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The effect of the method of execution on sentencing determinations in capital cases

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THE EFFECT OF THE METHOD OF EXECUTION ON SENTENCING DETERMINATIONS IN CAPITAL CASES

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ABSTRACT

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THE EFFECT OF THE METHOD OF EXECUTION ON SENTENCING DETERMINATIONS IN CAPITAL CASES
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The United States has had different methods of execution throughout its history, some of which are viewed to be more humane by the public. The most recent switch was from electrocution to lethal injection. This study is a look at the effect the method of execution on a juror's decision between life and death in capital cases. To this end, data collected by the Capital Jury Project Phase I were statistically analyzed controlling for case-level and demographic variables. The method of execution was found to have a statistically significant effect on the jurors' decision.

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CHAPTER 1: INTRODUCTION

Throughout history, societies have employed a variety of methodologies for use in executions. These have included stoning, crucifixion, burning at the stake, drawing and quartering, and disembowelment. The methods in the United States have been less expansive, limited to five dominant methods: hanging; shooting; electrocution; lethal gas; and, lethal injection. The prevailing method of execution in the United States has changed over time either due to evolving standards of humaneness (Denver, Best, & Haas, 2008) or as a result of states trying to evade constitutional challenges to current methods (Denno, 2002). In either case, the choice to use one method over another may have the effect of increasing the use of the death penalty (Denno, 2002).

The progression of methods of execution has been a result of the goal of making executions more humane. Hanging, for example, was originally accomplished by strangling the person with the rope. As time went on, attempts were made to make the procedure more efficient by breaking the person's neck with the use of scaffolds and trapdoors or weights (Denver, Best, & Haas, 2008). These attempts to make hanging more efficient did not solve the problem. Due to the unreliability of hanging, electrocution was introduced as an alternative in the late 19th century. This happened because hanging was seen as brutal as a result of the "botched" executions where the persons head became detached or he strangled to death too slowly.

Electrocution had similar problems. Examples of electrocutions that went wrong include times where the condemned person had to be hit several times with the current, his head caught fire, or he actually survived the execution attempt. These problems have persisted (Brandon, 1999). Although constitutional by federal standards, some states, including Georgia and Nebraska, have done away with electrocution because these risks were so great that they constituted cruel and unusual punishment under the state constitutions. Electrocution was found to be unconstitutional by the Georgia State Supreme Court in the joint 2001 cases of *Dawson v. State*[1] *and Moore v. State*[2]. In 2008, the Nebraska state Supreme Court found electrocution unconstitutional for similar reasons in the case of *Nebraska v. Mata*[3].

As a result of these types of problems, many states adopted lethal injection as their method of execution. In most states, this method employs a series of injections designed to create a painless execution. Despite this goal, there are potential problems with its use (Gerber & Johnson, 2007). The Supreme Court recently upheld the three-injection method of lethal injection used by Kentucky in the 2008 case of *Baze v. Rees*[4]. The Court ruled that the method of execution need not be painless and the risk of pain did not violate the Eighth Amendment prohibition against cruel and unusual punishment.

This progression and the problems with each method are a matter of historical record. However, the literature reveals that there is disagreement as to why the methods of execution have changed. One argument is that the changing of the method by the state is an attempt to keep executions as humane as possible at the demand of the people

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[1] *Dawson v. State,* 274 Ga. 327 (2001)
[2] *Moore v. State,* 274 Ga. 327 (2001)
[3] Nebraska v. Mata, No. S-05-1268 (2008)
[4] *Baze v. Rees,* 128 S. Ct. 1520 (2008)

(Denver, Best, & Haas, 2008). The other argument is that changing the method is an attempt by "tough-on-crime" politicians to hold on to the death penalty by subverting constitutional challenges to the current method of execution (Denno, 2002).

By changing the method from electrocution to lethal injection, the states have divided people on both sides of the capital punishment issue (Denno, 2002). *Supporters* for the death penalty may favor the switch from electrocution to lethal injection because use of lethal injection seems to be more dignified and less painful, thus removing the brutality argument from the opposition. The other possibility is that *supporters* of the death penalty may oppose the switch because the criminal is more likely to get what he deserves with the pain from the electric chair. Death penalty *opponents* may support the switch because if the death penalty is to be used, they want the method to be the most dignified and least painful. They might oppose the switch out of fear that it will cause an increase in the use of the death penalty (Denno, 2002).

According to Gerber and Johnson (2007) the methods of execution were adopted by states because they appeared to be more humane, less painful, and more dignified on the grounds of common sense, not empirical evidence. Mendyuk (1996) conducted a survey of 322 college students, asking them about their perceptions of the five most commonly used methods of execution. The results show lethal injection was perceived to be the most humane, the least painful, and the mildest method. Electrocution was seen as the most painful method, and the second harshest method. The results show that for every measure examined lethal injection was perceived to be more humane than electrocution.

A study conducted by Zimmerman (2006) examined any deterrent effect that the various methods of execution might have on the murder rates. Data were examined on

the state level because both the murder rate and method of execution are state-level factors. Only electrocution was found to have a deterrent effect on the murder rate of the state. All of the others had no statistically significant effect on the murder rate. Another part of the study examined the perception of humaneness by the inmates who were executed. Zimmerman found that when given a choice between electrocution and lethal injection, lethal injection was usually chosen. This indicates that those being executed may view lethal injection to be more dignified and less painful.

Despite these studies of the perception of the method of execution by the public as well as the condemned, research has not been conducted on the effect that the method of execution has on a juror's decision between life and death. There has not been an empirical study to determine how often and to what extent the method makes a difference in the sentencing decisions of juries. In similar cases, the jury may be more willing to impose a sentence of death if the method that the state uses is perceived to be more humane by the individual jurors.

The present study is exploratory research to examine the relationship between the method of execution employed by a state and the willingness of a juror to impose a sentence of death in a capital case. Juries have been known to acquit guilty defendants to spare them from overly harsh punishment (Levine, 1992). A sentence of death requires the jury to find aggravating circumstances beyond a reasonable doubt[5]. As a result, the jury can guarantee a life sentence if they think the death penalty is not warranted (Levine, 1992). This study will examine the difference in the willingness of individual jurors to recommend a sentence in states that were using electrocution and others that had

[5] *Ring v. Arizona* 536 U.S. 584 (2002)

switched to lethal injection. Since lethal injection is perceived to be more humane than electrocution, there may be a stronger likelihood of the jurors recommending a death sentence in the lethal injection states.

This study will be conducted using data collected during the first phase of the Capital Jury Project (CJP). The CJP data were collected by interviewing jurors from capital cases in 14 states between the years of 1981 and 1995. The use of the CJP data is necessary to study the effect of the two methods on individual jurors because at the time of this study, there no state has electrocution as its primary method of execution. (Nebraska changed its method from electrocution to lethal injection during the time when this study was written.) There is an added advantage to using the CJP data: those interviewed were actual capital jurors. This avoids some of the methodological errors of using mock jurors by not creating an artificial environment. All of the uncertainties and pressures that come with actual jury service are present.

