Improved Estimation Strategies of Sensitive Characteristics Using Scrambled Response Techniques in Successive Sampling

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Abstract : This research work is an effort to analyse the consequences of scrambled response technique to estimate the current population mean in two-occasion successive sampling when the characteristic of interest is sensitive in nature. The generalized estimation procedures have been proposed using sensitive auxiliary variables under additive and multiplicative scramble models. The properties of resultant estimators have been deeply examined. Simulation, as well as empirical studies, are carried out to evaluate the performances of the proposed estimators with respect to other competent estimators. The results of our studies suggest that the proposed estimation procedures are highly effective under the presence of non-response situation. The result of this study also suggests that additive scrambled response model is a better choice in the perspective of cost of the survey and privacy of the respondents.

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