Poll Aggregation in the 2016 U.S. Presidential Election: Accuracy and Uncertainty

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PUBLIC POLLING VS. PRIVATE POLLING

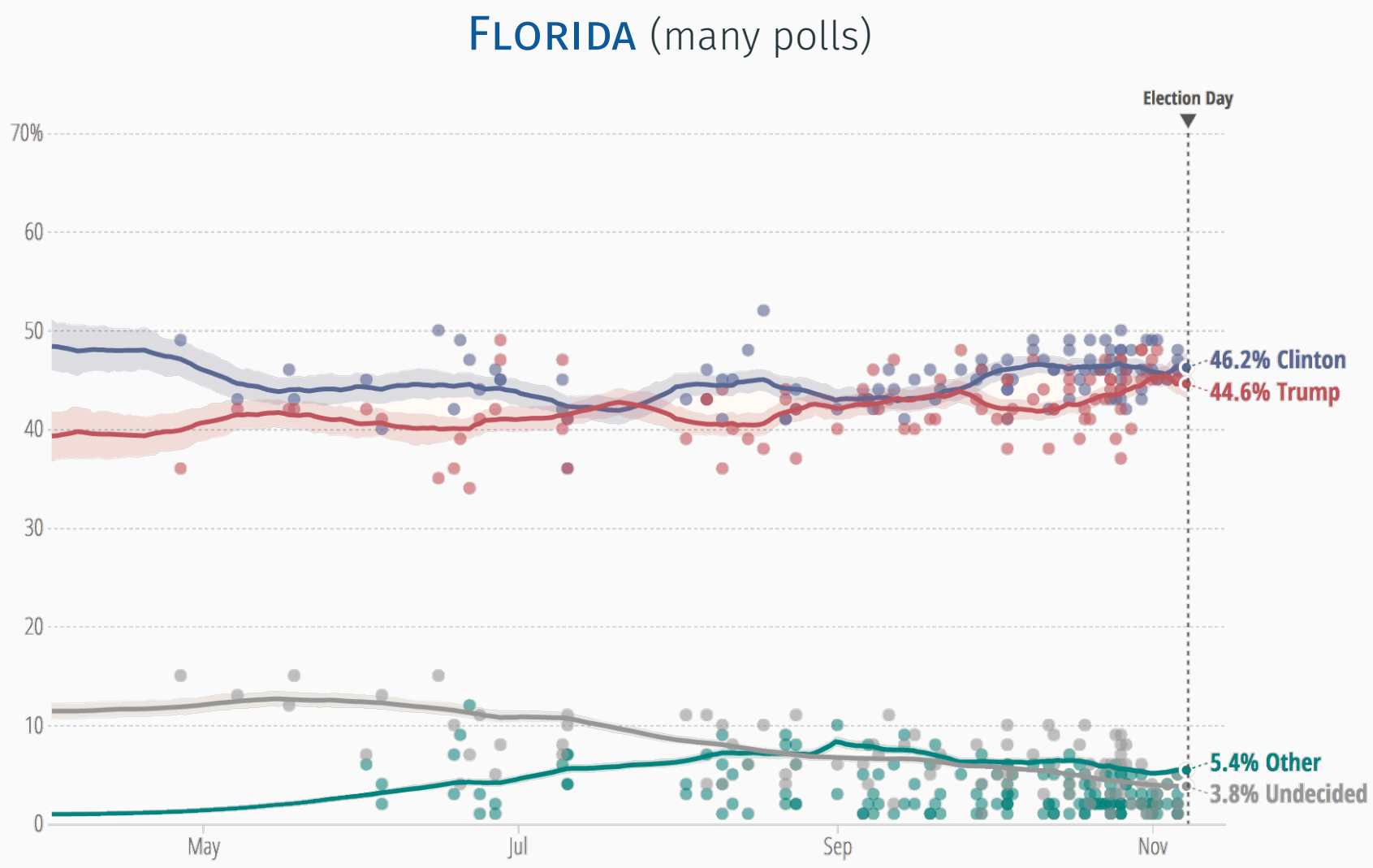
Public: 1,400 state-level presidential polls in all 50 states

- Released by media organizations and polling firms
- Quality varies, but they're **usually accurate**, on average

Private: Campaigns' internal research, kept secret

- Supposed to be higher quality than public polls
- Except, **neither campaign** expected Trump to win

