A STATISTICAL ANALYSIS OF ALCOHOL AVAILABILITY AND VIOLENT CRIMES IN THE STATE OF ALABAMA

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A STATISTICAL ANALYSIS OF ALCOHOL AVAILABILITY AND VIOLENT

CRIMES IN THE STATE OF ALABAMA

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A Thesis

Submitted to

the Graduate Faculty of

Auburn University

in Partial Fulfillment of the

Requirement for the

Degree of

Master of Science

Auburn, Alabama
May 10, 2008

A STATISTICAL ANALYSIS OF ALCOHOL AVAILABILITY AND VIOLENT

CRIMES IN THE STATE OF ALABAMA

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Kathryn Ann Hughes, daughter of William James Hughes and Lynette Wouk Hughes, was born May 2, 1982, in Baytown, Texas. She graduated from Pelham High School in 2000. She pursued her undergraduate education at Auburn University, and graduate cum laude with a Bachelor of Arts degree in Criminology in December, 2004. She was also as a member of Alpha Phi Sigma Honor Society and Alpha Kappa Delta Honor Society. Upon completion of her undergraduate degree she entered Graduate School at Auburn University in August, 2005.

THESIS ABSTRACT

A STATISTICAL ANALYSIS OF ALCOHOL AVAILABILITY AND VIOLENT

CRIMES IN THE STATE OF ALABAMA

Kathryn A. Hughes

Master of Science, May 10, 2008
(B.A., Auburn University, 2004)

58 Typed Pages

Directed by Greg S. Weaver

The purpose of this study is to investigate the availability of alcohol at the county

level and show its effects on violent crime rates in the state of Alabama. The sample for

this study consisted of 66 Alabama counties, rates of violent crime were gathered from

the 1999, 2000, and 2001 Uniform Crime Report (UCR). Other demographic data was

collected from the 2000 Census and the 2000 study on religious congregations and

membership in the U.S. The wet or dry status for each county was obtained from the

Alabama Alcoholic Beverage Control Board.

This research provides statistical evidence that the availability of alcohol has a

significant effect on the rate of violent crimes committed in a given county. The

statistical significance of the findings and implications for future research are discussed.

ACKNOWLEDGEMENTS

I would like to thank Dr. Greg Weaver for helping me to successfully finish my thesis and for helping me to achieve a very important educational goal. I would also like to thank him for putting up with my constant barrage of questions throughout this process. In addition, I would like to thank Dr. Charles Faupel and Dr. Christopher Correia for helping me through this milestone in my educational career.

I want to thank my parents, Bill and Lyn, for their constant encouragement to never give up and for their overwhelming love and support, especially through this thesis process. You guys have always supported me and I cannot thank you enough. I love you.

To my sister, Kristen, thank you for all the love you have given and the support you have shown me. Thank you for being an amazing part of my life and someone I know I can always go to if I need anything. I love you, without your angel tree I would have never made it through this process.

Finally, to all my friends, thank you for all the laughter we have shared and all the fun times that followed. You guys are an amazing group of people and I am lucky to call you friends.

Style manual used <u>Publication Manual of the American Psychological Association, Fifth</u>

<u>Edition</u>

Computer software used <u>Microsoft Word 2003, Microsoft Excel 2003, and SPSS 15.0 for</u>

<u>Windows</u>

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CHAPTER ONE

INTRODUCTION

America's Love Affair with Alcohol

Alcohol has been a part of the human experience since the earliest times of modern man. In some instances it is consumed in social settings and enjoyed responsibly, however, it has also been linked to violent acts. It has been hypothesized for decades that alcohol consumption is linked to many of the violent crimes committed everyday. Studies have shown that this connection can be a factor in many of the violent crimes that are committed. To address this issue the current study will determine whether alcohol availability in the state of Alabama is related to violent crime rates at the county level. However, to understand this connection it must first be understood where the link begins and how alcohol came to be what it is today.

In ancient Egypt, Egyptians left behind hieroglyphics that described their use of wine and their drinking habits. Some say these hieroglyphics could date back 4000 years before Christ. It has been suggested that the Egyptian government placed drinking bans on its soldiers because intoxication caused ineffectiveness. Furthermore, the code of Hammurabi, dating back to around 1800 B.C., gives specific restrictions on the sale, pricing, and use of alcoholic drink (Conrad & Schneider, 1992). "In the 83rd letter of the Roman lawyer-philosopher Seneca, who lived in the first century A.D., there is a distinction between 'one who is drunk' and a 'drunkard': 'in [one] case…the man who is

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loaded with wine and has no control over himself; in the other, of a man who is accustomed to get drunk, and is a slave to the habit" (Conrad & Schneider, 1992, p.76).

Eventually, man became more knowledgeable in the production of alcohol and as a result the alcohol process became more refined. Around 80 A.D., the distilling process was invented by the Arabs. This invention allowed people to produce alcoholic beverages with a higher percentage of alcohol. Today, such beverages include whiskey, brandy, and rum (Peterson, Nisenholz, & Robinson, 2003). Not only did the knowledge of distillation increase the potency of alcohol but it also allowed for the spread of alcohol around the world. In the Czech Republic, there is written documentation from the 10th Century A.D. describing the consumption of beer (Kubicka, 2006). In Russia, the consumption of alcohol, mainly vodka, began sometime between the 15th and 16th centuries (Nemtsov, 2005). As time passed so grew people's use of and reliance on alcohol. It would not only become part of daily life among American settlers but also part of their religious lives.

Once in America, the settlers began to develop ways to produce their own whiskey and rum. Unlike today, where alcohol is used as a social beverage, the settlers consumed alcohol because no unpolluted or sanitary alternative existed, like water. The Puritan forefathers, called alcohol the "Good creation of God" and brewed beer as though it were another household duty (Peterson et al., 2003, p. 10).

As the nation grew, so did its capabilities to produce alcohol. With the establishment of community breweries in the late 1700s and early 1800s there was no need to brew beer at home anymore. This brought alcohol to the masses, and made it available to almost anyone. In 1790, it was estimated that every American over the age of fifteen drank about three and a half gallons of alcohol per year (Peterson et al., 2003). As

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Americans consumed more alcohol the government began to take note and decided to try and profit from the sale of alcohol.

In 1791, the federal government enacted a tax in an attempt to profit from the extensive alcohol market. However, the American people did not greet the whiskey tax with enthusiasm. After three years of dealing with the tax Americans rose up against it, in what would become the Whiskey Rebellion of 1794. The rebellion, however, was quickly put down by President George Washington and an organized army of about 15,000 men (Peterson et al., 2003). Although the rebellion was crushed the army could not control the effects that alcohol was having on society.

In the nineteenth century, society became ever more engrossed in the dangers of alcohol, David T. Courtwright (1996) explains that the frontier was the wettest place in America due to its "high ratio of men to women and of taverns to population" (Courtwright, 1996, p. 33). "American frontiersmen came from cultures in which men drank a great deal of hard liquor and were expected to be boastful and rowdy as a consequence" (Courtwright, 1996, p. 33). Saloons on the frontier only increased the level of violence that occurred, with a combination of alcohol and fighting. Frontiersmen did not want to be seen as weak in front of other men and chose to fight to keep their honor. Saloons also inspired drunken brawls and competition as a result of some of the activities that occurred there, like gambling and prostitution (Courtwright, 1996). In addition, the fact that revolvers and knives were sold at local stores along with a variety of alcoholic beverages only fueled this violent atmosphere. The combination of weapons and alcohol led to a number of unnecessary homicides which usually developed out of personal disputes. Such disputes and flagrant homicide would eventually cause society to take

notice and act out against alcohol (Courtwright, 1996).

