

Polls and Presidential elections

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- ▶ collaborators:
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 - ▶ David Park, Dept. of Political Science, Washington University
 - ▶ Mark Hoopes, Dept. of Political Science, Texas A&M
 - ▶ John Hoxby, Department of Economics, Stanford
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 - ▶ How are pre-election polls conducted?
 - ▶ How are Presidential elections forecasted?
- ▶ Does the Electoral College favor one party or another?
- ▶ What is the probability that the election is tied?
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Why do Presidential election campaign polls vary so much when votes are so predictable?

- ▶ Presidential polls fluctuate wildly
- ▶ But the candidates' vote shares can be accurately forecast (within a few percentage points) months before the election
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Pre-election polls

- ▶ ABC, CBS, Gallup, etc.
- ▶ Mostly random-digit-dial surveys (but other countries use face-to-face interviews)
- ▶ Response rates below 30%
- ▶ Over/undersample by sex, ethnicity, age, education, . . .
- ▶ Weighting to adjust to Census
- ▶ Can estimate state-level opinion from national polls using Bayesian hierarchical modeling
- ▶ Also state polls, academic polls, internet polls, . . .

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Why do we trust the polls?

- ▶ A poll is a snapshot, not a forecast
- ▶ Polls taken just before the election are usually pretty accurate

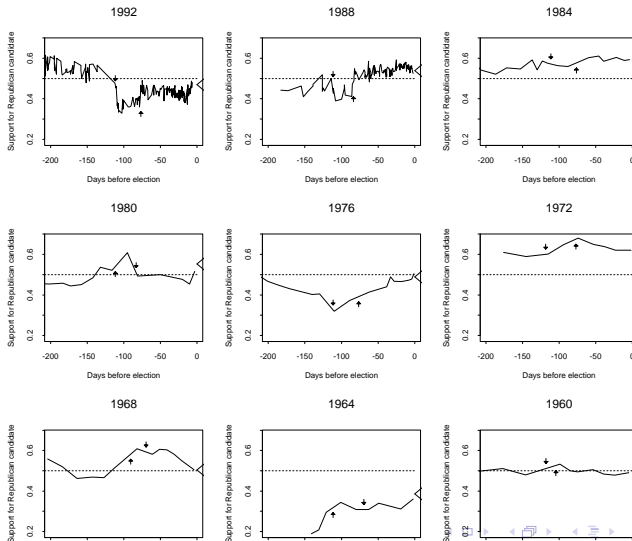
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Partisan bias in the electoral college?
Probability the election is tied
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How are pre-election polls conducted?
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Why do Presidential election campaign polls vary so much . . .

Republican share of two-party preference in pre-election polls



Presidential election forecasting

- ▶ 4 years ahead, 2 years ahead, 1 year, 4 months, 2 months, 2 weeks, . . . election night
- ▶ 2 months before election: candidates have been chosen, final campaign still to go
- ▶ Predict election outcome using polls, national economy, incumbency, candidates' ideologies, state economic and political trends, home states, home regions
- ▶ Fit model using elections since 1948, use to predict current election
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Forecast for 2004

- ▶ National forecast from Wlezien and Erikson based on polls and economic indicators: 51.7% ($\pm 2.5\%$) for Bush
- ▶ Take relative positions of states from 2000, correct for home-state effects
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Uniform partisan swing

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- ▶ All groups move together
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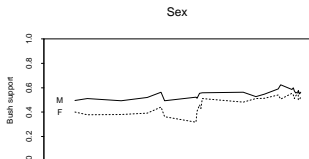
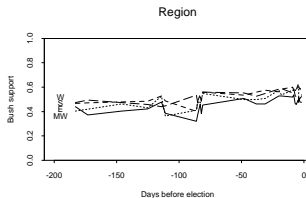
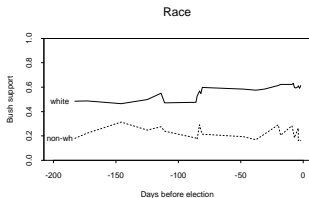
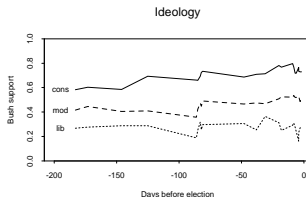
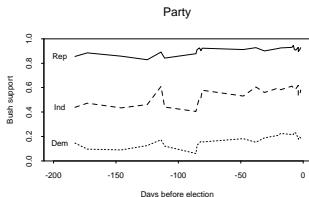
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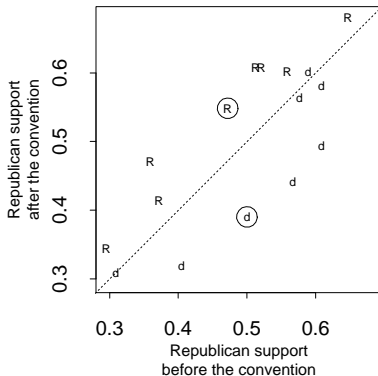
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Presidential Support by Group



