

**The influence of audience: Analyzing the relationship  
between post-Sandy Hook newspaper coverage and  
readers' positions on gun policy**

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## **Abstract**

The Sandy Hook Elementary School shooting in Newtown, Connecticut took place on December 14, 2012. Sandy Hook prompted President Barack Obama to issue 23 executive orders related to gun policy in early 2013. Newspapers throughout the country covered the policy changes and the Sandy Hook shooting in various ways. In the 90 days after Sandy Hook, 30 randomly selected newspapers published 1,017 articles mentioning guns in the context of the shooting. Fifteen newspapers were more likely to use gun control to characterize the shooting, fourteen were more likely to use gun rights, and one newspaper was evenly split in its use of gun control and gun rights. Newspapers also varied in the percentage of their total articles that mentioned guns in the context of Sandy Hook. Newspapers that published a larger percentage of their overall articles that mentioned guns in the context of Sandy Hook were more likely to frame the event with gun control. These newspaper articles were also examined using audience demand theory, which posits that demand may shape the way newspapers cover issues. Specifically, demand for gun rights newspaper coverage was measured using the number of donations to the National Rifle Association Political Action Committee. This number of NRA PAC donations per population in a given area slightly positively related with greater use of gun rights frames, and slightly negatively related with greater use of gun control frames, but these relationships were not statistically significant. This project suggests that audience demand theory can be applied to newspaper coverage of guns.

## **Table of Contents**

<b>ACKNOWLEDGEMENTS</b>	<b>2</b>
<b>ABSTRACT</b>	<b>3</b>
<b>TABLE OF CONTENTS</b>	<b>4</b>
<b>INTRODUCTION</b>	<b>5</b>
<b>THEORY AND HYPOTHESES</b>	<b>6</b>
<i>I. READER DEMAND AND PRESENTATION OF CONTENT</i>	6
<i>II. NEWSPAPER COVERAGE SETS AGENDAS</i>	8
<i>III. NEWS FRAMES USED IN MEDIA COVERAGE OF SCHOOL SHOOTINGS</i>	9
<i>IV. VARIATIONS IN PREFERENCES FOR GUNS</i>	12
<i>V. THE URBAN-RURAL DIVIDE AND PUBLICATION OF NEWS FROM WIRE SERVICES</i>	15
<i>VI. SALIENCE OF SHOOTINGS AND GUN PREFERENCES</i>	17
<b>METHODOLOGY</b>	<b>19</b>
<b>RESULTS AND ANALYSIS</b>	<b>25</b>
<i>VARIATION IN GUN FRAMES</i>	26
<i>OTHER NEWSPAPER STATISTICS</i>	27
<i>VARIATION IN NRA PAC STATISTICS</i>	28
<i>REGRESSION RESULTS</i>	30
<b>LIMITATIONS</b>	<b>36</b>
<b>CONCLUSIONS</b>	<b>38</b>
<b>POLICY RECOMMENDATIONS</b>	<b>41</b>
<b>FURTHER RESEARCH</b>	<b>44</b>
<b>REFERENCES</b>	<b>46</b>
<b>APPENDICES</b>	<b>49</b>

## **Introduction**

On December 14, 2012, 20-year-old Adam Lanza murdered his mother in their home in Newtown, Connecticut. He then drove to Sandy Hook Elementary School and killed 20 young children and six school employees before committing suicide. After the shooting, the national conversation in the media evolved to spotlight guns. How did he acquire his weapons? Could arming teachers prevent another shooting? What use does a regular citizen have for military-style assault weapons?

Newspapers advanced this conversation differently. While some published mostly-unbiased content, others characterized Sandy Hook using primarily gun control or gun rights. “Gun control” is the idea that the government should limit gun ownership and accessibility; “gun rights” is the idea that the Second Amendment guarantees Americans the right to own and access guns. People across the United States had widely varying views on the gun debate. How did these varying preferences for guns affect the way newspapers covered guns after Sandy Hook? If there are relationships between gun preferences and framing in newspapers, they could provide evidence for the influence of audience preferences on the way content is presented.

This thesis analyzes coverage from 30 newspapers throughout the United States in the 90 days after the Sandy Hook shooting. It first examines the variation in newspaper coverage of the shooting. It then analyzes the relationship between newspaper use of different gun policy frames (gun control, gun rights, and neutral) and information about the populations in each newspaper’s respective Metropolitan Statistical Area (MSA) or Micropolitan Statistical Area ( $\mu$ SA). The most significant piece of demographic

information analyzed is the number of large donations to the National Rifle Association Political Action Committee (NRA PAC). This project then analyzes the relationship between coverage and age, race, poverty levels, and education levels. This thesis also examines the relationship between publishing a higher percentage of total articles discussing guns in the context of Sandy Hook and the use of different gun policy frames in order to understand how the level of importance that newspapers assign to a shooting may impact coverage.

Newspapers are economic entities, so it makes sense that they may respond to demand. There are implications if there is some relationship between audience gun preferences and newspaper coverage of shootings. Relationships could be useful in forwarding conversations objectivity in news, and could prompt audiences to seek out unbiased alternative sources of information about guns and shootings.

## **Theory and Hypotheses**

Audience-expressed positions on gun policy are expected to relate with particular gun frames in Sandy Hook coverage. These expectations are based on theories of media economics and agenda setting, newspaper frame use in school shootings media coverage, variations in gun preferences, the urban-rural divide, and the intersection between salience of shootings and gun preferences. Specifically, these theories form the basis for four research questions about audience preferences for guns and newspaper frame use.

### **I. Reader demand and presentation of content**

The main hypothesis of this thesis is based in research from Gentzkow and Shapiro (2012), who found that economic forces dictated newspapers' presentation of

content. Newspaper circulation data showed that consumers preferred newspapers whose ideology matched their own; An increase in 10 percentage points in the proportion of a town's votes going to Republicans increased the relative circulation of Republican papers in the town by 10 percent (Gentzkow and Shapiro 2012). The need for newspapers to earn profit may explain this relationship. Hamilton (2006) discussed the importance of reader demand and suggested that local newspapers adjusted coverage to their readers' preferences to maximize profit. Gentzkow and Shapiro also found that consumer demand induced newspapers to match the tastes of local consumers. Using data from a cross-section of newspapers in 1924, they found that a ten percentage point increase in the proportion of Republicans within a market increased the probability that an entering newspaper chose a Republican affiliation by 23 percentage points. The use of historical data was justified because it was more likely for newspapers to declare their political affiliations in the early 20<sup>th</sup> century. Markets at the time were also more likely to include multiple competing newspapers.

The degree to which readers care about an issue and how much they want to learn about it influences their demand for information about that issue. Downs (1957) wrote that media consumers demand four types of information: consumer information, producer information, voting information, and entertainment information. Consumer information relates to a reader's purchasing decisions; producer information relates to a reader's role as a producer or worker; voting information relates to public affairs knowledge and future voting decisions; and entertainment information is consumed for pleasure, not decision-making purposes.

These four information categories apply to school shooting newspaper coverage. Consumers may read coverage to make a more informed decision about which communities to live in. Producers may read coverage because it shows that shootings could occur in any ‘safe’ place, like schools or offices. Perhaps most relevant to this thesis, readers may consume shootings coverage to inform themselves about the status of the national gun conversation, to follow propositions for new gun control legislation, or to confirm their already-existing preferences for gun control versus gun rights. Finally, readers may consume shootings coverage—especially with the dawn of the 24-hour news cycle—because it is interesting. People want answers to their questions about shootings and shooters so they can make sense of tragedies. As time passes and more details emerge about the shooter, the shooter’s motivations, the shooter’s upbringing, the weapons used, and the victims, readers may pay attention to learn emerging details. Mass murders like school shootings receive a disproportionately high amount of attention, even though they compose only 1 percent of the roughly 15,000 people murdered in the United States each year (Hoyer and Heath 2012). This heavy attention on relatively rare occurrences exists because there are readers interested in consuming the information, whether to inform themselves or to follow an unusual event because it has piqued their interest.

## **II. Newspaper coverage sets agendas**

McCombs and Shaw (1972) argued that newspapers set public agendas through coverage. The idea of agenda setting is the “transfer of salience from one agenda to another agenda,” (McCombs 2005, p. 158). The press gives attention to a set of objects and characterizes those objects in a specific way. McCombs’ and Shaw’s seminal report



found that the way newspapers covered political issues influenced how readers identified which issues were important. Others have confirmed the agenda-setting function of the media. In a study by Iyengar et al. (1982), a treatment and a control group viewed television programs. Both groups were told that the programs were recordings of the previous night's news. The control group viewed the TV news program from the previous night but the treatment group viewed an altered version that featured increased coverage of a certain political issue. Afterwards, the treatment group assigned a greater importance to the issue that received increased coverage compared to the control group.<sup>1</sup> If audience preferences influence media coverage, and media coverage shapes how audiences assign importance to news issues, the implication is that media coverage may reinforce reader preferences.

### **III. News frames used in media coverage of school shootings**

The way in which the press characterizes an object is through the use of media framing. As Robert Entman's definition of framing states: "*To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation for the item described,*" (Entman 1993, p. 52). There is a breadth of literature applying media framing to school shooting coverage. Frames most often found in school shooting coverage are spatial frames, time frames, and cause frames.

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<sup>1</sup> This television experiment may not directly apply to newspapers because people most likely consume content from different media in different ways. But, the general finding that media attention to an issue shapes how readers identify importance is applicable.

### *Spatial Frames*

Muschert and Carr (2006) and Chyi and McCombs (2004) discussed spatial frames. They identified five spatial frames: international, societal, regional, community, and individual. A news article used an international frame if it focused on the global impact or discussion of the shooting. An article used a societal frame if it focused on the national impact or discussion of the shooting. An article used a regional frame if it focused on the metropolitan area or state in which the shooting occurred. An article used a community frame if it focused on the community or local area where the shooting took place. An article used an individual frame if it focused on the individuals involved in the shooting. In the case of school shootings, these individuals are the gunmen and the victims. Researchers applied spatial frames to the shooting at Columbine High School in Columbine, Colorado on April 20, 1999 – a shooting that killed twelve students and one teacher (James 2009). Societal and community frames initially framed coverage of Columbine. As time passed, newspapers used more individual frames. These frames discussed the immediate impact of the shootings on those involved, including the victims, their families, and the families of the gunmen. This may be because more information about gunmen and victims becomes available as more time passes after a shooting.

### *Time Frames*

Muschert and Carr (2006) and Chyi and McCombs (2004) also discussed time frames, which discuss shootings in the context of the past, present, or future. An article with a past frame discussed past events that had little direct link to the shooting. An article with a present frame discussed a recent shooting, the immediate consequences, and current trends. An article with a future frame discussed the long-term effects of the

shooting and possible strategies for change and shooting prevention. Researchers coded post-Columbine articles, concluding that the present frame was overwhelmingly used initially and the future frame increasingly used as more time passed after the shooting. The past frame was infrequently used, although this may be due to the lack of major school shootings prior to Columbine.

### *Cause Frames*

Muschert (2007) discussed three major cause frames used in school shootings coverage: individual causes and qualities, community context, and social and cultural contexts. Articles using individual causes and qualities frames focused on mental illness, identity of the shooter(s), access to guns, peer relationships, and familial neglect or abuse. Articles using community context frames focused on local youth social dynamics, school contexts, community cohesion, and community climate. Articles using social and cultural contexts frames focused on educational contexts, masculinity, the political climate, and the culture of violence.