In the 1830s, more and more people began to recognize the negative effects of alcohol and began to push for a temperance movement. The temperance movement was a social movement that called for moderation in drinking and would eventually lead to total abstinence from alcohol. By 1850, the temperance movement had made a mark on American society and alcohol consumption was cut in half. It has been established that about fifty percent of people gave up alcohol completely or became very light drinkers during this time. However, "what started out primarily as a social movement, quickly became political, leading to the Prohibition Amendment to the Constitution" (Peterson et al., 2003, p. 11).

On December 22, 1917, both houses of Congress approved the 18th Amendment to the Constitution (Webb, 1999). "The 18th Amendment prohibited the manufacture, sale, transportation, importation, and exportation of intoxicating beverages and called for concurrent enforcement by the state and federal governments" (Kutler, 2003, p. 501). The amendment was sent out to the states to be ratified and within a year three-quarters of the states had done so, making it law (Carnes, 1996; Webb, 1999). However, as a law, Prohibition was not very successful. Shortly after its ratification, Congress had to pass additional laws that would allow for the limited distribution of some types of alcohol. In addition, Congress found it very difficult to enforce the law and those agencies that were responsible for imposing the law, which became largely corrupt. As a result, illegal speakeasies and nightclubs took advantage of the unlawful alcohol market. At the time, some forms of crime went up drastically, as criminals found it very lucrative to be involved in the alcohol trafficking business. Ultimately, Congress realized that passing a

law to make alcohol illegal was only making the countries crime problems worse. In 1932, when the Democrats took control of Congress, the 18th Amendment was repealed and the 21st was ratified and passed (Webb, 1999). "The 21st Amendment allowed states to have primary responsibility for liquor control" (Kutler, 2003, p. 501). This amendment allowed for the free flow of alcohol again.

Crime has always been a concern when it comes to the use of alcohol and has been linked to an increase in aggression and violence. It is thought that when people drink they are more likely to become angry and violent, more so than when they are sober. Ultimately, it is thought that alcohol and violent crimes are linked (Nisbett, 1993; Parker, 1995; Parker & Cartmill, 1998; Wolfgang & Strohm, 1956).

The purpose of this study is to strengthen or refute the theory that alcohol has a connection to a higher number of violent crimes committed, by using alcohol availability and crime data at the county level from the state of Alabama.

CHAPTER TWO

LITERATURE REVIEW

Alcohol and Homicide

In the United States, and in other industrialized nations, violence is seen in many forms. It is shown on television, seen in movies, portrayed in video games and seen at sporting events. Violence is part of our society and thus helps to send mixed messages to people about whether they should support or condemn that kind of behavior (Parker, 1993). However, the problem with violence being such a large part of society is what happens when violence interacts with alcohol.

In 1951, Spain, Bradess, and Eggston analyzed 246 cases of violent death to find out how much alcohol was in the victim's system prior to death. To obtain the amount of alcohol in the victims system the researcher used post mortem examinations. Of the 246 cases reviewed, alcohol was found to be "a contributory or responsible factor" in 68 cases or 27 percent (Wolfgang & Strohm, 1956, p. 412). However, of these 246 cases only eight were homicides. While this number seems small, it is important to note that of those eight homicides seven involved alcohol in the victim (Wolfgang & Strohm, 1956). Another study done just two year later in 1953 by Wilentz, reported that 42 of the 136 homicides studied showed the presence of alcohol. "Wilentz noted that the New York Medical Examiner's Office reported that, in 1948, an alcohol factor was present in 155 instances (44 percent) among the 351 autopsies performed in homicide cases" (Wolfgang

& Strohm, 1956, p.412).

A study done a few years later, in 1956, by Marvin Wolfgang and Rolf Strohm attempted to show the relationship between alcohol and criminal homicide. Data for the study was collected from the Homicide Squad of the Philadelphia Police Department and was taken from January 1, 1948 to December 31, 1952. The data included 588 cases, with 588 victims and 621 offenders (Wolfgang & Strohm, 1956).

Wolfgang and Strohm (1956) found that 214 (36 percent) of the 588 homicides had no alcohol present and did not play any role in the crime. In 54 of the 588 cases, or 9 percent, alcohol was only present in the victim. In the case of the offenders, they found alcohol present in 64 (11 percent) of the 588 homicides. Finally, in 256, or 44 percent, of the cases alcohol was found in both the victim and the offender. Wolfgang and Strohm (1956) observed "that in 374 (64 percent) of the 588 cases alcohol was present in the homicide situation—that is, at least one of the persons directly involved in each of these homicides had been drinking. It is significant that of these 374 cases in which alcohol was a factor nearly 70 percent were those involving the presence of alcohol in both the victim and the offender" (p. 418).

After further analysis of the data the researchers also identified a number of associations between race, sex, and alcohol. Significant results were found when the researchers looked at homicide and the victim's race, homicide and the victim's gender, alcohol in the offender and the offender's race, alcohol in the victim and the victim's race, and finally, alcohol in the victim and the sex of the victim (Wolfgang & Strohm, 1956).

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Further evidence of a connection between alcohol and homicide is seen in a 1954 study done by Shupe, a police chemist in Ohio. Shupe conducted a study on urine alcohol concentration for 882 persons arrested for felonies, of those 882 felonies 30 where murder cases.

Of the 30 murder cases, 17 percent of the arrested offenders showed no alcohol whatsoever, compared to 27 percent of all felons arrested. Shupe points out: "Although a fewer percent of persons involved in shootings and murders are under the influence of alcohol, and a greater percentage are actually sober than those committing similar crimes of cutting, [carrying] concealed weapons, and other assaults, the chances are still better than 4 to 1 that these crimes are committed by persons under the influence of alcohol (Wolfgang & Strohm, 1956, p. 413).

In the early 1980s, Robert Nash Parker conducted a study that found a higher rate of homicide in those states that had a high rate of alcohol consumption. A second study done by Parker, to determine the connection between alcohol consumption and youth homicide rate, found that beer consumption was a significant predictor of youth homicide rates. This study included all the U.S. states and covered a span of time from 1976 to 1983. Another, more comprehensive study done on youth homicide and beer consumption from 1973 to 1992, found a significant net effect (Parker & Cartmill, 1998). Furthermore, Parker and Cartmill (1998) researched the hypothesis that the decline in homicide rates in the U.S., during the 1990s, was possibly related to the rate of alcohol consumption. However, the results of the study did not show strong correlations. While there was a link between falling homicide rates and a decline in alcohol consumption, it

was not strong enough to suggest that it was the only reason homicide rates declined. Parker and Cartmill (1998) explain that their "report along with others about the relationship between availability, consumption, and violence, demonstrate the potential for violence prevention through tighter regulation of alcohol availability, taxation, and restrictions on the age of purchase" (p. 9). In addition, they conclude that there may be many other reasons for decline in alcohol consumption, which could explain the fall in homicide rates.

Alcohol Use in Rape and Robbery

When looking at violent crime it is important to understand that homicide is not the only violent crime in which there is an alcohol link. Other types of violent crime such as rape, robbery, and aggravated assault also have a connection with the use of alcohol.

A study of Philadelphia Police Department records, by Amir (1971), found that in 34 percent of rapes the offender, the victim, or both had consumed alcohol. A study done just a few years later in Winnipeg, Ontario found a much higher relation between rape and the involvement of alcohol. Police records indicated that just over 72 percent of rapes committed involved the use of alcohol (Johnson, Gibson, & Linden, 1977).

