df	p			
Omnibus Test			854.788	4	.000			
-2 Log Likelihood	13116.13							
Cox & Snell		.077						
Nagelkerke		.105						
Hosmer & Lemeshow			11.964	8	.153			

Table 13 shows the logistic regression coefficient, Wald test, and odds ratio for

each of the predictors. Employing a .05 criterion of statistical significance, dispositions,

gender, race, and age had significant partial effects. The odds ratio indicates that when

holding other variables constant, all the demographic variables significantly contributed

to the model. Race was initially coded as 1 = Black, 2 = White, 3 = Hispanic, and 4 =

other. For the purpose of the analyses, I dummy coded this variable and assigned 1 =

White and 0 = Black, Hispanic, and other for minorities. Race significantly contributed to

the model as the unstandardized B = -.416, SE = .49, Wald = 72.167, $p < .001$. The

estimated odds ratio favored a negative relationship as Whites were 66% less likely to

reoffend with a felony crime compared to minorities [$Exp (B)$ = .660, 95% CI (.599,

.726)]. Nonwhites were less likely to reoffend with misdemeanors than Whites. Gender

was coded 0 = female and 1 = male and significantly contributed to recidivism outcomes.

The unstandardized B = -.202, SE = .056, Wald = 13.123, $p < .001$. The estimated odds

ratio favored a negative relationship of nearly (82%) decrease felony crime [$Exp (B)$

=.817, 95% CI (.733, .912)] for an increase in the score for gender. These results suggest

that females were more likely to be charged with felonies and males charged with

misdemeanors as their recidivism outcomes. Age was the only continuous variable in the

analysis and significantly contributed to the model as the unstandardized B = .016, SE =

.002, Wald = 51.396, $p < .001$. The estimated odds ratio favored a positive relationship of

nearly (2%) increase in felony crime [$Exp (B)$ = 1.016, 95% CI (1.012, 1.020)] for every

unit increase in age. This means that older first-time drug offenders were more likely to

be charged with a new felony offense compared to younger offenders, who were more

likely to be charged with a misdemeanor. The new class of crime significantly depended

on punishment, race, gender, and age; therefore, the null hypothesis is rejected.

Research question 4.

RQ4: Do certain background characteristics such as race, gender, and age predict

the relationship between punishment severity and new type of crime?

$H_0 4$: The likelihood of being charged with a new severe type of crime will not

depend on punishment severity, race, gender, and age.

$H_1 4$: The likelihood of being charged with a new severe type of crime will depend

on punishment severity, race, gender, and age.

A binary logistic regression analysis was conducted to determine if dispositions, race, gender, and age are factors that predict if a first-time drug offender will be charged with a severe type of new crime. The level for significance was set at .05 a priori. The outcome of interest describing the new type of offense was for a violent charge to measure recidivism severity and was coded 1. The nonevent was a non-violent and coded 0. The predictor variable of dispositions that measured punishment severity was coded 1 for prison and 0 for probation along with demographic predictor variables such as gender, race, and age.

The analysis on type of new offense included 10,715 (96.7%) recidivating first-time drug offenders and 362 (3.3%) cases were missing from the regression model. The percentage correct listed in the first classification of the SPSS output in the null model without any predictor variables was 86.4%, which was the same as the second classification table with the predictors accounting for 86.4% of the predicted outcomes shown in Table 14. The -2 log likelihood = 8230.729 and the Nagelkerke R^2 = .048 as shown in Table 15. The full model Hosmer and Lemeshow test was not significant, $\chi^2(8, N = 10, 715) = 4.185$, $p = .840$ (see Table 15).

Table 14

Classification of Type of New Crime with Predictors (N = 10,715)

		Predicted		Percentage Correct
		type of crime		
Observed		non-violent	violent	
type of crime	non-violent	9259	0	100.0
	violent	1456	0	.0
Overall Percentage				86.4

It appears this model was better at predicting non-violent new charges than violent recidivism outcomes according to the classification Table 14. With a 0% correct prediction in violent crimes and 100% predicting non-violent crimes, this model correctly predicts the type of crime 86.4%, which was the exact percentage correctly predicted by the null model without any predictors. Table 15 better explains this with less than 5% of the variance being accounted for by the regression model including all predictors. Due to such a large sample size, the results in Table 15 shows the goodness-of-fit statistic and that the model is a good fit to the data. The model presented in Table 15 shows that the independent variables of dispositions, race, gender, and age being significant ($p < .05$).

Table 15

Logistic Regression for Predictors on Type of New Offense Among Harris County First-Time Drug Offenders (N = 10,715)

Predictor	B	S.E.	Wald	df	p	Exp (B)	95% C.I. for EXP(B) Lower	Upper
Constant	-2.016	.144	195.370	1	.000	.133		
Dispositions	.162	.076	4.537	1	.033	1.176	1.013	1.366
Race	-.259	.074	12.397	1	.000	.772	.668	.891
Gender	1.059	.104	103.671	1	.000	2.883	2.352	3.535
Age	-.030	.003	88.870	1	.000	.970	.964	.976
Test	log	R^2	X^2	df	p			
Omnibus Test			286.010	4	.000			
-2 Log Likelihood	8230.729							
Cox & Snell		.026						
Nagelkerke		.048						
Hosmer & Lemeshow			4.185	8	.840			

The unstandardized Beta weight for the Constant was *B* = -2.016, *SE* = .144, Wald = 195.370, *p* < .001. When including race, gender, and age, the predictor variable describing punishment severity in the logistic regression analysis was found to contribute to the model, which is demonstrated in Table 15. For the predictor variable describing punishment severity in the disposition factor, the unstandardized *B* = .162, *SE* = .076, Wald = 4.537, *p* < .05. The estimated odds ratio favored a positive relationship of nearly (18%) increase in violent crime [*Exp (B)* = 1.176, 95% CI (1.013, 1.366)] for an increase in punishment severity. This means, when controlling for race, age, and gender, a significant criminogenic effect of imprisonment on worsen recidivism was observed

when predicting violent new crimes compared to those who were sent to probation. However, these results should be taken with the consideration that there were almost even odds among the prisoners and probations to be charged with new violent crimes in this rather large sample.

