

Estimation of sensitive quantitative characteristics in randomized response sampling

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Abstract

This paper considers the problem of procuring honest responses for sensitive quantitative characteristics. An alternative survey technique is proposed, which enables us to estimate the population mean unbiasedly and to gauge how sensitive a survey topic is. An asymptotically unbiased estimator of sensitivity level is proposed, and conditions for which unbiased estimation for population variance being available is also studied. In addition, an efficiency comparison is worked out to examine the performance of the proposed procedure. It is found that higher estimation efficiency results from higher variation of randomization device.

Keywords : Percent relative efficiency, privacy protection, sample size allocation, simple random sampling with replacement.

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