In 1988, a more extensive survey, administered to a national sample, was done to show the relation between rape and alcohol use, the target population was female college students. Upon analyzing the information researchers found that 64 percent of the offenders had consumed alcohol or alcohol and drugs before the commission of the rape. They also discovered that 53 percent of the victims had used alcohol or a combination of alcohol and drugs before being raped. Furthermore, another study, conducted by Collins and Messerschmidt (1993), found that rapes that involved alcohol had a higher level of

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force and violence than those that did not involve alcohol. This study also observed "a greater likelihood of alcohol presence in 'spontaneous' rapes as opposed to 'planned' rapes" (Collins & Messerschmidt, 1993, p.4).

To further establish a link between alcohol use and rape a study was conducted by Nicholson and colleagues (1998) on a college campus using a 49-item questionnaire. The questionnaire focused on "alcohol consumption, sexual assault and rape, and nonsexual violence." (Nicholson, Min, Maney, Yuan, Mahoney, & Adame, 1998, p. 1). Nicholson and colleagues designed the questionnaire to induce responses from both victims and offenders of sexual assault. The researchers observed that over 77 percent of unwanted sexual activity involved alcohol on the part of the offender. Of those who were victims of rape, 69 percent admitted that alcohol was present. Finally, of those who responded, 80 percent answered yes to the question regarding use of alcohol in an incomplete and unwanted sexual activity. (Nicholson et al., 1998). Nicholson and colleagues (1998) went on to suggest that, "although these data are not causal, the relationships strongly suggest that, at least in some cases, the violent incidents might have been avoided had alcohol not been consumed" (Nicholson et al., 1998, p. 6).

Robbery, like rape, is a violent crime that uses force or threat of force to obtain what is desired. However, in the case of robbery, it is either money or some kind of property from the victim that is desired. Robbery is typically thought to co-occur with alcohol use and alcohol problems (Collins & Messerschmidt, 1993). "In three separate surveys that interviewed correctional institution inmates, jail inmates, and prison inmates it was discovered that 35 to 37 percent of the respondents incarcerated for robbery said they were under the influence of alcohol or alcohol and other drugs at the time of their

offense" (Collins & Messerschmidt, 1993, p. 6). When a group of youths was interviewed about their use of alcohol during the commission of robbery, researchers found that 31 percent admitted to using alcohol or other drugs. This figure is considered somewhat high in comparison to other violent crimes committed by youths while using alcohol or other drugs. For instance, 10 percent of youths admitted to using alcohol or other drugs during the commission of a homicide, for assault 25.5 admitted to using alcohol or other drugs, and 9.3 percent for sexual assault (Collins & Messerschmidt, 1993). All of these studies show a link between violent crimes and the use of alcohol and are important to the current study.

Southern Subculture of Violence

Violent subcultures are nothing new to the United States, as social scientists have studied them as far back as the late 1800s (see Redfield, 1880). However, one of the most prominent subcultures that researchers seem to focus on is the violent subculture of the South. "Historically, evidence suggests that this violent subculture may have begun with the institution of slavery and with post-Civil War accommodations to the de jure elimination of the slave-based economic system" (Parker, 1995, p. 9).

John Shelton Reed (1972) suggests that the release of Southern blacks from slavery left them to wonder what their place in society would be, since they were no longer considered property. As slaves, Southern blacks had little protection to begin with, however, their status as property provided more protection than that of free black man. Due to this conflict many were flogged and hundreds were lynched. While lynching became a thing of the past in the twentieth century, it would be replaced by "a rash of 'civil-rights murders', the bombing of schools and churches, and miscellaneous violence

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by police and private citizens" (Reed, 1972, p. 45). Reed (1972) also explains that not all the violence in the South was directed at blacks, "among the victims of lynchers between 1889 and 1930 were 788 white men" (p.46).

To explain this phenomenon of an overly violent South, Reed (1982) says: "The South displays a culture of violence that regional differences in homicide and assault owe more to regional cultural differences than to differences in the effectiveness of socialization or other mechanisms of social control". Reed believes that the violent attitudes the South has may "have been integrated into the region's culture and achieved a substantial measure of autonomy" (Reed, 1982, p.141).

In 1880, H.V. Redfield conducted a study on homicide in the North and the South, his findings suggested that the South was a more violent place than the North. Redfield felt that economic and cultural differences were to blame. Other studies done by Hoffman (1925) and Brearley (1969) produced the same results. For those who study this cultural phenomenon there are three different sides on which to stand: those who agree that the high rate of homicide in the South in related to cultural differences, those who think the high rate of violence is related to high levels of poverty in the South, and those who believe it is a combination of both culture and structure. Researchers have suggested that the South is more violent because Southerners place a higher value on personal honor, suggesting that they are less likely to tolerate "insults, affronts, and indignities" (Whitt, Corzine, & Huff-Corzine, 1995, p. 128). Whitt and colleagues (1995) suggest that Southerners are more likely to respond physically to these insults and indignities.

In 1971, Raymond D. Gastil tried to explain the high rate of violence in the South as a function of culture. In doing so, Gastil (1971) constructed a Southerness index. The

idea of the Southerness index was to "examine the relation of homicide and Southerness by giving a numerical value to its cultural influence in each state" (Gastil, 1971, p. 419). Ultimately, Gastil (1971) concluded that economic variables did play a part in the homicide rates among the North and South. In addition, he did observe that "there seems, on both qualitative and quantitative grounds, to be evidence that the culture that developed in the Southern states in past centuries leads to high murder rates" (Gastil, 1971, p. 425). Gastil (1971) was implying that the cultural values, such as personal honor and pride, that Southern states posses also lead to a greater number of homicides.

To further this idea of southern violence, Nisbett (1993) suggests that the violence that occurs in the South comes from a herding culture and a culture of honor that has survived throughout the ages. Nisbett (1993) explains that the South was initially settled by "swashbuckling Cavaliers of noble and landed gentry status, who took their values from the knightly, medieval standards of manly honor and virtue", while, the settlers of the North were "sober Puritans, Quakers, and Dutch farmer—artisans" (Nisbett, 1993, p. 442).

Since the settlers in the South had a long economic history of herding they continued that tradition when they moved from Europe. However, herding during that time could result in a very violent livelihood. Herders had to guard their flock and prevent others from stealing it or they would not be able to make a living. As a result, "pastoralists cultivated a posture of extreme vigilance toward any act that might be perceived as threatening in any way" (Nisbett, 1993, p. 442). By doing this the herders would scare away any unwanted offender and also "frighten others into recognizing they are not to be trifled with" (Nisbett, 1993, p. 442). Nisbett (1993) explains that Southern

society has held onto these views and still preserves some aspects of this culture of honor.

Religion and the South

One of the most difficult problems to over come when discussing the South is determining what states to consider "Southern", especially when discussing Southern culture. There are a number ways to classify a state as Southern but some of the most common types include, using the same guidelines as the U.S. census, using the states that were part of the confederacy, or to consider those states that lie below the Mason Dixon line, Southern. For this study only one state is being analyzed and the state of Alabama is considered Southern by most—if not all—definitions. Since Alabama is located in the South, it should come as no surprise that religion plays a strong role in the lives of the people who populate the state. As a result of this strong religious pull in Alabama, this study will use religion as a measure of Southern culture. The researcher believes that much of the Southern culture is defined by a strong religious background, therefore religion will play an important role in the violent crimes committed in the South and the availability of alcohol.

According to Roof and McKinney (1987), the Southern region of the United States is dominated by conservative Protestants and, "they continue to be encapsulated by this regional subculture" (p. 132). They also report that in some Southern states, "the combined Baptist-Methodist membership runs more than 80 percent of the reported Protestant affiliation and well beyond a majority of the total religious population" (Roof & McKinney, 1987, p. 129). Roof and McKinney suggest that there is a comfortable friendship or alliance that exists between the Protestant affiliation and the culture of the South. As a result of this alliance, "there is a highly subjective theology, rural and small-

town values and outlook, and traditional morality" (Roof & McKinney, 1987, p. 129). It is also worth mentioning that, according to Southern Baptist, that 86 percent of their members are located below the Mason-Dixon line (Roof & McKinney, 1987).