Table 15 shows the logistic regression coefficient, Wald test, and odds ratio for each of the predictors. Employing a .05 criterion of statistical significance, dispositions, gender, race, and age had significant partial effects. The odds ratio indicates that when holding other variables constant, all the demographic variables significantly contributed to the model. Race significantly contributed to the model as the unstandardized $B =$ -.259, $SE = .074$, Wald $= 12.397$, $p < .001$. The estimated odds ratio favored a negative relationship as Whites were 77% less likely than nonwhites to reoffend with a violent crime [$Exp (B) = .772$, 95% CI (.668, .891)]. Minorities had lower odds of new nonviolent crimes compared to Whites. Gender was significant as the unstandardized $B =$ 1.059, $SE = .104$, Wald $= 103.671$, $p < .001$. The estimated odds ratio favored a positive relationship of nearly (88%) increase in violent crime [$Exp (B) = 2.883$, 95% CI (2.352, 3.535)] for an increase in gender. These results suggest that males were almost 3 times more likely than females to be charged with new violent offenses. The only continuous variable in the analysis was age and age significantly contributed to the model as the unstandardized $B = -.030$, $SE = .003$, Wald $= 88.870$, $p < .001$. The estimated odds ratio favored a negative relationship of nearly (97%) decrease in violent crime [$Exp (B) = .970$, 95% CI (.964, .976)] for every unit increase in age. This means that younger first-time drug offenders were more likely to be charged with a new violent offense compared to

older offenders, who were more likely to be charged with non-violent recidivism outcomes. The findings reject the null hypothesis because the type of new crime did depend on the punishment, race, age, and gender.

Relationship Among the Two Recidivism Outcomes

After getting conflicting results for RQ1 and RQ2, I ran a chi-squared test of association on the two recidivism outcome variables. It is pragmatic to assume that felonies are more likely to be violent crimes and misdemeanors are more related to non-violent crimes. This was not the case in this data as the results were not significant $\chi^2\,(1, N = 11{,}077) = 1.95$, $p = .162$, indicating that the two types of recidivism outcomes were not related. I had to fail to reject the null hypothesis because the two outcomes variables were independent. While this is puzzling, there are multiple explanations for why type of new charge was not significantly associated with class of new offense. First, there were almost twice as many felony new offenses compared to misdemeanors and about 7.4 times more non-violent crimes compared to violent new charges in this data. When coding this data, I observed about 6 times more non-violent crime categories compared to only a handful of violent classifications (see Table 2A in Appendix). Second, many first-time drug offenders were charged with another drug offense following their sentence that was for a felony non-violent charge based on the quantity of the controlled substance. Third, I found in the raw data that there were cases where a drug offender was later charged with a simple assault Class A misdemeanor, which is a violent new offense. Table 16 presents the frequencies and percentages of the data on the two recidivism outcomes.

Table 16

Frequencies of Class and Type of New Charges (N = 11,077)

			class of crime		
			misdemeanor	felony	Total
type of crime	non-violent	Count	3398	6184	9582
		% within type of crime	35.5%	64.5%	100.0%
	violent	Count	558	937	1495
		% within type of crime	37.3%	62.7%	100.0%
Total		Count	3956	7121	11077
		% within type of crime	35.7%	64.3%	100.0%

Summary

This research was descriptive, relative, and predictive. As much of recidivism research focuses on interval level outcome measurements like rates and timing, this study went further to describe the classes and types of new offenses charged post sentencing. Based on the punishment crime theories of deterrence and criminogenic relationships, simple chi-squared tests explored the association between punishment and recidivism among this sample of Harris County first-time drug offenders and found mixed results. Regression analyses were conducted to determine if the likelihoods of a concept called worsen recidivism (Stevenson, 2011), defined as felony and violent new charges, were based on sentencing with net controls. Demographic variables were used to analyze the recidivism outcomes among certain backgrounds. When controlling for gender, race, and

age, the level of punishment did affect the recidivism outcomes in this sample of first-time drug offenders from a jurisdiction in Texas.

Statistical analyses found support for the criminogenic effect of imprisonment on first-time drug offender recidivism outcomes for 3 out of 4 of the research questions. While the first two research questions examined any relationship between the level of punishment and recidivism outcome through chi-squared test, the second two research questions applied logistic regression between the level of punishment and recidivism outcome while controlling for other factors. The chi-squared test of association between sentencing severity and class of new charge was positive and significant, therefore supporting the criminogenic hypothesis. The results for RQ1 showed that prisoners were more likely to have new felony offenses while those sent to probation were more likely to have misdemeanor new offenses. The results for the chi-squared test of association to answer RQ2 showed a specific deterrent effect as prisoners were slightly more likely to be charged with new non-violent offenses and probationers were more likely to be charged with violent new offenses, but it was not statistically significant.

The criminogenic effect was significantly supported in the regression model to answer RQ3 between dispositions and class of crime when accounting for race, gender, and age. Prisoners were more likely than probationers to have new felony offenses and females were more likely than males to be charged with new felony offenses. Minority first-time drug offenders were more likely to be charged with felony new offenses than Whites and older offenders were more likely to be charged with new felony offenses than younger offenders in this data. Unlike RQ2, the analysis to answer RQ4 significantly

predicted a criminogenic effect of imprisonment on the type of new offenses. The conflicting results for RQ2 and RQ4 could be explained by applying a different statistical test while controlling for other variables. The results for RQ4 showed that prisoners were more likely than probationers to be charged with new violent offenses and males were more likely than females to be charged with new violent offenses. Minorities were more likely than Whites to be charged with violent new offenses and younger drug offenders were more likely than older drug offenders to be charged with violent new crimes. As reported in the results section of this chapter, the recidivism outcomes significantly depended on a person's race, age, gender, and type of sentencing. It is important to note that given the large sample size and small effect sizes in the regression models, there may be other confounding variables contributing to the recidivism outcomes that were not included in the analyses. Next, Chapter 5 will discuss the interpretations, strengths and limitations, and recommendations for further research of this study.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

When analyzing imprisonment's impact on recidivism, there is a growing consensus that alternatives to incarceration are more effective in reducing future drug use and drug-related crime (Belenko et al., 2004; CASA, 2012; Cutler, 2009; Mauer & King, 2007; Phelps, 2011; Przybylski, 2009). Most of what was found in decades of drug policy literature is focused on rehabilitative effects of drug treatment programs, while only a couple of studies were found that analyzed the effect of prison on drug offender recidivism rates (Mitchell et al., 2017b; Spohn & Holleran, 2002). As my literature scope narrowed in on examining the criminogenic effect of imprisonment on drug offender recidivism outcomes there were few studies found that described the type or class of new crimes among this type of offender (Cohen, 2000; Delisi, 2003; Durose et al., 2014).

