

**SALONI SHARMA**

**DATA VISUALIZATION: INDIVIDUAL PROJECT**

**FIRST VERSION**

---

The article about America's gun violence problem<sup>1</sup> describes in detail the gun control and firearm homicide issues that the USA has been facing since the past couple of years. This is explained through various charts, graphs and maps utilizing multiple data sets from different data sources.

Like all data products, a redesign on this article can help improve the cohesiveness of the data product and the point that it is trying to put across.

As my First Version in redesigning and developing a deceptive version of the data product, I have chosen the first 3 visuals of the article. The matter that these 3 graphs are trying to put forward can be summarized as below:

1. Graph 1: Number of firearm homicides in the USA compared to other countries of the world.
2. Graph 2: (World v/s USA) Total population compared to the number of civilian owned guns among the population.
3. Graph 3: The increase in the number of mass shootings in the USA since the Sandy Hook incident in 2012.

➤ **The redesigned graphs, their making and other details are explained below.**

**1. Graph 1 : Firearm Homicides per Country**

a. Datasource:

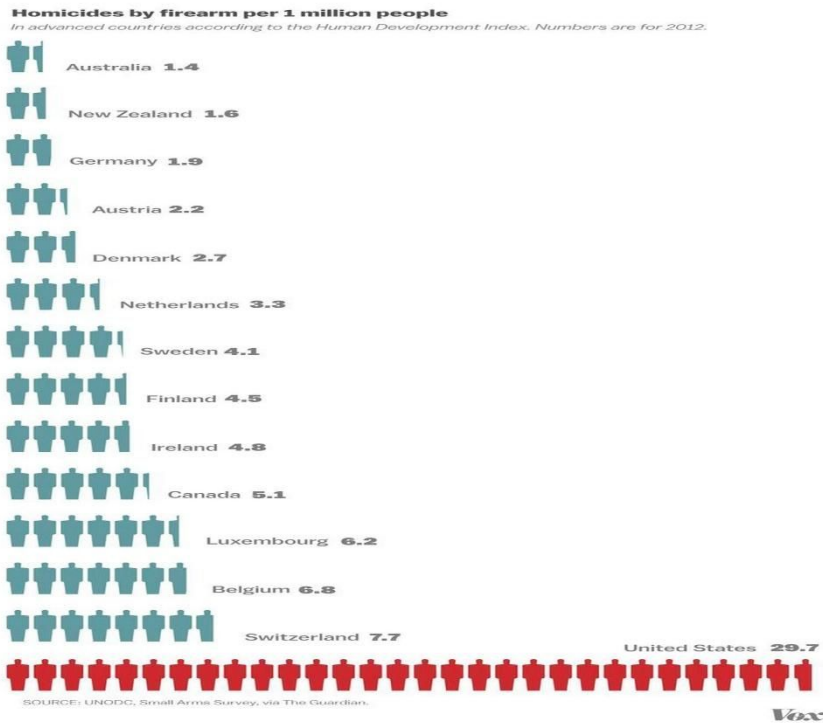
<https://docs.google.com/spreadsheets/d/1chqUZHUY6cXYrRYkuE0uwXisGaYvr7durZHJhpLGycs/edit#gid=0>

b. Original Visualization:

The original visualization of the 1<sup>st</sup> graph in the article is as follows:

---

<sup>1</sup> <https://www.vox.com/policy-and-politics/2017/10/2/16399418/us-gun-violence-statistics-maps-charts>

