Lab 1: Fear and Anger as a Motivator

w203: Statistics for Data Science

Contents

1 Did Fear or Anger Drive Turnout in 2016?

1.1 Importance and Context

Was fear or anger more effective at causing voters to turn out in the 2018 election?

The 2016, 2018 (and now 2020) elections have been remarkable for their acrimony. Language has changed from referring to the electoral contests in terms of "horse races" to instead be in terms of "battles", "wars" and "conflict". In the Senate, once referred to as a bastion of collegiality, Senators have removed the filibuster – referred to in rather hyperbolic terms as using the "nuclear option" – and have dropped even the slightest bit of comity by refusing to extend senatorial courtesy on judicial appointments. And, in the 2020 election cycle appointed a justice to the supreme court only weeks before the presidential general election.

Needless to say, fear of the future and anger about the present have play a key part in parties' attempts to turn out voters. But, is one more effective at bringing individuals to the polls? The answer to this question could provide guidance to future political campaigns hoping to increase voter turnout. It could also provide useful background for governments that are interested civic participation. A better understanding of the factors that polarize society, and how they express themselves through the voting process, may also help those hoping to counteract that polarization.

1.2 Description of Data

We will address this question using data from the 2018 American National Election Studies (ANES). This is an observational dataset, based on a sample of respondents drawn from the Yougov platform. After filtering, we will have 616 observations.

Because the research question is causal in nature, answering it in a convincing way would require us to conduct an experiment that might take the following form:

> Among voters who did not turn out in the 2016 election, partner with a major messaging platform to randomly assign individuals to receive either fear or anger inducing campaign advertising

Table 1: Cross Tab of Self Reported Voting in 2016 and 2018

	Did not Vote	Voted
Did not Vote	0.20	0.05
Voted	0.05	0.70

messaging. Among voters empanneled into this experiment, compare the rates of turnout between potential voters who receive fear-inducing messages to potential voters who receive anger-inducing messages.

The ANES data does not contain such an experiment. Consequently, we recommend care in reasoning about whatever relationship this analysis might find.

As we report in Table 1, 70% of ANES respondents report that they voted in both the 2016 and 2018 elections. While turnout of 75% might be expected in the presidential general, it is highly unlikely to have turnout this high in an off-cycle election. Also notable in this data is that voting (or not voting) seems to be highly durable – only 10% of the respondents report taking a different action in 2016 compared to 2018.

Data is reported on a 5-point Likert scale that ranges from 1 (lest amount of motivation) to 5 (most amount of motivation), and the same question is asked to each respondent. Because data for each question is collected for each respondent, it is possible to pair the analysis to improve the tests' power.

There is a strong positive relationship between survey respondent's answer to questions and fear and anger. In 1 I plot, the feelings of fear and anger among those who did not vote in 2016. This data is further broken out by whether the individual voted in 2018. Clearly, there is a strong positive relationship between these measures. Notably, there seems to be little difference between the relationship whether or not someone voted in 2018.

The first thing to note in this data is that there are differences in the rank ordering of fear and anger. The next figure plots the relative prevalence of ANES respondent's feelings of fear and anger. While there are about the same proportion of respondents who report being the lowest category in both fear and anger, there are more who report being somewhat afraid than report being somewhat angry. This is offset by fewer individuals reporting high levels of fear.

1.3 Most appropriate test

To test whether fear or anger was more effective at motivating people to vote in 2018 I conduct the following test: I limit the data to individuals who did not vote in 2016 and then test whether the rank ordering of respondents' motivations for voting are equal. The most appropriate test for this question, with this data, is a Mann-Whitney (or paired Wilcoxon) rank test. The data is generated through an iid sample and is ranked (i.e. ordinal) data, which precludes using a test that requires metric data (i.e. a paired t-test).

Although this feels like the most appropriate test I can construct here, there are several points where the ways the data are measured generate challenges for use.

First, data is reported in a 5 point, ordinal scale. There is no reason to believe that respondents are using the same scale when they think about fear and anger. Another way of noting this is to ask whether voters hold the same anchoring points on these scales. Second, this data is only to voters who did not vote in the 2016 election; but, the data does not possess any solid information about why they did not vote in 2016.

If this test were to **reject the null hypothesis** I would conclude that among those voters who did not vote in 2016, those who vote in 2018 have a measurably different anger/fear differential compared to those who did not vote in 2018. If the test were to **fail to reject the null hypothesis** then I would conclude that either there is not enough data, the hypothesized effect does not exist, or the test was inappropriate to conduct against data collected in this manor.

