# Comparing the Global Rate of Mass Public Shootings to the U.S.'s Rate and Comparing their Changes Over time

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**Executive Summary**

The U.S. is well below the world average in terms of the number of mass public shootings, and the global increase over time has been much bigger than for the United States.

Over the 18 years from 1998 to 2015, our list contains 2,354 attacks and at least 4,880 shooters outside the United States and 53 attacks and 57 shooters within our country. By our count, the US makes up less than 1.15% of the mass public shooters, 1.49% of their murders, and 2.20% of their attacks. All these are much less than the US's 4.6% share of the world population. Attacks in the US are not only less frequent than other countries, they are also much less deadly on average.

Out of the 97 countries where we have identified mass public shootings occurring, the United States ranks 64$^{th}$ in the per capita frequency of these attacks and 65$^{th}$ in the murder rate.

Not only have these attacks been much more common outside the US, the US's share of these attacks have declined over time. There has been a much bigger increase over time in the number and severity of mass shootings in the rest of the world compared to the US.

*"I say this every time we've got one of these mass shootings: This just doesn't happen in other countries."* **–Obama, news conference at COP21 climate conference in Paris, Dec. 1, 2015**

*"The one thing we do know is that we have a pattern now of mass shootings in this country that has no parallel anywhere else in the world."* **–President Obama, interview that aired on CBS Evening News, Dec. 2, 2015**

*"You don't see murder on this kind of scale, with this kind of frequency, in any other advanced nation on Earth."* **– President Obama, speech at U.S. Conference of Mayors, June 19, 2015**

"*This doesn't happen anywhere else on the planet*." -- **California's Governor-elect Gavin Newson, referring to 12 people killed at the Borderline Bar and Grill, Thousand Oaks, California, November 8, 2018**

"*We stand alone in the world in the number of mass shootings*," **Representative Carolyn Maloney (D-NY), November 5, 2018**

## I. Introduction

President Obama and other politicians have frequently claimed that the United States is unique regarding mass public shootings.[1] It is also a frequent claim by the media.[2]

This belief is constantly used to push for more gun control. If we can only get rid of guns in the United States or have stricter gun control, we will get rid of these mass public shootings and be more like the rest of the world. Of course, it is understandable that the U.S. media doesn´t report about most of the mass public shootings in other countries. Americans are much more interested in news about their own country, but, as we will see, the US is a relatively safe place from these mass public shootings.

We use the FBI's traditional definition of mass public shootings. America is unique regarding the detail of its crime data. For example, almost half the countries in the world don't even report the number of firearm homicides, just the total number of homicides. Few countries provide murder rates as opposed to homicides. Other countries just don't officially collect data on mass public killings, let alone on the category of shootings.

What this means is that we have had to do an extensive search of news stories to collect our cases. For less developed parts of the world such as Africa or Latin

America, it can be very difficult to obtain news stories from even a decade or so ago. It is downright impossible to obtain news stories on all of the cases of four or more people killed in the 1970s or 1980s. The problem is that if we have all the mass public shootings from the US but only a fraction of those from the rest of the world, it will make the US look worse than it is. So we examined the last 15 years of his period of study: 1998 to 2015.

The following sections will explain the FBI's definition of mass public shootings, how we collected the data, how the US compares to the rest of the world and how the rate and severity of these attacks has changed over time and comparing whether countries with the highest gun ownership rates tend to have higher rates of mass public shootings. We will also show how sensitive the results are to decisions on what to include in the count. But even the most generous assumptions produce results show that mass public shooters, shootings, and murders from these attacks are very rare in the US compared to the rest of the world.

## II. How Frequently do Mass Public Shootings Occur in the World?

### A. Defining Mass Public Shootings

We follow the FBI's definition of mass public shootings.[3]

- The FBI (2013) only includes shootings in "public places" such as commercial areas (malls, stores, and other businesses); schools and colleges; open spaces; government properties (including military bases and civilian offices); houses of worship; and healthcare facilities.
- The FBI excludes "shootings that resulted from gang or drug violence," occurred in the commission of another ongoing crime such as robbery, or arose primarily from self-defense — primarily a domestic dispute or barricade/hostage situation.
- From 1980 to 2013, the original FBI definition of "mass killings" had been "*four or more* victims slain, in one event, in one location," and the offender is not included in the victim count (CRS, July 30, 2015). In 2013, the definition was changed to "three or more killings." Many academics have continued to use the four or more definition, and that is the definition that we will use here.[4,5] There is also an important practical reason for using the four or more deaths definition in that it is already hard enough to find news stories in many parts of the world for cases involving 4 or more people killed, and that is especially true when we go back further in time.
- There is no limit on the number of people involved in these attacks. The FBI states: "some incidents involved two or more shooters." For example, the FBI includes the 2015 San Bernardino, California attack by a husband and wife

> team. Had the report gone back to 1999, the FBI would have included the Columbine High School shooting, which involved two killers.

The New York City Police Department's (NYPD) 2012 Active Shooter report and the Department of Homeland Security's definition of active shooters provide similar definitions with the exception that they don't limit themselves to cases where four or more people have been killed.[6]

Our primary source is the University of Maryland Global Terrorism Database (GTD), which collected data on over 170,000 terrorist attacks from 1970 to 2016 (Global Terrorism Database, 2017 and LaFree et al, 2015). The GTD defines terrorist attacks as "the threatened or actual use of illegal force and violence by a non-state actor to attain a political, economic, religious, or social goal through fear, coercion, or intimidation." The database lists attacks that were carried out using everything from firearms, incendiary, knifes, bombs, vehicles, chemical, biological, or radiological weapons. They divide their attacks into six categories: 1) Terrorism; 2) Insurgency/Guerilla Action; 3) Other Crime Type; 4) Intra/Inter-group conflict; 5) Lack of Intentionality; and 6) State Actor.

The only categories that sometimes meet our criteria for mass public shootings are "terrorism", "other crime type," and "intra/inter-group conflict." Government sponsored or directed/ordered killings or state terrorism (the "State Actor" category) are completely excluded.

We then reviewed each case using Nexis and web searches to determine whether they met our definition (exactly the same as Lankford used, minus insurgency-related shootings). Less than 50% of the terrorism shooting cases identified by the GTD met the definition of mass public shootings.

One issue that was relatively common among cases in Africa and some other less developed countries is that some news stories only reveal the total killed and the number of places attacked. Without more information, we cannot determine whether each target meets the criterion of four or more people being killed. Twenty people may have been killed on different days in three different towns that are many miles apart. While it is possible that all three attacks satisfy our definition, we took the more conservative route and counted this as only one attack. This causes a slight underestimate of the total number of cases.

Kidnappings are a possible grey area with these cases. At one extreme, attackers start killing people and then take hostages when the police or military arrive. At the other, attackers kidnap people and then kill them. The first type of case is clearly within the purview of this data. The second type is less obvious, though the NYPD includes two cases where a kidnapping preceded a shooting and in one of those cases the kidnapping clearly precipitated the shooting.[7]

While all our cases involve four or more people killed in one place at one time, we have removed most cases where fewer than four people were killed prior to a kidnapping. We have excluded cases where less than four people were killed before anyone was kidnapped unless it is clear that there was no ransom (such as an exchange of hostages) and no negotiations. There are 84 of these cases.

The GTD is also an incomplete source. For the 1998 to 2015 period, we found 53 attacks in the US whereas the GTD lists just 5: the 1999 Columbine High School shooting, the 2009 Fort Hood massacre, the 2012 Sikh Temple attack in Oak Creek, Wisconsin, the 2015 Charleston church shooting, and 2015 Chattanooga shootings. The Columbine attack is classified as "other crime," and the other four are classified as "terrorism." But the GTD readily admits that they do not have a comprehensive list of "other crime types," causing them to miss cases such as the 2012 Sandy Hook Elementary School attack that fall into that category.

While the GTD treats cases such as the Columbine and Fort Hood shootings differently, classifying Columbine as "other crime" and Fort Hood as "terrorism," others who have looked at these types of cases have argued that Columbine is "functionally similar to terrorism."[8] Both types involve premeditated attacks that aim to kill and wound as many people as possible because they know that the more people they harm the more media attention they will receive. They also involve the same type of planning, such as picking targets that aren't able to defend themselves. That some attackers are Muslims, while others are white supremacists or young people who feel that they are not properly appreciated, seems secondary to their goal of killing as many people as possible to get media coverage. The cases also appear the same in terms of any implications for gun control.

Over the eighteen years studied here, the GTD also misses 39 cases in Europe that they don't identify as terrorist attacks: Albania 1, Austria 1, Belgium 1, Bosnia 1, Croatia 1, Czech Republic 1, England 1, Finland 2, France 6, Germany 2, Italy 1, the Netherlands 1, Russia 12, Serbia 3, Slovakia 1, Switzerland 2, Ukraine 1, and Yugoslavia 1. In Germany, there was two large school shootings (2002 where 18 were killed and 2009 where 15 were killed).[9] Finland, a country with about 1/57$^{th}$ the US's population, suffered ten people shot to death at a college in 2008 and five people fatally shot at a mall in 2009.[10] The GTD also missed all of the cases for some countries such as the Solomon Islands.

To obtain these additional cases missed by the GTD, at the CPRC we used our own Nexis and web searches for mass shootings for Europe and the United States and for large-scale mass public shootings where at least 15 people were killed. For some parts of the world we found Wikipedia entries on rampage and mass shootings.[11] We have also hired people who can speak Chinese, French, Polish, Russian, and Spanish.

Neither the NYPD report nor Lankford discuss what search terms that they used. We

employed Nexis to search for cases by year and our search terms were “mass W/10 shooting,” “mass W/10 firearm*,” “mass W/10 gun,” “multiple W/10 shooting*,” “multiple W/10 firearm*,” and “multiple W/10 gun.” While about 85 percent of cases we found were already identified by GTD and the CPRC, we did pick up another 86 cases.

