

# Comparing States' CES Ideology and Senators' NOMINATE Values

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## Introduction

In this blog post I explore the relationship between a state's average ideology and their U.S. Senators' NOMINATE (roll call) ideology. This post is intended to be brief, though if anyone would like further information please let me know.

I use the pre-2022 election data from the Cooperative Election Study data (formerly known as the Cooperative Congressional Election Study, CCES). I use the 2022 survey to compare respondents' ideology with the ideology of their two senators during the January 2021 to January 2023 Congress. I focus most specifically on two main columns in the data: "inputstate" and "ideo5." I aggregate self-reported ideology responses by state. Unfortunately, the 2022 pre-election CES only includes a 5-point measure of respondents' ideology (e.g., very liberal, liberal, moderate, conservative, very conservative) instead of the common 7-point measure. Data for the 2022 CES may be found here: <https://cces.gov.harvard.edu>.

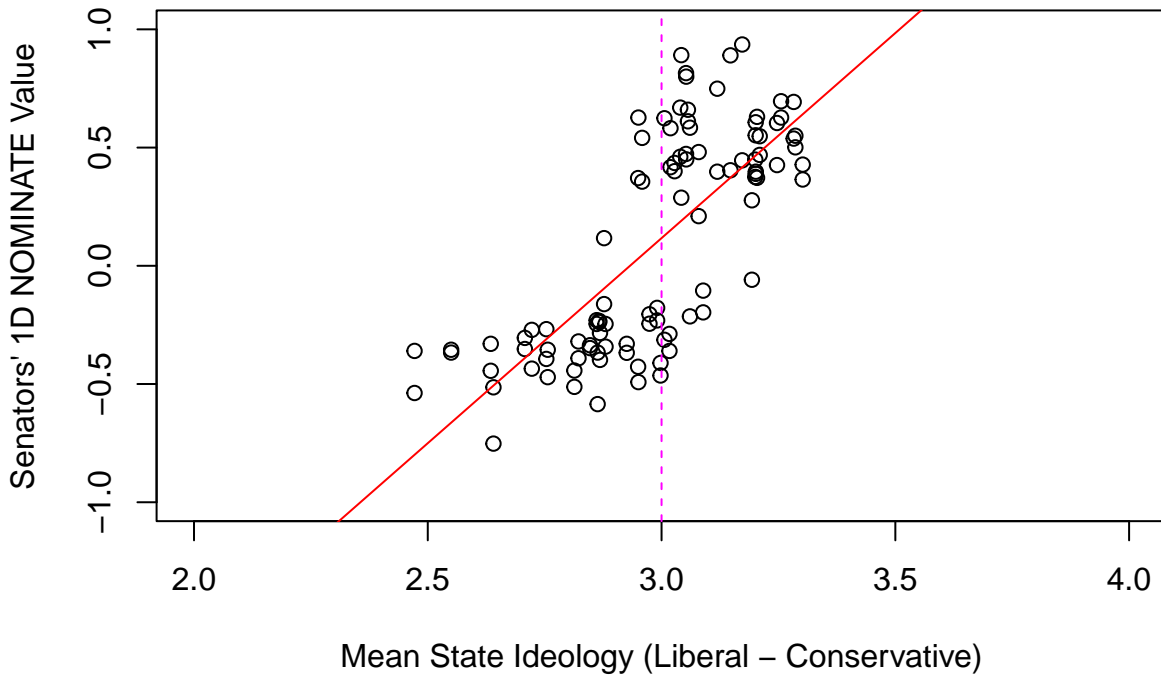
I also include information about U.S. Senators' roll call ideology using the NOMINATE First Dimension values for the 117th Congress (January 2021 to early January 2023). This metric is a scaling approach in which roll call votes are the input. The output generally ranges from -1 to 1, with more liberal politicians closer to -1 and more conservative politicians closer to 1. Data for the NOMINATE values may be found here: <https://voteview.com/data>.

## First Plot

For the first plot I present the relationship between a state's average ideological position, based on CES survey responses, with its two senators' roll call ideology. The red line is the line of best fit from an ordinary least squares (OLS) regression. The vertical magenta line presents the midpoint of the CES ideology scale – moderate.

We observe a positive relationship in the figure. States with more conservative voters tend to have more conservative senators.

## Comparing Average State CES Ideology and Senators' NOMINATE Ideology



### Further Plotting Details

The plot below adds some helpful details. I add “D” and “R” labels to the points for Democrats and Republicans, respectively. I also color the labels blue for Democrats and red for Republicans. These details are added with the “points” command.

