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How Many Guns are in the United States: Americans Own between 262 Million and 310 Million Firearms

Edward W. Hill
Cleveland State University, e.hill@csuohio.edu

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HOW MANY GUNS ARE IN THE UNITED STATES? Americans Own between 262 Million and 310 Million Firearms

How Many Guns are in the United States?
is one of three papers written by Edward (Ned) Hill on public policy questions related to gun ownership in the United States.

Adding up the “Butcher’s Bill”: *The Public Health Consequences of the System of Gun Regulation in the United States* examines trends in firearm’s related deaths, murders and injuries over time.

How Many Guns are in the United States?
estimates the number of firearms available to the civilian population in the United States and the characteristics of the market for semiautomatic firearms.

The Cost of Arming Schools: *The Price of Stopping a Bad Guy with a Gun* estimates the cost of placing armed security officers in America’s schools and examines the state of school security.

Edward W. (Ned) Hill, Ph.D.
Maxine Goodman Levin
College of Urban Affairs
Cleveland State University

March 28, 2013



Maxine Goodman Levin
College of Urban Affairs

GUNS IN THE UNITED STATES: Americans Own Between 262 Million And 310 Million Firearms

By Edward W. (Ned) Hill, Ph.D.¹

No one knows with certainty how many of America's households own guns or how many guns are in existence. In 2012, the Gallup Organization estimated 44 percent of the households have at least one gun and in 2010 the General Social Survey put the percentage at 32. The best estimates of how many guns are available to the civilian population are between 262 million and 310 million.

The purpose of this report is to show how the estimates of the number of guns in circulation in the United States are derived. The estimates are necessarily rough because of the poor state of information on gun ownership, the lack of consistent registration information, and data on the number of guns that have been destroyed.

How many guns?

Because guns are not registered, or tracked by other means, the question of how many are held by the civilian population can only be answered through estimation. Further complicating an accurate count is that our understanding of the types of firearms available is limited to the categories used to collect information at the time of the gun's manufacture or importation. Therefore, all current estimates are limited to four broad categories: handguns, rifles, shotguns, and other types of firearms. Estimates for semi-automatic rifles and handguns cannot be produced because the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) does not break down the data on handguns and rifles into semi-automatic and non-semi-automatic categories. This omission is tragic given the role of semi-automatic weapons in mass murder.

There are two published and accessible sources of current estimates of the number of guns available to the civilian population. One is by Aaron Karp, of Old Dominion University, who works with the Small Arms Survey, an ongoing international gun-tracking project housed and supported by the Swiss Government.² The second is by William Krouse, Specialist in Domestic Security and Crime Policy at the Congressional Research Service. The methods both use appear to be similar.

Key to both estimates is a telephone survey that Philip Cook and Jens Ludwig conducted for the U.S. National Institute of Justice in 1994 with funding from the Police Foundation (Cooke and Ludwig, 1997).³ Cook and Ludwig's work provides the most detail on gun ownership by the type of gun, by motivation for owning firearms, and by household. They estimated that American households owned 192 million guns at the end of 1994 (Table 1).

¹ Hill is Dean of the Maxine Goodman Levin College of Urban Affairs at Cleveland State University, where he is Professor and Distinguished Scholar of Economic Development. Hill is also a Nonresident Fellow of the Metropolitan Policy Program at the Brookings Institution and an Adjunct Professor of Public Administration at the South China University of Technology. This work was done for the Center for Emergency Preparedness at the Levin College of Urban Affairs.

² The Small Arms Survey was established at the Graduate Institute of International and Development Studies in Geneva Switzerland in 1999 and is primarily supported by the Swiss Federal Department of Foreign Affairs. It receives contributions from the Governments of Canada, Finland, Germany, the Netherlands, Norway, Sweden, and the United Kingdom. Project support has been received in the past the Governments of Australia, Belgium, Denmark, France, New Zealand, Spain, and the United States, as well as from different United Nations agencies. The Survey's International Programme Council governs the project with representation from its funders and other research institutes and nongovernmental organizations.

