

## **Composite calibration estimation integrating data from different surveys**

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Current trends in survey sampling show a growing interest in integrating data from different surveys for improved estimation and analysis of population characteristics. For any case of different surveys sharing common items, we propose micro-integration of data through a suitable calibration scheme for the sampling weights of the combined sample, which produces a set of weights that incorporate all available information in the various surveys. These weights can be used to calculate weighted statistics, including totals, means, ratios, quantiles and regression coefficients. In particular, we obtain composite estimators of population totals that are asymptotically best linear unbiased estimators, or more practical composite estimators that are generalized regression estimators of a specific type and for certain sampling designs asymptotically best linear unbiased estimators. The construction of the calibration estimators is explained, and their statistical and computational efficiency is also discussed.

**Key Words:** Best linear unbiased estimation, combined samples, generalized regression estimation, matrix sampling, sampling weights.