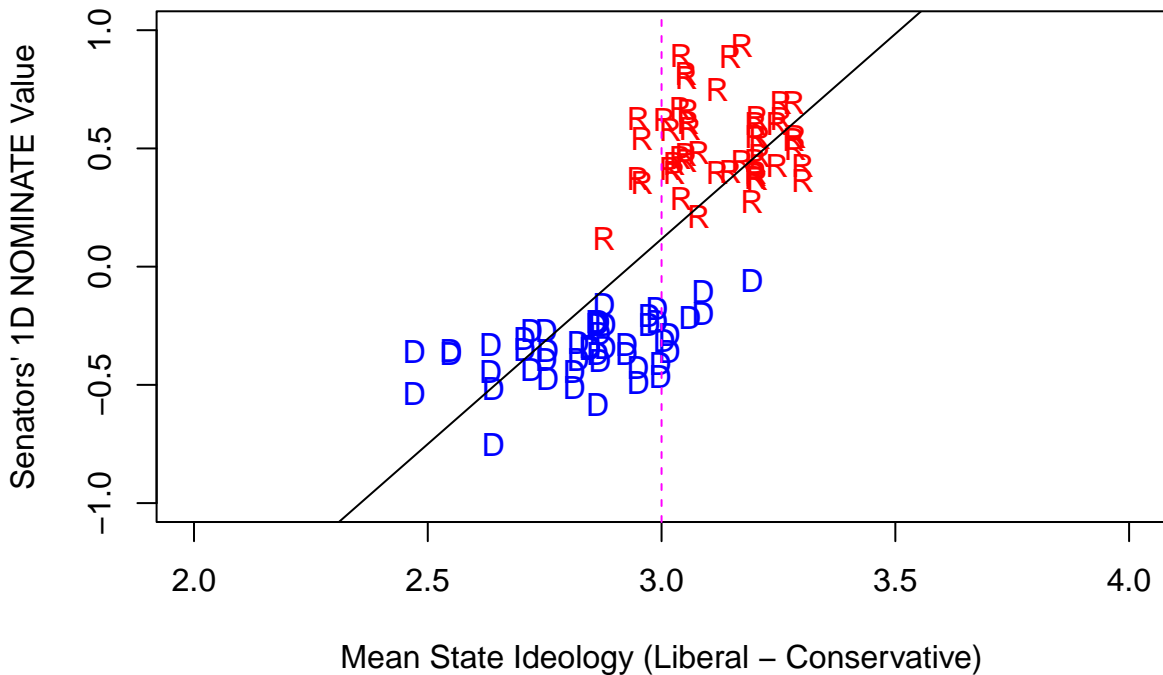
```
# Create Republican senators
rep <- subset(dat2, party_code == 200)

# Create Dem (and 2 Ind. Dem-caucus) senators
dem <- subset(dat2, party_code != 200)

plot(dat2$state_ideo_mean, dat2$nominate_dim1,
     xlim = c(2,4), ylim = c(-1,1),
     xlab = c('Mean State Ideology (Liberal - Conservative)'),
     ylab = c('Senators\' 1D NOMINATE Value'),
     main = c('Comparing Average State CES Ideology
and Senators\' NOMINATE Ideology'),
     col = alpha(0.01))
# Republican points
points(rep$state_ideo_mean, rep$nominate_dim1, col = 'red', pch = 'R')
# Democratic points
points(dem$state_ideo_mean, dem$nominate_dim1, col = 'blue', pch = 'D')
```

```
# Add the regression line
abline(lm(nominate_dim1 ~ state_ideo_mean, data = dat2), col = 'black')
# Add a vertical line at the midpoint (i.e., moderate)
abline(v = 3, lty = 2, col = 'magenta')
```

### Comparing Average State CES Ideology and Senators' NOMINATE Ideology



This plot provides more information of the relationship. The Republican senators are more closely clustered in the figure relative to Democratic senators. Democratic senators also appear to represent states with a wider range of ideologies compared to Republican senators.

There is a positive, and expected, relationship between a state’s respondents’ self-reported ideology and their senators’ roll call ideology. More conservative states tend to have more conservative senators, while more liberal voters tend to have more liberal senators. However, the bivariate relationship contains a lot of noise. Part of the reason is that the sample of respondents in the CES survey may not be fully representative for each state. Furthermore, we should not necessarily expect roll call ideology of each senator to be perfectly aligned with their state’s voters’ ideology – they are measured two different ways (i.e., one with a 5-point survey and one with roll call votes).

### Which States and Senators Do Not Align?

The table below presents the “outliers” from the figure above – those Democratic senators who represent slightly conservative states, and those Republican senators who represent slightly liberal states. I include the number of respondents for each state. Some states have

over 1,000 CES respondents while others have fewer than 250.

State	Senator	Party	Senator Ideology	State Ideology	State N
Arizona	Mark Kelly	D	-0.197	3.089	1625
Arizona	Kyrsten Sinema	D	-0.105	3.089	1625
Iowa	Joni Ernst	R	0.541	2.958	595
Iowa	Chuck Grassley	R	0.356	2.958	595
Maine	Susan Collins	R	0.117	2.877	323
Montana	Jon Tester	D	-0.214	3.061	224
Nevada	Catherine Cortez Masto	D	-0.360	3.017	758
Nevada	Jacklyn Rosen	D	-0.288	3.017	758
Ohio	Rob Portman	R	0.371	2.950	2515
Pennsylvania	Bob Casey	D	-0.313	3.006	3106
Wisconsin	Ron Johnson	R	0.627	2.951	1253
West Virginia	Joe Manchin	D	-0.059	3.193	458

Intriguingly, both senators from Arizona (Democrats), Iowa (Republicans), and Nevada (Democrats) represent states slightly at odds, based on the 2022 CES respondents, with their own NOMINATE ideology.

It also important to note that most of the states in the table have average ideology values very close to the midpoint of 3. That being said, the largest two discrepancies occur for Senators Joni Ernst (R-IA) and Ron Johnson (R-WI) who are both more conservative than their state's average ideology.

Another interesting finding is that Democratic Senator Joe Manchin (D-WV) represents a state that, based on the CES responses, is much more conservative than many other states represented by Republican senators!

This blog post serves as a brief foray into plotting and comparing some different types data - both politicians' voting habits and voter surveys. Please let me know if you have any questions or feedback.