POLL AGGREGATES CANCEL OUT RANDOM SAMPLING ERROR



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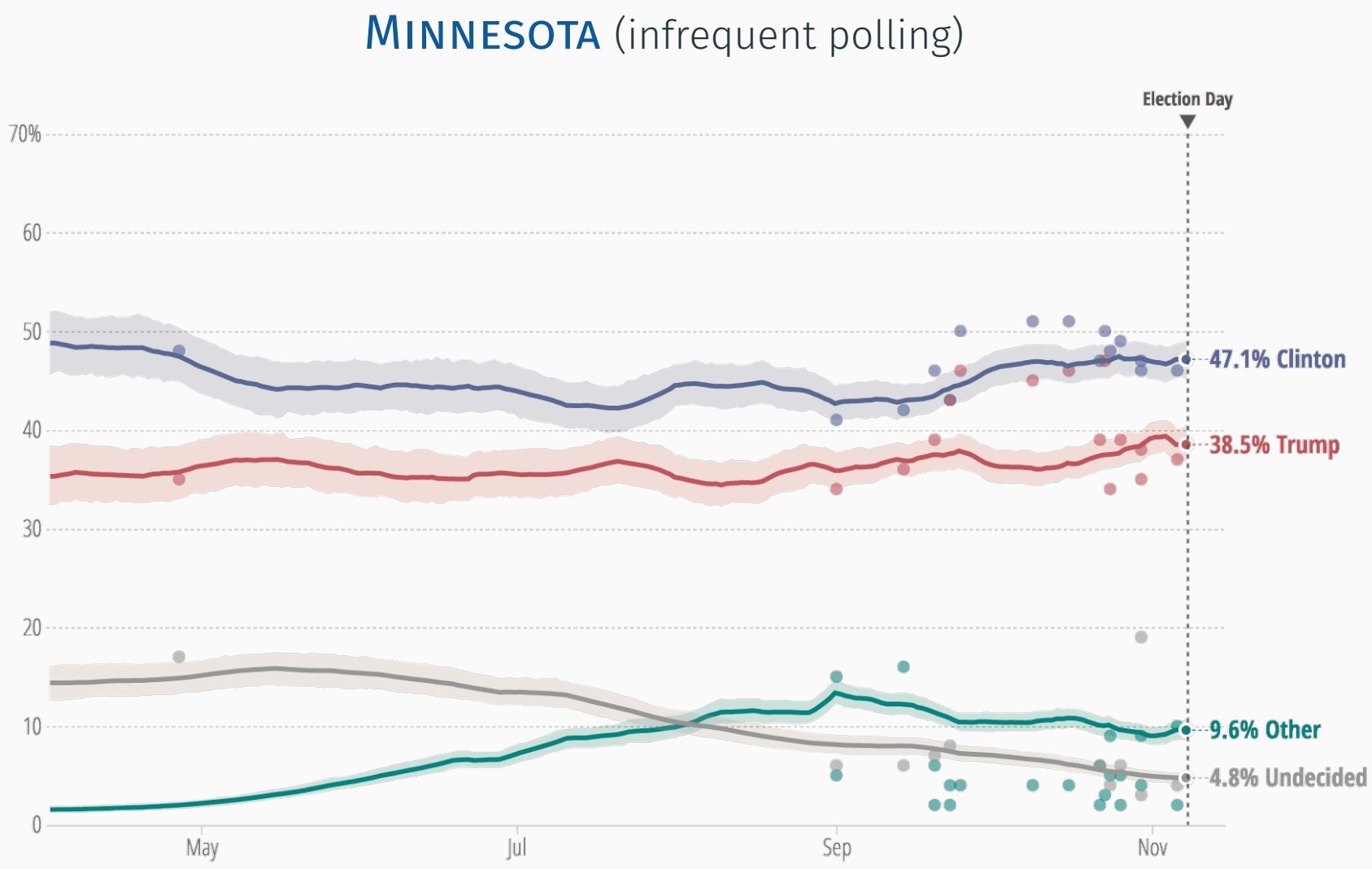
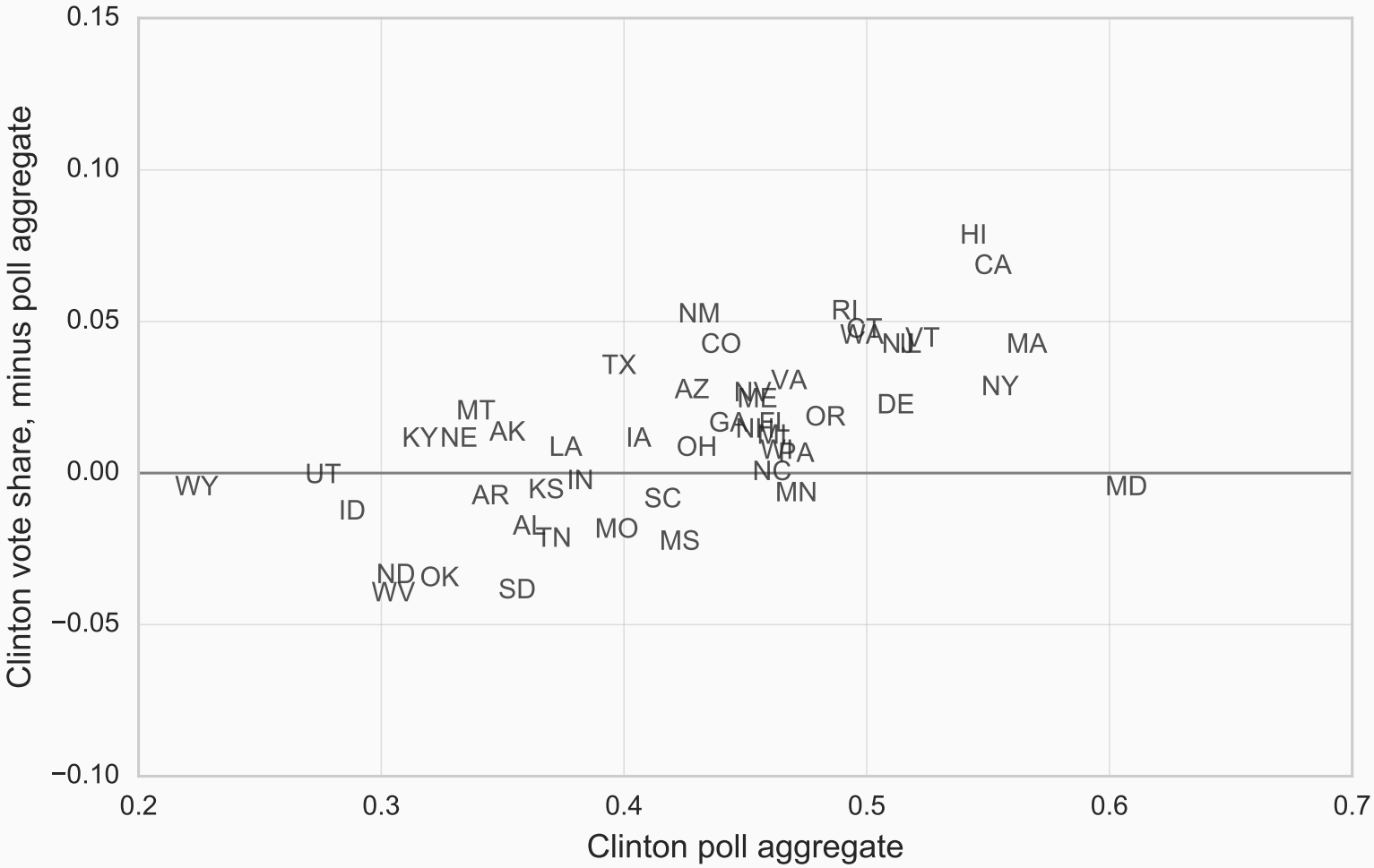


