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„The complex causes of gun ownership in the U.S.-
focus on fear“

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Abstract

With our online survey (N=648) on U.S.-citizens, we want to improve the mixed results of previous studies on the question if fear of crime is a predictor of firearm possession. In this work we see fear as a result of the confrontation with a certain stimulus rather than a personality trait. We hypothesize that gun owners have a higher level of fear than people with no gun at home. In doing so, we compared the different level of gun ownership with the group of people with no gun at home. Using binary logistic regressions we found, other than expected, that people with a higher level of fear, have a significantly higher likelihood of not having a gun in their household. We also found that the group of people with a higher level of fear has a significantly higher probability of not owning a gun personally. Furthermore, we give a short overview in the connection between people's level of fear and their attitude towards gun control, as this aspect seems to be neglected in the past.

Introduction

Whether it is a mass shooting, or a gunfight between citizens and the police, after each of these events in the United States there is an emotional debate about changing the gun law. The Centers for Disease Control and Prevention (CDC) in the U.S. estimate that between 2010 and 2014 around 164,821 people in the U.S. died because of firearm usage (e.g. homicides or accidents). This number is considering all races, both sexes and all ages (Center for Disease Control and Prevention, 2016). Breaking down these 164,821 deaths of the aforementioned years results in 90 deaths caused by firearms per day. Since the adoption of the Second Amendment to the United States Constitution has been implemented in 1791 the number of firearms in the American households grows up to an estimated number of 200 to 300 million (Cao, Cullen, Link; 1997; Kleck, Kovandzic, Saber & Hauser; 2011). This number split upon the United States population of 322,761,807 (United States Census Bureau, 2016), would make up between 0.62 to 0.93 guns per citizen. Other surveys like the one of the Gallup institute¹ or the General Social Survey² (GSS) came to the conclusion that between 30 and 42 percent of Americans admit having at least one firearm in or nearby their household (GSS, 2014; McCarthy, 2014). As Kleck et al. (2011) mentioned: "These facts have led some scholars to assert that America's high level of civilian firepower is an important factor contributing to the nation's high level of violence."

According to the National Rifle Association (NRA, 2016), there are 41 states out of all 50 in the US which require a permit to carry a handgun and just two which require a permit to carry a rifle or shotgun. For the category 'handgun' six states require a licensing of gun owners, 13 states a permit to purchase a handgun and five a registration for the handgun. For comparison only four states order a licensing of rifle or shotgun owners, six states decree a permit to purchase a rifle or shotgun and three states ordain a registration of these firearms.

It is well known that the culture of the United States has a special connection to the firearm topic, some would even see it as a problem according to the number of incidents. But the big question hanging above gun ownership is why people shoulder financial as well as non-financial costs incurred by firearm ownership.

The literature has different explanations, for example the article of Kleck et al. (2011) in which it is argued that Americans own guns for target shooting or hunting, as well as for

¹ The Gallup institute is one of the leading opinion - and market research institutes in the world

² The GSS is a survey which tries to ascertain annually changes in the American society by questioning randomly chosen US citizens.

self-defense. Others agree with these causes and include additional criminal causes (Lizotte & Bordua, 1980) or financial status, socialization and a conservative ideology (Cao et al., 1997) as a possible explanation. Although mostly the authors sympathize with the self-protection theory (Cao, Cullen, Barton & Blevins, 2002; DeJong, 1997; Glaeser & Glendon, 1998; Hauser & Kleck, 2013; Kleck & Kovandzic, 2009; Wright & Marston, 1975), to be more precise self-protection caused by fear (Cao et al., 1997; DeJong, 1997; Diener & Kerber, 1979; Glaeser & Glendon, 1998; Hauser & Kleck, 2013; Kleck & Kovandzic, 2009; Kleck et al., 2011; Lizotte & Bordua, 1980; Melde, Esbensen, Taylor, 2009; Wright & Marston, 1975). Based on this theoretical background this study has been realized.

The reduction of the firearm related deaths each year can be seen as one of the main causes to enforce the investigation on the topic of gun ownership. Even though there is an obvious relevance on this field, only very little research can be found with regards to it. An obvious explanation for this phenomenon is the restriction on firearm-related research in the U.S. Since 1993, when Kellerman and colleagues published their article about "Gun ownership as a risk factor for homicide in the home", the NRA works against the CDC's National Center for Injury Prevention. In 1996 the Congress passed a resolution against further funding of firearm-related research (Henderson, 2013, 2016; Jamieson, 2013). In 2013, a group of over 100 U.S. scientists from different universities signed a letter to the Vice President of the United States of America and the Gun Violence Commission Members³, demanding "the removal of the current barriers to firearm-related research, policy formation, evaluation and enforcement efforts." (Jamieson, 2013; University of Chicago Crime Lab, 2013).

The fact that research on this topic is restricted in the U.S., and could use every actual enlargement it can get, was one deciding aspect for this study. Second, if politicians want to change something concerning gun control in the U.S., they will need an insight into this matter. They will need to understand why people buy guns and how the firearm market works. With this study, based on the research so far, we want to answer the question if Americans own so many guns because of their fear. Or as Hauser and Kleck (2013) mentioned:

"If fear of crime is indeed a driving force behind the acquisition and ownership of firearms, then policymakers crafting gun control initiatives intended to reduce handgun ownership must consider the powerful emotional forces at play. If gun owners believe their gun is essential for their safety or the safety of

³ A task force founded by former President of the United States Barack Obama.

their family, then they may feel justified in actively or passively circumventing gun restrictions and regulations. Moreover, these policies may breed distrust and animosity toward government." (pp. 272)

Prior Research

When it comes to studies about fear and gun ownership, fear is often combined as the fear of future victimization plus the perceived risk of being victimized. Lizotte & Bordua (1980) suggest that perceived risk motivates fear of crime and see this fear as the main motivation why people purchase firearms to defend themselves. In their work Kleck et al. (2011) mention that many studies derive their explanations of gun ownership in the U.S. by three models. Those models are fear of future crime, previous victimization and perceived risk of victimization. Consequently it seems that people who purchase a firearm are reacting to a potential threat, which could be "actual, perceived or emotional" (Kleck et al., 2011).

Former studies have even come to the conclusion that perceived risk of victimization and fear of victimization may be conceptually linked together, still they are two completely different concepts to distinguish between (Cao, 1997; Ferraro & La Grange, 1987; Rountree & Land, 1996; Warr, 1994). The researchers see fear of victimization as an emotional condition, a reaction to anxiety and apprehension to crime. On the other hand, the cognitive evaluation of the chance that one will become a victim in the future is defined as perceived risk of victimization. Hence an individual can have a high fear of becoming a victim even though he/she knows that the chances are quite low. Also one could have a low fear of becoming a victim even if he/she knows that the circumstances are 'against' him/her.

It has been shown that previous studies come to the conclusion that there is a positive relationship between gun ownership for protective reasons and the fear of victimization as well as the perceived risk of it (DeJong, 1997; Kleck et al., 2011).

However, other researchers (Cao et al., 1997; Melde et al., 2009) seriously doubt this point of view by arguing, that the correlation between gun ownership and levels of fear is insufficiently supported by both theoretical as well as empirical research. Kleck and Hauser (2013) give a short overview in their research about the different outcomes of various studies on the topic. They found nine studies with no significant relationship between fear and gun ownership and four studies with mixed results caused by only statistically positive effects regarding subgroups (e.g. specific gun types or specific sex). A significant positive association between fear and firearm possession was found in three studies.

Under the consideration of some of the cited papers in the article of Kleck and Hauser (2013) and also other researchers, we want to make the list of studies and their findings on the topic more concrete. In two studies (Glaeser and Glendon, 1998; Kleck and Kovandzic, 2009) the researchers come to the conclusion that fear is a motivational factor for gun ownership. Another study consisting of residents of Cincinnati reach the conclusion that the perception of low safety in one's neighborhood lead to an increase in gun ownership (Cao et al., 1997). The research group around Kleck (2011) implies that with a rise of perceived risk of victimization the likelihood of purchasing a firearm increases.