A study done by Ellison, Burr, and McCall (2003), sought to explain Southern homicide through regional religious culture by using conservative Protestants affiliation. They explain that the religious institution is important to Southerners, "residents of the South—especially natives—report higher rates of church membership, more frequent attendance at religious services, and in some cases higher levels of personal piety (e.g., Bible reading) than other persons" (Ellison, Burr, & McCall, 2003, p. 330). The researchers also note that past studies have shown that conservative Protestants tend to view crime and deviant behavior in a more negative light than others. As a result, they are more likely to support some type of punishment toward "adult criminals, juvenile offenders, and even children who misbehave" (Ellison, Burr, & McCall, 2003, p. 331).

For their study, Ellison, Burr, and McCall (2003), used the 1980 Uniform Crime Report (UCR) homicide data for Metropolitan Statistical Areas (MSAs) around the country. They then compared this data to the percentage of conservative Protestants living in those MSAs. The results were as follows, homicide rates were about 80 percent higher in the South when compared with the non-South, and "rates of conservative Protestantism were three times higher (23.6 percent vs. 7.9 percent) in the MSAs of the South" (Ellison, Burr, & McCall, 2003, p. 338). Finally, they discovered that a positive predictor for homicide was membership in conservative Protestant churches (Ellison, Burr, & McCall).

Another study by Ellison and Sherkat (1993), sought to discover a connection between conservative Protestantism and the use of corporal punishment. The researchers explained that conservative Protestants tend to read the Bible for its literal meaning. As a result, they are able to justify the use of corporal punishment to discipline and correct bad behavior among their children. "Conservative Protestant writers stress that the Bible commands children to honor and obey parental authority, under threat of divine judgment. Parents are admonished to transmit their religious values to their children, and are deemed strictly accountable to God for any deviation from these hierarchical childrearing principles" (Ellison & Sherkat, 1993, p.132-133). Ellison and Sherkat (1993) explain that external controls must be used on children to prevent them from sin. These external controls are necessary until the child learns that their behavior, or sin, will not be tolerated by the parent. To explain away this use of corporal punishment, "conservative Protestant parenting specialists refer to numerous biblical passages that seem to encourage the use of physical force to 'shape the will' of children (2 Samuel 7:14; Proverbs 13:24, 19:18, 22:15, 23:13-14, 29:15; Hebrews 12:5-11)" (Ellison & Sherkat, 1993, p. 133-134).

To test their theory the researchers used the 1988 General Social Survey (GSS) which included items on religious beliefs and practices, such as, biblical literalism and evil human nature, as well as, information on corporal punishment. In addition, they put many control variables in place such as sex, age, race, education, income, native Southerners, and rural native. They ran ordinary least squares (OLS) regression models to test their theory (Ellison & Sherkat, 1993). The results indicated that conservative Protestants are more likely to support the use of corporal punishment than others and they

"are approximately twice as likely as other individuals with comparable background characteristics to adopt the position that the Bible should be interpreted literally" (Ellison & Sherkat, 993, p.137). In addition, the researchers concluded that, "biblical literalists and individuals who view human nature as fundamentally corrupt agree strongly that 'sinners against God must be punished'" (Ellison & Sherkat, 1993, p. 137).

Finally, Bourns and Wright (2004) conducted a study to examine the extent of violence in the church. The churches selected for the study were either Southern Baptist or United Methodist to test their hypotheses. The researchers sent out questionnaires to 175 churches with a return rate of 29 percent. The questions on the survey were directed at pastors and ministers and asked about violence in their churches. The surveys included questions dealing with both property and people, and who might be committing these crimes (Bourns & Wright, 2004).

The results indicated 49 percent of the clergy felt that violence was slowly increasing, while only 9.8 percent saw a rapid increase. When asked if they saw an increase in anger among adults 54.9 percent of the clergy said they saw a slow increase, while 23.5 percent saw a rapid increase. Finally, when asked about the increase in violence among juveniles 47.1 percent of ministers and pastors saw a slow increase and 31.4 percent felt the increase in violence was more rapid (Bourns & Wright, 2004).

These studies and their results give the present study a strong rationale to use religious affiliation as a measure of Southern culture. They also give the researcher reason to believe that using religion as a measure of the culture is a positive step towards discovering a link between violence, alcohol, and the South.

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Availability and Hot Spots

In the South people consume less alcohol than any other region in the United States, however, those Southerners who do drink, drink considerably more than those in other parts of the country. "The pattern of high consumption per occasion in the South would not only be consistent with one important category of homicide—acquaintance killing acquaintance in a public or semipublic setting—but would also present direct evidence of a cultural difference between the South and other regions" (Parker, 1995, p. 10). However, consumption alone is not the only aspect to consider, availability and predatory "hot spots" must also be considered.

A study, done in 1999, tested the connection between alcohol availability and homicide in the city of New Orleans, "the city was picked due to the high availability of alcohol. In 1995, there were 1,834 licensed outlets both on-sale (i.e., bars and restaurants) and off-sale (i.e., liquor stores, convenience stores, grocery stores) in a city of 450,000 residents, or approximately one alcohol outlet for every 250 residents" (Scribner, Cohen, Kaplan, & Allen, 1999, p. 311). Another reason New Orleans was used was due to its high homicide rates in 1994 and 1995, the two years the study focused on, and because the city was "no longer growing in terms of street geography" (Scribner et al., l999, p. 311). This allowed the researches to pinpoint the location of alcohol outlets and homicides down to the street address, giving them very accurate points of reference (Scribner et al., 1999).

The results of the study indicated that the number of off-sale alcohol outlets was related to homicide for the years studied. "Neighborhoods with high densities of off-sale alcohol outlets also had high rates of homicide even after controlling for neighborhood-

level confounders including race, unemployment, age structure, and social disintegration" (Scribner et al., 1999, p. 314-315). The study went on to conclude that the lack of a relation between on-sale alcohol density and homicide could be the result of the area studied. In other words, New Orleans has a larger tourist population and because of that there are a number of restaurants that cater to them. This could be the reason there is an absence of a relationship between the two variables. "Ultimately, the location of many on-sale outlets in the city is driven by forces external to the social network of the neighborhoods in which they are located, while the distribution of off-sale outlets is more likely to represent a dynamic relation between the outlets in a neighborhood and the social network" (Scribner et al., 1999, p. 315).

Scribner and colleagues (1999) is another noteworthy study, not only because they use availability as their main variable but also because they use aggregate data to conclude that there is a link between availability and homicide. This is important because the current study seeks to use aggregate data at the county level, instead of the city level like Scribner and colleagues (1999). The advantages of using county level data could be, a more precise location of alcohol availability, a more accurate pinpoint of violent crime activity than at the state level, and more precise demographic variables, such as county population size, percentage in poverty, level of income for that county, and many others.

Another study done by Parker and Cartmill (1998), also comments on the link between availability and homicide. They explain that, "aggregate studies of the impact of availability on consumption show that greater concentration of outlets leads to more consumption. Thus, the probabilistic statement describing this first step in the chain that links alcohol with homicide would be that the greater the concentration of alcohol outlets,

the higher the likelihood that people near those outlets will have consumed alcohol"
(Parker & Cartmill, 1998, p. 4).

