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Guns, Gender, Geography: Exploring Reasons for Gun Ownership

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GUNS, GENDER, GEOGRAPHY: EXPLORING REASONS FOR GUN OWNERSHIP

by

LAUREN N. KADET

(Under the Direction of Laura Agnich)

ABSTRACT

This study was aimed to depict patterns of gun ownership in the United States and to outline the reasons for gun ownership and the influential variables associated with people's reasons for owning handguns and long guns. This study used data derived from the 2004 National Firearm Survey to examine how respondents' geographic region of residency, gender, race, age, rural location and education level influenced the likelihood of, and reasons for owning a firearm. The findings from this study suggest that being a male, living in the south and participants' age was significant in determining the likelihood of participants owning a hand gun or long gun for self defense, or hunting, sports or target shooting. Race and living in a rural area was significant in determining the likelihood of owning a gun, however it was not statistically significant in suggesting reasons for owning a handgun or long gun.

INDEX WORDS: Gun ownership, Firearms, Geography, Gender, National Firearm Survey

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B.A., University of Maryland Baltimore County, 2014

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CHAPTER 1

INTRODUCTION

For many years firearms have been a common accessory and even considered a necessity for American citizens. The United States of America makes up less than 5% of the world's population. However, half of the world's firearms are located in the U.S. (Civilian Firearms Ownership Rate, 2007). Historic and recent research outlines the difficulty in determining the exact number of firearms in the U.S. because of the lack of, or gaps in, gun registry policies. As a result, there is only an estimate that there are approximately 300 million guns in the United States, as of 2014 (Esposito & Finley, 2014). Furthermore, it is also suggested that roughly 8 million Americans possess some type of firearm in their vehicle on a consistent basis (Hemenway, 2004). The number of guns owned by 50% of American citizens has increased from owning one gun in 1981 to owning four or more guns per person in just under half the gun owning population (Cook & Moore, 1981; Hepburn, Miller, Azrael, & Hemenway, 2007). With an increase in the number of guns nation-wide, critics of gun control policies suggest that it would be nearly impossible to remove firearms as a method of reducing gun-related crimes.

In the course of 29 years, 78 public mass shootings have occurred in the United States alone. These shootings have resulted in approximately 540 deaths and over 480 injuries (Bjelopera, 2013). These statistics provide a great concern for Americans who are either pro-gun control or pro-gun law supporters. The pro-gun control groups often view the Second Amendment as a causal factor for mass shootings, and as a result argue for stricter gun control laws and policies. In contrast, others argue that gun-related crimes provide evidence as to why people may need their own guns in order to protect themselves and their families. As arguments

are heated on both sides of this debate, the notion of gun control has been and continues to be a controversial topic (Faria, 2013; Lemieux, 2014).

Some research suggests that guns are viewed as an aggressive weapon that encourages violent behaviour in times of anger. On the contrary, other research suggests that gun ownership provides individuals with independence, dominance and the ability to exercise their rights and protect their families and properties from crime (Berkowitz & LePage, 1967; Berkowitz, 1984; Geen, 1990; Wright et al., 1983). While research has been controversial in determining whether firearm ownership has greater benefits than harmful [costs], it is proposed that owning a gun can reduce property crime and result in fewer injuries. However, although fewer injuries may occur, the severity is found to be much greater when guns are involved in an incident (Southwick, 2000; Branas, Richmond, Culhane, Ten Have & Wiebe, 2009).

When focusing on the negative effects of guns in the United States, firearm-related homicide and suicide have continued to rise since 1993. In 1999 the Centers for Disease Control and Prevention outlined a 1:2 ratio between the numbers of fatal to non-fatal firearm-related assaults. In 1993, firearms were the seventh leading cause of death. By 2001, gun-related homicide and suicide became the second and third leading cause of death in the United States (Krug, Powell & Dahlberg, 1998; Kahn, Kazimi, Mulvihill, 2001). Furthermore, in 2011 70% (11, 1101) of homicides and 52% (19,776) of suicides were executed using some type of firearm (Hoyert, 2012).

As previously outlined, the beliefs and arguments towards gun-ownership vary along a wide spectrum. One of the most influential factors that contributes to anti- or pro-gun related policies, is the area of the country in which people live, as well as the cultural customs associated with that region. Based on existing literature, there is a limited amount of research that

specifically pertains to the different types of firearms owned within various geographic regions in the United States. As a result the purpose of this research was to examine the regional differences in gun ownership and the reasons for owning handguns and long guns in the United States. Furthermore, this study used logistic regression to analyze the associative likelihood between the types of guns owned and reasons for gun ownership, and participants' geographic location gender, age, race, rural location and education level, which was obtained from the 2004 National Firearm Survey. A Review of the literature is presented below to give background information on firearm ownership and the effects of guns, as well as an overview of the historical context.

CHAPTER 2

LITERATURE REVIEW

Since the entirety of this research is based on gun ownership, it is important to define popular types of guns and firing actions, as well as to discuss few studies that have been found linking certain types of guns to certain groups of people. As of 2001, approximately one-third of the United States population reported owning at least one type of gun, with one-fifth of them being handguns (Smith, 2001). In relation to handguns, a study conducted by Sorenso and Cook (2008) on adolescent and adult reporting of household guns, found that married females were more likely to report handguns in the home compared to non-married women. Furthermore, mothers whose children lived at home were almost 3% less likely than fathers to admit owning a handgun. Focusing on gun ownership among adolescents living in the U.S., a study conducted by Cunningham (2000), found that among the 2, 919 adolescent participants in their study, 3,594 guns were owned. 20% of those involved in the study owned more than one gun with a total of 30% of them being a pellet or BB gun, 15% rifles and 9% pistols or handguns.

As stated at the beginning of this paper, firearms have become an accessory in the American culture. Based on the results from the 2004 National Firearm Stock Survey, 33% of gun owners in the U.S. own a rifle, while 21% own a shotgun and 20% own a revolver. Semiautomatic pistols account for 14% of guns, and other long guns and handguns account for the remaining 12% (Hepburn, Miller, Azrael & Hemenway, 2007). For the purpose of this study, three main types (and subtypes) of guns will be outlined and common firing actions will be briefly described.