Muschert's cause frames may be particularly useful in understanding how readers' desires impact coverage. Gentzkow and Shapiro's research showed that readers' desires and household demand influenced the way newspapers presented content. Desires of newspapers' readers in the case of shootings are most easily classified as gun control and gun rights. Accordingly, gun control and gun rights are themes that emerge within Muschert's description of cause frames. Muschert wrote that cause frames include issues around access to guns, the political climate, and the culture of violence. These issues are ones that are addressed by taking a side within the gun control/gun rights debate, and ones that can be discussed using gun control and gun rights rhetoric.

*These theories suggest answers to Research Question 1:*

**RESEARCH QUESTION 1: How did newspaper coverage of gun control and gun rights in the 90 days after the Sandy Hook shooting vary with preferences about gun rights in newspaper audiences?**

Ideally, preferences about gun rights could be shown through gun ownership numbers by area. However, this data is unavailable. Instead, the number of \$200+ donations to the National Rifle Association Political Action Committee (NRA PAC) is used as a proxy for gun ownership.<sup>2</sup> The \$200+ amount was chosen because there is only accessible information about large donations, defined by the Center for Responsive Politics' OpenSecrets.org as donations of \$200 or more. This should be a successful proxy because an area with a larger number of NRA PAC donations per number of residents presumably contains a stronger gun rights contingent than an area with a smaller number of NRA PAC donations per number of residents.

*Hypothesis:* Audience preferences influenced the way newspapers framed gun policies in post-Sandy Hook coverage. As the number of NRA PAC donations in a given area increases, it is expected that the percentage of gun rights frames in the area newspaper's coverage will increase. Conversely, as the number of NRA PAC donations increases, the percentage of gun control frames will decrease.

**IV. Variations in preferences for guns**

The relationship between gun policy preferences and demographic characteristics is not heavily explored in the literature. But, the relationship between gun *ownership* and

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<sup>2</sup> Donations to the NRA PAC were used instead of donations to the National Rifle Association itself because the NRA does not release information about donations made to the organization.

demographic characteristics is well researched. Demographic characteristics of social groups are strong indicators of gun ownership (Glaeser and Glendon 1998). Other research found that gun ownership is a strong predictor of gun policy preferences (Kleck 1996, Dowler 2002, Smith 1999). Kleck wrote that gun owners were more likely to oppose a measure strengthening gun permits because they thought it would lead to future stricter measures. Below is a review of the literature exploring the relationship between other demographic characteristics and gun preferences.

### *Guns and Age*

Research on the relationship between age and gun preferences is inconclusive. Smith found that support for gun control measures did not vary by age (Smith 2002). The relationship between age and gun ownership specifically was unclear, although there was some consensus that those older than 65 were unlikely to own guns. Glaeser and Glendon found that gun owners were disproportionately more than 40 years old, but also found that elderly people were less often gun owners than non-gun owners. Smith found similar results, in that adults over 65 and adults under 30 were less likely to own guns (Smith 1999).

### *Guns and Children*

Researchers found limited relationships between the presence of children in communities and gun ownership. Smith found that the presence of children had limited impact on how people use and think about guns, and Glaeser and Glendon also found little relationship between the presence of children and gun ownership (Smith 1999, Glaeser and Glendon 1998).

### *Guns and Race*

The relationship between certain racial groups and gun preferences is unclear. Dowler reviewed a variety of studies about the relationship between race and guns and found conflicting results. Some studies showed that African-Americans were more likely to support gun control measures than other racial groups, while others reported that race was not an indicator for gun preferences (Dowler 2002). In another study, African-Americans were less likely to own guns than white people (Glaeser and Glendon 1998).

### *Guns and Education*

Most research found that more education was correlated with less gun ownership and stronger support for gun control. Smith found that people with higher educational attainment were more likely to support gun control (Smith 2002). Other research found that the likelihood of gun ownership decreased as education level increased (Glaeser and Glendon 1998). Glaeser and Glendon specifically found that college graduates were less likely to be gun owners. Counter to Glaeser's and Glendon's findings, Smith found little variation in gun ownership based on education (Smith 1999).

### *Guns and Income*

Most research found a positive relationship between increasing income and increasing gun ownership. Many scholars reported that gun ownership was expected to rise as income increased (Glaeser and Glendon 1998, Dowler 2002, Smith 1999). Glaeser and Glendon predicted that this was due to the high prices of guns.

*These theories suggest answers to Research Question 2:*

**RESEARCH QUESTION 2: How did newspaper coverage of gun control and gun rights in the 90 days after the Sandy Hook shooting vary with the demographics of the local area?**

Scholarship suggests that certain demographic characteristics correlate with a heightened predisposition for gun rights or gun control views. It is possible that newspaper coverage will vary not by expressed gun preferences through NRA PAC donations, but by indirect gun preferences through data about age, race, socioeconomic status, and average education attained.

*Hypothesis:* Higher average education attained will positively relate with more gun control frame use and less gun rights frame use. Higher poverty levels will positively relate with more gun control frame use and less gun rights frame use. Limited relationships will exist between the use of gun frames and percentage of elderly and children.

It was found that gun preferences were related to gun ownership and different demographic characteristics. Another strong predictor is living in a more rural area or living in a more urban area, or the urban-rural divide.

**V. The urban-rural divide and publication of news from wire services**

*Increasing Use of Wire Services among Smaller, Local Newspapers*

As daily newspapers' budgets tighten and the numbers of staff writers dwindle, it is increasingly difficult for local newspapers with small circulations to produce newspapers entirely composed of stories written with original reporting. This trend has led to a heavier reliance on wire services such as the Associated Press and Reuters for

articles about national topics, or for articles that require reporting in another area (Waldman 2011).

### *The Urban-Rural Divide and Gun Preferences*

*The Wall Street Journal* published a 1972 editorial portraying the disagreement over gun policy as a conflict between “traditionalists” in rural areas and sophisticated people in urban areas who viewed unrestricted gun ownership as embarrassing (Kleck 1996). Smith’s (1980) findings supported this anecdote about the urban-rural divide, and showed a stronger preference for gun control measures in city areas compared to small cities and rural areas. Smith found that opposition to gun control measures was 7.4 percentage points lower in towns than in rural areas, 12.6 percentage points lower in medium metropolitan areas than in rural areas, and 18.3 percentage points lower in large centers than in rural areas. More recent survey data found that rural Americans owned more guns than their urban counterparts (Gimpel and Karnes 2006, Drongowski et al 1998). In 1996, approximately 62 percent of individuals in rural communities reported having a gun in their homes, compared to 25 percent of individuals in cities (Maguire and Pastore 1998). Specific to the gun policy debate, Smith found that residents of large cities and suburbs were more likely to support gun control measures than residents of rural areas (Smith 2002).

The reason behind differing gun preferences and rates of gun ownership between rural and urban areas could be the different cultures around guns. In rural communities with strong hunting cultures, guns are a common gift for fathers to give their sons (Zuckerman 1996). Students in rural communities also reported high exposure to gun violence (Slovak and Singer 2002).



*These theories suggest answers to Research Question 3:*

**RESEARCH QUESTION 3: How did newspaper coverage of gun control and gun rights in the 90 days after the Sandy Hook shooting vary with the percentage of articles produced by wire services?**

*Hypothesis:* Urban-rural divide theory posits that rural areas contain more gun owners, and thus more gun rights advocates, compared to urban areas. Meanwhile, newspapers in rural areas are predicted to use a higher percentage of articles supplied from wire services compared to newspapers in urban areas. This thesis does not categorize newspapers in the 30-newspaper sample as urban or rural, but it does measure the percentage of each newspaper's articles that are produced from wire services. The use of wire articles is a proxy for identifying newspapers as more urban or rural. Newspapers with a higher percentage of wire articles will be more likely to use gun rights frames, given that rural audiences are predicted to hold stronger gun rights views than urban audiences

## **VI. Salience of shootings and gun preferences**

Gun violence salience increased following a mass shooting. Smith studied national trends in public opinion following Columbine. While preferences for gun policy did not change nationally following the shooting, the public's assigned salience to gun violence increased (Smith 1999). Smith also found that peoples' attitudes about guns were shaped by prior experience with guns and that formative experiences often fixed peoples' attitudes toward gun policy.

**RESEARCH QUESTION 4: How did newspaper coverage of gun control and gun rights in the 90 days after the Sandy Hook shooting vary with newspapers' attention given to guns in the context of Sandy Hook?**

*Hypothesis:* Increased newspaper attention given to Sandy Hook relates to increased assigned salience to shootings. This salience could be due to a variety of factors, such as a history of shootings in the surrounding area of a newspaper or close proximity to a recent shooting. If a newspaper assigned increased salience to shootings by giving increased newspaper attention to Sandy Hook, it is predicted that the newspaper used more gun control frames in its coverage. This prediction is grounded in Smith’s research that local experience with firearms shaped attitudes toward guns. If a mass shooting characterizes the local experience with firearms, attitudes toward guns are expected to be negative. This will translate into preferences for gun control policies.

In summary, the main theory of this thesis is that audience desires shape newspaper coverage. The key hypotheses of this thesis suggest that audiences’ explicit preferences for guns in the form of NRA PAC donations and implicit preferences in the form of demographic characteristics may influence newspapers’ framing of guns and shootings. An additional theory is that prior experience with guns shapes people’s gun attitudes and that a newspaper’s level of importance assigned to guns and shootings will shape the amount of coverage it allocates. The corresponding hypothesis is that more gun coverage in a newspaper will correlate with use of gun control frames. These hypotheses are summarized in Table 1.

**Table 1: Summary of hypotheses**

<b>Hypothesis Number</b>	<b>Hypothesis</b>	<b>Expected Effect</b>
1	If NRA PAC donations increase:	↑ Gun Rights Frames ↓ Gun Control Frames
2	If the amount of people who are college-educated and the amount of people who live under the poverty line increases:	↑ Gun Control Frames

3	If the percentage of published wire articles increases:	↑ Gun Rights Frames
4	If the percentage of gun articles in the context of Sandy Hook increases:	↑ Gun Control Frames

## Methodology

The Sandy Hook Elementary School shooting took place on December 14, 2012 but was not the first mass shooting of the year. Two notable mass shootings occurred within the span of weeks earlier that summer. On July 20, 2012, twelve people were killed and many more were injured at a shooting during a midnight screening of *The Dark Knight Rises* at a movie theater in Aurora, Colorado (Frosch and Johnson 2012). About two weeks later, on August 5, 2012, six people were killed and three were injured at a Sikh temple in Oak Creek, Wisconsin (Goode and Kovaleski 2012). But, it was not until Sandy Hook that President Obama issued 23 executive orders on gun policy (Ungar 2013). In a speech after Sandy Hook, President Obama said that, “these tragedies must end” (Landler and Baker 2012), and lamented that the United States did not have stronger policies in place. Congress debated gun policy throughout early 2013, and in April the U.S. Senate voted against legislation that would have expanded background checks, banned assault weapons, and banned high-capacity gun magazines (Weisman 2013). Gun policy continues as a topic of national priority. President Obama renewed his call for gun policy change after the Washington Navy Yard shootings in September that killed 12 people (Jackson and Kennedy 2013).

This project focused on Sandy Hook because of its recency and saliency. Even though other mass shootings occurred during 2012, Sandy Hook was the most recent. Due to its recency, scholars had not examined it as closely as other shootings. Sandy Hook was also one of the most salient recent shootings. It provoked President Obama's 23 executive orders and a prolonged national conversation about gun policy.

