

Summary

After describing the basic theory of survey sampling with reference to equal and unequal probability sampling, some selected selection procedures have been discussed, which can be used with Horvitz and Thompson estimator.

A new selection procedure for use of Horvitz – Thompson estimator has been developed. This selection procedure is applicable for a sample of size two and is strictly without replacement. Some fundamental results related to inclusion probabilities and joint inclusion probabilities have been verified for the newly developed selection procedure.

Empirical study has also been carried out to compare the relative efficiency of the newly developed selection procedure with some of the well known selection procedures available in literature. Relative efficiency of these selection procedures has also been obtained relative to the new selection procedure. Stability and efficiency of selected variance estimators have also been compared for the new selection procedure.

It has been found that the new selection procedure performs reasonably well for populations having somewhat linear trend as compared to the other procedures. It has also been found that the Hanif – Brewer variance estimator is most efficient under this procedure. This variance estimator is stable also. The Sen – Yates – Grundy variance estimator is stable under this selection procedure.