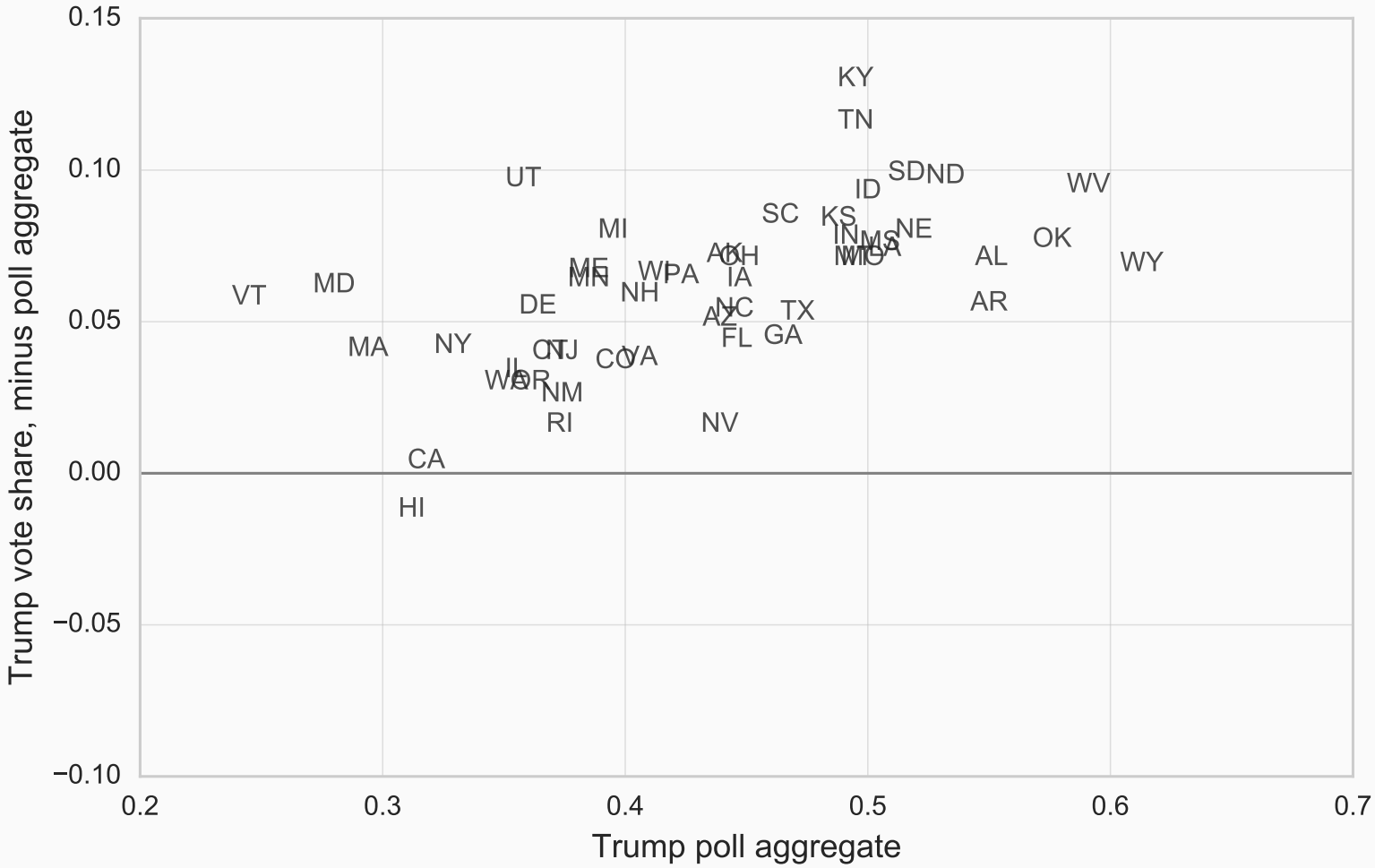
THE 2016 PRESIDENTIAL POLLS HAD SYSTEMATIC BIASES

Clinton outperformed her polls in more Democratic states



THE 2016 PRESIDENTIAL POLLS HAD SYSTEMATIC BIASES

Trump dramatically exceeded expectations from the polls



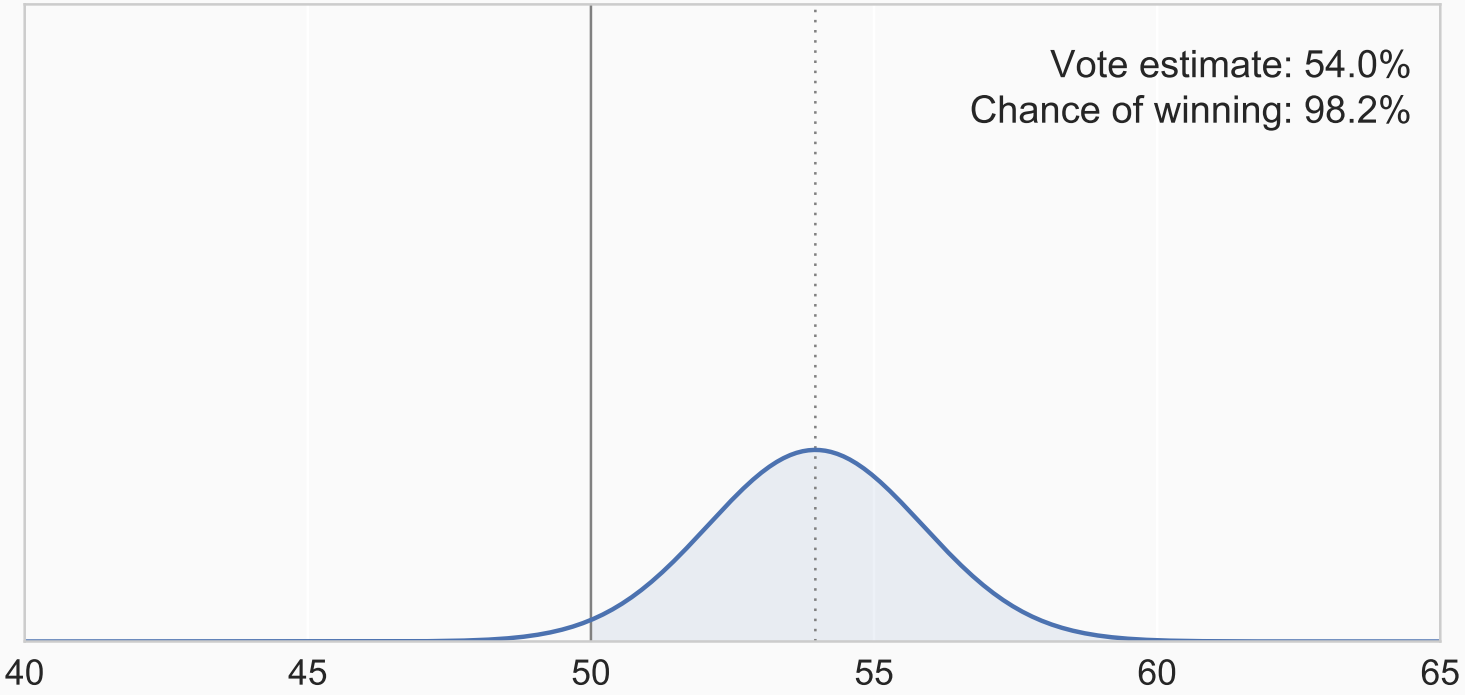
THE BIG QUESTION

How uncertain should we have been about the polls to make **5 to 10 percentage point errors** seem consistent—even minimally—with the data?

Remember: If you can't predict the bias, you have to assume the errors can go in **either direction**.

Clinton vote share, Wisconsin

Posterior distribution, assuming simple random sampling



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11/1/16	PPP	41%	48%	891

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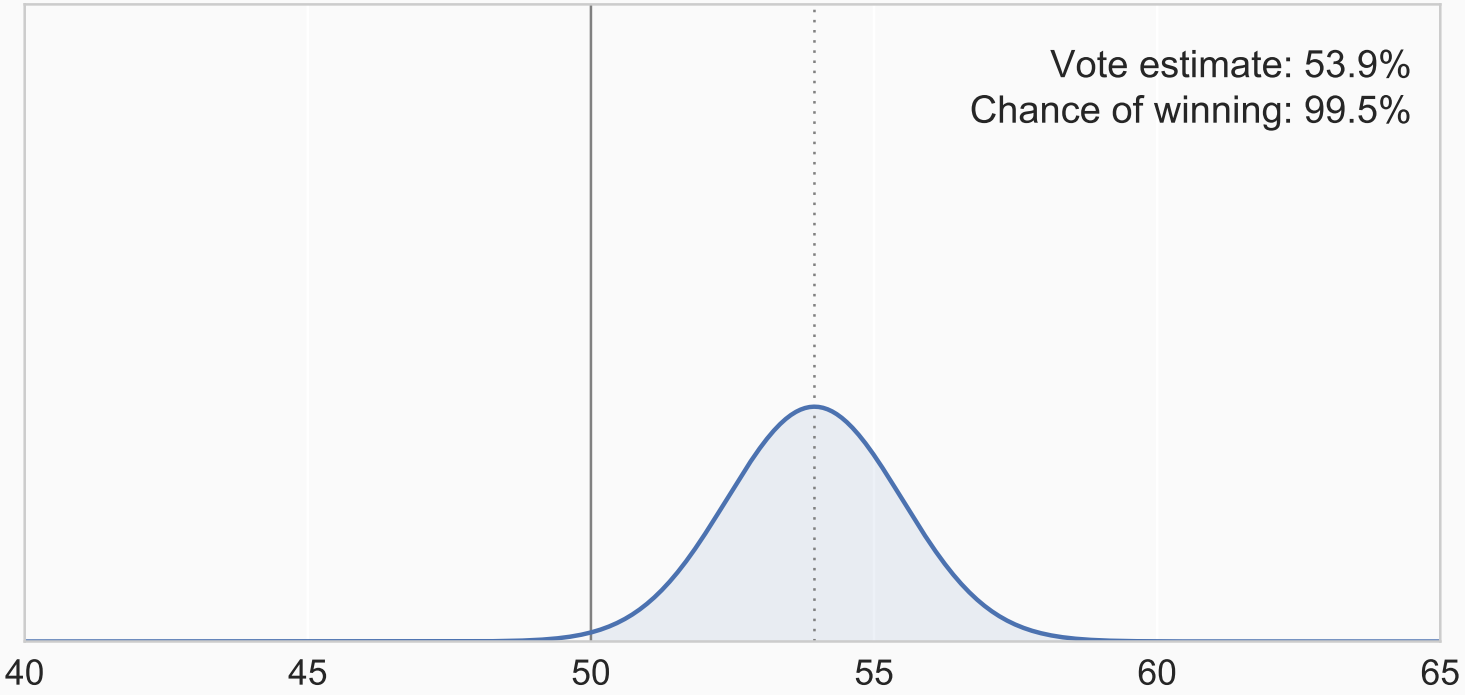