Still, despite these searches, it is clear that we likely missed many mass public shootings around the world over the 1998 to 2015 period. For example, the GTD has only listed thirteen Central American and Caribbean mass public shootings (2 for Haiti, 4 for Honduras, 6 for Mexico, and 1 for Nicaragua) and we only picked up two more case for Mexico with Nexis, though Haiti and Honduras had homicide rates that were respectively 11.5 and 16.1 times higher than that of the US. Many other countries in this region also have very high homicide rates. While it is possible that countries with high homicide rates don’t exhibit unusual rates of mass public shootings, it is also possible that the news media doesn’t give much news coverage to a shooting with four fatalities in one of these countries because violence is so common.

Thus, while we have all the mass public shootings for the US and perhaps Europe, we are very unlikely to ever get all of the cases for the rest of the world. No incidents are identified in 83 countries, but that might simply be because we missed them. While we will show that the rate of mass public shootings in the rest of the world is much higher than in the US, that is true despite our numbers underestimating the prevalence of gun violence in the rest of the world.

**B. The number of shooters**

Out of our 2,354 cases, news reports provide of the number of killers involved in the attack in only 562 instances. In 127 cases, a lone killer was identified, that is 22.6% of the cases that list a number of attackers. Another 62 attacks had two killers and 40 had three, so that indicates 40.7% of the cases where the number of killers was identified had between one and three shooters. 184 were identified as having more than 10 killers. In larger scale attacks, numbers of perpetrators are virtually always reported as multiples of ten, making their accuracy doubtful. Witnesses and reporters are most likely just making a rough guess. News reports for 1,792 of them simply indicate that there were multiple attackers, but no specific number was provided.

In the US, just 57 shooters perpetrated the 53 mass public shootings between 1998 and 2015. If we take the most conservative estimate that there were two killers in the attacks with an indeterminate or plural number of shooters, our list shows that there would have been 19,008 attackers worldwide from 1998 to 2015. So our best guess is that the number of shooters is ***65 times*** greater than Lankford’s over less than a third of his time period. The US would then account for only 0.30% of attackers.

If we exclude the 184 cases outside the US with more than 10 killers, whose accuracy is circumspect, there would be still be 4,880 killers. The NYPD (2012) cases are also limited to cases with 10 or fewer killers (the Mumbai, India attack in 2008). That amounts to an average of 2.2 killers per attack. The US share of the world's mass public shooters would be 1.15%, less than a third of the US share of the world population. Another reason limiting cases to no more than 10 shooters is because that is the range of cases in the NYPD's report.

While the United State's precise share of the world's mass public shooters is uncertain, it is far below our share of the world's population. Even if one were to eliminate all foreign terrorist attacks on top of all the insurgency ones (and the NYPD dataset clearly includes terrorist cases for both the US and foreign countries) that leaves 961 foreign mass public shooters. If we also don't cut terror attacks from the US total, that leaves the US with 5.6 percent of these shooters.[12]

**C. How the United States compares to the rest of the World**

The list of all of our 2,407 cases from 1998 to 2015 is provided in Appendices 1 and 2. Of those, 53 occurred in the United States and 2,354 happened in the rest of the world. While the US had about 4.6 percent of the world's population during this period, it had just 2.20 percent of the mass public shootings.

Just as we compare crime rates across the United States by adjusting for different state populations, we report the population-adjusted rates across countries. It makes no more sense to compare the raw number of murders in Wyoming with the number in California than it is to compare raw numbers of murders from mass public shootings for the United State and India, a country with almost 4 times the US population.

The United States was host to a still smaller share of people killed in these attacks. Worldwide mass public shooting murders totaled 26,380 people, and the US accounted for 394 (1.5%) of these.

By both measures, the US is substantially below the world average. Per capita, mass public shootings occur with 53.1 percent less frequency and result in 59.3 percent fewer casualties. For 83 countries, no incidents are identified, but for many countries that might simply be because we missed cases.

Table 1 lists the per capita attack and death rates in the 97 countries where we identified mass public shootings. The US ranks 64$^{th}$ in attack rate and 65$^{th}$ in murder rate. Norway, Finland, France, Switzerland and Russia are major European countries with at least 25 percent higher rates of murder from mass public shootings than the United States. Indeed, France's rate is 111 percent higher than the US's. The rates in Pakistan and India are respectively 663% and 56% higher than the US rate.

(Appendix 3 shows the absolute number by country.)

**Table 1: Countries with Mass Public Shootings from 1998 through 2015: Ranking by per capita rate of attacks and people killed**

| Rank | Country | Number of Attacks per 100,000 People | Country | Number of People Killed per 100,000 People |
|---|---|---|---|---|
| 1 | Northern Mariana Islands | 1.569 | Central African Republic | 13.333 |
| 2 | Iraq | 0.972 | Iraq | 8.674 |
| 3 | Afghanistan | 0.866 | Northern Mariana Islands | 6.275 |
| 4 | Central African Republic | 0.714 | Afghanistan | 5.726 |
| 5 | Solomon Islands | 0.600 | Angola | 5.221 |
| 6 | Guyana | 0.500 | Nigeria | 5.086 |
| 7 | Somalia | 0.453 | Guyana | 4.000 |
| 8 | Nigeria | 0.332 | Solomon Islands | 4.000 |
| 9 | Burundi | 0.308 | Somalia | 3.698 |
| 10 | Algeria | 0.302 | Sierra Leone | 3.309 |
| 11 | West Bank and Gaza Strip | 0.271 | Burundi | 3.231 |
| 12 | Yemen | 0.246 | Sudan | 2.923 |
| 13 | Colombia | 0.185 | Algeria | 2.820 |
| 14 | Angola | 0.175 | South Sudan | 2.195 |
| 15 | South Sudan | 0.148 | West Bank and Gaza Strip | 1.988 |
| 16 | Sudan | 0.144 | Colombia | 1.770 |
| 17 | Sri Lanka | 0.132 | Yemen | 1.614 |

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| 18 | Lebanon | 0.132 | Uganda | 1.498 |
| 19 | Uganda | 0.130 | Kenya | 1.470 |
| 20 | Pakistan | 0.117 | Norway | 1.457 |
| 21 | Israel | 0.113 | Sri Lanka | 1.335 |
| 22 | Sierra Leone | 0.109 | Syria | 1.332 |
| 23 | Armenia | 0.100 | Guinea | 1.126 |
| 24 | Syria | 0.087 | Chad | 1.062 |
| 25 | Libya | 0.086 | Pakistan | 1.015 |
| 26 | Kenya | 0.080 | Cameroon | 1.012 |
| 27 | Philippines | 0.075 | Niger | 0.993 |
| 28 | Niger | 0.071 | Democratic Republic of the Congo | 0.962 |
| 29 | Mali | 0.067 | Rwanda | 0.874 |
| 30 | Chad | 0.062 | Lebanon | 0.789 |
| 31 | Democratic Republic of the Congo | 0.061 | Mali | 0.719 |
| 32 | Tajikistan | 0.059 | Armenia | 0.700 |
| 33 | Kosovo | 0.059 | Honduras | 0.667 |
| 34 | Finland | 0.058 | Nepal | 0.630 |
| 35 | Honduras | 0.056 | Libya | 0.621 |
| 36 | Cameroon | 0.055 | Philippines | 0.619 |
| 37 | Nepal | 0.051 | Israel | 0.606 |
| 38 | Macedonia | 0.050 | Mauritania | 0.581 |
| 39 | Namibia | 0.050 | Tunisia | 0.470 |
| 40 | Azerbaijan | 0.048 | Finland | 0.442 |

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|---|---|---|---|---|
| 41 | Georgia | 0.044 | Liberia | 0.364 |
| 42 | Switzerland | 0.041 | Azerbaijan | 0.321 |
| 43 | Rwanda | 0.034 | Switzerland | 0.297 |
| 44 | Mauritania | 0.032 | Kosovo | 0.293 |
| 45 | Albania | 0.031 | France | 0.280 |
| 46 | Liberia | 0.030 | Tajikistan | 0.279 |
| 47 | Tunisia | 0.030 | Macedonia | 0.250 |
| 48 | Thailand | 0.029 | Ivory Coast (Cote d'Ivoire) | 0.225 |
| 49 | Peru | 0.029 | India | 0.208 |
| 50 | Serbia | 0.028 | Georgia | 0.200 |
| 51 | Ivory Coast (Cote d'Ivoire) | 0.027 | Namibia | 0.200 |
| 52 | Bosnia | 0.026 | Ethiopia | 0.181 |
| 53 | Russia | 0.026 | Serbia | 0.178 |
| 54 | South Africa | 0.026 | Laos | 0.169 |
| 55 | Haiti | 0.024 | Russia | 0.169 |
| 56 | Croatia | 0.023 | Yugoslavia | 0.169 |
| 57 | Norway | 0.022 | Croatia | 0.159 |
| 58 | Guinea | 0.021 | Bosnia | 0.158 |
| 59 | India | 0.021 | South Africa | 0.158 |
| 60 | Kyrgyzstan | 0.019 | Peru | 0.154 |
| 61 | Belgium | 0.019 | Thailand | 0.149 |
| 62 | Yugoslavia | 0.019 | Saudi Arabia | 0.146 |
| 63 | Slovakia | 0.019 | Egypt | 0.138 |
| 64 | **United States** | **0.018** | Iran | 0.137 |
| 65 | Jordan | 0.017 | **United States** | **0.133** |
| 66 | Nicaragua | 0.017 | Slovakia | 0.130 |