The first gun type category is a handgun and it has 3 main subcategories, which include a revolver, pistol and a derringer. A handgun generally uses one or more barrels to fire a small

projectile using a short stock that can be handled using one hand (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991). A revolver is a type of handgun that has a revolving cylinder with ammunition in separate chambers. Before each fire, the chamber and barrel have to align (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991). A pistol is a different type of handgun that does not have the ammunition in a cylinder and can be manually operated or semiautomatic. Research suggests that people who own a firearm for reasons of protection, most often own a pistol (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991; Glaeser & Glendon, 1998). The last type of handgun that will be outlined is a derringer, which is generally small and can shoot single or multiple shots, but does not fall under the classifications of a pistol or revolver (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991). The second and third category of gun types is a rifle and a shotgun. These guns are found to be more common among rural residents. A rifle is an explosive gun, in which a single projectile is fired using the support of one's shoulder. A shotgun also uses the support of one's shoulder, and releases a fixed shotgun shell through a smooth bore either in a single projectile or a number of ball shots (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991).

Both handguns and longs can be fired in a variety of ways. Some firing actions include a single shot, bolt or lever action, burst action, pump action, semi-automatic and fully automatic. A single shot action, requires the gun to be cocked before it can be shot. Bolt and lever firing actions are similar, however the cocking motion ejects the used bullet case and the pulling of the level or bolt replaces the used bullet with a new one (Firearms Advantage, 2015). Pump action requires the user to pull the fore-stock part of the firearm towards their body, which empties the

cartridge case and loads a new one (Firearms Advantage, 2015). Semi-automatic action requires auto loading that results in a single shot being released with each trigger pull (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991). Lastly, fully-automatic action is designed or restored to shoot automatically more than one shot without having to reload the trigger (Bureau of Alcohol, Tobacco, Firearms & Explosives Tracing Guidebook, 1993; Gianneli, 1991).

FIREARM-RELATED CRIME IN THE UNITED STATES

As outlined in the previous section, firearms have been associated with various criminal behaviours and violent acts. The most frequently discussed outcomes include homicide and suicide. Research conducted by Guis (2009) on the relationship between gun ownership and homicide rates, found that gun ownership was associated with higher rates of homicide and as a result hypothesized that stricter gun laws could reduce the overall rates of homicide. When focusing on the specific type of guns used in homicide incidents, research has been limited in correlating homicide and the type of gun used. In addition, research has also been scarce in correlating violent crimes with a specific type of firearm used. John Van Kesteren (2014) conducted research on the link between gun ownership and violence, using the International Crime Victims Survey, and found that handgun ownership was strongly associated with serious crimes such as homicide, but were not statistically significantly associated with less serious crimes. Similar findings were obtained from the World Health Organization in 1992; which outline a consistent pattern over the course of a decade (Killias, 1993; Kellerman, 1994). In addition to the type of firearm used in violent crimes, statistics show that those who owned a

handgun were also five times more likely to be shot than those who did not (Cummings et al., 1997; Branas et al., 2009; Lemieux, 2014).

Firearm-related victimization, homicide and suicide are found in many studies to have a positive correlation with gun ownership. Research conducted by Ross (2001) on the pattern of neighbourhoods and gun ownership, indicated that people who own a gun in their home are more likely to have previously experienced criminal victimization. Assessing the regional and cultural differences in gun ownership and violent crimes, the National Crime Victimization Survey outlined that southern and western whites are more likely to experience gun-related victimization than northerners, who appear to experience more knife-related victimization and unarmed assaults (Felson & Fare, 2010). Similar findings were found by the Bureau of Justice Statistics (2005) on gun-related homicide in the south compared to the north.

Regarding gun-related suicide, the previous findings outlined above on homicide and firearms, can also be related to suicide rates. Statistics indicate that in the United States, 50% of all suicides are completed using a firearm (Lang, 2013). These statistics have been consistent since the 1990s in outlining a positive correlation between firearm ownership and suicide rates (Brent, Perper, Allman, Mortiz, Wartella & Zelenak, 1991; Kellerman, Rivera, Somes et al., 1992; Cummings, Koepsell, Grossman, Savarino & Thompson, 1997). A study conducted by Kposowa (2013) on the association of gun ownership and suicide, found that firearm availability is positively correlated with the odds of individual suicide. These findings outline that when guns are available to an individual who has thoughts of suicide, they are more likely to complete the act, than if guns were not an available option. Research also suggests that while many Americans own or possess firearms in the home for reasons of protection and self defense, the majority of

household guns are used against household members either through suicide or homicide (Kposowa & McElvain, 2006).

As outlined in this section, firearms can be associated with serious violent crimes that can result in death. For this reason, some people protest against guns and gun ownership in order to try and prevent future gun-related crimes, while others advocate for gun ownership as a means to protect themselves, their property and their family. The next section, will review existing literature on the reasons for gun ownership.

REASONS FOR GUN OWNERSHIP

The literature on reasons for gun ownership in the United States has been scarce yet consistent across studies. Of the studies that do focus on reasons for gun ownership, some involve research on why adolescents own guns. Research conducted by Cunningham (2000) on the attitudes and reasons for gun ownership among adolescents living in rural settings across the United States, found that 65% of adolescents owned a gun for recreational use, such as hunting or target shooting. Furthermore, about 22% of adolescents in the study, owned a gun for safety reasons, fear of others and as a means to gain respect (Cunningham, 2000). In the same study, 39% of adolescents stated that they received the gun from a parent, while 22% said they purchased it themselves from a gun store (Cunningham, 2000). In the previous section of this paper it was outlined that a substantial number of Americans own at least one type of gun. Specifically looking at adolescents, about 1 in 16 high school students in the U.S. own a gun, with self defense being the primary reason for carrying and possessing it (Cook & Ludwig, 2004).