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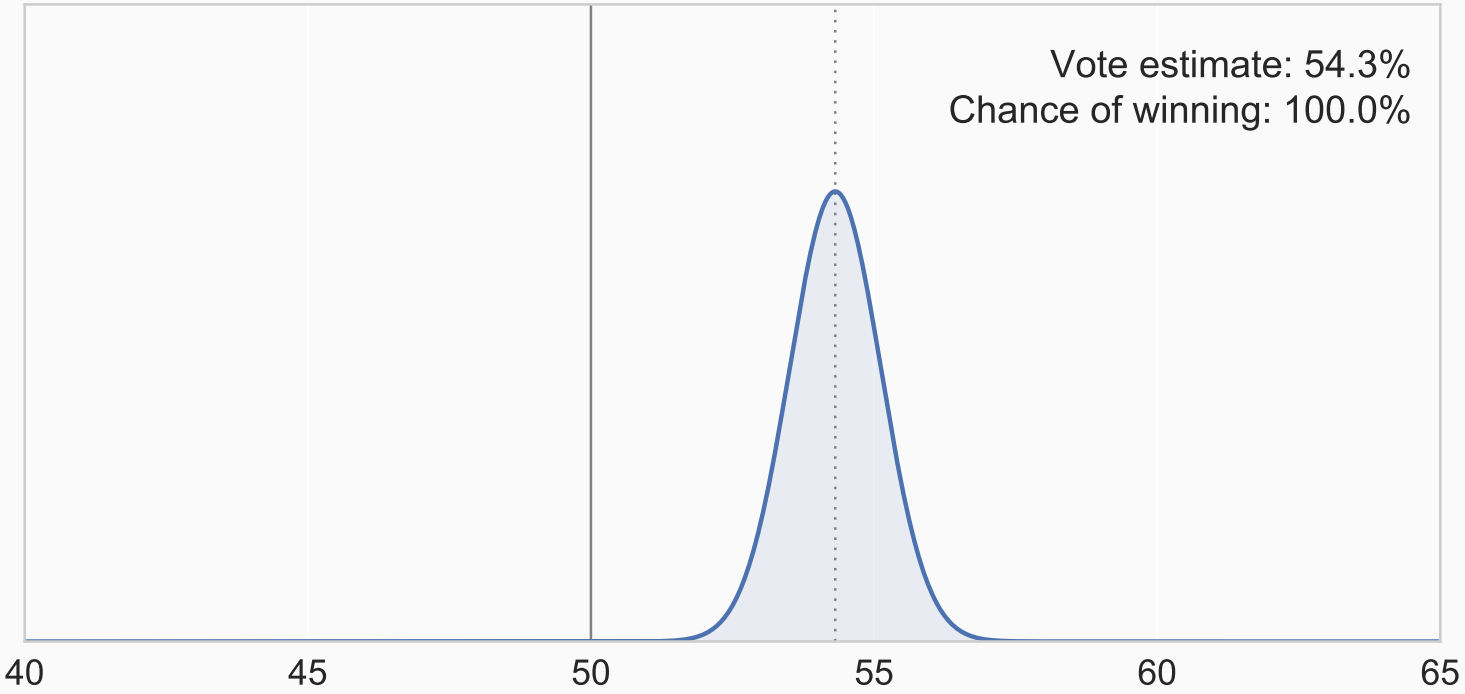

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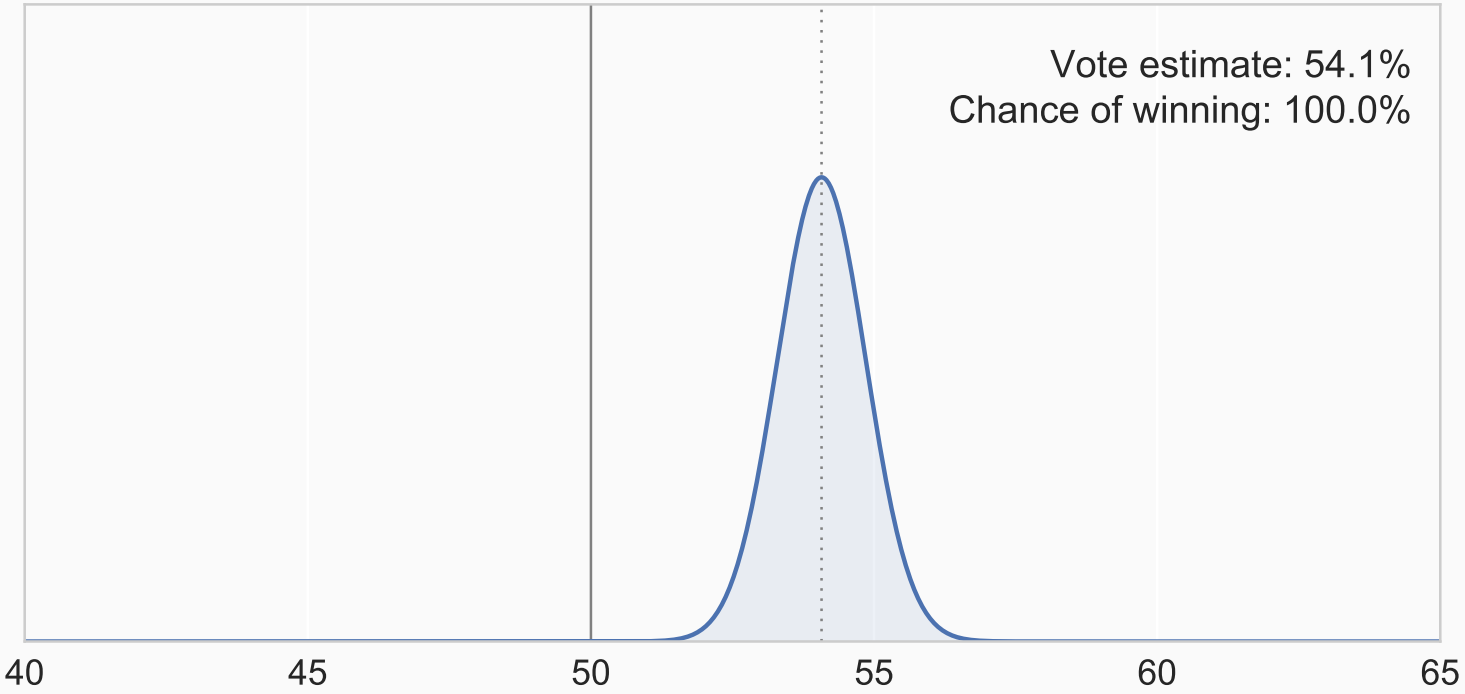

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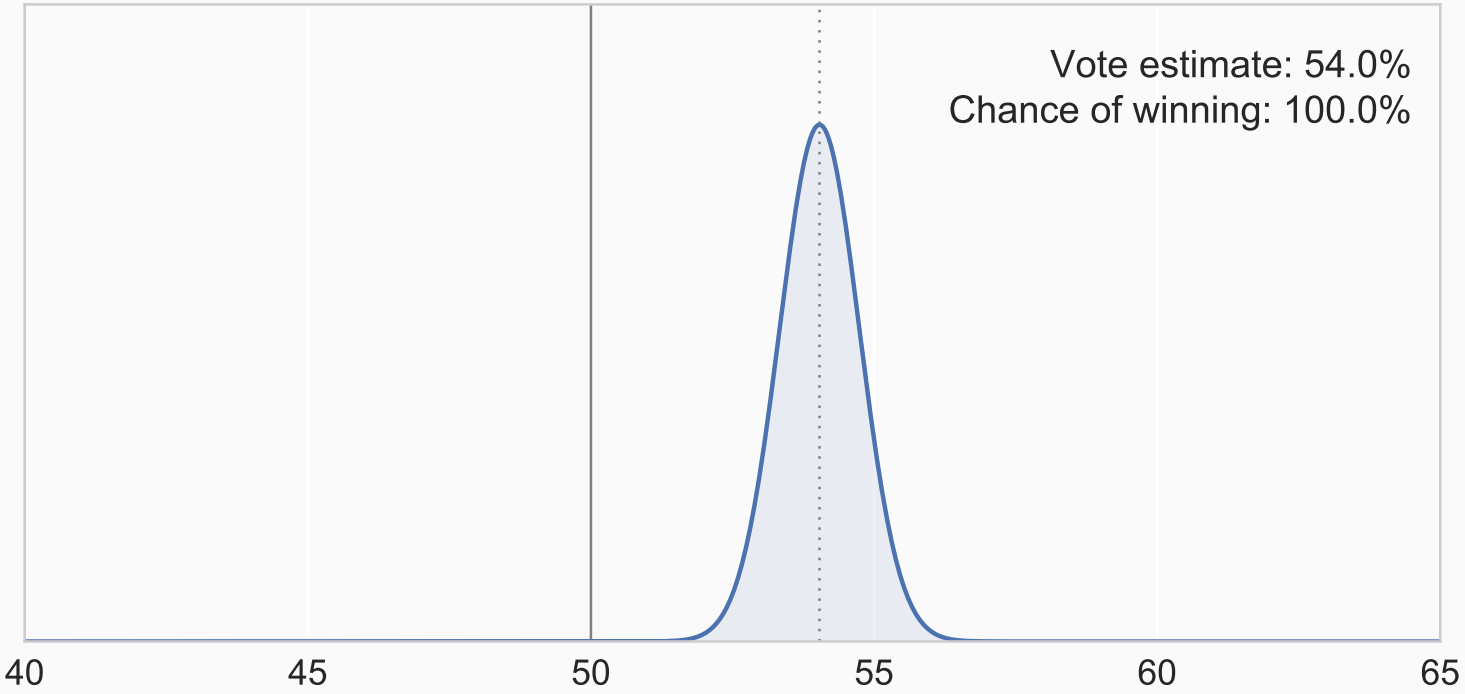

