EVALUATION OF THE IGNITION INTERLOCK BOND CONDITION'S IMPACT

ON RECIDIVISM

THESIS

Presented to the Graduate Council of
Texas State University-San Marcos
in Partial Fulfillment
of the Requirements

for the Degree

Master of SCIENCE

by

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San Marcos, Texas
August 2012

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DEDICATION

I dedicate this thesis to my loved ones, especially…

to Mom and Dad for instilling the importance of hard work;

to Becky for your endless encouragement;

to Jonny for being there every step of the way.

ACKNOWLEDGEMENTS

I would first like to thank my committee chair, Dr. Jeffrey Cancino. He has been an invaluable source of support and encouragement through this process. I would also like to thank the other members of my committee, Dr. Bob Vasquez and Dr. Nathan Pino for being generous with their time and input. In addition, I would like to thank Sarah Scott for taking an interest in this project through providing her time and advice. I also want to acknowledgement and thank Dr. Pablo Martinez for helping get this thesis off the ground.

Furthermore, I would like to extend thanks for the research team at Travis County CSCD, Carsten Andresen and Jose Villareal for taking the time out of their busy schedules to provide the data used in this study. I would also like to express gratitude to Irma Guerrero, Ronald Morgan III, and Geraldo Rodriguez with Travis County Pretrial Services. Beyond providing support for this project they have been a great support for the completion of my Master's degree.

This manuscript was submitted on June 13, 2012.

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EVALUATION OF THE IGNITION INTERLOCK BOND CONDITION'S IMPACT ON RECIDIVISM

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Purpose: The present study will measure the effects of the perceived increased risk of immediate punishment on recidivism amongst adult probationers convicted of drunk driving in Travis County, TX. *Methods:* Data provided by Travis County Pretrial Services and Travis County Adult Probation are examined in the study. Probationers are utilized as the unit of analysis and logistic regression models are generated and reviewed. *Results:* The analysis found insignificant and low to moderate effects of the Interlock bond condition to reducing the risk of committing a subsequent offense while serving probation. *Conclusions:* Findings concluded that the subjects who were required to install and maintain the Interlock lock device were more likely to commit a subsequent offense while on Probation.

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CHAPTER 1

INTRODUCTION

Deterrence is the failure to commit an act due to fear of sanctions or punishment (Paternoster, 2010). Legal policy and law enforcement provide deterrence by demonstrating that certain actions maintain a greater risk of cost than reward. Deterrence theory suggests that an individual will be deterred when a rational decision concludes that an action's risk of detention or punishment to be greater than its reward (Maestro, 1973). Researchers have measured the relationship deterrence has to legal policies and sanctions in various facets of the criminal justice system including the offense of Driving While Intoxicated (DWI). Drunk driving research, although plentiful, does not provide a comprehensive examination of all legal policies and procedures implemented to deter impaired driving.

The innate social nature of DWI has reduced policymaker's potential methods of providing deterrence to either creating new or modifying existing laws. Evaluation of drunk driving policies which increase the perceived risk of punishment of an illegal act is prevalent. However, examination of alcohol monitoring technology as a drunk driving deterrent is clearly lacking in this area of research. Alcohol monitoring technology, such as the Ignition Interlock device, has been utilized in various stages of the legal process posing a challenge to researchers to measure the impact of the device on deterrence.

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Advances in technology and the Interlock's increasing presence in the criminal justice system accompanied with the frequent occurrence of drunk driving offending make this an important deterrence method that requires examination.

DWI studies have found the offender population of drunk drivers to be more diverse than alternate crimes. Drunk driving offenders maintain a widespread demographic including age, sex, race and urban or rural residence (Jacobs, 1989). Deterrence theory's principles provide that any human activity can be understood as a result of a risk and reward calculation, implying that a propensity towards crime exists in all individuals (Paternoster, 2010). Bentham and Beccaria stated through deterrence theory that the difference in criminality comes from an individual's assessment of cost and benefit, since criminal and non-criminal activity are no different (Maestro, 1973). The reality that DWI offenders create an assorted population allows deterrence theory to be the best equipped theoretical explanation of the occurrence of drunk driving recidivism.

Deterrence theory maintains that the calculation of the risk and reward of an action is based on the perceived celerity, certainty and severity of punishment (Paternoster, 2010; Maestro, 1973). One of the functions of law and law enforcement is to increase the risk of sanction or punishment to deter individuals from committing illegal acts. Existing research has related legal policies and law enforcement practices for drunk driving to the three specific elements found in the foundation of deterrence theory. Bentham and Beccaria (Maestro, 1973) found that celerity, certainty and severity of punishment must be perceived as collectively present and greater than the act's potential

reward. To date, current legal policies enacted have failed to provide one deterrent method that has fulfilled this theoretical requirement.

Driving while impaired provides a high risk to public safety on roadways making this a significant social problem. In 2010, 10,228 traffic fatalities occurred as a result of alcohol impaired driving. Alcohol impaired driving with a BAC of .08 or higher is accountable for 19-44% of traffic fatalities by state and 31% nationally (State Motor, 2011). Put another way, in 2010, 3.3 persons per 100,000 in the population were killed as a result of impaired driving (Drunk Driving, 2010). The U.S. Department of Transportation National Highway Traffic Safety Administration defines non-legal alcohol-impaired driving to be when a blood alcohol concentration (BAC) of .08 grams per deciliter or higher is present at the time of vehicle operation (Traffic Safety, 2009). A BAC of .08 has been determined the minimum level which an individual is no longer capable of driving at the necessary capacity to maintain public safety on roadways.