These states were originally sampled based on their use of different categories of statutory remedies as a response to the 1972 *Furman v. Georgia*[6] Supreme Court decision. Despite the fact that the data were collected in order to accomplish the specific goal of studying the effect of the various types of statutory remedies, the Capital Jury Project data have been used for a variety of studies because of the richness of the data collected. The jurors were asked about all of the stages of the trial, from jury selection to sentence determination. They were asked about the facts of the case and about their personal feelings toward the process and the case. As a result, the present study is able to determine if there is a statistically significant difference in the willingness of a juror to

[6] *Furman v. Georgia* 408 U.S. 238 (1972)

recommend a sentence of death in the two different execution categories (lethal injection and electrocution) while controlling for case-level and demographic-level factors. Using logistic regression, this study will examine the relative impact each of these variables had on the sentence recommendation of the jurors.

CHAPTER 2: REVIEW OF LITERATURE

The face of capital punishment has changed over time. Traditionally, executions were carried out in public. Brandon (1999) described a scene where a condemned prisoner was led through the streets and up to the scaffold by a parade of citizens. A large crowd had gathered outside to witness the hanging and there were vendors selling food and souvenirs. The reason for the public nature of the execution was to deter future criminals from committing similar crimes. The food and souvenir stands were a way for the town to make money. As time went on, however, the executions were moved out of public view (Brandon, 1999).

In addition to being moved from public view, execution methods have also changed. There have been four dominant methods of execution in the United States: hanging; electrocution; lethal gas; and lethal injection. Hanging had been used in the colonies and the early United States (Denver, Best, & Haas, 2008). It was originally accomplished by strangling the person with a rope that was thrown over a tree branch. As time went on, a faster, less painful way was devised (Brandon, 1999). This involved breaking the person's neck and was carried out in one of two ways. The English method used a scaffold with a trap door through which the person was dropped. The American method used a scaffold and a weight that was dropped to pull the person up off of the scaffold. These improvements in the engineering of hanging did not solve the problem; some people still strangled to death, but others had their heads become completely

detached from their bodies. Both of these scenarios were seen as brutal and the search for a more effective and less painful method continued (Denver, Best, & Haas, 2008).

Electrocution was introduced as an alternative to hanging in the late 19th century by Alfred Southwick. This involved the use of electrodes that were connected to a chair and would pass large amounts of electric current through the person's central nervous system. The method was quick to catch on because it was introduced at a time when electricity was regarded as a solution to many of the world's problems and was even endorsed by Thomas Edison, who was nationally famous and admired (Brandon, 1999). Electrocution did not live up to its promise, however, and executions still failed. There were examples where the current had to be applied several times before the person died, and others where the person's head caught fire; some people actually survived the execution only to be sent back at a later time (Brandon, 1999).

In order to create a more reliable and painless method, lethal gas was proposed as an alternative to electrocution just after World War I. This method used cyanide pellets dropped into hydrochloric acid to create a poisonous gas inside an air tight chamber. This method was not as widely accepted as electrocution because it lacked a nationally famous spokesman. The construction and application of the gas chamber were also very expensive. The chamber itself is highly specialized, and the need to clean the chamber after every use necessitated man hours and special cleaning materials that continued to cost money. This also fell out of favor with the public because it was the same method used by the Nazis to commit the atrocities during World War II. And yet again, executions went wrong. Some people suffocated at length and in other cases the mixture

failed to produce a lethal gas, forcing the execution team to make a second attempt. This led many of those states using lethal gas to do away with it (Johnson, 1998).

It was some time later that a new method would be adopted and become dominant. Lethal injection was first adopted by Oklahoma in 1977; however, the first person was executed by lethal injection was in Texas (Denver, Best, & Haas, 2008). Execution by lethal injection is usually accomplished using a series of three injections. The most common procedure is to have the first injection (sodium thiopental) anesthetize the person, the second (pancurium bromide) paralyze him, and the third (potassium chloride) stop his heart (Gerber & Johnson, 2007). Variations in the dosage and exact chemicals exist; however, the procedure is very similar across states (Denno, 2002). Executions have gone wrong when the first injection failed to anesthetize the person. When this happens, the person goes through excruciating pain, and is not able to show it because of the paralysis from the second injection. There was a case where the person being executed sat up on the table and informed the technicians that something was wrong when he was not unconscious (Gerber & Johnson, 2007).

Why Methods Change

To change the method of execution, the states adopted statutes that would determine the best way to transition from the old method to the new one. Denno (2002, 2003) identified six different ways in which the states could change their statutory method to a new method. These different statute types determine who will be executed by which method, or in cases where there is a choice of methods, who makes the decision. Type 1 statutes mandate the use of the new method for those sentenced or

convicted (depending on the state) after the statute came into effect. Type 2 statutes allow all inmates to choose between lethal injection and the old method. Type 3 statutes allow a government official to choose the method for individual inmates. Type 4 statutes allow inmates sentenced or convicted before the statute came into effect to choose between the old and new method. Inmates sentenced or convicted after the switch are executed by the new method. Type 5 statutes execute by whichever method is on the books at the time of sentencing. Type 6 statutes allow for more than one method. In the event that one method is found to be unconstitutional by the courts, the other method is used in its place.

Table 1: Types of Lethal Injection Statutes

Statute Type	*Description*	*Number of States*
Type I	Lethal Injection Only	27
Type II	Prisoner's Choice- Lethal Injection or Other	6
Type III	Official's Choice- Lethal Injection or Other	3
Type IV	Prisoners choose method if sentenced or convicted before the new statute was enacted, and no choice for those sentenced or convicted after.	5
Type V	Lethal injection and no pre-enactment choice	1
Type VI	Provides for another method in case lethal injection is found to be unconstitutional.	10

This table was created using information from tables in Denno (2002, 2003).

There is disagreement in the literature about the reasons for changing the method. One position is that the methods are changed because the public perceives the current method to be brutal. Feelings of the public toward the method of execution happen on a

cycle. The first of these feelings is that the old method is considered inhumane and needs to be replaced. Once a new method is adopted, the public feels that it is more humane and better than the old method. The new method steadily falls out of favor with the public when executions still go wrong. This starts the cycle over again (Denver, Best, & Haas, 2008).

The other position in the literature is that the methods change due to state level politicians trying to subvert constitutional challenges to capital punishment. The politicians support capital punishment in order to keep their "tough-on-crime" appearance. One way of attacking capital punishment is to challenge the constitutionality of the method (Denno, 2002; 2003). To date, some of the constitutional challenges to the method of execution have been successfully mounted at the state level.

This was the case in Georgia. In the 2001 case of *Dawson v. State,*[7] the Supreme Court of Georgia found that electrocution violated the Georgia State Constitution because it constituted cruel and unusual punishment. Georgia had already adopted lethal injection as its primary method of execution; however, those convicted before the adoption were still subject to death by electrocution. The Court accepted new evidence from experts on the risk of pain and body mutilation from the electric chair. The Court specifically noted that it was a result of the inclusion of the new evidence that they ruled that death by electrocution violated the State Constitution.

In the 2008 case of *Nebraska v. Mata,*[8] the Supreme Court of Nebraska found electrocution unconstitutional for similar reasons, in that it violated Article I §9 of the

[7] *Dawson v. State,* 274 Ga. 327 (2001)
[8] *Nebraska v. Mata,* No. S-05-1268 (2008)

Nebraska state constitution, the prohibition against cruel and unusual punishment. This ruling had a more pronounced effect on the state of Nebraska than occurred in Georgia. This is because electrocution was the only authorized method of execution. Although capital punishment had not been found unconstitutional, as a result of the method being found unconstitutional, the state was forced to change its method or to abolish capital punishment. The legislature chose to adopt lethal injection as its method of execution.

