

RESPONSE SET IMBALANCE AND NON-RESPONSE BIAS: A THEORETICAL STUDY WITH FULL USE OF AUXILIARY INFORMATION

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Särndal et al. (2016) presented theoretical evidence that efforts during data collection to balance the survey response with respect to selected auxiliary variables will improve the chances for low non-response bias in the estimates that are ultimately produced by calibrated weighting. In particular, the variance of the bias – measured as the deviation of the calibration estimator from the (unrealized) full-sample unbiased Horwitz-Thompson estimator – decreases linearly as a function of the response imbalance that was assumed to be measured and controlled continuously over the data collection period.

Current presentation also studies the relationship of non-response bias and response set imbalance. But, instead of studying the deviation of the calibration estimator from the full-sample Horwitz-Thompson estimator, we will look at the deviation from the more practical full-sample calibration estimator.

The theoretical results are validated in a simulation study with real data from an Estonian household survey.

Key Words: Survey non-response, adaptive data collection, calibration estimator, auxiliary variables.

References

Särndal, C.E., Lumiste, K., and Traat, I. (2016) Reducing the Response Imbalance: Is the Accuracy of the Survey Estimates Improved? *Survey Methodology*, 42 (2): 219–238.