According to Kleck and colleagues (2011, 2013), different surveys came to the conclusion that people of the subsample 'owning a gun for defensive reasons' believe that the possession increases the level of perceived safety. They also theorize that perceived risk and fear of victimization are motivational factors for purchasing a gun. Furthermore, they noticed that the simple believe in owning a firearm could reduce the higher fear and perceived risk level. This reduction already could act as motivators to purchase a gun. Such compensation in an individual's level of fear could be one explanation why there are no significant differences in fear between gun owners and non-gun-owners. Other surveys point out that fear and risk of victimization only influence on personal gun ownership or a specific type of firearms. (DeJong, 1997; Glaeser & Glendon, 1998; Kleck et al., 2011; Hauser & Kleck, 2013).

An interesting aspect of fear in connection with the ownership of a firearm was found in a study of Hauser and Kleck (2013). They found no reduction in the fear level among gun owners but an increase of fear if firearms were abandoned. This could mean an asymmetrical relation between fear and gun ownership. They try to explain their finding of no reduction among people purchasing firearms with the following three theories. The first one is based on the assumption that in fact there is a decrease in the fear level. However, it is too short to have a longtime influence on the fear level. The second one is based on the theory of adaption and the effect that at first a gun in the house could indeed bring a reduction of fear. Though over a certain period of time it will become the "new normal" (Hauser & Kleck, 2013) and the fear level would go back to its previous position. The third theory even sees guns as a reminder of potential threats and so keeps the fear level constant.

In view of previous research, it is by no means clear that the security increases with gun ownership (Branas, Richmond, Culhane, Ten Have, Wiebe, 2009; Southwick, 2000).

Considering the studies above, the ambition of this research is to complement previous findings, create a basic survey and enlarge the small number of research on this topic (Henderson, 2013, 2016; Jamieson, 2013; University of Chicago Crime Lab, 2013). This

survey should test to what extent previous concepts of fear or risk of victimization are still relevant and connected to gun ownership. We also want to answer the question if these concepts have a significant impact on the prediction of firearm possession at all. Literature has shown that self-defense has often been mentioned as the cause for legal gun ownership (Cao et al., 1997; DeJong, 1997; Glaeser & Glendon, 1998; Kleck et al., 2011).

If one assumes that the bulk of the population are not employees of the security sector (e.g. police or military), there is just the possibility left that they want to protect themselves as civilians. From these individuals and their relatives, we wanted to know how safe they feel in their neighborhood and compare these findings to non-gun-owners. The used questions are orientated on inputs of different previous researches on the topic of fear and gun ownership, as their used question items seem to be reliable to measure fear of victimization (see Cao et al., 1997; DeJong, 1997; GSS, 2014; Hauser & Kleck, 2013; Kleck et al., 2011; Lizotte & Bordua, 1980).

Another aim of this research is to deliver new arguments for the discussion of whether fear or risk of victimization are relevant predictors for owning a firearm in the U.S. All this will be done by distinguishing between fear and risk of victimization and the level of ownership. As several scholars mentioned before it is relevant to distinguish between the levels of gun ownership (Cao, 1997; DeJong, 1997; Hauser & Kleck, 2013; Kleck et al., 2011) if concrete conclusions should be drawn. To ask for the different levels of firearm possession we focused on the questioning version of the GSS (2014). We even formulate it more detailed than the GSS, as we include more places where the owned gun could be deposited in the survey.

We will also have a short look at the different attitudes towards gun control by law and if fear or risk of victimization are relevant predictors here. We do this hence it seems that previous research has ignored this last point.

Method

Sample

The questionnaire was administered in Unipark (see <http://www.unipark.com/>) and launched on Amazon Mechanical Turk services (MTurk; see <http://www.mturk.com/>; see also Buhrmester, Kwang & Gosling, 2011; Crump, McDonnell & Gureckis, 2013; Schmidt & Jettinghoff, 2016).

We started off with 776 participants and excluded 128 (16.5%) due to incomplete questionnaires, non-US-citizenship and one data set of each *double timer*⁴. Also persons with a fill in time under two and a half minutes were excluded as we assumed that one could not fill out the survey in such a short time. So the actual sample, considering the removed ones, to work with has a size of N= 648 data sets.

Table 1 summarizes the key demographic variables of the sample. The gender ratio in the sample is quite equal. The mean age of the participants is 37.8 years ($SD = 12.02$) with a minimum of 18 and a maximum of 78 years. Most of the participants were Caucasian (82.4%). According to the highest level of education, most of the respondents have an advanced degree (50.31%) and the fewest have some high school degree or no high school degree at all (0.62%). Regarding employment status, by far the biggest group in the survey are those who are employed full-time (55.25%). The participants who are retired make the smallest group (4.32%). The income groups of ‘Under \$30000’ (35.18%) and ‘Between \$30001 and \$55000’ (33.8%) are quite similar in their size. With 7.72% the group of participants with an income over \$95001 is the smallest. With a view to the living place of the respondents, the three main places are cities (49.54%), towns (26.54%) and small towns (18.83%). Most of the participants are atheists or agnostics (42.9%), however, the two most represented religions are Protestantism (25.15%) and Catholicism (15.59%). With regard to religious practice, therefore, the atheists or agnostics (39.81%) are the biggest group in this category. Those who practice their religion daily (17.59%) and those who practice their religion only on major holidays (13.89%) are second and third in respectively.

Variables

Gun ownership. With the first question on this theme, we wanted to find out if there is at least one gun in the particular household. We asked: “Do you or any members of your household 18 years of age or older currently have any legally-owned firearms in your home, car, garage, basement, or elsewhere around your home? Do not include air-guns, toys, models, or starter pistols.” The respondents could choose between the answers of (a) yes, (b) no and (c) I do not know. So if a test person states that there is a gun in the household, he/she comes to a follow-up question: “Do any of the guns belong to you personally?” Here the answer possibilities were (a) yes, (b) no, (c) I prefer not to answer this question and (d) other, please specify. With this question, we wanted to know if the respondent is the personal owner of the firearm or not.

⁴ Double timer are participants who took part at both test times.

Table 1

Demographic Data of Sample

Demographic variables	n	%	Mean	SD
Age			37.85	12.02
Gender				
Female	317	48.90%		
Male	331	51.10%		
Race				
Caucasian	534	82.40%		
African American	39	6.00%		
Asian	38	5.86%		
Hispanic	26	4.01%		
Other	11	1.70%		
Education				
Some high school or no high	4	0.62%		
High school graduate	77	11.88%		
Trade school/some college/ associate degree	233	35.96%		
Advanced degree	326	50.31%		
Other	8	1.23%		
Employment				
Unemployed	61	9.41%		
Employed part-time	89	13.73%		
Employed full-time	358	55.25%		
Self-employed	77	11.88%		
Retired	28	4.32%		
Other	35	5.40%		
Income				
Under \$30000	228	35.18%		
Between \$30001 and \$55000	219	33.80%		
Between \$55001 and \$95000	151	23.30%		
Over \$95001	50	7.72%		
Living place				
City	321	49.54%		
Town	172	26.54%		
Small Town	122	18.83%		
Village	12	1.85%		
Farm	9	1.39%		
Other	12	1.85%		
Religion				
Atheist or Agnostic	278	42.90%		
Buddhist	12	1.85%		
Catholic	101	15.59%		
Jewish	12	1.85%		
Muslim	4	0.62%		
Protestant	163	25.15%		
Other	78	12.04%		
Religious practice				
Daily	114	17.59%		
Weekly	61	9.41%		
Monthly	37	5.71%		
Only on big holidays	90	13.89%		
I do not practice my religion	77	11.88%		
I am atheist or agnostic	258	39.81%		
Other	11	1.70%		

To understand the subjective motives for the possession or the presence of a gun in the household of affected people, the participants were requested to choose out of a list of potential causes why there is a firearm in their domestic area. They could choose out of the following categories: (a) self-defense, (b) defend property and belongings, (c) hunting, (d) sport, (e) to protect my community, (f) because this is the norm where I/family live/s, (g) the fact that I/my family own/s gun(s) keeps criminals from attacking me/my family, (h) job, (i) others.