Changes in Presidential campaign polls during Democratic and Republican conventions, 1964-1992

(conventions in 1988 circled)



Moving toward a predictable outcome

- ▶ You can predict a voter's preference given “demographics”: sex, ethnicity, age, education, **political ideology**, **party identification**
- ▶ This prediction improves as the campaign goes on
 - ▶ Fit model to a series of polls before the 2000 election
 - ▶ The coefficients for the predictors increase
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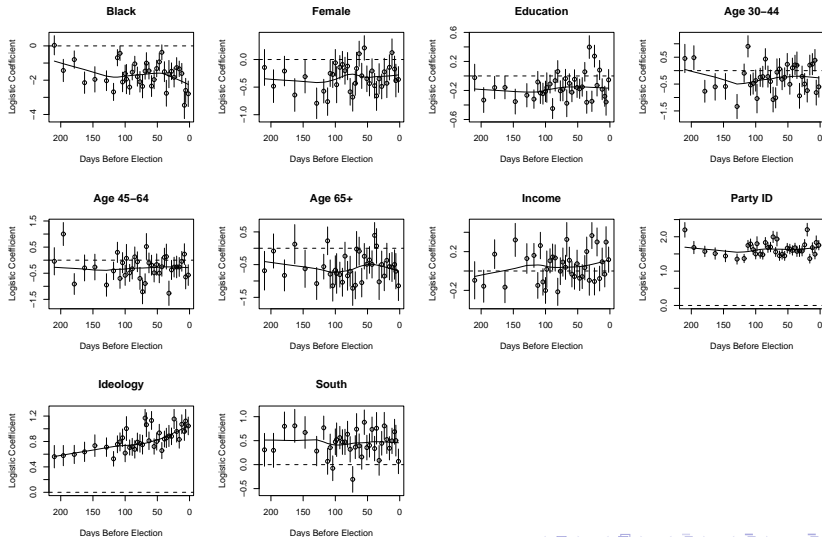
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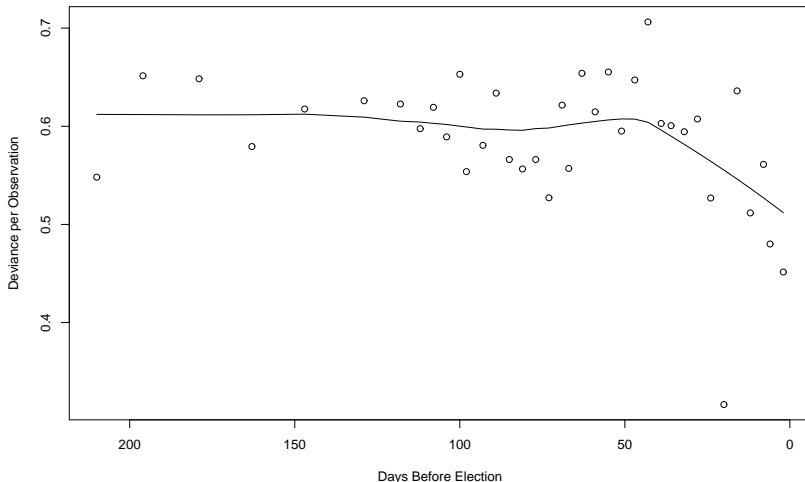
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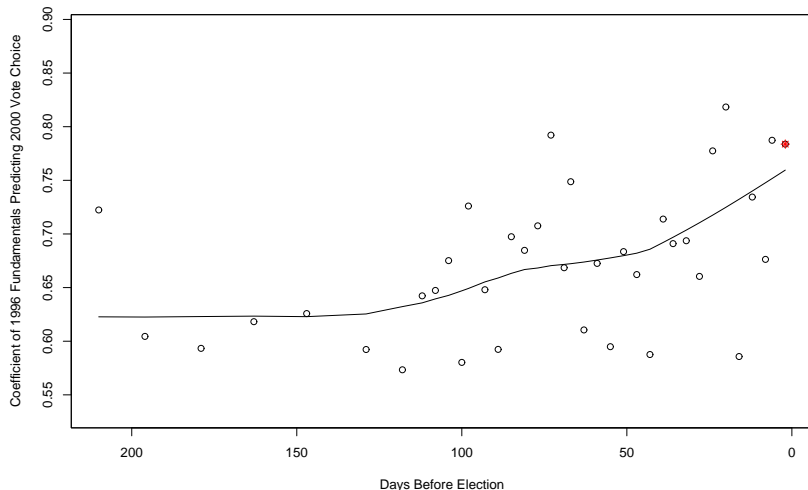
Increasing coefficients for fundamental predictors



Decreasing residual error of model of individual vote



Increasing predictive power for new data



The random-walk and mean-reversion models

- ▶ *Random-walk model*: voters are bounced around by campaign events, then the election comes
- ▶ *Mean-reversion model*: voters will mostly end up where predicted. It just takes them awhile to get there
- ▶ *Mean-reversion model* fits the data better, also explains why polls vary so much when elections are so predictable

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The random-walk and mean-reversion models

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Does the Electoral College favor one party or the other?

