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— Data · Healthcare —

FBI Gun Analysis

Background

FBI's National Instant Criminal Background Check System is used to determine whether a prospective buyer is eligible to buy firearms or explosives. The data has been supplemented with state level data from census.gov.

- The NICS data is found in one sheet of an .xlsx file. It contains the number of firearm checks by month, state, and type.
- The U.S. census data is found in a .csv file. It contains several variables at the state level. Variables just have two data point per state (2016 and 2010).

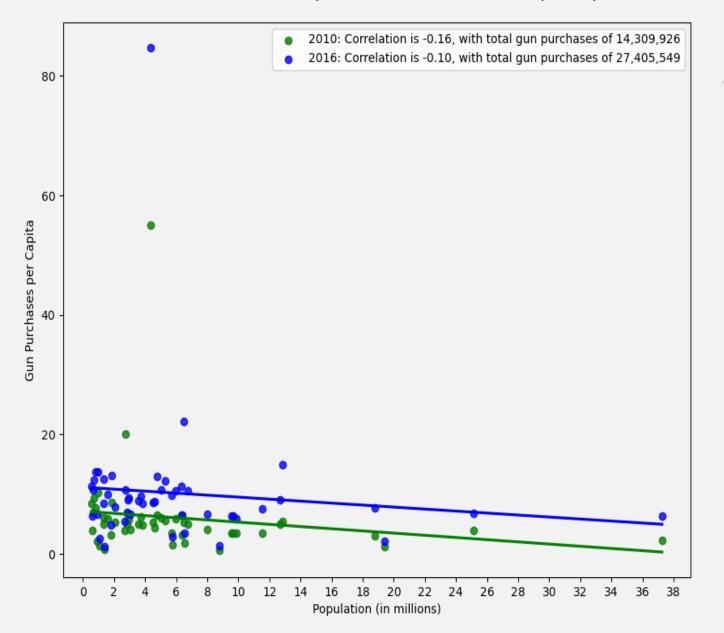
I used this database to answer the following questions:

- Is there a correlation between population size and gun purchase per capita?
- 2. What states were in the top 10 states in gun purchase per capita both in 2010 and 2016?
- 3. What are the overall gun purchasing trends?

To view the python code used to generate the figures in this case study, <u>click here</u>.

State Population Vs.
Gun Purchasing

Correlation between Population and Gun Purchases per Capita



This graph shows that the correlation between population size and total gun purchasing per capita for both 2010 and 2016.

In both years, the correlation is weak negative correlation, meaning that with the increase of the population size, total gun purchasing per capita is suspected to decrease a little bit. That is true for both 2010 and 2016.

Top States
In
Gun Purchasing

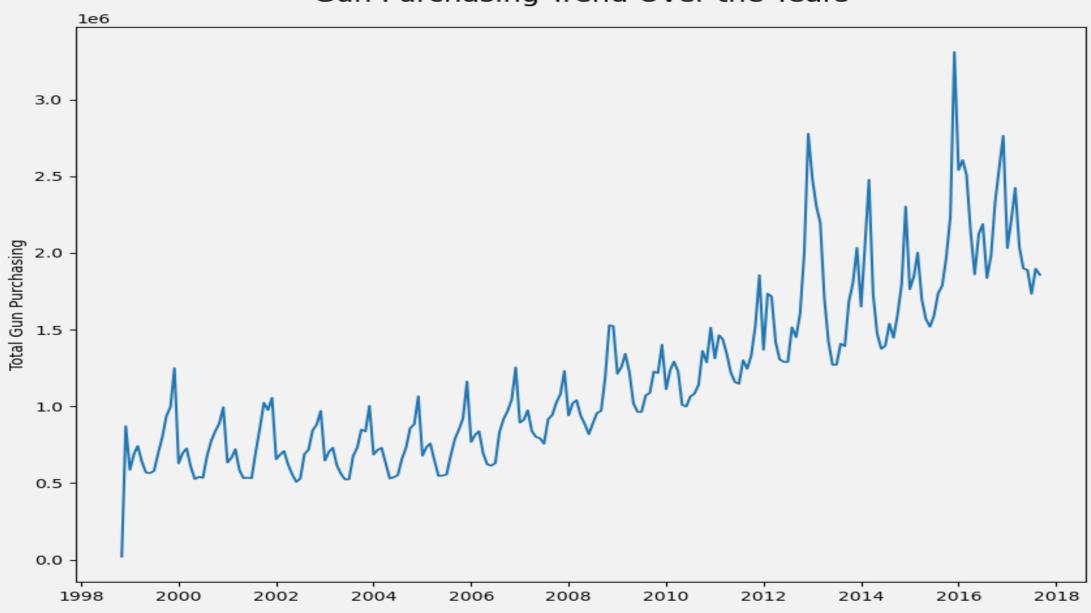
States that were in the top 10 states in gun purchase per capita in both 2010 and 2016 are:

- Kentucky
- Montana
- Alaska
- West Virginia
- South Dakota.