Texas Transportation Code provides the optimal environment to draw a sample for examination of the effectiveness of the Ignition Interlock device. According to Texas law, an individual who has one prior DWI conviction will be required to install the Ignition Interlock device as a condition of bond for any subsequent DWI charge (Texas Transportation Code, 1995). The data provided by Travis County Pretrial Services is a reliable and valid representation of the impact alcohol monitoring technology has on drunk driving recidivism. Travis County Pretrial Services standard procedures require all defendants ordered to install and maintain the Interlock device while on bond are to be monitored by a trained Ignition Interlock Pretrial Officer. This agency policy makes Travis County better equipped to provide Interlock data than other pretrial agencies in

Texas because many of these counties do not provide assigned officers to defendants to monitor compliance or bond condition modification.

This thesis will attempt to contribute to the existing research concerning alcohol monitoring technology and its use as an effective deterrent. The current study will investigate this method of deterrence in the context of deterrence theory's three risk elements; perceived celerity, severity and certainty of punishment. The effectiveness of these risk elements will be measured according to the occurrence of recidivism within the population of individuals ordered to install and maintain the Interlock device. The research question will inquire: does increased celerity of punishment reduce criminal recidivism? The answer to this question will be sought through examination of data from Travis County Pretrial Services and Travis County Adult Probation. This data was provided from a snapshot of demographic, bonding and sentencing information captured in the Summer of 2011 and spans August 2010 through July 2011.

LITERATURE REVIEW

Anti-impaired driving legislation was first introduced in the Scandinavian countries of Denmark, Norway and Sweden in the early 1930's in response to traffic fatalities resulting from drinking and driving (Laurence, 1988). The enforcement of fines and mandatory jail sentences were utilized to deter individuals from choosing to drive under the influence. Other countries have adopted similar remedies to this social dilemma; however, the act of drinking and driving remains prevalent today.

Legislation enacted to deter the act of drunk driving has routinely focused on repeat or high BAC level offenders. Prior drunk driving convictions or a high BAC over .15 at time of arrest predicts a greater likelihood for re-offense in the future (Voas and Fisher, 2001). Numerous deterrent policies have been enacted at the court and correction level such as mandatory sentencing, driver's license suspension, and sobriety checkpoints. More recently, the use of alcohol monitoring technology has been used to help reduce drunk driving recidivism aimed at specific populations, such as, high risk offenders.

The offense of drunk driving occurs amongst a diverse population of offenders. Most drunk driving offenders are unlikely to be arrested for impaired driving more than once (Voas and Fisher, 2001). Diversity amongst DWI offenders can possibly be equated

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to the commonly accepted attitudes and beliefs which are required to commit the act of drinking and driving. The perceived minimal risk of capture and punishment associated with the offense of drinking and driving has been found through self-report studies to span the general population, including offenders and non-offenders (Greenberg and Morral, 2005). The existence of repeat DWI offenders allows for the assumption that certain individuals maintain a higher risk of partaking in this deviant act than others. A high risk DWI offender cannot be predicted by the presence of substance abuse problems. This type of offender is more reliably defined by demographic, education, criminal history and general resistance to following rules (DeMichele and Lowe, 2011). The inclusion of risk level in the measure of the deterrent quality of alcohol monitoring technology is necessary for a comprehensive investigation.

The Use of Technology as a Deterrent

The topic of deterring incidents of DWI has received considerable attention from practitioners and researchers. Deterrence theory measures influence on an individual's rational actions according to the certainty, severity and celerity or swiftness of the perceived punishment (Freeman, 2006). Modifications to the perceived risk of capture, sentencing policies and delay in punishment have been implemented with the expectations of a reduction in the occurrence of drinking and driving.

This study will examine the effect of increased celerity of punishment through the use of the Ignition Interlock device ordered during the bonding process. The current research examines the use of Ignition Interlock technology by the court system as a deterrent to drinking and driving. The Interlock device connects to the ignition of a vehicle, analyzes the vehicle operator's breath for alcohol, and will prohibit the vehicle

from starting if the driver provides a breath sample which contains alcohol (Ignition Interlock, 2009). Court officials have the authority to modify this condition due to a defendant's vehicle and license status or at their discretion.

The courts can order the installation of alcohol monitoring technology as a condition of bond establishing a deadline for installation at the judge's discretion. A defendant released on bond can be ordered to install alcohol monitoring technology prior to release from custody or as soon as 24 hours from signing of the order. According to Bentham and Beccaria increasing the perceived certainty and celerity of punishment maintains the greatest deterrent effect and increased severity of punishment should only be implemented if alternative methods have failed (Williams and McShane, 2004). The current research allows for the question, does the swiftness of an alcohol monitoring technology restriction imposed during the bonding stage reduce drunk driving recidivism?

