Polarization in the US Congress

Nora Dee
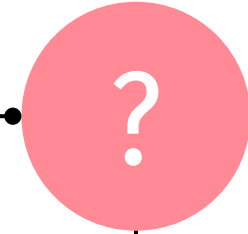Mentor: Amanda Brown

Background

Polarization seems to have risen sharply in recent years

CRITICAL RACE THEORY · Published December 29, 2021 11:28am EST

Critical race theory, left-wing ideas ruining medical field, critics argue

One doctor argues, 'Physicians cannot—and should not—dismantle racism'

Mask Mandates Are Illogical. So What?

They only need to align with communities' goals.

But how do we measure changes in polarization?

Plus, how do we test hypotheses of change and causation?

Data Sets

Voting vs Text-Based Measures of Polarization

DW-Nominate Scores

More established measure of polarization, voting-based (action instead of words)

Speech Analysis by Computer Algorithm

Uses machine learning to analyze Congressional speeches and assign a polarization value
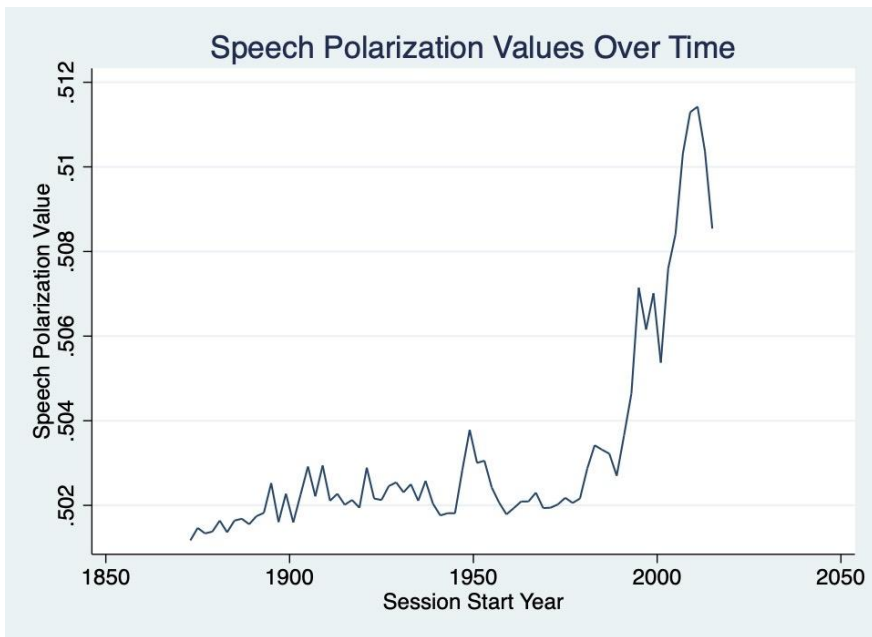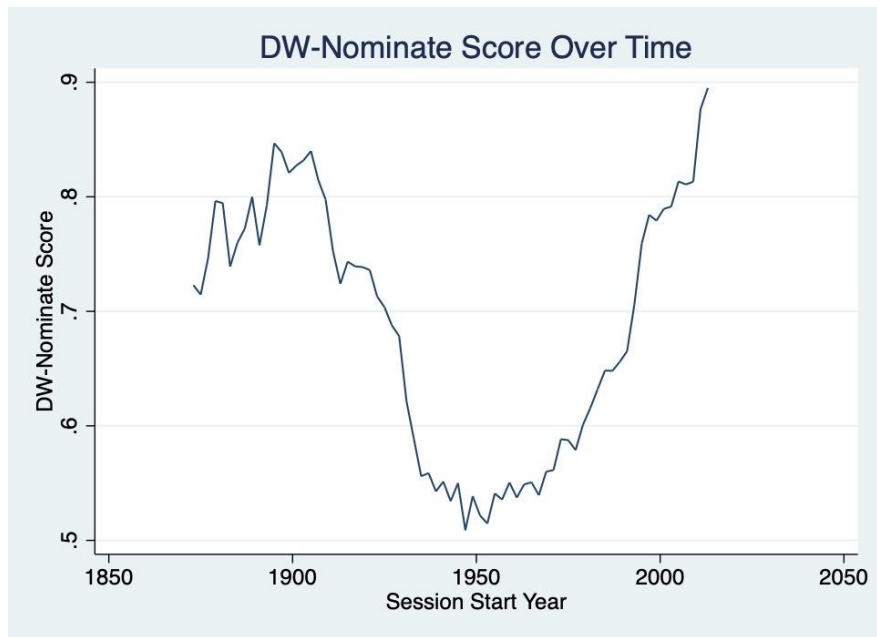
Figure 1: Polarization values pre-analysis.