This research used newspaper coverage instead of other media. Newspapers were chosen instead of blogs or online sources because of an interest in exploring the relationship between audience and news coverage. Audiences are more difficult to measure for blogs and online sources than they are for newspapers, since blogs and online sources are often directed toward a broader swath of people. Local newspapers, in contrast, are produced for a local audience. Newspapers were chosen instead of television news because a large amount of articles is easier to read and code than a large amount of television news clips. Variables other than just content may influence coding television clips. The person delivering the news or the length of attention given to an issue are some of the extra factors that may have made coding television clips more difficult.

The time period used was the 90-day period from December 14, 2012 until March 14, 2013. This period was selected because it includes breaking news coverage, coverage of the aftermath, and reporting on new events in the context of Sandy Hook.

The America's News database was selected for its diverse array of newspapers, thorough collection of archives, and ease of use. With the urban-rural divide in mind, it was important to use newspapers from both cities and rural areas. The America's News database provided this variety in a better way than comparable newspaper archive aggregation services.

America's News provided electronic archives for 3,213 newspapers within the United States, excluding college newspapers, news wire services, and national newspapers. This research excluded all newspapers that the NewsBank did not have archives for between December 14, 2012 and March 14, 2013, as well as non-English newspapers and non-daily newspapers. This left a list of 904 English daily newspapers. A random sample of 30 newspapers was taken from this list of 904 and used as the units of analysis. This list (Appendix A) included a variety of newspapers, ranging from *The Pratt Tribune* in Pratt, Kansas with a circulation of 2,139 to *The Denver Post* in Denver, Colorado with a circulation of 412,669.

A keyword search of "Sandy Hook" OR "Newtown" AND "gun" OR "guns" compiled newspaper data. This search ensured that each yielded article would mention the Sandy Hook shootings and would discuss guns or gun policy. The search yielded 1,017 articles across the 30 newspapers. Any article with the search terms was coded and analyzed. Articles included editorials, letters to the editor, news stories written by the newspaper's staff, and stories written by a wire service. Letters to the editor and stories written by a wire service were included in the study because a newspaper's selection of which letters and wire stories to publish was considered a form of framing.

One thousand and seventeen articles were coded for date published, date, publication name, author's name or authors' names, type of article (editorial, letter to the editor, news), and whether the article was from a wire service. Each article was also coded according to whether it used a gun control frame, a gun rights frame, or a neutral frame.

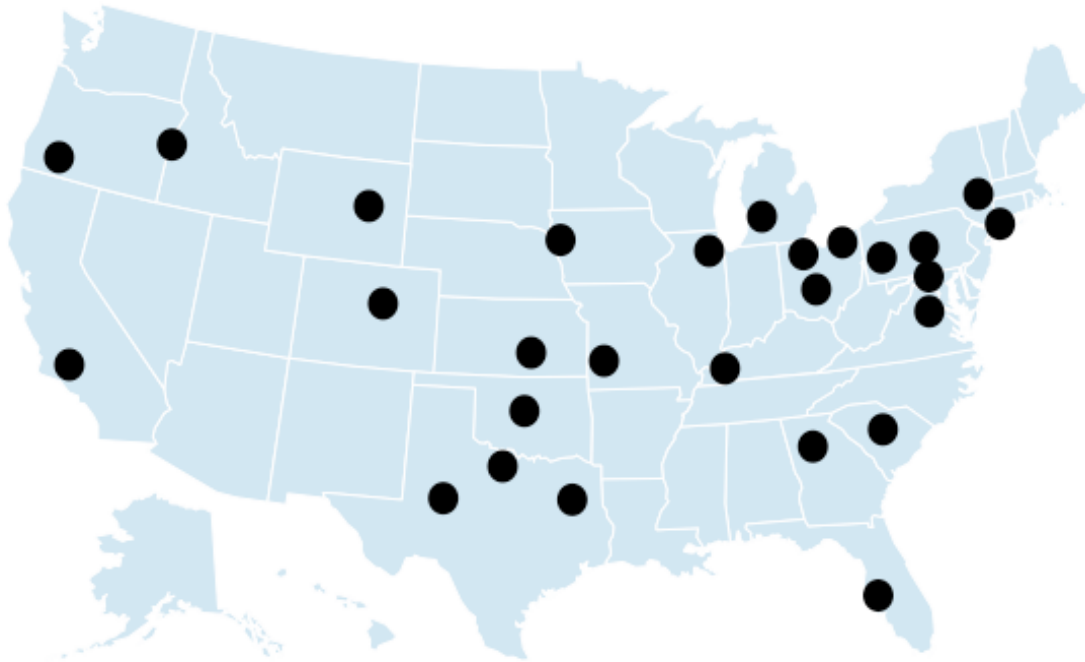
Coding was done according to the following criteria. Articles were coded with gun control if an editorial or letter to the editor called for stricter gun control laws or expressed a desire for reform to current gun laws; if an article focused on proposed policy changes to strengthen gun policy; or if an article discussed an event that mentioned gun use in the context of Sandy Hook, it was also coded as gun control. These articles were coded as gun control because they staged an occurrence, such as a person committing a crime with a gun, against the backdrop of Sandy Hook as a way to highlight that people were still using guns unsafely or in an unregulated way. Articles were coded with gun rights if an editorial or letter to the editor criticized gun control or argued for the importance of the Second Amendment; if an article focused on events dedicated to promoting guns, such as gun shows; or if an article focused on policymakers who criticized proposed policy changes to strengthen gun control policy. Articles that did not focus on these topics were coded as neutral. The percent of each newspaper's articles using a gun control frame, a gun rights frame, or a neutral frame was calculated. Additionally, America's NewsBank was used to find the total number of articles published, regardless of whether or not they mentioned guns and Sandy Hook, between December 14, 2012 and March 14, 2013 for each of the 30 newspapers (Appendix B).

In order to collect relevant NRA PAC donation information and demographic information, each of the 30 newspapers was matched with a corresponding Metropolitan Statistical Area (MSA) or Micropolitan Statistical Area ( $\mu$ SA). The United States Census Bureau defined MSAs and  $\mu$ SAs as geographic entities used by federal statistical agencies in collecting, tabulating and publishing federal statistics (United States Census Bureau) A metro area had a core urban area with a population of at least 50,000 people.

A micro area had a core urban area with a population between 10,000 and 50,000 people.

Figure 1 shows a map with the distribution of selected MSAs/ $\mu$ SAs, and Appendix B shows the wide distribution of populations in each newspaper's MSA/ $\mu$ SA.

**Figure 1: Distribution of MSAs/ $\mu$ SAs**



NRA PAC donation information was available by ZIP code. Once a list of ZIP codes was collected for each MSA and  $\mu$ SA, the Center for Responsive Politics' OpenSecrets.org was used to compile a list of NRA PAC donations. This project used large (\$200+) contributors to the NRA PAC from 2011 to 2012, leaving a list of 2,129 donations. Each donator's name, donation size, MSA or  $\mu$ SA, and donation date were recorded. From this information, two sets of NRA PAC data were created: NRA 1 and NRA 2. NRA 1 is the number of donations for every 10,000 people in each MSA/ $\mu$ SA and NRA 2 is the average donation size in each MSA/ $\mu$ SA.

Demographic information was also collected. Using the Social Explorer software, information was pulled on population, age, race, socioeconomic status, and average education attained from the American Community Survey 2007 – 2011 5-year estimates. Age was measured through percentage of children and percentage of elderly residents. Specifically, children referred to the percentage of people 17 and under, and elderly referred to the percentage of people 65 and older. Race was measured through percentage white and percentage African-American. Socioeconomic status was measured using the percentage of people with income in the past 12 months below the federal poverty line.<sup>3</sup> Education was measured through summing the percentage of people with at least some college education.

Two sets of multivariate regression equations were run using Stata software. The dependent variable for each set was percentage of gun frame use. Both sets' primary independent variables were NRA 1 or NRA 2. Regressions included other audience variables as the secondary independent variables. For the first regression set, the secondary independent variables were percentage elderly, percentage children, percentage white, percentage African-American, percentage under the poverty line, and percentage college-educated. An additional secondary independent variable used was the newspaper's relative gun coverage rate, defined by the number of articles that mentioned guns in the context of Sandy Hook divided by the total number of articles published between December 14, 2012 and March 14, 2013.

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<sup>3</sup> For more information on the federal poverty line:  
<https://www.federalregister.gov/articles/2013/01/24/2013-01422/annual-update-of-the-hhs-poverty-guidelines>



The regression model used for the first equation was:

$$y_1 \text{control/rights/neutral} = \beta_1 \text{NRA} + \beta_2 \text{gun coverage} + \beta_3 \text{pct child} + \beta_4 \text{pct elderly} + \beta_5 \text{pct under poverty line} + \beta_6 \text{pct college} + \beta_7 \text{pct white} + \beta_8 \text{pct African-American}$$

where control/rights/neutral = percentage of gun control/gun rights/neutral frames over total, NRA = NRA 1 or NRA 2, gun coverage = relative gun coverage rate, pct child = percentage children, pct elderly = percentage elderly, pct under poverty line = percentage income under the poverty level, pct college = percentage college-educated, pct white = percentage white, and pct African-American = percentage African-American.

The second set of regressions used percentage wire and percentage opinion as secondary independent variables.

The regression model used for the second set was:

$$y_2 \text{control/rights/neutral} = \beta_1 \text{NRA} + \beta_2 \text{pct wire} + \beta_3 \text{pct opinion}$$

where control/rights/neutral = percentage of gun control/gun rights/neutral frames over total, NRA = NRA 1 or NRA 2, pct wire = percentage wire, and pct opinion = percentage opinion.

The use of two regression models was important in order to break apart the relationship between audience variables and gun policy frames and the relationship between newspaper variables and gun policy frames.

## Results and Analysis

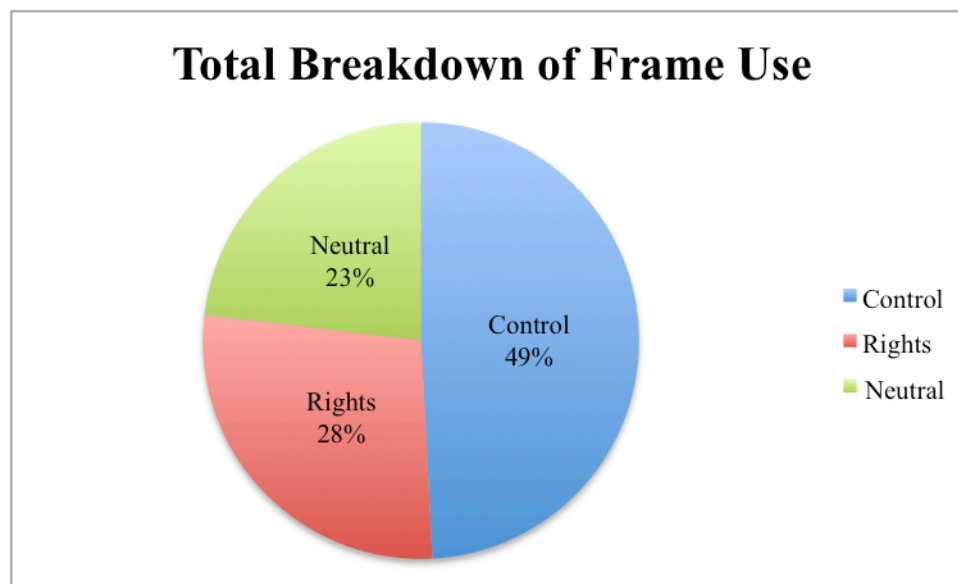
The average MSA/ $\mu$ SA had a population of 1,434,776 people, with a standard deviation of 2,058,182. The average MSA/ $\mu$ SA was more than three-quarters white and about 12 percent African-American. About 14 percent of those living in the average

MSA/ $\mu$ SA earned incomes below the federal poverty line. More than 56 percent of people in the average MSA/ $\mu$ SA had at least some college education. Almost a quarter were 17 years old or under, and about 13 percent were 65 years old or older. Specific averages and standard deviations for the 27 MSAs and  $\mu$ SAs<sup>4</sup> is in Appendix C, and specific demographic data by MSA/ $\mu$ SA is in Appendix D.