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|---|---|---|---|---|
| 67 | Senegal | 0.017 | Senegal | 0.128 |
| 68 | Laos | 0.017 | Albania | 0.125 |
| 69 | Mozambique | 0.015 | Turkey | 0.122 |
| 70 | Egypt | 0.015 | Haiti | 0.120 |
| 71 | Ukraine | 0.015 | Kyrgyzstan | 0.096 |
| 72 | Iran | 0.014 | Belgium | 0.095 |
| 73 | France | 0.013 | Ukraine | 0.089 |
| 74 | Turkey | 0.012 | Jordan | 0.086 |
| 75 | Austria | 0.012 | Czech Republic | 0.078 |
| 76 | Saudi Arabia | 0.012 | Nicaragua | 0.069 |
| 77 | Czech Republic | 0.010 | Venezuela | 0.067 |
| 78 | Ethiopia | 0.009 | Uzbekistan | 0.064 |
| 79 | Zimbabwe | 0.008 | Mozambique | 0.062 |
| 80 | Uzbekistan | 0.008 | Zimbabwe | 0.054 |
| 81 | Venezuela | 0.007 | Austria | 0.049 |
| 82 | Kazakhstan | 0.007 | Mexico | 0.046 |
| 83 | South Korea | 0.006 | Myanmar | 0.044 |
| 84 | Netherlands | 0.006 | Germany | 0.040 |
| 85 | Myanmar | 0.006 | Kazakhstan | 0.040 |
| 86 | Mexico | 0.006 | Indonesia | 0.037 |
| 87 | Indonesia | 0.005 | Netherlands | 0.037 |
| 88 | Malaysia | 0.004 | South Korea | 0.035 |
| 89 | Canada | 0.003 | Brazil | 0.025 |
| 90 | Tanzania | 0.003 | United Kingdom | 0.020 |
| 91 | Argentina | 0.003 | Tanzania | 0.019 |
| 92 | Germany | 0.002 | Malaysia | 0.019 |
| 93 | Bangladesh | 0.002 | Bangladesh | 0.015 |
| 94 | Italy | 0.002 | Canada | 0.012 |

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|---|---|---|---|---|
| 95 | United Kingdom | 0.002 | Argentina | 0.010 |
| 96 | Brazil | 0.002 | Italy | 0.009 |
| 97 | Vietnam | 0.001 | Vietnam | 0.005 |

Even with all of the cases identified as "Insurgency/Guerilla Action" removed from the sample, Iraq is still on top of the lists for the most attacks and deaths per capita right after Northern Mariana Islands. Afghanistan and Central African Republic follow in third and fourth. If we had data for the Solomon Islands over all 15 years, it may well place first. Afghanistan was also the fourth worst in deaths per capita, even excluding those directly related to the struggle for control of the government.

While we relied on GTD for classifying whether cases for Afghanistan and Iraq involved insurgency, removing non-insurgency cases for those two countries doesn't appreciably alter our results. Removing all those cases reduces the number of attacks outside the United States from 2,354 to 1,815, and would raise the US share of attacks from 2.20 to 2.84 percent. The share of murders rises from 1.49 to about 1.78 percent. Both rates are still well below the US share of the world population.

Breaking down the cases by geographic regions, we find that the United States ranks roughly in the middle in number of mass public shootings (Figures 1A-D). We use the sixteen geographic regions provided by the Population Reference Bureau (See Appendix 4). Not surprisingly, Western Asia ranks high since it is largely comprised of Middle Eastern countries such as Iraq, which has per capita rates of attacks and deaths that are respectively 899 and 1073 percent higher than those of the United States. Africa (both Northern and sub-Saharan) also has dramatically higher rates than the US. While attacks occur more frequently in Northern Africa, they are more deadly in sub-Saharan Africa (the average number of people killed per attack is 15.7 in sub-Saharan Africa and 9.3 in Northern Africa). The overall mass public shooting death rates in these two regions are fairly similar.

In South America, people are twice as likely to die from mass public shootings and attacks occur 54 percent more frequently. And there is a serious lack of news coverage of crime in South and Central America. Homicide rates are so high in some areas that the local media appear to ignore most murders. Central America's average homicide rate in 2008 was 5.8 times higher than in the United States that same year. Honduras' homicide rate was 11.3 times higher, and El Salvador's was 9.6 times higher. These high homicide countries just don't systematically report mass public shootings or even firearm homicides in general.

In Venezuela, not only was the official homicide rate 9.6 times higher than the US rate, but the government has gone to great lengths to prevent the media from reporting on murders. The newspaper El Universal reported that, starting in 2009,

the Venezuelan police were supposed to tell "relatives of victims who are in the morgue of Caracas (Venezuela), not to make statements to the press in exchange for expediting the procedures to recover the bodies."[13]

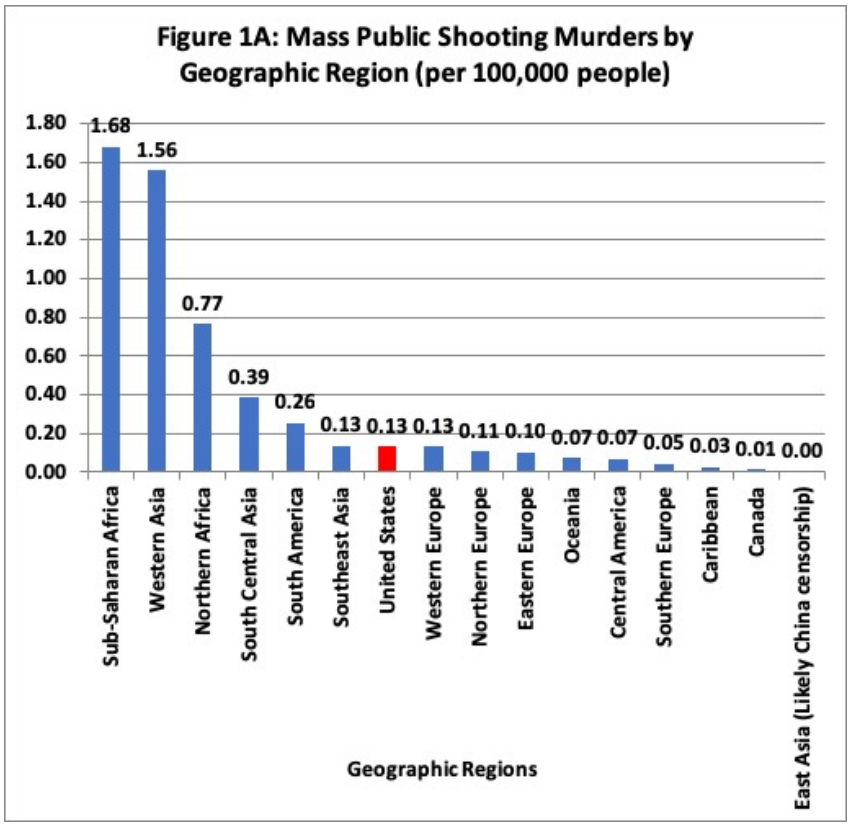
There is evidence of this also happening in China. We have found three large-scale mass public shootings in China in years outside of the 1998 to 2015 period: 1994, 28 killed; 1981, 21 killed; and 1979, 16 killed.[14] We know of no other country that exhibited only such large mass public shootings, and none with between 4 and 15 fatalities. Victor Mair, a University of Pennsylvania professor who specializes in China, told us:

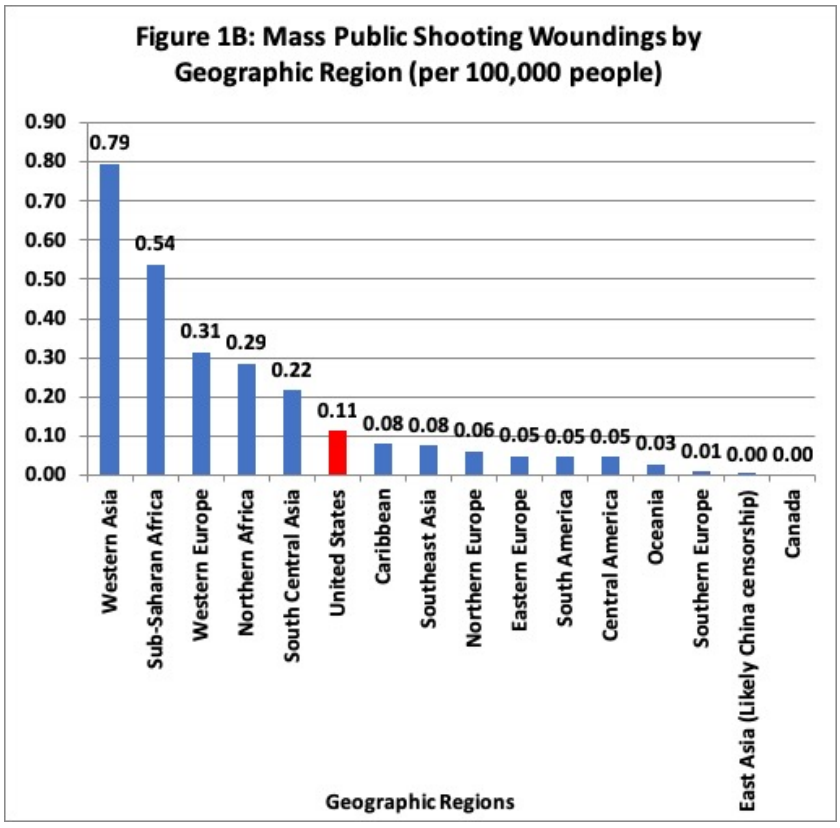
> I'm almost certain that they had mass public shootings of all sizes up to the three big ones, but such things just don't get recorded in the media. . . . The Chinese government is very good about hiding the news. Of course, it's easier to hide the news for smaller incidents, but much harder for larger incidents, because more people would have noticed them.[15]