To answer the question, this thesis will aim to explore the severity, certainty and celerity of deterrence theory on drunk driving. Existing studies have illustrated the need for further research on the effect of legislation using multiple aspects of deterrence theory applied to drunk driving policy. Below is an exposition of the current research of the severity, certainty and celerity of punishment regarding drunk driving and the frequently cited work of Ross (1992). The work of Ross relates legal remedies such as mandatory sentencing, sobriety checkpoints, and license revocation to the three aspects of deterrence theory.

<u>Severity</u>

Severity of punishment is defined as the amount of pain which can be inflicted when committing a deviant act. Deterrence theory states that a rational individual will calculate this potential for harm when contemplating deviance (Williams and McShane, 2004). Ross (1992) found increased severity of punishment through mandatory jail sentences for individual's convicted of drunk driving to be the most commonly implemented deterrence based policy; However, he reported a lack of perceived certainty of punishment as a reason for the ineffectiveness of increased severity of punishment (Ross, 1992). The significance of potential offender's perceived risk is illustrated by Ross (1992) stating "the most plausible reason for the inability of jail threats to deter drunk drivers lies in the small actual and perceived chances of being caught" (p. 61).

Literature on the application of deterrence theory to drinking and driving policies includes moderate support for the increased severity of punishment through the implementation of mandatory sentencing. Peck (1991) found in California that repeat drinking and driving offenders were moderately deterred because of lengthy jail sentences. However, Peck (1991) also found a more significant deterrent effect of alcohol treatment programs than increasing the severity of punishment through mandatory sentencing. Weinrath (2001) defined a sentence length threshold which has been projected to be most effective in deterring drunk driving through increased severity of punishment. The study suggested meaningful increases in sentence length such as 30 days to 6 months as opposed to a minimal, 30-day sentence extension. Weinrath (2001) advised that although increased sentence length is not believed to completely eliminate the occurrence of drunk driving, it is believed to reduce this illegal behavior.

Certainty

Bentham and Beccaria described certainty of punishment as the perceived likelihood which an individual believes their deviant actions will result in harm or punishment (Williams and McShane, 2004). Perceived certainty of punishment carries a significant influence on the occurrence of drinking and driving (Ross, 1992). Unannounced sobriety checkpoints have been found to be the most effective and commonly used method of increasing perceived risk of detection. Effective sobriety checkpoints have been found to be visible and well publicized within the affected community. Ross (1992) found the perceived level of certainty of punishment also influences the deterrent effect of increased severity and celerity based policies.

Voas, Rhodenizer and Lynn (1985) conducted a study of sobriety checkpoints program in Charlottesville, VA. The study found that the use of checkpoints did increase the perceived risk of capture of drunk drivers. The likelihood of collisions during the implementation of this program appeared to reduce by 10 percent. However, due to a small sample size this data was not found to be statistically robust (Voas, Rhodenizer and Lynn, 1985).

Kenkel (1993) conducted a study using self report data regarding drinking and driving from a sample of about 28,000 individuals who completed the 1985 Health Interview Survey. The study found that state laws which increase the perceived consequences to drunk driving will deter actions which predict this form of deviance, such as heavy drinking. Kenkel (1993) reports deterrent policies such as mandatory sentences for first-time offenders and administrative license revocation will also deter heavy drinking. The research also supported the implementation of sobriety checkpoints,

preliminary breath tests, and prohibition of plea bargaining for drunk driving convictions will reduce the occurrence of drinking and driving by 20 percent (Kenkel 1993).

Celerity

Celerity of punishment involves the rational measurement of the swiftness in which harm is inflicted for committing a deviant act. The originators of deterrence theory, Bentham and Beccaria, found that the sooner a punishment is received from the time a deviant act is committed the greater the deterrent effect on the offender (Williams and McShane, 2004). Ross' (1992) evaluation of the increased celerity of punishment found this aspect of deterrence theory to have an effective influence on reducing the occurrence of drunk driving. Administrative practices such as license revocation during the bonding and trial stage have been used historically to increase the swiftness of punishment. Modification to the criminal justice system's less than timely trial process cannot be afforded as to not compromise due process. However, a driver's license is a privilege that can be modified without the restraints of due process. This deterrent method varies amongst states, but allows for license revocation due to a lawful arrest where the defendant refuses to provide a breath sample or provides a breath sample above the legal driving limit (Ross, 1992). Ross' (1992) evaluation of various research concluded that administrative license revocation after arrest is effective in reducing the occurrence of drunk driving and alcohol related collisions. This significant finding supports the general deterrent effect of increased perceived swiftness of punishment predicted by deterrence theory.

The ability for administrators to enforce license revocation is an important factor when investigating the deterrent effect of this policy. Although studies have found

evidence of a relationship between license suspension and the occurrence of drunk driving, it is important to investigate these findings further (Ross, 1992; Hagen, 1977). Voas et al. (2010) found:

> Up to 75% of drivers convicted of an impaired-driving offense continue to drive illicitly to some extent. Current limitations on the ability of the police to detect and apprehend illicit drivers make the likelihood of being sanctioned for driving-while-suspended a low probability even. (p.1422)

Hagen (1977) conducted a study in California on the impact of license revocation for repeat drunk driving offenders. Hagen (1977) examined individuals whose license were suspended due to a previous drunk driving conviction to a sample of individuals who were previously arrested for drunk driving, but did not have a prior DWI conviction. The study found lower rates of re-arrest for the sample receiving the license revocation within a 3 ½ yr range from initial license suspension. Hagen (1977) identified the potential for selection bias within the sample because of the socio-economic status of the subjects who commonly receive a dismissal for their first drunk driving charge. Due to this contributing factor, the study identified a specific deterrent effect of license revocation for offenders over the age of 30.

