Int. J. Agricult. Stat. Sci., Vol. 7, No. 2, pp. 379-392, 2011

ISSN : 0973-1903

USE OF STOCHASTIC PROGRAMMING FOR SAMPLE ALLOCATION IN TWO-STAGE STRATIFIED SAMPLING

Shakeel Javaid*, Ziaul Hassan Bakhshi and Mohd. Masood Khalid

Department of Statistics and O. R., Aligarh Muslim University, Aligarh – 202 002, India. E-mail : shakeel.jd@operamail.com

Abstract

In this paper, an allocation problem in two stage stratified sampling as a problem of non-linear stochastic programming problem is considered. The survey cost for primary stage unit and secondary stage unit in the objective function and sampling variances in the constraint are considered to be random variables. The probabilistic objective function and the probabilistic constraints are converted into their respective deterministic equivalent. A numerical example is presented to illustrate the computational procedure.

2000 Mathematics Subject Classifications: 62D05

Key words : Two stage stratified sampling, Optimum allocation, Chance constrained programming, Modified E-model.