

Optimum Stratification of a Skewed Population

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Abstract : The focus of this paper is to develop a technique of solving a combined problem of determining Optimum Strata Boundaries (OSB) and Optimum Sample Size (OSS) of each stratum, when the population under study is skewed and the study variable has a Pareto frequency distribution. The problem of determining the OSB is formulated as a Mathematical Programming Problem (MPP) which is then solved by dynamic programming technique. A numerical example is presented to illustrate the computational details of the proposed method. The proposed technique is useful to obtain OSB and OSS for a Pareto type skewed population, which minimizes the variance of the estimate of population mean.

Keywords : stratified sampling, optimum strata boundaries, optimum sample size, pareto distribution, mathematical programming problem, dynamic programming technique

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