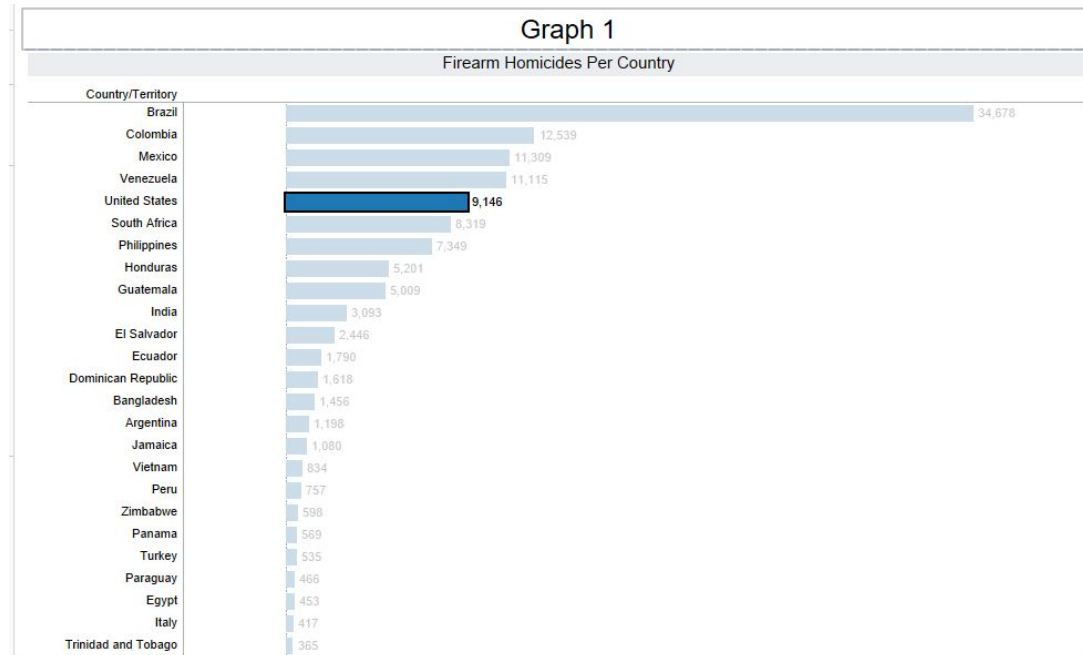


The reason I would like to redesign it is because I think it might just be more visually appealing and clear to understand as a bar chart

c. Redesign:

[https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph1\\_redesign/firearm\\_redesign?publish=yes](https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph1_redesign/firearm_redesign?publish=yes)

The redesigned visualization is as follows:

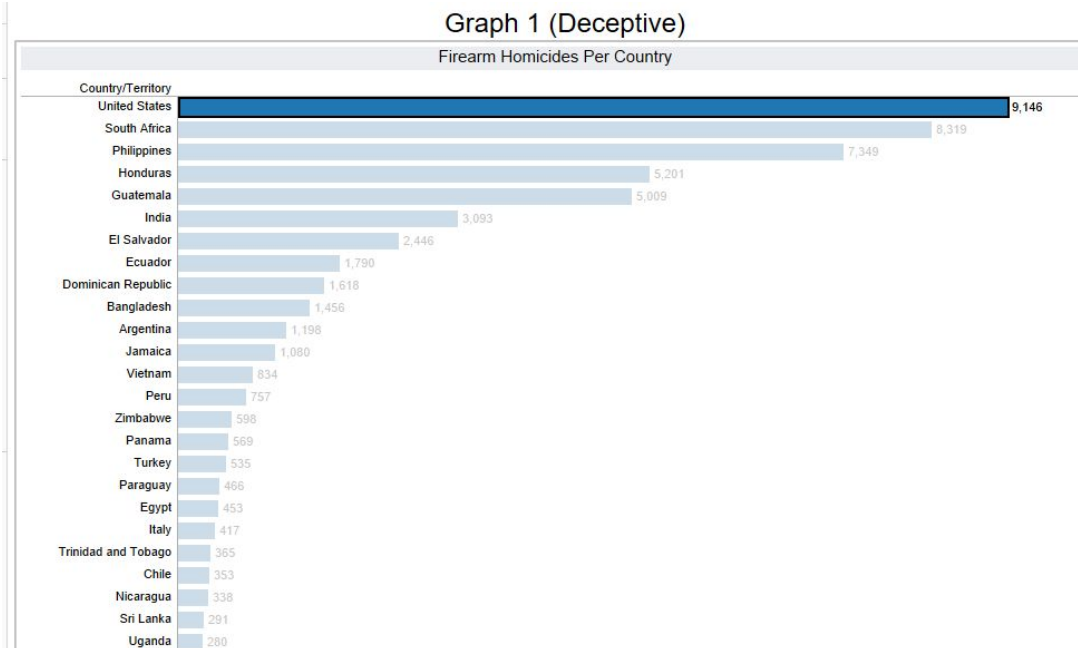


As it can be seen from the redesigned version of the chart, USA is NOT the country with the highest number of firearm deaths. Brazil, Colombia ,etc. precede USA in this matter. This opposes the article's claim that the USA leads the world when it comes to firearm homicides.