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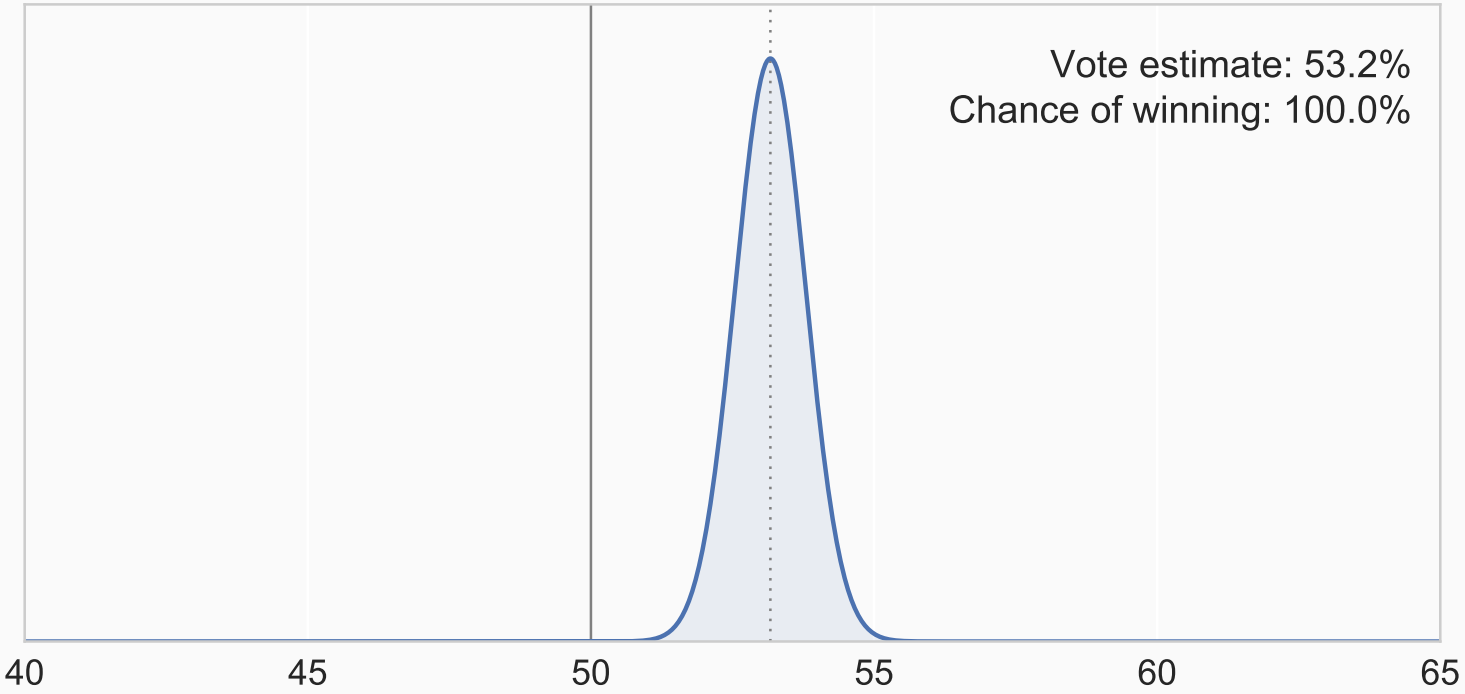

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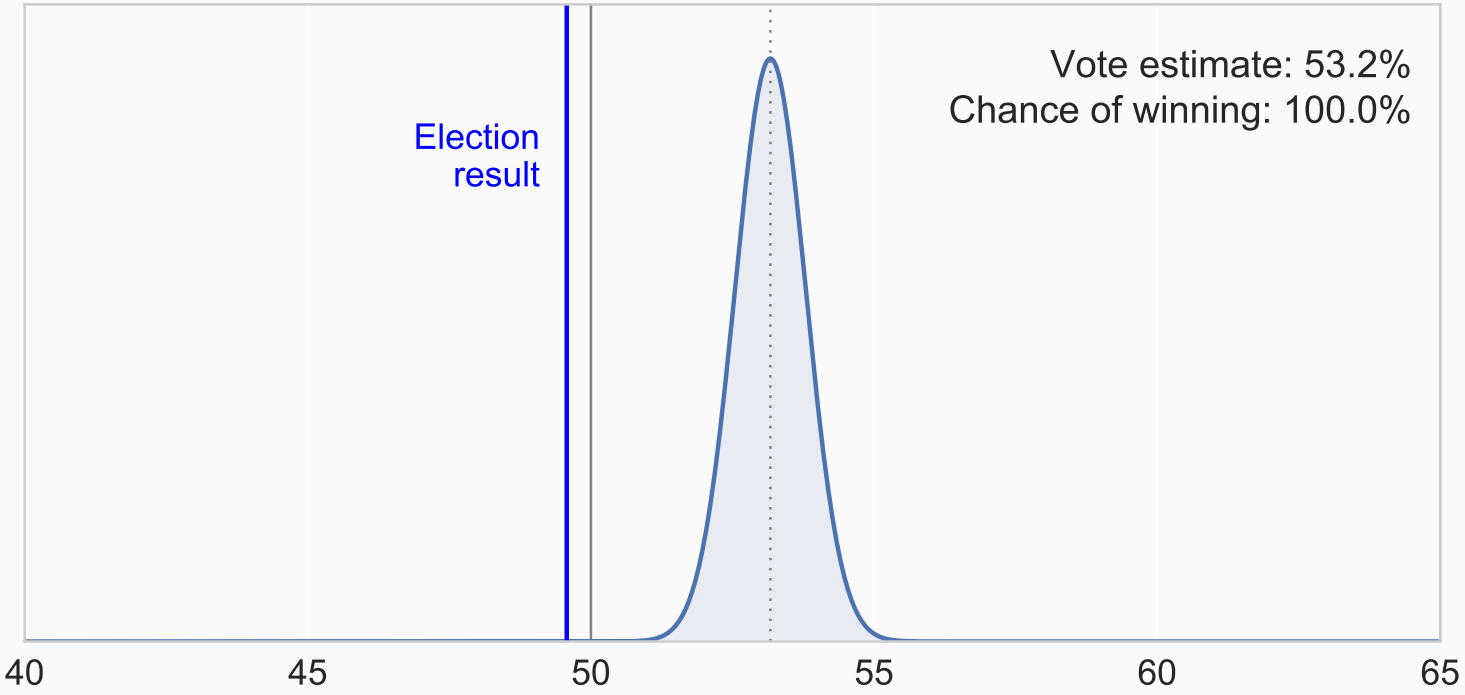