Methods have also been challenged on the federal level, although unsuccessfully. The three-injection lethal injection process of Kentucky was upheld by the United States Supreme Court in the case of *Baze v. Rees*[9]. The Court ruled that the method used need not be the least painful. It found that if the state procedures were followed, the risk of pain was within the constitutional bounds. The Court went further and set down the requirement that in order for a method of execution to be unconstitutional by federal standards, there would have to be another less painful method that was ready to be implemented, but was not being used because the state intended the person to suffer unnecessarily.

Public Perceptions of Methods of Execution

Lethal injection is viewed by the public as more humane than electrocution (Mendyuk, 1996). According to a study of 322 college students, lethal injection is found to be viewed as the most humane, least painful, and mildest method of execution. When asked to rate the five dominant methods of execution based on several measures of

[9] *Baze v. Rees*, 128 S. Ct. 1520 (2008)

humaneness, the respondents always viewed lethal injection as more humane than electrocution. Electrocution is seen as the most painful and second harshest method.

The difference in the perceptions of the various methods begs the question: do some of them deter crime better than others? According to deterrence theory, the harsher the punishment is viewed, the greater its deterrent value. In a study of the deterrent effect of the five dominant methods of execution used in the United States, electrocution was the only method of execution to have a deterrent effect on the murder rate of a state (Zimmerman, 2006).

Another part of the study discussed above examined which method inmates would choose to be executed. The hypothesis of the study was that those inmates given a choice between two methods of execution would choose the more humane method. When inmates were given a choice between electrocution and lethal injection, the vast majority of the time they chose lethal injection. The only exceptions were states with too few executions from which to draw a conclusion. For example, in Kentucky there were only two executions and one inmate chose electrocution while the other chose lethal injection (Zimmerman, 2006).

New Jersey adopted lethal injection as its method of execution in 1983. This was done to both preserve the dignity of the person being executed and to ensure fairness in determining the sentence. In New Jersey, the sentence of the convicted person must be determined by the jury. It was thought that if the state adopted lethal injection, it would make it easier to vote for a sentence of death than if the state used electrocution. Dr. Thomas H. Paterniti, who merged the bills from the Assembly and the Senate, said, "If you're on the jury, the thought of some guy in that chair sizzling is going to bother

them." He also said, "This way, with lethal injections, it might ease their conscience when they come up with the verdict" (Norman, 1983). Although New Jersey no longer has capital punishment, this statement shows the state of mind back then.

Attitudes toward Capital Punishment

These perceptions of the method of execution may affect a person's attitude toward capital punishment in general, and the specific cases in which it should be used. Many studies have shown that attitudes toward capital punishment are much more complex than public opinion polls take into account. From surveys administered to citizens in New York and Nebraska, Bowers (1993) has shown that support for capital punishment for the public can be conditional. That is, citizens support capital punishment because of a desire to have a meaningfully harsh punishment for convicted murderers. The public sees major problems with fairness in the application of the death penalty. They support it because the severity of non capital punishments is typically underestimated; the public tends to think that the defendant would be released long before he actually would be. Support for capital punishment plummeted when the respondents were given a choice between capital punishment and a life without the possibility of parole plus restitution option (LWOP+R). Restitution in this example meant that the inmate would work every day, and the pay that he earned would be given to the victim's family.

The Bowers (1993) study also found similar results with data from interviews with capital jurors. Just like the general public, the jurors saw application of the death penalty as being inconsistent and unfair, they underestimated the time in which a

defendant would serve in prison for a life sentence, and a decisive majority abandoned support for the death penalty in favor of LWOP+R. This means that attitudes toward the death penalty are much more complicated than can be measured with a binary question of whether or not someone supports capital punishment (Bowers, 1993).

Mills and Zamble (1998) found that support for capital punishment also depended on the specific circumstances of the individual crimes. In order to test where proponents and opponents of capital punishment would stand on its use in specific crimes, participants were first asked to answer the binary "global question"[10] regarding capital punishment support. They were then given short descriptions of 12 crime scenarios and asked to choose the most appropriate punishment from several sentence possibilities. Two of the hypothetical crimes were considered to be especially heinous and the other ten were more common crimes[11]. Self-reported supporters of the death penalty did not support a death sentence for all cases. Opponents supported a death sentence in some cases. This indicates that the person's professed support or opposition to capital punishment does little to indicate what they feel is appropriate in specific circumstances. Binary questions about capital punishment do not take into account complexities in capital decision making and therefore give a distorted view of public opinion. Further research on attitudes regarding those cases where capital punishment is appropriate is necessary (Mills & Zamble, 1998).

One aspect of the Mills and Zamble (1998) study that has particular significance for the current study involved testing the effect of the method of execution on the

[10] The question posed was "Do you favor or oppose capital punishment for the killing of any innocent person?".

[11] One of the especially heinous crimes involved a serial child murderer. One of the more common crimes was an escaping robber killing a police officer.

sentences thought to be appropriate in each case. The surveys were administered so that the participants were randomly given one of three different versions of a survey. One third of the participants were given a survey that described a brutal hanging. Another third were given a description of a humane execution by lethal injection. The last third was a control group and were given no description. This section describing the method was included before the participants were asked to decide the appropriate sentences for twelve hypothetical crimes. According to the hypothesis, describing a brutal execution should make the person less likely to impose a death sentence in comparable cases to those in the other experimental group or the control group. The method of execution had no effect on determining the appropriate sentence for the hypothetical crimes (Mills & Zamble, 1998). One weakness of these findings is how likely an execution by hanging was perceived to be by the participants. Simply describing a brutal hanging does not guarantee it affected the person's consideration of appropriate punishments. This is especially true in hypothetical cases where there is no guarantee of an actual method that will be used. With this in mind, support for capital punishment may indeed be based on the condition that it be conducted using the most humane method.

The Current Study

The goal of the current study is to examine the role that the method of execution plays in the sentence determinations of capital jurors. To this end, data from the Capital Jury Project (CJP) are analyzed. The CJP was implemented in order to examine how well statutory remedies of guided discretion proposed by states with the capital punishment purged arbitrariness from the system. Those involved in the project collected

data in lengthy interviews with capital jurors. Respondents were asked about all stages of the trial and various aspects of the individual case. The data are very rich and have been used in a number of diverse analyses, including testimony to several state Supreme Courts, reports to the legislature, doctoral dissertations, and presentations to key decision makers within the states.

There are many advantages to using CJP data for the current study. One advantage is that the participants do not have to try to imagine what they would do in a hypothetical situation; they simply recall what they did. Another advantage is that the CJP was a multi-state study and the data were collected over a number of years, so that the analysis is not limited to one particular state or time. The CJP data were collected by interviewing jurors from capital cases in 14 states between the years of 1981 and 1995. The CJP data are multifaceted so the study will control for relevant case-level and demographic-level variables that might also affect the juror's decision.

According to a number of studies (Mendyuk, 1996; Mills & Zamble, 1998; Zimmerman, 2006) lethal injection is perceived to be the most humane method of execution presently used. Research has also shown that attitudes toward capital punishment depend on specific circumstances and the availability of alternative punishments (Bowers, 1993; Mills & Zamble, 1998). Jurors may be more willing to impose the death penalty in a state that employs the more humane method (lethal injection) in similar cases. Using logistic regression, this study will examine the likelihood of a juror voting for a death sentence or a life sentence in states that use electrocution and lethal injection respectively.