Expanding beyond adolescents, among Americans who completed the 2004 National Firearm Stock Survey, the most common reason for possessing and owning a handgun was self defense, sports shooting or collecting. Firearm collections and hunting is most common in the southern parts of the United States, which may explain why southerners own a large proportion of the guns in the U.S. (Reed, 1982; Hepburn, Miller, Azrael, Hemenway, 2007). In relation to protection reasons for owning a gun, this demonstrates a lack of trust and confidence in the criminal justice system as well as in the government. In addition, these findings suggest that people do not trust others in their community and feel the need to own a firearm in order to protect themselves and their property. Rural residents argue that owning a gun is necessary because of the time it takes for police to arrive at their house in emergency situations (Luna, 2002; Bogus, 2009; Banksten & Thompson, 1989; Hemenway, Kennedy Kawachi & Putnam, 2001; Jiobu & Curry, 2001). Separate from the criminal justice system and law enforcement, recent data reports that 53% of white people and 24% of black people own a gun for protection. Furthermore, racial attitudes among whites strongly influences their reasons for owning a gun. More specifically, racial stereotypes that refer to minorities as more violent than non-minorities, is a strong indicator for owning a gun among white Americans (Sears & Henry, 2005; Barkan & Cohn, 2005; Pew Research Center, 2013).

GENDER, CULTURE, AND GUN OWNERSHIP

There are racial and cultural differences in gun ownership in the United States. In addition, research also outlines key gender differences suggesting that males are more likely than females to be in favour of firearms, which results in more husbands than wives, reporting household firearms or joint ownership of guns (Ludwig, Cook & Smith, 1998; Cook & Ludwig,

1996; Smith 1999). Nonetheless, since the 1970s the rate of gun ownership among females has increased dramatically (Quigley, 1989). This dramatic increase may be associated with female independence and their desire for self defense. The National Self Defense Survey (NSDS) found that women accounted for 46% of reported defensive gun uses (Kovandzic, Kleck & Gertz, 1998). With the increase in crime and the change in social norms pertaining to females, especially in relation to gun ownership, more females have been found to own some type of firearm now than ever in the past.

Turning the focus to the cultural aspect of gun ownership, an international study conducted by Krug and colleagues (1998) on firearm related deaths of high-income and upper-middle income countries, including the United States, found that in comparison to lower income countries, higher and middle income countries had a 6 times higher firearm death rate. This cross-cultural study indicates that the United States has the highest number of gun-related deaths per 100,000 (14.24) people compared to other countries that are economically similar. In addition, while higher-income countries have a higher firearm-related suicide rate and upper-middle income countries have higher homicide rates, the United States was depicted to have high firearm-related homicide and suicide rates compared to other countries in their group (Krug, Powell, Dahlberg, 1998). As discussed in the study, this may be explained by the availability of and easy access to firearms in the U.S., as well as the cultural and social norms associated with the American identity that influences the ownership of guns.

Within the United States, gun ownership and the reasons for gun ownership vary across regions of the country as well as within states. The majority of studies that focus on gun ownership, outline that people living in small towns are much more likely to own guns compared to those living in large cities. Furthermore, America's "gun culture", which are those who are

included in the population of Americans who own or are in favour of guns and consider them to be part of the American culture; predominately involves those living in rural towns (Williams, 2003; Dizard et al., 1999; Azrael et al., 2004). Firearm ownership can be associated with crime, and cultural norms and values. When comparing urban and rural crime rates and firearm ownership, research suggests that people living in cities are 60-69% more likely to experience violent crimes that involve guns, than those living in rural areas (Kleck, 1997; Florida, 2013). As a result, gun ownership among urban residents are most likely for reasons of protection.

Although gun ownership is ubiquitous as a whole, city residents are more likely to be in favour of and to support gun control, while rural residents often oppose it (Blocher, 2013; Florida, 2013). This may be explained through cultural values, in that those living in rural areas, especially in the south, are twice as likely to grow up around guns and consider it to be apart of their culture and therefore are suggested to use them in a more responsible manner (Florida, 2013; The Geography of Gun Violence in Connecticut, 2013). As a whole, people living in the south and west of the United States are found to be twice more likely to own a gun than those living in the east or north of the country (Azrael et al., 2004; Tavernise & Gebeloff, 2013).

Research aimed at depicting reasons for differences in gun ownership in various parts of the United States have outlined that people living in the south are more likely to own guns and that gun ownership is essential in enhancing their honour and reputation. In addition, southern attitudes of individual self defense are also a strong indicator of firearm ownership (Wolfgang & Ferracuti, 1967; Dixon & Lizotte, 1987). Because of reasons of honour and cultural norms and beliefs associated with gun use in southern and western parts of the United States, laws in these regions of the country, with the exclusion of California, are found to be more permissive when gun-related violence is used to defend ones property or family (Cohen, 1996).

There is a paucity of literature that focuses on gender and cultural factors and the types of guns most commonly owned. Therefore, one of the main goals of this study was to add to the literature by suggesting regional and gender patterns between gun ownership and the type of gun owned.

Based on the research outlined in the literature review section of this paper, there is a small amount of literature that primarily focuses on the different types of firearms owned in different regions within the United States. In addition, research is also limited in associating the types of guns owned and the reasons for gun ownership. As a result, this study was aimed to reduce the gap in the literature and provide findings for the reasons for gun ownership on a geographic level while measuring the influence of gender, race, age, education level and rural location on gun ownership.

CHAPTER 3

HISTORICAL CONTECT AND LEGISLATION

The previous section of this paper outlined existing literature on the types of guns, some reasons for gun ownership and firearm- related crime in the United States. While gender and cultural behaviours and norms surrounding gun ownership in the U.S were discussed, it is important to understand where these cultural beliefs and traditions emerged from. This section will discuss the historical context of firearm ownership, as well as the laws and policies associated with it.

