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TARGET ESTIMATION AND ADJUSTMENT WEIGHTING FOR SURVEY NONRESPONSE AND SAMPLING BIAS

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Abstract: Nonresponse and other sources of bias are endemic features of public opinion surveys. Consequently, even for probability samples, basing inferences on the sampling design alone is rarely the best option. Both the bias and the variance of design-based estimators can be reduced through the use of adjustment weights, which incorporate auxiliary information on the composition of the target population. We elaborate a general workflow of weighting-based inference, decomposing it into two main tasks. The first is the estimation of population targets from one or more sources of auxiliary information. The second is the construction of weights that calibrate the survey sample to the population targets. We emphasize that these tasks are predicated on models of the measurement, sampling, and nonresponse process whose assumptions cannot be fully tested. After describing this workflow in abstract terms, we then describe in detail how it can be applied to the analysis of historical and contemporary opinion polls. We also discuss extensions of the basic workflow, particularly inference for causal quantities and multilevel regression and poststratification.

Keywords: weighting, calibration, ecological inference, nonresponse, quota sampling

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