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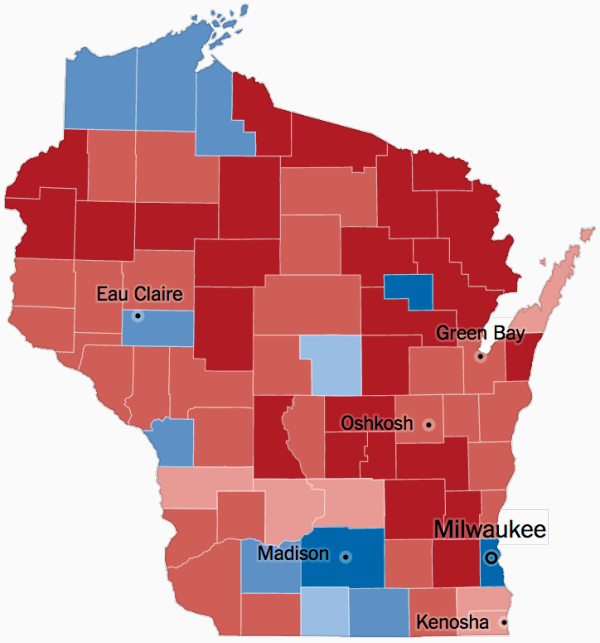
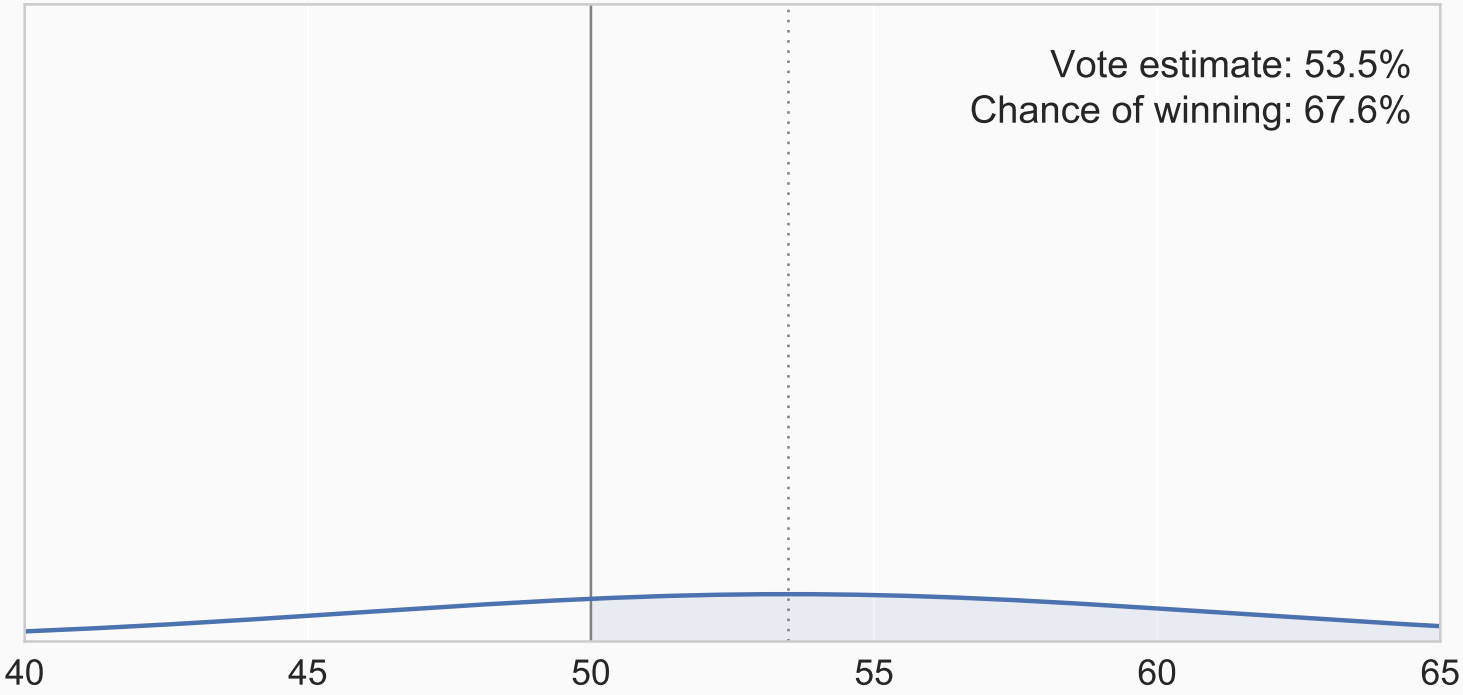


But some analysts said Clinton's chances of winning Wisconsin were as low as **93% (The Upshot)** or **84% (FiveThirtyEight)**.

- Does this mean they were more "right"?
- What assumptions would that require?

Clinton vote share, Wisconsin

Posterior distribution, assuming one-twentieth (5%) the sample size



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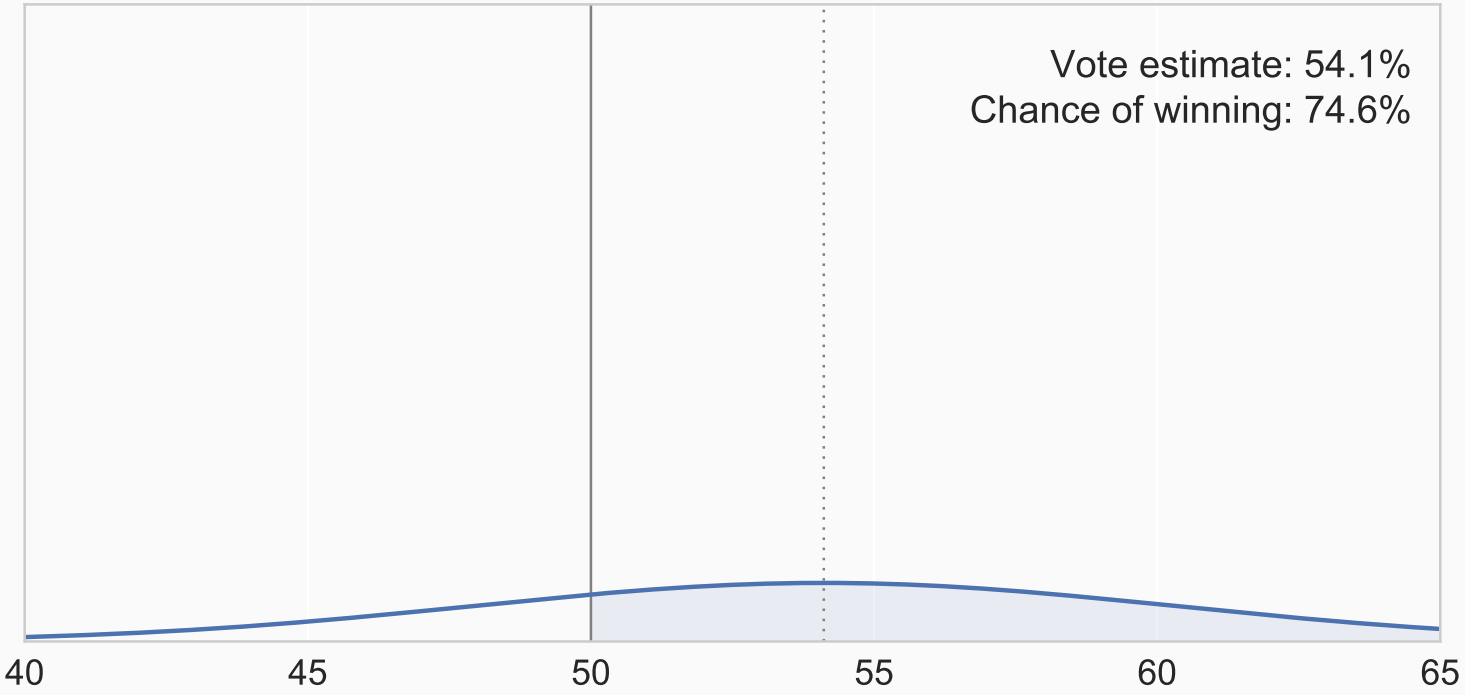