CHAPTER 3: METHODOLOGY

Hypothesis

Research has shown that lethal injection is perceived to be more humane than electrocution (Mendyuk, 1996; Zimmerman, 2006). As stated in the previous chapter, the person who merged the bills from the two houses of the New Jersey legislature, Thomas H. Paterniti, hypothesized that jurors will be more willing to impose a sentence of death where the method is lethal injection as opposed to electrocution (Norman, 1983). Prior research has suggested that the method of execution does not have a statistically significant effect on sentencing determinations when using mock jurors (Mills & Zamble, 1998). However, that mock juror study also used hanging as the more brutal method of execution (as opposed to lethal injection). This is a potential limitation because hanging was not a dominant method at the time of the study. As a result, the impact that the method of execution had on the participants' decision making when recommending a sentence may have been limited because the mock jurors might feel that hanging was a method of the past.

The current study will attempt to overcome the limitations of a convenience sample, mock jurors, and unrealistic methods of execution used in prior research. The current study will test the hypothesis that jurors will be more willing to vote for the death penalty in states that use lethal injection than those jurors in states that use electrocution. This study will use responses from capital jurors who were included using a random

sampling technique that is described in the data section. As a result, the findings should more closely approximate reality because they do not require the participants to try to determine what they would to in a particular hypothetical circumstance, but simply to remember what they did in a real past experience.

The research hypothesis of the current study is a variation of the Paterniti hypothesis (Norman, 1983).

H1: *Jurors in states that employ lethal injection will be more likely to vote for a death sentence at the vote taken prior to sentencing deliberations than jurors of the states that employ electrocution, after controlling for case-level and demographic-level variables.*

Data

Data for the current study come from Phase I of the Capital Jury Project (CJP). The CJP is a multistate project that originated to study to what extent the statutory remedies employed by states in response to *Furman*[12] and subsequent rulings purged arbitrariness from the capital process within the states. There were 14 states included in the analysis[13]. The CJP collected a diverse array of data including observations of and feelings toward courtroom actors and practices. Each phase of the capital trial was studied, and jurors were asked to what extent various factors pertaining to the trial influenced sentencing decisions.

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[12] *Furman v. Georgia* 408 U.S. 238 (1972)

[13] The states included were Alabama, California, Florida, Georgia, Indiana, Kentucky, Louisiana, Missouri, North Carolina, Pennsylvania, South Carolina, Tennessee, Texas, and Virginia.

Data from the CJP have been used to study a variety of aspects of capital punishment. Because of the richness of the data, these studies have been very diverse. Examples of the studies that have been conducted can be viewed on the CJP website[14]. The categories of studies include testimony given in court cases[15], scholarly peer-reviewed journal articles (Bowers, & Foglia, 2003), and doctoral dissertations (Connell, 2006).

The use of the CJP data for this project has many methodological advantages. At the time of collection, the majority of the states that were included used either lethal injection or electrocution as their primary method of execution. This allows the current study to examine the possible role of the method in the sentencing determinations of capital jurors. Because of the scope of the data, it is possible to control for relevant case level and demographic level variables. Examples of these case level factors include the level of heinousness of the crime, aggravating circumstances, and mitigating circumstances. Some examples of demographic level variables are the race and gender of the juror.

Sampling for the CJP was conducted in three stages. The first stage involved selecting states that employed the statutory remedies identified by Bowers (1995), and also had enough capital cases to run a randomized sampling technique for the cases. The second stage of sampling was selecting cases from within the states to represent both life and death determinations. The third stage was to randomly select four jurors from each

[14] http://www.albany.edu/scj/CJPhome.htm
[15] State v. Dellinger, 79 S.W.3d 458 (2002) (Tennessee). Adolpho A. Birch, Jr., J., concurring and dissenting, engages in a discussion of the Capital Jury Project findings regarding jurorsâ€™ "misperceptions about capital sentencing" in "II. Meaning of Life Sentence."

case. In some cases, additional jurors were selected if the respondents did not recall substantial portions of information.

Sample

Data included in the final analysis for this study were selected from the CJP data using two criteria. The first criterion was that the state used either electrocution or lethal injection at the time of data collection. The states included were Texas, Alabama, Georgia, Florida, South Carolina, North Carolina, Virginia, Tennessee, Missouri, Kentucky, and Pennsylvania. Cases from the states of California, Indiana, and Louisiana were excluded from analysis for methodological reasons. At the time of collection, California was not using either of the execution methods being studied. Indiana had changed its method to lethal injection from electrocution in 1995. Louisiana changed from electrocution to lethal injection in 1990. Because these changes occurred during data collection, data from these two states were excluded. The number of cases that would have been added by including the Indiana and Louisiana cases was not substantial.

The second criterion for inclusion in the study was that the juror must have voted for a life or death sentence in the preliminary vote taken before penalty deliberations. The analysis of this study relies on a definitive vote cast by a juror to examine the effect of the method. Several jurors were excluded because the juror cast an undecided preliminary sentencing vote. In all, 283 jurors were excluded from analysis for this reason. The final sample size for this study was 511. The final number of jurors from each state is reported in Table 2.

Table 2: Descriptive Statistics for Methods of Execution

	N	f	%
Lethal Injection	170		33.3
Missouri		29	5.7
North Carolina		44	8.6
Pennsylvania		33	6.5
Texas		64	12.5
Electrocution	341		66.7
Alabama		29	5.7
Florida		73	14.3
Georgia		42	8.2
Kentucky		66	12.9
South Carolina		74	14.5
Tennessee		32	6.3
Virginia		25	4.9
Total	511		

Table 2 reports the number of jurors from each of the states using lethal injection and electrocution at the time of data collection. There were 29 (5.7%) from Missouri, 44 (8.6%) from North Carolina, 33 (6.5%) from Pennsylvania and 64 (12.5%) from Texas. The total number of jurors from lethal injection states was 170 (33.3%). There were seven states that employed electrocution. The final number of jurors from each state was 29 (5.7%) from Alabama, 73 (14.3%) from Florida, 42 (8.2%) from Georgia, 66 (12.9%) from Kentucky, 74 (14.5%) from South Carolina, 32 (6.3%) from Tennessee, and 25 (4.9%) from Virginia. The total number of jurors from electrocution states was 341 (66.7%).

Variables

The jurors interviewed by the CJP were asked a variety of questions about the cases in which they were involved. Variables for the study are based on responses of jurors collected by during the interview.

Dependent Variable

First Vote: The capital trial is a bifurcated process. Jurors interviewed by the CJP were asked if they took a preliminary vote before they began deliberating on a sentence, and if so, what they voted. The dependent variable for the study is what type of sentence the jurors voted to impose at this juncture. This is a dichotomous, nominal level variable. The categories are: a life sentence (0) and a death sentence (1). This measure is used because the unit of analysis for the study is the individual jurors. The goal is to examine how the method of execution influences the sentence thought to be appropriate by the individual jurors. As a result, the most effective measure must be made after all of the evidence from both phases of the trial has been heard, but the other jurors had not yet influenced the decision with arguments made in group deliberations. Using the actual sentence outcome as the dependent variable is unwise because of the nature of group influence in deliberations. Levine (1992) describes several ways in which juries reach verdicts, including bargaining and compromise. These techniques help jurors to resolve conflicts and disagreements; however, these same techniques may also distort the measure of the effect of the method of execution. For example, a substantial portion of the jury might vote for a life sentence because they feel the method is brutal. However, after deliberations they may be swayed by other arguments that death

is appropriate. Their initial vote would indicate their hesitation to invoke the death penalty, but the final sentence determination would not. Table 3 shows the number of death and life votes made by jurors for each method of execution.