Weinrath (1997) conducted a study of the deterrent qualities of the Ignition Interlock device in Alberta, Canada. The study utilized logistic regression in comparing individuals ordered to install an Interlock device to a sample population which does not have the device but has a suspended drivers license. Weinrath (1997) found that individuals with the Ignition Interlock device were 11-28% less likely to drink and drive

again, 2.4-10.8% less likely to commit a new drunk driving offense and 1.2-4.6% less likely to become involved in an injury collision than the control group. The study also defined a 92% likelihood for non-recidivism within a 15 month period after de-installation of the Interlock compared to a 87% likelihood of non-recidivism for the license revocation sample. Weinrath (1997) concluded that at the end of the 15 month follow-up that the likelihood for individuals with the Interlock device to recidivate evened out with the control group, illustrating the possible short term deterrent effects of this device.

Morse and Elliot (1992) also conducted a study comparing the effectiveness of license suspension to the use of Ignition Interlock. The author's study examined individuals convicted of DUI in Hamilton County between 1987 and 1989 exclusive to first time offenders with a BAC of .20 or higher, repeat offenders with a prior conviction no older than 10 years and individuals who refused to provide a breath sample at the time of arrest. Morse and Elliot (1992) did report a selection bias as a result of the quasi-experimental method utilized in examining individuals arrested and court ordered to install the Interlock or license revocation. This study reported similar findings to Weinrath's (1997): Ignition Interlock devices installed in an offender's vehicle will reduce the likelihood of a DUI re-arrest. Morse and Elliot (1992) found a 3.4% 30 month failure rate compared to a 9.8% 30 month failure rate for individuals who received license revocations.

While deterrence theory does offer significant insight for explaining drunk driving, there are limitations. For example, Gibbs (1975) defined a fundamental problem: although an individual may choose not to commit a deviant act, the reason for

this choice may vary greatly and therefore unaccounted for (Homel, 1988). The solution to rectify this discrepancy was determined by Gibbs (1975) to be the inclusion of questions in self report studies regarding the reasons which individual's did not choose to drink and drive. This line of questioning was projected to be more effective in measuring the deterrent effect of drinking and driving policies than perception based questions.

Homel (1988) addressed Gibb's (1975) criticisms, stating the random breath test study which Homel conducted measured individual's response to drunk driving policies, which provides for accurate interpretation of the deterrent quality of such policies. The current study will also utilize Homel's (1988) approach in measuring the response to a deterrent policy implemented with the goal to reduce drunk driving.

Current research has utilized deterrence theory as a component in the implementation of drunk driving reduction laws and policies. An increase in the perceived certainty, severity, and celerity of punishment has received some support as a viable theory in the reduction of drunk driving. Research has found minimal response in drunk driving recidivism from policies which increase severity of punishment through ndatory sentence length. However, an increase in the certainty of punishment for drunk driving has been found to be more significant in deterring drinking and driving. This method requires increased police presence and the establishment and advertisement of sobriety checkpoints to the general public to effectively provide deterrence. The most effective aspect of deterrence theory, which may yield the greatest deterrence of drunk driving, is the modification of the celerity of punishment. Drunk driving studies have found that immediate license revocation has provided a positive impact to repeat offender's likelihood to be re-arrested for DWI.

This study will investigate the impact of acceleration to the swiftness of punishment on the deterrent effect of alcohol monitoring technology. The direct effect of license revocation is still questionable allowing for uncertainty regarding compliance with this policy. The prior research of the impact that swift punishment has on drunk driving recidivism does not address the use of alcohol monitoring technology during the bonding process.

CHAPTER 3

METHODS

<u>Datum</u>

        The data collected for this study were provided by both Travis County Community Supervision and Corrections Department (CSCD) and Travis County Pretrial Services. The research from CSCD was obtained during the Summer of 2010. This information is maintained by the management information system, Correctional Software Solutions (CSS). The research team at CSCD provided a data snapshot of all individuals placed on probation for the Fiscal year of 2010 (August 2010 through July 2011) for the misdemeanor offenses of Driving While Intoxicated, Obstruction of a Highway/Passageway and Reckless Driving. Conviction of Obstruction of a Highway/Passageway and Reckless Driving are commonly a result of a plea agreement originating from a Driving while Intoxicated arrest. The data contained information including demographic, offense, supervision status level, sentence and occurrence of revocation for each listed offender.

        Travis County Pretrial Services provided data for the present study in Fall of 2011. Pretrial Services utilize Automated Pretrial System (APS) to maintain record of all persons arrested for misdemeanor Driving while Intoxicated during the Fiscal year of 2007 through the Fiscal year of 2011. The data include information illustrating the

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method of bonding and conditions ordered for each defendant processed and/or monitored by Pretrial Services.

