

The Properties of the Repeated Clustered Sampling Designs

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Abstract

This paper assesses the properties of the designs when samples are taken on several occasions from the master list of clusters. The second stage sampling is performed independently on each occasion. The design options include the proportion of clusters retained in the sample vs. sampling new clusters. The performance of the designs in terms of variance and cost is studied under different statistical (correlation between clusters and over time) and logistic (costs of survey) scenarios. The design effect of re-using the same clusters from the master sample over time is shown to be of the form $1 - A\rho/n$ where ρ is intertemporal correlation of the cluster totals, n is the number of clusters, and $A > 0$. As long as the efficiency gains are quite minor, the usefulness of the designs that reuse the clusters comes from the logistic (cost of the survey) considerations. An empirical demonstration that uses Demographic and Health Survey (DHS) data for Bangladesh, 1996 and 2000, is provided.