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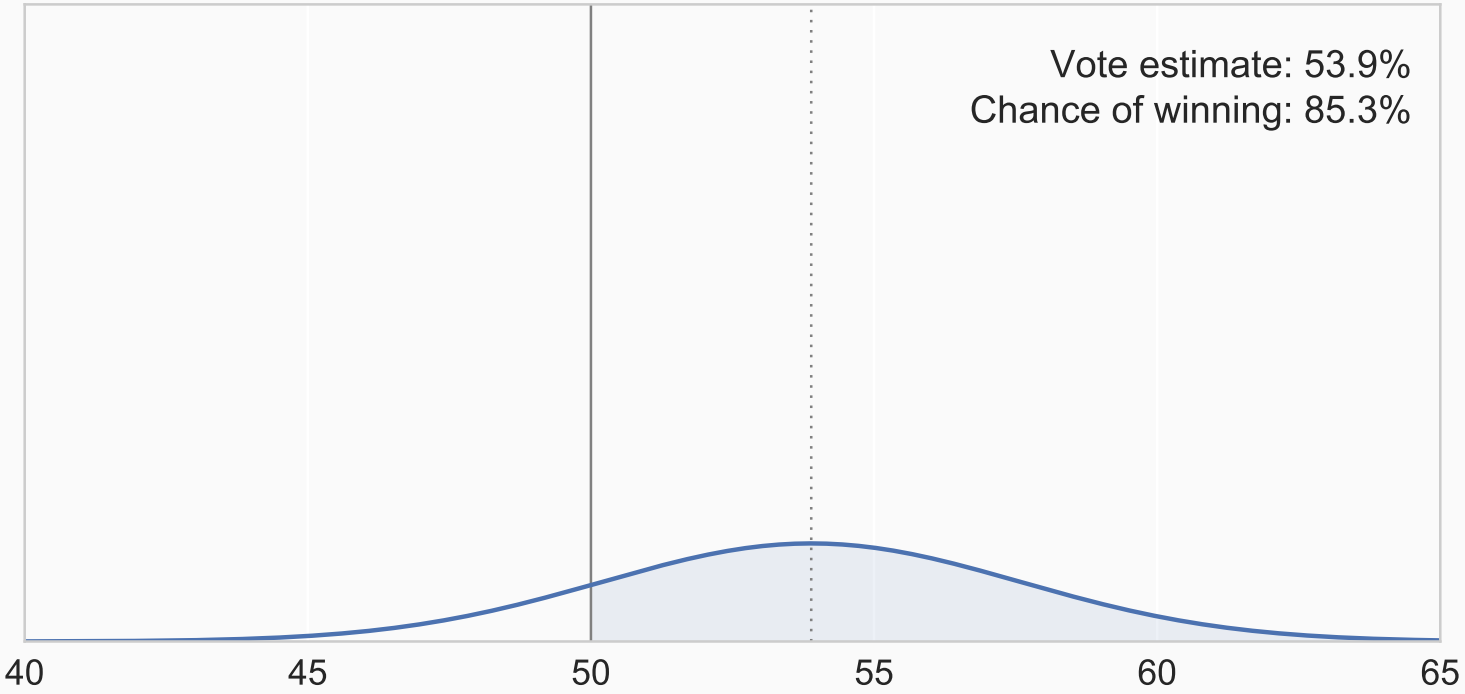

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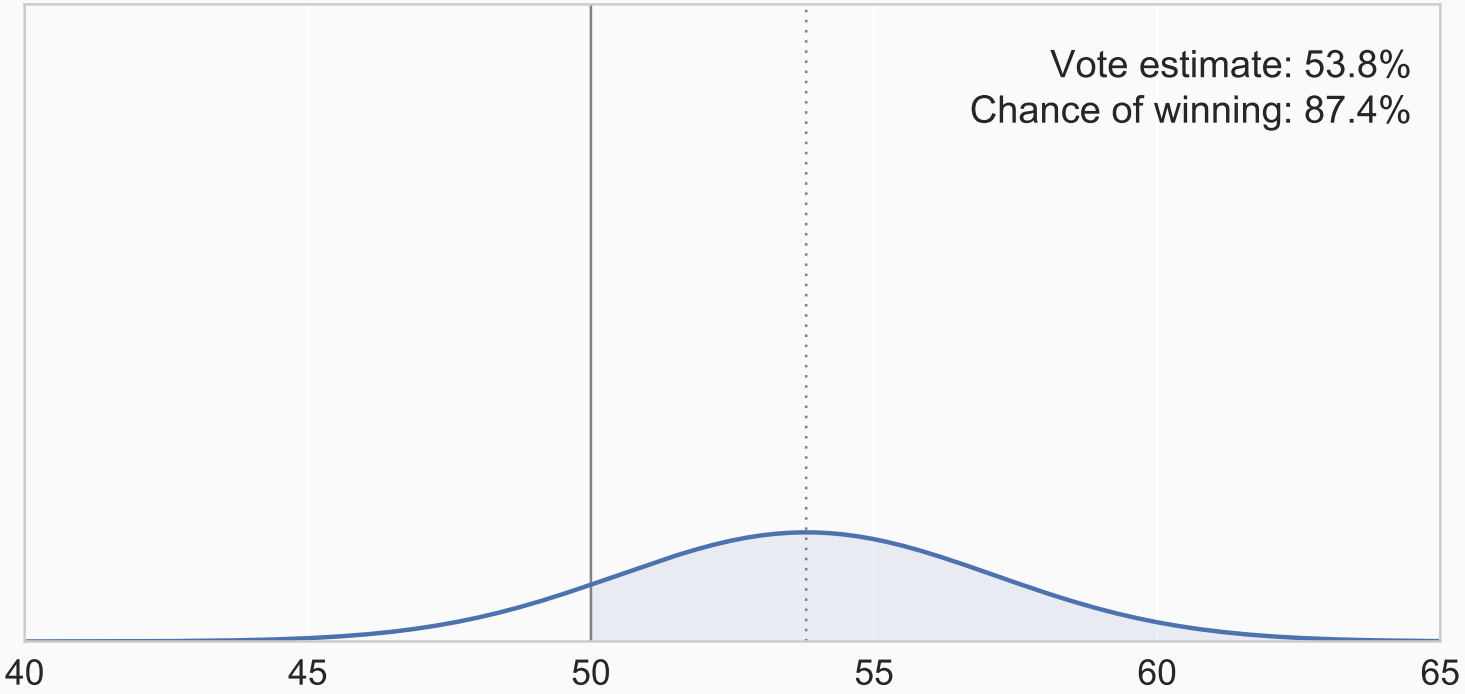

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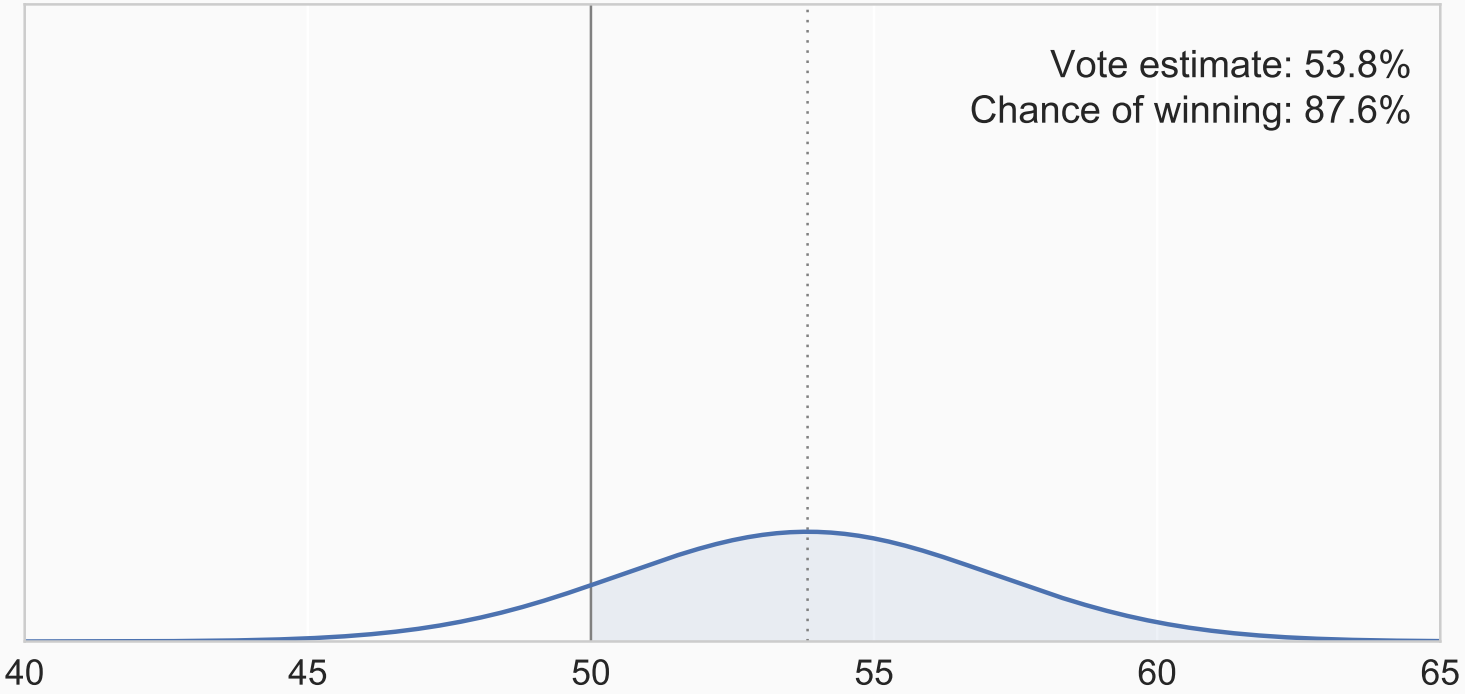