<u>Sample</u>

The data from CSCD for the Fiscal year of 2010 were the most current, complete available data for probation placement at the time the present study was conducted. The time span of the data obtained was deemed most beneficial for the purposes of this study because of the large sample which it produces. A wider and earlier time frame was required from the Pretrial Services data in order to track the bonding conditions of those individuals captured in the data provided by CSCD.

Once the data from both CSCD and Pretrial Services were merged, individuals whom were not sentenced during the Fiscal year of 2010 to probation were eliminated. Furthermore, individuals who were convicted in an alternate county to Travis but supervised by CSCD as a courtesy, those who transferred out of Travis County completing their sentence in an alternate county and absconder were excluded from the sample.

The identifiers utilized for both samples include the state identification number (SID) and the cause number. The SID is an identifier assigned by the Texas Department of Public Safety (DPS) associating criminal activity with the accused person. The cause number is assigned by the County Clerk linking an individual with a specific offense. The cause number identifies case disposition and sentencing per offense. The SID was used to merge the data from CSCD and Pretrial Services eliminating the occurrence of multiple entries per defendant.

<u>Dependent Variable</u>

The dependant variable utilized in this study is defined as probation revocation as a result of committing a subsequent offense. The dichotomous variable was dummy coded one for subjects who had received a probation revocation due to a subsequent offense and zero for subjects who had not (1=new arrest; 0= no new arrest). Alternative reasons captured in the data for probation revocation were included in the no new arrest category. These alternative reasons included administrative and financial non-compliance unrelated to recidivism for the purposes of this study. The new arrest variable did not discriminate according to the number of new arrests or multiple charges during subsequent offense.

<u>Independent Variables</u>

The independent variables considered in the present study include bond conditions ordered and risk level from the Wisconsin Risk Assessment Instrument. The presence of court ordered bond condition such as Ignition Interlock was dummy coded as granted and not granted (1= granted; 0= not granted). The Wisconsin Risk Assessment Instrument includes 11 recidivism predictors which are calculated to provide a risk score. Risk score was divided into two categories, minimal risk and non-minimal risk. Subjects receiving a score of zero to seven were determined to be minimal risk and those scoring an eight through 43 were non-minimal risk.

Recidivism predictors of the risk assessment included number of address changes within the 12 months prior to conviction. No address changes within the time period was coded as zero, one address change as two and two or more address changes as three (0= no address change; 1= 2 address changes; 3= 2 or more address changes). Percentage of

time employed within the last 12 months was coded as zero for subjects reporting 60% or more time employed, one for subjects reporting 40% to 59% and two for less than 40% (0= 60% or more time employed; 1= 40-59% time employed; 2= less than 40% time employed).

The risk assessment also included inquiry regarding the relationship drug and alcohol usage had to the offender's charge. Subjects who determined drug and alcohol usage as unrelated to criminal activity were coded as zero, probable relationship as one and definite relationship as two (0= unrelated drug/alcohol; 1= probable relationship to drug/alcohol; 2= definite relationship to drug/alcohol). Motivation to change was also included as a risk predictor. The response of definite motivation to change was coded as zero, somewhat motivated to change as three and not motivated to change as five (0= definite motivation; 3= somewhat motivated; 5= not motivated).

The subject's criminal history as a measure of recidivism predictor included age of first adjudication of guilt. Subjects who responded 24 or older were coded as zero, 20 to 23 as two and 19 or younger as four (0= 24 or older; 2= 20 to 23; 4= 19 or younger). Prior number of probation or parole supervisions was coded zero for none and four for one or more (0= no prior supervisions; 4= 1 or more prior supervisions). Prior probation or parole revocations for subjects who had been supervised previously were coded zero for none and four for one or more (0= no prior revocations; 4= 4 or more prior revocations). Specific types of adjudication were also included in the risk assessment including prior felony adjudication of guilt. Subject's responses were coded zero for none, two for one and four for two or more (0= no prior felony adjudications; 2= 1 prior felony adjudications; 4= 2 or more prior adjudications). Adult and juvenile adjudication

of guilt for burglary, theft, auto theft or robbery were coded as two, prior adjudication for worthless checks or forgery were coded as three and no prior adjudication of guilt were coded as zero (2=adjudications for burglary, theft, auto theft or robbery; 3= adjudications for worthless checks or forgery; 0=no prior adjudications). Finally, adult or juvenile adjudications for assaultive offenses within the last five years were coded as zero for no and eight for yes (0= no assault; 8= prior assault).

Method of Analysis

Descriptive statistics were calculated for the following variables such as sex of the offender as male and female. Marital status was calculated according to responses such as married, single, divorced, separated, widowed and unknown. Subject's race was measured as African-American, Caucasian-Hispanic or Non-Hispanic, Native American or Alaskan native and other. Ethnicity was further broken down for Causcasian respondents and descriptive statistics taken for Hispanic and Non-Hispanic.

Respondent's employment status was categorized as full-time, part-time, seasonal, student/retired/homemaker/disabled or unemployed. This variable was defined as employment status at the time the data was collected. Statistics were composed for the offense degree of the current conviction as Class A and Class B Misdemeanor.