The participants were able to set multiple choices. At the follow-up treatment of data the categories (a), (b), (e) and (g) of this item were summarized to the variable *defensive reasons of gun ownership* to enable a distinction of the categories with other reasons. Because of the different specific subjective motives for the possession of firearms and the requested kinds of gun ownership a more exact differentiation of the survey outcomes is possible as done so far.

Furthermore, we also wanted to evaluate the opinion of our test persons in view of gun control. We came up with the question “There has been some debate about gun control in the US. What is your stance on gun control?” People could choose one of the following answer possibilities: (a) I am absolutely in favor of gun control, (b) I am somewhat in favor of gun control, (c) I have a neutral stance, (d) I am somewhat opposed to gun control and (e) I am absolutely opposed to gun control.

Politic and patriotism. To consider the political preference and the patriotism of the respondents in our calculations we had two items to ask for it. The simple question “Which political party do you identify with?” could be answered with the categories (a) Democrat, (b) Republican, (c) Independent, and (d) No identification.

For the patriotic attitude of the participants, we asked, “Some people talk about patriotism as ‘love for one’s country’. How patriotic do you feel towards the USA?” They could answer with (a) not at all patriotic, (b) a little patriotic, (c) fairly patriotic and (d) very patriotic.

Violence. Three violence related aspects were also important for this study. They are the participants’ incident rate on people dying because of firearms, their experiences of violence as victims and their attitude over physically reciprocal behavior.

We wanted to know how realistic the respondents would estimate the number of people died 2015 in the U.S. because of firearm use. So we asked “Please provide your best guess on how many people died from firearm incidents (both intentional and unintentional) in

the US in 2015?” There was also a note to not look up the real number on the internet. The possible answer categories were (a) less than 100, (b) more than 100 less than 1000, (c) more than 1000 less than 10000 and (d) over 10000.

To get the information if respondents of this survey were crime or violence victims in the past we asked them “In the past ten years, have you been victim of any kind of crime or violence? Please select all crime or violence you have been victim of.” Afterwards, the participants of the study could set their checks in a multiple choice format. The answer possibilities were (a) burglary, (b) robbery, (c) bullying, (d) light physical violence, (e) serious physical violence, (f) domestic violence, (g) other, please specify (here was the option to fill in the answer personally) and (h) I have not been a victim of any kind of crime or violence described above.

To measure the disposition of violent behavior among the respondents they had to rate the statement “If someone gets physically violent with me or someone I care for, the best way to handle this is to physically reciprocate this behavior.” The possible answer choices were (a) strongly disagree, (b) disagree, (c) agree and (d) strongly agree.

Trust. In this survey we measured three categories of trust. First, we measured the trust towards strangers. Respondents had to rate the statements “When dealing with strangers, one is better off using caution before trusting them.” and “In general, people are trying to take advantage of others whenever they have a chance.” For their answers they could choose on a four-point Likert-scale between (a) strongly disagree, (b) disagree, (c) agree and (d) strongly agree. We also asked them for their estimated likelihood of a person returning a found purse in a city he/she doesn’t know. Here the participants had to use a slider to set their assumed percentage between 0-100 percent.

The other two trust categories are trust towards acquaintances and the own trustworthiness. They were asked with “How often do you lend your personal belongings and/or money to your friends or family?” and “How often do you borrow personal belongings and/or money from your friends or family?” The participants of the survey could then choose on a four-point Likert-scale between (a) never, (b) rarely, (c) sometimes and (d) regularly.

Social preference. To control for the influence of selfish behavior in this survey we set up a dictator game. The respondent has to divide \$0.60 between him/her and another person. They could choose to either take \$0.5 and give the other one \$0.1 or to split equally with \$0.3 for each.

Fear. In connection with fear of crime two concepts were measured, the emotional aspect and the cognitive aspect (Cao, 1997; Ferraro & La Grange, 1987; Rountree & Land, 1996; Warr, 1994). We measured the emotional aspect with the assumptions that something could happen to the participant in his/her immediate vicinity. This was qualified with the items “There is a well-functioning community in my neighborhood.” and “It is dangerous to go out after dark in my neighborhood.” For the answer format, in each case there is a four-point Likert-scale with possible answers of (a) strongly disagree, (b) disagree, (c) agree and (d) strongly agree. The second concept, the cognitive aspect, is the current perception of victimization risk. To measure this we asked the participants “In your view, what is the likelihood that you or anyone from your family, friends, or any other loved one will be a victim of a firearm incident (both intentional and unintentional) in the U.S. in the next 12 months, excluding terrorist attacks?” In this case, there was a slide controller as answer format. The test person could put the slider among 0 to 100 percent corresponding to the probability to be a victim he/she thinks there is.

Table 2 gives an overview of all the used variables in the regression models 6-10.

Results

The participants of this sample gave the following information regarding their households: out of the sample population (N=648), 30.6% declare to have a gun in their household. They assemble out of at least 157 cases of handguns, 109 cases of rifles, 94 cases of shotguns and six cases of other firearms. Referring to the overall sample (N=648) that averages a little bit more than 0.5 weapons per person, just to get an insight into how many weapons are circulating in the United States. If one takes just those participants as a reference who declare a gun in their household (n=198), that would equal 1.8 firearms per person.

Based on the hypothesis that gun owners have a higher fear and risk level than non-owners, all the calculation results, related to fear, were considered under a one-tailed significance level. To see how much the demographic and control variables could explain the differences between the different levels of gun owners and non-owners binary logistic regressions were selected as the most suitable statistical tests. The relevant queried gun levels of this survey are coded in dummy variables, as it can be seen in Table 2, whereas non-gun-owners are coded with 0.

Table 2

Description of Variables in the Regressions Models 6-10

Variables	Description	n	%	Mean	SD
Gun ownership variables					
GUNHOUSE^a	R lives in a household with a gun	198	30.60%		
PASSIV_GUN^a	R is a passiv gun owner	69	10.60%		
PERS_GUN^a	R personally owns a gun	129	19.90%		
PERSDEF_GUN^a	R personally owns a gun for defensive reasons	111	17.10%		
AGAINST_CTRL^a	R has an attitude against gun control	215	33.20%		
Control variables					
PATRIOTISM	R's feel of patriotism towards the USA (4 point scale)				
POLIT_PREF	R's political preference (4 categories)				
Democrat		269	41.5%		
Republican		137	21.1%		
Independent		195	30.1%		
No identification		47	7.3%		
INC_GUESS	R guess on number of people died by firearms (4 categories)				
Less than 100		16	2.5%		
More than 100 less than a 1000		148	22.8%		
More than a 1000 less than 10000		326	50.3%		
Over 10000		158	24.4%		
BULLYING^a	R has been a bullying victim in last 10 years	76	11.70%		
BURGLARY^a	R has been a burglary victim in last 10 years	75	11.60%		
ROBBERY^a	R has been a robbery victim in last 10 years	47	7.30%		
LIGHT_PHYS_VIOL^a	R has been a victim of light physical violence in last 10 years	66	10.20%		
SERIOUS_PHYS_VIOL^a	R has been a victim of serious physical violence in last 10 years	20	3.10%		
DOMESTIC_VIOL^a	R has been a victim of domestic violence in last 10 years	41	6.30%		
NO_VICT^a	R hasn't been a victim of any kind of the categories above	424	65.40%		
RECIPROCITY	R's opinion on physically reciprocal behaviour (4 point scale)				
RETURN PURSE	R's evaluation of trust on strangers (0-100 slider bar)			42.66	23.23
LEND	R's trust in acquaintances (4 point scale)				
BORROW	Acquaintances trust in R (4 point scale)				
MUTUAL_TRUST(1)	R's evaluation of trust on strangers (4 point scale)				
MUTUAL_TRUST(2)	R's evaluation of trust on strangers (4 point scale)				
PROSELF^a	R acts selfish	216	33.30%		
DISFUNC_NEIGHB	R's evaluation of his/her neighborhood (4 point scale)				
DANGER_GO_OUT	R's fear of going out in neighborhood at night (4 point scale)				
VICTIM_GUESS	R's evaluation of getting a gun victim (0-100 slider bar)			13.83	18.06

Note. R= Respondent

a. Dummy variable coded 1 for cases with the indicated attribute

Gun Ownership versus Demographic Data

Model 1 through 4 in Table 3 show results of the binary logistic regressions presenting the associations between various demographic data and different gun ownership levels. The correlation between the demographic data and the attitude of gun control is also shown in Table 3 in Model 5. As each of the regressions refer to a different aspect of gun ownership the *n* might vary, as it can be seen in Table 3. The choice of the reference groups in the following comparisons is based on the fact as they are the most frequently chosen answer categories (e.g.: ‘Advanced degree’ at EDUCATION).

