

## **Self-Protective Behaviors in the United States: Results from a Recent Survey**

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**Abstract:** The purpose of the present study is to conduct a national survey in order to obtain an estimate of defensive firearm use. Using an online survey, results indicate that 66.6% of crime victims who were present when a crime occurred tried to defend themselves (fought, yelled, or ran away). However, only 6% of those victims who fought used a firearm. Hence, the percentage of all crime victims who defended themselves using a firearm was 1.25%. These results suggest that the number of defensive firearm uses in 2018 is estimated to be in the range of 111,768 to 541,890. Using logistic regressions, it was found that young, Hispanic men were most likely to be the victims of crime. College-educated victims were least likely to defend themselves, while Hispanics were most likely to use self-defense. Finally, college-educated victims were least likely to fight back.

*Keywords:* survey, self-protective behaviors, defensive firearm use

*JEL Classification:* K14, K42

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### **1. Introduction**

There have been numerous incidents over the past several years involving self-defense. Many of these incidents involve unarmed persons being shot by armed citizens who claimed a right of self-defense. Self-defensive behaviors, such as brandishing a weapon or running, are known as self-protective behaviors. Most self-protective behaviors do not result in the offender's death. For the period 2007-2011, there were over 7.7 million instances of self-protective behaviors but only 1,343 justifiable homicides by civilians (Plant and Truman, 2013).

Regarding the legal status of self-defense, some states allow a victim to defend themselves but only under certain limited circumstances. The use of force is allowed only in response to an immediate threat and if there is the prospect of imminent physical harm. If a person is physically threatened with deadly force, then they may respond with deadly force. If, however, the threat is not deadly, then the victim cannot use deadly force. Also, self-defense typically requires that the victim "retreats." This means that if a victim can escape (run away, give up their wallet, etc.), then they cannot use deadly force to defend themselves.

Some believed that these constraints on self-defensive behaviors were too restrictive, and so some states adopted Castle Doctrine laws. These laws removed the "duty to retreat" condition for certain situations, such as if a victim was defending their home. Most states have some form of Castle

Doctrine law. The third type of self-defense doctrine is Stand-Your-Ground (SYG). SYG laws allow the victim to use deadly force, without retreating, if the victim feels physically threatened. An important aspect of SYG laws is that they extend the right of self-defense to outside the home.

The only available data on self-protective behaviors comes from surveys, and the only regularly conducted survey on self-protective behaviors is the National Crime Victimization Survey (NCVS). The NCVS has been collecting data on personal and household victimizations since 1973. The survey is conducted twice a year, and the sample consists of 49,000 households and over 100,000 individuals. Respondents are surveyed every 6 months for 3.5 years. The respondent's first interview is person-to-person; all subsequent interviews are by phone. The survey is administered by the U.S. Census Bureau on behalf of the Bureau of Justice Statistics.

Some researchers believe that the NCVS is flawed and that the data obtained from this survey grossly underestimates the number of self-protective behaviors that occur annually in the U.S. For example, Kleck and Gertz (1995) question the survey methodology employed by the Census Bureau. They claim that by informing respondents that the survey is being conducted for the U.S. Department of Justice and by requiring respondents to disclose their names, addresses, and other identifying information, NCVS respondents may underreport their defensive firearm uses for fear that the information may be used as evidence against them in future legal proceedings.

Kleck and Gertz (1995) also note that the NCVS does not ask respondents any direct questions regarding defensive firearm use. The NCVS only asks open-ended questions about self-defense if the respondent has already indicated that they were a victim of a crime. Hence, Kleck and Gertz claim that these surveying techniques contribute to the underreporting of defensive firearm use.

Given the differing opinions regarding the prevalence of defensive gun uses in the United States, the purpose of the present study is to conduct a national survey in order to obtain a more recent and accurate estimate of defensive firearm use. Data from this survey will be used in order to ascertain if there are relationships between various socioeconomic factors and criminal victimizations.