Supervision status was also measured according to the status at the time the data was collected. Status categories include Minimum, Medium and Maximum level, absconder, deported, incarcerated in Jail, incarcerated in prison, incarcerated in Substance Abuse Felony Punishment Facility (SAFPF), reporting by mail, transferred out of county, transferred out of state and other.

The analytical strategy employed to measure the deterrent effect of alcohol monitoring technology on recidivism was logistic regression. This method was deemed most appropriate for analysis of a dichotomous dependant variable. Furthermore, logistic regression allows for measure of multiple, unranked independent variable as this study contains. This study measures the strength of the relationship between the varying independent variables to the dependant and will aid in reaching the study's goal.

FINDINGS

<u>Descriptive</u>

Descriptive statistics were calculated for the sample of 1,293 drunk driving offenders. The sample contained an age range of offenders 18 to 74, with an average age of 33.5. The sample represented a greater percentage of males (73.2 percent) than females (26.8 percent). Caucasian offenders maintained the highest percentage (90.9 percent), then African American (5.1 percent) and Asian or Pacific Islanders (1.3 percent). The remainder of the sample consisted of Native America, Alaskan Natives, and other races fulfilled the remainder of the sample (2.7 percent). The sample defined Ethnicity as Hispanic and non-Hispanic, determining 49 percent of the subjects to be Hispanic. Full-time employment was found to be the most common form and frequency of employment at 69.7 percent. The most frequent method of bonding was Personal Recognizance or Cash Deposit which was utilized by 86.5 percent of the sample (Table 1).

Majority of the sample was convicted of a Class B offense (79.3 percent) (Table 1). A minimum supervision level was provided to 48 percent of the sample, 36.7 percent for medium supervision, and maximum supervision maintained 12.8 percent. The risk scores of medium and maximum were condensed into a single non-minimal risk level. Minimum risk level requires a 0-7 and non-minimal risk level 8-36 score on a risk

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assessment survey administered during probation placement. The minimum risk level offenders fulfilled 52.7 percent of the sample while the non-minimal risk offenders were 47.3 percent (Table 1).

Ignition Interlock was ordered for 342 individuals (26.5 percent), leaving 951 or 73.5 percent without the Interlock condition while out on bond (Table 1). The sample grade individuals according to risk level finding 6.2 percent of minimal risk level and 19.7 percent of non-minimum risk level were ordered Interlock. Probation revocation due to a subsequent offense while on probation resulted in 5.4 percent of the sample (Table 1).

Logistic Regressions

Revocation due to a subsequent offense was regressed to the Interlock condition ordered to determine if this condition was predictive of recidivism. The omnibus test of the model reported a Chi-square of .463, this indicated non-significant ($p \geq .05$) effect. The Nagelkerke's R^2 of .001 was also found to be low stating .01 percent of the variance in subsequent offense can be explained by the Interlock condition (Table 2 & 3).

The Beta showed .189, this positive slope means when Interlock is ordered the likelihood to commit a new offense increases. The logit test found a Wald score of .474 which was also insignificant ($p \geq .05$). Finally, the test found *Exp(B)* of 1.208 meaning if Interlock is ordered an individual is 1.208 more like to commit a subsequent offense. The standard error for this test was .274 (Table 2 & 3). The classification table stated a predicted versus outcome of 94.6 percent of the sample was correctly predicted and did not predict any subject to commit a subsequent offense.

Regression for Interlock and Risk Level.

Regression was also used to examine recidivism's relationship to the Interlock bond condition and risk level. The omnibus test of the model reported a Chi-square of 2.940 finding the model to be insignificant ($p \geq .05$). The Nagelkere's R^2 of .007 was small showing only .07 percent explained variance. In other words, if Interlock is ordered and risk level is incorporated only .07% of the variance in recidivism can be accountable to these variables (Table 2 & 3).

The regression found differing slopes for each risk level with Interlock, a *B* of -.426 for minimum and a *B* of .423 for the non-minimum. These results illustrate a negative relationship with subsequent offense to Interlock ordered and minimum risk level, however this same relationship was found to be positive for the non-minimal offenders. The Wald statistic for minimum of 2.965 and non-minimum of 2.936 were also found insignificant ($p \geq .05$). Further findings defined a Exp(B) for minimum to be .653 and non-minimum 1.536. The standard error for the test was .247 for minimum and non-minimum risk levels (Table 2 & 3). The model's classification table found 94.6 percent of classifications correctly and zero individuals were predicted to commit a subsequent offense.

Regression for Interlock and Perceived Alcohol Consumption:

Further testing of the individual elements of the risk assessment and the Interlock bond condition include investigation of the subject's perceived relationship between alcohol consumption and their offense. The subject provided responses grading the relationship they believed alcohol consumption had to the offense which they have been convicted. This individual risk element was combined with the Interlock bond condition

as a mitigating factor to the likelihood of recidivism. The results from this product variable were regressed to probation revocation due to a subsequent offense.

Interlock condition and no relationship: The omnibus test of the model received a Chi-square of .130 finding the model to be significant ($p \leq .05$). The small Chi-square result describes a small effect size and the model did result in a Nagelkere R^2 of .000 which illustrates zero percent of the model contains an explained variance. This means that none of the variance in subjects committing a subsequent offense could explained by a Interlock bond condition and perceived lack of relationship between alcohol consumption and the subject's offense (Table 2 & 3).