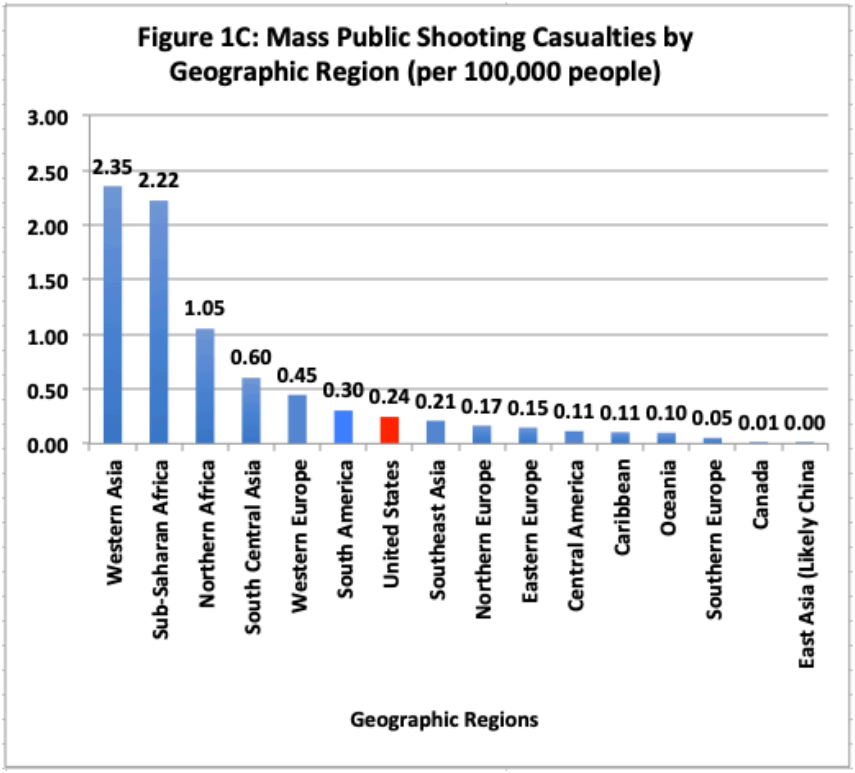
As an example, Mair claims that friends of his in China have been "forbidden to talk about" a recent knife attack on school children.[16]

As discussed previously, the Solomon Islands only provided information for 5 of the 15 years we examined. Even if there were no other missing cases in the rest of Oceania, missing cases from the Solomon Islands could greatly affect our overall estimate for this part of the world. All these points provide yet more indications that the United States has a smaller share of mass public shootings than our results show.

Probably of particular interest to people are comparisons between Europe and the United States. There are huge differences in mass public shooting rates across Northern, Western, Eastern, and Southern Europe. While the attack rate in Northern Europe is only 29 percent of the rate in the US, 20.4 people were killed per attack in Northern Europe versus 7.4 in the US. So the fatality rate from mass public shootings is the same in both Northern Europe and the US. The fatality rate in Northern Europe is 20% lower than the rate in the US, and the rate in Eastern Europe was 24 percent lower.





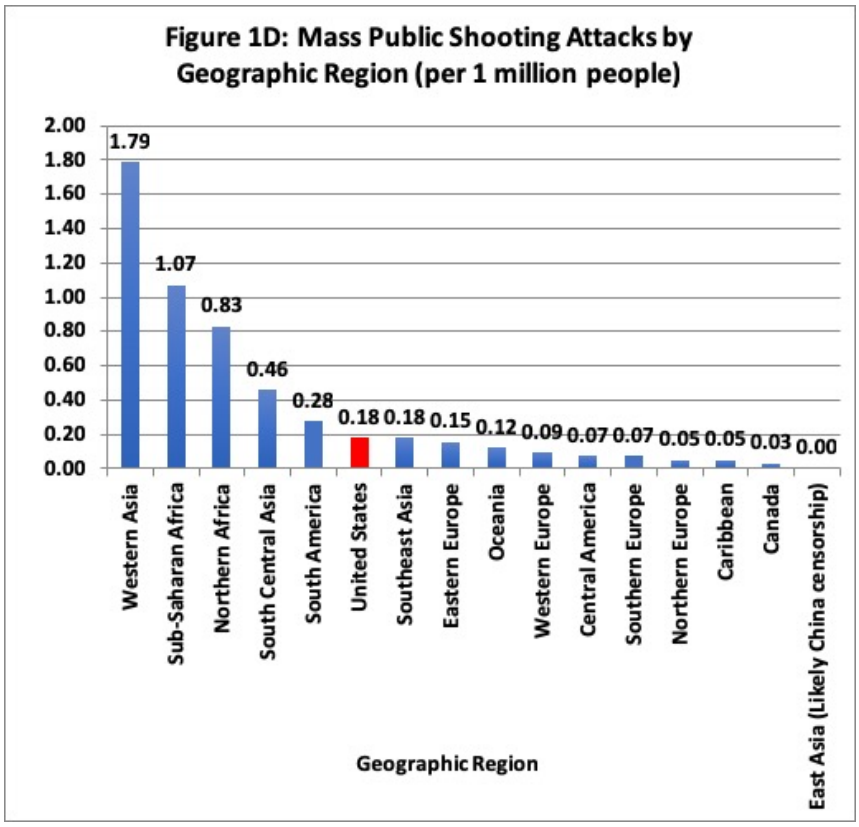
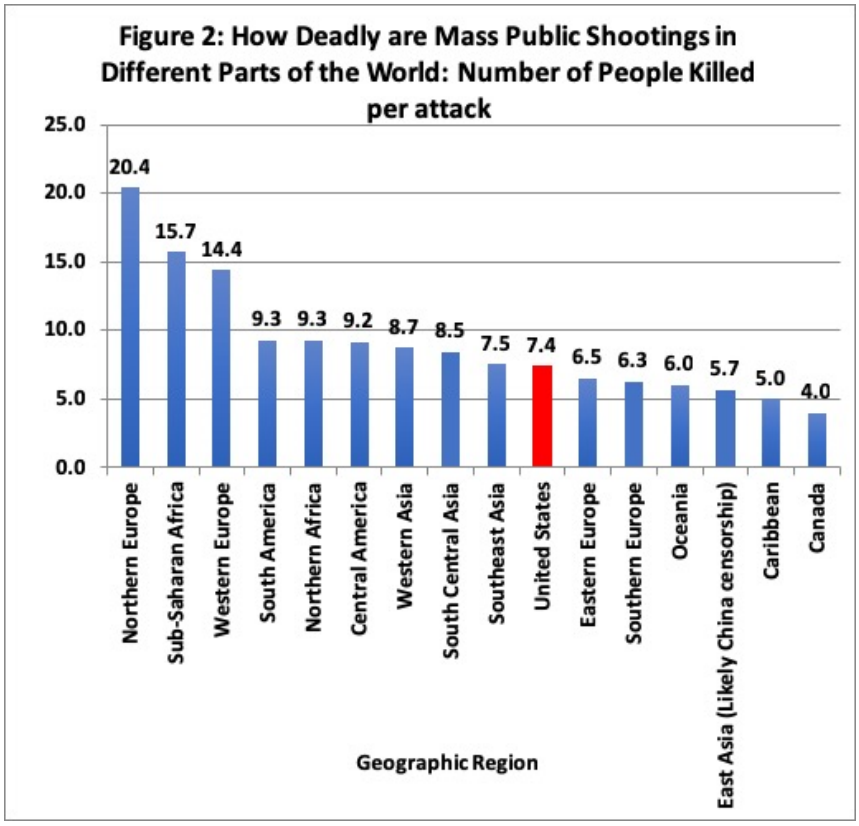
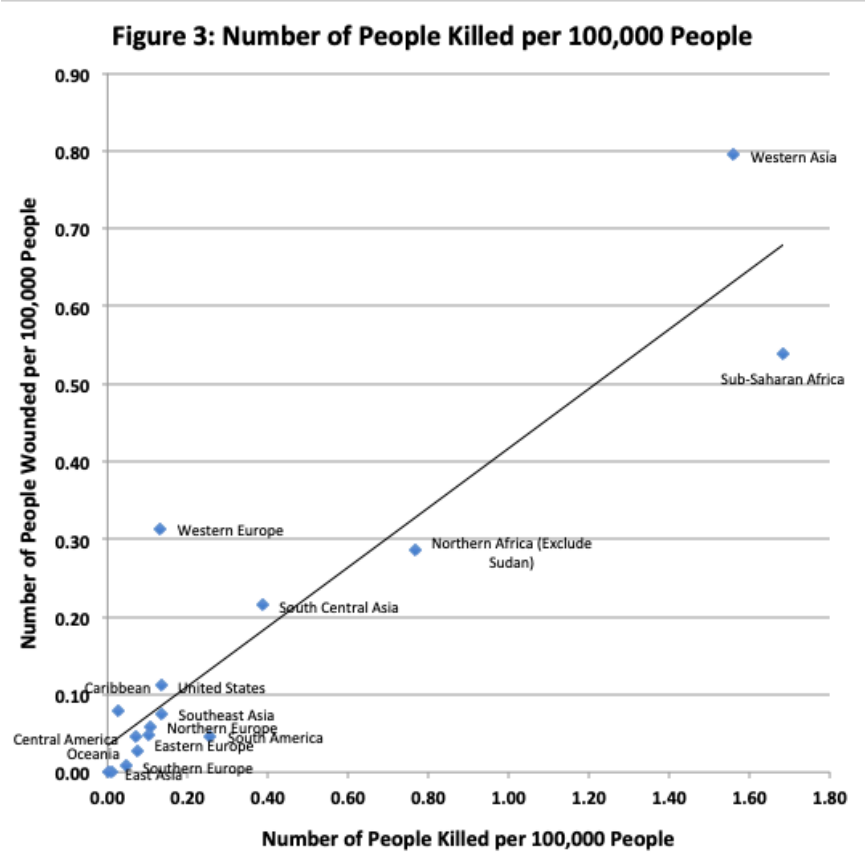



Figure 2 shows that attacks in the United States are relatively less deadly than in most of the rest of the world. There are lots of possible explanations for this. One is that better medical care means that fewer wounded people end up dying.