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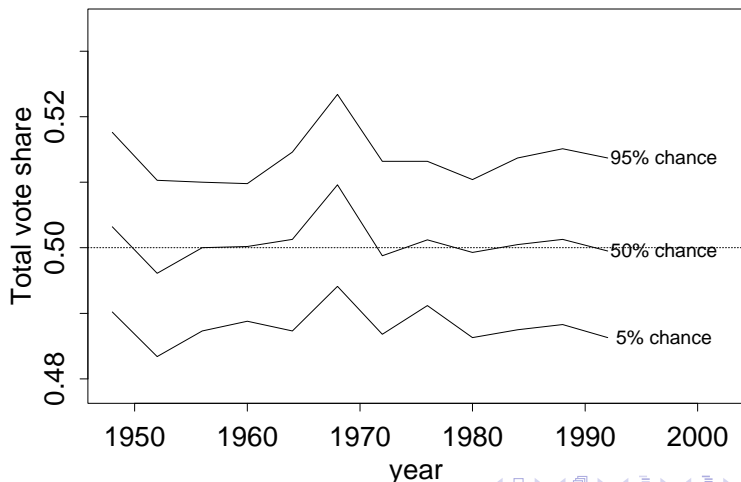
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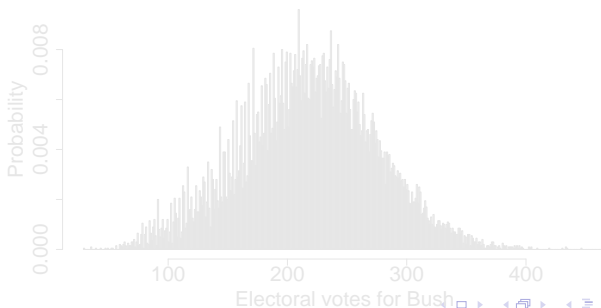
Percentage of the popular vote required for Democrats to have a given chance of winning the Electoral College