Methodology: Structural Break Analysis

- Structural break: when a time series abruptly changes at a point in time

- Ran a Supremum Wald test for a structural break at an unknown break date for current estimation results using symmetric trimming of 10%, 15%, 20%

- Benefits of this test:
    - Helps to determine if and when there is a significant break in the data
    - Robust to unknown forms of heteroskedasticity

Table 1: Analysis Methods vs. Estimated Breaks

| Method	Vote-Based Polarization (DW-NOMINATE)		Text-Based Polarization (Gentzkow et al.)	
	Estimated Break	p-value (H0: no structural break)	Estimated Break	p-value (H0: no structural break)
Unknown break, 15% trimming	95th Congress	0.0000	97th Congress	0.0000
Unknown break, 10% trimming	95th Congress	0.0000	103rd Congress	0.0000
Unknown break, 20% trimming	95th Congress	0.0000	102nd Congress	0.0000
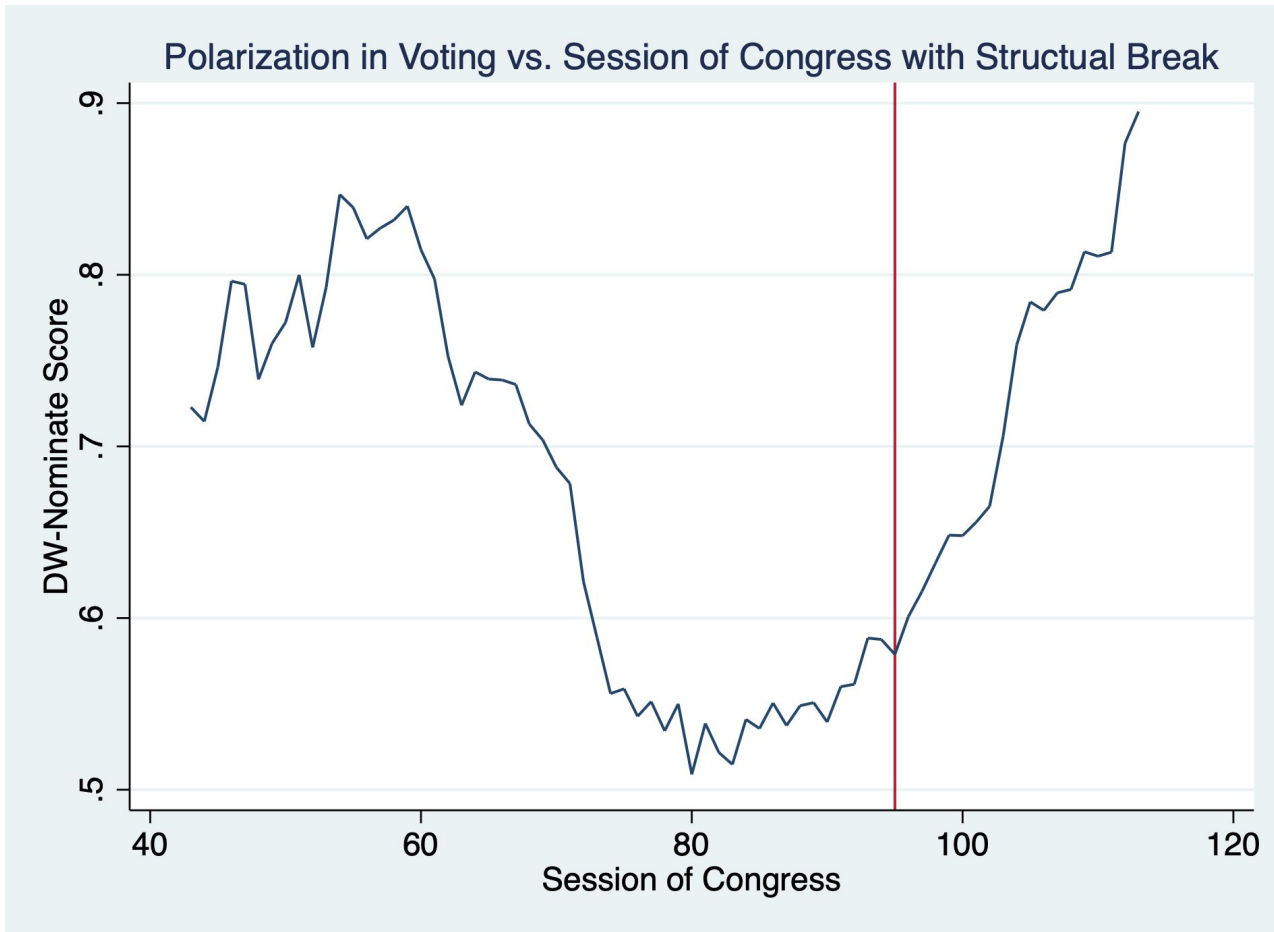
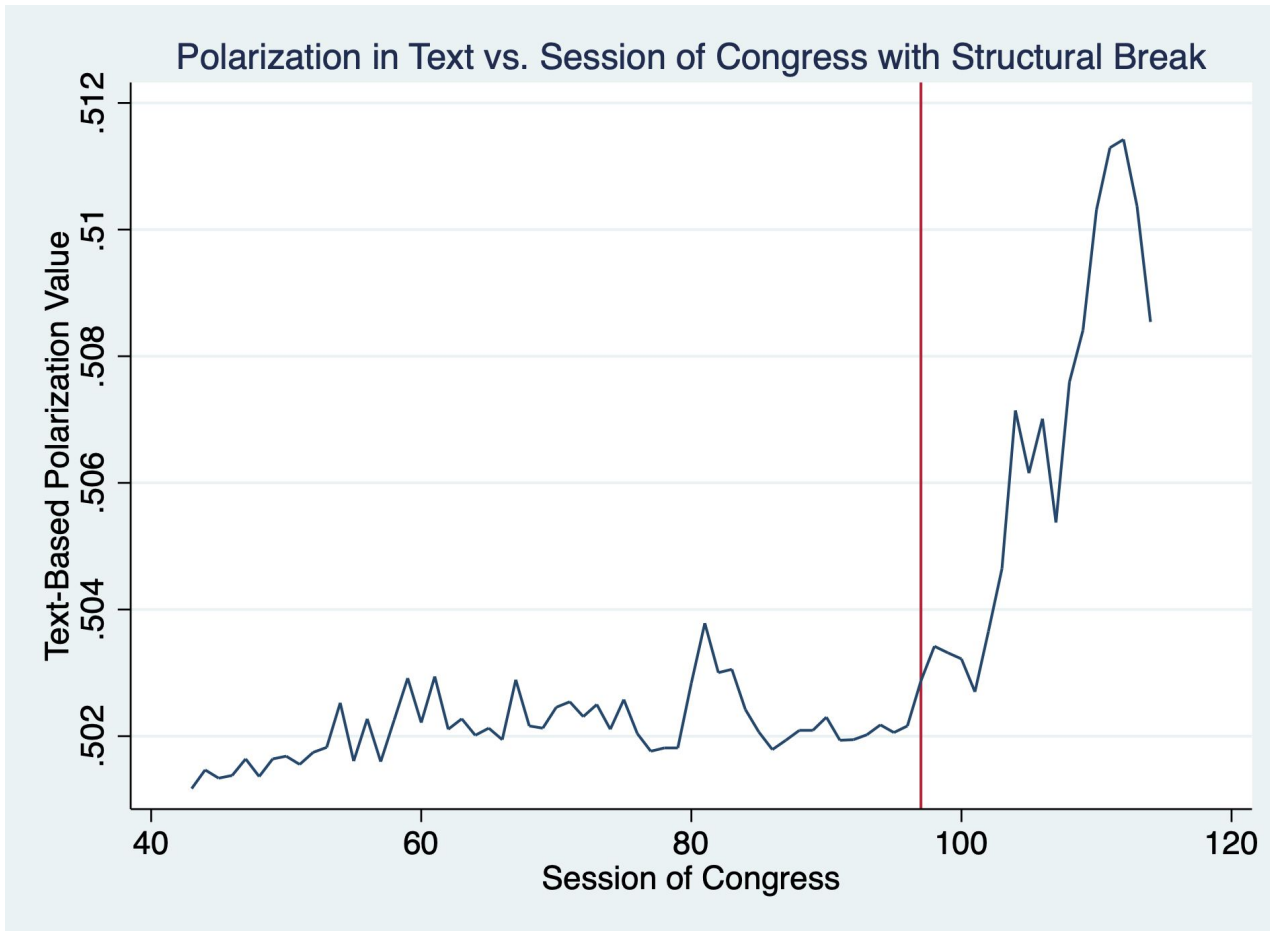Figure 2: DW-Nominate values over time with structural break.

