

Option 1: Answer a Question with Data

Pick the question and the data and present what you think might be interesting.

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APPLICATION FOR: DATA ENGINEERING INTERN

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DATASET AND QUESTION PICKED

DATASET USED: "*nics-firearm-background-checks.csv*" by the Buzz Feed

DATASET AND NOTEBOOK

LINK:<https://github.com/EdwardObala1/Analysis-with-Dataset---ML-Project.git>

QUESTION: The USA is the country with the most Civilian arms and weapons held legally and illegally. What I want to study is what the most common arms held in the country are? And what are the effects of government policy reinforced on the number of gun owners?

DATA HANDLING PROCESS

1. TOOLS USED

Pandas - For data reading and formatting
Numpy - For data handling and formatting
Matplotlib - For data representation
Seaborn - For stylistic data representation

2. Data Engineering Process(ETL)

Extraction - Downloading the data set as a zip file; hence I retrieved it from Buzzfeeds data storage point. Showing simple extraction

Transformation - converted the xls file into a CSV to make sure the format does not change while using it with libre file reader initially. Showing simple transformation

Loading - **I have not stored it in any mass SQL or NoSQL database; thus, the loading process was not complete

3. Cleaning

Due to this matter's sensitivity, I did not want to use any incomplete data, so I cleared out all rows with empty or Nan data to avoid spreading any form of misinformation with the incomplete data.

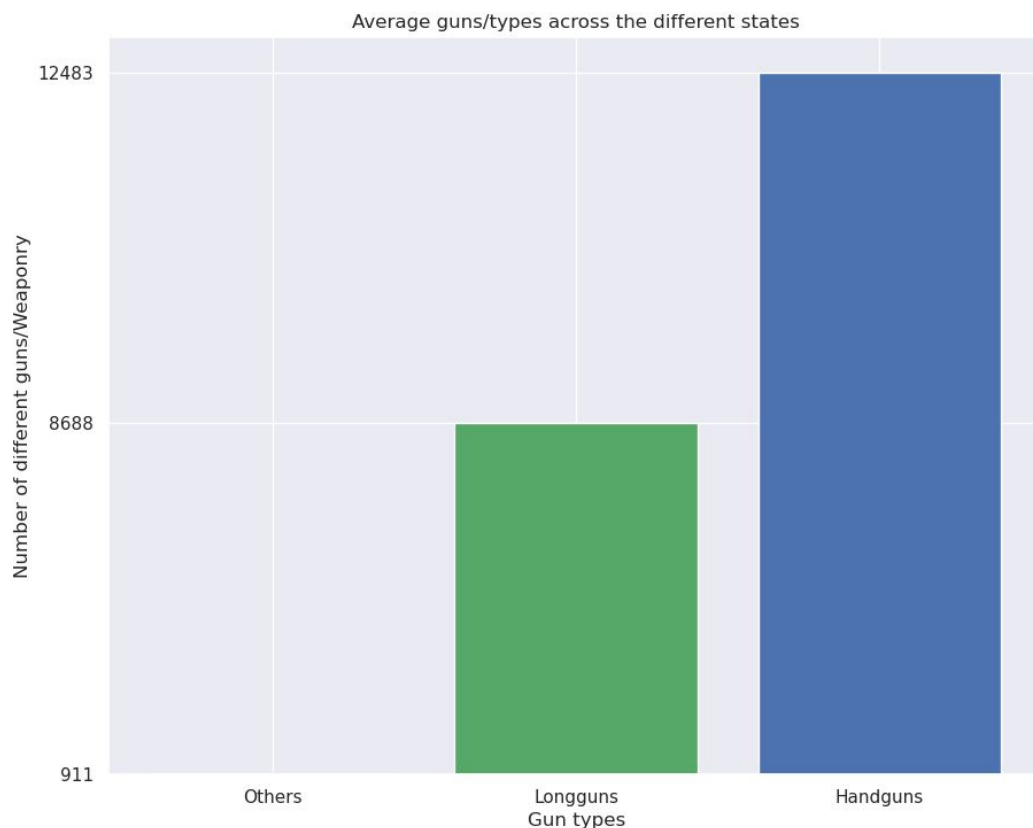
3. DATA ANALYSIS AND REPRESENTATION

Most Common Types of arms held in Public

I looked at the mean of the different states and times points in the data and found that the average guns held at any point and at any time within the states.