The purpose of this quantitative study was to examine the impact incarceration has on reoffending using secondary data from the CRD. No recent studies were found that tested the criminogenic and specific deterrence hypotheses of imprisonment on recidivism that specifically focused on the new offenses among first-time drug offenders. This study was conducted to fill in the gap in literature in drug sentencing policies by examining and describing any adverse effects of prison on the classes and types of new crimes through Stevenson's (2011) concept of worsen recidivism. Using theory-driven research questions, the objective was to conduct a causal comparison research design to add current empirical evidence to the literature on the drug policy debate. This study was done to understand on how incarceration may adversely affect the degree of post release

criminal behaviors (Mueller-Smith, 2015) among a sample of Harris County first-time drug offenders.

This last chapter will summarize the key findings from the data analyses, interpret the findings, and describe the strengths and limitations of this study. When interpreting the findings, this section will extend on where the results of the current study fit in with the literature and how the theoretical frameworks produced mixed results pertaining to punishment severity and recidivism severity. Issues regarding generalizing outside of the sample gathered from Harris County, Texas, the validity, and reliability that were mentioned in Chapter 1 and what measures were executed to address such limitations of the current research project will also be presented. There will be recommendations for future research and implications for social change before the conclusion of this chapter.

Interpretation of the Findings

The results of this study confirmed what many others have found in drug sentencing policy research with small to medium effects sizes in a large sample. The major theme in the literature in Chapter 2 provided compiling evidence for the criminogenic hypothesis (Bales & Piquero, 2012; Matthews, 2013; Mueller-Smith, 2015; Pritikin, 2009; Spohn, 2007; Stemen & Rengifo, 2011) and little support for the specific deterrent effect of incarceration (Durose et al., 2014; Gendreau et al., 2013, Hutchinson, 2006; Spohn & Holleran, 2002; Sung, 2003). Those writing on this topic referred to this criminogenic effect as the schools of crime theory (Gendreau et al., 2013), unintended consequences (Sung, 2003), and worsen recidivism (Stevenson, 2011). Many people argue that imprisonment makes low-level drug offenders more dangerous criminals (see

Matthews, 2013; Pritikin, 2009; Rodriguez & Sanders, 2009; Shepherd, 2006; Stevenson, 2011). With this Harris County sample of first-time drug offenders, I found a significant criminogenic effect of imprisonment on worsen recidivism and little support of any specific deterrent effect of tough punishment.

Many critics of the continued drug war argue that sending low-level drug offenders to prison increases crime (see Alexander, 2012; Listwan et al., 2013; MacCoun & Reuter, 2001; Mauer & King, 2007; NIJ, 2014; Stevenson, 2011). The problem is few empirical studies have examined and described the recidivism outcomes among those incarcerated for drug charges (Cohen, 2000; Delisi, 2003) and have an alternative sanction for comparison like probation (Spohn and Holleran, 2002) or drug treatment (Sung, 2003). Previous studies present evidence of an unintended, criminogenic effect of incarceration when analyzing recidivism outcomes in drug policy research, despite the intended deterrence philosophy behind drug laws. Deterrence theory suggests that if a person does reoffend, it will be less severe after the experience of a more severe punishment like incarceration when compared to the experience of probation (Bernard et al., 2010; Paternoster & Piquero, 1995; Spohn & Holleran, 2002). While many other studies evaluate reductions in crime or the rehabilitative approach, the current study evaluated more severe recidivism outcomes depending on severe sanctioning and individual characteristics. The findings of this study mirrored the findings of Mueller-Smith (2015) as imprisonment significantly impacted recidivism severity among the Harris County sample.

With one exception, first-time drug offenders who were incarcerated in Harris County and reoffended, were more likely to be charged with a more serious crimes when compared to those on probation. These findings provide current support to the literature in drug policy research as reviewed in Chapter 2. Studies that take drug offenders into account suggest that prison growth has no significant deterrent effect on violent and property crimes (Kuziemko & Levitt, 2004); drug offenders sentenced to prison were twice as likely to recidivate when compared to treatment participants (Belenko et al., 2004), while others reported that adding more prisoners to already overcrowded prisons caused an increase in crime (Green & Winik, 2010; Liedka et al., 2006). Sung (2003) tested the specific deterrence theory using number of days in jail and the rehabilitation effect using the number of days in drug treatment and found reductions in recidivism rates among DTAP participants. Imprisoned drug felons in Arizona and Colorado also had higher recidivism measurements compared to those who were sentenced to rehabilitative treatment (Cutler, 2009; Przybylski, 2009). Barrick (2013) found when examining multiple labeling studies that sentences in prison either had no impact or a criminogenic effect on reoffending. Mears et al. (2016) observed that time served in prison effects varied on recidivism. The current Harris County data displayed that for a first-time drug offense, people were about four times more likely to be sentenced to prison when compared to probation. This implies that this particular jurisdiction in Texas sentenced these drug cases more harshly under the justification of specific deterrence.

Demographics tend to relate to sentencing and recidivism. Some people with certain characteristics are sentenced more severely, and based on that punishment, may

be more likely to be deterred or prone to the criminogenic effect of prison (Spohn, 2007).

Like the current study, Spohn and Holleran (2000) found support for a direct relationship

between age, gender, and race on sentencing outcomes in at least one of the three

different samples of Miami, Kansas City, and Chicago felons. The descriptive statistics

displayed in Chapter 4 showed how the person's race, age, and gender were related to

sentencing and the class and type of new charges in this Harris County sample. In a later

study, Spohn (2007) found when analyzing a group of low-stakes offenders and the

impact imprisonment had on multiple levels of recidivism, that people with certain

demographics recidivated more quickly and more often; Blacks more than Whites, males

more than females, and young more than old, respectively. Women have greater odds in

receiving more lenient sentences and are less likely to commit serious reoffending when

compared to males (Spohn & Beichner, 2000). This was not the case in my study.