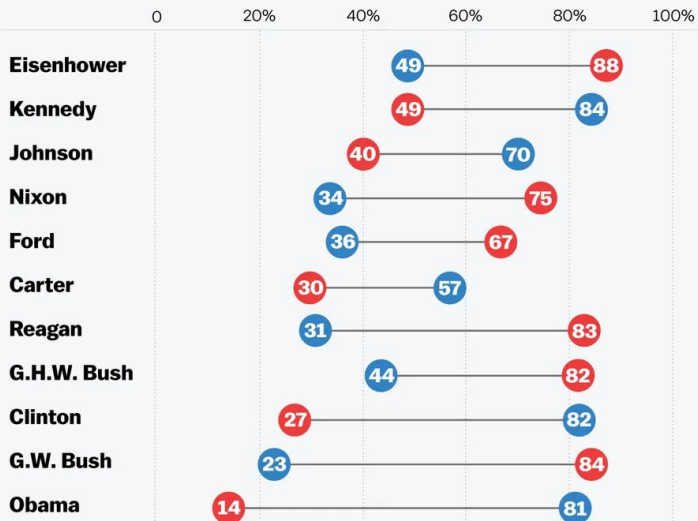Figure 3: Text-based polarization values over time with structural break.

Potential Causes

The increasingly polarizing presidency
Average approval ratings during presidents' time in office

● Approval rating among Republicans   ● Approval rating among Democrats

President	Democrats	Republicans
Eisenhower	49	88
Kennedy	49	84
Johnson	40	70
Nixon	34	75
Ford	36	67
Carter	57	30
Reagan	31	83
G.H.W. Bush	44	82
Clinton	27	82
G.W. Bush	23	84
Obama	14	81

SOURCE: Gallup and Pew Research Center

Vox

C-SPAN

CONTRACT WITH AMERICA
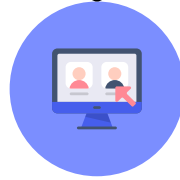★ ★ ★ ★ ★
PROMISES
MADE.
PROMISES
KEPT.

Conclusion

Significant change in late 1900s

Statistically significant changes during the 95th and 97th sessions

Potential Causes

Contract with America, C-SPAN, 1980 presidential election

Relationship between data sets

In late 1900s, text-based measure lagged behind changes in DW-Nominate scores