From this analysis, there were more handguns (Pistols) than any other forms of arms and closely followed by Long guns (e.g. Assault rifles). The least common ones were Other types of firearms and weaponry (e.g. grenade launchers).

Conclusion There is a more prominent preference for handguns than any other gun type within the states.



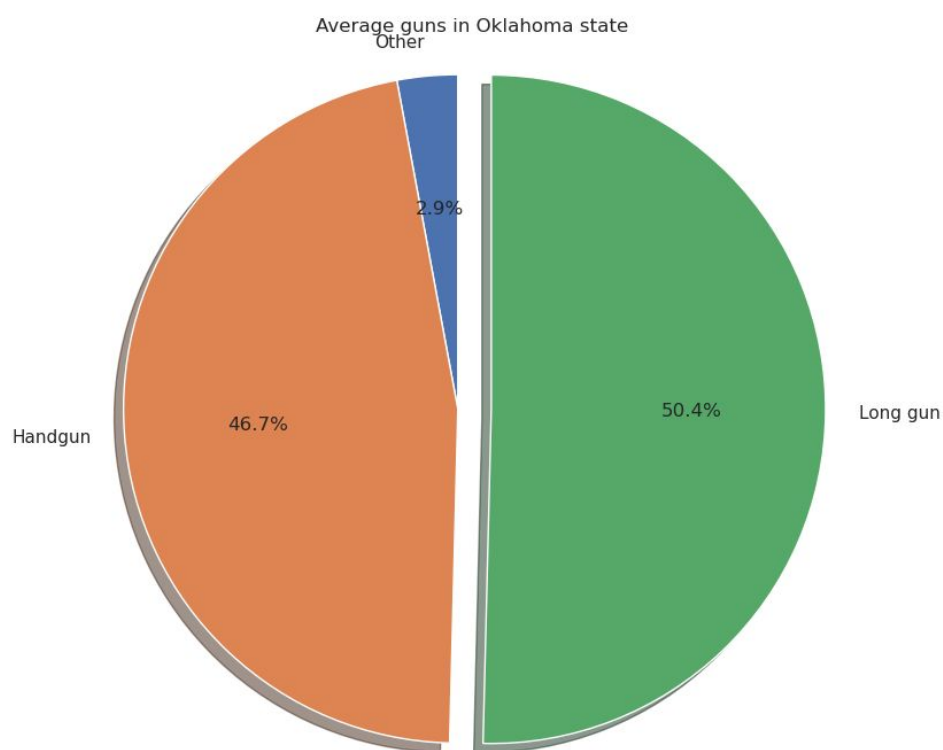
The bar graph was the preferred graph to compare the different variables that are present in this case and for the sake of comparison.

States with the least gun permits to guns available ratio at different time points

I looked at the states with the least permits and found **350** different states and time points with **zero** licenses within these states.

The state of Oklahoma was the state with the least permits and most guns recorded during the **12th of 2016**, but at the same time, they had the most guns held within the public.

In Oklahoma as well, there was a preference for **Long guns** compared to **Handguns** and **Other** arms types.