The policy most well known to Americans and non-Americans is the Second Amendment of the United States' Constitution. The second Amendment, which states that “a well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear arms, shall not be infringed,” was defined in December 1791 and does not limit itself to military personnel, but to all Americans (U.S. Constitution Amendment II, n.d.). The Supreme Court case of *Heller v. District of Columbia* reiterated and guaranteed American citizens' rights to possess and carry firearms across the country (District of Columbia v. Heller, 2008; Domenech, 2013). Furthermore, the case also outlined the limitations the federal government had in relation to gun control. While the second amendment legally allows Americans to possess and use firearms, there are some limitations. The first is the type of guns that are banned and therefore prohibits non-militia people from possessing because it would contribute to the poor maintenance of a well-regulated militia in relation to these firearms. These guns include dangerous or “unusual” guns such as M-16 rifles, machine guns and short-barrel related guns (United States v. Haney, 2001; McGovern, 2013). In addition to the type of guns banned, felons, fugitives, controlled substance abusers, those committed to a mental facility, dishonourably discharged military males

and females, those with domestic violence charges, and those under the age of 18 are also prohibited from purchasing a gun in the United States (18. U.S.C 922(g), 2011; Vittes, Vernick & Webster, 2012).

Between 1791 and 2008 there have been important policies and acts that have been implemented that affect the selling, buying and ownership of firearms in the United States. In 1822 individual rights were brought into question in the *Bliss v. Commonwealth* case that took place in Kentucky, when a man carrying a concealed sword in his cane was convicted and fined (Garrett, 2014). In response to the Saint Valentines Day massacre, the private ownership of firearms was eliminated in 1934 with the National Firearms Act. This was the first major gun control act in history (Garrett, 2014; Cavendish, 2009). Two years later, in 1938, the Federal Firearms Act was passed. This act mandated anyone selling firearms to be licensed through the U.S. Department of Commerce, and prohibited the selling of guns to convicts of certain crimes (Garrett, 2014). With the assassination of John F. Kennedy, new regulations were added and altered to the 1968 Gun Control Act. New regulations included “the prohibition of mail order sales of rifles and shot guns, increased license requirements for sellers and a wider range of people prohibited from owning a firearm such as felons, drug users and the mentally incompetent” (Garrett, 2014). In 1994 the United States congress passed the Brady Act and the Federal Assaults Weapons Ban, which prohibited public access to military style guns and a five-day waiting period and background check for handgun sales. The reason for this ban was to prevent non-military personnel from obtaining a powerful gun that was used in combat and that was suggested to be too extreme for non-militia use (Lemieux, 2014). Ten years later, in 2004, the ban expired and has not been re-implemented. Within a two year period, between 2008 and 2010, the United States experienced a major set back for gun control in the *D.C. v. Heller* case

and a major supreme court victory for individual rights to own guns in the *McDonald v. Chicago* case (Garrett, 2014).

When implementing and policing gun control laws and policies, a particular challenge that the United States government often faces is the wide range of differences in laws and policies at the federal and state level. For example, federal laws require background checks when purchasing guns from a licensed gun seller, however there are no federal laws and only few state laws that require background checks when purchasing firearms from non-licensed gun sellers (Vernick, Webster & Vitti, 2010). Therefore evidence suggests that those who were offenders or other people previously noted, are more likely to purchase guns from non-licensed gun sellers than licensed sellers. There have been few suggestions or explanations of the implementation of the second amendment across the United States. One of the most consistent reasoning found across the research, is that during the mid-twentieth century, the Second Amendment was used to protect white male privilege against feminist ideals and racial minorities during civil rights movements (Burbick, 2006; Connell, 2005; Ansell, 2001). Based on this notion, research on gun ownership during the eighteenth century shows that gun ownership was most prevalent among white men, since the majority of states had laws prohibiting black people from owning a gun, and gun ownership was highly frowned upon and thus non-existent among females (Bellesiles, 1996).

As a whole, firearms have been available to Americans for many centuries, which provides a valid explanation as to why the U.S. has been known as a firearm-dominant country. While literature is extensive in providing reasons for gun ownership, it is limited in providing regional differences in gun ownership, as well as the types of guns associated with the reasons for gun ownership. As a result, the goal of this study was to narrow the gap in the literature by

examining the differences in gun type and the reasons for firearm ownership in relation to geographic location of residency, gender, race, educational level and rural location

CHAPTER 4 METHODS

DATA

This study used secondary data analysis from the 2004 National Firearm Survey. The Survey was conducted from March 17, 2004 to June 28, 2004 and consisted of computer-assisted telephone interviews to 31,302 United States adults, living in households with listed and non-listed telephone numbers. Of the phone numbers called, 91% did not include an interview and of those, 41% were ineligible numbers, 39% of calls were not answered after 10 tries and 19% of people did not want to be interviewed. As a result, data was collected from 2,770 participants. Separate from this study, the data from this survey has been used in other studies, however survey questions related to firearm safety or firearm suicide have only been used.

For the purpose of this study the sample consisted of $N=1078$ participants who responded “yes” to the question “Do any guns in your home belong to you personally?” Interviews included a variety of questions that ranged from firearm ownership and attitudes towards guns, to firearm safety. Demographic information was obtained and survey questions were uniform across each interview. Due to listwise deletion (deleting cases with any missing data) the number of participants varied between each model.

DEPENDENT VARIABLES

Since the focus of this research was on reasons for gun ownership within the United States, the dependent variables were handgun and long gun ownership; and what respondents reported as the one most important reason for gun ownership across two types of firearms: hand guns and long guns. Owning a handgun and owning a long gun were dichotomously coded so that 1= owning a handgun, 0= not owning a handgun, and 1= owning a long gun or 0= not

owning a long gun. A list of options were presented for reasons for owning a handgun or long gun, such as self defense from people, protection from animals, gun collection, exercising Second Amendment rights, hunting, sports shooting and target shooting. For this study responses were coded so that owning a hand gun for self defense was coded as “1” being for self defense from people and “0” being not for self defense from people. Owning a handgun for hunting, sports or target shooting was coded as “1” being for hunting, sports or target shooting and “0” being not for hunting, sports or target shooting. The same coding scheme was also utilized for reasons for owning a long gun. In addition to participant’s reasons for owning a handgun or long gun, participants’ responses to handgun or long gun questions were also measured. Responding to a question pertaining to reasons for owning handguns was coded as “1” representing participants that did not respond to the questions and “0” being for participants who did respond to the questions. This coding was also done for questions pertaining to reasons for owning long guns. This study measured the likelihood of participants answering questions related to reasons why they own a handgun or long gun in order to explore patterns of responses or the lack thereof, in relation to the independent variables presented.