Table 3: Descriptive Statistics for Dependent and Independent Variables

	Death Vote	Life Vote	Total
Lethal Injection	123 (72.4%)	47 (27.6%)	170
Electrocution	220 (64.5%)	121 (35.5%)	341
Total	343 (67.1%)	168 (32.9%)	511

Independent Variable

Method of Execution: The independent variable for the study is the method of execution used by the state at the time of the trial. This is a dichotomous, nominal level variable with the categories Electrocution (0) and Lethal Injection (1). It was calculated by using the state identified by the CJP data and the date of the case. The method of execution used during the trial was determined by identifying the method in place at the time. All of the jurors included in the analysis sat on cases that came from states that were using electrocution or lethal injection. There were 341 jurors from states that were using electrocution and 170 from states that were using lethal injection.

Case Level Control Variables

In every capital trial there are factors that influence the sentence. In order to determine the relative impact of the method of execution on the preliminary sentencing vote, these individual factors of the case must be taken into account. The scales that will be used in this study are taken from another study conducted by Connell (2007) using CJP data. This is done for two reasons: 1) the scales were already used for the same dataset and were found to be reliable, and 2) the scales reflect the legally relevant concerns with regard to the areas of mitigating and aggravating circumstances in particular. The use of the scales also makes it possible to include more control variables in the analysis than would be possible if they had to be included individually. The reliability and descriptive statistic results for each scale are reported in Table 4.

Aggravating circumstances scale: This scale was a measure of both legal and extralegal factors that would make a sentence of death more appropriate. The scale is comprised of 13 items that included: the murder being committed during a felony; the victim was a child; the victim was a respected member in the community; the victim had a loving family; the defendant had a history of violence; the defendant was a stranger in the community; the defendant showed no remorse; the defendant would be dangerous in the future; the defendant did not testify on his own behalf; the victim's family suffered a great loss; the victim's family asked for the death penalty; the community was outraged; and the community wanted the death penalty (Connell, 2007). The presence or absence of each factor was determined from the answers of the respondents and coded as 1 if they were present and a 0 if they were not; a scale was created by taking the mean of the

responses. Table 4 reports the reliability and descriptive statistics for this scale. The Cronbach's alpha level for this scale .70; the mean was .44 (S.D. = .20).

Mitigating circumstances scale: This is a scale comprised of the 19 items from the CJP data used by Connell (2007). These are factors that would make a sentence of death less appropriate. The variables included were: the defendant was under the influence of alcohol; defendant was under the influence of drugs; defendant was under the influence of mental or emotional distress; the defendant had had no prior criminal record; the defendant was mentally retarded; the defendant was under 18 when the crime was committed; the defendant was an alcoholic; the defendant was a drug addict; the defendant had a history of mental illness; the defendant had a background of extreme poverty; the defendant had been seriously abused as a child; the defendant had been placed in institutions but never given real help for his/her problems; the defendant had been convicted with evidence obtained from an accomplice who was given a lesser sentence because of his/her cooperation; the defendant would be a hardworking and well-behaved inmate; the victim was a stranger in the community; the victim was a known troublemaker; the victim had a criminal record; the victim was an alcoholic, the victim was a drug addict (Connell, 2007). The scale was created by taking the mean of these items. As shown in Table 4, the Cronbach's Alpha level for this scale was .611 and it had a mean of .15 (S.D. = .12).

Heinousness scale: This is a measure of "how bad" the specific crime was perceived to be by the jurors. Jurors were asked their perception of how well several descriptions accorded with the crime on trial. The words and phrases were as follows: bloody; gory; vicious; depraved; calculated; cold-blooded; senseless; repulsive; the work

of a "madman"; it made you feel sick to think about it; the victim(s) was/were made to suffer; and, the body(ies) was/were maimed or mangled after death. Responses were based on a four-item Likert type scale. The response categories were: Very Well (4); Fairly Well (3); Not So Well (2); and, Not At All (1). This scale is a measure of the mean of these factors with higher values indicating higher levels of heinousness. Table 4 reports the Cronbach's alpha level for this scale was .77 and it had a mean of 3.22 (S.D. = .51).

Defendant demeanor scale: This was created using variables indicating if a certain word or phrase described the defendant at trial: responses were coded in a simple yes or no manner. The categories were no (0) and yes (1). These variables included: bored, indifferent or remote; sorry for what s/he had done; sincere and honest; self confident; and, bitter or resentful (Connell, 2007). Higher values indicate more positive perception of the defendant's demeanor. As reported in Table 4, the Cronbach's alpha level for this scale was .53 and the mean for this scale was .51 (S.D. = .21).

Table 4: Descriptive and Reliability Statistics for Scales

	N	Alpha	Min	Max	Mean	S.D.
Perception of Aggravating Factors	318	0.70	0.00	0.92	0.44	0.20
Perception of Mitigating Factors	346	0.61	0.00	0.58	0.15	0.12
Perception of Heinousness	480	0.77	1.17	4.00	3.22	0.51
Perception of Defendant Demeanor	462	0.53	0.00	1.00	0.51	0.21

Number of Victims: This variable is a continuous level measure of the number of people killed for which the defendant was legally responsible. As shown in Table 5, the mean for this variable was 1.29 (S.D. = .69). The largest number of victims in any of the cases was seven. There were 402 (78.7%) jurors that came from cases that had only one victim. This was followed by the 87 (17.0%) jurors who sat on cases where there were two victims. Nine jurors (1.8%) came from cases where there were three victims. There were also nine jurors (1.8%) that came from cases with four victims. There was only one juror (.2%) for each of the cases where there were five, six, or seven victims.

Defendant Race: This is a dichotomous, nominal level variable of the race of the defendant. The categories were Black (0) and White (1). The number of respondents and their respective percentages of the total are reported in Table 5. There were a total of 260 (50.9%) jurors that sat on cases with White defendants and 209 (40.9%) jurors that sat on cases with Black defendants.

Victim Race: This is a dichotomous, nominal level variable of the race of the victim(s). The categories were Black (0) and White (1). As shown in table 5, most of the jurors sat on cases where the victim was White. The total number of jurors that came from cases with a White victim was 377 (73.8%). There were 89 (17.4%) jurors that came from cases where the victim was Black.

Race of the Defendant/Victim Dyad: Research has shown that the combination of the race of the defendant and the victim in capital cases can play more of a role in the sentence outcome than the race of either of them alone (Baldus et al., 1990). This variable controls for the combination of a Black defendant that was legally responsible

for the death of a White victim. Research has shown that this combination is more likely to result in a sentence of death than any other combination of racial factors (Baldus et al., 1990). In the final sample, there were 113 (25.3%) jurors that sat on cases where the defendant was Black and the victim was White. There were 245 (54.9%) jurors that sat on cases where both the defendant and victim were White. There were 76 (17.0%) jurors that where from cases where both the defendant and victim were Black. And lastly, there were 12 (2.7%) jurors from cases where the defendant was White and the victim was Black. Table 5 shows the number of jurors that sat on cases for each racial combination of defendant and victim.