One of the key findings in my study that contradicts what was found in the

literature was that women were more likely to be sentenced to incarceration than males.

Women were also more likely to be charged with a new felony crime, but less likely to

commit a violent new charge than their male counterparts. Whites were found to have

lower odds of being charged with felony and violent new charges compared to minorities

in this study, which confirms what is found in the literature on race crime theories (see

Chiricos & Bales, 1991; Spohn, 2000). However, Blacks were also more likely to be

incarcerated than Whites in this data, which provides more support to racial disparities in

sentencing (see Human Rights Watch, 2000), especially for drug offenses (Maurer,

2009). Younger first-time drug offenders tended to have higher odds of being charged

with a new violent crime while lower odds in felony recidivism outcomes compared to older offenders in this Harris County data. Race, gender, and age were significant predictors of both recidivism severity outcomes. There were strengths and limitations to this study.

Limitations of the Study

As discussed in Chapter 1, there are a variety of limitations when conducting recidivism research using secondary data such as the risk of a small sample size, lack of information on pertinent variables relevant to answering the research questions, and control over the data (Rudestam & Newton, 2007). As previously stated, the database was compiled using Harris County court records by an agency through the Scilaw. I cannot speak to the accuracy of Harris County court records or the precision of Scilaw when acquiring the information in building their database. Scilaw provided a very efficient codebook through email when I exported the data in an Excel spreadsheet.

One of the primary Scilaw authors informed me that not all dispositions provided the exact sentencing ((in other words), plea of guilty or conviction by jury). These labelled dispositions did not specify whether the person received incarceration or probation. To address dispositions where the sentences were not clear, I did not include these cases in the sample for the sentence of the first-time drug offense. However, when cleaning for recidivism, some new charges had unclear dispositions like the ones mentioned above (see Table 3A in Appendix) and these cases were included. Since the focus was the sentence for the first-time drug offense and the recidivism measure was new charge, the new sentence for subsequent charges were irrelevant in terms of analysis.

There was not a risk of small sampling size using this method as the final sample included 11,077 first-time drug offenders. Even though archival data was used that was recorded and collected by someone else, I have had control over the data while conducting this research.

Gendreau et al. (2013) recommended that strong research designs contain at least five literature-based variables included in the analyses outside of the theoretical framework. I addressed this limitation by removing cases that had past incarceration sentences for nondrug crimes, previous convictions for nondrug crimes, and omitted all cases where there were previous violent charges before drug charges to account for multiple factors pertaining to criminal history. Other research-based recidivism predictors such as ethnicity, gender, and age were included in the logistic regression models. Ideally, I would have liked to include a socioeconomic variable such as education or employment but there were no indicators for this demographic within this data.

Originally, I intended to use whether the individual could afford to hire their own attorney or if the court appointed a public defender, as a proxy to measure socioeconomic status. During the criteria sampling process, there was a great number of cases where this information was missing (about 13%) and ultimately, attorney status was not included in the regression analyses. Field (2009) recommended that no more than 5% of a variable's cases should be missing and no cell below five cases and I followed these recommendations. As more predictors are added to the analyses, this may decrease the cell size and then the statistical power should be rechecked (Warner, 2008). I addressed this limitation by starting out with a rather large sample size and having more than one

recidivism measurement in terms of class and type of new charges filed. All my cells exceeded five and there were only a couple analyses where about 3% of the information was missing.

There are concerns with validity and reliability for this study. Since I randomly selected a sample of 25% of the 3.1 million records, it is highly unlikely that someone else trying to replicate this study would get the same combination of cases. In the present examination of incarceration and drug offender recidivism, there was no way to control for the individual personality traits, the prison/jail environments, parole or probation agencies, the lack of rehabilitation treatment, or community organizations, which may contribute to recidivism outcomes. More specifically, there was no documented information on whether an individual had any treatment for their drug crimes, whether in prison or on probation. The treatment variable is important to consider in drug offender recidivism as reported in Chapter 2. There was also no way using this Harris County data, to account for what Green and Winik (2010) referred to as the incapacitation effect because there was no information on how much time a person was incarcerated compared to the time a person was free in the community to reoffend. While Belenko et al. (2004) and Stemen and Rengifo (2011) could account for time free in the community, also known as censoring, there was no information in the original dataset that could address this limitation. However, censoring was not a major necessity for my study because I did not compare rates or conduct a survivor analysis on timing until next offense because other authors already did this (see Dejong, 1997; Klein & Caggiano, 1986; Spohn, 2007; Spohn & Holleran, 2002).

This study presented the limitation of causality as the results cannot be generalized to all imprisoned drug offenders across time and space. I can only infer that within the current sample of 11,077 first time drug offenders who were either sentenced to imprisonment or probation and were later charged with a new crime recorded in the database, evidence significantly supported the criminogenic effect more than the specific deterrent effect. Since I randomly selected 25% of over 3 million records from the Harris County charge-based dataset, I cannot even generalize to the entire population in this jurisdiction. It is quite possible that some first-time drug offenders in my sample were linked to charges in the 2.6 million records that were not part of the original sample of 496,207 charges. This leads to the assumption that recidivism is underestimated in the Harris County sample. People in my sample could have committed various crimes and were not caught by the criminal justice system. People could have committed crimes in other jurisdictions that went untracked by Harris County. Lastly, those cases that were not selected for the original sample where the disposition was not specified, like the offender plead guilty, could have been sent to prison or probation and committed another crime. These results are unknown in these cases and therefore could not be part of the analysis.