INDEPENDENT VARIABLES

The independent variables were respondents’ geographic region of residence, gender, age, race, rural location, and education level. Participants were asked “Do you consider yourself white, black or African American, Hispanic or Latino, Asian, or some other race or ethnicity.” In addition, participants’ were asked “What is your Gender?” Race was coded as “1” being white and “0” being non-white. Gender was nominally measured as either male or female and coded so that male=1 and female= 0. Age was continuously measured and ranged from 18-90 years old,

with the average age of respondents being 50 years old. At the beginning of the survey participants' were asked "What state do you currently live in". All 50 states were represent and were further divided into four regions. For this study geographic region of residence was categorized as "1"= living in the south, which included living in Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Tennessee, Alabama, Kentucky, Maryland, West Virginia, Delaware, Washing D.C., Virginia, South Carolina, North Carolina, Georgia and Florida; and "0"= not living in the south. Rural location was obtained through the question "Which best describes where you currently live?" Response options included, rural, urban and suburban areas. Rural location was coded as "1" being living in a rural location and "0" being living in a non-rural (urban or suburban) location. Lastly, education level was obtained through participants' response to the question "What is the highest grade or year of school you have completed." Education level was coded as "1" being some high school or less, "2" being high school graduate or GED, "3" being some college or associates degree, "4" being Bachelor's degree and "5" being graduate study or degree. The average education level of participants was some college education or an Associate's degree.

Of the sample of participants who answered "yes" to personally owning a gun that is in their home, 80% reported owning a long gun and 69% reported owning a handgun. 45% of participants answered "yes" to owning a handgun for self defense while 55% answered "no". About 21% of participants owned a handgun, and 78% owned a long gun for hunting, sports or target shooting. Furthermore, only 6% of participants reported owning a long gun for self defense. Based on self-identification, 90% of participants self-identified themselves as non-white and 61% of participants self-identified themselves as male. Just under half of the participants

lived in a rural area (47%) or in the south (43%). Table 1 presents the descriptive statistics for both the dependent and independent variables.

Table 2 depicts characteristics of participants who own a handgun or a long gun. Of handgun owners ($n=680$), 46% suggested owning it for self defense, while 20% of participants owned it for hunting, sports or target shooting purposes. 44% of handgun owners lived in the south with 80% who self-identified themselves as male. Participants who identified themselves as white were 75% more likely to own a handgun than those who were non-white. There was about a 13% difference between handgun owners who lived in a rural location than those who did not, with the majority of participants living in a non-rural location. Turning to long gun ownership ($n=685$), only 6% of participants reported owning a long gun for self defense, while 78% reported owning a long gun for hunting, sports or target shooting purposes. 59% of long gun owners did not live in the south and 49% lived in a rural location. There were 71% more males who owned a long gun than females and 93% of the long gun owner population self-identified as white.

Table 1. Characteristics of Sample (N=1078)

	<i>n</i>	<i>%</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>
Own Long gun(s)	701				
Yes		79.6	--	--	--
No		20.4	--	--	--
Own Handgun(s)	707				
Yes		68.6	--	--	--
No		31.4	--	--	--
Own HG for Self Defense					
Yes	384	45.3	--	--	--
No		54.7	--	--	--
HG Self Defense (Missing)	1078				
Yes		64.4			
No		35.6			
Own HG for Hunting, Sport/Target Shooting	384				
Yes		20.8	--	--	--
No		79.2	--	--	--
HG Hunting, Sport/Target Shooting (Missing)	1078				
Yes		64.4			
No		35.6			
Own LG for Self Defense	348				
Yes		5.7	--	--	--
No		94.3	--	--	--
LG Self Defense(Missing)	1078				
Yes		67.7			
No		32.3			
Own LG for Hunting, Sport/Target Shooting	348				
Yes		77.9	--	--	--
No		22.1	--	--	--
LG Hunting, Sport/Target Shooting(Missing)	1078				
Yes		67.7			
No		32.3			
South	1078				
Yes		42.8	--	--	--
No		57.2	--	--	--
Gender	1078				
Male		61.1	--	--	--
Female		38.9	--	--	--
Race	1065				
White		89.5	--	--	--
Non-White		10.5	--	--	--
Rural Area	1064				
Yes		47.2	--	--	--
No		52.8	--	--	--
Age	1059	--	49.51	15.95	18-90
Education Level	1074	--	2.99	1.09	1-5

HG=Handgun, LG= Long gun, Missing refers to participants who answered or did not answer questions pertaining to reasons for owning handgun(s) or long gun(s).

Table.2 Characteristics of Sample Who Own a Firearm

	Handgun Ownership					Long gun Ownership				
	<i>n</i>	<i>%</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>	<i>n</i>	<i>%</i>	<i>Mean</i>	<i>SD</i>	<i>Range</i>
Own HG for Self Defense	341					263				
Yes		45.7	--	--	--		42.2	--	--	--
No		54.3	--	--	--		57.8	--	--	--
HG Self Defense (Missing)	558					558				
Yes		29.7	--	--	--		52.9	--	--	--
No		70.3	--	--	--		47.1	--	--	--
Own HG for Hunting, Sport/Target Shooting	341					263				
Yes		20.2	--	--	--		23.2	--	--	--
No		79.8	--	--	--		76.8	--	--	--
HG Hunting, Sport/Target Shooting (Missing)	485					558				
Yes		29.7	--	--	--		52.9	--	--	--
No		70.3	--	--	--		47.1	--	--	--
Own LG for Self Defense	213					308				
Yes		5.2	--	--	--		6.2	--	--	--
No		94.8	--	--	--		93.8	--	--	--
LG Self Defense(Missing)	485					558				
Yes		56.1	--	--	--		44.8	--	--	--
No		43.9	--	--	--		55.2	--	--	--
Own LG for Hunting, Sport/Target Shooting	213					308				
Yes		80.3	--	--	--		78.2	--	--	--
No		19.7	--	--	--		21.8	--	--	--
LG Hunting, Sport/Target Shooting(Missing)	485					558				
Yes		56.1	--	--	--		44.8	--	--	--
No		43.9	--	--	--		55.2	--	--	--
South	485					558				
Yes		44.3	--	--	--		41.0	--	--	--
No		55.7	--	--	--		59.0	--	--	--
Gender	485					558				
Male		80.2	--	--	--		85.5	--	--	--
Female		19.8	--	--	--		14.5	--	--	--
Race	483					553				
White		87.6	--	--	--		92.8	--	--	--
Non-White		12.4	--	--	--		7.2	--	--	--
Rural Area	483					552				
Yes		43.5	--	--	--		48.6	--	--	--
No		56.7	--	--	--		51.4	--	--	--
Age	481		50.56	15.54	18-87	556		50.27	15.70	18-90
Education Level	483		3.14	1.06	1-5	557		2.97	1.14	1-5