Yet another aspect of availability is predatory hot spots. Hot spots can be best
described as areas of "violent crime clusters" (Gorman, Zhu, & Horel, 2005, p. 507). A
study done by Gorman and colleagues (2005) used violent crime data from the city of
Houston, Texas to discover a link "between areas of high alcohol outlet density and areas
of high illicit drug activity, and the relative influence of each on violent crime rates" (p.
507-508). In other words, they were researching areas of high alcohol outlet density and
high drug activity and there relation to hot spots. Ultimately, the study concluded that
alcohol outlet density "explained a greater amount of variance in violent crime rates"
rather than drug crime density (Gorman, Zhu, & Horel, 2005, p. 511). This study is also
noteworthy because the variables used in the Gorman study are very similar to those
being used in the current study. For instance, the four violent crimes used in the Gorman
and colleagues study were murder, rape, aggravated assault, and robbery, the same
violent crimes used in the current study. Also, some demographic variables are the same,
such as, percentage of people living below the poverty line and percent black. The
Gorman and colleagues study provides positive results for the current study and gives the
present study reason to use similar variables to establish an alcohol and violent crime
connection.

Finally a study developed by Roncek and Maier (1991), also sought to link hot
spots and alcohol availability in the city of Cleveland, Ohio. The study used crime data
from 1979 to 1981 and alcohol outlet data from mid-1979. However, the unit of analysis
for the Roncek and Maier (1991) study was residential city blocks of Cleveland. The

analysis of the data revealed that "on average, residential blocks had .05 murders, and the presence of an additional tavern or lounge was associated with almost a 5 percent higher probability of a murder" (Roncek & Maier, 1991, p. 742). For rape, the probability was 6 percent higher and for assault and robbery the probability jumped to 20 percent with the addition of an alcohol outlet. The study also revealed "the increment for the total of all index crimes implies that each additional tavern or lounge is associated with 2.3 more crimes per block per year than the block would be expected to have based only on its population and housing characteristics. This amount is approximately 27 percent of the average amount of crime across all blocks, for property and violent crimes, the percentages were 25 percent and 34 percent" (Roncek & Maier, 1991, p. 744).

Land, McCall, and Cohen Study

The work of Land, McCall, and Cohen (1990) is very important to the current study because they conducted research on aggregate data at the city level, the metropolitan area level, and the state level and because the variables used by Land, McCall, and Cohen are similar to the variables being used in this study. In addition, Land, McCall, and Cohen (1990) use U.S. Census data, as does the present study, to conduct their research. Finally, their variable data were retrieved from the same places as the current study, the Federal Bureau of Investigation's (FBI) Uniform Crime Report (UCR) (Land, McCall, & Cohen, 1990).

Ultimately, Land, McCall, and Cohen (1990) used the three levels of analysis and analyzed them against three available censuses at the time, 1960, 1970, and 1980. Their variables included "population size, population density, percentage of the population that is black, percentage of the population ages 15-29, percentage of the population of males

ages 15 and over that are divorced, percentage of children 18 years old or younger not living with both parents, median family income, percentage of families living below the official poverty line, the Gini index of family income inequality, the unemployment rate, and a variable indicating those cities, metropolitan areas, or states that are located in the South" (Land, McCall, & Cohen, 1990, p. 927). The present study will include many of the same variables and put them into a population index similar to that of Land, McCall, and Cohen (1990).

Land, McCall, and Cohen (1990) discovered that during the census periods they examined "the strongest and most invariant effect was due to the resource-deprivation/affluence index" (p. 951). In other words, "those areas that are more deprived had higher rates of homicide, and those that are more affluent had lower rates" (Land, McCall, & Cohen, 1990, p. 951). They also found that the percentage of blacks living in a city, metropolitan area, or state was "most consistently associated with homicide rates" (Land, McCall, & Cohen, 1990, p. 954).

Finally, when looking at the Southern subculture of violence theory the researchers found the "positive effect of location in the South to be strong and invariant only at the city level of analysis" (Land, McCall, & Cohen, 1990, p. 953). For those metropolitan areas the effect is highly associated only for the 1960 census, after that year the statistical significance weakens. Furthermore, the Southern effect illustrated very little significance at the state level. According to the data, it is only in 1960 that there is any statistical significance and at that point it is not very high (Land, McCall, & Cohen, 1990). The research done by Land, McCall, and Cohen (1990) is important to the current study because of the results that were discovered. Finding significant results for the

aggregate data at the city and metropolitan level, gives a stronger foundation for the current study and the possibility for similar results to be found at the county level, as that is the unit of analysis for the present study.

Present Study

The purpose of this study is to examine whether a link exists between alcohol and violence, as other studies have done. One of the key components to this study will be the availability of alcohol at the county level. Availability will be determined by using a counties wet or dry status as set forth by the Alabama Alcoholic Beverage Control (ABC) Board (D. Sullivan, personal communication, September 8, 2006). Violent crime data will be gathered from the Federal Bureau of Investigation's (FBI) Uniform Crime Report (UCR), other demographic data will be collected from the 2000 U.S. Census and the 2000 study on religious congregations and membership in the U.S.

The present study contributes to existing literature in that few studies on the topic have utilized county level data. Previous research has used police record, inmate surveys, victim surveys, or other research experiments to develop their data. This study could help strengthen or refute the theory that violent crimes are more likely to occur in areas were alcohol is more accessible. The researcher hypothesizes the data analysis will show that where alcohol is available, violent crime rates will be higher. The researcher also hypothesizes that where alcohol is not as readily available, violent crime rates will lower. Finally, it is hypothesized that counties with a higher concentration of religious affiliation will have a lower crime rate.

CHAPTER THREE

METHODOLOGY

Data and Method

The purpose of this study is to research alcohol availability, at the county level in Alabama, and show its effect on violent crime rates. Data for the current study were obtained from the U.S. Bureau of the Census, the Inter-University Consortium for Political and Social Research (ICPSRA) website, the 2000 study on religious congregations and membership in the U.S., and the Alabama ABC Board (D. Sullivan, personal communication, September 8, 2006). Data was gathered on 66 of the 67 Alabama counties. Data on Bibb County was not available for the 1999, 2000, and 2001 UCR, therefore it was left out of the study.

Since past studies on this subject have focused on either the city or the state as the unit of analysis, this study wants to provide more information by exploring the relationship of alcohol availability and violent crime rates at the county level (Land, McCall, & Cohen, 1990; Scribner et al., l999).

The methods used for the current study include bivariate analysis, to investigate correlations between the variables, and multivariate analysis. The multivariate analysis will be compiled using Ordinary Least Squares (OLS) regression models. These OLS regression models use the step wise component to better evaluate and measure each of the variables used in the current study.

Dependent Variables

Crimes rates for the current study will come from the 1999, 2000, and 2001 UCR. Each respective UCR was obtained from the ICPSRA website and compiled into a single file. The four violent crimes being measured for this study include homicide, rape, aggravated assault, and robbery. These violent crime rates will be compared with alcohol availability data at the county to see if those crime rates fluctuate with the availability of alcohol. In addition, the logarithm was taken for aggravated assault per capita and robbery per capita to adjust for skewness in these variables.

Independent Variables

For the purpose of this study six independent variables are utilized, the first of these variables is wet/dry status. This variable will measure the wet or dry status of each county in Alabama. The data for this variable was obtained from the Alabama ABC Board (D. Sullivan, personal communication, September 8, 2006). The variable is coded: 0—dry and 1—wet. When coding for this variable it is important to understand that some dry counties in Alabama have wet cities within their borders. To adjust for this a dry county was considered wet if the wet city was the largest city in that county, and if that city enacted its wet status before 1999. After making these changes, the dependent variable wet or dry status resulted in 19 counties that were considered dry and 47 counties that were wet (e.g. 28.8 percent and 71.2 percent, respectively). The variable wet/dry status not only establishes alcohol availability for the current study but it could also lead to the discovery of possible hot spots of crime for the state of Alabama. This would be similar to the Scribner, Cohen, Kaplan, and Allen (1999) study and the Gorman, Zhu, and Horel (2005) study which used alcohol outlets as their respective

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variables.