d. Deceptive Design:

[https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph1\\_deceptive/firearm\\_deceptive?publish=yes](https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph1_deceptive/firearm_deceptive?publish=yes)

The deceptive visualization is as follows:



By 'hiding' the countries above USA, i.e. Brazil, Colombia, Mexico and Venezuela, the redesigned visual could be turned into a deceptive visual, which shows that USA has the highest number of firearm homicides in the world. This supports the claim of the article showing that USA leads in firearm homicides.

e. Data Cleaning :

This Jupyter file contains the data cleaning process:

[https://github.com/SaloniS95/DATA-VIZ-SPRING-2018-SCU/blob/graphs/Graph1%2Bvox\\_data\\_viz.ipynb](https://github.com/SaloniS95/DATA-VIZ-SPRING-2018-SCU/blob/graphs/Graph1%2Bvox_data_viz.ipynb)

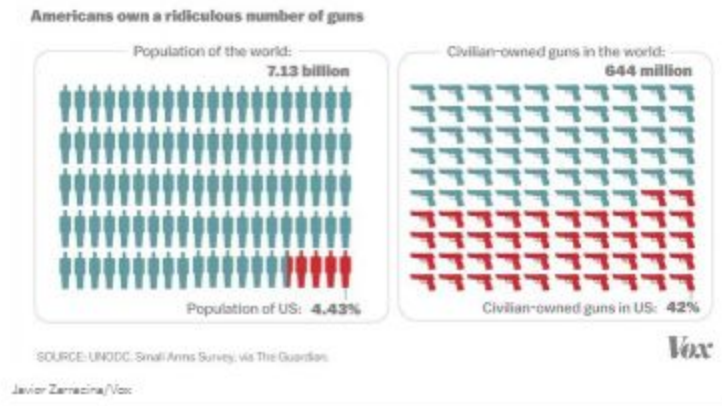
## 2. GRAPH 2 : (WORLD vs USA) Number of civilian owned guns compared to the Population

a. Datasource:

[https://photius.com/rankings/population/population\\_2007\\_0.html](https://photius.com/rankings/population/population_2007_0.html) ,  
<https://docs.google.com/spreadsheets/d/1chqUZHUY6cXYrRYkuE0uwXisGaYvr7durZHJhpLGyCs/edit#gid=0>

b. Original Visualization:

The reason I wanted to redesign this data visual is that the original visualization does not convey the meaning effectively.