³ The National Institute of Justice hired Chilton Research to conduct a national randomized stratified telephone survey in November and December 1994 on gun ownership. The survey established minimum sampling weights for both minority households and gun-owning households (Cook and Ludwig, p. 4). Karp (2003, p. 61) reviewed the methodology, as it is one of three components used to derive his estimates (Karp, 2007).

Table 1: What Types of Guns and Ammunition Did American's Own in 1994?

| | Types of Guns (millions) |
|------------------------|-----------------------------|
| Total All guns | 192 |
| Handguns | 65 |
| Revolvers | 31 |
| Semiautomatics | 26 |
| Other | 8 |
| Rifles | 70 |
| Semiautomatics | 28 |
| Other | 42 |
| Shotguns | 49 |
| Other Long guns | 8 |

| Handgun Magazine Capacity | |
|----------------------------------|------------------|
| Number of rounds | Percent of stock |
| 1-9 rounds | 79% |
| 10 or more rounds | 21% |

Source: Cook and Ludwig (1997)

The data collected by Cook and Ludwig show that 40 percent of both handguns and rifles in American households were semi-automatics. Today, that percentage is most likely higher, given the popularity of the AR-15 semi-automatic rifle and of Glock's handguns and others that have knocked off its design. The distribution of ammunition magazine capacity will also be different than it was 15 years ago given the growing popularity of semi-automatic rifles and of large-capacity handguns. Nearly 80 percent of ammunition magazines owned by gun owners at the time of the Cook and Ludwig survey held fewer than 10 rounds. A recent market survey of owners of semi-automatic assault rifles, what the industry is rebranding as the "Modern Sporting Rifle," showed that 63 percent of owners of these guns had ammunition magazines that held more than 10 rounds.

Both Karp and Krouse add annual data from the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives [ATF] (2012) on domestic gun manufacturing, exporting and importing for non-military use to Cook and Ludwig's figures. These data are for guns entering the civilian market as well as for firearms intended for police forces. Karp and Krouse treat the 1994 data as a baseline for the stock of firearms in the nation and the ATF data as annual flows into the market. These data have limitations because they are not designed to track ownership, but they are the only data available. There are three sources of over-estimation in following this method:

- The ATF data track all gun production for non-military use so firearms destined for private ownership and for law enforcement are combined, resulting in some overstatement of the flow of guns going into private hands. Because many police departments sell their guns as part of their replacement cycle, we can assume that the amount sold to police departments will counterbalance a good deal of this overstatement. Cook and Ludwig's base data do not include firearms controlled by federal, state, and local police so we are only concerned about the flows.
- Firearms are extremely durable products, and the data do not account for stock withdrawals due to destruction or breakage. Cook and Ludwig (1997, p. 5) showed that the typical gun owner in 1994 acquired the gun 13 years earlier. Adding ATF data to the 1994 base estimates without accounting for withdrawals through breakage or destruction will result in a slight overestimate of current-year gun-holding. The extent of this overestimate is not known. However, given the durability of guns, it is most likely small.
- Data are not available on the export of used guns from the United States, which is the third source of overestimation. This should be trivial.

Karp (2003, p. 61.; 2007b) stated that he used Cook and Ludwig's findings as a baseline, added in the data from the ATF on non-military production (after deducting gun exports from the United States) and imports, and then estimated sales to the public from the military and police. Krouse (2012, p. 8) also appeared to begin with the 1994 ownership data, augmenting it with the information from the ATF.

Both Karp and Krouse produced estimates for 2007, using the 1994 baseline and adding in the annual production data from the ATF. Krouse's 2007 estimate was 294 million guns, of which 106 million were handguns, 105 million rifles and 83 million shotguns. Karp determined a range from 250 million to 290 million guns and used the midpoint, 270 million, as his estimate (2007b). Given the availability and quality of the data, both of these estimates are credible.

Krouse's 2009 estimate is the most recent estimate available. He estimated that 310 million firearms were available to civilians in 2009: 114 million handguns, 110 million rifles, and 86 million shotguns. Per capita gunstock had roughly doubled since 1968 (Krouse, pp. 7-8). Krouse's estimates imply that the number of guns owned by Americans increased at an average rate of 4.1 percent a year from 1994 to 2009. This is at a time when the U.S. population increased by an average of 1.1 percent a year. America's consumption of guns has grown substantially faster rate than its population.

