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**SHAHARIAR HUDA**

Kuwait University, Kuwait

## **ON SAMPLING FROM A RECTANGULAR GRID**

### **Abstract:**

The problem of estimating the population total of a variable of interest by sampling from a finite population with units arranged in a rectangular array is considered. As an alternative to simple random sampling, a two-step sampling procedure is proposed. The procedure first chooses some rows (columns) by simple random sampling without replacement, then some columns (rows) by simple random sampling without replacement and uses the sample consisting of the units corresponding to the intersection of rows and columns selected. An unbiased estimator of the population total, using this step-wise sampling procedure, is proposed. The variance of the estimator is derived and further, an unbiased estimator for that variance is obtained.

### **Keywords:**

Population total, Simple random sampling without replacement, Step-wise sampling, Unbiased estimator

**JEL Classification:** C83, C10, C00