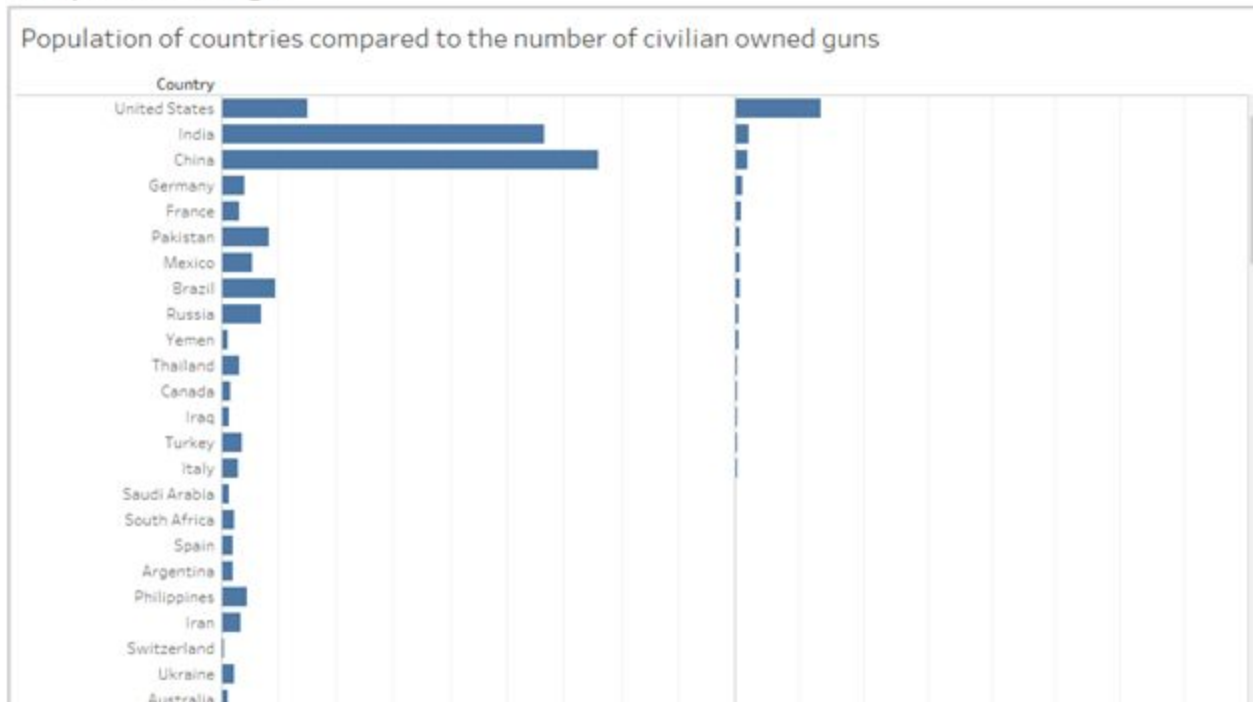


c. Redesign:

[https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph2\\_redesign\\_edit/merged\\_graph2\\_redesign1?publish=yes](https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph2_redesign_edit/merged_graph2_redesign1?publish=yes)

The redesigned data visualization, utilizing the merged dataset that shows the total number of people affected(injured + killed) is as follows:

Graph 2: Redesign



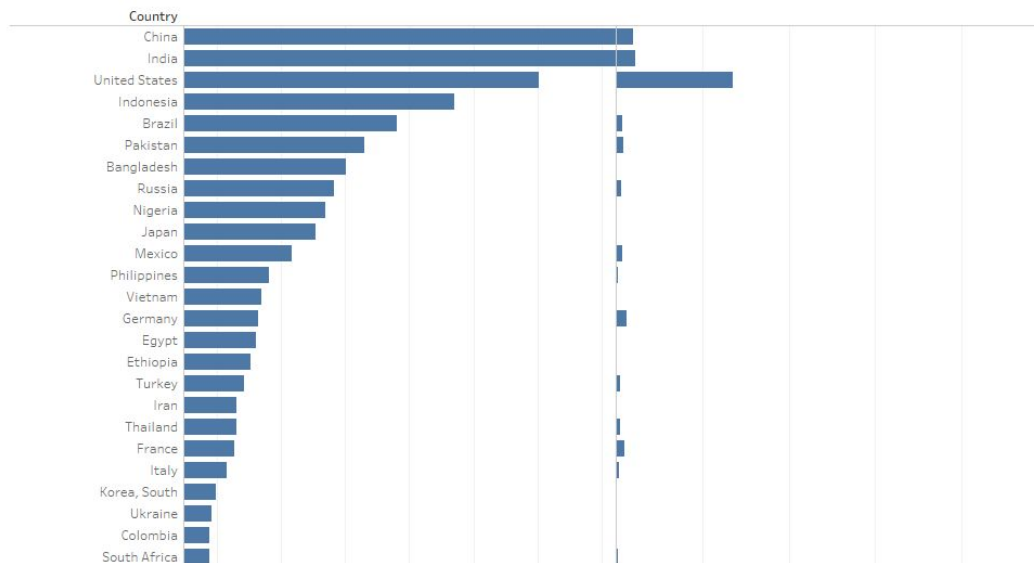
The redesign effectively compares the population of each country with the number of civilian owned firearms. It shows that the number of civilian owned firearms in the USA is almost equal to the population of the USA.