### Variation in gun frames

Of 1,107 articles, 49.16 percent were coded as gun control, 27.73 percent were coded as gun rights, and 23.12 percent were coded as neutral. This is shown in Figure 2.

**Figure 2: Breakdown of Frame Use Across 30 Newspapers**



The average newspaper published 37 percent of articles using gun control frames, 36 percent using gun rights frames, and 27 percent using neutral frames. Specific information about means and standard deviations is in Appendix E. Newspapers such as *The Greenwich Time*, *Grand Haven Tribune*, *The Herald-Mail*, and *The Denver Post* used predominantly gun control frames in their post-Sandy Hook gun coverage, and

<sup>4</sup> Three MSAs/ $\mu$ SAs each included two newspapers used by project.

newspapers such as *The Rockdale Citizen* and *The Argus Observer* used predominantly gun rights frames. For a more detailed breakdown of frame use by newspaper, refer to Appendix F.

### **Other newspaper statistics**

Other recorded newspaper statistics included percentage of wire articles, percentage of opinion articles, and the percentage of total articles that mentioned Sandy Hook or Newtown and guns in the 90 days after Sandy Hook. Specifically, percentage of opinion articles referred to the percentage of all articles published that were either letters to the editor or editorials.

About 18 percent of all gun articles published were wire articles, and the average newspaper's gun articles were composed of about 17 percent wire articles. There was wide variation in the degree to which newspapers published wire articles. Eighty percent of articles published by the *Big Spring Herald* and about 78 percent published by *The Sentinel-Tribune* were wire stories. In contrast, many newspapers did not use any wire stories in their coverage.

About 41 percent of all gun articles published were opinion articles, and the average newspaper's gun articles were composed of about 43 percent opinion articles. Similar to wire, a wide spread existed in the publication of opinion articles among the 30 newspapers. About 90 percent of articles in both the *Logan Daily News* and the *Daily American* were opinion. Some newspapers, including *The Express Star* and *The Frederick News-Post*, did not publish any opinion articles.

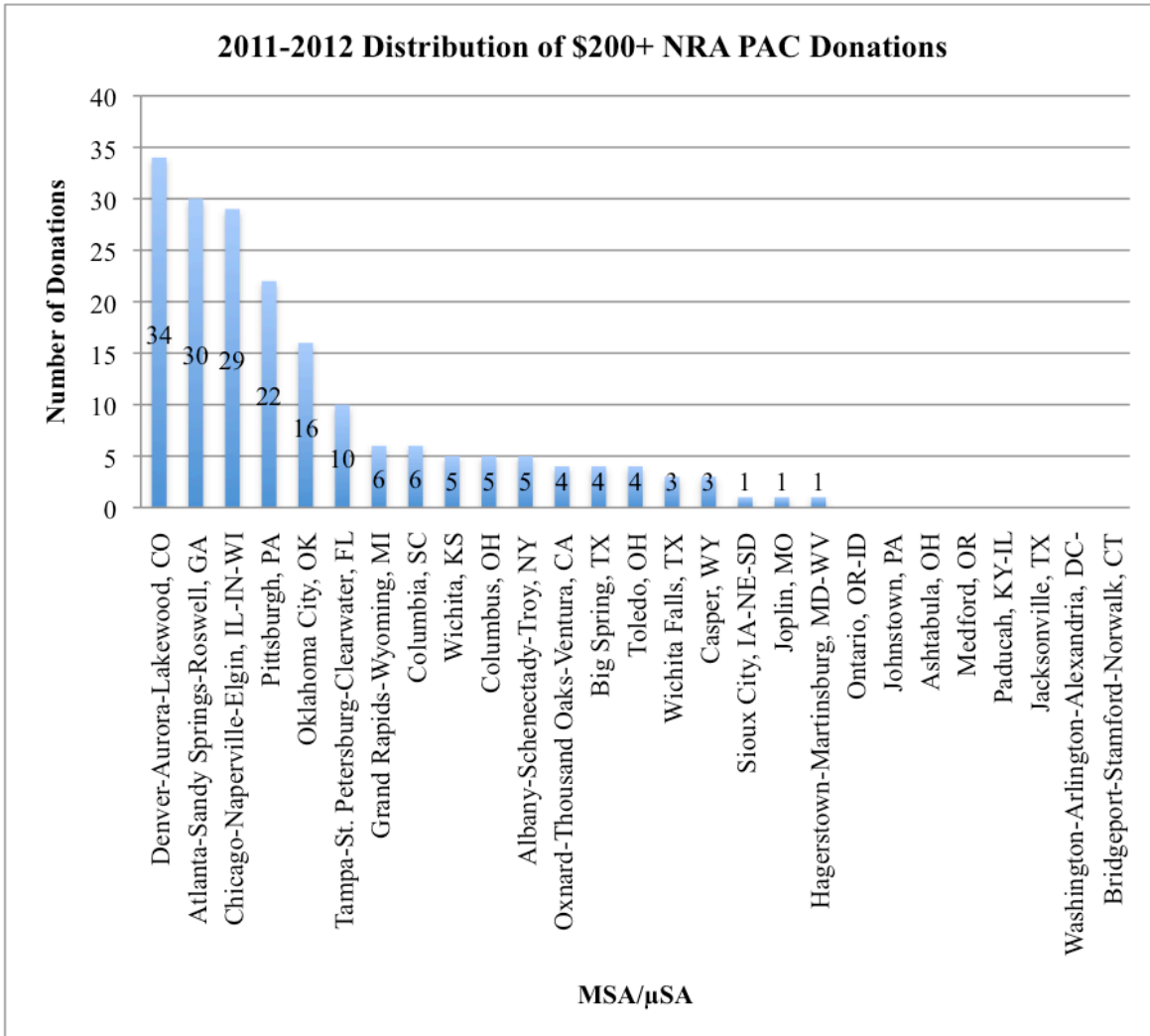
All newspapers did publish at least some articles about guns in the context of Sandy Hook, but there was variation in the amount. Articles that mentioned guns and

Sandy Hook composed on average about 1 percent of all content produced by the 30 newspapers from December 14, 2012 and March 14, 2013, and about 1.2 percent of the average newspaper's total articles. Gun articles composed 9.65 percent of *Greenwich Time's* total content, 2.27 percent of *The Record's* total content, and 1.86 percent of *The Sentinel-Tribune's* total content. On the other extreme, gun articles only composed about 0.29 percent of *Neosho Daily News's* total content and about 0.3 percent of *Sioux City Journal's* total content. More specific information about means and standard deviations is in Appendix G and information about the amount of wire, opinion, and gun articles published by each newspaper is in Appendix H.

### **Variation in NRA PAC statistics**

Two NRA PAC donation variables were recorded: number of donations per 10,000 people in an MSA/ $\mu$ SA (NRA 1) and the average donation size (NRA 2). There were 0.00001 average donations per every 10,000 people in an MSA/ $\mu$ SA, with a standard deviation of 0.000021. The average donation size was \$254.14, with a standard deviation of \$181.57. More information about NRA PAC statistics is in Appendix I. Eight MSAs/ $\mu$ SAs did not contain any residents who made large (\$200+) donations to the NRA PAC. Of the 19 others that did contain residents who made large donations, the number of donations per MSA/ $\mu$ SA ranged from one in three different MSAs/ $\mu$ SAs to 34 in the Denver-Aurora-Lakewood, Colorado. MSA. The average donation size ranged from \$200 in Hagerstown-Martinsburg, Maryland-West Virginia to \$706 in Tampa-St. Petersburg-Clearwater, Florida. A graph showing the distribution of donations among MSAs/ $\mu$ SAs is shown in Figure 3.

**Figure 3: Distribution of NRA PAC Donations among MSAs/μSAs, 2011-2012**



The number of donations was divided by each MSA/μSA’s population size to obtain donation density. Donation density reached as high as 0.012 percent per 10,000 people in Big Spring, TX. Specific information about NRA PAC donations, average donation sizes, and donation density is in Appendix J.

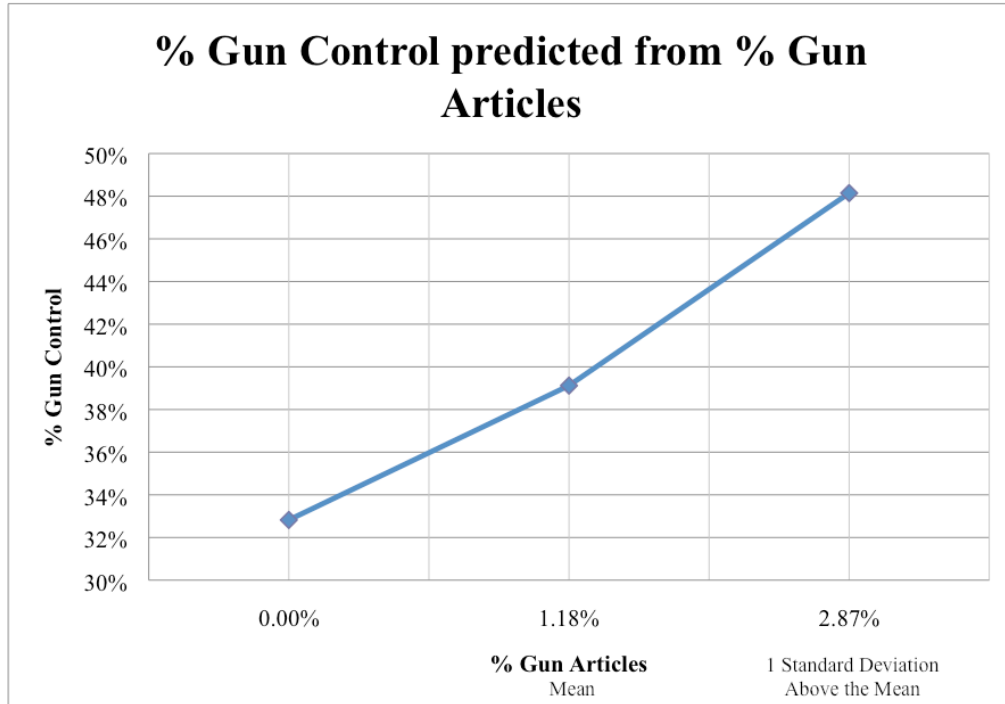
## Regression results

Only one coefficient was statistically significant: the relationship between gun control frames and the percentage of total articles mentioning guns in the context of Sandy Hook. This relationship was tested using both NRA 1 and NRA 2 as the primary independent variables, and in both instances the relationship was statistically significant. As Table 2 and Figure 4 show, there was a strong positive relationship between gun control frame use and percentage of total articles that mention guns in the context of Sandy Hook when NRA 1 was the primary independent variable. Figure 5 shows the 30 newspapers' percentage of total news mentioning guns in the context of Sandy Hook and corresponding percentage of gun control frame use. Figure 5 is not the relationship found from running the regression. The shown relationship differs because the regression includes other secondary independent variables that impacted the gun articles coefficient.