The regression found a *B* of -.003, indicating a negative slope. The Wald statistic returned .117 and was found to be insignificant ($p \geq .05$). The test defined a *Exp(B)* of .997 meaning subjects who were ordered to install the Interlock device and perceived no relationship of alcohol consumption to their arrest were .997 times more likely to commit a subsequent offense (Table 2 & 3). The standard error for this group is .010. The classification table found 94.6 percent of subjects were correctly predicted by the model and zero predicted to commit a subsequent offense.

Interlock condition and probable relationship: The omnibus test of the model received a Chi-square of 3.988 although small was found to be significant ($p \leq .05$). The test resulted in a Nagelkere R^2 of .009 finding that only .9 percent of variance is explained by the model. This means .9% of the variance in the occurrence of recidivism occurred due to the Interlock device and the perceived probable relationship of alcohol consumption to the convicted offense (Table 2 & 3).

The model contained a *B* of -.007 exhibiting a negative relationship between subsequent offense and Interlock condition/probable relationship. The Wald statistic returned a 3.437 which was found to be insignificant (p ≥ .05). The test found a *Exp(B)* of .993 showing that individuals with the Interlock condition and a perceived probable relationship of alcohol consumption to offending are .993 more likely to commit a subsequent offense than those who do not fulfill these qualities. The standard error is .004 (Table 2 & 3). The classification table found 94.6 percent correctly and zero were predicted to commit a subsequent offense.

Interlock condition and definite relationship: The omnibus test of the model found a Chi-square of 4.205 while also small was found to be significant (p ≤ .05). The Nagelkere R² was defined as .010 which similar to the low Chi-square result found 1 percent of the variance to be explained by the model. Only one percent of the variance in the occurrence of recidivism is accountable to the Interlock device and a perceived definite relationship between the convicted offense and alcohol consumption (Table 2 & 3).

The test of the model resulted in a *B* of .007 finding a positive relationship between the product variable and the dependant. The Wald statistic was found to be 3.657 however was also insignificant (p ≥ .05). The *Exp(B)* of the test equaled 1.007 illustrating individual who have Interlock and a perceived definite relationship of alcohol consumption to their offense is 1.007 more time likely than individuals who do not to commit a subsequent offense. The standard error for the test was .003 (Table 2 & 3). The classification table similar to the other results predicted 94.6 percent correctly and predicted zero subjects to commit a subsequent offense.

CHAPTER 5

CONCLUSION

Logistic regression was used to measure how the increased celerity of punishment through the order of installation and maintenance of the Ignition Interlock during the bonding process impacted drunk driving probationer's recidivism in Travis County, TX. The data provided by Travis County Pretrial Services and Adult Probation was ideal due to the Interlock requirement in Texas and the monitoring practices of defendants installed and maintaining the Interlock device by Travis County Pretrial Services. The research findings did not support the hypothesis and provided varying low to moderate effects of the Interlock bond condition to drunk driving recidivism.

The regression failed to support the hypothesis finding that when Interlock is ordered during the bonding stage an individual is more likely to commit a subsequent offense than if it is not. This increased likelihood of committing a subsequent offense illustrates that alternative factors other than the simple installation and maintenance of the Interlock device are present when predicting recidivism. Factors such as criminal history are correlated to an individual's likelihood to engage in criminality and possess a greater resistance to deterrent methods (DeMichele and Lowe, 2011). Offenders who are ordered to install and maintain the Interlock device according to the Texas Transportation code will have at least one prior conviction for a drunk driving offense (Texas Transportation Code, 1995). In other words, individuals who are required to install and maintain the

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Interlock device may already possess a greater risk for future criminality thus being more likely to commit a subsequent offense.

The study's results further support the inclusion of risk level finding low or minimum risk offenders were less likely to commit a subsequent offense than non-minimal risk offenders. When comparing low and high risk offenders, the Interlock does have a greater deterrent effect on the low risk subset. This finding conflicts with deterrence theory's assumption that the perceived severity of punishment when increased has a greater deterrent quality (Ross, 1992; Peck, 1991; & Weinrath, 2001). High risk offenders were found more likely to commit a subsequent offense, but may also be at a greater risk of receiving a more severe punishment due to longer history of offending and probation non-compliance. Although these individuals were presented with potentially harsher punishment for future offending, it was still unlikely they would be deterred.

Significant, but moderate findings regarding the incorporation of Interlock and self reported relationship with alcohol found varying results for the likelihood of recidivism. Individuals who determined none or a probable relationship between alcohol consumption and drunk driving offending were found to be more deterred by the Interlock device than offenders who found a definite relationship to the offense. This subset of offenders who found little to no relationship between offending and alcohol consumption was consistent with existing research finding that the technology's deterrent influence was moderately effective (Weinrath 1997; Morse & Elliot 1992). These findings further suggest that offenders who are more likely to confront the possible impact alcohol consumption may have on their criminality are more likely to be deterred by alcohol monitoring technology.

The findings limitations can be found in the lack of significance of the regression results. The Interlock and risk-level regressions produced insignificant results. Although the current study cannot conclusively state that the findings of these regressions are likely or predictive, these results do provide opportunity for further examination. The research question cannot be supported by the current data due to the lack of significance found in the regression.