There are lots of possibilities for this low rate. One is that better medical care means that people who are wounded don't die. In that case, the United States would have a high number of woundings, but that doesn't explain the low rate of murders per attack. As Figure 3 shows, those parts of the world with more murders from mass public shootings have more woundings (the same thing holds across countries). Even removing all the sub-continent areas from Africa and Asia leave the result unchanged.




Figures 4A-B show that while Americans are understandably concerned with the increased frequency and severity of mass public shootings, the rest of the world has experienced a much larger increase in their per capita rates than the United States. For the US we use attacks from the beginning of 1998 through November 10, 2018 (for 2018 we assume that the rate through November 10th continues through the rest of the year). For the rest of the world we use our data from 1998 through 2015. The rate of growth for the frequency of mass public shootings in the rest of the world is 291 percent faster than for the US. The growth rate for murders is 115 percent faster.

The rate of attacks in the rest of the world started rising in 2012, but became particularly noticeable in 2013, 2014, and 2015. While the per capita rate of mass public shootings in 2012 was 0.024 per million people, up from the previous high of 0.021 in 2001, by 2013 it had risen to 0.032, 0.056 in 2014 and back down to 0.042 in 2015. By contrast, the US reached its peak in terms of the rate of these attacks in 2012.

The five countries with the largest percentage increases in the yearly rate between 1998 and 2012 versus 2013 and 2015 were the Central African Republic, Cameroon, Tunisia, France and Ukraine. The United States ranked 29th, well behind countries such as Belgium (16th) and Switzerland (18th).

While news coverage of mass public shootings might miss many attacks during the beginning of this period, the quality of coverage seems to have done.

It seems unlikely that the large growth in mass public shootings in the rest of the world starting in 2012 could be explained by better news coverage.

But before one concludes that there has really been a worldwide increase in mass public shootings, we believe that at least some of this increase is due to the greater difficulty in finding older cases. In Africa and other parts of the world, searching news coverage on attacks prior to 2000 is an extremely difficult task.

Better news coverage in later years might not only explain the increase in recorded attacks but also why the number of people killed per attack appears to be falling over time. Cases with fewer victims might be getting coverage and that will reduce the average killed per attack.

**Figure 4A: Frequency of Mass Public Shootings by Year in the Rest of the World and the United States per million people (1998 to November 10, 2018 for the US and 1998 to 2015 for the Rest of the World)**

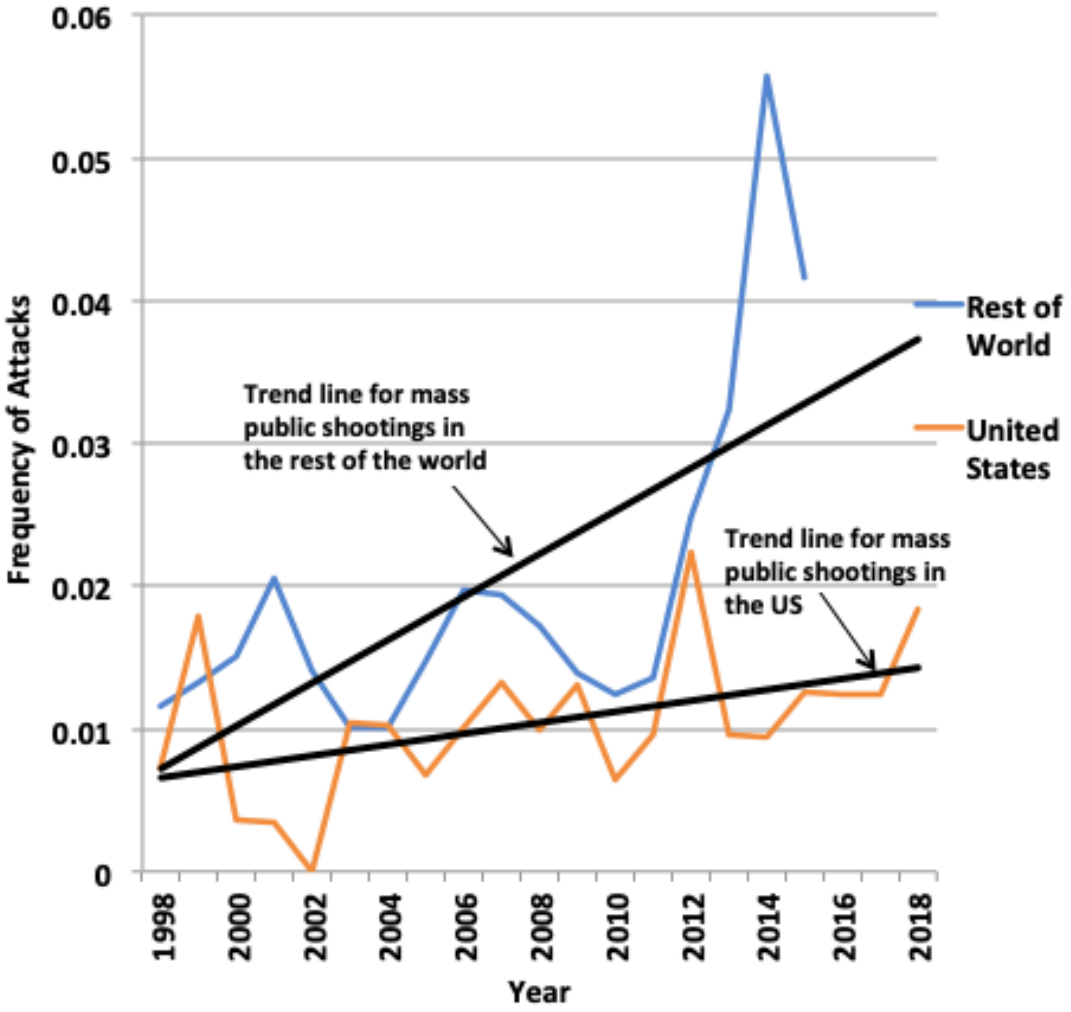
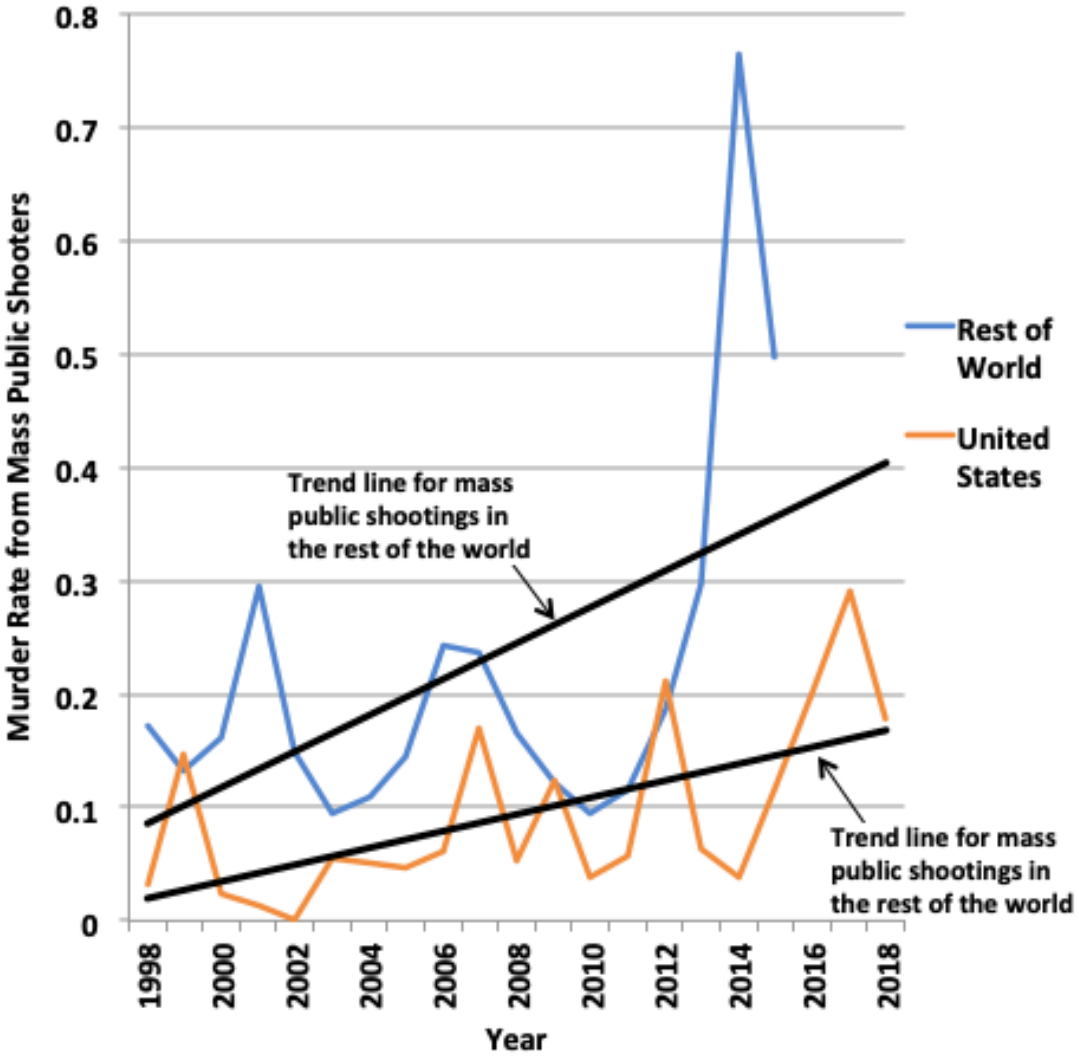


**Figure 4B: Rate of Murders from Mass Public Shootings by Year in the Rest of the World and the United States (1998 to November 10, 2018 for the US and 1998 to 2015 for the Rest of the World)**




**III. Gun ownership and Mass Public Shootings**

The Small Arms Survey is the most commonly cited source for data on gun ownership rates, with claims that the United States has by far the highest level of gun ownership, with 88.8 guns per 100 people. Unfortunately, the only citations that the Small Arms Survey offers are to the European Union Survey on gun ownership rates and in email discussions they point to the International Crime Victimization

Survey (ICVS).[17] The EU survey covers only 28 countries in the European Union.[18] The ICVS only covers five countries past 2005, and those are all countries that are already in the later EU survey. The only other information has been that they rely on gun ownership numbers, not gun possession numbers, for Israel and Switzerland, though no sources were provided.[19]

Both Israel and Switzerland have guns issued by the government to civilians, but the government technically owns the guns. In Switzerland, all able-bodied Swiss males between the age of 18 and 34 kept their military weapons in their homes.[20] After age 34, they could apply for permission to continue to keep their military weapons and the majority opts to do so.[21] Only at age 65 are the Swiss given the option of purchasing these guns for their own private ownership. Israeli guns are also excluded for the same reason. In Israel, the government owns most guns and people apply to have them issued to them.

