Spatial Voting in U.S. House Elections

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Abstract

Goal: Estimate the relationship between individuals' ideological proximity to candidates and vote choice.

Why use U.S. House Elections?

- Provide variation in candidate positions
- Overall visibility of campaigns is low (hard test)
- Variation in campaign intensity, tone, and emphasis may condition effects

Why Use Expert Informants?

- Cost-effective, valid, and reliable approach
- Equivalent scales for incumbents and challengers
- External to voter perceptions but on the same scale as self-placements

Approach:

- Aggregate informant placements while correcting for partisan bias
- Combine results with equivalent voter data to get estimates of latent ideology
- Estimate relationship between proximity and vote choice
- Simultaneous in a Bayesian framework so uncertainty propagates through model

Data on Candidates and Voters

Expert Informant Data

- National presidential convention delegates, state legislators, and individuals identified from Polimetrix's panel of respondents using an expertise battery
- 4,871 informants from 155 congressional districts (mean of 31 and sd of 3.2)
- Asked to place candidates on 6 issue scales as well as the traditional left-right scale
- Study website: http://electionstudy.ucdavis.edu/

Voter Data

- 2,000 respondents from the 2010 CCES (UCD Module)
- Asked to place themselves on the same 7 scales.

Issues with Expert Informant Data

Issues	Current Solution
Informant Random Error	Should cancel out during aggregation
Informant Bias	Assume independents are unbiased
Variation in Informant Accuracy	None, weighting was unhelpful
Variation in Sample Size	Simultaneous estimation accounts for uncertainty

Aggregating Expert Informant Placements

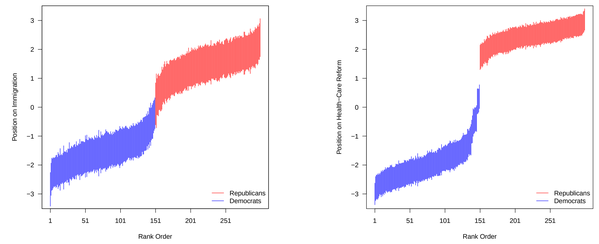
$$\textbf{placements}_{i_c}|\textbf{positions}_c \sim N\left(\textbf{positions}_c + \boldsymbol{\delta}(\text{pid}_i), \boldsymbol{\eta}\right)$$

where:

- c indexes candidates and i indexes informants
- $\textbf{placements}_{i_c}$ is a 7-by-1 vector of informant i's placements of candidate c on the 7 issue questions
- $\textbf{positions}_c$ is a 7-by-1 vector of aggregate informant estimates of candidate c's position on the 7 issues
- $\boldsymbol{\delta}$ is a a 7-by-1 vector of unknown parameters. Varies across items but held constant across informants and districts
- pid_i is a 3-point measure of the informants' party identification

Examples of Aggregate Informant Placements

Figure 1: *Example Estimates of Candidate Positions (95% Credible Intervals)*



(a) Immigration (b) Health Care

- Health care estimates demonstrate more certainty and polarization
- Variation in the certainty of estimates within items is a function of informant agreement, district sample size, and candidate characteristics

Estimating Candidate and Voter Latent Ideology

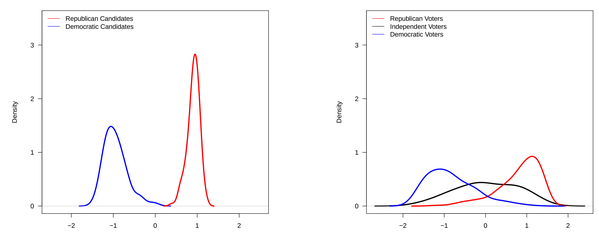
$$\begin{aligned}\textbf{positions}_c|\text{ideology}_c &\sim N(\boldsymbol{\tau} + \boldsymbol{\gamma}(\text{ideology}_c), \nu)\\ \textbf{positions}_v|\text{ideology}_v &\sim N(\boldsymbol{\tau} + \boldsymbol{\gamma}(\text{ideology}_v), \nu)\end{aligned}$$

where:

- c indexes candidates and v indexes survey respondents
- ideology is an estimate of candidate and voter latent ideology
- $\boldsymbol{\tau}$ and $\boldsymbol{\gamma}$ are unknown parameters. They vary across items but are held constant across candidates/voters.

Candidate and Voter Latent Ideological Positions

Figure 2: *Density Plots of Candidate and Voter Ideology by Party*



(a) Candidates (b) Voters

- Considerably less polarization among voters than candidates.
- Correlation between incumbent ideology estimates and DW-NOMINATE scores is .96.

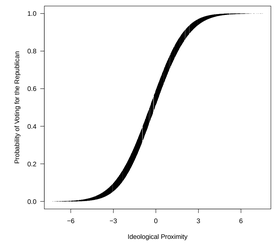
Simple Vote Choice Model

Figure 3: *Predicted Probability of Voting Republican (95% Credible Intervals)*

$$P(\text{vote}_v = 1) = \Phi\left(\alpha + \beta(\text{prox}_v)\right)$$

where:

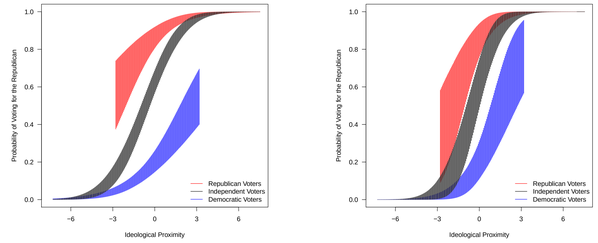
- vote_v is respondent vote choice
- $\text{prox}_v = (\text{ideology}_d - \text{ideology}_v)^2 - (\text{ideology}_r - \text{ideology}_v)^2$
- α and β are unknown parameters



- Surprisingly strong given the low visibility of House campaigns and the limited knowledge voters have of candidates

Proximity, Party Identification, and Campaign Intensity

Figure 4: *Predicted Probability of Voting Republican (95% Credible Intervals)*



(a) Low Intensity (b) High Intensity

- Model allows intercept and slope to vary by party identification and campaign intensity
- Relationship between proximity and vote is much weaker among partisans than independents in low intensity campaigns
- Effect of proximity is stronger in districts with high campaign intensity, difference is most pronounced among partisans

Conclusion and Next Steps

Proximity and Vote Choice

- Expert informants can provide valid measures of candidate positions
- Voters seem to respond to the positions of candidates
- Characteristics of voters (pid) and their environment (campaign intensity) condition the effect of proximity

Next Steps

- Alternative bias correction approaches
- Treat informant placements and candidate positions as ordinal, not continuous
- Introduce a measure of candidate valence