Model 1 (Table 3) shows the associations between demographic data and people with a firearm in their home in contrast to people with no gun in their household at all, so-called *non-owners*. The model will be described in the following.

For having a gun in the household, age seems to play an important role, as the likelihood of having a gun in the household decreases with an increase of the participant’s age. The Caucasians living in the U.S. are significantly more likely to own a gun in their household than Asians living in the U.S. Compared to those participants with an advanced degree, those with a high school graduate or trade school/ college degree are more likely to have a gun in their household. The living place of the respondents also seems to have a significant association with whether they have a gun in their household or not. The likelihood of having a gun in the household is higher for those who live in a small town or on a farm compared to those who live in a city.

Model 2 (Table 3) presents the correlations between demographic data and people with a gun in their household but do not own it personally, so-called *passive owners*, in contrast to respondents with no firearm in their household at all.

Here also age seems to have a significant correlation to gun ownership, as the older participants have a lower likelihood of being passive gun owners. According to previous research (DeJong, 1997) women are more likely to have a gun in their household but not owning it personally, than men. The group of participants with a high school graduate or a trade school/ some college degree also has a higher likelihood to be a passive owner than those with an advanced degree. Compared to those with a full-time job, participants who are retired have a significantly higher probability of being a passive owner. Note that the group of ‘other employment’ also has a higher likelihood of having a gun in the household but not owning it personally, than those with a full-time job. As the survey shows, most of the participants in the group of ‘other employment’ declare themselves as homemakers, so this finding may be explained by sex differences. If the respondents declare to have a yearly

Table 3

Binary Logistic Regression of Gun Ownership Levels/ Attitude on Gun Control with Demographic Variables

Demographic variables (Ref. group)	Model 1 GUNHOUSE		Model 2 PASSIV_GUN		Model 3 PERS_GUN		Model 4 PERSDEF_GUN		Model 5 AGAINST_CTRL	
	log odds	95% CI	log odds	95% CI	log odds	95% CI	log odds	95% CI	log odds	95% CI
AGE	-0.02 *** (0.01)	[0.96, 0.99]	-0.07 *** (0.02)	[0.90, 0.96]	-0.01 (0.01)	[0.97, 1.01]	-0.01 (0.01)	[0.96, 1.01]	0.00 (0.01)	[0.98, 1.02]
MALE	-0.03 (0.19)	[0.67, 1.39]	-1.17 *** (0.32)	[0.16, 0.58]	0.48 ** (0.23)	[1.03, 2.52]	0.45 * (0.24)	[0.97, 2.51]	0.72 *** (0.19)	[1.40, 3.00]
RACE										
Caucasian										
African American	-0.17 (0.40)	[0.39, 1.85]	-0.41 (0.77)	[0.15, 2.99]	-0.06 (0.46)	[0.38, 2.31]	-0.13 (0.49)	[0.34, 2.27]	-0.45 (0.42)	[0.28, 1.45]
Asian	-1.09 ** (0.48)	[0.13, 0.86]	-0.98 (0.74)	[0.09, 1.59]	-1.34 ** (0.64)	[0.07, 0.92]	-2.40 ** (1.05)	[0.01, 0.71]	-0.72 (0.47)	[0.19, 1.22]
Hispanic	-0.72 (0.52)	[0.17, 1.35]	-0.66 (0.82)	[0.10, 2.60]	-0.89 (0.65)	[0.11, 1.46]	-1.17 (0.77)	[0.07, 1.40]	-0.20 (0.48)	[0.32, 2.09]
Other	-0.63 (0.83)	[0.10, 2.71]	-18.88 -	-	-0.10 (0.85)	[0.17, 4.79]	0.10 (0.86)	[0.20, 6.01]	0.81 (0.73)	[0.54, 9.38]
EDUCATION										
Advanced degree										
Some high school or no high school	-19.99 -	-	-18.33 -	-	-19.68 -	-	-19.43 -	-	2.03 (1.41)	[0.48, 120.54]
High school graduate	0.88 *** (0.29)	[1.36, 4.30]	1.32 *** (0.44)	[1.58, 8.85]	0.58 (0.37)	[0.86, 3.69]	0.75 * (0.39)	[0.98, 4.55]	0.94 *** (0.31)	[1.39, 4.71]
Trade school/ some college/ associate degree	0.66 *** (0.21)	[1.28, 2.92]	0.71 ** (0.35)	[1.03, 4.03]	0.59 ** (0.25)	[1.11, 2.93]	0.72 *** (0.27)	[1.21, 3.46]	0.95 *** (0.21)	[1.70, 3.96]
Other	0.31 (0.87)	[0.25, 7.58]	-18.92 -	-	1.16 (0.91)	[0.53, 18.98]	1.49 (0.96)	[0.68, 28.89]	0.35 (0.93)	[0.23, 8.87]
EMPLOYMENT										
Full-time										
Unemployed	-0.45 (0.37)	[0.31, 1.32]	0.02 (0.55)	[0.35, 3.00]	-0.67 (0.45)	[0.21, 1.24]	-0.79 (0.51)	[0.17, 1.22]	-0.59 (0.39)	[0.26, 1.18]
Part-time	-0.40 (0.29)	[0.38, 1.19]	0.62 (0.42)	[0.82, 4.25]	-1.08 *** (0.40)	[0.15, 0.75]	-1.18 *** (0.45)	[0.13, 0.73]	-0.05 (0.29)	[0.54, 1.67]
Self-employed	-0.01 (0.30)	[0.55, 1.76]	0.19 (0.53)	[0.43, 3.38]	-0.14 (0.34)	[0.45, 1.68]	-0.05 (0.35)	[0.48, 1.89]	-0.47 (0.31)	[0.34, 1.16]
Retired	0.64 (0.51)	[0.70, 5.11]	2.99 *** (0.83)	[3.89, 101.8]	-0.36 (0.64)	[0.20, 2.43]	-0.04 (0.66)	[0.26, 3.48]	0.26 (0.49)	[0.49, 3.39]
Other	-0.23 (0.44)	[3.34, 1.88]	1.14 ** (0.56)	[1.03, 9.41]	-1.73 ** (0.81)	[0.04, 0.87]	-2.30 ** (1.09)	[0.01, 0.85]	-0.69 (0.46)	[0.20, 1.22]
INCOME										
Under \$30000										
Between \$30001 and \$55000	0.20 (0.24)	[0.75, 1.96]	0.69 * (0.40)	[0.92, 4.35]	-0.08 (0.29)	[0.52, 1.63]	-0.05 (0.32)	[0.51, 1.77]	0.08 (0.25)	[0.67, 1.76]
Between \$55001 and \$95000	0.46 * (0.27)	[0.92, 2.70]	0.70 (0.48)	[0.78, 5.15]	0.30 (0.32)	[0.72, 2.51]	0.49 (0.34)	[0.83, 3.20]	0.26 (0.28)	[0.75, 2.24]
Over \$95001	0.80 * (0.38)	[1.06, 4.71]	1.42 ** (0.61)	[1.26, 13.66]	0.54 (0.46)	[0.69, 4.22]	0.95 ** (0.48)	[1.00, 6.72]	0.54 (0.39)	[0.80, 3.68]
LIVING_PLACE										
City										
Town	-0.17 (0.23)	[0.54, 1.32]	-0.16 (0.37)	[0.41, 1.75]	-0.18 (0.27)	[0.49, 1.42]	-0.16 (0.29)	[0.48, 1.50]	-0.02 (0.23)	[0.62, 1.53]
Small town	0.63 ** (0.25)	[1.16, 3.04]	1.02 *** (0.39)	[1.31, 5.93]	0.54 * (0.29)	[0.96, 3.06]	0.53 * (0.32)	[0.91, 3.16]	0.42 (0.26)	[0.91, 2.57]
Village	0.06 (0.73)	[0.25, 4.40]	0.96 (1.27)	[0.22, 31.51]	-0.19 (0.85)	[0.16, 4.38]	-0.04 (0.86)	[0.18, 5.22]	0.34 (0.65)	[0.39, 5.04]
Farm	1.83 ** (0.77)	[1.39, 28.18]	1.16 (1.31)	[0.24, 41.69]	2.44 *** (0.89)	[2.02, 65.57]	1.95 ** (0.96)	[1.08, 46.21]	0.79 (0.84)	[0.42, 11.49]
Other	0.46 (0.70)	[0.40, 6.22]	0.36 (1.28)	[0.12, 17.62]	0.68 (0.80)	[0.41, 9.45]	0.83 (0.82)	[0.46, 11.44]	0.71 (0.68)	[0.53, 7.71]
RELIGION										
Atheist/Agnostic										
Buddhist	-0.55 (0.84)	[0.11, 3.00]	-0.41 (1.42)	[0.04, 10.86]	-0.45 (1.02)	[0.09, 4.69]	-0.06 (1.08)	[0.11, 7.89]	-0.67 (0.97)	[0.08, 3.46]
Catholic	-0.70 (0.55)	[0.17, 1.45]	-1.03 (0.84)	[0.07, 1.86]	-0.46 (0.70)	[0.16, 2.52]	-0.38 (0.79)	[0.14, 3.22]	0.41 (0.60)	[0.46, 4.88]
Jewish	-0.37 (0.83)	[0.14, 3.51]	-20.26 -	-	0.44 (0.95)	[0.24, 10.05]	0.52 (1.07)	[0.20, 13.64]	0.37 (0.87)	[0.26, 8.02]
Muslim	-20.71 -	-	-19.75 -	-	-19.84 -	-	-19.54 -	-	-20.32 -	-
Protestant	-0.52 (0.52)	[0.21, 1.64]	-1.20 (0.81)	[0.06, 1.48]	-0.06 (0.67)	[0.25, 3.48]	0.17 (0.75)	[0.27, 5.12]	1.04 * (0.58)	[0.91, 8.72]
Other	-0.35 (0.54)	[0.24, 2.02]	-0.76 (0.83)	[0.09, 2.37]	-0.04 (0.68)	[0.25, 3.65]	0.23 (0.76)	[0.28, 5.58]	1.07 * (0.58)	[0.92, 9.12]
RELIGION_PRACT										
Atheist/Agnostic										
Daily	0.55 (0.53)	[0.62, 4.87]	0.31 (0.81)	[0.28, 6.71]	0.53 (0.67)	[0.45, 6.35]	0.45 (0.76)	[0.35, 6.95]	-0.08 (0.58)	[0.29, 2.88]
Weekly	0.64 (0.60)	[0.59, 6.12]	0.05 (1.03)	[0.14, 7.99]	0.64 (0.73)	[0.45, 8.01]	0.64 (0.81)	[0.39, 9.40]	0.09 (0.65)	[0.31, 3.89]
Monthly	0.57 (0.63)	[0.51, 6.09]	1.25 (0.95)	[0.54, 22.40]	-0.06 (0.81)	[0.19, 4.67]	0.03 (0.88)	[0.18, 5.86]	-0.12 (0.69)	[0.23, 3.44]
Only on big holidays	0.91 (0.56)	[0.83, 7.39]	1.43 * (0.83)	[0.82, 21.19]	0.48 (0.72)	[0.39, 6.69]	0.45 (0.81)	[0.32, 7.63]	-0.05 (0.61)	[0.29, 3.18]
I do not practice my religion at all	0.13 (0.52)	[0.41, 3.13]	0.30 (0.84)	[0.26, 6.95]	-0.07 (0.64)	[0.27, 3.25]	-0.04 (0.73)	[0.23, 4.00]	-0.40 (0.57)	[0.22, 2.04]
Other	-0.49 (0.99)	[0.09, 4.34]	0.31 (1.43)	[0.08, 22.31]	-1.21 (1.35)	[0.02, 4.19]	-1.08 (1.38)	[0.02, 5.06]	-0.71 (0.94)	[0.08, 3.13]
Chi-square	61.54 ***		85.21 ***		61.89 ***		67.99 ***		88.85 ***	
df	35		35		35		35		35	
n	648		519		579		561		593	
Cox & Snell R²	0.09		0.15		0.10		0.11		0.14	
Nagelkerke R²	0.13		0.28		0.15		0.18		0.19	