Even surveys and registration numbers have problems. When Canada tried in the late 1990s to register its estimated 15 million to 20 million long guns, about 7 million were actually registered.[22] In the 1970s, Germany registered 3.2 million of the country's estimated 17 million guns.[23] In the 1980s, England registered only about 50,000 of the estimated 300,000 pump-action and semiautomatic shotguns in the country.[24]

There are also other problems with the survey. For example, a much better measure of gun ownership would be the percentage of the population owning guns, and not the number of guns per 100 people as used by the Small Arms Survey. Presumably, the issue is whether people have access to guns, not the number of guns greater than one that an individual has access to.

That said, the Small Arms Survey is regularly used by the press. For example, to instances where these estimates were used in the New York Times graphs have occurred in the last year.[25] We combine this estimate of gun ownership with the estimates of both the frequency and severity of mass public shootings shown in Table 1.

Figures 5A-C show that the more guns owned in a country, the lower the frequency and severity of mass public shootings, though the relationship is not statistically signficant.[26] Figure 4C illustrates that even removing the extreme cases of the Central African Republic and Iraq continues to show the same relationship. More sophisticated regression results demonstrate that higher rates of gun ownership are not associated with more mass public shooters on mass public shooters (Lott, 2018a).

**Figure 5A: Number of Attacks per 100,000 People**

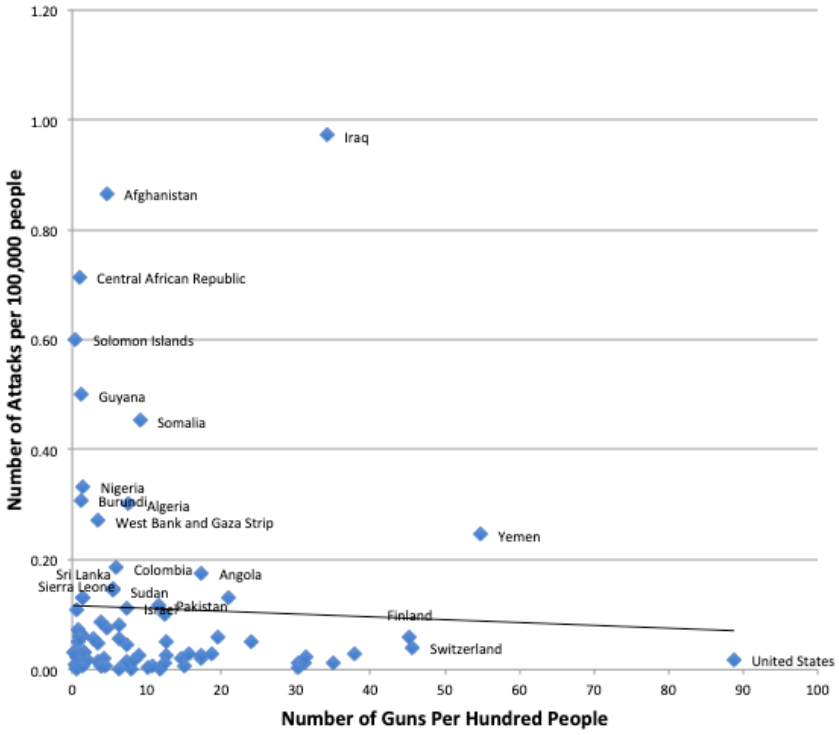



**Figure 5B: Number of People Killed per 100,000 People**

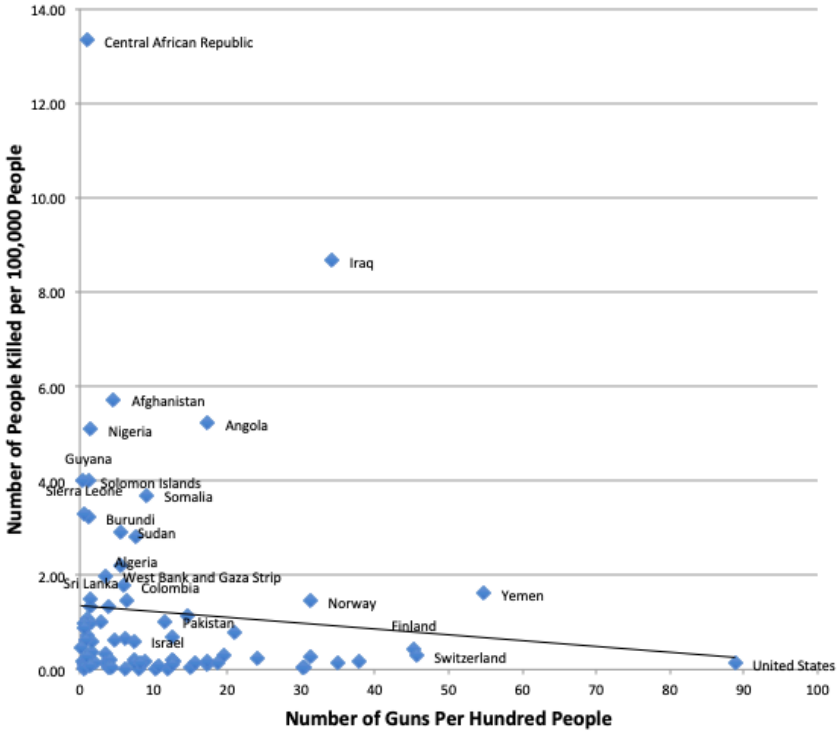
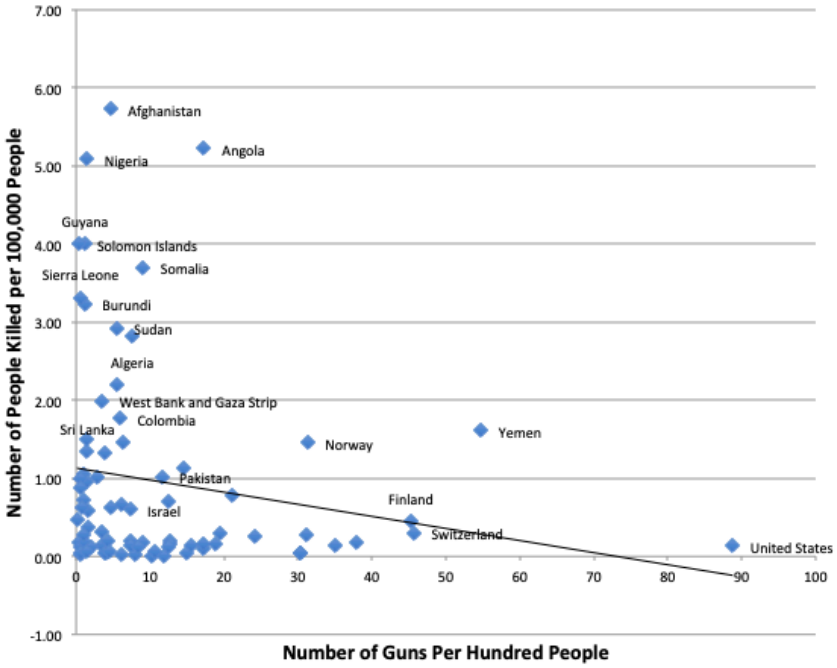


**Figure 5C: Number of People Killed per 100,000 People after removing the most extreme cases of the Central African Republic and Iraq**




## IV. Conclusion

Over the 18 years that we studied, we find 2,354 attacks outside the United States, with at least 4,880 killers and 25,986 killed. The US makes up less than 1.15% of the mass public shooters, 1.49% of their murders, and 2.20% of their attacks. These results show that the U.S. clearly has fewer mass public shootings and murders from these attacks than the average rate for the rest of the world. Yet, these results overestimate the U.S.'s share of these attacks because while we have gotten all the cases from the U.S., we are certain that we have not gotten all the cases from the rest of the world.

While Americans are understandably concerned with the increased frequency and severity of mass public shootings, the rest of the world has experienced a much larger increase in their per capita rates than the United States. Even including up through US mass public shootings up through November 2018, the rate of growth for the frequency of mass public shootings in the rest of the world since 1998 is 291 percent faster than for the US. The growth rate for murders is 115 percent faster.

This data not only has implication for how the United States compares to other countries but also shows that higher rates of gun ownership are not associated with more mass public shooters on mass public shooters is used.