Another limitation of this study is the failure to include alternate alcohol monitoring technologies such as the SCRAM bracelet or portable breath testing device. These devices are also ordered during the bonding process or as a condition of a probation sentence to monitor alcohol consumption. Although these devices do not attach to the ignition of a vehicle, judicial authorities will order the use of these devices for drunk driving offenders who are unable to provide a vehicle to install the Interlock device on or who do not frequently drive their own vehicle. These technologies have been more recently introduced to the criminal justice system than the Interlock device but have been gaining popularity. Although the current sample was unable to provide a robust amount of offenders ordered to have these alternate devices, future research would benefit from including examination of how the use of this technology will also impact recidivism.

The moderate to low impact the Interlock device was found to have on recidivism means examination of policies which guide this technology is required. Mandated Interlock installation and maintenance has been found ineffective due to the high price of the device. Interlock orders are commonly unfulfilled and monitoring the defendant's compliance with the device is difficult to effectively maintain (Deyoung, 2002). Policy

implications may include introduction of required monitoring procedures which provide more consistent and stringent oversight of defendants. One policy modification which may provide an effective comprehensive deterrent approach is the inclusion of DWI court in the Interlock procedure. DWI courts are specialized courts which focus on offender treatment while incorporating sanction opportunity for offender non-compliance (Grohosky, Moore and Ochshorn, 2007). The success of the Interlock device in reducing recidivism may be found within the marriage of Interlock maintenance and participation within this specialized court. Legal policy and procedure regarding the Interlock device may benefit from a greater incorporation of this sanction and treatment method as DWI courts become a more established fixture of the criminal justice system.

This study generates further questions regarding the relationship between the increased celerity of punishment, the Interlock condition and offender's perceived relationship that alcohol consumption has to their offense. Future research should ask; how does the self-perception of the impact alcohol consumption has on one's behavior impact recidivism? Does increased celerity of punishment through the use of an Interlock device during the bonding process result in offenders placing a greater accountability to alcohol consumption for their actions? Further research regarding Interlock policy would benefit from the investigation of rehabilitative methods which can enhance this device's deterrent qualities. Evaluating the effectiveness of the Interlock device for subjects who in addition participate in alcohol dependency treatment will potentially define the most beneficial role for Interlock to play along with alternative alcohol related offense deterrence. As mentioned, the issue of drunk driving is a complex problem requiring significant attention from various facets of the criminal justice system.

Table 1 Frequency Distribution

	Frequency	Percent
<u>Sex</u>		
-Male	946	73.2%
-Female	347	26.8%
<u>Marital Status</u>		
-Divorced	123	9.5%
-Married	289	22.4%
-Separated	46	3.6%
-Single	825	63.8%
-Widowed	10	.8%
<u>Race</u>		
-African American	66	5.1%
-Asian or Pacific Islander	17	1.3%
-Caucasian	1175	90.9%
-Native American or Alaskan Native	5	.4%
-Other	30	2.3%
<u>Ethnicity</u>		
-Hispanic	633	49.0%
-Non-Hispanic	660	51.0%
<u>Employment</u>		
-Full-time	901	69.7%
-Part-time	138	10.7%
-Seasonal	23	1.8%
-Student/Retired/Homemaker/Disabled	80	6.2%
-Unemployed	151	11.7%
Total	**1293**	**100%**

Table 1 Frequency Distribution cont.

	Frequency	Percent
<u>Supervision Status</u>		
-Maximum level	148	11.4%
-Medium level	431	33.3%
-Minimum level	507	39.2%
-Absconder	46	3.6%
-Deported	5	.4%
-Incarcerated in Jail	19	1.5%
-Transfer out of state	1	.1%
Other	47	3.6%
<u>Offense Degree</u>		
Class A Misdemeanor	1029	79.3%
Class B Misdemeanor	267	20.7%
<u>Interlock Condition Ordered</u>		
Ordered	342	26.5%
Not ordered	951	73.5%
<u>Risk Level</u>		
Minimum	681	52.7%
Non-minimum	612	47.3%
<u>Subsequent offense</u>		
Subsequent offense	68	5.4%
No subsequent offense	1197	94.6%
Total	**1293**	**100%**

Table 2 Regression Results

	B	SE	Wald	Significance	Exp(B)	Nagelkere R Sq
Interlock	.189	.274	.474	.491	.491	.001
Interlock & Risk Level						
-Interlock/Minimum	-4.26	.247	2.965	.085	.653	.007
-Interlock/Non-Minimum	.423	.247	2.938	.086	1.526	.007
Interlock & Alcohol Relationship						
-No relationship	-.005	.010	.117	.732	.997	.009
-Probable relationship	-.007	.004	3.437	.064	.993	.000
-Definite relationship	.007	.003	3.657	.056	1.007	.000
n=1292						

Table 3 Chi-Square Test

	Chi-Square	df	Sig
Interlock	.463	1	.496
Interlock and Risk Level			
-Interlock & Minimum	2.940	2	.230
-Interlock & Non-Minimum	2.940	2	.230
Interlock and Alcohol Relationship			
-No relationship	4.205	2	.040
-Probable relationship	3.988	1	.046
Definite relationship	.069	1	.793
n= 1292			

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