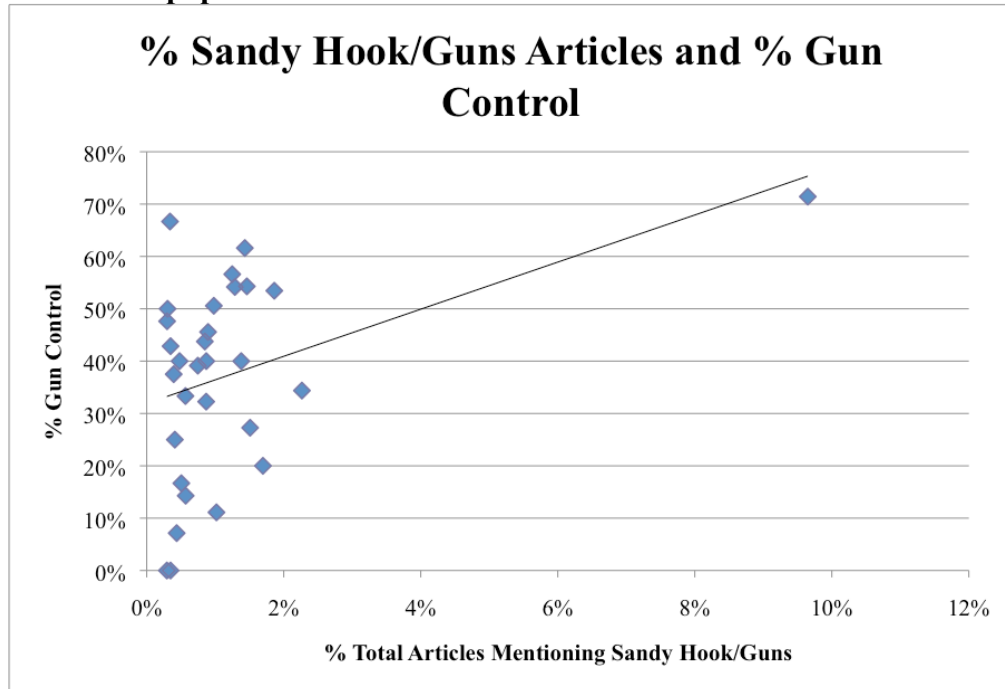
**Table 2: Regression Results using NRA 1, Control, and Rights Frames – First Equation**

Independent Variables	Control		Rights	
	$\beta$ (SE)	p-value	$\beta$ (SE)	p-value
<b>NRA 1</b>	-.18 (.23)	0.44	.12 (.24)	0.62
<b>Gun Articles</b>	5.34 (2.55)	0.05*	-3.05 (2.60)	0.25
<b>Children</b>	-2.25 (3.20)	0.49	-.30 (3.25)	0.93
<b>Elderly</b>	-2.91 (4.10)	0.49	-.19 (4.17)	0.97
<b>Poverty</b>	-.28 (1.53)	0.86	.98 (1.56)	0.54
<b>College</b>	-.93 (.84)	0.28	.32 (.86)	0.72
<b>White</b>	-.22 (.84)	0.80	-.71 (.86)	0.42
<b>African-American</b>	-.70 (.91)	0.46	-.54 (.93)	0.57

**Figure 4: Percent Gun Control Frame predicted from Percent Gun Articles**



**Figure 5: Gun Control Frame Use and Percent of Coverage Dedicated to Sandy Hook in 30 Newspapers**

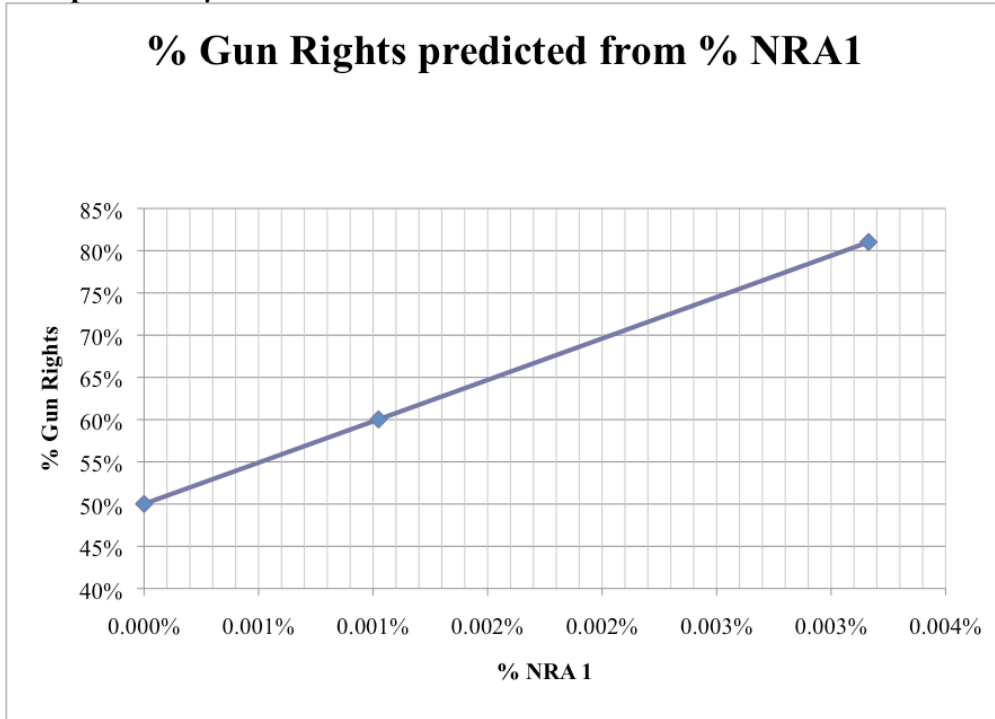


The coefficients in Table 2 depict relationships found between predictor variables and the percentage of articles using a gun control or a gun rights frame. For each additional percentage NRA PAC donations per 10,000 people, it is predicted that the percentage of articles using a gun control frame will decrease by .18 percentage points and the percentage using gun rights frames will increase by .12 percentage points. For each additional percentage of gun articles as a percentage of the total articles published, it is predicted that the percentage of articles using gun control frames will increase by 5.30 percentage points and the percentage using gun rights frames will decrease by 3.05 percentage points.

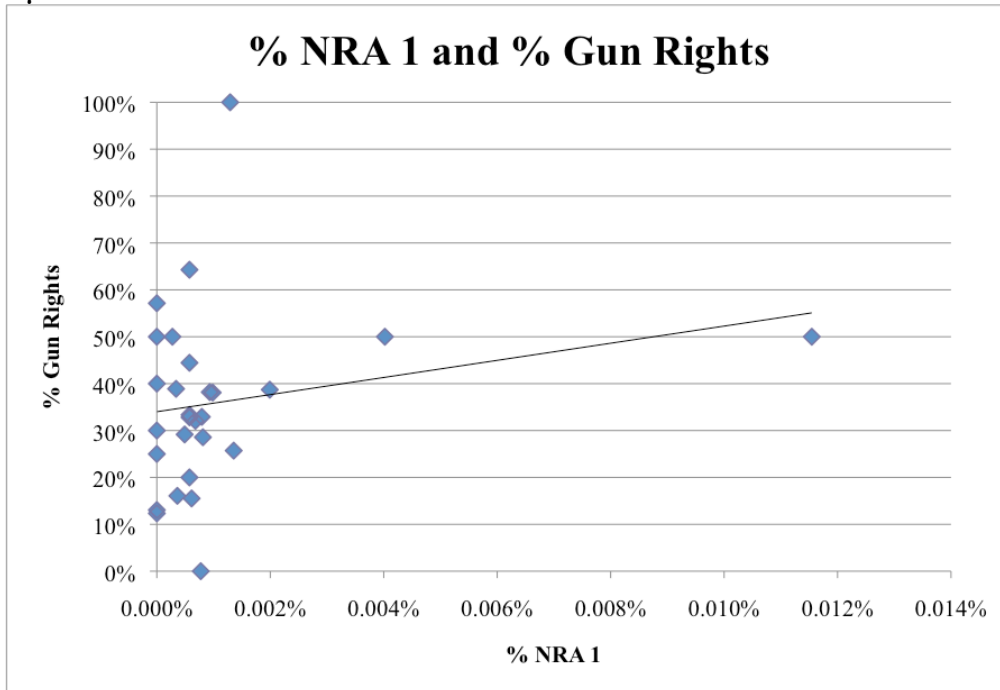
Other relationships were not statistically significant, but are still relevant to discuss. The relationship between NRA 1 and the use of gun rights frames was positive, and the relationship between NRA 1 and the use of gun control frames was negative. Unexpectedly, NRA 2 positively related with use of gun control frames, and negatively related with use of gun rights frames (Appendix M and N). Again, it is acknowledged that these relationships were not statistically significant. The relationship between NRA 1 and the use of gun rights frames found from the regression model is shown in Figure 6, and a graphical representation of the 30 MSA/ $\mu$ SA donation percentages and their corresponding percentage of gun rights frame use is shown in Figure 7. Like Figure 5, Figure 7 shows the relationship between these two variables alone, and is not depicting regression results.



**Figure 6: Percent Gun Rights Frame Use predicted from Percent NRA PAC donations per MSA/ $\mu$ SA**



**Figure 7: Gun Rights Frame Use and NRA PAC Donations per 10,000 People in 30 MSAs/ $\mu$ SAs**



There were negative relationships between percentage of children and use of gun control frames and between percentage of children and use of gun rights frames. A stronger negative relationship existed between percentage of elderly and use of gun control frames, and a weaker negative relationship existed between percentage of elderly and use of gun rights frames. There was a positive relationship between percentage of elderly and percentage of children with use of neutral frames (Appendix K).

Percentage of people with income levels lower than the poverty line positively related with use of gun rights frames. A relationship between percentage of people with income levels lower than the poverty line and use of control frames was difficult to characterize, as it was negative when NRA 1 was the primary independent variable and was positive when NRA 2 was the primary independent variable.

There was a weak negative relationship between percentage of the population with some college education and use of gun control frames, and a weak positive relationship between some college education and gun rights frames. A stronger positive relationship existed between some college education and use of neutral frames.

Two race variables were measured: percentage of the population that was white and percentage of the population that was African-American. Relationships between percentage of population that was African-American or white and frame use are difficult to characterize. When NRA 1 was the primary independent variable, there was a negative relationship between gun control frame use and percentage white. There was also a negative relationship between gun control frame use and percentage African-American. When NRA 2 was the primary independent variable, there was a positive relationship

between gun control frame use and percentage white, and a negative relationship between gun control frame use and percentage African-American.

*Wire and Opinion*

Percentage of articles that were wire and percentage of articles that were opinion (letter to the editor and editorial) positively related with gun control frame use and negatively related with gun rights frame use (Table 3).

**Table 3: Regression Results using NRA 1, Control, and Rights Frames – Second Equation**

Independent Variables	Control		Rights	
	$\beta$ (SE)	p-value	$\beta$ (SE)	p-value
<b>NRA 1</b>	-.12 (.19)	0.52	.29 (.19)	0.13
<b>Wire</b>	.14 (.17)	0.42	-.18 (.167)	0.30
<b>Opinion</b>	.10 (.13)	0.46	-.09 (.13)	0.49

Wire and opinion percentages were split regarding neutral frame use – when NRA 1 was the primary independent variable, there was a positive relationship between wire and neutral frames and a negative relationship between opinion and neutral frame use. When NRA 2 was the primary independent variable, there was a negative relationship between both wire and opinion with neutral frame use.

