



Especially in a presidential election year, **media and public attention** seem to be focused on **national politics**. What should voters know about local politics?

I study urban politics, so I think one thing that often gets overlooked is the importance of state and local politics. Many people think that the way to engage in politics is to vote every four years at the federal level. As I show in my work, and as other urban historians have shown, it's at the state and local level that you see legislation with the most direct impact on people's lives and where people have more power to effect change. People often feel demoralized when the national election doesn't go their way, but I think they

can feel more empowered and more like they live in a democracy when they are invested in state and local politics. It's also important to remember that cities and states are often used as laboratories for various policies or programs. Many federal policies began at the state and local level, where you can get a sense of the larger implications of a policy by seeing how it functions at a smaller scale. Similarly, voters can get a sense of how a party is thinking about things by looking at what's being done at the state and local level. And remember, voting is just one tool of political engagement. We can't understand it as the be-all and end-all of politics.

—Danielle L. Wiggins, assistant professor of history



Caltech science exchange introduces

The Election Experts

As millions of American voters cast their ballots this November, Caltech political scientists, historians, computational social scientists, and data scientists examine the systems, policies, and technologies that underlie elections and other democratic processes. On the Caltech Science Exchange, an online public resource that brings expert insight to the scientific questions that define our time, these researchers provide insights on the impact of local politics and the historical implications of voting rights legislation. They also shed light on the mechanics of polling (including why it is so difficult to accurately forecast a presidential election) and emerging threats to election security and fairness.

Here, faculty within the Institute's Division of the Humanities and Social Sciences share their perspectives on critical topics in the runup to the 2020 U.S. presidential election.

As a professor of history, **what responsibility do you believe you have to inform policy?**

Let me tell you how I got started in voting rights cases. My doctoral dissertation was on the disenfranchisement of Blacks and poor whites in the South in the late 19th and early 20th centuries. In about 1979, a lawyer who was cooperating with the ACLU [American Civil Liberties Union] in Birmingham,

Alabama, called me up—I didn't know who he was—and he said, "Do you have an opinion about whether section 201 of the Alabama constitution of 1901 was adopted with a racially discriminatory purpose?" I said, "I do. I've studied that. I think it was adopted with a racially discriminatory purpose."

Writing expert witness reports and testifying in cases are exactly like what I have always done as a scholar. I have looked at the racially discriminatory effects of laws; I have looked at the racially discriminatory intent of laws. I have examined them by looking at a lot of evidence. I write very long papers for these cases. They are scholarly publications, and whether they relate to something that happened 100 years ago or something that happened five years ago or yesterday doesn't really, in principle, seem to make any difference.

—Morgan Kousser, professor of history and social science, emeritus



What makes presidential elections so difficult to accurately forecast?

As a statistician or researcher conducting a survey of a population, I want to define that population and then take a representative sample. When working with populations for which there's a census, for example U.S. households, that's easy. In contrast, a fundamental problem with election polling is defining the population. Not everyone votes, and turnout fluctuates between election cycles. There's no census, or defined population, of voters to sample from.

Pollsters have different strategies for getting around this problem. For example, in most states you can get a list of registered voters, and some polls will sample from that list in what are called registered voter samples. The problem here is that not all registered voters vote. So, to get a representative sample, I'm going to have to create a statistical model to help predict how likely it is that a given individual will, in fact, vote. The challenge is that reasonable statisticians can have different views on what a reasonable voter model is.

That's problem one: we can't define the population that we want to sample from. We're going to have to make some assumptions, and different pollsters make different assumptions.

The second problem in forecasting presidential elections is that a poll represents a snapshot of public opinion today, but what we really care about is what happens on the first Tuesday after the first Monday in November. Things change quickly,

even in a relatively brief space of time, and, clearly, the farther out we are from Election Day, the more uncertainty we have to accept.

The third problem is, in general, that response rates to surveys are way down. It used to be, back when Gallup was the only business in town, people were more willing to participate in surveys. Today you might see low-quality polls with a 3 percent or 4 percent response rate. Now you, as a researcher, have to make heroic assumptions about the people you could get on the phone versus the people you couldn't. There are statistical fixes, but, again, those fixes add another layer of assumption about which reasonable people might disagree. And it turns out, how you disagree can have profound impacts on your polling results.

