

## Optimum Stratification of a Skewed Population

**Authors :** D. K. Rao, M. G. M. Khan, K. G. Reddy

**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

**Conference Title :** ICSRD 2020 : International Conference on Scientific Research and Development

**Conference Location :** Chicago, United States

**Conference Dates :** December 12-13, 2020