Report on Gun Murders

David Pershall

11/14/2020

Introduction

This is a report on 2010 gun murder rates obtained from FBI reports. The original data was obtained from this Wikipedia page.

We are going to use the following libraries:

```
library(tidyverse)
library(ggthemes)
library(ggrepel)
library(dplyr)
library(ggplot2)
```

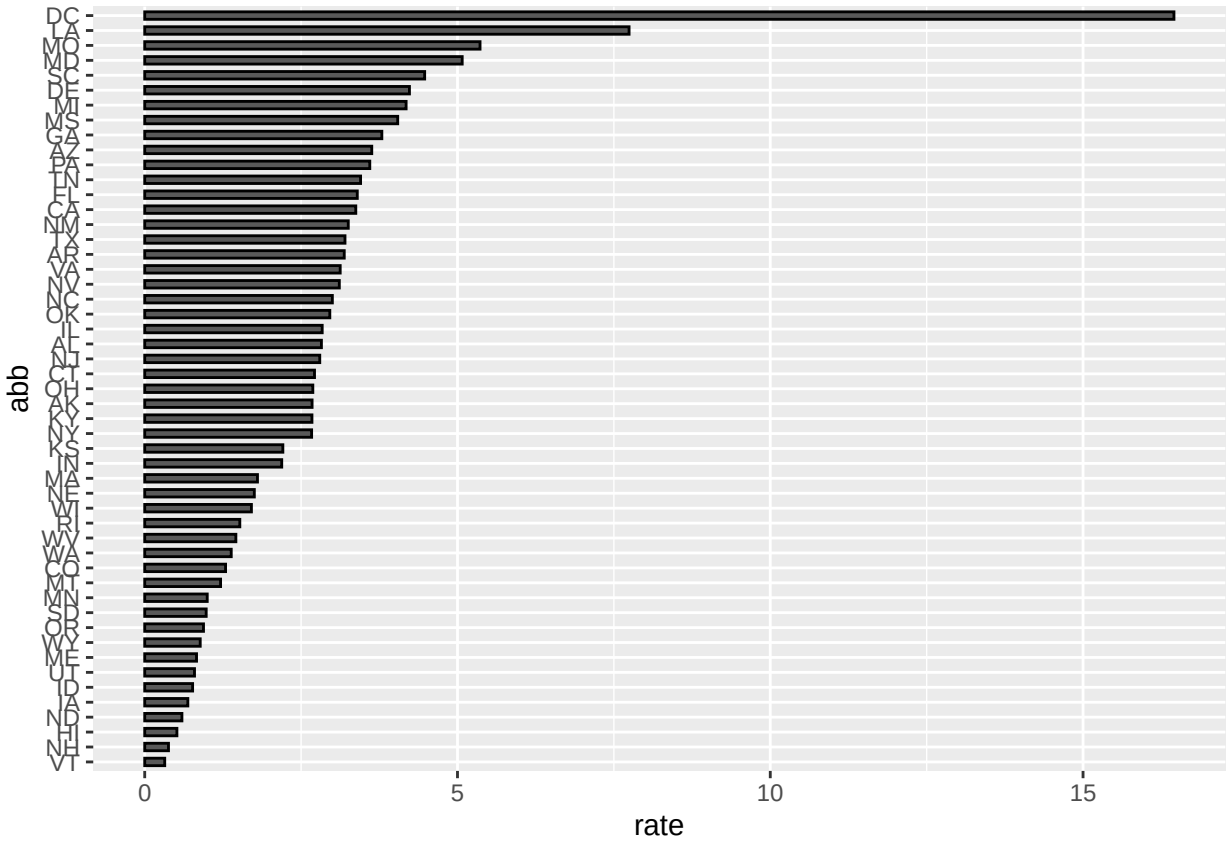
and load the data we already wrangled:

```
load("rda/murders.rda")
```

Murder rate by state per 100,000 in population.

We note the large state to state variability by generating a barplot showing the murder rate by state:

```
murders %>% mutate(abb = reorder(abb, rate)) %>%
  ggplot(aes(abb, rate)) +
  geom_bar(width = 0.5, stat = "identity", color = "black") +
  coord_flip()
```



US Gun Murders 2010 average rate per million.

We compute the average murder rate per million in population. and graph all the pertinent information.

```
r <- murders %>%
  summarize(rate = sum(total) /  sum(population) * 10^6) %>%
  pull(rate)
r
```

```
## [1] 30.34555
```

Visualize all the data

A color coordinated graph of each state compared to the average rate in log scale.

```
murders %>% ggplot(aes(population/10^6, total, label = abb)) +
  geom_abline(intercept = log10(r), lty = 2, color = "darkgrey") +
  geom_point(aes(color=region), size = 3) +
  geom_text_repel() +
  scale_x_log10() +
  scale_y_log10() +
  xlab("Population in millions (log scale)") +
  ylab("Total number of murders") +
```

```
  ggtitle("US Gun Murders in 2010") +
  scale_color_discrete(name = "Region") +
  theme_economist()
```