Table 5: Descriptive Statistics for Case Level Control Variables

	N	f	%
Number of Victims	510	$\mu = 1.29$ S.D. = .69	
Defendant Race	469		
White		260	50.9
Black		209	40.9
Victim Race	483		
White		377	73.8
Black		89	17.4
Defendant-Victim Dyad	465		
Black Defendant- White Victim		113	25.3
Black Defendant- Black Victim		76	17.0
White Defendant- White Victim		245	54.9
White Defendant- Black Victim		12	2.7

Demographic Level Control Variables

Various juror demographic variables may also play a role in sentence determination. This study will control for those variables identified by the CJP that might have an impact on the juror's first vote. The subject of race has been the topic of many studies of capital punishment. It has been found that race does indeed play a role and the interaction between the defendant's race and the victim's race may be the most critical (Baldus et al., 1990). The race of the juror must also be taken into consideration when predicting the dependent variable. Bowers et al. (2001) found that White jurors were more likely to take a premature stand in favor of death than Black jurors. This means that White jurors may be more likely to vote for death at the first vote. There were also differences with regard to gender and religious affiliation (Fitzgerald and Ellsworth, 1984). Because of these findings, this study will control for juror race, juror gender, juror age and religious affiliation. The descriptive statistics for these variables are reported in Table 6.

Juror Race: This was a dichotomous, nominal level variable of the race of the juror. As shown in Table 6, the categories were Black (0) and White (1). In the final sample, there were 438 (85.7%) White jurors and 51 (10.0%) Black jurors.

Juror Gender: This was a dichotomous, nominal level variable of the gender of the juror. The categories were Female (0) and Male (1). In the final sample, there was an almost equal distribution of male and female jurors. There are 257 (50.3%) males and 250 (48.9%) females.

Juror Age: This was a continuous level variable of the juror's age at their last birthday. The jurors' ages ranged from 20 to 85 years of age. The mean age of the jurors included in the final sample was 46.17 (S.D. = 13.19).

Religious Affiliation: Respondents were asked about their religious preferences in the CJP. There were ten possible choices. The number of respondents in each category and the percentage they represent in the final sample are reported in Table 7. The categories were Baptist (18.8%), Southern Baptist (11.9%), Lutheran (3.9%), Methodist (14.5%), Presbyterian (5.1%), Other Protestant (13.3%), Roman Catholic (14.9%), Jewish (1.4%), Other Religion (6.7%), and No Religious Preference (7.8%).

Table 6: Descriptive Statistics for Demographic Level Control Variables

	N	f	%
Juror Race	489		
White		438	85.7
Black		51	10.0
Juror Gender	507		
Male		257	50.3
Female		250	48.9
Juror Age	502	μ=46.17 S.D.=13.19	
Juror Religious Affiliation	502		
Baptist		96	18.8
Southern Baptist		61	11.9
Lutheran		20	3.9
Methodist		74	14.5
Presbyterian		26	5.1
Other Protestant		68	13.3
Roman Catholic		76	14.9
Jewish		7	1.4
Other Religion		34	6.7
No Religious Preference		40	7.8

Missing Data

As reported previously, there are 283 cases excluded from analysis because the jurors did not vote for a life or death sentence in their first vote. It is necessary to test for differences between the excluded jurors and the jurors retained in the sample and those who were excluded. Ideally, there would be no difference between the jurors included in

the sample and those that were excluded so that the sample would represent all of the jurors that were interviewed. An independent samples t test revealed that there was a statistically significant difference between the decided jurors retained in the sample and undecided jurors who were excluded. Female jurors were more likely to be undecided at the first vote than male jurors ($t = -3.284$ $p < .01$) and as a result more likely to be excluded from analysis. This is consistent with prior research that found that women were more likely to oppose the death penalty than men (Fitzgerald and Ellsworth, 1984). As a result they may hesitate to vote for the death penalty without deliberating first to make sure it is warranted. This would make them more likely to cast an undecided preliminary vote.

Analytic Technique

There are two models for the statistical analysis of the study. Because both the independent and dependent variables are dichotomous, the first model is a chi square analysis to test for statistically significant differences between groups. This will be used to determine if there is a statistically significant difference in jurors' first vote on sentence between those states that use lethal injection and those that use electrocution. However, this analysis does not control for the impact and explanatory power of the other variables on the dependent variable, so further testing is needed. The chi square equation is (Bachman, & Paternoster, 2004):

$$\chi^2 = \sum^{k}_{i=1} (f_0 - f_1)^2 / f_e$$

Where:

f_0 = the observed frequencies

f_e = the expected frequencies

k = the number of categories for the variable

Because the dependent variable (First Vote) is a dichotomous variable, the most appropriate analytic technique for the second model is logistic regression. Logistic regression determines the probability that the outcome variable will occur by determining the relative impact of the independent and control variables. Another aspect of logistic regression that makes it appropriate for the current analysis is that it is possible to control for dichotomous and continuous level control variables in the same analysis (Hardy, 1993). This analysis determines the magnitude of the impact of each variable and its level of statistical significance. The logistic regression equation is:

$$P(Y = 1/X) = 1 / 1 + e\ (-\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_k X_k)$$

Where:

β_0 = the y intercept (the value of Y when x = 0)

B_k = the regression coefficient

X = the independent variable

e = the natural logarithm

The full logistic regression equation for the current study is:

P(Y= Death vote/X_k) = 1 / 1 + e (-β_0 + β_1 (*Level of Aggravating Circumstances*) β_2 (*Level of Mitigating Circumstances*) β_3 (*Level of Heinousness*) β_4 (*Defendant Demeanor*) β_5 (*Number of Victims*) β_6 (*White Defendant*) β_7 (*White Victim*) β_8 (*Black Defendant and White Victim*) β_9 (*White Juror*) β_{10} (*Male Juror*) β_{11} (*Juror Age*) β_{12} (*Juror Religious Affiliation*)

This second model has three parts. The first part of the logistic regression analysis is a bivariate model to confirm the presence or absence of a statistically significant difference between the first votes of the jurors from lethal injection states and those from electrocution states. Next, a logistic regression using case level control variables to test the impact of those factors will be estimated. Because the method of execution is not a legally relevant factor, any explanatory differences that exist between the two groups of states should disappear after controlling for legally relevant case factors. Lastly, a logistic regression analysis using both case level and juror demographic level control variables will be estimated to test for the impact of the combined case-level and juror-level demographic characteristics. Juror race, gender, and religious affiliation were found to impact jurors' attitudes towards the death penalty (Fitzgerald and Ellsworth, 1984). These have possible explanatory power with the first vote.

Odds ratios will be estimated in order to assess the relative impact of each variable in the logistic regression analysis in predicting the outcome when the independent variables are known. This shows the probability of the outcome variable occurring for one category of a dichotomous variable relative to the other category. With a dichotomous dependent variable, the odds of one event occurring is exactly the opposite of the other event occurring (Menard, 2002). An odds ratio greater than one increases the probability of event Y occurring. An odds ratio between one and zero decreases the probability of event Y occurring (Bachman and Paternoster, 2004).

CHAPTER 4: RESULTS

As stated in the previous chapter, this study will test a modified version of the Paterniti hypothesis that jurors will be more willing to impose a sentence of death if the method of execution used is lethal injection as opposed to electrocution. The analysis involves the use of two statistical models. Because both the independent and dependent variables are dichotomous, the first model is a chi square analysis to test for statistical differences between groups. The second model is a logistic regression carried out in three parts. Model 2A is a logistic regression with no control variables. This is performed to confirm the results of the chi square analysis. Model 2B is a logistic regression that includes the case control variables identified in the previous chapter. Model 2C is a logistic regression with both case level and juror demographic level control variables.