Note. CI = confidence interval. The standard errors are in brackets.

*p<.1, **p<.05, ***p<.01

income over \$95001 then they also have a higher likelihood of being a passive gun owner, than those with a yearly income under \$30000. Compared to those who live in the city, respondents with a living place in a small town have a significantly higher probability having a gun in their household but not own it personally.

Model 3 (Table 3) shows the associations between demographic data and participants who personally own a gun in contrast to those who do not have a gun in their household at all.

According to the previous model, and to prior research (DeJong, 1997), the likelihood of being a personal gun owner is higher under the male participants. Compared to Caucasians living in the U.S., Asians seem to have a significantly lower likelihood of personally owning a gun. If the respondent has a trade school or some college degree he/she has a higher probability to personally own a gun compared to those with an advanced degree. At the employment classes, it can be seen that the people with part-time jobs have a significantly lower likelihood of personally owning a gun than those with a full-time job. Those who declared to have an 'other' employment tend to have a lower likelihood of personally owning a gun than those with a full-time job. As described above this may correlate with the sex of the respondent. To live on a farm also strong significantly increases the probability of personally owning a gun in contrast to those living in the city.

Model 4 (Table 3) presents the correlations between the demographic data and participants who own a firearm personally because of defensive reasons in contrast to non-owners.

As in the previous model the group of Asians living in the U.S. has a significantly lower likelihood of personally owning a gun, even though when the ownership is for defensive reasons, compared to Caucasians living in the U.S. Those participants who have a trade school or some college degree have a higher probability to personally owning a gun for defensive reasons than those with an advanced degree. Respondents who declared to have a part-time employment or an 'other'-employment have a significantly lower probability of personally owning a gun for defensive reasons than those with a full-time job. Consistent with previous literature (Cao et al., 1997), the group of respondents with a yearly income over \$95001 has a significantly higher possibility of owning a gun for defensive reasons than those with a yearly income under \$30000. Living on a farm also increases the likelihood of personally owning a gun for defensive reasons compared to those who live in a city.

Attitude Towards Gun Control versus Demographic Data

The Model 5 (Table 3) shows the associations between the demographic data of the respondents and their attitude towards gun control.

Male participants tend to have a higher likelihood of being against gun control than female respondents. Furthermore, those who have a high school graduate or trade school/college degree have a higher probability to be against gun control than those with an advanced degree.

Gun Ownership versus Control Variables

Table 4 shows the Model 6 through 9 and their results of the binary logistic regressions presenting the correlations between various control variables and different gun ownership levels. The associations between the control variables and the attitude towards gun control are also shown in Table 4 per Model 10. As each of the regressions refer to a different aspect of gun ownership, the *n* might vary, as it can be seen in Table 4.

Model 6 (Table 4) shows the associations between the different control variables and the dichotomous variable of having a gun in the household.

As one may assume, the political affiliation has a significant correlation on a person's probability of having a gun in the household. The groups of Republicans and Independents have a higher likelihood of having a gun in their household than the group of Democrats. Furthermore, to be in favor of physical reciprocal behavior also increases the likelihood of having a gun at home. Contrary to the expectation is the finding that with an increase of fear to go out after dark in one's neighborhood the likelihood of having a gun in the household decreases.

Unfortunately, due to a non-significant Chi-square test of Model 7 (Table 4) a good model fit cannot be granted. However, the relevant outcomes of the regression between the control variables and the dichotomous variable of being a passive gun owner will be mentioned to gain insight.