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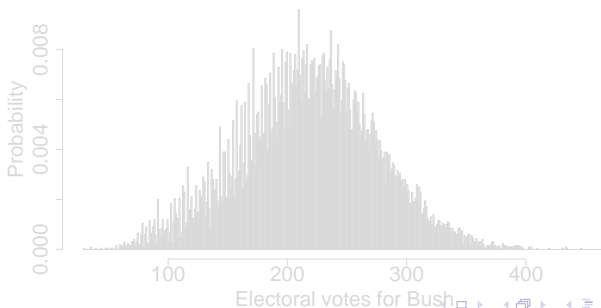
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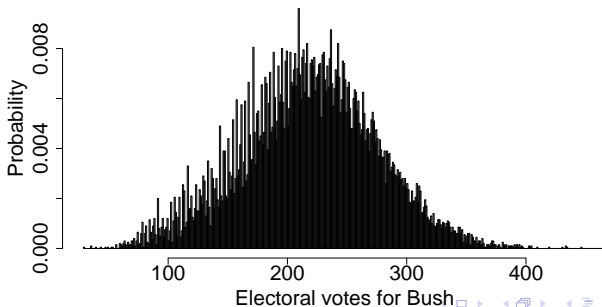
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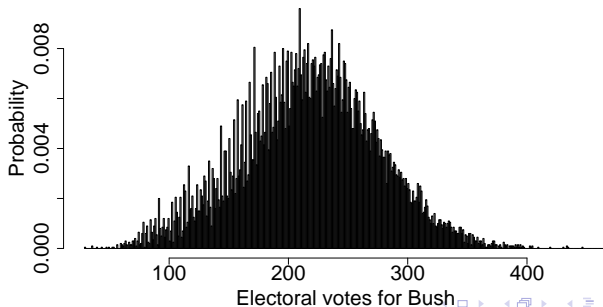
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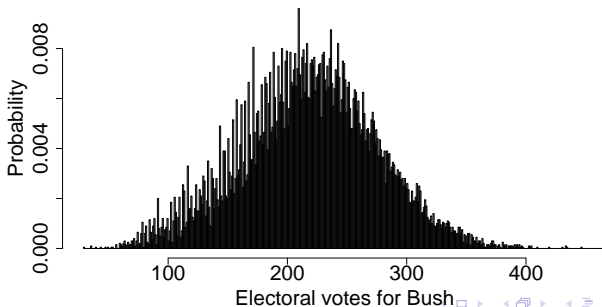
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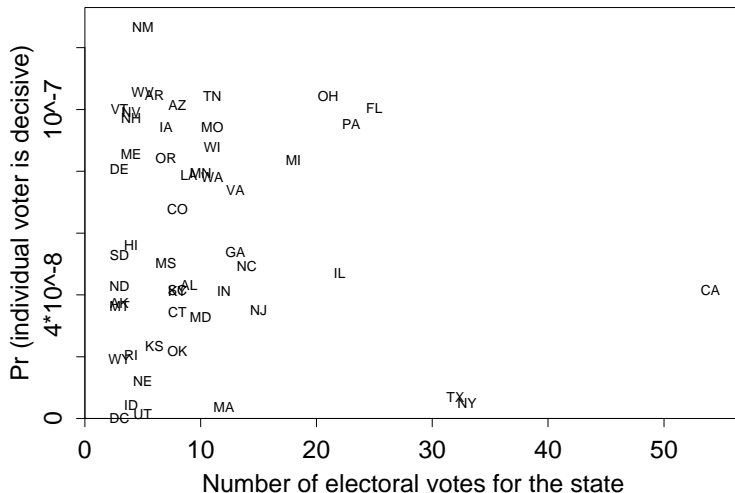
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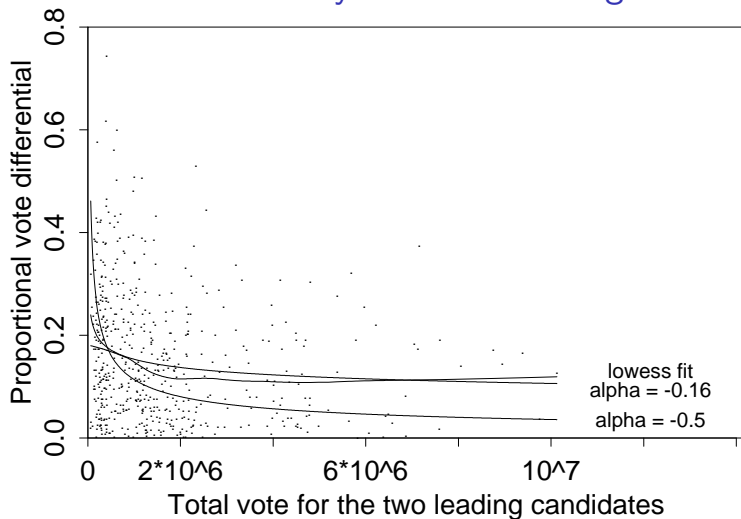
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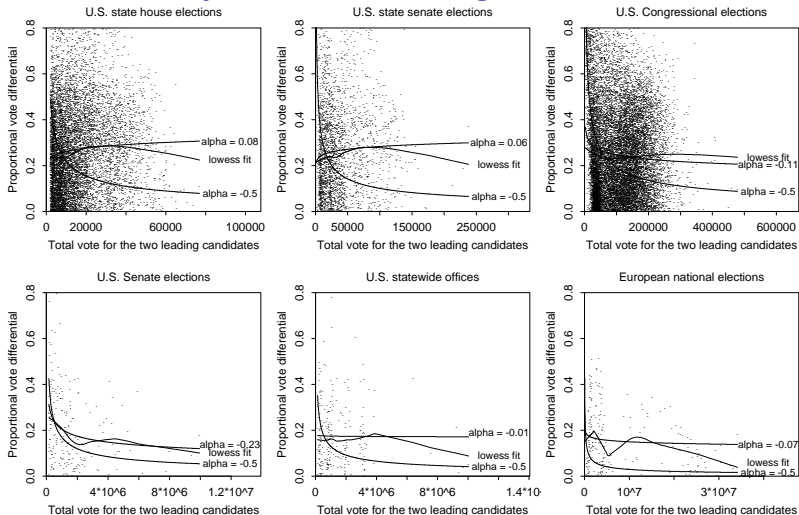
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Historical Pres. elections by state: vote margins vs. N



Other electoral systems: vote margins vs. N



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When and why is it rational to vote?

- ▶ The probability of your vote being decisive is about 1 in 10 million, so why vote?
- ▶ Utility calculation: $\Delta U = pB - c$
 - ΔU = utility from voting
 - p = probability that your vote changes the election outcome
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- ▶ Suppose $p = 10^{-7}$ and $B = \$1000$. Then $pB = 1/100$ of a cent!

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