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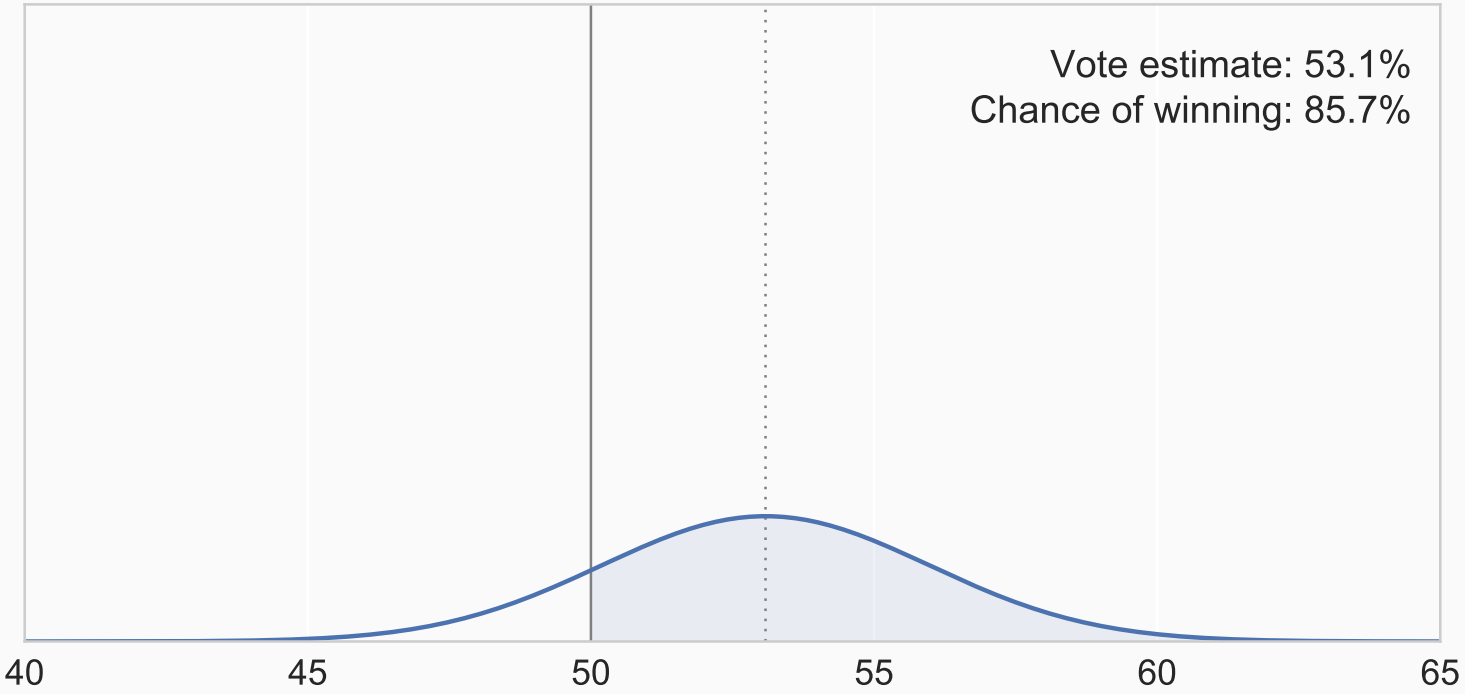

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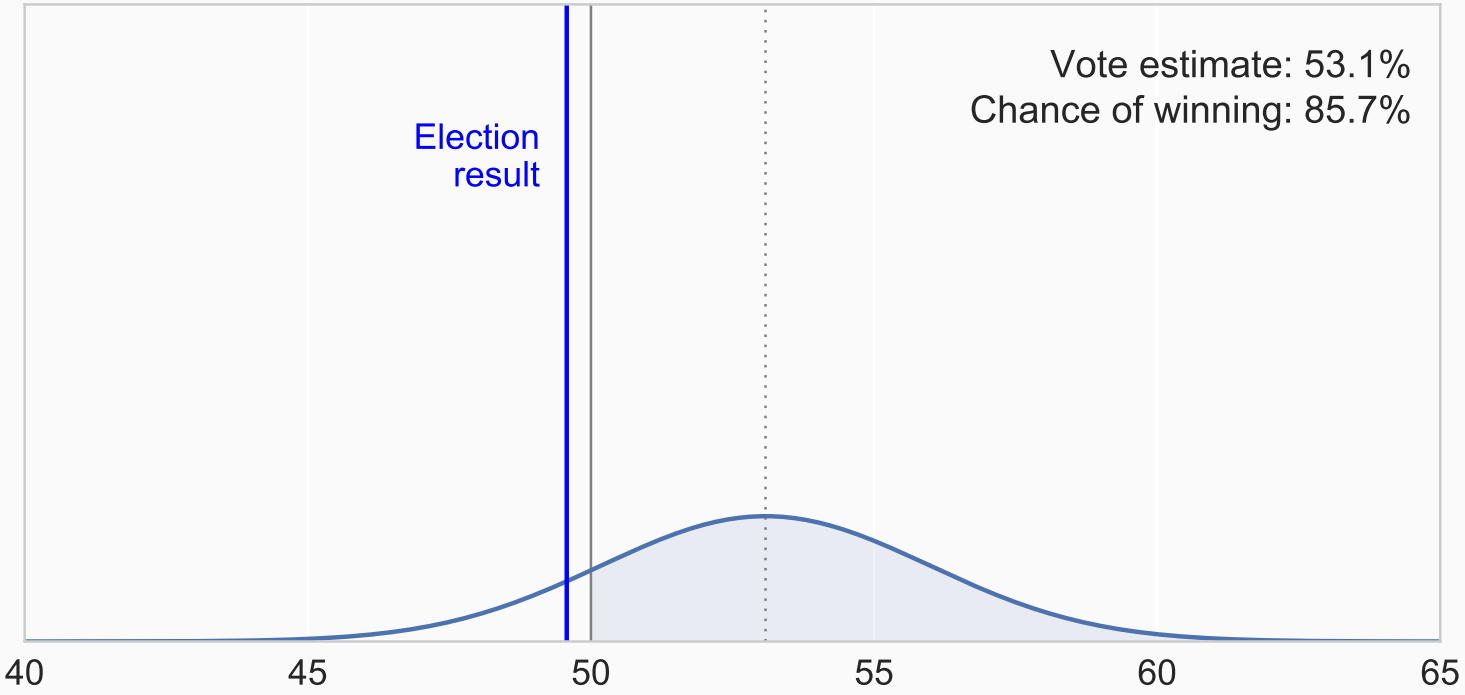

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CONCLUSIONS

- We know how to aggregate **poll means**
- Aggregating **uncertainty** is much more challenging
- The possibility of large, systematic bias suggests **heavily discounting the amount of information** in any single poll

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