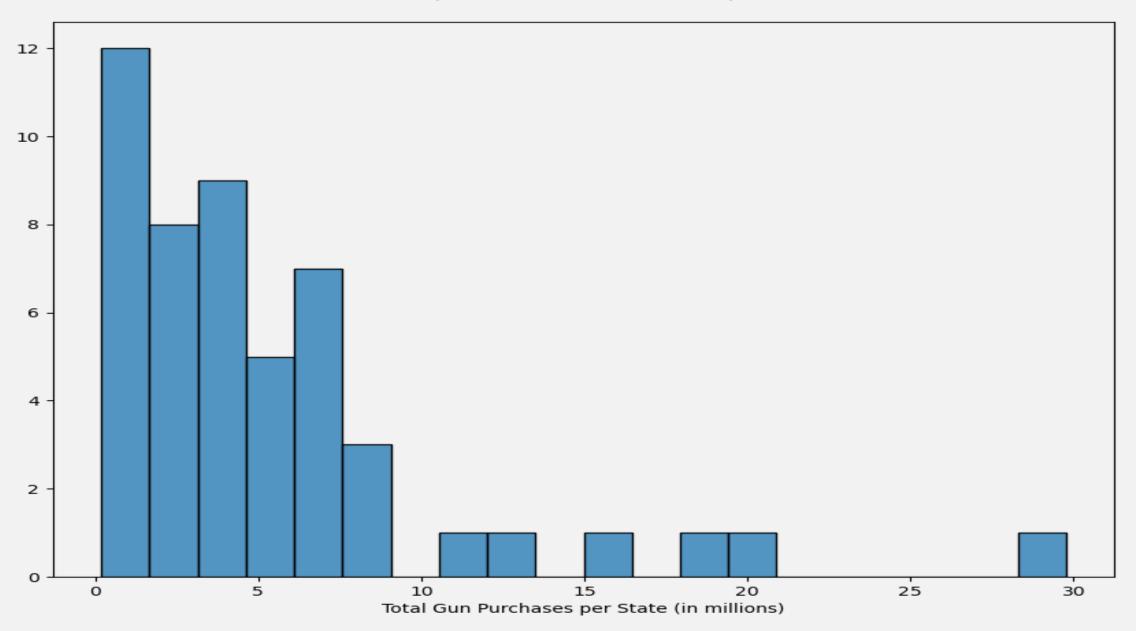
	Year 2010	Year 2016
1	Kentucky	Kentucky
2	Utah	Indiana
3	Montana	Illinois
4	Alaska	Montana
5	West Virginia	South Dakota
6	Wyoming	West Virginia
7	South Dakota	Alabama
8	North Dakota	New Hampshire
9	Arkansas	Alaska
10	Tennessee	Minnesota

Gun Purchasing Trends

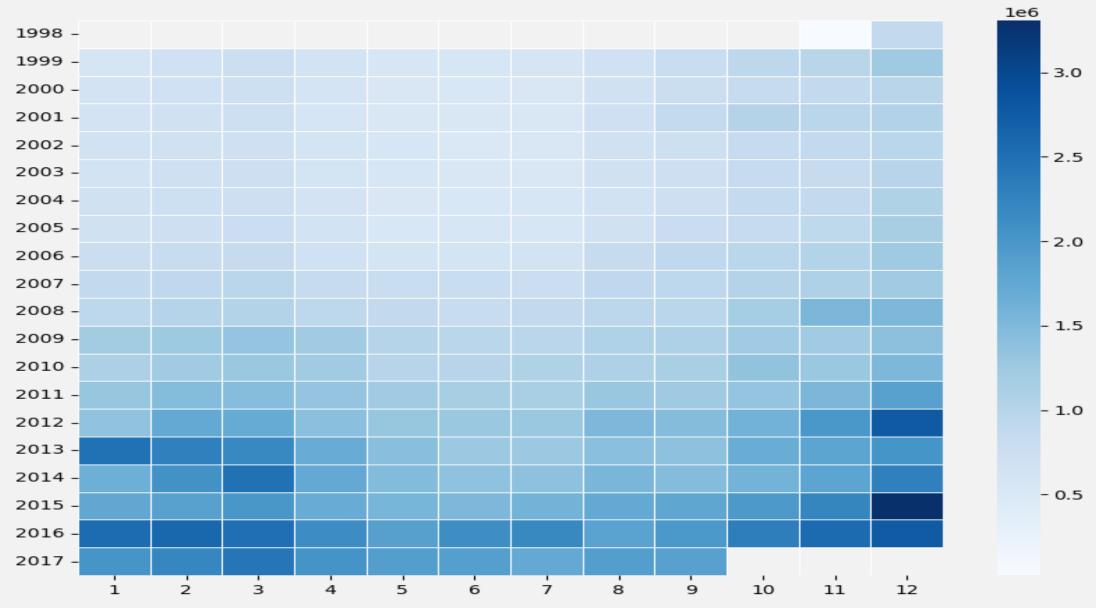
Gun Purchasing Trend Over the Years



Distribution of Total Gun Purchases per State (from 1998 to 2017)



Average Purchases for each Month in each Year



From the previous figures, we can see that:

- The total number of purchased guns per year is generally increasing over time.
- The rate of increases seems to get higher starting from 2012, more research is needed to know the reason for that.
- Most states have a total gun purchasing of less than 10 million. Only 6 states have a total gun purchasing of more than 10 millions.
- It is more common to purchase guns in winter (from December to March). More research is needed to know the reason.
- The month of the highest gun purchases was December 2015. Could the reason for that be the ISIS attacks on Paris on November 2015? More research is needed to either confirm or deny this theory.

Limitations

Limitations in this analysis:

- Unfortunately, the data set contains only the population of each state in 2010 and 2016, so doing more analysis regarding the correlation between gun purchasing and population over years was not possible.
- Metadata for gun_data file was incomplete: the definitions of the variables were not provided, which makes it hard to do a good analysis.
- Some US territories were present in gun_data file but not in the census data, so we had to drop them in the gun_data file for consistent analysis. They are: ('District of Columbia', 'Guam', 'Mariana Islands', 'Puerto Rico', 'Virgin Islands').

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