Next, a population index was built to include the variables county population and percent African-American. It should be noted that the logarithm of the population was calculated before this variable was put into the index to adjust for skewness. The population index is based on methods used by Land, McCall, and Cohen (1990) with one exception, Land and colleagues did not included percent of African-Americans in their population index.

Also included in the independent variables is the percentage of people living in poverty as specified by the 2000 U.S. Census.[1] This variable could help explain demographic characteristics for each county and possibly show a connection between poverty, alcohol, and violent crime.

Next, to incorporate the culture of the South in the analysis, the current study will use the variable percentage of the population in each county affiliated with any church. It is believed that this variable will help explain a connection between dry counties and lower crime rates. The validation for this variable comes from the many studies done on the connection between crime in the South and religion. For example, the work of Ellison, Burr, and McCall (2003) explained that church affiliation in the South is very high and as a result have more strict views on punishment. This was also established in the work of Ellison and Sherkat (1993) which concluded that church affiliation had a strong influence on people's beliefs towards corporal punishment and their use of violence. Further reinforcing the use of this variable is the work of Roof and McKinney

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[1] It was originally thought that percent in poverty would be included in a resource index similar to the population index, but early indications revealed that percent in poverty was overwhelmingly driving the index. For that reason, the index was not used and percent in poverty was used as a stand alone variable.

(1987).

Finally, a predictor variable will be used to show the effects of metropolitan counties and non-metropolitan counties on violent crime. This variable will be coded: 0—non-metropolitan and 1—metropolitan. This variable is being used to show which counties are part of metropolitan areas since this could have some effect on the rate of violent crimes committed in those counties. A similar variable was used in the Land, McCall and Cohen (1990) study to determine if crime was more prevalent in metropolitan areas versus non-metropolitan areas. In addition, Ellison, Burr, and McCall (2003) used MSAs as their unit of analysis when studying the effects of religion on homicide rates, which gives the current study more reason to use the metro/non-metro variable.

CHAPTER FOUR

RESULT

Univariate Analysis

The study began by analyzing descriptive statistics for the four dependent variables (murder per capita, rape per capita, aggravated assault per capita, and robbery per capita) and for the six independent variables (wet/dry status, population, percent African-American, percent in poverty, percentage of the county affiliated with any church, and county metropolitan or non-metropolitan status), these results are presented in Table 1. The results of Table 1 also helped to determine which variables to take the logarithm of to adjust for skewness.

(Insert Table 1 here)

Bivariate Analysis

Table 2 consists of a correlation matrix to explain the extent of association between the dependent and independent variables in the study. As seen in Table 2 there are a number of significant correlations among the variables. All four dependent variables (murder per capita, rape per capita, log of aggravated assault per capita, and log of robbery per capita) are positively correlated with each other and all are significant at the .01 level. The positive correlation indicates that as one variable goes up so does the other. Being significant at the .01 level signifies that the chances of these correlations occurring by chance are equal to or less than 99.99 percent. Furthermore, wet/dry status ($r = .362$, p

< .01) and percent African-American (r = .293, p < .05) are significantly related to murder per capita. While, wet/dry status (r = .404, p< .01), log of population (r = .481, p < .01), and metro/non-metro status (r = .361, p < .01) are significantly related to rape per capita. Similarly, wet/dry status (r = .350, p < .01), log of population (r = .248, p < .05), and percent African-American (r = .245, p < .05) are also significantly correlated with log of aggravated assault per capita. Finally, wet/dry status (r = .468, p < .01), log of population (r = .483, p < .01), and metro/non-metro status (r = .327, p < .01) have significant correlations with log of robbery per capita.

It is also worth mentioning that the variables county wet or dry status and percentage of the county affiliated with any church are negatively correlated and significant (r = -.341, p < .01).

Finally, it is important to note that there are significant intercorrelations between log of the population and percent African-American. To account for these correlations and to reduce multicollinearity these variables were placed in a population index.

(Insert Table 2 here)

Multivariate Analysis

This study uses twenty Ordinary Least Squares (OLS) regression models to determine the strength, direction, and predictive power of the relationship between the dependent variables and the independent variables. Tables 3, 4, 5, and 6 present the results of the OLS models using one dependent variable in each table.

Table 3 provides results for the variable murder per capita and its relation to the predictor variables. It is important to note that in each one of the five models county wet or dry status is driving the model, it is also the only significant variable in all of the

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models. As seen in Table 3, county wet/dry status is significant in model 1 (B = 9.378, p < .01), model 2 (B = 9.234, p < .01), model 3 (B = 9.305, p < .01), model 4 (B = 8.553, p < .05), and model 5 (B = 8.015, p < .05). These results indicate that allowing the sale of alcohol in a county has a strong effect on the number of murders committed in that county. It is also interesting that in Table 3 the only variable that is positively related to murder per capita, besides county wet or dry status, is county metropolitan or non-metropolitan status in model 5. While the metro/non-metro variable is not significant it does explain some of the variance (R^2 = .148) in model 5.

Finally, it is noteworthy to mention the negative associations some of the predictor variables have with murder per capita. One of these associations includes the variable percent in poverty which is negatively associated with murder per capita in models 3 (B = -30.34), 4 (B = -32.104), and 5 (B = -28.444). Also negatively associated with murder is the variable percent affiliated with any church in models 4 (B = -.101) and 5 (B = -.085). Finally, it is interesting that in model 2 (B = -.505), model 3 (B = -1.743), model 4 (B = -1.031), and model 5 (B = -1.403), the population index is negatively associated with murder, while some might say this is unnatural others might conclude that it is evidence of the Southern subculture of violence.

(Insert Table 3 here)

In Table 4, as in Table 3, county wet or dry status is overwhelmingly driving the models for rape per capita. In all five models wet/dry status is positive and significant at the .01 level. The information from model 1 (B = 37.402, p < .01), model 2 (B = 40.339, p < .01), model 3 (B = 40.386, p < .01), model 4 (B = 39.800, p < .01), and model 5 (B = 36.260, p < .01) implies that a counties status as either wet or dry has an overwhelming

effect on the number of rapes committed in that county. In addition, in model 2, the variable population index (B = 10.334, p < .05) is also significant indicating a connection between population and rape per capita. Also it is worth mentioning that the percent in poverty has a negative effect on rape per capita in models 3 (B = -20.464) and 4 (B = -21.838), however, in model 5 (B = 2.242) the association between the two variables becomes positive. This suggests that the addition of the variable metro/non-metro in model 5 has some effect on the direction of percent in poverty and its relation to rape per capita.

Furthermore, the variable metro/non-metro status, while not significant, explains a lot of the variance in the models. In model 2 (R^2 = .222), model 3 (R^2 = .222), and model 4 (R^2 = .223), the explained variance changes very little or not at all, however, when the variable metro/non-metro is applied to model 5 the variance increases drastically (R^2 = .239).

Finally, it should be acknowledged that when adding the variable percent affiliated with any church to model 4 (B = -.078) there is a negative association with rape, however, in model 5 (B = .027) the association is positive. Again, this indicates that the addition of the variable metro/non-metro in model 5 is causing a change to occur in the direction of the association between rape and percent of church affiliation.

(Insert Table 4 here)

Table 5 provides models for the dependent variable log of aggravated assault and the predictor variables. Like the other two tables, county wet or dry status is the driving force in model 1 (B = .698, p < .01), model 2 (B = .711, p < .01), model 3 (B = .697, p < .01), model 4 (B = .743, p < .01), and model 5 (B = .682, p < .05). Similar to the previous

tables this means that a counties wet or dry status is the overwhelming reason for the number of aggravated assaults committed in each county.

