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GENERALIZED RATIO ESTIMATORS IN TWO-PHASE SAMPLING WITH TWO AUXILIARY VARIABLES

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ABSTRACT

This paper considers estimation of a finite population mean under two-phase sampling procedure involving two auxiliary variables with the assumption that population mean of the first (main) auxiliary variable is unknown whereas population mean of the second (additional) auxiliary variable is known accurately. This issue has been addressed by bringing out two generalized ratio-type estimators constituting two separate families/classes of estimators of course not necessarily disjoint. Some optimum properties of the proposed generalized estimators have been investigated and sufficient conditions for their superiority over the classical two-phase ratio estimator have been reported. After identifying some ratio/ratio-type estimators as specific cases of the said generalized estimators, both analytical and empirical comparisons among various estimators have been undertaken to show the effectiveness of the proposed estimation technique.

KEYWORDS: Auxiliary Variable, Ratio Estimator, Two-Phase Sampling