HYPOTHESES

Based on the existing literature, five hypotheses were predicted.

H1: It was hypothesized that people living in the south would be more likely to own long guns for hunting than those who did not live in the south.

H2: Females would be more likely to own hand guns for reasons of protection compared to males (Ludwig, Cook & Smith, 1998; Cook & Ludwig, 1996; Smith 1999).

Based on prior research presented in the literature review on the differences in crime between urban and rural settings, it was hypothesized that

H3: People living in rural areas would be more likely to own handguns for protection (self defense) compared to urban and suburban regions of the U.S. (Kleck, 1997; Florida, 2013).

H4: Participants who identified themselves as white, would be more likely to own a long gun for reasons of self defense from people than those who identified themselves as non-white.

H5: Lastly, it was hypothesized that younger people would be more likely to own a handgun for self defense compared to older people.

ANALYTIC STRATEGY

To assess the reasons for gun ownership in relation to participants' gender and geographic location, ten binary logistic regression models were run using SPSS software.

Logistic regression models were individually run for handgun ownership; long gun ownership; self defense reasons for owning a hand gun; self defense reasons for owning a long gun; hunting, sports or target shooting reasons for owning a handgun; hunting sports or target shooting reasons for owning a long gun; self defense reasons for owning a hand gun (missing); self defense

reasons for owning a long gun (missing); hunting, sports or target shooting reasons for owning a handgun (missing); and hunting sports or target shooting reasons for owning a long gun (missing). Independent variables for each regression model included geographic location, gender, age, race, rural location, and education level.

Since the dependent variables in this study were dichotomous (measured as “yes” or “no”), binary logistic regression models were used to analyze the data using the formula below.

$$g(x) = \ln \left[\frac{\pi(x)}{1 - \pi(x)} \right] = \beta_0 + \beta_1 x_1 + \dots + \beta_k x_k + \varepsilon$$

CHAPTER 5

RESULTS

The results of ten models are displayed in four tables. When specifically looking at handgun or long gun ownership among participants (table 3), being white (O.R. =0.50, $p<0.05$) and having a higher level of education (O.R. =1.51, $p<0.01$) were statistically significant in suggesting that those who identified themselves as white were 50% less likely to own a handgun than those who identified themselves as non-white. In addition, with each increase in education level participants were 51% more likely to own a handgun. For long gun ownership, being male (O.R. =4.73, $p<0.01$) and living in a rural area (O.R. =2.03, $p<0.01$) were statistically significant in suggesting that males were over four times more likely to own a long gun than females and that those living in a rural area were more than two times as likely to own a long gun than those living in an urban or suburban area. As the Nagelkerke R Square value suggests, table 3 explains 7% variance in handgun ownership and 20% variance in long gun ownership.

As table 4 presents, being male (O.R. = 0.55, $p< 0.05$), living in the south (O.R. = 2.03, $p< 0.01$) and participants' age (O.R. = 0.98, $p< 0.05$) were found to be statistically significant in determining the likelihood of a participant owning a handgun for self defense. Males were 45% less likely than females to own a handgun for self defense and more than twice as likely to own a handgun for hunting, sports or target shooting (O.R. = 2.67, $p< 0.05$). Those living in the south were twice more likely to own a handgun for self defense than those living outside of the south. Lastly, with every additional year in age, participants were 2% less likely to own a handgun for self defense. In addition to gender, living in the south (O.R. = 0.45, $p< 0.01$) was also found to be statistically significant in resembling the likelihood of participants owning a handgun for hunting, sports or target shooting. Again, those living in the south were 55% less likely to own a

handgun for hunting, sports or target shooting purposes. Table 4 explains a 9% variance for handgun ownership for both reasons of self defense, and hunting, sports or target shooting.

Table 5 illustrates the likelihood of participants owning a long gun for self defense, or for hunting, sports or target shooting purposes. Living in the south (O.R.= 4.68, $p < 0.01$) was statistically significant in suggesting that those living in the south were four times more likely to own a long gun for self defense compared to those not living in the south. Furthermore, males (O.R.=3.38, $p < 0.01$) were over three times more likely than females to own a long gun for hunting, sports or target shooting. Table 5 explains 14% variance for self defense reasons for owning a long gun and 6% variance for hunting, sports or target shooting purposes for owning a long gun.

Since the regressions models pertaining to the likelihood of participants answering questions relating to handguns or questions relating to long guns are identical, they are presented in one table (table 6). As table 6 illustrates, males were 77% less likely than females to not answer questions regarding reasons for handgun ownership and 90% less likely to not answer questions regarding reasons for long gun ownership. In addition, those living in the south were 24% less likely to not answer questions related to reasons for owning a handgun than those not living in the south. Participants age and education level were also found to be statistically significant in suggesting that with every one year increase in age, participants were 2% less likely to not answer questions pertaining to reasons for owning a handgun and 1% more likely to not answer questions related to reasons for owning a long gun. With regards to education, each level higher illustrates a 14% decrease in the likelihood of participants not answering questions focusing on reasons for handgun ownership and an 18% increase in the likelihood of participants answering questions regarding reasons for owning a long gun; for either self defense, or hunting,

sports or target shooting. Race was statistically significant in suggesting that white participants were 50% less likely than non-white participants to not answer questions related to reasons for owning a long gun; but was not found to be statistically significant in predicting the likelihood of participants not answering questions pertaining to reasons for owning a handgun. Table 6 explains a 17% variance in predictors for missing data for reasons for owning a handgun and explains 26% variance in predictors for missing data for reasons for owning a long gun.