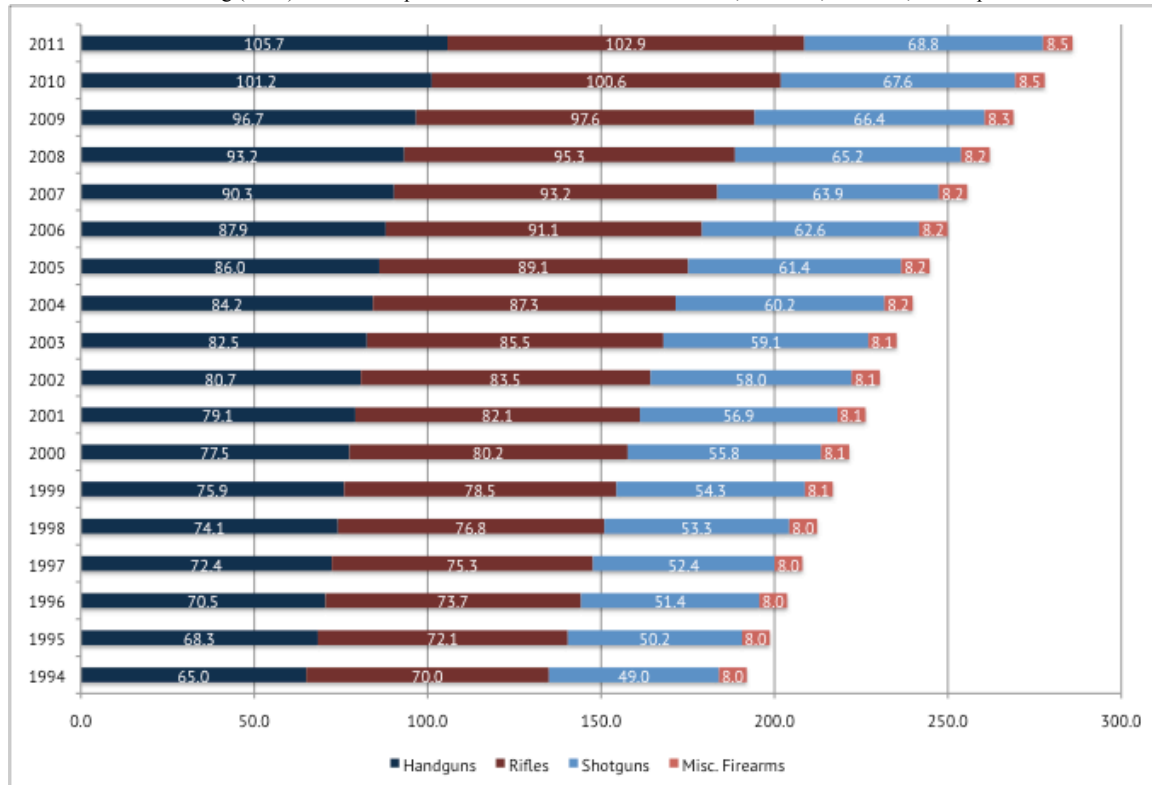
I add the ATF's 1994 net production and import data (the flow of firearms into the civilian and police market) to Cook and Ludwig's 1994 gun ownership estimates (the stock of firearms in 1994) to produce the estimated stock in 1995. The ATF's 1995 net production and import data are then added to the estimated 1995 stock figure to get the 1996 firearms stock, and so on. The annual stocks are broken down by handguns, rifles, shotguns and other firearms for each year from 1994 to 2011. The estimates are depicted in Figure 1, and the numbers are listed in the appendix (Table A-1).

These estimates are lower than both Karp's and Krouse's. I estimate that in 2011, there were 286 million firearms available to the civilian market: 106 million handguns, 103 million rifles and 68.8 million shotguns, and 8.5 million "other" guns. The average annual growth rate in the number of firearms available is lower than Krouse's estimate, 2.9 percent vs. 4.1 percent. But the growth rate that I estimate remains substantially higher than the population growth rate of 1.0 percent.

No matter how you measure it, Americans own a lot of guns.