## **2. Literature Review**

In one of the earliest studies on this topic, Kleck and Gertz (1995) conducted a survey on criminal victimization in the Spring of 1993. Their sample consisted of 4,977 individuals and was nationally representative and stratified by state. The survey was conducted only once. According to this survey, 1.326% of persons surveyed said that they used a firearm defensively in the past year. Kleck and Gertz (1995) then multiplied this value by the estimated adult resident population of the United States and obtained an estimate of 2.2 to 2.5 million incidents of defensive firearm use in 1993. This value is much greater than that estimated using NCVS data. According to the NCVS, there were only 82,000 instances of defensive gun uses in 1993.

Cook and Ludwig (1998) used data obtained from the National Study of Private Ownership of Firearms in order to determine the prevalence of defensive firearm uses. The sample was constructed using a nationally representative phone survey that was conducted in late 1994. The final sample size was 2,568. According to this study, 1.64% of the U.S. adult population engaged

in a defensive firearm use, which means that there were 3.12 million defensive gun uses in 1994. This estimate is much higher than that obtained from both the NCVS and the Kleck and Gertz (1995) survey.

Hemenway, Azrael, and Miller (2000) conducted two national surveys in order to determine the prevalence of firearm victimization and defensive firearm use. The authors stated that most private surveys overstate the use of firearms in self-defense primarily because their responses were unbounded and because all respondents were queried about defensive firearm use, not just crime victims. Hence, in 1996 and 1999, the authors conducted national surveys in which respondents were asked open-ended questions about defensive firearm use and firearm victimization incidents. Surveys were conducted by telephone; the 1996 survey had a sample size of 1,905, and the 1999 survey had a sample size of 2,521. One aspect of this study which distinguishes it from prior studies is that the authors attempted to determine if the defensive firearm uses were legal.

Their results indicated that, in 1996, there were 54 incidents of defensive firearm use in the previous five years, and, in 1999, there were 92 incidents of defensive firearm uses in the previous five years. Hence, approximately 1% of respondents reported a defensive firearm use. However, the authors noted that, according to legal experts, 51% of the defensive firearm uses were illegal. Finally, it is important to note that 68% of the defensive firearm incidents were reported by only six respondents.

Finally, Hemenway and Solnick (2015) used data from the NCVS for the years 2007-2011 in order to determine the epidemiology of defensive firearm uses. The authors wanted to ascertain who uses guns, when they use them, and where they use them. According to their analysis of the NCVS data, victims used guns for self-defense in 0.9% of criminal incidents. Males were more likely to use firearms (1.4%) than females (0.4%). Defensive firearm uses were more common in rural areas (1.5%) than in urban areas (0.4%). Victims were also more likely to use a gun when the perpetrator had a gun (3.3%). The majority of defensive firearm uses occurred away from home, and victims were injured in 25.5% of self-protective incidents. Hence, according to this analysis of the NCVS data, defensive firearm uses are very rare, and most were conducted by men in rural areas when the perpetrator had a gun.

Hence, in reviewing prior research on this topic, it appears as if estimates of the rate of defensive firearm use range from 0.9% to 1.64%. The primary issue in many of these studies, however, is not the percentage of persons engaged in a defensive firearm use but rather in how these percentages are used to obtain estimates of the total number of defensive firearm uses. In Kleck and Gertz (1995) and Cook and Ludwig (1998), the percentage of persons engaged in defensive firearm uses was multiplied by the total U.S. adult population. Hence, these studies arrive at estimates in the millions with regards to total defensive firearm uses. In other studies, however, the percentage of persons engaged in defensive firearm uses is multiplied by the number of crime victims; those studies arrived at much smaller estimates of the total number of defensive firearm uses.

The present study will differ from this prior research in several ways. First, the survey used in the present study was conducted in 2018, making it one of the most recent surveys on defensive firearm uses. Second, respondents were only queried about defensive firearm uses if they first

identified themselves as victims of crime. Third, the survey was conducted using an online platform that has been used for many other social science surveys on a wide variety of topics. Finally, logistic regressions will be estimated in order to determine if there are relationships between various socioeconomic factors and criminal victimizations.