Table 3. Gun Ownership

Characteristics	Handgun Ownership					Long gun Ownership				
	b	s.e.	p	O.R.	95% CI	b	s.e.	p	O.R.	95% CI
South	0.24	0.18	0.17	1.27	0.90-1.80	-0.25	0.21	0.24	0.78	0.52-1.18
Gender (Male=1)	0.04	0.22	0.86	1.04	0.68-1.58	1.55**	0.23	0.00	4.73	3.02-7.42
Age	0.01	0.01	0.22	1.01	1.00-1.02	0.00	0.01	0.96	1.00	0.99-1.01
Race (White=1)	-0.70*	0.32	0.03	0.50	0.27-0.92	1.40	0.28	0.96	1.00	2.33-7.07
South	0.24	0.18	0.17	1.27	0.90-1.80	-0.25	0.21	0.24	0.78	0.52-1.18
Rural Area	-0.07	0.17	0.70	0.94	0.67-1.32	0.81**	0.22	0.00	2.24	1.45-3.46
Education Level	0.41**	0.08	0.00	1.51	1.28-1.78	-0.11	0.10	0.25	0.90	0.74-1.08
Constant	-0.18	0.49	0.72	0.84	-	-0.85	0.53	0.11	0.43	-
Model X ²	36.76	-	-	-	-	89.83	-	-	-	-
Pseudo R ²	0.07	-	-	-	-	0.20	-	-	-	-
N	680					685				

* $p < 0.05$, ** $p < 0.01$

Note: There is a 95% Confidence Interval (CI) for the Odds Ratio

Table 4. Reasons for Owning a Hand Gun

Characteristics	Self defense (People)					Hunting, Sports/Target Shooting				
	b	s.e.	p	O.R.	95% CI	b	s.e.	p	O.R.	95% CI
South	0.71**	0.22	0.00	2.03	1.33-3.11	-0.79**	0.28	0.00	0.45	0.26-0.78
Gender (Male=1)	-0.59*	0.28	0.03	0.55	0.32-0.95	0.98*	0.43	0.02	2.67	1.15-6.17
Age	-0.02*	0.01	0.04	0.98	0.97-1.00	-0.01	0.01	0.17	0.99	0.97-1.01
Race (White=1)	-0.53	0.38	0.17	0.59	0.28-1.24	1.13	0.63	0.07	3.10	0.90-10.68
Rural Area	-0.10	0.22	0.63	0.90	0.59-1.38	0.22	0.27	0.41	1.24	0.74-2.09
Education Level	-0.11	0.10	0.30	0.90	0.74-1.10	-0.07	0.13	0.56	0.93	0.73-1.19
Constant	1.66	0.66	0.1	5.26	-	-2.13	0.93	0.02	0.12	-
Model X ²	24.210	-	-	-	-	22.73	-	-	-	-
Pseudo R ²	0.09	-	-	-	-	0.09	-	-	-	-
N	370					370				

* $p < 0.05$; ** $p < 0.01$

Note: There is a 95% Confidence Interval (CI) for the Odds Ratio

Table 5. Reasons for Owning a Long Gun

Characteristics	Self defense (People)					Hunting, Sports/Target Shooting				
	b	s.e.	p	O.R.	95% CI	b	s.e.	p	O.R.	95% CI
South	1.54**	0.56	0.01	4.68	1.57-13.99	-0.15	0.28	0.58	0.86	0.50-1.48
Gender (Male=1)	-1.15	0.65	0.08	0.32	0.09-1.12	1.22**	0.39	0.00	3.38	1.57-7.29
Age	-0.01	0.02	0.77	1.00	0.97-1.03	-0.02	0.01	0.10	0.99	0.97-1.00
Race (White=1)	-0.85	0.82	0.30	0.43	0.09-2.12	0.72	0.49	0.14	2.05	0.79-5.32
Rural Area	-0.77	0.53	0.14	0.46	0.17-1.30	0.02	0.28	0.95	1.02	0.59-1.74
Education Level	-0.46	0.25	0.06	0.63	0.39-1.02	0.01	0.13	0.95	1.01	0.79-1.30
Constant	-0.20	1.35	0.88	0.82	-	0.32	0.77	0.68	1.37	-
Model X ²	16.15	-	-	-	-	12.74	-	-	-	-
Pseudo R ²	0.14	-	-	-	-	0.06	-	-	-	-
N	333					333				

* $p < 0.05$; ** $p < 0.01$

Note: There is a 95% Confidence Interval (CI) for the Odds Ratio

Table 6. Predictors of Missing Data for Reasons for Owning a Handgun or Long gun

Characteristics	Hand Gun (Missing)					Long Gun (Missing)				
	b	s.e.	p	O.R.	95% CI	b	s.e.	p	O.R.	95% CI
South	-0.28*	0.14	0.05	0.76	0.57-1.00	-0.13	0.15	0.41	0.88	0.66-1.19
Gender (Male=1)	-1.48**	0.16	0.00	0.23	0.17-0.31	-2.36**	0.20	0.00	0.10	0.06-0.14
Age	-0.02**	0.00	0.00	0.98	0.97-0.99	0.01**	0.01	0.01	1.01	1.00-1.02
Race (White=1)	-0.03	0.24	0.89	0.97	0.61-1.54	-0.69**	0.27	0.01	0.50	0.30-0.85
Rural Area	-0.20	0.14	0.16	0.82	0.62-1.08	-0.22	0.15	0.15	0.80	0.60-1.08
Education Level	-0.16*	0.07	0.02	0.86	0.75-0.97	0.17*	0.07	0.02	1.18	1.03-1.35
Constant	3.50	0.40	0.00	33.00	-	2.14	0.42	0.00	8.49	-
Model X ²	138.56	-	-	-	-	212.44	-	-	-	-
Pseudo R ²	0.17	-	-	-	-	0.26	-	-	-	-
N	1032					1032				