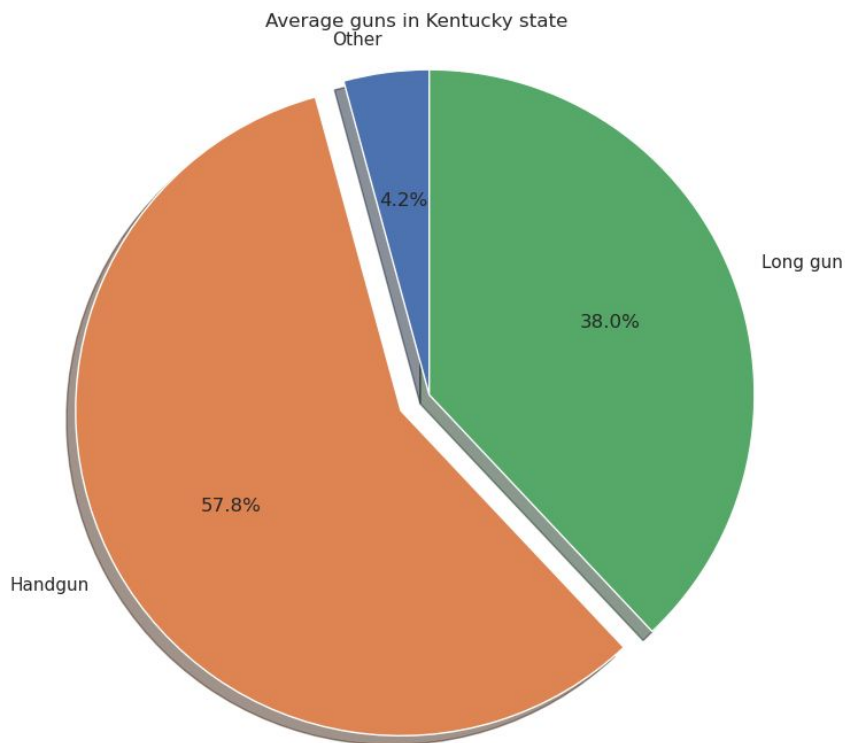
The chart was the preferred graph as it shows the total and share value of each component from the total number of arms

Conclusion Oklahoma is likely to have a vast number of **illegal** gun holders amongst the states researched. It is also expected to have a lot of permit holders from **different states**.

States with the most gun permits to guns available ratio at different time points

I looked at the states with the most permits and found only **one** state had the most gun permits at some point.

In Kentucky, there was a preference for **Handguns** compared to **Long guns** and **Other** arms types.



The chart was the preferred graph as it shows the total and share value of each component from the total number of arms

The state of Kentucky was the state with the most permits recorded during the **6th of 2018**. However, there was an inconsistency with the information as they had way fewer guns held in public with **12,339** guns. This showed more permit holders in the state than gun holders in the state, which does not paint a complete picture, so I concluded this to be the case.