### **3. Empirical Technique**

In order to obtain an estimate of the prevalence of self-protective behaviors, an online survey was developed. This survey was constructed using Survey Monkey. Respondents were asked if they were a victim of a crime. If they answered “yes”, then they were asked if they were present when the crime happened. Only those respondents who answered “yes” to that question were then allowed to continue the survey and respond to questions regarding self-protective behaviors. Respondents who had engaged in self-protective behaviors then were asked how they defended themselves. Only respondents who selected “fought or confronted criminal” were then allowed to state what type of weapon they used. If a respondent selected “firearm”, they were then allowed to select what type of firearm they used and whether they had discharged the firearm. It is important to note that all survey questions referred to activities that occurred in 2018. In addition, all data is self-reported.

Amazon’s Mechanical Turk was used in order to obtain the sample. The following qualifications were used in order to screen potential survey respondents:

- (1) Respondent’s residence is the United States.
- (2) Respondent is at least 18 years of age.
- (3) Respondent’s work in Mechanical Turk was approved at least 75% of the time in prior tasks.

Respondents were paid \$0.15 for completing the survey, and 15 minutes was the maximum time allotted to complete the survey.

When workers on Mechanical Turk met the above qualifications and agreed to complete the assignment, they were then directed to a link that sent them to the survey posted on Survey Monkey. At the end of the survey, respondents were required to enter their worker identification numbers. This step was necessary to prevent persons who were not Mechanical Turk workers from submitting surveys. In addition, it also prevented Mechanical Turk workers from responding to the survey more than once. The maximum number of surveys responses (unique workers) in Mechanical Turk was set at 5,000.

Both descriptive and regression analyses were used in order to determine not only the prevalence of self-protective behaviors but also whether there were any relationships between various socioeconomic factors and criminal victimizations. Three dependent variables were examined: whether a person was a victim, whether a person defended themselves, and whether the victim fought back. Given the binary nature of the dependent variables, logistic regression analyses were used to estimate the probability of these three events occurring. The following control variables were used in each of the regressions: male, aged 18-29, aged 30-49, college-educated, income less

than \$25,000, income \$25,000 - \$75,000, income \$75,000 - \$125,000, Hispanic, African-American, Asian-American, and married. All control variables are dummy variables.

#### **4. Results**

As noted previously, the purpose of the present study is to determine the prevalence of self-protective behaviors in the United States. The survey was constructed in Survey Monkey, and respondents were obtained from Amazon's Mechanical Turk. Although the survey limit was set at 5,000, many surveys had to be eliminated because of incomplete responses or missing worker identification numbers. After eliminating all incomplete surveys, the total number of usable surveys was 2,836.

Results from the survey are presented on Tables 1 and 2. Respondents were from all 50 states and the District of Columbia. States with the largest numbers of respondents were California (270), Texas (209), Florida (207), and New York (186). As can be seen from the demographic results presented on Table 1, 81% of respondents were under the age of 50, 54% had at least a bachelor's degree, and 80% were white. These results suggest that the sample used in the present study is younger, less diverse, and more educated than the adult population of the United States.

Regarding the responses to the crime-related questions, 17% (481) of respondents said that they were the victim of a crime in 2018. This result is somewhat higher than what was reported in the NCVS which found that 9.02% of households experienced at least one criminal victimization in 2017.

Of those who claimed that they were a victim of a crime, 57% (275) said that they were present when the crime occurred. Out of those 275, 66.6% (183) claimed that they tried to defend themselves (fought, yelled, or ran away). Although this figure may seem high, according to the NCVS, 56% of violent crime victims and 16.3% of property crime victims attempted to defend themselves.

