

Disentangling Bias and Variance in Election Polls | Journal of the American Statistical Association

By Houshmand Shirani-Mehr, David Rothschild, Sharad Goel, Andrew Gelman

August 14, 2018

It is well known among researchers and practitioners that election polls suffer from a variety of sampling and nonsampling errors, often collectively referred to as *total survey error*. Reported margins of error typically only capture sampling variability, and in particular, generally ignore nonsampling errors in defining the target population (e.g., errors due to uncertainty in who will vote). Here, we empirically analyze 4221 polls for 608 state-level presidential, senatorial, and gubernatorial elections between 1998 and 2014, all of which were conducted during the final three weeks of the campaigns. Comparing to the actual election outcomes, we find that average survey error as measured by root mean square error is approximately 3.5 percentage points, about twice as large as that implied by most reported margins of error. We decompose survey error into election-level bias and variance terms. We find that average absolute election-level bias is about 2 percentage points, indicating that polls for a given election often share a common component of error. This shared error may stem from the fact that polling organizations often face similar difficulties in reaching various subgroups of the population, and that they rely on similar screening rules when estimating who will vote. We also find that average election-level variance is higher than implied by simple random sampling, in part because polling organizations often use complex sampling designs and adjustment procedures. We conclude by discussing how these results help explain polling failures in the 2016 U.S. presidential election, and offer recommendations to improve polling practice.

Source: [Disentangling Bias and Variance in Election Polls | Journal of the American Statistical Association](#)