

### **Summary**

After describing the basic theory of survey sampling with reference to equal and unequal probability sampling, a brief history of survey sampling has been given with some selection procedures which can be used with Horvitz — Thompson estimator.

Two new selection procedures have been developed for the use of Horvitz — Thompson estimator. The first selection procedure New-G is applicable for any sample size and second New-2 for a sample size  $n=2$  based on sampling without replacement technique. Some fundamental results related to inclusion probabilities and joint inclusion probabilities have been verified for both procedures.

An empirical study has also been carried out to compare the performance of newly developed selection procedures with the well known selection procedures available in the literature. Ranking of variances of these procedures has been carried out. Model building for the estimation of rank of a procedure using coefficient of variation, coefficient of correlation, skewness and kurtosis is also the part of the research.

It has been found that both procedures especially New-2 performs reasonably well for the populations having high coefficient of correlation between 'Y' and 'Z'. Performance of New-G is better than general procedure of Midzuno — Sen. Also they behaved differently for positively and negatively skewed measure of size.