H1: *Jurors in states that employ lethal injection will be more likely to vote for a death sentence at the vote taken prior to sentencing deliberations than jurors of the states that employ electrocution, after controlling for case-level and demographic-level variables.*

The first step in testing the hypothesis is to determine if there is a statistically significant difference in a juror's willingness to impose a sentence of death in the states that used lethal injection versus the states that used electrocution. To this end a chi square analysis is used to detect if there is such a difference in the juror's first votes. Table 7 reports the results for Model 1. There is no statistically significant difference ($p > .05$) between the states that used lethal injection and the states that used electrocution in the proportion of death votes to life votes.

Table 7: Model 1-Chi Square Analysis

	Death	Life	Total
Lethal Injection	123 (72.4%)	47 (27.6%)	187
Electrocution	220 (64.5%)	121 (35.5%)	341
Total	343 (67.1%)	168 (32.9%)	511
Pearson Chi Square	3.157		
P	0.076		

The next step in the statistical analysis is to confirm the chi square analysis using a logistic regression. Table 8 reports the results for Model 2 of the statistical analysis. Lethal injection is not statistically significant ($p > .05$). The odds ratio for lethal injection is in the expected direction because being from a state that uses lethal injection increases the likelihood of the jurors voting for a death sentence before deliberations begin.

Table 8: Model 2 A- Death Vote Logistic Regression

Independent Variables	β	S.E.	Wald	Odds Ratio
Constant	.598***	.113	27.901	1.818
Lethal Injection	.364	.205	3.142	1.439
Nagelkerke R^2	0.009			

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

Both the chi square and the first part of the logistic regression analysis failed to detect a statistically significant difference in the first votes of the jurors from electrocution and lethal injection states. As a result of these findings, refraining from further analysis could be justified. However, data from the CJP make it possible to control for a great number of legal and extralegal factors that might have an impact on a juror's decision between life and death. The p value of the analysis is also close to being statistically significant. With this in mind and in order to ensure that the failure to detect a difference in the first votes of the jurors was not due to some other factor or combination of factors, the decision was made to continue the analysis.

The next step in the analysis is to determine if lethal injection will have a statistically significant effect when controlling for case level variables. To this end, Model 2B is a logistic regression analysis with case level controls. As reported in Table 9, lethal injection is found to be statistically significant ($p < .01$). The odds ratio is again in the expected direction with jurors in lethal injection states being more likely to vote for death before deliberations. The aggravating circumstances were also statistically significant in the expected direction ($p < .05$), with higher levels of aggravation increasing the likelihood of jurors voting for a death sentence. The mitigating

circumstances were statistically significant ($p < .01$) with higher average mitigation decreasing the likelihood of the jurors voting for death. The average heinousness ($p < .001$) is statistically significant in the expected direction with the higher levels of perceived heinousness increasing the likelihood of a juror voting for death. The average defendant demeanor is statistically significant ($p < .01$) with more positive perception of defendant demeanor decreasing the likelihood of a juror voting for death.

Table 9: Model 2 B- Death Vote Logistic Regression Case Level Control Variables

Independent Variables	β	S.E.	Wald	Odds Ratio
Constant	-6.111**	2.103	8.448	0.002
Lethal Injection	1.470**	0.475	9.594	4.349
Aggravating Circumstances	2.042*	1.019	4.013	7.704
Mitigating Circumstances	-5.102**	1.549	10.85	0.006
Heinousness Scale	1.743***	0.407	18.37	5.717
Demeanor Scale	-2.447**	0.846	8.360	0.087
Number of Victims	0.506	0.351	2.070	1.658
White Defendant	1.723	1.123	2.353	5.600
White Victim	1.303	1.016	1.644	3.679
Dyad	1.459	1.190	1.503	4.302
Nagelkerke R^2	0.347			

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

The final step in the analysis is to determine if lethal injection is statistically significant with both case level and juror demographic level control variables. Table 10 reports the results for Model 2C of the analysis. Lethal injection is statistically significant ($p < .01$) and related in the expected way with lethal injection increasing the likelihood of jurors voting for death. The average aggravating circumstances were statistically significant ($p < .05$) increasing the likelihood of jurors voting for death. The

average mitigating circumstances were also statistically significant ($p < .01$) with higher average levels of mitigation decreasing the likelihood of voting for death. The average level of heinousness is statistically significant ($p < .001$) with greater average perception of heinousness increasing the likelihood of a juror casting a death vote. The average defendant demeanor is statistically significant ($p < .05$) with more positive perception of the defendant decreasing the likelihood of the juror casting a death vote. The race of the juror is also found to be statistically significant ($p < .05$). White jurors were more likely to vote for death.

Table 10: Model 2 C- Death Vote Logistic Regression Case and Juror Demographic Level Control Variables

Independent Variables	β	S.E.	Wald	Odds Ratio
Constant	-6.935**	2.432	8.131	0.001
Lethal Injection	1.642**	0.514	10.202	5.164
Aggravating Circumstances	2.357*	1.130	4.355	10.560
Mitigating Circumstances	-5.172**	1.631	10.061	0.006
Heinousness Scale	1.679***	0.422	15.861	5.359
Demeanor Scale	-2.198*	0.957	5.278	0.111
Number of Victims	0.418	0.390	1.149	1.518
White Defendant	1.253	1.188	1.111	3.500
White Victim	1.176	1.074	1.200	3.243
Dyad	1.156	1.266	0.834	3.178
White Juror	1.342*	0.648	4.288	3.828
Male Juror	0.708	0.409	2.993	2.031
Juror Age	-0.002	0.016	0.009	0.998
Southern Baptist	0.704	0.799	0.778	2.023
Lutheran	0.612	1.257	0.237	1.845
Methodist	-0.172	0.669	0.066	0.842
Presbyterian	0.547	1.041	0.276	1.728
Other Protestant	-0.908	0.657	1.913	0.403
Jewish	-0.094	1.851	0.003	0.910
Other Religion	-0.711	0.787	0.817	0.491
No Religion	-0.886	0.831	1.138	0.412
Roman Catholic	-0.578	0.680	0.723	0.561
Nagelkerke R^2	0.424			

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

Predicted Probabilities

Logistic regression allows a researcher to determine the probability of an event (Y) occurring using the beta coefficients from the model. Using all of the statistically significant variables from the full logistic regression model (Model 2C), the probabilities of receiving a death vote from a juror were calculated for a defendant in a state that uses

lethal injection and a state that uses electrocution. The means of the scales for aggravating circumstances, mitigating circumstances, heinousness, and defendant demeanor are used in calculating the probabilities. The results are produced for both White and Black jurors. All of the scales, the race of the juror, and the method of execution are used to calculate the probability of receiving a death vote because they were found to be statistically significant in the full logistic regression model.