—Jonathan N. Katz, Kay Sugahara Professor of Social Sciences and Statistics



Although some polls are conducted online, pollsters typically draw on computer-generated lists of landline and cell phone numbers.

But that isn't enough to ensure a representative sample because some groups are likelier than others to participate in polls.

To avoid overrepresenting these groups and underrepresenting others, pollsters use a statistical method called **WEIGHTING**: factors such as age, race, gender, educational attainment, or region are given more or less weight in the final analysis so that the sample more closely matches the demographics of the full population.

SO HOW SHOULD YOU READ A POLL?
Don't forget the fine print. Credible polls report a margin of error. This figure shows how much a polling result may vary from reality.

Why does it seem to be taking longer to finalize election results, even with new voting technology?

We've seen an evolution of procedures and technologies, mostly aimed at expanding the franchise—providing more and better opportunities for people to register to vote and express their opinions on Election Day. But as we continue to see an evolution of technology, procedures, and administrative practices, we're also going to see some challenges. Remember that we're talking about a very complicated process.

One of the things we've come to appreciate in our research with the Caltech/MIT Voting Technology Project is just how much goes on behind the scenes to get people registered to vote; to verify and record their registration information; and then to provide voters the opportunity to securely, and in an accessible and simple manner, cast their ballots.

Once you vote, your ballot will likely end up in a securely sealed ballot box. When polls close, election officials at the polling place will break those seals and conduct an initial examination to reconcile all the ballot materials they've received. The ballots will then be securely transported to a central location. Some will go by car. Some may be delivered by law enforcement. Some, if they are coming from a remote location, may go by helicopter.

Many of those ballots are tabulated immediately. If you voted in person on Election Day or earlier, your vote is probably going to be tabulated that night or early the next day.

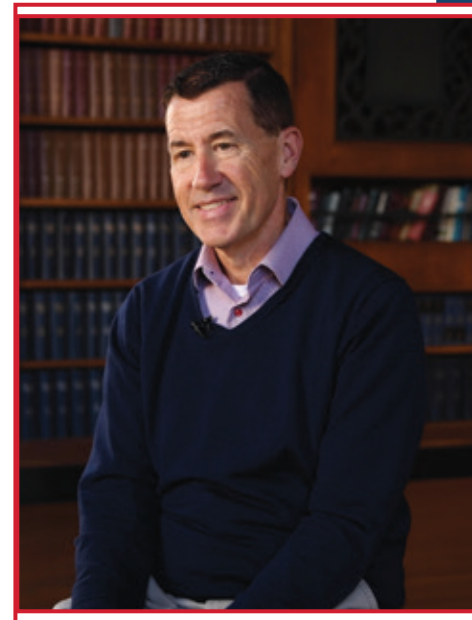
However, mail-in ballots that arrive later, or ballots that are cast provisionally on Election Day, will take longer to count. Staff at the election office will confirm whether the voter is registered in their jurisdiction and that they haven't cast another ballot elsewhere. If those conditions are met, the ballot will be included. If those conditions aren't met, officials will investigate further.

That's one of the reasons it takes so much time. Election officials, especially here in California, are committed to making sure that all the ballots that are eligible to be counted are, in fact, counted.

In a related phenomenon, known as "blue shift," it has become increasingly common for vote totals to shift in favor Democratic candidates after polls close. This is, in part, because Democratic-leaning voters are likelier to vote by mail and to cast provisional ballots.

It is not unusual to see final results change, sometimes significantly, as legitimate ballots continue to be counted after Election Night.

—R. Michael Alvarez, professor of political and computational social science



POLLS MAKE IT POSSIBLE TO GAUGE PUBLIC OPINION BY SURVEYING A RELATIVELY SMALL BUT REPRESENTATIVE GROUP OF PEOPLE WITHIN A GIVEN POPULATION. THIS SMALLER GROUP IS KNOWN AS A SAMPLE.

THINK ABOUT A BOWL OF SOUP.
You don't need to eat the whole bowl to know how the soup tastes, just a representative spoonful.
Similarly, pollsters don't need to talk to every voter to measure national attitudes. Instead, using principles of probability and statistics, they can base their estimates on a sample, or selection, of voters.

One way of building a representative sample is to take a **simple random sample** in which everyone in the population has an equal chance of being included or not.
While larger samples are generally more precise, a sample size of just 1,000 to 1,500 people can be enough to estimate national opinion in the U.S. with a high level of accuracy.