The predictor variables were related to frames in predicted directions for Hypotheses 1 and 4 and were not related in predicted directions for Hypotheses 2 and 3. It was predicted that a higher percentage of total articles mentioning guns in the context of Sandy Hook would be positively related with gun control frame use. It was also predicted that more NRA PAC donations per MSA/ $\mu$ SA would be positively related with higher gun rights frame use, and would be negatively related with gun control frame use.

**Table 4: Summary of Findings**

Hypothesis Number	Hypothesis	Expected Effect	Findings
1	When NRA PAC donations increases:	↑ Gun Rights Frames ↓ Gun Control Frames	↑ Gun Rights Frames ↓ Gun Control Frames
2	When the amount of people who are college-educated and the amount of people who live under the poverty line increases:	↑ Gun Control Frames	↑ Gun Rights Frames ↓ Gun Control Frames
3	When the percentage of published wire articles increases:	↑ Gun Rights Frames	↑ Gun Control Frames ↓ Gun Rights Frames
4	When the percentage of gun articles in the context of Sandy Hook increases:	↑ Gun Control Frames	↑ Gun Control Frames*

\* denotes statistical significance ( $p\text{-value} < 0.05$ )

## Limitations

There are a few limitations with this study’s design. The first limitation is the study’s small sample size. Due to time constraints for coding, only 30 newspapers were used, yielding 1,017 articles published in the 90 days after Sandy Hook. If it had been plausible to use a larger sample size, it is possible that there would be a more diverse array of newspapers and that the sample would be more representative of newspapers as a whole in the United States. The small size limited the study’s power, making it more difficult to detect an effect.

A second limitation is the lack of available information about gun ownership in the United States. This lack of information required the use of a proxy, and the best proxy

available was large (\$200+) donations to the NRA PAC. But, some MSAs/ μSAs did not contain anybody who made a large NRA PAC donation. People who make large donations to the NRA PAC compose a small percentage of those who support gun rights or of those who own guns in the United States.

A third limitation is the lack of clarity around measuring a newspaper's audience. Specific newspaper readership data is difficult to obtain, so MSAs/μSAs were used to capture the audience of a given newspaper. This, however, may not be very accurate. The population of the MSA/μSA is probably larger than the size of a newspaper's audience. This is clear when dividing each newspaper's circulation by each MSA/μSA population – circulation numbers represent as much as 39 percent of the MSA/μSA population for the *Sioux City Journal* in the Sioux City MSA and as little as .07 percent for the small circulation *Douglas County Sentinel* in the Atlanta MSA (all percentages listed in Appendix O). Also, there may be multiple newspapers in a given MSA/μSA, and residents in these areas probably pick one newspaper to read instead of reading all of them. However, it is possible that newspapers regard all residents in surrounding areas – whether that is measured through MSA/μSA, county or city – as potential readers and thus may adjust content to those people as a whole.

A fourth limitation is the use of percent wire articles as an illustration of the urban/rural divide on gun ownership. Although it was predicted that rural newspapers would publish higher percentages of wire articles, it was not always the case. The use of this variable may have been short sighted, as many more rural papers published opinion columns and letters to the editor that were not published from a wire service. As Appendix B shows, this project's sample included newspapers with wide variation in the

populations of their surrounding MSA/ $\mu$ SA. A potentially more effective proxy for capturing the urban/rural divide may be measuring the population density of each MSA/ $\mu$ SA. This would provide a spectrum of urban and rural areas; an area with a higher density is to be more urban, and an area with a lower density is expected to be more rural.

## Conclusions

This project's findings suggest that there is some relationship between audience preferences for guns and the way newspapers frame their coverage of guns and shootings. Although the regression coefficients were not statistically significant, there were relationships showing that as the density of NRA PAC donations in a given audience increases, newspapers are expected to use more gun rights frames in their coverage. This supports the audience gun preferences hypothesis. While it is challenging to argue that this finding is a *strong* example of the idea that economic forces influence newspaper presentation of content due to the lack of statistical significance, this finding is an example nevertheless. It could mean that audience expressed preferences for guns impacts the way newspapers cover guns, implying that audiences exert influence over how newspapers cover issues that audiences feel passionate about. This makes economic sense; an audience expressing preferences for a certain policy is an expression of demand, and it is logical for newspapers to provide a supply of information that fits within the constraints of audience demand, especially if doing so could maximize profit.

One might be worried about questions of reverse causality regarding this first conclusion. But, these worries should be abated given that of the 2,129 \$200+ NRA PAC donations between 2011 and 2012, only two were made after the Sandy Hook shooting.

This means that the gun preferences of an area along this variable were already in place prior to the shooting, so could not have been influenced by newspaper coverage.

The strongest finding of this thesis was a positive and statistically significant relationship between the percentage of total articles published by a newspaper that mentioned guns in the context of Sandy Hook and use of gun control frames. The main conclusion from this finding is that a newspaper publishing a greater portion of gun articles probably assigns a higher level of importance to shootings than a newspaper publishing a smaller portion of gun articles. Perhaps the reason for a newspaper assigning importance to shootings is that a recent shooting took place within close proximity of the newspaper or there is a history of shootings in the surrounding area. This implies that it is perhaps audience does not matter in influencing how newspaper coverage is framed as much as the context in which coverage is produced. This context could be a shared history with shootings or guns. If this is true, then coverage may vary slightly in relation to audience preferences, but may vary more so in relation to events that may or may not have impacted the audience. The idea of a shared history shaping viewpoints reminds us of Almond and Verba's work on political socialization. People's political views are shaped by the political orientation of the culture they are socialized in: "People are inducted into [their political culture] just as they are socialized into nonpolitical roles and social systems" (Almond and Verba 1963, p. 13). More specifically, Almond and Verba wrote that parents and schools are the institutions that have the most influence in how a child is socialized (p. 274). Perhaps audiences are socialized into their gun views through their parents' gun views or through a shared shooting history, and those relative salencies are reflected by newspaper attention given to guns and shootings.

Interestingly, strong relationships between audience demographic information and newspaper use of frames were difficult to find. There was no discernible relationship between the way newspapers covered guns and the percentage of newspapers' audiences that were African-American, white, elderly, or children. Relationships were found between the way newspapers covered guns and the percentage of newspapers' audiences that were college-educated and the percentage earning incomes below the federal poverty line. But, the relationships were not as predicted; the regressions found positive, albeit statistically insignificant, relationships between gun rights and percentage college-educated and between gun rights and percentage under the poverty line. A possible reason for this incongruence could be the study's small sample size. It is possible that adding more combinations of newspapers and MSAs/ $\mu$ SAs may allow for the predicted relationship to appear. Though, it is also possible that the relationships between demographic information and preferences for guns are not as strong as the literature suggests, and that correlation in this case does not imply causation. For example, even though there may be a relationship between lower rates of gun ownership and higher rates of college education, this relationship may not mean that something about being college educated means that one will not own a gun. Instead, there is merely a correlation between these demographic qualities of a population and gun ownership. Additionally, a newspaper is far less likely to see more elderly people in a population as an expression of demand for news coverage with gun rights frames than it is to see more donors to the NRA or more gun ownership as an expression of demand for news coverage with gun rights frames.



There were positive relationships between use of gun control frames and the percentage of articles that were wire and opinion. These relationships did not fit the hypothesis that more wire publication would be positively related with gun rights frames and negatively related with gun control frames. One reason for why these findings do not align with the hypotheses is that the variable percentage wire may not have successfully captured the urban/rural divide. A closer examination of the sample yields the conclusion that a higher percentage wire was not always reflective of a newspaper being in a rural area. Thus, it could have been an arbitrary measure and it could be difficult to predict any substantive relationship between percentage wire and higher use of gun rights frames. Again, population density may have been a more successful proxy for the urban/rural divide.

## **Policy Recommendations**

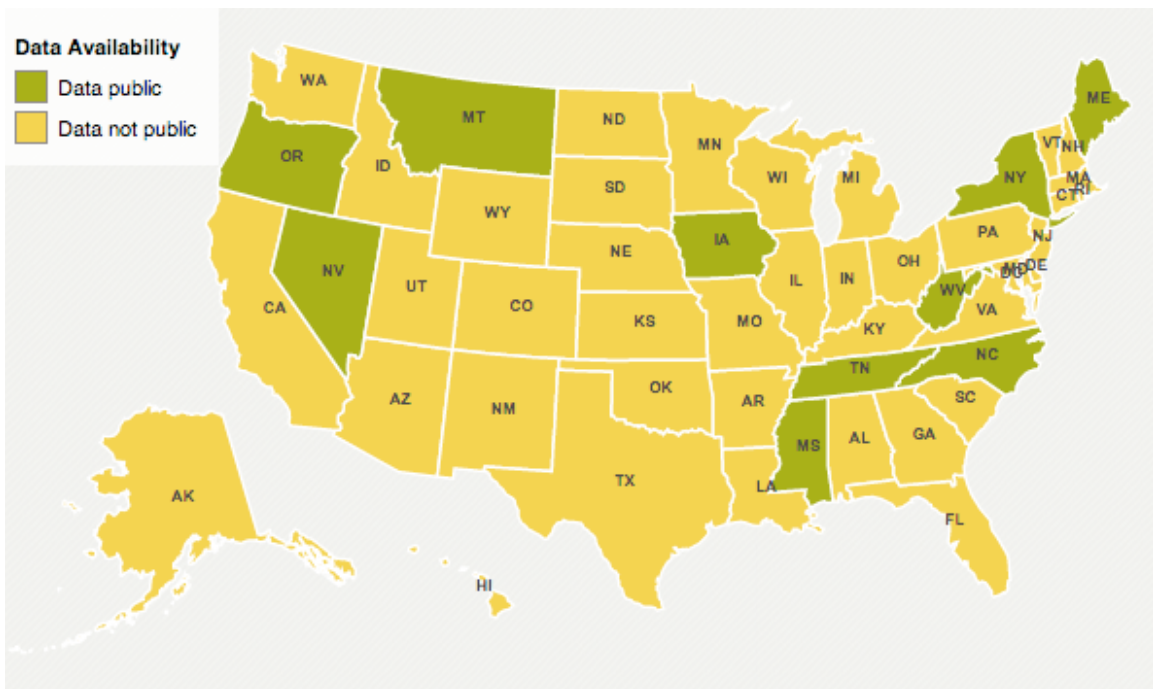
There is a potential problem if gun frames in newspaper coverage correspond to the views of newspapers' audiences. Instead of informing readers about the gun policy landscape, newspaper coverage may be confirming audience preferences. If this is true, there needs to be a source providing factual information about shootings and guns that is not driven by a policy agenda. The government could provide this information, but it is likely that any information from President Obama's administration either would promote gun control or would be perceived to do so. It is possible that a non-profit organization may be more trusted and would be better equipped to provide this information in an unbiased manner. Otherwise, media sources that have less defined audiences than local newspapers may more reliably provide objective coverage on guns and shootings. One

such source could be the non-profit public interest news website ProPublica. This policy recommendation is grounded in the ideal of objectivity in journalism, which by the 1960s, was an “emblem” of American journalism (Schudson 1978, p. 9). But, Schudson noted that objectivity is a peculiar demand given that news organizations are business corporations *and* political organs (p. 3). The American standard of objectivity in the media is not replicated throughout the world; German newspapers, for example, are open with their ideological affiliations (Norris 2000). Additionally, it may be impossible to produce objective news. In one experiment, after exposure to the same data, proponents and opponents of capital punishment felt more strongly about their side on the death penalty debate (Lord et al 1979). This implies that while objective news may be an ideal, reporters’ or editors’ biases may interfere when interpreting events or data.