Figure 1: Estimate of Firearms Availability in the United States in millions: 1994 to 2011

Source: Cook and Ludwig (1997) and U.S. Department of Justice. Bureau of Alcohol, Tobacco, Firearms, and Explosives. *Firearms*



| Year | Total |
|------|-------|
| 2011 | 286.0 |
| 2010 | 277.9 |
| 2009 | 268.9 |
| 2008 | 262.1 |
| 2007 | 255.6 |
| 2006 | 249.9 |
| 2005 | 244.7 |
| 2004 | 239.9 |
| 2003 | 235.2 |
| 2002 | 230.4 |
| 2001 | 226.3 |
| 2000 | 221.5 |
| 1999 | 216.8 |
| 1998 | 212.3 |
| 1997 | 208.0 |
| 1996 | 203.6 |
| 1995 | 198.6 |
| 1994 | 192.0 |

Commerce in the United States: Annual Statistical

Update, 2012. Calculations are by the author.

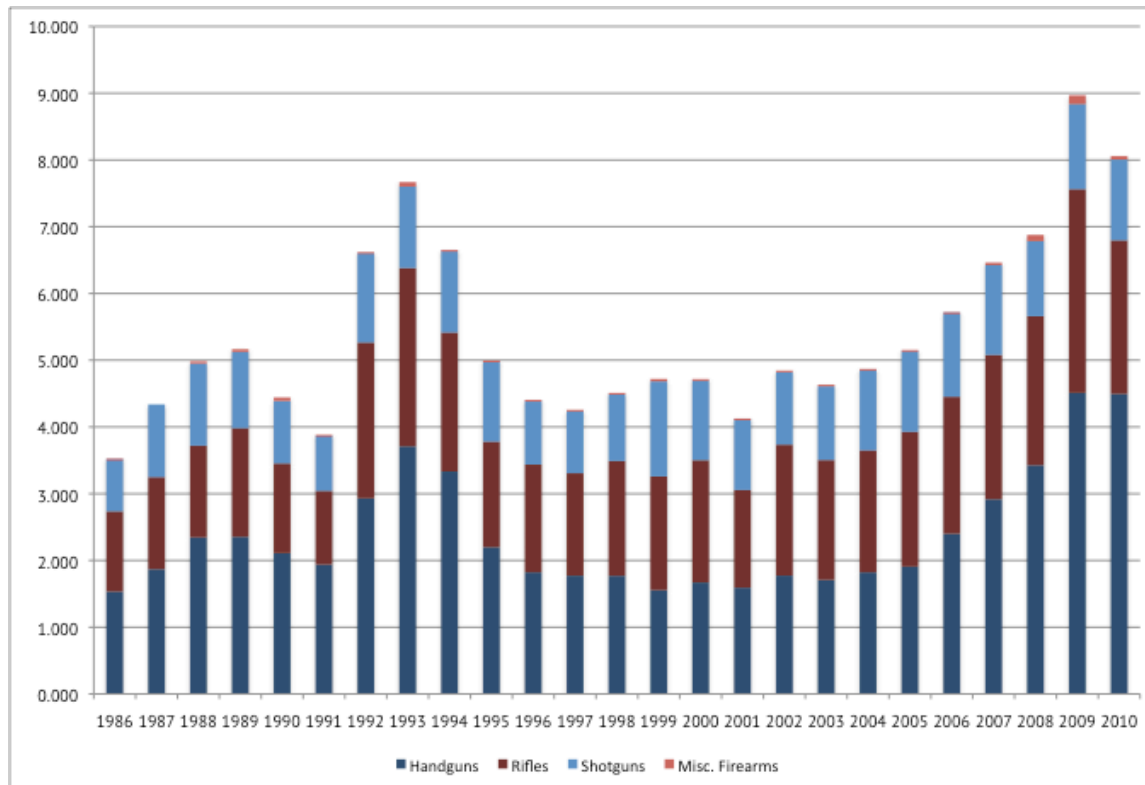
The three P’s of gun sales: Prosperity, Price and Panic

The number of guns entering the market appears to be affected by three variables: economic conditions (prosperity), the cost of guns (price) and prospect of regulation (panic). Figures 2 and 3 plot ATF data —sales slow during recessions, and speed up under the threat of change in the regulatory environment—gun sales spiked for a two-year period before the semiautomatic gun ban went into place in 1994. (Figures 2 and 3) Rifle sales are more affected by economic conditions than are handguns; this is expected due to differences in their prices.