Future research is recommended on a much bigger study using this Scilaw database of all 3.1 million records composed in Harris County, Texas with more rigorous methods, such as Kruskal Wallis, on the various broad crime categories (see Haarsma et al., 2016). Widening the broad types of crime categories among drug offenders could expand on prior research (see Cohen, 2000; Delisi, 2003; Mueller-Smith, 2015). In the

current study, the recidivism outcomes were dichotomous with class of crimes being either felony or misdemeanor and type of crime categorized as either violent or nonviolent. When a variable is dichotomous, a lot of specific crime data is lost. There were 32 crime categories in the original dataset. Most of these crimes would be categorized as nonpersonal nonviolent crimes, which was a limitation to using this dataset because the worsen recidivism construct was new violent charges. The original database also contains over 150 detailed classifications of crime types that were not used as a variable in this analysis but could be a much bigger future research project.

Recommendations

With the current opioid crisis plaguing America, continuing drug sentencing policy research is imperative (Barry & Frank, 2019). As presented in Chapter 2 of this dissertation, decades of drug recidivism research showed there are collateral consequences when using prison to punish people who violate drug laws. Incarceration has not worked in reducing drug use, drug-related crimes, or recidivism. One of the strengths of this study was focusing on the criminogenic effect of imprisonment through a concept of worsen recidivism, which is not empirically tested in drug sentencing policy literature. Going a step further than analyzing recidivism rates, categorizing felony and misdemeanor classes of crime and violent and non-violent types of new crimes permitted a deeper investigation of the relationship between punishment severity and recidivism severity. To answer my research questions, all first-time drug offenders selected for this study later recidivated and the descriptions of their new charges allowed hypotheses testing with quantitative methods. Instead of comparing those who reoffended to those

who did not, following my approach could lead to further exploration of how serious new charges were, for whom, and under which circumstances.

This database offers a rich source of information based on court records and presents many opportunities for future research in various ways. For the purpose of my research, I combined the dispositions of deferred adjudication of guilt with various forms of probation and included state prison terms to the Texas Department of Corrections (TDC) with state and local jail as incarceration sentences. To add to exploring the criminogenic effect using this data, a simple T-test could compare the average total number of new charges of the incarceration group to the probation group using interval level data. A different quantitative approach with less time and resource constraints than writing a dissertation could compare and order less punitive sanctions to more severe sentences. For example, whether the punishment was a fine and for how much, deferred adjudication of guilt, shock probation, standard probation, local jail, state jail, or state prison sentences along with each groups average amount of total new charges could be analyzed using another form of statistics such as Analysis of Variance (ANOVA). Another quantitative approach could be to use Kruskal Wallis to examine sentences and multiple ordinal classes of felonies and misdemeanors, (in other words), F1, F2, F3, FS, MA, MB, MC, as recidivism outcomes. Using the same statistical approach, the 32 crime categories could be further expanded on by creating more typologies such as predatory crimes, personal-violence crimes, property/theft offenses, public order/vice crimes, and drug offenses to add to prior work (Cohen, 2000). Where the current study analyzed whether sentencing severity, race, age, or gender significantly predicted recidivism

severity, this Harris County sample could be used to determine if certain demographic variables, crime types, or certain drugs, predicted sentence severity. This relatively new archival data in its raw form ($N = 496,207$) can be coded to test several crime theories using quantitative methods.

As public policy and criminology is often highly quantified, a qualitative approach is recommended for future exploration of this concept of worsen recidivism grounded by the criminogenic theory. Pritikin (2009) claimed there are various reasons why there are criminogenic costs of imprisonment such as the experience of prison itself, the consequences post release, and the third-party effects. A phenomenological approach may be necessary in search of a universal essence of why incarceration has a criminogenic effect through a first-person point of view. Using open ended questions and interviewing low-level drug offenders who experience time in jail or prison, recidivate, and then display worsen recidivism by either committing a higher felony or violent new crime could shed light on an area that is lacking in current drug policy literature.

Certain factors may contribute to a drug offender being more prone to the criminogenic effect of prison than others, such as the institutional environment, the culture of the inmates, and what the individual brings to prison with them (Camp & Gaes, 2005). The collateral consequences after serving time in prison could be studied, such as the label of being a convicted drug felon, social bonds, neighborhoods and housing, and employment and educational opportunities. There also may be spurious relationships from other factors not considered in this study that could be addressed in future studies. There are various implications for this research in drug sentencing policy.

Implications

The potential impact for positive social change of this study in combination with prior studies implies that prison is not an affordable or effective way to address America's drug problem. Many released prisoners go on to commit more serious offenses and Klein and Caggiano (1986) recommends that only the most dangerous offenders should be selected for incapacitation to reduce recidivism and protect the public. Incarcerating low-level non-violent drug offenders produces collateral consequences for the individual, their families, communities, and society in countless ways. By locking up people who get involved with drugs with rapists and murderers, cutting off family ties, denying them access to treatment, education, and employment opportunities, strict drug sentencing policies open the revolving door that recycle many of these people back through the criminal justice system. Billions of dollars have been spent on fighting the war on drugs by creating tough drug sentencing policies, increasing more drug enforcement, and building more prisons to house these drug offenders for longer periods of time with mounting evidence of failed policy.

While conducting research for this study, efforts have been made in some drug policy reform such as the Sentencing Reform Act of 2010, which reduced the 100 to 1 cocaine versus crack sentencing disparity to 18 to 1 and eliminated the 5 year mandatory minimum for a first time offense at the federal level. Many states have legalized medical marijuana, decriminalized it in small quantities, and states like Colorado and Massachusetts permit recreational marijuana which sell the drug in dispensaries. However, marijuana is still classified as an illegal controlled substance under the

Controlled Substance Act and the federal government can prosecute people who cultivate

and distribute the drug, even in states where it is legal. Until the federal government

legalizes marijuana and all states permit the regulation of selling the drug, people will

still be arrested and incarcerated in states where the drug is legalized.

One cannot research drug policy and the impacts of imprisonment on recidivism

without discussing treatment or rehabilitation. Imprisonment presents an opportunity for

substance abuse treatment and education through rehabilitation, but surveys suggest that

many incarcerated drug offenders do not receive treatment (Phelps, 2011) and still have

access to drugs (Duke, 2010). CASA (2010) analyzed the need for treatment again with a

population of substance involved prisoners in 2005 and found that 11% received

treatment. A 2009 report found not much has changed since their 1998 report in regards

to how funds are allocated to deal with America's drug problem; with less than two cents

spent of every dollar on prevention and treatment, two and a half cents goes to research

and regulation, while still almost 96 cents of every drug war dollar is spent on the

consequences of prohibition (CASA, 2012). The vice president of the National Center of

Addiction and Substance Abuse, Susan Foster, recommends that addiction finally be

declared a disease and bridge the gap between science and public policy (Foster, 2012).

