Weighting procedures are commonly applied in surveys to compensate for nonsampling errors such as nonresponse errors and coverage errors. Two types of weight adjustment procedures are commonly used in the context of unit nonresponse: (i) nonresponse propensity weighting followed by calibration, also known as the two-step approach and (ii) nonresponse calibration weighting, also known as the one-step approach.

The one-step approach pursues the same three goals as the two-step approach: reduce the nonresponse bias, ensure consistency between survey estimates and known population totals and, possibly, reduce the variance of point estimators. However, the weighting process is performed in a single step and does not require explicit estimation of the response probabilities.

In this paper, we discuss both approaches and warn against the potential pitfalls of the one-step procedure. Results from a simulation study, evaluating the properties of several point estimators, are presented. we show empirically that an inappropriate calibration function may lead to biased calibration estimators.