Another problem is that people may be unaware of their area’s gun preferences. When audiences are unaware of others’ preferences, they may treat their local newspaper as unbiased information. It is unlikely to expect citizens to search the donation records of those living near them. Additionally, available donation records only provide limited information. Instead, state governments should require gun registration and make information about the number of guns owned public information. Few states require gun registration; in fact, only five states and the District of Columbia legally require some type of registration (Law Center to Prevent Gun Violence 2012). A breakdown of gun registration laws by state is in Appendix P. Gun registration laws are generally managed by states, but some states allow counties to create more restrictive laws. North Carolina, for example, does not have any state gun registration laws, but Durham County operates its own handgun registry (Binker 2012). Citizens have little way of knowing the

magnitude of gun ownership in their community or in their state, and that stems from their states most likely not having any gun registration laws. At the very least, states should know how many guns are owned and make that information public. This may be politically difficult to legislate in some states; for example, it is a felony in Florida to create or maintain a registry of legally owned firearms or law-abiding firearm owners (The Florida Senate 2013). Some states, though, do maintain publicly available records of other gun information. In some states, like Oregon and Tennessee, records of residents who hold carry permits are publicly available (Sibley and MacNeal 2013). A map of states with policies that provide publicly available records of who holds carry permits is in Figure 8. Most of these states' publicly available records are for concealed carry permits specifically.

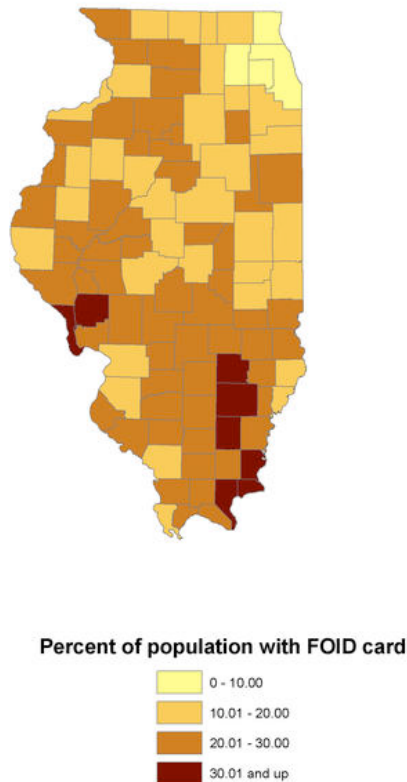
**Figure 8: Status of Gun Permit Data by State<sup>5</sup>**



<sup>5</sup> Image created by the Sunlight Foundation

Another example is Illinois, which released the number of Firearm Owner’s Identification (FOID) cards to a local newspaper, which subsequently created a map (Figure 9) showing the percent of the population in each county with an FOID card (Kasich 2013). Illinois cannot release the names of who holds FOID cards to the public, but can release statistical information like how many FOID cards are held in a given county. If a map of this nature was available in every state, citizens could at the very least be aware of the biases that their local newspaper may possibly hold.

**Figure 9: Percent of the Population by County in Illinois with an FOID Card, 2010<sup>6</sup>**



## Further Research

Given the finding that more attention to Sandy Hook correlated with gun control frame use, an additional research question to consider could be: How did newspaper

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<sup>6</sup> Image created by The News-Gazette

coverage of gun control and gun rights in the 90 days after the Sandy Hook shooting vary with newspaper proximity to a mass shooting? The finding of a statistically significant positive relationship between gun control frames and the percentage of total articles mentioning guns in the context of Sandy Hook suggests that proximity could be an important variable. Also, three of the five newspapers with the greatest percentage of gun coverage were *The Greenwich Time*, *The Record* and *The Denver Post* – all newspapers within 150 miles of a recent mass shooting.

Another area for further research could be about audiences awareness of gun preferences held in their areas. In order to strengthen the second policy recommendation's credibility, it may be interesting to examine audience awareness of the gun preferences held in their area across states that have publicly available gun information and states that do not. If information is positively related with awareness of area gun preferences, the second policy recommendation may have more standing.

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## Appendices

### Appendix A: Sample of 30 Newspapers used in Analysis

Newspaper	MSA/ $\mu$ SA	Circulation
Tampa Bay Times	Tampa-St. Petersburg-Clearwater, FL	334,742
The Herald-Mail	Hagerstown-Martinsburg, MD-WV	34,079
The Argus Observer	Ontario, OR-ID	6,734
Grand Haven Tribune	Grand Rapids-Wyoming, MI	9,735
The State	Columbia, SC	117,595
The Sentinel-Tribune	Toledo, OH	118,000
Wichita Falls Times Record	Wichita Falls, TX	31,629
Neosho Daily News	Joplin, MO	3,500
Valley News Dispatch	Pittsburgh, PA	29,251
Star Beacon	Ashtabula, OH	18,747
Mail Tribune	Medford, OR	30,278
The Record	Albany-Schenectady-Troy, NY	17,461
Herald-Standard	Johnstown, PA	22,924
Sioux City Journal	Sioux City, IA-NE-SD	39,517
Big Spring Herald	Big Spring, TX	4,337
The Daily Tribune News	Atlanta-Sandy Springs-Roswell, GA	7,254
The Pratt Tribune	Wichita, KS	2,139
The Daily American	Paducah, KY-IL	3,510
Jacksonville Daily Progress	Jacksonville, TX	4,170
The Herald News	Chicago-Naperville-Elgin, IL-IN-WI	40,554
The Rockdale Citizen	Atlanta-Sandy Springs-Roswell, GA	16,210
Star-Tribune	Casper, WY	27,989
The Denver Post	Denver-Aurora-Lakewood, CO	412,669
The Daily Gazette	Albany-Schenectady-Troy, NY	61,293
The Signal	Oxnard-Thousand Oaks-Ventura, CA	12,514
The Logan Daily News	Columbus, OH	4,500
The Frederick News-Post	Washington-Arlington-Alexandria, DC-VA-MD-WV	40,209

Douglas County Sentinel	Atlanta-Sandy Springs-Roswell, GA	3,666
The Express Star	Oklahoma City, OK	5,279
The Greenwich Time	Bridgeport-Stamford-Norwalk, CT	11,672

**Appendix B: Gun Article Count and MSA/ $\mu$ SA Population by Newspaper**

<b>Newspaper</b>	<b>Gun Article Count</b>	<b>Total Article Count</b>	<b>MSA/<math>\mu</math>SA Population</b>
Tampa Bay Times	112	7,817	2,770,114
The Herald-Mail	53	4,247	147,118
The Argus Observer	7	2,011	31,280
Grand Haven Tribune	3	882	774,664
The State	79	8,820	756,550
The Sentinel-Tribune	58	3,114	652,484
Wichita Falls Times Record	31	3,571	150,687
Neosho Daily News	5	1,697	174,214
Valley News Dispatch	55	3,645	2,357,769
Star Beacon	8	2,031	101,676
Mail Tribune	15	884	202,178
The Record	64	2,825	868,231
Herald-Standard	23	3,083	144,489
Sioux City Journal	21	7,048	101,566
Big Spring Herald	20	1,450	34,645
The Daily Tribune News	9	884	5,213,854
The Pratt Tribune	7	1,230	615,802
The Daily American	10	2,086	83,189
Jacksonville Daily Progress	2	657	50,427
The Herald News	18	3,182	8,554,037
The Rockdale Citizen	14	3,199	5,213,854
Star-Tribune	4	974	74,625
The Denver Post	105	7,182	2,509,230
The Daily Gazette	87	8,880	868,231
The Signal	24	1,865	815,745
The Logan Daily News	16	1,885	1,819,568
The Frederick News-Post	6	1,188	593,955
Douglas County Sentinel	5	575	5,213,854
The Express Star	2	575	1,238,050
The Greenwich Time	154	1,596	911,196

**Appendix C: Means and Standard Deviations of MSA/ $\mu$ SA Demographic Information**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>
Children	23.99%	2.38%
Elderly	13.17%	2.66%
Poverty	14.34%	3.49%
College Educated	56.07%	8.27%
White	78.00%	13.23%
African-American	12.28%	12.23%

**Appendix D: Newspapers and Demographic Information**

<b>Newspaper</b>	<b>Children</b>	<b>Elderly</b>	<b>White</b>	<b>African-American</b>	<b>Poverty</b>	<b>College</b>
Tampa Bay Times	21.3%	17.2%	80.7%	11.7%	13.9%	56.4%
The Herald-Mail	22.9%	14.2%	85.6%	10.0%	11.2%	47.1%
The Argus Observer	25.7%	14.9%	81.2%	1.4%	22.7%	49.2%
Grand Haven Tribune	26.1%	11.5%	84.2%	8.0%	14.7%	58.4%
The State	23.8%	11.4%	61.6%	33.2%	14.6%	60.4%
The Sentinel-Tribune	23.6%	13.4%	81.0%	13.4%	17.1%	54.9%
Wichita Falls Times Record	23.3%	13.4%	82.6%	9.4%	13.6%	49.9%
Neosho Daily News	25.8%	13.8%	91.2%	1.6%	17.7%	50.2%
Valley News Dispatch	20.3%	17.2%	88.0%	8.2%	11.9%	54.3%
Star Beacon	23.8%	15.6%	93.3%	3.6%	17.2%	39.1%
Mail Tribune	22.2%	17.4%	92.0%	0.6%	15.8%	60.3%
The Record	21.7%	14.0%	85.4%	7.5%	10.8%	61.8%
Herald-Standard	19.8%	18.8%	94.2%	3.6%	14.2%	40.2%
Sioux City Journal	26.6%	12.9%	83.4%	2.5%	15.1%	51.4%
Big Spring Herald	22.7%	13.4%	72.2%	5.5%	19.7%	44.0%
The Daily Tribune News	26.7%	8.8%	56.6%	32.2%	13.5%	62.0%

The Pratt Tribune	27.1%	12.0%	80.6%	7.3%	13.1%	60.1%
The Daily American	22.4%	16.8%	88.0%	8.1%	14.5%	51.9%
Jacksonville Daily Progress	25.9%	14.7%	80.9%	15.6%	22.3%	37.8%
The Herald News	25.3%	11.2%	64.8%	17.5%	12.6%	61.8%
The Rockdale Citizen	26.7%	8.8%	56.6%	32.2%	13.5%	62.0%
Star-Tribune	24.2%	12.5%	93.9%	0.8%	8.4%	61.6%
The Denver Post	25.0%	9.9%	81.0%	5.6%	11.9%	67.4%
The Daily Gazette	21.7%	14.0%	85.4%	7.5%	10.8%	61.8%
The Signal	26.1%	11.5%	70.9%	1.8%	9.9%	63.1%
The Logan Daily News	24.9%	10.5%	78.4%	14.7%	14.5%	60.5%
The Frederick News-Post	17.4%	11.4%	38.9%	51.9%	18.2%	67.6%
Douglas County Sentinel	26.7%	8.8%	56.6%	32.2%	13.5%	62.0%
The Express Star	25.0%	11.7%	74.1%	10.1%	14.9%	59.7%
The Greenwich Time	25.0%	13.5%	76.6%	10.7%	8.3%	65.1%

#### Appendix E: Frame Use Means and Standard Deviations

Frame	Mean	Standard Deviation
Gun Control	37.22%	18.91%
Gun Rights	35.88%	19.08%
Neutral	26.90%	17.49%

