A COMBINED DIFFERENCE CUM RATIO ESTIMATOR FOR THE POPULATION MEAN IN SAMPLING WITH NON-RESPONSE

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ABSTRACT

Many researchers have tackled the problem of non-response in sample surveys by constructing estimators to produce estimates for the population mean $\overline{y}$ of a varaible of interest y, which are relatively free of the nonresponse bias. Hansan and Hurwiz (1946) gave a simple unbiased estimator $\overline{y}^{*}$, of the popualtion mean, which merged an estiamte from the subsample of the intial nonrespondents to that from the respondents. Cochran (1977) extended the work by making use of an auxiliary variable x whose population mean is known, to evolve a ratio estimator for, which is more efficient than, especially when x has a high positive correlation with y. This study focuses on a combined difference cum ratio estimator, which is shown to contain, and is greatly more efficient, than the two existing estimators previously mentioned. Procedures for accessing the optimum values of n and k for our new estimator are also present, plus an empirical investigation.

Keywords: Sampling, strategy, mean, estimator, nonresponse.