At both international and domestic levels, alternative approaches to address the

drug dilemma have been discovered during the literature review of this research project.

Canada legalized marijuana and Spain decriminalized all drugs and saw declines in crime

rates. Pennsylvania recently opened safety injection sites to address the opioid epidemic

where people can use clean needles to inject opioids that are monitored by medical staff

in a safe environment. An alternative to prosecuting and incarcerating people through the criminal justice system is to develop Drug Centers nationwide that implement a combination of effective drug intervention, prevention, and education from a rehabilitative perspective based on empirical evidence; like the one discovered reviewing the literature in Jackson County, Missouri.

Jackson County was the first county in the nation to develop an anti-drug community back tax (COMBAT) and the second county to open a drug court that diverted drug abusers to treatment in lieu of prison (COMBAT, 2008; Spohn & Holleran, 2002). This is a resource center that works with the Jackson County drug court that takes more of a rehabilitative approach for addicts from multidisciplinary approaches. "Drug prevention program now available at the Clymer Center involves mentoring, tutoring, counseling, job readiness training, referral services and recreational activities. Each participant undergoes an assessment, then is referred to the appropriate program," (COMBAT, 2008, para. 4). After completion of the 12-18-month program, 96 percent of the 1200 graduates remained conviction free within the first five years (COMBAT, 2008). This community approved tax redistributes monies allocated to a drug center instead of a prison.

The national development of drug resource centers could be implemented based on interventions that work backed up by empirical research. Currently, most drug programs are restrictive, do not allow drug dealers, and are part of a criminal justice proceeding that is mandatory. Drug centers could allow all people who get involved with drugs, including low-level drug dealers who may need to have access to employment and

educational resources to increase legitimate income and decrease their probability of committing crime (Jarecki, 2012; Shepherd, 2006). Drug centers that are set up like college campuses with departments in medical, financial, and social services could help address the underlying issues why a person got involved with drugs in the first place. The implications for social change are to sway away from intervening through the criminal justice system by changing prohibition to drug regulation, expand on safe needle exchange and community injection programs, increase locations for methadone maintenance for people weening off opioids, and reform welfare, public housing, and higher education policies which currently disqualify labelled drug offenders from services.

Conclusions

Research studying criminal reoffending of people who served time behind bars for drug crimes are of grave importance to multiple sectors of society: policymakers, criminal justice agents, social service agents, the workforce, and communities (Shannon et al., 2017). First, unlike other types of offenders, low-level convicted drug felons often serve sentences less than five years and then reenter society, and many recycle back through the criminal justice system. Second, there are more people living in prisons and jails than on college campuses in this country, particularly in the south (Prison Policy Initiative, 2018). The record high rates of incarcerating drug offenders have led to state problems of budget allocations when choosing between punishment and education (Hawkins, 2010; Maurer, 2009; Pritikin, 2010; Roth, 2011; Ruth & Reitz, 2003). People who are uneducated are more likely to turn to a life of crime and the cycle continues.

Many people who get involved in drugs tend to go undeterred by severe sentencing practices like incarceration. As the growing evidence has been presented throughout years of literature, the strong take away message is that the American criminal justice system has failed with its expensive war on drugs and perhaps the drug problem could be better addressed through the public health system. After 40 years of fighting a drug war, some unintended consequences are the United States has the highest incarceration rate, violence drastically increased in domestic and foreign black markets, high demand for drug consumption, sentencing disparities among minorities, and increased drug purities leading to more fatalities. The focus of harsh drug sentencing laws has been to punish and reduce the supply of drugs. or eradicate drugs completely, rather than from a harm reductive approach and decreasing demand.

America's drug policies have also failed to rehabilitate drug offenders. There is consensus that treatment is more successful in reducing crime for drug addicts and educational opportunities and employment training can reduce the financial strain to sell drugs, but these programs are not at the forefront of drug sentencing policies. As the literature in chapter two described, only a small percentage of drug addicts get access to treatment while behind bars and financial assistance is not permitted for higher education with a convicted drug offender status. Without employment skills required to earn a living, released drug offenders often turn to illegitimate means and continue to burden the criminal justice system. This is important in pertaining to social change because current drug sentencing policies contribute to the United States leading the world in the race to incarcerate, but drastically falling behind in education.

 In summary, this chapter described the key findings of the study and the interpretations of those findings. After controlling for race, gender, and age, the logistic regression models supported the criminogenic effect of imprisonment on the recidivism severity of both the new class and new type of charges filed against first-time drug offenders among this Harris County sample. The limitations that were laid out in chapter 1 were revisited in this section along with unforeseen restrictions after data collection, coding, and analyses. This chapter discussed recommendations for future research based on the strengths and limitations with the present study and archival data. Implications for the potential impact for social change in drug sentencing policy reform were mentioned before concluding this chapter.

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Appendix

Table 1A

The Frequencies of All Types of Charges from 1977-2012 in the Total Harris County

Population (N = 3.1 Million)

calc.broad	*f*	*%*	recode
Alcohol - Driving	493353	16.2	1
Alcohol - Other	19332	0.6	2
Animal Violence	1906	0.1	3
Arson	5210	0.2	4
Assault - Nonsexual	338637	11.1	5
Burglary	113762	3.7	6
Child Sex Crime	32888	1.1	7
Computer Crime	141	0.0	8
Controlled Substances - Marijuana	220124	7.2	9
Controlled Substances - Other	374501	12.3	10
Crime Against Children	18453	0.6	11
Crime by Public Servants	2624	0.1	12
Disorderly Conduct	3781	0.1	13
Evading/Resisting/Escaping	123611	4.1	14
Fraud/Forgery/Impersonation	95058	3.1	15
Gambling	2656	0.1	16
Harassment/Stalking	13055	0.4	17
Homicide	22958	0.8	18
Kidnapping	5698	0.2	19
Licensing	3794	0.1	20
Low-level Crime	1861	0.1	21
Obstructing	67561	2.2	22
Organized Crime	4575	0.2	23
Pollution	5374	0.2	24
Prostitution	67152	2.2	25
Sexual Assault	10118	0.3	26
Sexual Non-Assault	26504	0.9	27
Theft	495959	16.3	28
Traffic Offense	224681	7.4	29
Trespass	140098	4.6	30
Unclassifiable	825	0.0	31
Weapons - Unlawful Possession/Conduct	110556	3.6	32
NA	1185	0.0	99

Source: Scilaw's Codebook. (Haarsma et al., 2016, p. 11).