Compared to Democrats the Republicans would have a significantly higher likelihood of being passive gun owners. The following finding even would have been according to the expectations, as participants who declared to have a higher perceived risk of getting victimized also would have a higher likelihood of being passive gun owners. In contrast, an increase in fear of going out after dark in one's neighborhood would decrease the probability of having a gun in the household but not owning it personally.

Table 4

Binary Logistic Regression of Gun Ownership Levels/ Attitude on Gun Control with Control Variables and Research Question Related Variables

	(Ref. group)	Model 6 GUNHOUSE		Model 7 PASSIV_GUN		Model 8 PERS_GUN		Model 9 PERSDEF_GUN		Model 10 AGAINST_CTRL	
		log odds (0.11)	95% CI [0.96, 1.46]	log odds (0.16)	95% CI [0.78, 1.47]	log odds (0.13)	95% CI [0.97, 1.60]	log odds (0.13)	95% CI [0.94, 1.59]	log odds (0.12)	95% CI [0.90, 1.46]
PATRIOTISM		0.17 (0.11)	[0.96, 1.46]	0.07 (0.16)	[0.78, 1.47]	0.22 * (0.13)	[0.97, 1.60]	0.20 (0.13)	[0.94, 1.59]	0.14 (0.12)	[0.90, 1.46]
POLIT_PREF	Democrats										
Republicans		0.88 *** (0.26)	[1.45, 3.98]	0.83 ** (0.38)	[1.08, 4.84]	1.01 *** (0.31)	[1.50, 4.98]	1.14 *** (0.33)	[1.63, 5.95]	2.74 *** (0.31)	[8.41, 28.61]
Independents		0.51 ** (0.22)	[1.07, 2.57]	0.26 (0.34)	[0.66, 2.53]	0.71 *** (0.27)	[1.20, 3.46]	0.92 *** (0.29)	[1.42, 4.47]	1.99 *** (0.27)	[4.27, 12.43]
No identification		0.60 * (0.36)	[0.91, 3.69]	0.57 (0.52)	[0.64, 4.89]	0.68 (0.43)	[0.84, 4.62]	0.84 * (0.46)	[0.94, 5.71]	1.64 *** (0.40)	[2.35, 11.18]
INC_GUESS		0.04 (0.12)	[0.82, 1.32]	-0.05 (0.18)	[0.67, 1.35]	0.11 (0.14)	[0.84, 1.47]	0.05 (0.15)	[0.78, 1.40]	-0.45 *** (0.14)	[0.48, 0.84]
BULLYING		0.36 (0.35)	[0.72, 2.82]	0.50 (0.53)	[0.58, 4.68]	0.28 (0.40)	[0.60, 2.90]	0.17 (0.44)	[0.49, 2.82]	-0.17 (0.43)	[0.36, 1.96]
BURGLARY		0.45 (0.38)	[0.75, 3.30]	0.27 (0.62)	[0.39, 4.43]	0.50 (0.43)	[0.70, 3.85]	0.19 (0.48)	[0.47, 3.12]	0.43 (0.46)	[0.62, 3.80]
ROBBERY		0.23 (0.40)	[0.58, 2.75]	-0.11 (0.61)	[0.27, 2.98]	0.37 (0.47)	[0.58, 3.64]	0.43 (0.49)	[0.58, 4.04]	0.28 (0.48)	[0.52, 3.40]
LIGHT_PHYS_VIOL		0.13 (0.34)	[0.58, 2.24]	0.55 (0.51)	[0.64, 4.70]	0.08 (0.41)	[0.48, 2.41]	0.20 (0.42)	[0.53, 2.82]	0.50 (0.42)	[0.72, 3.78]
SERIOUS_PHYS_VIOL		0.93 * (0.52)	[0.92, 6.95]	1.06 (0.72)	[0.70, 11.74]	0.65 (0.62)	[0.57, 6.44]	0.11 (0.70)	[0.28, 4.39]	-0.31 (0.64)	[0.21, 2.54]
DOMESTIC_VIOL		-0.34 (0.42)	[0.31, 1.61]	0.22 (0.56)	[0.42, 3.72]	-0.77 (0.57)	[0.15, 1.42]	-0.46 (0.57)	[0.20, 1.96]	-0.02 (0.49)	[0.37, 2.55]
NO_VICT		0.00 (0.36)	[0.49, 2.03]	0.45 (0.56)	[0.52, 4.71]	-0.25 (0.42)	[0.34, 1.79]	-0.31 (0.46)	[0.30, 1.79]	0.06 (0.43)	[0.46, 2.47]
RECIPROCITY		0.28 ** (0.11)	[1.06, 1.64]	-0.13 (0.17)	[0.63, 1.22]	0.51 *** (0.13)	[1.27, 2.16]	0.55 *** (0.14)	[1.31, 2.29]	0.72 *** (0.13)	[1.57, 2.67]
RETURN PURSE		-0.01 (0.00)	[0.98, 1.00]	-0.01 (0.01)	[0.98, 1.01]	-0.01 (0.00)	[0.98, 1.00]	-0.01 * (0.00)	[0.98, 1.00]	0.00 (0.00)	[0.99, 1.01]
LEND		-0.07 (0.15)	[0.69, 1.25]	-0.32 (0.24)	[0.45, 1.17]	0.01 (0.18)	[0.72, 1.43]	0.07 (0.19)	[0.75, 1.55]	0.15 (0.18)	[0.82, 1.63]
BORROW		-0.14 (0.15)	[0.64, 1.16]	0.11 (0.24)	[0.70, 1.79]	-0.26 (0.18)	[0.54, 1.10]	-0.30 (0.19)	[0.51, 1.08]	-0.46 ** (0.18)	[0.44, 0.90]
MUTUAL_TRUST(1)		0.14 (0.16)	[0.84, 1.59]	-0.01 (0.20)	[0.61, 1.59]	0.26 (0.20)	[0.88, 1.91]	0.15 (0.21)	[0.77, 1.76]	-0.14 (0.20)	[0.59, 1.27]
MUTUAL_TRUST(2)		-0.32 * (0.16)	[0.53, 1.00]	-0.42 * (0.24)	[0.41, 1.04]	-0.29 (0.20)	[0.51, 1.11]	-0.18 (0.21)	[0.55, 1.25]	0.12 (0.19)	[0.77, 1.65]
PROSELF		-0.36 * (0.20)	[0.47, 1.03]	-0.57 * (0.31)	[0.31, 1.03]	-0.28 (0.23)	[0.48, 1.20]	-0.28 (0.25)	[0.46, 1.24]	0.32 (0.22)	[0.88, 2.13]
DISFUNC_NEIGHB		0.07 (0.16)	[0.78, 1.47]	0.07 (0.25)	[0.65, 1.76]	0.10 (0.19)	[0.77, 1.59]	0.03 (0.19)	[0.71, 1.52]	0.13 (0.18)	[0.79, 1.62]
DANGER_GO_OUT		-0.34 ** (0.14)	[0.54, 0.93]	-0.39 * (0.20)	[0.45, 1.02]	-0.35 ** (0.16)	[0.51, 0.98]	-0.27 (0.17)	[0.54, 1.07]	-0.20 (0.16)	[0.60, 1.12]
VICTIM_GUESS		0.01 (0.00)	[0.99, 1.02]	0.01 * (0.01)	[0.99, 1.03]	0.01 (0.01)	[0.99, 1.02]	0.00 (0.01)	[0.99, 1.01]	-0.02 ** (0.01)	[0.97, 1.00]
Chi-square		57.26 ***		25.39		63.66 ***		59.5 ***		206.43 ***	
df		22		22		22		22		22	
n		648		519		579		561		593	
Cox & Snell R²		0.08		0.05		0.10		0.10		0.29	
Nagelkerke R²		0.12		0.09		0.16		0.16		0.40	

Note. CI = confidence intervall. The standard errors are in brackets.

*p≤ .1, **p≤ .05, ***p≤ .01

The regression of Model 8 (Table 4) shows the correlations between the control variables and the dichotomous variable of owning a gun personally.