* $p < 0.05$; ** $p < 0.01$

Note: There is a 95% Confidence Interval (CI) for the Odds Ratio

CHAPTER 6

DISCUSSION

This study used binary regression models to determine the influence of gender and geography on handgun and long gun ownership, and reasons for owning a handgun or long gun in the United States. Ownership reasons were divided into two separate categories, ownership for self defense from people, and hunting, sports or target shooting. Participants' residential geographic location, gender, age, race, rural location and education level were used to measure the variance of owning a firearm. As table 2 and 3 illustrate, being male, living in the south and participants' age were statistically significant factors in determining handgun or long gun ownership for reasons of self defense. Being male and living in the south were statistically significant in determining the likelihood of participants owning a handgun or long gun for hunting, sports or target shooting purposes. In addition to the above variables outlined, participants' education level was an additional factor that determined the likelihood of participants not answering questions about reasons for owning a handgun or long gun (table. 4). Living in a rural area was a significant predictor in long gun ownership, while race was a significant predictor in handgun ownership. However rural location and race were not found to be statistically significant in any other models that focused on reasons for handgun or long gun ownership.

In relation to the hypotheses predicted, two were fully supported. Females were more likely to own handguns for self defense compared to males. Younger participants were also more likely than older participants to own a handgun for self defense, however there was no statistical significance in suggesting the same for hunting sports or target shooting. Living in a rural area, being white or having a higher education were not found to be statistically significant

in determining reasons for gun ownership, which therefore did not support the hypotheses that those living in rural areas would own a handgun for self defense, and those who identified themselves as white would own a long gun for self defense. Since the main focus of this research was geographic location, it was predicted that participants living in the south would be more likely to own a long gun for hunting than those who did not live in the south. The results did not support this hypothesis and instead suggested that those living in the south are 54% more likely than those living outside of the south to own a long gun for self defense from people.

The results from this study outline the influence of participants' residential geographic location, gender, and age on hand gun and long gun ownership for self defense, and hunting, sports or target shooting in the United States. With the lack of statistical significant evidence, it has been depicted that race and education level were influential factors in determining handgun or long gun ownership, but were not major factors in determining the reasons for owning these types of guns. Nonetheless, living in the south or being a male was significant in 9 out of 10 models and thus had more of an influence on gun ownership as a whole, and on reasons for owning a handgun or long gun. This finding is consistent with existing literature, which suggests that gun ownership is more common in the south compared to other geographic regions (Reed, 1982; Hepburn, Miller, Azrael, Hemenway, 2007).

The findings from this study are also consistent with current literature that presents the importance or influence age has on gun ownership. Research by Cunningham (2000) and Cook and Ludwig (2004) focus on gun ownership among the youth and young adults. As previously mentioned, handgun ownership for self defense specifically, was more common among younger adults than it was among those who were older. This information is important when dealing with the youth and gun violence as a whole. Research is also consistent with existing literature that

suggests that females are more likely to own a handgun for self defense compared to males (Kovandzic, Kleck & Gertz, 1998).

In addition to measuring violence and crimes associated with gun ownership, the findings presented in this study may be useful when creating firearm policies and legislations. Since gun ownership as a whole was not found to be more common in the south compared to other regions, future research could replicate this study looking at other geographic regions and in turn, create firearm policies or additional licensing or registration in certain regions where gun ownership is high. From an education aspect, firearm or self defense classes may be beneficial for those living in the south who are more likely than those not living in the south to use a handgun or a long gun for self defense or for hunting, sports or target shooting. The findings pertaining to gender differences in handgun and long gun ownership may be useful for those selling firearms, which can allow them to meet the needs of customers based on the materials and types of guns they sell. Lastly, since this study measured predictor variables for reasons why some participants did not answer questions related to reasons for owning a handgun, or long gun, this information can be used in a variety of ways one of which that relates to crime or another that can be associated with the trust people have in law enforcement or in other people as a whole.

LIMITATIONS

It would be a limitation to associate the results of this study directly with firearm-related crimes because not all people in the United States who own a firearm (legally or illegally) participated in the initial survey and crime rates were not measured or analyzed. Additional limitations are the number of participants who answered the survey questions related to reasons for gun ownership, participants responding honestly to these questions and the manner in which

participants were accumulated. While this random sample was derived off of those who lived in the United States in 2004, only those with a telephone number who were willing to participate in the survey were included in the study. Therefore, based on the sample size of the initial survey it may be predicted that a significant number of people were not included. Since there were a substantial amount of people who did not answer questions related to reasons for owning a handgun or long gun, results should be cautiously generalized to the larger population. Furthermore, it is important to note response bias as there was an option for participants to not answer questions. Among those who did answer questions related to reasons for owning a handgun or long gun, participants could have been biased, which in turn could have influenced the results. The last limitation is the year in which the data was obtained. Since this data is relatively dated, it would not make an accurate depiction of the current number of people living in the U.S. who own a handgun or long gun or their reasons for doing so. This information can be used when looking at trends and future research could mimic the study with more recent data and compare findings.

IMPLICATIONS

Future research should look at a more diverse population and include additional variables such as crime victimization and the strictness of gun policies within regions or states. Future research could use a correlational approach to predict the influence of one variable on another, which may allow for a more beneficial finding that could help with firearm education and reducing gun-related crimes. Since this study solely used a quantitative approach, future research could use a qualitative or mixed methods approach, which may allow for more personal responses to reasons why people own certain types of guns. While this study included self

defense as a reason for owning a firearm, a qualitative interview with a participant may explain why they need a firearm for self defense, and as a whole would provide more personal insight or give explanations for participants responses to survey questions.

Although the data may be dated, it still depicts a pattern and image of reasons for gun ownership in the United States. Furthermore, the results indicate influential variables on gun ownership and do not outline race and rural location to be statistically significant. This research can act as a starting point for longitudinal research that looks at the trends in gun ownership, which in turn can influence future policies or firearm-related educational programs.

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