Table 2A

The Frequencies of Types of Charges in Harris County Sample from 1992-2012 (N = 496,207)

		f	*%*	Valid %	Cum. %
Valid	Alcohol – Driving	61883	12.5	12.5	12.5
	Alcohol – Other	1907	.4	.4	12.9
	Animal Violence	382	.1	.1	12.9
	Arson	601	.1	.1	13.1
	Assault – Nonsexual	64561	13.0	13.0	26.1
	Burglary	14768	3.0	3.0	29.0
	Child Sex Crime	5681	1.1	1.1	30.2
	Computer Crime	23	.0	.0	30.2
	Controlled Substances – Marijuana	39425	7.9	7.9	38.1
	Controlled Substances – Other	71730	14.5	14.5	52.6
	Crime Against Children	3544	.7	.7	53.3
	Crime by Public Servants	376	.1	.1	53.4
	Disorderly Conduct	855	.2	.2	53.6
	Evading/Resisting/Escaping	21693	4.4	4.4	57.9
	Fraud/Forgery/Impersonation	15715	3.2	3.2	61.1
	Gambling	326	.1	.1	61.2
	Harassment/Stalking	2760	.6	.6	61.7
	Homicide	2491	.5	.5	62.2
	Kidnapping	854	.2	.2	62.4
	Licensing	466	.1	.1	62.5
	Low-level Crime	374	.1	.1	62.6
	Obstructing	15408	3.1	3.1	65.7
	Organized Crime	1067	.2	.2	65.9
	Pollution	1166	.2	.2	66.1
	Prostitution	9002	1.8	1.8	67.9
	Sexual Assault	1006	.2	.2	68.1
	Sexual Non-Assault	4430	.9	.9	69.0
	Theft	73278	14.8	14.8	83.8
	Traffic Offense	41179	8.3	8.3	92.1

Trespass	25193	5.1	5.1	97.2
Weapons - Unlawful Possession/Conduct	14063	2.8	2.8	100.0

Table 3A

Crosstabulation of Type of Charge and Dispositions in Harris County Sample from 1992-2012 (N = 496,207)

Count

	calc.broad=9 or calc.broad=10 (FILTER)		
	Not Selected	Selected	Total
disp.literal codes	9140	1540	10680
1-acq by reason of insanity	115	1	116
2-acq directed verdict	12	4	16
3-acq jury verdict	279	60	339
4-acq non jury trial	54	41	95
5-acquittal by jury	598	24	622
6-acquittal by trial to court	273	8	281
7-case disposed	5	0	5
8-case quashed	42	2	44
9-committed to local jail	26964	16998	43962
10-committed to tdc	28778	14384	43162
11-conditional discharge revoked	4	2	6
12-Confinement	1	0	1
13-conviction by jury	438	15	453
14-conviction by trial to court	88	1	89
15-conviction-nolo contendere	12116	1168	13284
16-conviction-plea guil/nolo cont	0	1	1
17-conviction-plea of guilty	146725	27052	173777
18-death sentence	39	0	39
19-def adj glt adjudicated	4533	2069	6602
20-deferred adjud of guilt	25923	9300	35223
21-deferred adjudication of gu	5077	537	5614
22-deferred disposition	15	8	23
23-defr adj glt	2629	885	3514
24-directed verdict of not guilty	40	1	41
25-dism other	8039	4824	12863
26-Dismissed	50651	7359	58010
27-dismissed case quashed	53	3	56

|			
28-dismissed case refiled	2292	420	2712
29-dismissed defendant convicted on another charge	6182	2063	8245
30-dismissed defendant deceased	85	18	103
31-dismissed defendant granted immunity for testifying	2	0	2
32-dismissed defendant unapprehended	84	22	106
33-dismissed dismissed - trans-civil commitment proceedings	10	5	15
34-dismissed insufficient evidence	1186	510	1696
35-dismissed other	5924	2068	7992
36-dismissed request of complaining witness	1019	9	1028
37-dismissed transfer cccl reduced to misd.	150	21	171
38-dismissed unknown	1	2	3
39-dollar amount of fine	1198	1428	2626
40-ex parte disposed	6	0	6
41-fined only	648	21	669
42-guilty plea-jury verdict	2	0	2
43-life sentence	322	11	333
44-Mistrial	1	0	1
45-no bill	3061	395	3456
46-Probation	4143	1162	5305
47-probation (boot camp)	2	0	2
48-probation by jury trial	761	10	771
49-probation by trial to court	165	1	166
50-probation revoked	1	0	1
51-probation shock	1	0	1
52-probation-nolo contendere	2961	13	2974
53-probation-plea of guilty	17543	156	17699
54-probation/shock	3	4	7
55-shock probation	89	59	148
56-shock probation granted	13	2	15
57-state jail	14561	16467	31028
58-trans felony court	1	0	1
59-trans juvenile court	4	1	5
Total	385052	111155	496207

