

## **Abstract**

This research is one of the steps towards the area of estimation of population variance using the single and two auxiliary variable(s) under two phase adaptive cluster sampling design. Some generalized ratio estimators for two phase sampling using single and two auxiliary variables have been developed. Proposed estimators for two-phase adaptive cluster sampling under the no and partial information cases along with their special cases have been discussed. Optimum values of constants of each estimator have been derived. The biases and mean square errors of the proposed estimators have also been computed and compared with some existing estimators.

Simulation study has been performed in order to examine the efficiency of the proposed estimators with the real data and observed that the most of our proposed estimators are more efficient than the existing estimators. It has been noted that the variation within network and unit level affects the efficiency of most of our proposed estimator. To perform simulation study R-software is used.