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**Appendix 1: List of Mass Public Shootings and references for other countries besides the United States**

This appendix is 675 pages long. https://crimeresearch.org/wp-content/uploads/2018/11/Appendix-1_1998-2015.pdf

**Appendix 2: List of Mass Public Shootings and references for the United States**

This appendix is 10 pages long. https://crimeresearch.org/wp-content/uploads/2018/11/Appendix-2_1998-2015.pdf

**Appendix 3: Countries with Mass Public Shootings from 1998 through 2015: Ranking by per capita rate of attacks and people killed**

| Rank | Country | Number of Attacks | Country | Killed |
|---|---|---|---|---|
| 1 | Nigeria | 437 | Nigeria | 6688 |
| 2 | Iraq | 280 | Iraq | 2498 |
| 3 | Afghanistan | 259 | India | 2292 |
| 4 | India | 229 | Afghanistan | 1712 |
| 5 | Pakistan | 190 | Pakistan | 1649 |
| 6 | Algeria | 99 | Sudan | 1175 |
| 7 | Colombia | 85 | Algeria | 925 |
| 8 | Philippines | 64 | Colombia | 814 |
| 9 | Sudan | 58 | Angola | 804 |
| 10 | United States | 53 | Democratic Republic of the Congo | 585 |
| 11 | Yemen | 51 | Central African Republic | 560 |
| 12 | Somalia | 39 | Philippines | 525 |
| 13 | Democratic Republic of the Congo | 37 | Kenya | 497 |
| 14 | Russia | 37 | Uganda | 403 |
| 15 | Uganda | 35 | United States | 394 |
| 16 | Central African Republic | 30 | Yemen | 334 |
| 17 | Angola | 27 | Somalia | 318 |
| 18 | Kenya | 27 | Sri Lanka | 263 |
| 19 | Sri Lanka | 26 | Burundi | 252 |
| 20 | Burundi | 24 | Syria | 245 |
| 21 | Thailand | 19 | Russia | 242 |

| | | | | |
|---|---|---|---|---|
| 22 | Syria | 16 | Sierra Leone | 182 |
| 23 | Nepal | 13 | South Sudan | 178 |
| 24 | South Africa | 12 | France | 170 |
| 25 | South Sudan | 12 | Cameroon | 166 |
| 26 | Egypt | 11 | Nepal | 160 |
| 27 | Indonesia | 10 | Ethiopia | 140 |
| 28 | Iran | 10 | Niger | 139 |
| 29 | Niger | 10 | Guinea | 107 |
| 30 | Cameroon | 9 | Chad | 103 |
| 31 | Mali | 9 | Egypt | 102 |
| 32 | Turkey | 9 | Mali | 97 |
| 33 | West Bank and Gaza Strip | 9 | Thailand | 97 |
| 34 | France | 8 | Iran | 95 |
| 35 | Israel | 8 | Turkey | 89 |
| 36 | Peru | 8 | Indonesia | 83 |
| 37 | Ethiopia | 7 | Rwanda | 76 |
| 38 | Ukraine | 7 | South Africa | 74 |
| 39 | Chad | 6 | Norway | 67 |
| 40 | Mexico | 6 | West Bank and Gaza Strip | 66 |
| 41 | Sierra Leone | 6 | Mexico | 49 |
| 42 | Ivory Coast (Cote d'Ivoire) | 5 | Honduras | 48 |
| 43 | Lebanon | 5 | Tunisia | 47 |
| 44 | Libya | 5 | Brazil | 46 |
| 45 | Azerbaijan | 4 | Israel | 43 |
| 46 | Guyana | 4 | Peru | 43 |
| 47 | Honduras | 4 | Ukraine | 42 |
| 48 | Tajikistan | 4 | Ivory Coast (Cote d'Ivoire) | 41 |
| 49 | Armenia | 3 | Libya | 36 |
| 50 | Bangladesh | 3 | Saudi Arabia | 36 |
| 51 | Brazil | 3 | Germany | 33 |
| 52 | Finland | 3 | Guyana | 32 |
| 53 | Mozambique | 3 | Lebanon | 30 |
| 54 | Myanmar | 3 | Azerbaijan | 27 |
| 55 | Rwanda | 3 | Finland | 23 |
| 56 | Saudi Arabia | 3 | Myanmar | 22 |
| 57 | Serbia | 3 | Switzerland | 22 |
| 58 | Solomon Islands | 3 | Armenia | 21 |
| 59 | South Korea | 3 | Bangladesh | 21 |
| 60 | Switzerland | 3 | Solomon Islands | 20 |

| | | | | |
|---|---|---|---|---|
| 61 | Tunisia | 3 | Serbia | 19 |
| 62 | Belgium | 2 | Tajikistan | 19 |
| 63 | Georgia | 2 | Mauritania | 18 |
| 64 | Germany | 2 | Venezuela | 18 |
| 65 | Guinea | 2 | Yugoslavia | 18 |
| 66 | Haiti | 2 | South Korea | 17 |
| 67 | Senegal | 2 | Uzbekistan | 17 |
| 68 | Uzbekistan | 2 | Senegal | 15 |
| 69 | Venezuela | 2 | Liberia | 12 |
| 70 | Yugoslavia | 2 | Mozambique | 12 |
| 71 | Albania | 1 | United Kingdom | 12 |
| 72 | Argentina | 1 | Belgium | 10 |
| 73 | Austria | 1 | Haiti | 10 |
| 74 | Bosnia | 1 | Laos | 10 |
| 75 | Canada | 1 | Georgia | 9 |
| 76 | Croatia | 1 | Czech Republic | 8 |
| 77 | Czech Republic | 1 | Croatia | 7 |
| 78 | Italy | 1 | Slovakia | 7 |
| 79 | Jordan | 1 | Tanzania | 7 |
| 80 | Kazakhstan | 1 | Zimbabwe | 7 |
| 81 | Kosovo | 1 | Bosnia | 6 |
| 82 | Kyrgyzstan | 1 | Kazakhstan | 6 |
| 83 | Laos | 1 | Netherlands | 6 |
| 84 | Liberia | 1 | Italy | 5 |
| 85 | Macedonia | 1 | Jordan | 5 |
| 86 | Malaysia | 1 | Kosovo | 5 |
| 87 | Mauritania | 1 | Kyrgyzstan | 5 |
| 88 | Namibia | 1 | Macedonia | 5 |
| 89 | Netherlands | 1 | Malaysia | 5 |
| 90 | Nicaragua | 1 | Albania | 4 |
| 91 | Northern Mariana Islands | 1 | Argentina | 4 |
| 92 | Norway | 1 | Austria | 4 |
| 93 | Slovakia | 1 | Canada | 4 |
| 94 | Tanzania | 1 | Namibia | 4 |
| 95 | United Kingdom | 1 | Nicaragua | 4 |
| 96 | Vietnam | 1 | Northern Mariana Islands | 4 |
| 97 | Zimbabwe | 1 | Vietnam | 4 |

**Appendix 4: List of Countries by Region**

Here is the list of countries by region as provided by the Population Reference Bureau (https://assets.prb.org/pdf05/05WorldDataSheet_Eng.pdf).

- Northern Africa (exclude Sudan): Algeria, Egypt, Libya, Morocco, Tunisia, Western Sahara, West Bank and Gaza Strip;
- Sub-Saharan Africa: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Democratic Republic of the Congo, Cote d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mayotte, Mozambique, Namibia, Niger, Nigeria, Reunion, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe;
- Northern America: Canada, United States;
- Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama;
- Caribbean: Antigua and Barbuda, Bahamas, Barbados, Cuba, Dominica, Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Netherlands Antilles, Puerto Rico, Saint Lucia, St. Kitts-Nevis, St. Vincent/Grenadines, Trinidad and Tobago;
- South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, Venezuela;
- Western Asia: Armenia, Azerbaijan, Bahrain, Cyprus, Georgia, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian Territory, Qatar, Saudi Arabia, Syria, Turkey, United Arab Emirates, Yemen;
- South Central Asia: Afghanistan, Bangladesh, Bhutan, India, Iran, Kazakhstan, Kyrgyzstan, Maldives, Nepal, Pakistan, Sri Lanka, Tajikistan, Turkmenistan, Uzbekistan;
- Southeast Asia: Brunei, Cambodia, East Timor, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, Vietnam;
- East Asia: China, Hong Kong (China), Macao (China), Japan, North Korea, South Korea, Mongolia, Taiwan;
- Northern Europe: Channel Islands, Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, United Kingdom;
- Western Europe: Austria, Belgium, France, Germany, Liechtenstein, Luxembourg, Monaco, Netherlands, Switzerland;
- Eastern Europe: Belarus, Bulgaria, Czech Republic, Hungary, Moldova, Poland, Romania, Russia, Slovakia, Ukraine;

- Southern Europe: Albania, Andorra, Bosnia-Herzegovina, Croatia, Greece, Italy, Kosovo, Macedonia, Malta, Portugal, San Marino, Serbia and Montenegro, Slovenia, Spain, Yugoslavia;
- Oceania: Australia, Fed. States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, New Zealand, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu.

## End Notes

[1] Other similar quotes by Obama that relied on Lankford's claim include:
*"We are the only advanced country on Earth that sees these kinds of mass shootings every few months."* –Obama, statement on shootings at Umpqua Community College, Roseburg, Ore., Oct. 1, 2015
*"At some point, we as a country will have to reckon with the fact that this type of mass violence does not happen in other advanced countries. It doesn't happen in other places with this kind of frequency."* –Obama, statement on the shooting in Charleston, S.C., June 18, 2015
The Obama administration would point to work by Lankford (2016) to justify his claims. For a discussion of that research see Lott (2018b, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3238736).