Descriptive Statistics
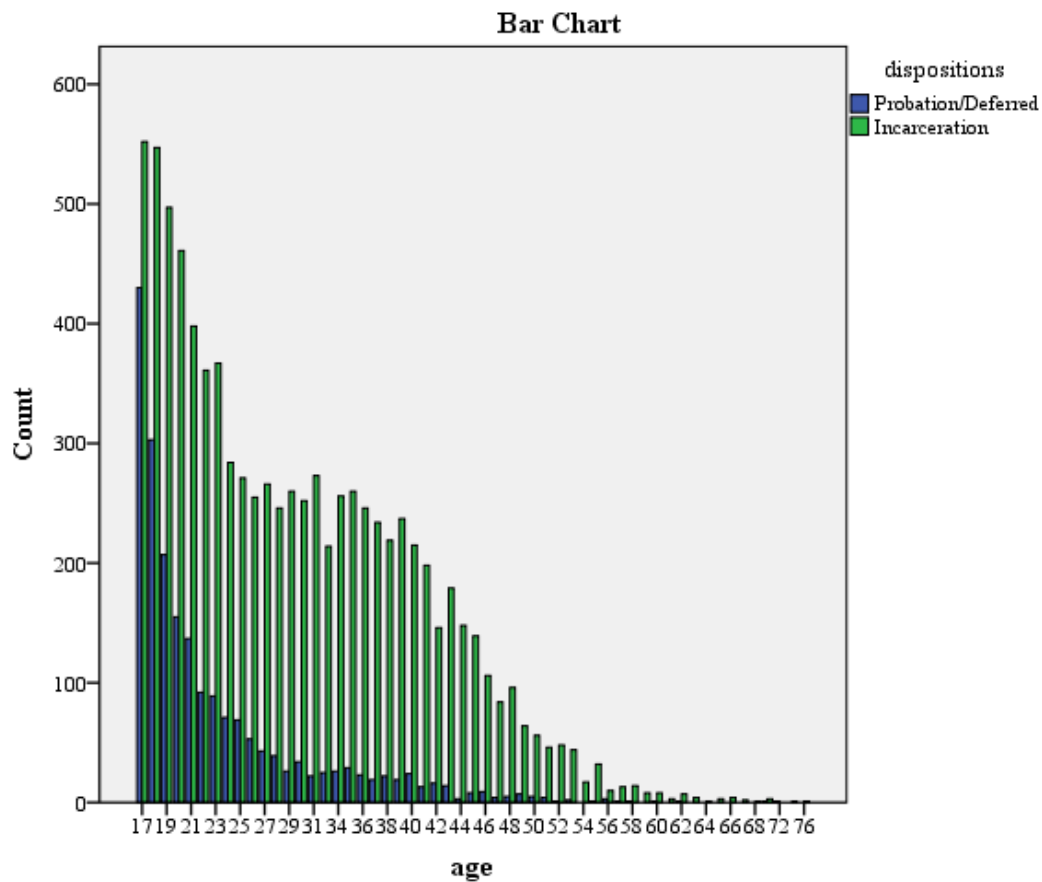
Figure 1. A bar chart of the age distribution across incarceration and probation sentences.

Statistical Assumptions

Tests for Linearity between Age and Class of Crime Logit

Table 4A

Omnibus Tests of Model Coefficients for Logage and Class of Crime Logit

		Chi-square	df	Sig.
Step 1	Step	854.888	5	.000
	Block	854.888	5	.000
	Model	854.888	5	.000

Table 5A

Model Summary for Logage and Class of Crime Logit

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	13116.030[a]	.077	.105

a. Estimation terminated at iteration number 4 because parameter estimates changed by less than .001.

Table 6A

Variables in the Equation for Logage and Class of Crime Logit

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	dispositions	1.165	.054	459.083	1	.000	3.206
	gender	-.204	.056	13.179	1	.000	.815
	RaceDummyWh	-.415	.049	71.807	1	.000	.660
	age	-.003	.059	.002	1	.964	.997
	log(age) by age	.004	.013	.099	1	.753	1.004
	Constant	-.385	.400	.926	1	.336	.680

a. Variable(s) entered on step 1: dispositions, gender, RaceDummyWh, age, log(age) * age .

Tests for Linearity between Age and Type of Crime Logit

Table 7A

Omnibus Tests of Model Coefficients for Logage and Type of Crime Logit

		Chi-square	df	Sig.
Step 1	Step	287.763	5	.000
	Block	287.763	5	.000
	Model	287.763	5	.000

Table 8A

Model Summary for Logage and Type of Crime

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	8228.976[a]	.026	.048

a. Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9A

Variables in the Equation for LogAge and Type of Crime

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	dispositions	.149	.077	3.738	1	.053	1.160
	gender	1.073	.105	105.328	1	.000	2.923
	RaceDummyWh	-.263	.074	12.730	1	.000	.769
	age	.085	.088	.936	1	.333	1.089
	log(age) by age	-.026	.020	1.714	1	.190	.974
	Constant	-2.766	.590	22.005	1	.000	.063

a. Variable(s) entered on step 1: dispositions, gender, RaceDummyWh, age, log(age) * age.

Multicollinearity Diagnostics

Table 10A

Coefficients^a

		Collinearity Statistics	
Model		Tolerance	VIF
1	gender	.968	1.033
	RaceDummyWh	.980	1.020
	age	.987	1.014

a. Dependent Variable: dispositions

Table 11A

Coefficients^a

		Collinearity Statistics	
Model		Tolerance	VIF
1	RaceDummyWh	.958	1.044
	age	.933	1.072
	dispositions	.895	1.117

a. Dependent Variable: gender

Table 12A

Coefficients^a

		Collinearity Statistics	
Model		Tolerance	VIF
1	age	.925	1.082
	dispositions	.934	1.071
	gender	.987	1.013

a. Dependent Variable: RaceDummyWh

Table 13A

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	dispositions	.953	1.049
	gender	.975	1.026
	RaceDummyWh	.937	1.067

a. Dependent Variable: age
Chi-Squared Test Between Dependent Variables

Table 14A

Crosstabulation of Class of New Crime and Type of New Crime

Count

		class of crime		
		misdemeanor	felony	Total
type of crime	non-violent	3398	6184	9582
	violent	558	937	1495
Total		3956	7121	11077

Table 15A

Chi-Square Tests of Class of New Crime and Type of New Crime

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.953[a]	1	.162		
Continuity Correction[b]	1.873	1	.171		
Likelihood Ratio	1.943	1	.163		
Fisher's Exact Test				.163	.086
Linear-by-Linear Association	1.953	1	.162		
N of Valid Cases	11077				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 533.92.

Table 16A

Symmetric Measures for Class of New Crime and Type of New Crime

		Value	Approximate Significance
Nominal by Nominal	Phi	-.013	.162
	Cramer's V	.013	.162
N of Valid Cases		11077	