d. Deceptive Design :

[https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph2\\_deception/merged\\_graph2\\_deception?publish=yes](https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph2_deception/merged_graph2_deception?publish=yes)

By changing the scales of the above redesigned visual, a deceptive version can be developed as follows:

Graph2 : Country-wise population and Civilian owned guns comparison



This deceptively shows that the number of civilian owned firearms in the USA compared to its total population is quite low.

e. Data Cleaning:

For this visual, I used 2 datasets. The dataset from the first link ([https://photius.com/rankings/population/population\\_2007\\_0.html](https://photius.com/rankings/population/population_2007_0.html)) had to be first copied and pasted into notepad, from where I opened it in Excel selecting the following criterias:

Text Import Wizard - Step 1 of 3

The Text Wizard has determined that your data is Delimited.  
If this is correct, choose Next, or choose the data type that best describes your data.

Original data type

Choose the file type that best describes your data:

☒ Delimited - Characters such as commas or tabs separate each field.  
☐ Fixed width - Fields are aligned in columns with spaces between each field.

Start import at row: 1 File origin: 437 : OEM United States

☐ My data has headers.

Preview of file C:\Users\salon\Desktop\scu\SPRING 2018\Data Viz\individu...population 2007.txt.

46	Iraq	27,499,638
47	Venezuela	26,023,528
48	Malaysia	24,821,286
49	Korea, North	23,301,725
50	Ghana	22,931,299

Cancel < Back Next > Finish

Text Import Wizard - Step 2 of 3

This screen lets you set the delimiters your data contains. You can see how your text is affected in the preview below.

Delimiters

☒ Tab  
☐ Semicolon  
☐ Comma  
☐ Space  
☐ Other:

☐ Treat consecutive delimiters as one

Text qualifier: "

Data preview

46	Iraq	27,499,638
47	Venezuela	26,023,528
48	Malaysia	24,821,286
49	Korea, North	23,301,725
50	Ghana	22,931,299

Cancel < Back Next > Finish

Once the data opened in Excel, I gave the headers to the last 2 columns as "Country" and "Population" so that the analysis could become easier. The next steps of cleaning the data of the Excel file can be found in this Jupyter notebook :  
[https://github.com/SaloniS95/DATA-VIZ-SPRING-2018-SCU/blob/graphs/Graph2%2Bvox\\_data\\_viz.ipynb](https://github.com/SaloniS95/DATA-VIZ-SPRING-2018-SCU/blob/graphs/Graph2%2Bvox_data_viz.ipynb)

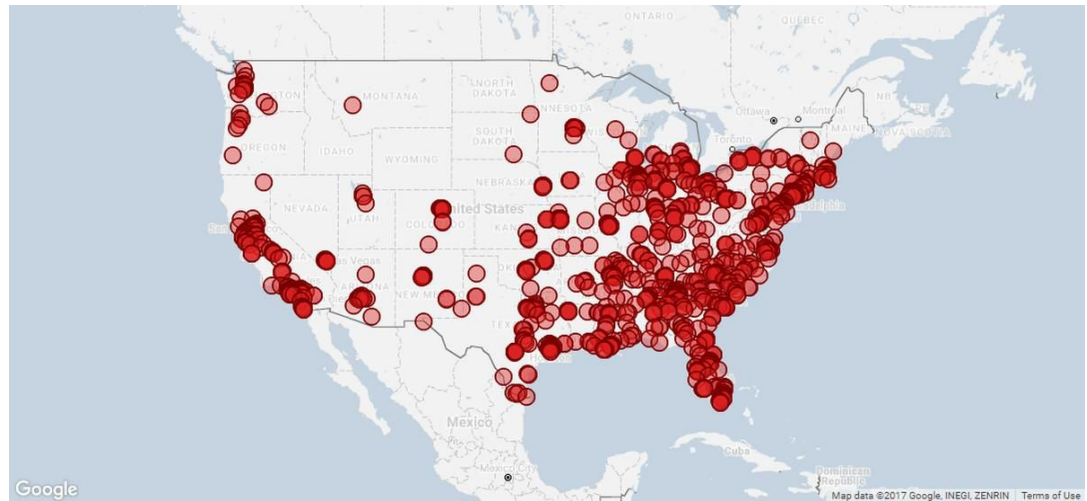
### 3 . GRAPH 3 : MASS SHOOTINGS:

a. Datasource:

<http://www.gunviolencearchive.org/reports/mass-shooting>

b. Original Visualization:

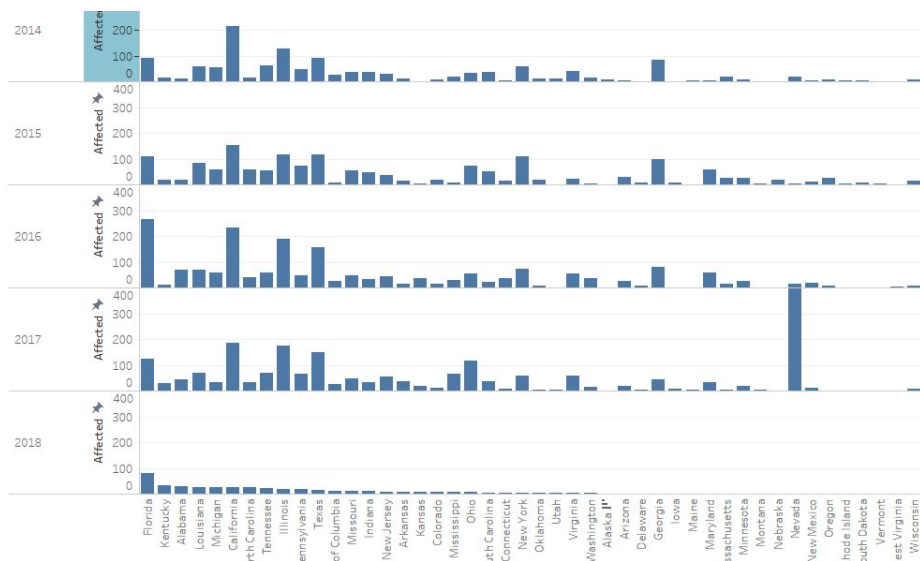
The original visualization is as follows:



c. Redesign and Deceptive Design:

[https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph3\\_affected\\_deception/graph3\\_affected\\_deception?publish=yes](https://public.tableau.com/profile/saloni.sharma#!/vizhome/Graph3_affected_deception/graph3_affected_deception?publish=yes)

For this dataset, the redesign and the deception graphs are the same. Like the article states, the number of people injured/affected by mass shootings have increased since Sandy Hook Elementary school shooting, but the number increased till 2016. There was a decrease in that number from 2016 to 2017 for a lot of states, except for Nevada, Ohio, Pennsylvania, etc.



d. Data Cleaning :



The data cleaning process can be seen here:

[https://github.com/SaloniS95/DATA-VIZ-SPRING-2018-SCU/blob/graphs/graph3%2Bvox\\_data.ipynb](https://github.com/SaloniS95/DATA-VIZ-SPRING-2018-SCU/blob/graphs/graph3%2Bvox_data.ipynb)

➤ **Roadmap for the Future :**

There is always scope for redesigning and improvements. In the revised versions, I would like to take care of the following issues:

- a. The dataset for Graph number 3 that gives information about the number of mass shootings in the US does not give the number of shootings that have occurred, but rather the number of people who have been killed or injured due to the shootings. For the redesign work, I would like to gather data regarding the number of shootings that have occurred in each city/county/state and then develop insights from it.
- b. Some datasets are not perfect, meaning there are many null values and missing data-points for many countries. Getting a data with more information will help develop a better visual and in turn provide a better insight on the gun violence problem in USA.
- c. I would like to merge datasets about other parameters that affect gun violence like drug and alcohol use and try to analyze them to see if there is any actual effect of other parameters on gun violence