Political identification seems to play a big role, as Republicans, as well as Independents, appear to have a significant higher probability of owning a gun personally in contrast to Democrats. An increase of commitment to reciprocal physical behavior is also significantly associated with an increase in the probability of personally owning a gun. Here again, a higher fear of going out after dark in one's neighborhood is correlated to an increased likelihood of personally gun ownership.

The last regression model of showing control variables in connection to a gun ownership variable is Model 9 (Table 4). Here the specific level of gun ownership is the personally owning for defensive reasons.

As in the previous models the Republicans are much more likely to own a gun personally for defensive reasons than the Democrats. Even the Independents have a higher likelihood of being personally gun owners for defensive reasons in contrast to the Democrats. In fact, the commitment to reciprocal physical behavior again seems to have a significant impact on the probability of gun ownership. Because with an increase on favoring reciprocal physical behavior the likelihood of owning a gun personally for defensive reasons increases as well. Surprisingly none of the fear related items has a significant association on owning a gun personally for defensive reasons.

Attitude Towards Gun Control versus Control Variables

Model 10 (Table4) presents the regression between the different control variables and the variable measuring the attitude towards gun control.

According to expectations the Democrats have a significantly lower likelihood of being against gun control than all the other political groupings. The significant result that, the higher participants rate the number of firearm-related deaths in the U.S., the lower is their probability of being against gun control, is also corresponding with the prospects. Reciprocal behavior again seems to be a significant predictor, as the more respondents agree with reciprocal physical behavior, the higher is their likelihood of being against gun control. An interesting fact, shown by this regression model, is that the more participants rate themselves as trustworthy, the lower is their probability of being against gun control. Last but not least the perceived risk of victimization has a significant correlation with the attitude towards gun control. The higher the respondents rate the risk of getting victimized in the future, the lower is their probability of being against gun control.

Discussion

The goal of this study was to find out if the theoretical background of previous literature if Americans are owning guns because of fear can be approved. The focus of this master thesis especially was to check for the association between the different fear levels and the different levels of gun ownership. Furthermore, we wanted to know if the different fear levels can significantly predict the attitude towards gun control.

Confirming our expectations, participants have an increasing likelihood of being pro-gun control when their persuaded risk of getting victimized by someone with a gun increases. One possible explanation could be, that those respondents who rate the risk of getting victimized higher seem to be more aware of the danger coming out of a gun ownership. They have a higher probability to be against gun control as it seems they want to minimize this hazard. In contrast, those participants who assume a lower risk of firearm-related victimization theoretically have no need to argue for a gun ownership regulated by the state. It seems that in their view the probability of becoming a firearm victim is already low enough.

We also found that participants who have a higher fear of going out in their neighborhood after dark, significantly have a lower likelihood of having a gun in the household. This finding is in contrast to our expectations, but according to the work of Kleck and Kovandzic (2009). Furthermore those respondents with a higher fear of going out after dark, also have a significantly lower probability of being a personal gun owner. Kleck and Kovandzic (2009) explained their finding the following: “a negative association could be a reflection of causation in the reverse direction.” They argued that possess of a firearm may reduce fear. However, this kind of fear has no significant association with personal gun ownership for defensive reasons in our study. A possible explanation, orientated on the work of Hauser and Kleck (2013), could be that a gun in the household could act as a reminder of potential threats, depending on the motive of purchase. So if someone owns a firearm for any other than defensive reasons, the gun may provide a feeling of security and reduces fear. For those who purchase a firearm because of defensive reasons, it may act as a reminder of different threats and so keeps the fear level steady.

Even though the fear of going out after dark has a significant association with the different gun ownership levels, some of the other control variables seem to be more consistent in predicting gun ownership.

The disposition to physically reciprocal behavior, for example, increases the probability of having gun in the household and of owning a gun personally, even for defensive reasons. This indicates that participants who own a gun do not just want to deter

potential offenders, but are willing to use their weapons. Those respondents who are in favor of reciprocal physical behavior are also more likely to be against gun control. Possible threats and the own perceived powerlessness may lead to the assumption of the need for an armament and for an easier access to lax gun restrictions, to be in a balanced position. In fact, this starts a vicious circle as others also have easier access to firearms and the hazards increase.

Limitation

There are several limitations on this survey that should be mentioned. Perhaps the most obvious are the disadvantages of a cross section study. A generalization of the outcome has to be handled with care as the sample is conducted in a specific cultural and temporal context. Furthermore, there is a confounding of age and cohort effects which also complicates the generalization. However, the instance of being unable to record changes over time is the biggest regret of our study. A possible change of the fear levels depending on the duration of gun ownership could be interesting for further research. In this context the group of people who plan to purchase a gun also seems to be worth a longitudinal study.

Probably the biggest limitation on the study is the number of unreported cases of gun owners as we asked the participants about legally-owned firearms. The possibility to purchase a gun from a private person in the U.S. opens a legislative loophole, as a registration is not required and so can be avoided, which may distract the participants of recording their gun ownership.

We also regret not asking the gun owners for the length of their firearm possession as this may have an influence on their level of fear.

Another limitation which we accepted is the fact that our online questionnaire excluded persons without internet access. As the majority of the rural or poor Americans may not have access to the internet their data cannot be considered in our study, which one has to consider interpreting the findings.

Relating to the aspect of fear a more differentiate interrogation can make sense as fear is such a broad topic. The subjective feeling of security at home or in the society in general for example are possible further research directions. In context of the subjective feeling of security at home the assumed time it would take the police to arrive at one's home in case of an emergency may play a role.

Conclusion

The main finding of this study might be the fact, that gun owners do not have a higher fear level than non-owners, as expected. Contrary participants without a gun in their household are more likely to fear going out after dark in their neighborhood than people with a gun in their home or even personal firearm owners. In this case, the reduction of fear might be a motivator for a firearm purchase. If so, society has to get creative and think about other ways to increase people's feeling of security. Otherwise one has to anticipate a permanent rise of firearm purchases. Further research may use longitudinal studies to investigate if people with a higher level of fear also are more likely to purchase a firearm.

For those who are interested in achieving stricter gun laws, making people aware of the risk of becoming a firearm incident victim should be aspired. Our study shows that with an increase of the perceived risk to become a victim, the probability of being pro-gun control increases as well.

In further research one may also differ between the diverse aspects of gun control. A distinction between the different standards by law (e.g.: registration of firearms, registration of gun owners) could give an even more informative output.

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Appendix

Summary of Measures

Measure	Question
<i>Demographics:</i>	
Age	The year when you were born
Gender	Your gender 1 = Female, 2 = Male
Race	Your race 1 = African American, 2 = Asian, 3 = Caucasian, 4 = Hispanic, 5 = Other, please specify...
Income	Your yearly income before taxes 1 = Under \$30000, 2 = Between \$30001 and \$55000, 3 = Between \$55001 and \$95000, 4 = Over \$95001
Employment status	Your employment status 1 = Unemployed, 2 = Employed part-time, 3 = Employed fulltime, 4 = Self-employed, 5 = Retired, 6 = Other, please specify...
Level of education	Your highest level of education 1 = Some high school or no high school, 2 = High school graduate, 3 = Trade school/some college/associate degree, 4 = Advanced degree, 5 = Other, please specify...
Country of birth	In which country were you born? 1 = USA, 2 = Other, please specify...
State of living	In which state do you currently live?
Living place	Your living place: 1 = City, 2 = Town, 3 = Small town, 4 = Village, 5 = Farm, 6 = Other, please specify...
Religion	Your religion 1 = Atheist or Agnostic, 2 = Buddhist, 3 = Catholic, 4 = Jewish 5 = Muslim, 6 = Protestant, 7 = Other, please specify...
Religious practice	How often do you practice your religion? 1 = Daily, 2 = Weekly, 3 = Monthly, 4 = Only on big holidays 5 = I do not practice my religion at all, 6 = I am atheist or agnostic, 7 = Other, please specify

Gun ownership:

- Gun in Household** Do you or any members of your household 18 years of age or older currently have any legally owned firearms in your home, car, garage, basement, or elsewhere around your home? Do not include air guns, toys, models, or starter pistols.
1 = Yes, 2 = No, 3 = I do not know, 4 = I prefer not to answer this question
- Personally gun ownership** Do any of the guns belong to you personally?
1 = Yes, 2 = No, 3 = I prefer not to answer this question, 4 = Other, please specify ...
- Owned firearms** Specify the type(s) of gun(s) in the list below. Please select all types of gun(s) that can be legally found in your household. You can select multiple answers.
a) Handgun
b) Rifle
c) Shotgun
d) Others, please specify ...
- Subjective ownership reason** Please select the reasons why you and/or somebody from your household own(s) a gun. You can select multiple answers.
a) Self-defense (including defending my family and loved ones)
b) To defend property and belongings
c) Hunting
d) Sport
e) To protect my community
f) Because this is the norm where I/family live/s
g) The fact that I/my family own/s gun(s) keeps criminals from attacking me/my family
h) Job
i) Other, please specify ...
- Planning to purchase** Are you planning to legally purchase or to legally acquire a firearm anytime in the next 12 months?
1 = Yes, 2 = No, 3 = I do not know, 4 = I prefer not to answer this question

Attitude on gun control	<p>There has been some debate about gun control in the US. What is your stance on gun control?</p> <p>1 = I am absolutely in favor of gun control, 2 = I am somewhat in favor of gun control, 3 = I have a neutral stance, 4 = I am somewhat opposed to gun control, 5 = I am absolutely opposed to gun control</p>
<i>Politic and patriotism:</i>	
Political party	<p>Which political party do you identify with?</p> <p>1 = Democrat, 2 = Republican, 3 = Independent, 4 = No identification</p>
Patriotism	<p>Some people talk about patriotism as “love for one's country”. How patriotic do you feel towards the USA?</p> <p>1 = Not at all patriotic, 2 = A little patriotic, 3 = Fairly patriotic 4 = Very patriotic</p>
<i>Violence:</i>	
Guess on gun victims	<p>Please provide your best guess on how many people died from firearm incidents (both intentional and unintentional) in the US in 2015? Please DO NOT look up this information on the Internet or anywhere else. We are solely interested in your OWN estimate and perceptions.</p> <p>1 = Less than 100, 2 = More than 100 less than a 1000, 3 = More than a 1000 less than 10000, 4 = Over 10000</p>
Experience of violence	<p>In the past ten years, have you been victim of any kind of crime or violence? Please select all crimes or violence you have been the victim of.</p> <p>a) Burglary</p> <p>b) Robbery</p> <p>c) Bullying</p> <p>d) Light physical violence</p> <p>e) Serious physical violence</p> <p>f) Domestic violence</p> <p>g) Other, please specify...</p> <p>h) I have not been a victim of any kind of crime or violence described above.</p>

Reciprocity If someone gets physically violent with me or someone I care for, the best way to handle this is to physically reciprocate this behavior.

1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree

Trust:

Trust I When dealing with strangers, one is better off using caution before trusting them.

1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree

Trust II In general, people are trying to take advantage of others whenever they have a chance.

1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree

Trust III Imagine that a random person finds a purse with 500 USD and an unofficial personal ID (e.g., college ID, business card, but not a passport, not a driver's license, social security card) of the purse's potential owner. The finder is just a visitor in the city where she/he found the purse and not planning on returning, and does not know anyone in there. In your best estimate what is the likelihood that this person returns the purse, e.g., handing it over to a police officer? Click on the slider to set the percentage.

Trust IV How often do you lend your personal belongings and/or money to your friends or family?

1 = never, 2 = rarely, 3 = sometimes, 4 = regularly

Trust V How often do you borrow personal belongings and/or money from your friends or family?

1 = never, 2 = rarely, 3 = sometimes, 4 = regularly

Social preference:

Social preference
(dictator condition)

You are paired with another person and you are given \$0.60 to divide between you and this other person. The person you are paired with also makes his/her choice. However, his/her choice is only hypothetical. That is, your and the other person's payments from this situation only depend on YOUR choice. At the end of the study you will be paid according to your choice (this will be your bonus payment). Please choose one of the options below.

	1 = You get \$0.5 and the other person gets \$0.1, 2 = You get \$0.3 and the other person gets \$0.3
Social preference (receiver condition)	You are now paired with another person and you are given \$0.60 to divide between you and this other person. The person you are paired with also makes his/her choice. However, your choice is only hypothetical, while your partner's choice is real. This means, that your and your partner's payoff from this decision only depends on your partner's choice. At the end of the study you will be paid according to your partner's choice. Please choose one of the options below. 1 = You get \$0.5 and the other person gets \$0.1 2 = You get \$0.3 and the other person gets \$0.3
<i>Fear:</i>	
Fear I	There is a well-functioning community in my neighborhood. 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree
Fear II	It is dangerous to go out after dark in my neighborhood. 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree
Fear III	In your view, what is the likelihood that you or anyone from your family, friends, or any other loved one will be a victim of a firearm incident (both intentional and unintentional) in the US in the next 12 months, excluding terrorist attacks? Click on the slider to set the percentage.

Zusammenfassung

Das Ziel dieser Arbeit ist es die bisherigen uneinheitlichen Forschungsergebnisse, zu der Frage ob Angst als Prädiktor für privaten Waffenbesitz in Amerika angesehen werden kann, zu komplementieren. Der florierende Waffenmarkt sowie eine Beschränkung der Forschung auf diesem Gebiet innerhalb der USA, die hohe Anzahl an schusswaffenbedingten Toten und die immer wieder aufkeimenden politischen Diskussionen über strengere Waffengesetze unterstreichen die Relevanz dieses Themas.

Mittels eines Online-Fragebogens (N=648) war es uns möglich U.S.-Bürger/innen sowohl über ihren Besitz von Feuerwaffen zu befragen, als auch ihren jeweiligen Angstlevel, einschließlich diverser Kontrollvariablen zu erheben. In dieser Arbeit sehen wir Angst eher als das Resultat einer Konfrontation mit einem gewissen Stimulus, als eine Persönlichkeitseigenschaft von Personen. Basierend auf bisherigen Forschungsergebnissen nehmen wir an, dass Schusswaffenbesitzer/innen einen höheren Angstlevel besitzen als Personen ohne Waffe im Haushalt. Mit dieser Hypothese im Hintergrund vergleichen wir die Gruppe der nicht-Waffenbesitzer/innen mit jener der Waffenbesitzer/innen, wobei verschiedene Untergruppen gebildet werden. Durch die Berechnung von binär-logistischen Regressionen kommen wir zu Ergebnissen die unseren Erwartungen widersprechen. Personen mit einem höheren Angst-Score scheinen eine signifikant höhere Wahrscheinlichkeit zu haben, in einem Haushalt ohne Feuerwaffe zu leben. Des Weiteren zeigt sich, dass jene US-Bürger/innen mit höheren Angst-Werten eine signifikant höhere Wahrscheinlichkeit haben weder persönlich eine Schusswaffe zu besitzen, noch ein/e Mitbewohner/in einer Person die persönlich eine Schusswaffe besitzt zu sein. Eine mögliche Erklärung könnte sein, dass der Besitz einer Feuerwaffe den Angstlevel einer Person senkt. Ob dieser allerdings vor der Anschaffung signifikant höher war und erst über die Zeit des Besitzes abnahm, kann wohl nur durch eine Langzeitstudie erfasst werden. Zusätzlich zu den Hypothesen über Schusswaffenbesitz und dem Angst-Score untersuchen wir die Hypothese inwiefern eben jener Angst-Score in Verbindung mit der Einstellung zu gesetzlichen geregelten Waffenbesitz steht, da es scheint als ob dieser Aspekt von Waffenbesitz in der Vergangenheit vernachlässigt wurde. Dabei können wir durch den Einsatz einer binär-logistischen Regression aufzeigen, dass sich US-Bürger/innen mit einer signifikant höheren Wahrscheinlichkeit für eine strengere gesetzliche Kontrolle von Schusswaffenbesitz aussprechen, je höher ihre Angst ist, dass sie selbst oder ihre Angehörigen innerhalb der nächsten 12 Monate Opfer von Schusswaffenzwischenfällen werden.