The Fatality of the American Gun Lobby

Pro-gun lobbying efforts and mental health effects on suicide by gun

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Introduction

Gun violence continues to be a staple of American politics, especially following a series of high-profile assassination attempts on President-Elect Trump and the recent murder of UnitedHealthcare CEO Brian Thompson. Americans in opposition to federal gun ownership restrictions often cite mental health as the reason for America's gun violence epidemic. In contrast, supporters of gun restrictions regularly blame America's comparatively loose regulatory environment and special interest group involvement for the violence.

According to the Centers for Disease Control and Prevention (CDC), suicide by firearm accounts for more than half of gun deaths in the United States. While school shootings, mass shootings, and high-profile assassinations are regularly brought into mainstream political discourse, suicide by gun is less frequently discussed. In this study, we investigate the potential relationships between pro-gun special interest group activity, mental health, and suicide by firearm. We aggregate over ten million responses to CDC health surveys, three million special interest group reports, and suicide by firearm rates for all 50 states. These data are then used to build a multiple linear regression model to control for the impact of lobbying efforts and mental health on rates of suicide by gun.

The Data

We have aggregated and cleaned data from three distinct sources. First, mental health data is pulled from the CDC Behavioral Risk Factor Surveillance Survey (BRFSS). The survey began including mental health questions in 1994. The question of interest for this study is:

"Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"

Responses are given an integer value between 1 and 30. Respondents with zero days of poor mental health are encoded with the value 88, which we have re-encoded as 0. Non-responses are not considered. Ultimately, 10,249,613 were considered, aggregated by state and year, and

included in the model. We encode these responses as binary: "Poor" or "Good" mental health. The CDC defines 15 or more days of poor mental health in a 30-day period as concerning, so we encode responses of 15 or greater as "Poor" and others as "Good."

The CDC also provides absolute number and per-capita suicide data by state through their CDC WONDER platform. Per-state proportions of suicides that were completed with firearms were compiled by the RAND Corporation, a non-profit, non-partisan think tank that tracks and reports on several high-profile political issues in the United States. We calculate total firearm suicide deaths by multiplying the total suicides of all types reported by the CDC and the proportion of those that were completed by firearm reported by RAND.

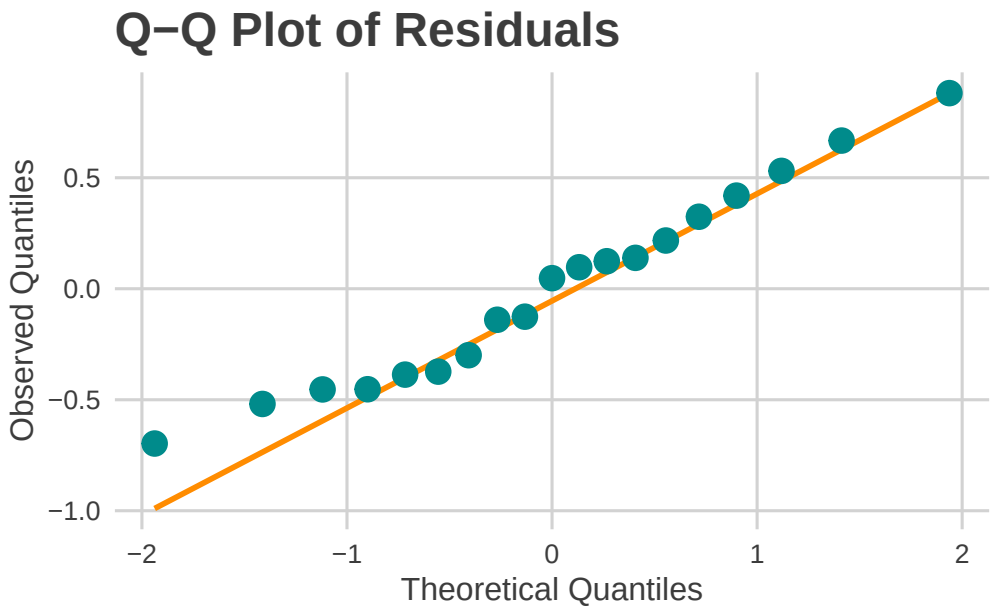
Special interest group activity is provided by Hall et al. (2024). Their special interest dataset reports 13,619,409 individual state-level special interest group positions. We filter those positions using regular expression filters built by hand from group names listed on OpenSecrets, the website of the eponymous non-profit organization that tracks lobbying groups and campaign finance in Washington, DC. We aggregate firearm-related special interest group activity by year to include in the model.

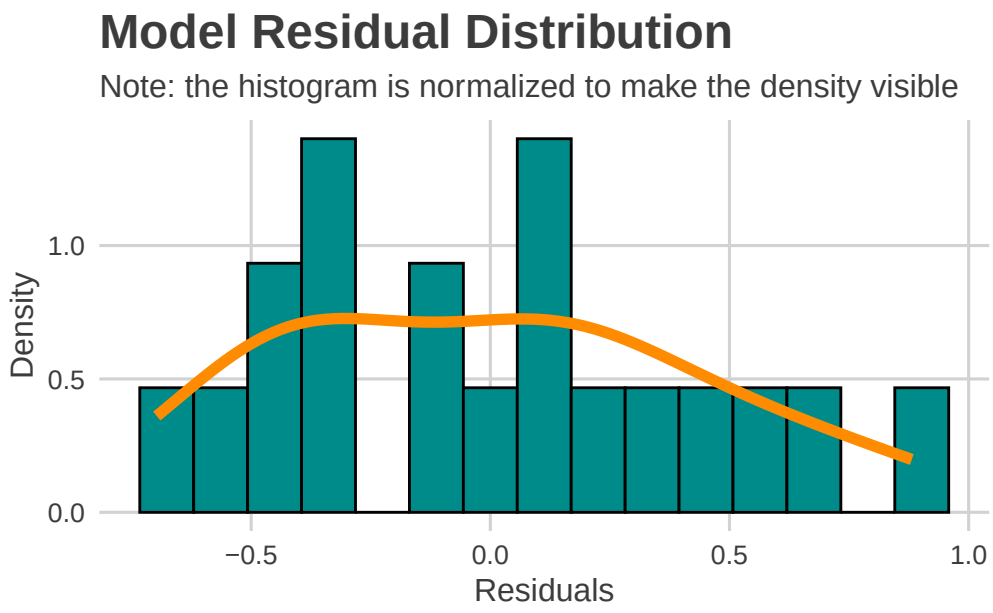
We aggregate all of these data (unique interest activity, suicide count, gun-specific suicide rate, reported mental health) into a single dataset that we use to build our model.

```
                   lobbyist_positions gun_rate poor_mental_rate
lobbyist_positions              1.000   -0.390            0.428
gun_rate                       -0.390    1.000           -0.814
poor_mental_rate                0.428   -0.814            1.000
```

```
# A tibble: 3 x 5
  term               estimate std.error statistic    p.value
  <chr>                 <dbl>     <dbl>     <dbl>      <dbl>
1 (Intercept)         6.94     1.99          3.48 0.00306
2 lobbyist_positions  0.00130  0.000185      7.01 0.00000295
3 poor_mental_rate   45.0     21.0           2.14 0.0479
```

```
[1] 0.815
```






```
Shapiro-Wilk normality test
```

```
data:  resid_data$resids
W = 0.96774, p-value = 0.7304
```