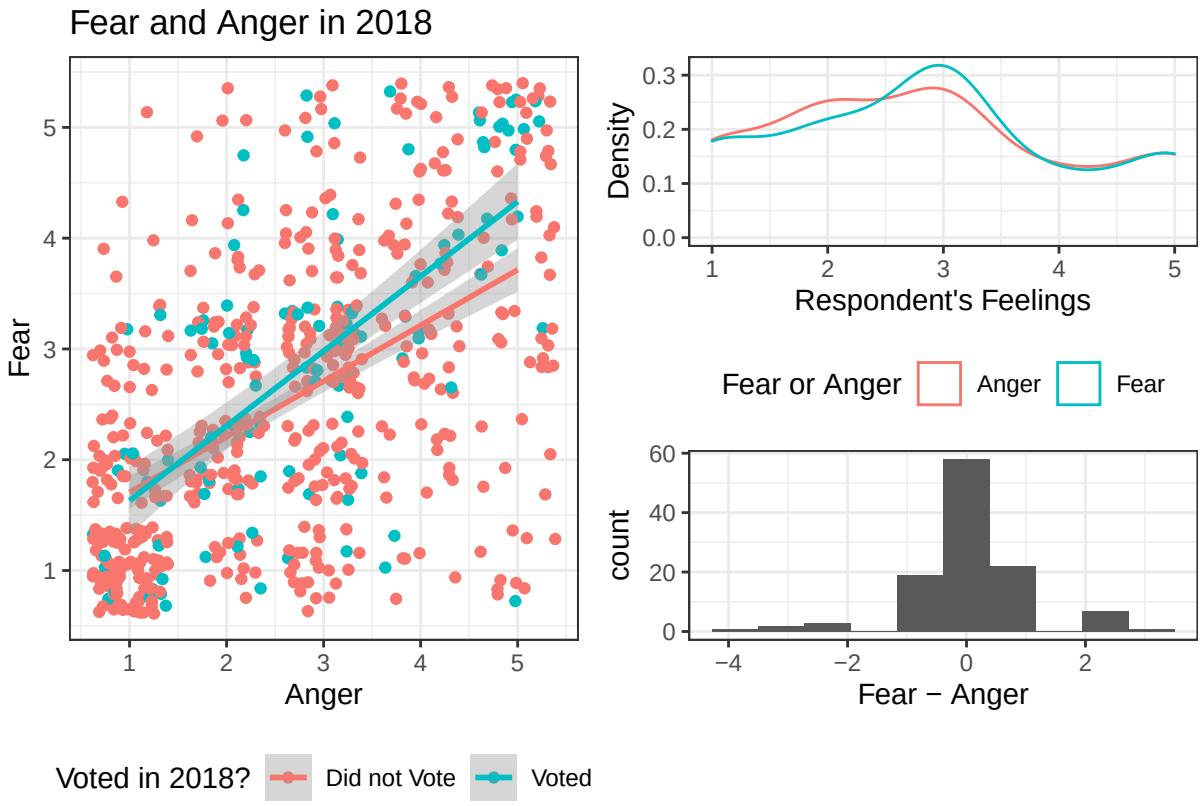

Figure 1: Voter Emotions and Feelings

```
wilcox_test <- anes %>%
  filter(
    voted_2016 == 'Did not Vote',
    voted_2018 == 'Voted') %$%
  wilcox.test(x = geangry, y = geafraid, paired = TRUE)
wilcox_test
```

```
##
##  Wilcoxon signed rank test with continuity correction
##
## data:  geangry and geafraid
## V = 699.5, p-value = 0.5359
## alternative hypothesis: true location shift is not equal to 0
```

This test suggests that there is not enough evidence to conclude that there is a difference in anger or fear among people who did not vote in 2016; indeed, the p-value for the test is 0.54, which is well outside the rejection range. In many ways, we anticipated the results of this test from the distributions of data that are reported in Figure 1. While there is a positive association between fear and anger shown in the scatter plot the histogram also shows that the distribution of differences is remarkably symmetric about zero.

And so, while the rhetoric of the former President may have raised the levels of fear and anger in the national political dialogue, there is no evidence that, among those who failed to vote in 2016 but did vote in 2018 one of these emptions was more prevalent than another.

2 Test Limitations

We have conducted this test based on the data available in the ANES. However, we have present two one reason to pause an ask whether this data – or any observational data – could provide a satisfactory answer to this question. Even after an appropriate analysis of the data on hand, it is not possible to know why people chose to **not** vote in the 2016 election. Perhaps someone chose not to vote in the 2016 election because they were angry. If this were to be the case, then our study design cannot find an effect of anger-inducing language in the 2018 data. And so, while the data that test on does fails to reject the null hypothesis that there is a difference in anger and fear as a motivation for increased voting in 2018, it is possible that the very nature of this observational data has precluded our ability to produce a satisfactory answer to the question.