The gun market has grown since the end of the 2001 recession, doubling from a bit more than 4 million new firearms entering the market in 2001 to 8 million in 2010.

The data used from the ATF end in 2010 and do not capture the recent boom in rifle sales. The recent near-panic rifle-buying in late 2012 and early 2013 is associated with the possible re-imposition of the ban on sales of semiautomatic rifles, with gun shop owners sarcastically nominating President Obama in both 2009 and 2012 as their “salesman of the year.” I expect that, when the ATF data are released in two years, 2012 and 2013 production and imports will be at record levels.

Figure 2: The Annual Influx of Firearms onto the American Civilian Market: (millions): 1986 to 2010



Source: Cook and Ludwig (1997) and U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms and Explosives. *Firearms Commerce in the United States: Annual Statistical Update, 2012*. Calculations are by the author.

How many households own guns?

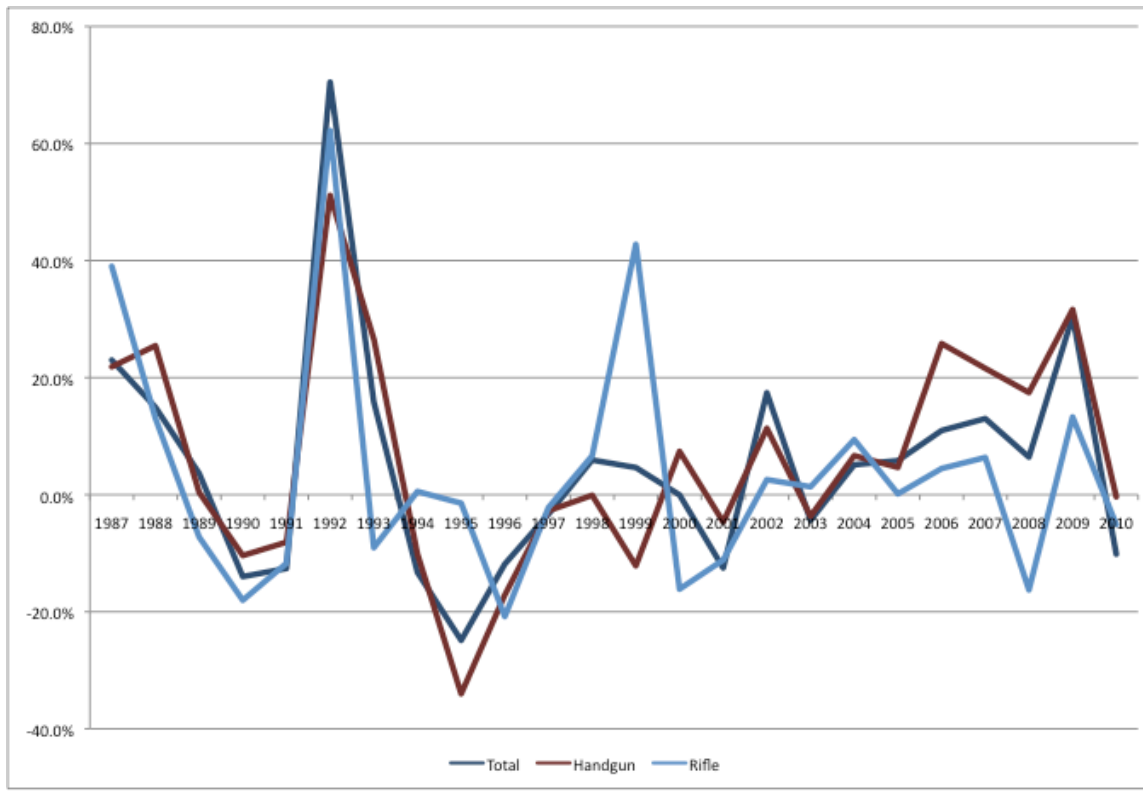
The last time a majority of American households owned a gun was sometime between 1990 and 1992. The General Social Survey (GSS) asks the same question about firearm possession every other year, and the Gallup Survey asks a similar question nearly every year (see Figure 4).