#### Appendix F: Frame Use by Newspaper

Newspaper	Gun Control Frame	Gun Rights Frame	Neutral Frame
Tampa Bay Times	61.61%	16.07%	22.32%
The Herald-Mail	56.60%	32.08%	11.32%
The Argus Observer	42.86%	57.14%	0
Grand Haven Tribune	66.67%	0	33.33%

The State	45.57%	32.91%	21.52%
The Sentinel-Tribune	53.45%	15.52%	31.03%
Wichita Falls Times Record	32.26%	38.71%	29.03%
Neosho Daily News	0	20.00%	80.00%
Valley News Dispatch	27.27%	38.18%	34.55%
Star Beacon	37.50%	25.00%	37.50%
Mail Tribune	20.00%	40.00%	40.00%
The Record	34.38%	32.81%	32.81%
Herald-Standard	39.13%	13.04%	47.83%
Sioux City Journal	47.62%	38.10%	14.29%
Big Spring Herald	40.00%	50.00%	10.00%
The Daily Tribune News	11.11%	44.44%	44.44%
The Pratt Tribune	14.29%	28.57%	57.14%
The Daily American	40.00%	30.00%	30.00%
Jacksonville Daily Progress	50.00%	50.00%	0
The Herald News	33.33%	38.89%	27.78%
The Rockdale Citizen	7.14%	64.29%	28.57%
Star-Tribune	25.00%	50.00%	25.00%
The Denver Post	54.29%	25.71%	20.00%
The Daily Gazette	50.57%	33.33%	16.09%
The Signal	54.17%	29.17%	16.67%
The Logan Daily News	43.75%	50.00%	6.25%
The Frederick News-Post	16.67%	50.00%	33.33%
Douglas County Sentinel	40.00%	20.00%	40.00%
The Express Star	0	100.00%	0
The Greenwich Time	71.43%	12.34%	16.23%

**Appendix G: Other Newspaper Statistics Means and Standard Deviations**

Variable	Mean	Standard Deviation
Wire	16.63%	24.00%
Opinion	43.28%	28.66%
Sandy Hook/Newtown Gun Articles	1.18%	1.69%

**Appendix H: Other Newspaper Statistics by Newspaper**

<b>Newspaper</b>	<b>Percentage Wire</b>	<b>Percentage Opinion</b>	<b>Percentage Gun Articles</b>
Tampa Bay Times	2.68%	45.54%	1.43%
The Herald-Mail	11.32%	58.49%	1.25%
The Argus Observer	0	42.86%	0.35%
Grand Haven Tribune	0	66.67%	0.34%
The State	50.63%	39.24%	0.90%
The Sentinel-Tribune	77.59%	6.90%	1.86%
Wichita Falls Times Record	38.71%	38.71%	0.87%
Neosho Daily News	20.00%	80.00%	0.29%
Valley News Dispatch	14.55%	34.55%	1.51%
Star Beacon	37.50%	0	0.39%
Mail Tribune	0	13.33%	1.70%
The Record	3.13%	26.56%	2.27%
Herald-Standard	13.04%	65.22%	0.75%
Sioux City Journal	0	33.33%	0.30%
Big Spring Herald	80.00%	85.00%	1.38%
The Daily Tribune News	0	55.56%	1.02%
The Pratt Tribune	28.57%	14.29%	0.57%
The Daily American	10.00%	90.00%	0.48%
Jacksonville Daily Progress	0.00%	50.00%	0.30%
The Herald News	0	72.22%	0.57%
The Rockdale Citizen	0	78.57%	0.44%
Star-Tribune	0	0	0.41%
The Denver Post	4.76%	41.90%	1.46%
The Daily Gazette	17.24%	51.72%	0.98%
The Signal	12.50%	66.67%	1.29%
The Logan Daily News	68.75%	93.75%	0.85%
The Frederick News-Post	0	0	0.51%
Douglas County Sentinel	0	20.00%	0.87%
The Express Star	0	0	0.35%
The Greenwich Time	7.79%	27.27%	9.65%

**Appendix I: NRA PAC Donations Means and Standard Deviations**

<b>Variable</b>	<b>Mean</b>	<b>Standard Deviation</b>
NRA 1	0.001%	0.0021%
NRA 2	\$254.14	\$181.57

**Appendix J: NRA PAC Donation Information by MSA/μSA**

<b>MSA/μSA</b>	<b>Donations</b>	<b>Population</b>	<b>Donations per 10,000 people (NRA 1)</b>	<b>Average Donation Size (NRA 2)</b>
Tampa-St. Petersburg-Clearwater, FL	10	2,770,114	0.00036%	\$706
Hagerstown-Martinsburg, MD-WV	1	147,118	0.00068%	\$200
Ontario, OR-ID	0	31,280	0	\$0
Grand Rapids-Wyoming, MI	6	774,664	0.00077%	\$475
Columbia, SC	6	756,550	0.00079%	\$292
Toledo, OH	4	652,484	0.00061%	\$263
Wichita Falls, TX	3	150,687	0.002%	\$250
Joplin, MO	1	174,214	0.00057%	\$250
Pittsburgh, PA	22	2,357,769	0.00093%	\$482
Ashtabula, OH	0	101,676	0	\$0
Medford, OR	0	202,178	0	\$0
Albany-Schenectady-Troy, NY	5	868,231	0.00058%	\$300
Johnstown, PA	0	144,489	0	\$0
Sioux City, IA-NE-SD	1	101,566	0.00098%	\$250
Big Spring, TX	4	34,645	0.012%	\$300
Atlanta-Sandy Springs-Roswell, GA	30	5,213,854	0.00058%	\$383
Wichita, KS	5	615,802	0.00081%	\$300
Paducah, KY-IL	0	83,189	0	\$0
Jacksonville, TX	0	50,427	0	\$0
Chicago-Naperville-Elgin, IL-IN-WI	29	8,554,037	0.00034%	\$343

Casper, WY	3	74,625	0.00058%	\$350
Denver-Aurora-Lakewood, CO	34	2,509,230	0.00402%	\$472
Oxnard-Thousand Oaks-Ventura, CA	4	815,745	0.0014%	\$300
Columbus, OH	5	1,819,568	0.00058%	\$299
Washington-Arlington-Alexandria, DC-VA-MD-WV	0	593,955	0.00049%	\$0
Oklahoma City, OK	16	1,238,050	0.00027%	\$314
Bridgeport-Stamford-Norwalk, CT	0	911,196	0	\$0

**Appendix K: Regression Results using NRA 1 and Neutral Frames – First Equation**

Independent Variables	Neutral	
	$\beta$ (SE)	p-value
<b>NRA 1</b>	0.07 (0.23)	0.78
<b>Gun Articles</b>	-2.29 (2.51)	0.37
<b>Children</b>	2.55 (3.15)	0.43
<b>Elderly</b>	3.10 (4.03)	0.45
<b>Poverty</b>	-0.71 (1.51)	0.64
<b>College</b>	0.61 (0.82)	0.46
<b>White</b>	0.92 (0.83)	0.28
<b>African-American</b>	1.23 (0.90)	0.18



**Appendix L: Regression Results using NRA 1 and Neutral Frames – Second Equation**

Independent Variables	Neutral	
	$\beta$ (SE)	p-value
<b>NRA 1</b>	-0.17 (0.18)	0.36
<b>Wire</b>	0.04 (0.16)	0.81
<b>Opinion</b>	-0.01 (0.12)	0.94

**Appendix M: Regression Results using NRA 2, Control, and Rights Frames – First Equation**

	Control	Control	Rights	Rights	Neutral	Neutral
	$\beta$ (SE)	p-value	$\beta$ (SE)	p-value	$\beta$ (SE)	p-value
<b>NRA 2</b>	.00025 (.00024)	0.31	-.00024 (.00025)	0.34	-0.000017 (.00024)	0.95
<b>Gun Articles</b>	5.99 (2.67)	0.04	-3.76 (2.70)	0.18	-2.23 (2.66)	0.41
<b>Children</b>	-0.92 (2.62)	0.73	-1.13 (2.65)	0.68	2.09 (2.61)	0.44
<b>Elderly</b>	-0.94 (3.45)	0.79	-1.53 (3.49)	0.67	2.47 (3.44)	0.48
<b>Poverty</b>	0.16 (1.59)	0.92	0.55 (1.61)	0.73	-0.71 (1.59)	0.66
<b>College</b>	-0.73 (0.74)	0.34	0.22 (0.75)	0.77	0.51 (0.73)	0.50
<b>White</b>	0.06 (0.78)	0.94	-0.90 (0.79)	0.27	0.83 (0.77)	0.29
<b>African-American</b>	-0.19 (0.73)	0.79	-0.88 (0.73)	0.25	1.07 (0.72)	0.15

**Appendix N: Regression Results using NRA 2, Control, Rights, and Neutral Frames – Second Equation**

	Control	Control	Rights	Rights	Neutral	Neutral
	$\beta$ (SE)	p-value	$\beta$ (SE)	p-value	$\beta$ (SE)	p-value
<b>NRA 2</b>	0.000018 (0.00020)	0.93	-0.000067 (0.00021)	0.75	0.000049 (0.00019)	0.80
<b>Wire</b>	0.09 (0.15)	0.57	-0.06 (0.16)	0.69	-0.03 (0.12)	0.86
<b>Opinion</b>	0.09 (0.13)	0.51	-0.06 (0.13)	0.64	-0.02 (0.12)	0.85

**Appendix O: Circulation Number as a Percent of MSA/μSA by Newspaper**

<b>Newspaper</b>	<b>Circulation as Percent of MSA/ μSA</b>
Tampa Bay Times	12.08%
The Herald-Mail	23.16%
The Argus Observer	21.53%
Grand Haven Tribune	1.26%
The State	15.54%
The Sentinel-Tribune	18.08%
Wichita Falls Times Record	20.99%
Neosho Daily News	2.01%
Valley News Dispatch	1.24%
Star Beacon	18.44%
Mail Tribune	14.98%
The Record	2.01%
Herald-Standard	15.87%
Sioux City Journal	38.91%
Big Spring Herald	12.52%
The Daily Tribune News	0.14%
The Pratt Tribune	0.35%
The Daily American	4.22%
Jacksonville Daily Progress	8.27%
The Herald News	0.47%
The Rockdale Citizen	0.31%
Star-Tribune	37.51%
The Denver Post	16.45%
The Daily Gazette	7.06%
The Signal	1.53%
The Logan Daily News	0.25%
The Frederick News-Post	6.77%
Douglas County Sentinel	0.07%
The Express Star	0.43%
The Greenwich Time	1.28%

**Appendix P: Gun Registration Laws by State**

<b>States with some type of Registration Laws</b>	<b>States without any Registration Laws</b>	
California	Alabama	Nevada
Connecticut	Alaska	New Hampshire
District of Columbia*	Arizona	New Jersey
Hawaii*	Arkansas	New Mexico
Maryland	Colorado	North Carolina
New York	Delaware	North Dakota
	Florida	Ohio
	Georgia	Oklahoma

	Idaho	Oregon
	Illinois	Pennsylvania
	Indiana	Rhode Island
	Iowa	South Carolina
	Kansas	South Dakota
	Kentucky	Tennessee
	Louisiana	Texas
	Maine	Utah
	Massachusetts	Vermont
	Michigan	Virginia
	Minnesota	Washington
	Mississippi	West Virginia
	Missouri	Wisconsin
	Montana	Wyoming
	Nebraska	

*Note:* Some states, such as Massachusetts and New Jersey, do require that sellers of firearms report sales to the state, but firearm owners do not need to register their firearms.  
 \* denotes a state with laws requiring registration of all firearms