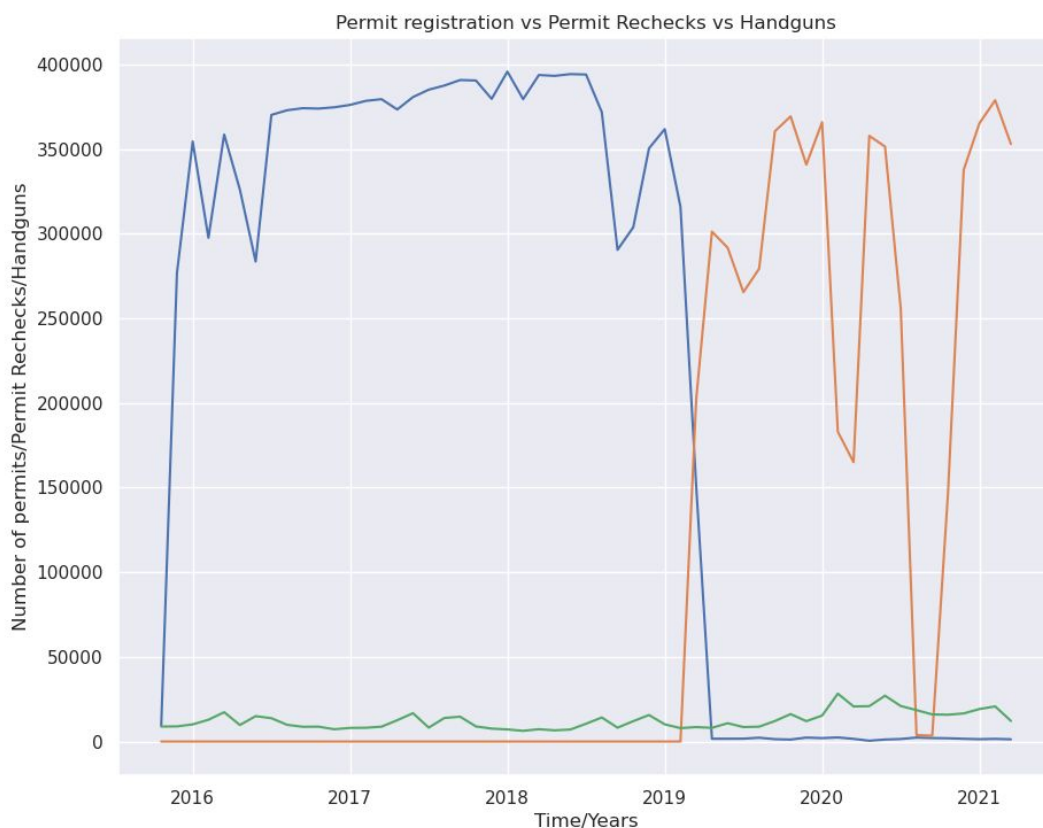
Conclusion Kentucky is likely to have the largest group of **out of state** gun owners amongst the states researched. Kentucky was also very likely to have very **relaxed scrutiny** of gun permit applicants amongst the states' data set.

Government Intervention

From the dataset, I decided to use Kentucky to determine government intervention's effect on the people getting permits from the state to use elsewhere.

Kentucky was one of the few states that did not do **permit rechecks**, **allowing** the government to review the validity of available licenses and decide which ones are valid. Rechecks can stop people with a tendency or likelihood to be violent or have poor judgment not to retain their privileges, thus taking away their right to own guns.

However, as of 2016, Kentucky has been gradually **increasing permit rechecks** over already available permits over the years. This has led to a **decrease** in the number of permit holders within the state. As a result, a **reduction in the number of legal gun owners** and an **increase in the number of illegal gun owners** as the number of guns within public reach are steadily the same with minor increases or decreases over the years.



The line chart shows the progression of the number of permits, permit rechecks and handguns over the same time frame to compare how each progressed over the years.

Conclusion, The Increase in permit rechecks lead to the reduction of permit holders as it is likely that a lot of permit holders had their permits revoked. This shows the governments effort to control the number of gun holders in the state. The effect might have rippled and reduced the number of gun holders in other states as Kentucky was a likely ground to get easy permits. However, in Kentucky, the number of guns in public eventually surpass the number of permits, so it is even more likely there are more illegal gun holders in the state.

4. ANSWER

The USA is the country with the most Civilian arms and weapons held both legally and illegally. What I want to study is what the most common arms held in the country are? And what are the effects of government policy reinforced on the number of gun owners?

The **most common** gun held by the public as averaged from the selected states in the datasets is the **Handgun**. **Possible** reasons for this are maybe according to research (Statista,2019), it is small and concealable from law enforcement that makes it easier for an individual to hide and keep one.

Through analysis using Kentucky, which had the most permits, it likely had the most government involvement in the number of gun owners. Lax Govt involvement allowed more people to own guns **legally**, while stricter Govt policy shown by the increased permit rechecks led to more guns being owned **illegally**. However, the number of firearms in public still had stayed stable with a very minute rise towards the later years. So govt policy did not prove useful in reducing the number of guns in this case, concluding that even stricter policy may be required, such as search and confiscation though it will have a lot of public backlash or clamping down on weapon producing industries.