According to the Gallup Survey, 44 percent of respondents either had a gun in their home, vehicle or outbuilding (such as a garage or shed.) The proportion of households that reported having a gun in their possession has declined over the past two decades from 52 percent in the 1992 survey.

The GSS shows different results. The last time more than half of American households possessed a gun was in 1990. The percentage of gun-possessing households is now estimated to be at 32 percent. This is more than 10 percentage points lower than Gallup’s estimate.

Respondents to the GSS also showed a dramatic change in the types of guns owned (Figure 6). In the 1990s, 30 percent of households owned a rifle, 30 percent owned a shotgun and 20 percent owned a pistol or handgun. Rifles and shotguns are associated with hunting, and pistols with self-protection. The last survey recorded a distinct change in ownership patterns: 20 percent of the responding households reported owning rifles, 20 percent shotguns, and 20 percent handguns. The arithmetic leads to the observation that some households own a single type of gun and others own multiple types of guns.

Figure 3: Annual Percent Change in the Net Production and Imports of Firearms for the U.S. Civilian Market: 1987 to 2010



| Year | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|-------|-------|-------|------|--------|--------|-------|-------|--------|--------|--------|-------|------|------|------|--------|-------|-------|------|------|-------|-------|------|-------|--------|
| Total | 23.0% | 14.9% | 3.7% | -14.0% | -12.6% | 70.5% | 15.8% | -13.3% | -24.9% | -11.8% | -3.3% | 5.9% | 4.6% | 0.0% | -12.5% | 17.4% | -4.4% | 5.1% | 5.8% | 11.0% | 13.0% | 6.4% | 30.4% | -10.2% |

Source: U.S. Department of Justice, Bureau of Alcohol, Tobacco, Firearms, and Explosives. *Firearms Commerce in the United States: Annual Statistical Update, 2012*.

Figure 4: Percent of households in the United States with a gun in their house, on their property, or in a vehicle: 1980 to 2012 Gallup results in blue and General Social Survey in red