[2] Major media regularly make this claim. Headlines include: *The Wall Street Journal*: "U.S. Leads World in Mass Shootings." Joe Palazzolo and Alexis Flynn, "US Leads World in Mass Shootings," *Wall Street Journal*, October 3, 2015 (http://www.wsj.com/articles/u-s-leads-world-in-mass-shootings-1443905359); *The Wall Street Journal (subheading)*: "U.S. produces more mass shootings than other countries." This is the first sub-headline in the article. Joe Palazzolo and Alexis Flynn, "5 Things About Mass Shootings in the U.S.," *Wall Street Journal*, October 2, 2015 (https://blogs.wsj.com/briefly/2015/10/02/oreshoot/). *The Los Angeles Times*: "Why the U.S. is No. 1—in mass shootings." Melissa Healy, "Why the U.S. is No. 1—in mass shootings," *Los Angeles Times*, August 24, 2015 (http://www.latimes.com/science/sciencenow/la-sci-sn-united-states-mass-shooting-20150824-story.html); *Time magazine*: "Why the US has 31% of the World's Mass Shootings." Tanya Basu, "Why the U.S. Has 31% of the World's Mass Shootings," *Time*, August 24, 2015 (http://time.com/4007909/gun-violence-mass-shootings/), *Newsweek magazine*: "Study Sees Mass Shootings as 'Exceptionally American Problem'." Peter Oumanski, "Study: Mass Shootings 'Exceptionally American Problem'," Newsweek, August 23, 2015 (http://www.newsweek.com/2015/09/11/study-sees-mass-shootings-exceptionally-american-problem-365260.html); *Washington Post*: "American exceptionalism and the 'exceptionally American' problem of mass shootings." Sarah Kaplan, "American exceptionalism and the 'exceptionally American' problem of mass shootings," Washington Post, August 27, 2015; *CNN*: "Why the U.S. has the most mass shootings." Jen Christensen, "Why the U.S. has the most mass shootings," CNN, August 28, 2015 (http://www.cnn.com/2015/08/27/health/u-s-most-mass-shootings/); and *Sunday Morning Herald* (Australia): "Why the U.S. is No. 1 in Mass Shootings." Melissa Healy, "Why the US is No. 1 in mass shootings: study," The Sydney Morning Herald, August 28, 2015 (https://www.smh.com.au/world/why-the-us-is-no-1-in-mass-shootings-study-20150828-gj9oi8.html).

[3] This is the same definition that was used by Lott and Landes (2001) and the work done by the Crime Prevention Research Center. See also Lott and Landes (2003) and Lott (2010).

[4] Adam Lankford, "Public Mass Shooters and Firearms: A Cross-National Study of 171 Countries," *Violence and Victims*, January 2016: 1-13.For statements by James Alan Fox see "'This is not an epidemic' Northeastern researchers say about school shootings," WCVB ABC Channel 5, March 1, 2018 (https://www.wcvb.com/article/this-is-not-an-epidemic-northeastern-researchers-say-about-school-shootings/19037921). See also studies years ago such as Grant Duwe, Tom Kovandzic, and Carl Moody, "The Impact of Right-to-Carry Concealed Firearm Laws on Mass Public Shootings," Homicide Studies, Nov. 1, 2012.

[5] Everytown for Gun Safety, "Analysis of Recent Mass Shootings," Everytown for Gun Safety, July 2014 (https://crimeresearch.org/wp-content/uploads/2014/10/everytown-mass-shooting-analysis1.pdf).

[6] The Department of Homeland Security publication adds a weak qualifier to that sentence: "in most cases, active shooters use firearms(s) and there is no pattern or method to their selection of victims." This is a "weak" qualifier because there are plenty of cases where the FBI's list of active shooters had a grudge against someone, and that person was the only person killed. Take the shooting at the Crawford County Courthouse in Girard, Kansas on September 13, 2011. Jesse Ray Palmer, the killer, "inquired about the location of a specific judge, who was not in the building, and then shot and wounded the judge's secretary. No one was killed; one person was wounded." It wasn't even necessary that others be shot at for that case to be included in the list. Or take a shooting at another bar — the Sandbar Sports Grill in Vail, Colorado, on November 7, 2009. "Before the attack, Moreau had an argument inside the bar and was escorted out by security." He returned to the bar and killed the person who he had the argument with. This last case is also included in the NYPD list of cases (Case #54 on p. 44). A number of the NYPD cases involve the killers specifically shooting security guards, which are hardly random individuals (Case #282 on p. 181, Case 292 on pp. 186-7). See Federal Bureau of Investigation, "A Study of Active Shooter Incidents in the United States Between 2000 and 2013," U.S. Department of Justice, Washington Navy Yard, Washington, D.C., September 16, 2013. New York City Police Department, "Active Shooter: Recommendations and Analysis for Risk Mitigation, 2012 Edition."

[7] The one case where the kidnapping and sexual assault clearly precipitated the shooting was the NYPD's case 276 (NYPD, 2012, p. 177), where the police officers were shot while investigating the crime.

[8] Lankford correctly argues that the Columbine and Fort Hood type shootings are essentially the same, even if one is labeled as terrorism and the other as "other crime." Lankford (2016, p. 188) writes: "these public mass shootings—which are also sometimes referred to as active shootings or rampage shootings—stand out as particularly concerning because they are typically premeditated attacks that strike random,

innocent victims (Newman, Fox, Roth, Mehta, & Harding, 2004). This makes them functionally similar to terrorism."
He has made similar comments to the press: "Lankford said that whatever mass killers' particular motivations might be, they tend to share certain psychological traits that may be more important than their agendas. Such traits include a sense of victimization, a pattern of seeking negative attention, and being suicidal or not caring whether they live" (Devlin Barrett and Mark Berman, "Austin bombings renew debate: What crimes do we label as terrorism?" Washington Post, March 23, 2018).

[9] These two school shootings in Germany were at Erfurt, Germany, April 26, 2002 and Winnenden, Germany, March 11, 2009.

[10] These two attacks in Finland were at a vocational college in Kauhajoki, Finland, Sept. 23, 2008 and the Sello shopping center in Espoo, Finland, Dec. 31, 2009,

[11] https://en.wikipedia.org/wiki/List_of_rampage_killers, https://en.wikipedia.org/wiki/Category:Mass_shootings_by_country, https://en.wikipedia.org/wiki/Category:Mass_shootings_by_continent

[12] Presumably all terrorist attacks shouldn't be excluded, both because the NYPD and FBI reports include terrorist attacks and Lankford claiming that terrorist and non-terrorist attacks were "functionally similar." An email from Glenn Kessler at the Washington Post (Thursday, August 30, 2018) noted Lankford "did not respond to my requests to offer his full list and it took some prodding to get the Mumbai admission out of him." This was presumably because he deemed it to be a "sponsored" terrorist activity, though that is not obvious. If the San Bernardino killers got training in the Middle East, are they sponsored? Is the first Ft Hood shooter "sponsored" because he was in communication with one of the influential clerics associated with ISIS? Is the Pulse nightclub shooter "sponsored" because he was inspired by information put out over the Internet by ISIS? Is funding required to list attacks as "sponsored"? Without information on these questions, it is only possible to provide a range of possible estimates.

[13] "Venezuela favorece a los familiares de fallecidos que no informan a la prensa." El Mundo, August 22, 2010 (http://www.elmundo.es/america/2010/08/22/venezuela/1282502008.html).

[14] Beijing and Jianguomen, China, September 9, 1994; Fudong, China, February 17, 1981 (http://news.sina.com.cn/s/2009-09-08/070216258800s.shtml); and Qingyang, China, September 24 & 25, 1979. (http://www.360doc.com/content/16/1214/11/29240584_614574394.shtml).

[15] Email correspondence on May 1, 2018. Victor Mair contacted other academics who made similar statements.

[16] In an email from Victor Mair dated June 30, 2018.

[17] Aaron Karp, "Estimating global Civilian- Held Firearms numbers," Small Arms Survey, briefing paper June 2018 (http://www.smallarmssurvey.org/fileadmin/docs/T-Briefing-Papers/SAS-BP-Civilian-Firearms-Numbers.pdf).

[18] European Commission. 2013. Flash Eurobarom- eter 383: Firearms in the European Union. Brussels: European Commission (http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_383_en.pdf).

[19] I have had a series of email exchanges with people at the Small Arms Survey, and have obtained virtually no additional information than can be found in their original reports. My last email exchanges were with Aaron Karp on September 13, 2018.

[20] Emma Jane Kirby, "Switzerland guns: Living with firearms the Swiss way," BBC News, February 11, 2013 (https://www.bbc.com/news/magazine-21379912).

[21] "Swiss vote to keep their guns at home," DW, Akademia, 2011 (https://www.dw.com/en/swiss-vote-to-keep-their-guns-at-home/a-14840041).

[22] Daniel Fisher, "Canada Tried Registering Long Guns -- And Gave Up," Forbes, January 22, 2013 (https://www.forbes.com/sites/danielfisher/2013/01/22/canada-tried-registering-long-guns-and-gave-up/#6e1b331c5a1b). See also this list of estimates on the number of long guns in Canada before the registration by the Law-abiding Unregistered Firearms Association, January 20, 2013 (https://archive.is/20130120204109/http://www.lufa.ca/quickfacts.asp).

[23] Ibid.

[24] Ibid.

[25] "What Explains U. S. Mass Shootings? International Comparisons Suggest an Answer," New York Times, November 8, 2017 and "What's Going On in This Graph?" New York Times, March 13, 2018.

[26] Regressions corresponding to the three figures show the relationships are not statistically significant. Regressing the number of mass public shootings per 100,000 people shows that increasing the number of guns by one per hundred people decreases the number of attacks per 100,000 people by about 1 percent, though it isn't statistically significant with a t-statistic of 0.97. Regressing the number of mass public shooting murders per 100,000 people shows that increasing the number of guns by one per hundred people decreases the number of attacks per 100,000 people by about 1 percent, though it isn't statistically significant with a t-statistic of 0.86.