(Insert Table 5 here)

Finally, in Table 6 similar results are seen when compared to the last three tables. County wet or dry status is driving a significant portion of the model 1 (B = 1.224, p < .01), model 2 (B = 1.296, p < .01), model 3 (B = 1.295, p < .01), model 4 (B = 1.267, p < .01), and model 5 (B = 1.161, p < .01). In addition, it is worth noting that the metro/non-metro status variable is again explaining a lot of the variance in model 5. This is similar to results seen in Table 4. In the case of Table 6, model 2 (R^2 = .263), model 3 (R^2 = .263), and model 4 (R^2 = .264) show little to no change in the variance. However, when metro/non-metro status is add in model 5 (R^2 = .282) the variance greatly increases. While metro/non-metro status does explain some of the variance in the table it is not statistically significant.

(Insert Table 6 here)

CHAPTER FIVE

DISCUSSION, LIMITATIONS, AND CONCLUSION

Discussion

The results of the linear regression models indicated a strong association between the four violent crimes (murder, rape, aggravated assault, and robbery) analyzed and the availability of alcohol in Alabama. These results are consistent with much of the literature on the subject (Land, McCall, & Cohen, 1990; Nisbett, 1993; Parker, 1995; Parker & Cartmill, 1998; Wolfgang & Strohm, 1956). In all four regression tables county wet/dry status was significant at either the .01 or .05 level and was the driving force in every model. The only other variable that was significant in any of the four tables was population index, and it only appeared once, in model 2, Table 4. If given the opportunity to further this analysis, it would be wise to include alcohol availability, at the county level, from other surrounding Southern states to see if a larger aggregate data set would change the significance or level of association with any of the other variables, similar to the Land, McCall, and Cohen (1990) study.

While the results of the analysis did prove the researcher's hypothesis that alcohol availability and violent crime rates are related, little else was significant among the predictor variables. For instance, it was hypothesized that church affiliation and lower crime rates would be related, however, no significant level of association could be determined among these variables. In addition, only two of the four tables illustrated a

negative association among church affiliation and violent crime, the overwhelming positive association between these two variables coincides with the results of the Ellison, Burr, and McCall (2003) study which found significant associations between homicide and religion in the South. In addition, the positive association is similar to results from the Ellison and Sherkat (1993) study which indicated a strong religious affiliation, in the South, lead to the use of more corporal punishment. However, none of the results for religious affiliation were significant. It is possible that the reason these results are not significant lies in the variable used to show religious affiliation. It might be more suitable to break down religious affiliation by denomination and only use Protestant denominations like Roof and McKinney (1987), Ellison, Burr, and McCall (2003), and Ellison and Sherkat (1993) did in their respective studies. The current study grouped religious affiliations together because there was little evidence of variance in the data when just using Protestant denominations. As a result, the variable for all religious affiliations was compiled.

In addition to the lack of significance among religion there was also a lack of significance among the population index. However, it should be noted that the population index was statistically significant, once, in Table 4, model 2. These results are both consistent and inconsistent with many studies in the past, which find some significance in population variables in some studies and little to no significance in others.

In regards to the variance for each table, the variable county metropolitan or non-metropolitan status seemed to help explain much of the variation among the violent crimes, however, at no point did the variable metro/non-metro show any signs of being statistically significant. This is similar to the results of Land, McCall, and Cohen (1990)

in which they found little to no significance among the metropolitan areas in their study. Some might find this contradictory since it is generally assumed that more violent crime occurs in metropolitan areas rather than non-metropolitan areas.

Finally, it is worth mentioning that the variable percent in poverty exhibited no association among the violent crime variables in any of the OLS regression models. While it was either negatively and or positively associated in the models it was not significant. This would indicate that the percent in poverty does not significantly affect the amount of violent crime occurring at the county level. This was also the case in the bivariate correlation table, which found that percent in poverty was not correlated with any of the violent crimes used in the current study. These results are interesting because they contradict many of the previous studies on this subject. For instance, Gorman, Zhu, and Horel (2005) found that percent in poverty was significant in all six of their OLS regression models. In addition Land, McCall, and Cohen (1990) found that more deprived areas had higher rates of violent crime, whereas those that were wealthier had a lower rate of violent crime. A possible explanation for this lack of association could be the small sample size used in the study.

Limitations

The present study has several limits that need to be addressed when discussing the findings. First, the data for the study only includes one state. To get a more accurate reading of the violent crime rates among dry and wet counties more county level data should be utilized from the surrounding Southern states.

Furthermore, the violent crime data obtain from the 1999, 2000, and 2001 UCRs are strictly voluntary. The states and counties who choose to provide information to the

FBI do so on a voluntary bases. Also, it is important to remember that not all crimes are reported, for a number of reasons some people choose not to contact law enforcement when a violent crime has been committed. As a result, these crimes go unreported and are therefore unknown to law enforcement and researchers alike. Similarly, it is possible that those crimes that were reported were false reports or categorized incorrectly and are therefore part of the data.

It is also important to note that in those counties that are considered wet the researcher did not collect information on alcohol outlet density. In other words, it would be beneficial to the overall results of the study if the researcher knew the number of alcohol outlets in each county. This would have been similar to the study done by Scribner, Cohen, Kaplan, & Allen (1999) in which they studied violent crime rates and compared it to alcohol outlet density for the city of New Orleans.

Finally, it would be more beneficial to the results of the study if the present study had utilized a broader time frame instead of just focusing on 1999, 2000, and 2001. By including only the three dates the study was limited on the amount of significance and association that could be discovered. If the current study had used two or more time frames the study might have yield far different results.

Conclusion

The present study helps to further cement a connection between violent crime and alcohol availability. Although the study did not find as much association between the predictor variables and the dependent variables, it still yielded some results for the violent crime and alcohol connection. Further research should be done on the connection between the culture of the South and the availability of alcohol in the South to help

explain more of an association between these variables.

It is thought by many researchers, in the past and present, that the culture of the South is the reason so much violence occurs in that area. For that reason more research needs to be done on that aspect and the influence that religion plays on Southern culture. It might be useful for future research to use Protestant affiliation as the religious variable as opposed to just affiliation with any church, like the current study. This is recommended since a large majority of those affiliated with a church in the South are from a Protestant denomination. Also, past research by Roof and McKinney (1987), Ellison and Sherkat (1993), and Ellison, Burr, and McCall (2003), used Protestant denomination in their respective studies with very positive results. It is possible that the current study exhibited a lack of significant association with the religious affiliation variable because the present study used all religious denominations.

Furthermore, future research should consider that some researchers believe the culture of the South is slowly changing to adapt to the culture of the rest of the country. If this is the case then future research on the subject could illustrate far different results than those discovered in this study and studies of the past.

In addition, it is the opinion of the current researcher that much of the significance explained in the present study, through county wet or dry status, was due to the fact that the sample size used was rather small. Future studies should consider using a larger sample of Southern counties to help better explain the association between violent crimes and the predictor variables. Also, it would be helpful to include not only the availability of alcohol at the county level in future studies but also the number of alcohol outlets per county. Research on alcohol outlet density could bring about very different results than

those indicated by the current study and further explain a connection between alcohol and violent crimes.

Future research on the subject should also consider using more than one year of U.S. Census data to analyze the demographic variables. It would be beneficial to compile U.S. Census from more than one year to supply a broader range for variables like the population per county, percent African-American, and the percent in poverty.

Finally, it might also be advantageous for future studies to include the rate of consumption in the South, since past research has shown a higher consumption of alcohol among this part of the country. This variable could also be connected with the number of alcohol outlets giving a stronger foundation for future research on the link between alcohol availability and violent crime rates.