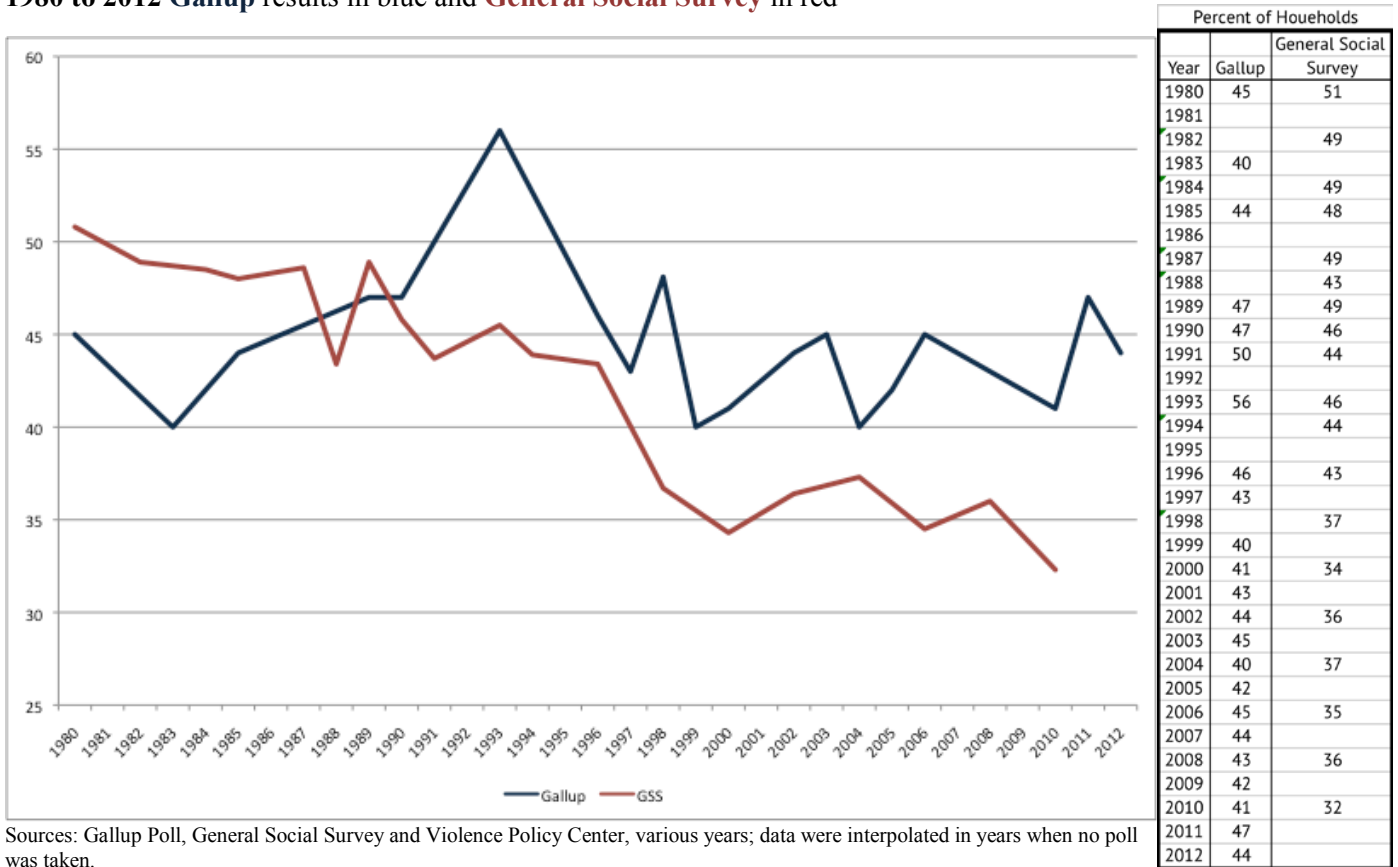
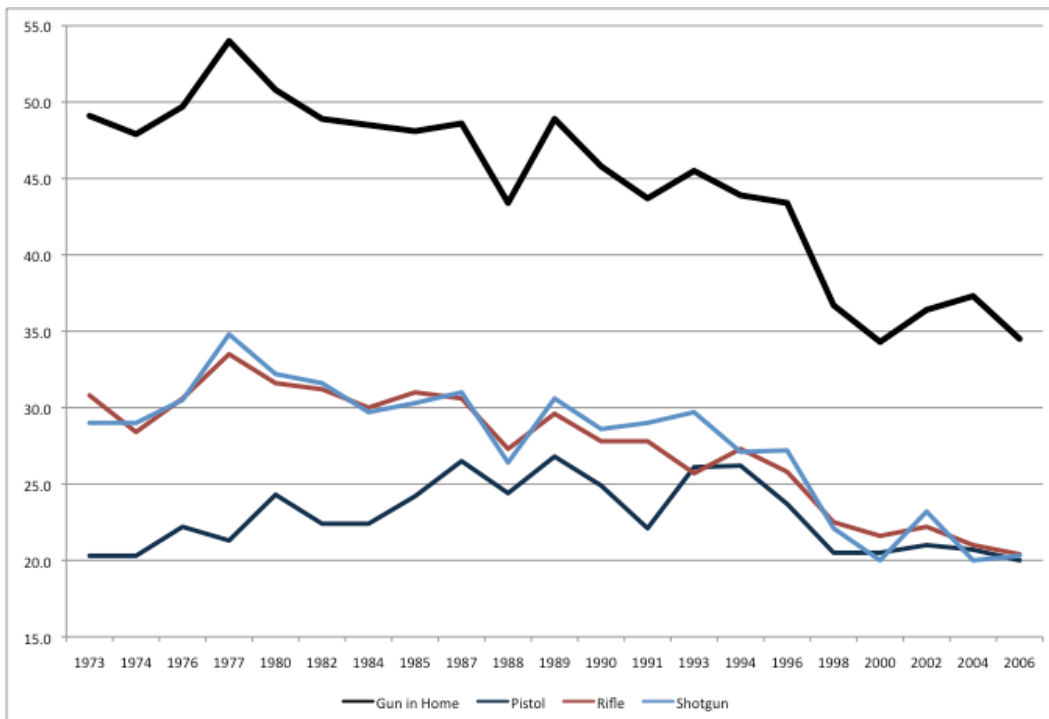