The equation for the predicted probability for a defendant receiving a death vote from a White juror in a lethal injection state is -6.935 + 1*(1.642) + .4422*(2.357) + .1453* (-5.172) + 3.2186*(1.679) + .5127*(-2.198) + 1*(1.342) = 1.853153. To convert this to a probability the equation $e^{1.853153}/e^{2.853153}$ = 0.649511 is used. There is a probability of .65. The equation for the predicted probability for a defendant receiving a death vote from a White juror in an electrocution state is -6.935 + 0*(1.642) + .4422*(2.357) + .1453* (-5.172) + 3.2186*(1.679) + .5127*(-2.198) + 1*(1.342) = 0.358756. To convert this to a probability the equation $e^{0.358756}/e^{1.358756}$ = 0.264033 is used. There is a probability .26 probability of a White juror casting a preliminary vote for death. There is an almost 39 percent greater probability of a White juror voting for a death sentence in a state that uses lethal injection than electrocution.

This disparity with the method of execution was even more exaggerated with Black jurors. The equation for the predicted probability for a defendant receiving a death vote from a Black juror in a lethal injection state is -6.935 + 1*(1.642) + .4422*(2.357) + .1453*(-5.172) + 3.2186*(1.679) + .5127*(-2.198) + 0*(1.342) = 0.484271. This is converted to a probability using the equation $e^{0.484271}/e^{1.484271}$= 0.326268. In lethal injection states the probability of a Black juror casting a preliminary death vote with the

mean of the scales was 0.33. The equation for the predicted probability for a defendant receiving a death vote from a Black juror in an electrocution state is -6.935 + 0*(1.642) + .4422*(2.357) + .1453*(-5.172) + 3.2186*(1.679) + .5127*(-2.198) + 0*(1.342) = 0.093751. This is converted to a probability using the equation $e^{0.093751}/e^{1.093751}$ = 0.085715. In electrocution states the probability of a black juror voting for death was .086.

These results show that the method of execution is related to the preliminary first vote of capital jurors in the way predicted by the research hypothesis. The jurors in lethal injection states are more likely to cast a preliminary death vote in lethal injection states than in electrocution states after controlling for case and juror demographic level variables. The importance of these results will be discussed in the next chapter.

CHAPTER 5: CONCLUSION AND DISCUSSION

Prior studies of the method of execution focus on the perception of the methods (Mendyuk, 1996), the deterrent effect of the methods (Zimmerman, 2006), and how the methods impact a mock juror's decision to apply the death penalty in various cases (Mills & Zamble, 1998). The purpose of the current study is to determine the effect of the method of execution on the preliminary votes of capital jurors. The results of this study show that there are several variables that impact a juror's preliminary sentence vote in capital cases; among them is the method of execution. Others variables that impact preliminary decisions are the average level of aggravating circumstances, average levels of mitigating circumstances, perception of heinousness, defendant demeanor, and race of the juror. In both lethal injection states and electrocution states, White jurors were more likely to cast a preliminary vote for death than Black jurors. This is consistent with prior research that shows that Black jurors were less likely to support the death penalty (Fitzgerald and Ellsworth, 1984). This is also consistent with the findings that White jurors are more likely to take a premature stand for a death sentence (Bowers et al., 2001).

There was a disparity in the first votes of jurors from states that used lethal injection and those that used electrocution even after controlling for the case level and

juror level factors. The jurors in lethal injection states were more likely to cast a preliminary death vote than jurors in electrocution states. This study does not establish a causal relationship for the disparity, only that there is a disparity. Research shows that the jurors tend to stay where they start (Kalven & Zeisel, 1966). Nine times out of ten whichever position was in the majority at the preliminary vote will be in the verdict. If the majority of the jurors vote guilty at the preliminary vote, then there is a ninety percent chance that the ultimate verdict will be guilty. If jurors in states that use lethal injection are more likely to cast a preliminary death vote, then that could profoundly impact the ultimate decision of the jury.

Limitations

Respondent recall is always an issue with survey research. In this case juror recall, that is the ability to remember information pertaining to the case and the deliberation process accurately, is very good. One of the reasons for the good ability to recall information is that the responsibility of being a capital juror is profound, and the experience is intense (Foglia, 2003).

One limitation of this study is that the data being analyzed were not collected for the expressed purpose of determining the effect that the method of execution had on the jurors' decision. As a result, the subjects were not asked if the method of execution played a role in their decision between life and death. There may have been cases where some jurors chose a sentence of life based in large part to their belief that the method of execution that would be used at the time was brutal and outdated. This is especially possible during the time in which these data were collected in phase I of the CJP because this was a time of transition from electrocution to lethal injection for many states. As a

result, the jurors might have been acutely aware of the method and it might therefore have a greater impact than if the case had been tried at a time where all of the states had switched to the latest method.

Directions for Future Research

The next step in the study of the effect of the method of execution on juror decision making would be a longitudinal analysis. The strategy would be to focus on one state at a time, study all of the capital cases in that state, and then compare all of the states before and after the switch to an alternate method of execution. In this way, the states could be studied before and after the switch of the method to determine if a pattern exists.

There are also issues of whether the jurors were informed about the method of execution that their respective states were using at the time of the trial. It is possible that some jurors were misinformed about the method being used in their state. Should a future study be attempted, the researcher collecting the data should be sure to ask the subjects what they believed the method of execution would have been for the defendant if he were found guilty and sentenced to death. This type of study may reveal that the method of execution plays a role in capital sentencing determination as a result of what the juror believes the method to be rather than what the method actually is.

The Capital Jury Project is currently collecting data for Phase III of the project. In this phase, court transcripts will also be utilized, making it possible to test for other variables, such as if the attorneys made the method of execution part of their case with regard to punishment. This is especially important because both sides may try to use the

method of execution if it works to their advantage. A defense attorney in an electrocution state may use the perceived brutality of the method as an attempt to have the jury spare his client. A prosecutor in a lethal injection state may argue that the defendant deserves the electric chair, and that even if the jury votes for death the defendant will "get off easy" because he will receive the more humane lethal injection. By using the court transcripts in conjunction with the survey instrument, a study can determine to what extent arguments about the method influence jurors, and how often the arguments are made.

Policy Implications

As stated in Chapter 2, the feelings of the public toward the method of execution are cyclical (Denver, 2002); the public embraces the new method, becomes increasingly informed of its shortcomings, and finally rejects it for a new one. If the cycle is to continue, this means that one day the public will see lethal injection as the brutal method. It is important to note that if jurors are influenced by how they perceive the method of execution, the same crime may be punished differently depending on how the method is viewed at the time.

Consistency in punishment is paramount in the pursuit of justice. These findings would seem to contribute to the undermining of that goal. Since the states are free to choose their own methods of execution, during times of transition some states are using the old method while others are using the new. This increases the possibility that a similar crime tried by similar jurors may be punished differently depending on the state in which the crime was committed.

The death penalty should always be limited to the most heinous cases. It is the desire of a civilized society, if it employs the death penalty at all, to seek out the most humane method for carrying out executions. The results of this study show that all other relevant factors being equal, the jurors from states that use a method perceived to be more humane are more likely to cast a preliminary vote for death. The preliminary vote has been shown to impact the final verdict of a jury (Kalven & Zeisel, 1966). If by increasing the humaneness of the method of execution the state increases the likelihood that the person will be sentenced to death, the state has an increased responsibility to pursue the death penalty in only the most heinous of cases.

It is also important to note that prior research has shown that capital juries are more likely to be composed of jurors with crime control orientations, pro-prosecution attitudes, those who believe in harsh punishment, and have lower thresholds for conviction (Fitzgerald and Ellsworth, 1984). Combining the findings of the current study with these findings of prior research suggests that by changing the method of execution, the state is making it even easier for a pro-death capital jury to vote for the death penalty. Changing the method exacerbates an already bad situation.

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