Sample Survey
Unit-4

Q:- Distinguish between parameters and statistics?

Ans:- The statistical constants of the population like mean (μ), variance (σ^2), skewness (β_1), Kurtosis (β_2) etc are known as parameters.

On the otherhand, the statistical constants for the sample drawn from the given population like mean ($\bar{x}$), variance (s^2), skewness (b_1), Kurtosis (b_2) etc are known as statistics.

Q:- Define a Statistical unit?

Ans:- A well defined and identifiable object or a group of object with which the measurement or counts in any statistical investigation are associated is called a statistical unit. For example — in a socio-economic survey, the unit may be a individual, person, a family, a household or a block of locality.

(*) Types of Sampling :-

There are two major types of sampling i.e, Probability Sampling and Non-Probability Sampling which are further divided into sub-types as follows —

(1) Probability Sampling

(i) Simple Random Sampling =>

(ii) Stratified Random Sampling
(iii) Systematic Sampling
(iv) Cluster Sampling
(v) Multi-Stage Sampling

(2) Non-Probability Sampling

(i) Purposive Sampling
(ii) Convenience Sampling.
(iii) Snow-ball Sampling
(iv) Quota Sampling

(i) Simple Random Sampling :-

Simple random Sampling is the technique in which samples are drawn in such a way that each and every unit in the population has an equal and independent chance of being selected in the sample. Here the selection of items completely depends on chance or by probability and therefore this sampling technique is also sometimes known as a method of chances.

The simple random sampling method involves the following stages :-

(a) A list of all members of population is prepared. Each element is marked with a specific number (suppose from 1 to N).

(b) From this population, random samples are chosen using two ways : random number tables and random number generator software. A random

number generator software is preferred more as the sample numbers can be generated randomly without human interference.

There are two approaches that aim to minimize any biases in the process of simple random sampling -

(a) Method of lottery :- Using the method of the lottery is one of the oldest methods and it is a mechanical example of random sampling. In this method, each member of the population has to number systematically and in a consequent manner by writing each number on a separate piece of paper. These pieces of paper are mixed and put into a box and then numbers are drawn out of the box in a random manner.

(b) Use of random numbers :- The use of random numbers, an alternative method also involves numbering of population members from 1 to N. Then, the sample size of N has to be determined by selecting numbers randomly.

Advantages/Merits of Sample Random Sampling

(i) Since it is probability sampling, it eleminates the bias result from the personal judgement of the investigator.

(ii) It enables us to obtain the most reliable and maximum information at the least cost and result in saving in time, money, and labour.

3(iii) Large sample is collected by this method will be more representative of the population according to various principle. ~~like principle of Inertia~~

Disadvantage/demerits of Simple Random Sampling

(i) It is important to note that application of random sampling method requires a list of all potential respondents to be available beforehand and this can be costly and time consuming for large studies.

(ii) The necessity to have a large sample size can be a major disadvantage in practical levels.

(iii) This sampling method is not suitable for studies that involve face to face interviews covering a large geographical area due to cost and time considerations.

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