Regarding how the victims defended themselves, the results of the present study indicate that 60% (109) of victims attempted to fight the criminal in some way. According to the NCVS, 24.2% of violent crime victims attempted to fight the criminal. Most of the victims who fought used their body to defend themselves (76% or 83 respondents). Only 5.5% of those victims who fought used a firearm, and only one-third of those respondents who used a gun discharged the weapon. Hence, the percentage of all crime victims who defended themselves using a firearm was 1.25%. If one only looks at victims who were present during the commission of the crime, then 2.18% of victims defensively used a firearm.

Logistic regression results are presented on Tables 3-5. These results suggest that young, Hispanic men are most likely to be the victims of crime, while college educated victims are least likely to defend themselves or to fight back. Hispanics are most likely to defend themselves. All other control variables are insignificant in the logistic regressions. No regressions were estimated on firearm use because the sample size was too small.

In order to obtain an estimate of the total number of defensive firearm uses in 2018, three methodologies were used. In the first method, the estimated U.S. adult population in 2018 was used in order to obtain an estimate of the number of criminal incidents in 2018; that value was estimated to be 43,159,928. Applying the estimated percent who were present during the criminal incident and the percent who defended themselves in some manner, it was estimated that there were 16,420,900 self-protective behaviors in 2018. According to the present study, only 5.5% of those victims who tried to defend themselves used a firearm. Hence, it was estimated there were 541,890 incidents of defensive firearm use in 2018.

The second way in which to estimate the total number of defensive firearm uses is to utilize crime data from the Uniform Crime Reports (UCR). According to the UCR, in 2017, which is the latest year for which data is available, there were a total of 8,941,407 crimes committed. Using 2017 crime data and assuming that 1.25% of crime victims defensively use a firearm (estimate from the present study), it was estimated that there were 111,768 defensive firearm uses in 2018.

Finally, for the third method, it is important to note that many crimes are not reported to the police. According to data from the 2017 NCVS, 45% of violent crimes and 36% of property crimes are not reported to the police (Morgan and Truman, 2018). Applying those percentages to the crime data from the UCR and assuming that 1.25% of crime victims defend themselves using a firearm, it was estimated that there were 301,804 defensive firearm uses in 2018. Hence, given the above, it is reasonable to assume that the estimated total number of defensive firearm uses in 2018 was in the range of 111,768 to 541,890.

## **5. Conclusions**

Defensive firearm use is considered by many gun rights activists to be one of the primary reasons for the Second Amendment. These activists believe that restrictions on firearms limit the ability of law-abiding citizens to defend themselves. In support of that belief, many gun rights activists contend that there are many more defensive firearm uses than are reported in the NCVS survey. Gun rights groups typically point to the Kleck and Gertz (1995) study and claim that there are almost 2.5 million instances of self-defensive actions with firearms.

Gun control proponents, however, believe that there are many fewer instances of defensive firearm use than are reported by gun rights activities. They typically point to the NCVS, which is the only national, on-going survey on defensive firearm use, and contend that only 0.9% of crime victims defend themselves using a gun.

Results of the present study suggest that defensive firearm uses are not very common. Only 1.25% of all crime victims attempt to defend themselves using a gun. This estimate is similar to that found in other studies on defensive firearm uses. The primary issue with prior studies is not in their estimates of the rate of defensive firearm use but rather in how this rate is used and interpreted. In the present study, three methodologies were used, and it was found that the estimated total number of defensive firearm uses is in the range of 111,768 to 541,890.

These results suggest that defensive firearm uses are more frequent than reported by the NCVS but are less prevalent than reported by Kleck and Gertz (1995). Given that law enforcement

agencies do not collect data on self-protective behaviors, these survey results are very important because they are the only evidence we have about defensive firearm use. It would be much preferred if law enforcement agencies collected data on self-protective behaviors, just as they collect data on criminal activity. This data could then be used to ascertain both the prevalence and effectiveness of self-protective behaviors and defensive firearm uses.