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APPENDIX

Table 1. Descriptive Statistics for Variables in the Analyses

Variables	Minimum	Maximum	Mean	Std. Deviation
Dependent Variables				
Murder Per Capita	0	49.17	15.4104	11.82189
Rape Per Capita	0	165.54	57.9251	42.21979
Aggravated Assault Per Capita	34.15	2322.81	630.5763	480.67639
Robbery Per Capita	0	861.26	155.5047	183.47599
Independent Variables				
County Wet or Dry Status (Dry=0, Wet=1)	0	1	0.71	0.456
Population	9974	662047	67064.76	99392.637
Percent African American	0.004	0.846	0.28332	0.223455
Percent in Poverty	0.066	0.298	0.16727	0.047092
Percentage of the County Affiliated with any Church	19.0	74.0	52.148	12.9828
County Metropolitan or Non-Metropolitan Status (Non-Metro=0, Metro=1)	0	1	0.41	0.495

Table 2. Bivariate Correlations for the Dependent and Independent Variables

Variables	1	2	3	4	5	6	7	8	9	10
1. Murder Per Capita	1									
2. Rape Per Capita	0.631**	1								
3. Log of Aggravated Assault Per Capita	0.522**	0.690**	1							
4. Log of Robbery Per Capita	0.632**	0.736**	0.684**	1						
5. County Wet or Dry Status (Dry=0, Wet=1)	0.362**	0.404**	0.350**	0.468**	1					
6. Log of Population	0.147	0.481**	0.248*	0.483**	0.189	1				
7. Percent African American	0.293*	0.171	0.245*	0.238	0.403**	-0.359**	1			
8. Percent in Poverty	0.056	-0.160	0.082	-0.116	0.135	-0.619**	0.815**	1		
9. Percentage of the County Affiliated with any Church	-0.205	-0.006	-0.050	-0.056	-0.341**	0.300*	-0.745**	-0.572**	1	
10. County Metropolitan or Non-MetropolitanStatus (Non-Metro=0, Metro=1)	0.152	0.316**	0.173	0.327**	0.257*	0.507**	-0.110	-0.359**	0.044	1

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

Table 3. Linear Regression Models for Murder Per Capita and Independent Variables

Models	Unstandardized Coefficients
Model 1	
County Wet or Dry Status	9.378** (.362)
(Constant)	8.732**
$R^2 = .131$ (F = 9.647**)	
Model 2	
County Wet or Dry Status	9.234** (.356)
Population Index	-0.505 (-.043)
(Constant)	8.834**
$R^2 = .133$ (F = 4.823*)	
Model 3	
County Wet or Dry Status	9.305** (.359)
Population Index	-1.743 (-.147)
Percent in Poverty	-30.34 (-.121)
(Constant)	13.86
$R^2 = .136$ (F = 3.262*)	
Model 4	
County Wet or Dry Status	8.553* (.330)
Population Index	-1.031 (-.087)
Percent in Poverty	-32.104 (-.128)
Percentage of the County Affiliated with any Church	-0.101 (-.111)
(Constant)	19.943
$R^2 = .143$ (F = 2.541*)	
Model 5	
County Wet or Dry Status	8.015* (.309)
Population Index	-1.403 (-.119)
Percent in Poverty	-28.444 (-.113)
Percentage of the County Affiliated with any Church	-0.085 (-.093)
County Metropolitan or Non-Metropolitan Status	1.928 (.081)
(Constant)	18.086
$R^2 = .148$ (F = 2.078)	

**p < 0.01
*p < 0.05
Standardized Coefficients in Parenthesis

Table 4. Linear Regression Models for Rape Per Capita and Independent Variables

Models	Unstandardized Coefficients
Model 1	
County Wet or Dry Status	37.402** (.404)
(Constant)	31.290**
R^2 = .163 (F = 12.497**)	
Model 2	
County Wet or Dry Status	40.339** (.436)
Population Index	10.334* (.245)
(Constant)	29.199**
R^2 = .222 (F = 9.002**)	
Model 3	
County Wet or Dry Status	40.386** (.436)
Population Index	9.499 (.225)
Percent in Poverty	-20.464 (-.023)
(Constant)	32.588
R^2 = .222 (F = 5.911**)	
Model 4	
County Wet or Dry Status	39.800** (.430)
Population Index	10.054 (.238)
Percent in Poverty	-21.838 (-.024)
Percentage of the County Affiliated with any Church	-.078 (-.024)
(Constant)	37.329
R^2 = .223 (F = 4.369**)	
Model 5	
County Wet or Dry Status	36.260** (.392)
Population Index	7.608 (.180)
Percent in Poverty	2.242 (.003)
Percentage of the County Affiliated with any Church	.027 (.008)
County Metropolitan or Non-Metropolitan Status	12.689 (.149)
(Constant)	25.111
R^2 = .239 (F = 3.768**)	

**p < 0.01
*p < 0.05
Standardized Coefficients in Parenthesis

Table 5. Linear Regression Models for Log of Aggravated Assault Per Capita and Independent Variables

Models	Unstandardized Coefficients
Model 1	
County Wet or Dry Status	.698** (.350)
(Constant)	5.616**
R^2 = .123 (F = 8.949**)	
Model 2	
County Wet or Dry Status	.711** (.356)
Population Index	.044 (.048)
(Constant)	5.607**
R^2 = .125 (F = 4.497*)	
Model 3	
County Wet or Dry Status	.697** (.350)
Population Index	.288 (.316)
Percent in Poverty	5.982 (.310)
(Constant)	4.616**
R^2 = .148 (F = 3.598*)	
Model 4	
County Wet or Dry Status	.743** (.372)
Population Index	.244 (.269)
Percent in Poverty	6.090 (.315)
Percentage of the County Affiliated with any Church	.006 (.087)
(Constant)	4.246**
R^2 = .152 (F = 2.740*)	
Model 5	
County Wet or Dry Status	.682* (.342)
Population Index	.203 (.223)
Percent in Poverty	6.501 (.337)
Percentage of the County Affiliated with any Church	.008 (.113)
County Metropolitan or Non-Metropolitan Status	.217 (.118)
(Constant)	4.037**
R^2 = .163 (F = 2.329)	

**p < 0.01

*p < 0.05

Standardized Coefficients in Parenthesis

Table 6. Linear Regression Models for Log of Robbery Per Capita and Independent Variables

Models	Unstandardized Coefficients
Model 1	
County Wet or Dry Status	1.224** (.468)
(Constant)	3.585**
R^2 = .219 (F = 17.904**)	
Model 2	
County Wet or Dry Status	1.296** (.495)
Population Index	.254 (.213)
(Constant)	3.534**
R^2 = .263 (F = 11.244**)	
Model 3	
County Wet or Dry Status	1.295** (.495)
Population Index	.265 (.222)
Percent in Poverty	.279 (.011)
(Constant)	3.487**
R^2 = .263 (F = 7.378**)	
Model 4	
County Wet or Dry Status	1.267** (.484)
Population Index	.292 (.244)
Percent in Poverty	.213 (.008)
Percentage of the County Affiliated with any Church	-.004 (-.014)
(Constant)	3.714**
R^2 = .264 (F = 5.469**)	
Model 5	
County Wet or Dry Status	1.161** (.444)
Population Index	.218 (.183)
Percent in Poverty	.936 (.037)
Percentage of the County Affiliated with any Church	-.001 (-.006)
County Metropolitan or Non-Metropolitan Status	.381 (.158)
(Constant)	3.348*
R^2 = .282 (F = 4.719**)	

**p < 0.01
*p < 0.05
Standardized Coefficients in Parenthesis