Figure 5: Percentage of households that own a gun and the percentage of households that own handguns (pistols), rifles, and shotguns



APPENDIX

Table A-1

| Year | Estimated Number of Firearms Owned and Available to Civilians in the United States | | | | | | | | | |
|------|--|--------|----------|----------------|-------|--------------------------------|--------|----------|----------------|-------|
| | Millions of Firearms | | | | | Percent Change in Availability | | | | |
| | Handguns | Rifles | Shotguns | Misc. Firearms | Total | Handguns | Rifles | Shotguns | Misc. Firearms | Total |
| 1994 | 65.0 | 70.0 | 49.0 | 8.0 | 192.0 | | | | | |
| 1995 | 68.3 | 72.1 | 50.2 | 8.0 | 198.6 | 5.1% | 3.0% | 2.5% | 0.1% | 3.5% |
| 1996 | 70.5 | 73.7 | 51.4 | 8.0 | 203.6 | 3.2% | 2.2% | 2.4% | 0.1% | 2.5% |
| 1997 | 72.4 | 75.3 | 52.4 | 8.0 | 208.0 | 2.6% | 2.2% | 1.9% | 0.1% | 2.2% |
| 1998 | 74.1 | 76.8 | 53.3 | 8.0 | 212.3 | 2.5% | 2.0% | 1.8% | 0.2% | 2.0% |
| 1999 | 75.9 | 78.5 | 54.3 | 8.1 | 216.8 | 2.4% | 2.2% | 1.9% | 0.3% | 2.1% |
| 2000 | 77.5 | 80.2 | 55.8 | 8.1 | 221.5 | 2.1% | 2.2% | 2.6% | 0.4% | 2.2% |
| 2001 | 79.1 | 82.1 | 56.9 | 8.1 | 226.3 | 2.2% | 2.3% | 2.1% | 0.2% | 2.1% |
| 2002 | 80.7 | 83.5 | 58.0 | 8.1 | 230.4 | 2.0% | 1.8% | 1.9% | 0.1% | 1.8% |
| 2003 | 82.5 | 85.5 | 59.1 | 8.1 | 235.2 | 2.2% | 2.3% | 1.9% | 0.2% | 2.1% |
| 2004 | 84.2 | 87.3 | 60.2 | 8.2 | 239.9 | 2.1% | 2.1% | 1.9% | 0.3% | 2.0% |
| 2005 | 86.0 | 89.1 | 61.4 | 8.2 | 244.7 | 2.2% | 2.1% | 2.0% | 0.1% | 2.0% |
| 2006 | 87.9 | 91.1 | 62.6 | 8.2 | 249.9 | 2.2% | 2.3% | 2.0% | 0.2% | 2.1% |
| 2007 | 90.3 | 93.2 | 63.9 | 8.2 | 255.6 | 2.7% | 2.3% | 2.0% | 0.0% | 2.3% |
| 2008 | 93.2 | 95.3 | 65.2 | 8.2 | 262.1 | 3.2% | 2.3% | 2.1% | 0.5% | 2.5% |
| 2009 | 96.7 | 97.6 | 66.4 | 8.3 | 268.9 | 3.7% | 2.3% | 1.7% | 1.1% | 2.6% |
| 2010 | 101.2 | 100.6 | 67.6 | 8.5 | 277.9 | 4.7% | 3.1% | 1.9% | 1.6% | 3.3% |
| 2011 | 105.7 | 102.9 | 68.8 | 8.5 | 286.0 | 4.4% | 2.3% | 1.8% | 0.6% | 2.9% |

Compound Average Growth Rate: 2.9% 2.3% 2.0% 0.4% 2.4%

Average Growth Rate: 3.7% 2.8% 2.4% 0.4% 2.9%

Source: Cook and Ludwig (1997) U.S. Department of Justice. Bureau of Alcohol, Tobacco, Firearms, and Explosives. *Firearms Commerce in the United States: Annual Statistical Update, 2012*.

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