The issue of better data is not just an academic inquiry. It is imperative that public policymakers have the necessary data to make informed decisions regarding the effectiveness of defensive firearm use. If guns help victims defend themselves, then the arguments made by gun rights activists would be supported, and there should be fewer restrictions on gun ownership. If, however, firearms are rarely used in self-defense or if they are ineffective in such encounters, then defensive firearm use cannot be used as reason to reduce restrictions on gun ownership.

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**Table 1. Socioeconomic Variables**

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Variable	Mean
Aged 18-9	0.42
Aged 30-49	0.39
Aged Greater than 50	0.19
High School Diploma	0.46
College Degree	0.54
Male	0.42
Income Less Than \$25,000	0.19
Income \$25,000 - \$75,000	0.55
Income \$75,000 - \$125,000	0.19
Income Greater Than \$125,000	0.07
Hispanic	0.08
White	0.80
African-American	0.09
Asian-American	0.07
Married	0.31
Single	0.59

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**Table 2. Crime Variables**

Variable	Mean
Victim of Crime	0.17
Victim was Present During Crime (percent of crime victims)	0.5717
Victim Defended Themselves (percent who were present)	0.6655
Victim was Injured Defending Themselves (percent who defended themselves)	0.338
Criminal was Injured (percent who defended themselves)	0.3552
Criminal Fled (percent who defended themselves)	0.694
Criminal was Restrained by Victim (percent who defended themselves)	0.2131
Victim Fought Back (percent who defended themselves)	0.60
Victim Yelled (percent who defended themselves)	0.23
Victim Ran (percent who defended themselves)	0.10
Victim Defended Themselves in Another Way (percent who defended themselves)	0.07
Victim Used Firearm (percent who fought back)	0.055
Victim Used Knife (percent who fought back)	0.055
Victim Used Body (percent who fought back)	0.76
Victim Used Nonlethal Method (percent who fought back)	0.05
Victim Used Other Method (percent who fought back)	0.08
Victim Used Handgun (percent who used firearm)	0.83
Victim Fired Gun (percent who used firearm)	0.3333

**Table 3. Logistic Regression: Victim**

<b>Variable</b>	<b>Coefficient</b>	<b>Test Statistic</b>
Constant	-2.708	-9.67***
Male	0.254	2.48**
Aged 18 - 29	0.933	5.42***
Aged 30 - 49	0.699	4.08***
College Degree	0.011	0.11
Income Less Than \$25,000	0.363	1.50
Income \$25,000 - \$75,000	0.245	1.11
Income \$75,000 - \$125,000	0.214	0.89
Hispanic	0.307	1.85*
African-American	0.164	0.96
Asian-American	0.13	0.68
Married	0.005	0.05

Notes:

\*\*\* 1% Significance; \*\* 5% Significance; \* 10% Significance

**Table 4. Logistic Regression: Defend**

<b>Variable</b>	<b>Coefficient</b>	<b>Test Statistic</b>
Constant	0.376	0.46
Male	-0.068	-0.25
Aged 18 - 29	0.552	1.04
Aged 30 - 49	0.449	0.83
College Degree	-0.519	-1.86*
Income Less Than \$25,000	-0.122	-0.17
Income \$25,000 - \$75,000	-0.031	-0.04
Income \$75,000 - \$125,000	0.044	0.06
Hispanic	0.857	1.91*
African-American	0.698	1.42
Asian-American	0.715	1.32
Married	-0.169	-0.55

Notes:

\* 10% Significance

**Table 5. Logistic Regression: Fought Back**

<b>Variable</b>	<b>Coefficient</b>	<b>Test Statistic</b>
Constant	1.687	1.51
Male	0.044	0.13
Aged 18 - 29	-0.377	-0.49
Aged 30 - 49	-0.314	-0.40
College Degree	-0.829	-2.47**
Income Less Than \$25,000	-0.467	-0.49
Income \$25,000 - \$75,000	-0.593	-0.64
Income \$75,000 - \$125,000	0.925	0.96
Hispanic	-0.027	0.06
African-American	0.845	1.57
Asian-American	0.0146	0.03
Married	-0.335	-0.88

Notes:

\*\* 5% Significance