Sampling &Sampling Distribution

SC Agarkar

VNBRIMS, Thane

Some Terms

- Population: Statisticians use the term population to refer to people or items chosen for study.
- Sample: Statisticians use the term sample to describe a portion chosen from the population.
- Statistics and Parameters: A parameter is a characteristics of population while a statistic is a characteristics of sample.
- We can use statistic to estimate the parameter. For example height of tenth graders from a school to guess the height of tenth graders in the entire country.

Some symbols

	Population	Sample
Definition	Collection of items being considered	Portion of the population chosen for study
Characteristics	Parameters	Statistic
Symbols	Population size=N	Sample size = n
	Population mean =μ	Sample mean = $\bar{x}$
	Standard deviation =σ	Standard deviation = s

The Need for Sampling

- It is difficult to get the entire population for study. Hence one tries to get a reasonable sample. For example all Indians to comment on Delhi verdict is impossible to get. Instead we try to get a sample from Thane.
- It is difficult to handle the population as the data generated is huge.
- Dealing with entire population is costly and time consuming.
- It is not necessary to deal with the entire population. Studies made on a small sample can be generalized with reliability.

Types of Sampling

- The essential characteristics of the sample is that it should be representative of the population from which it is drawn. To ensure this two types of methods are followed in selecting a sample.
- Non Random or judgement sampling: Personal knowledge and opinion are used to identify those items from population that are to be included in the sample. For example, trees in the forest.
- Random or Probability Sampling: In this method all items in the population have a chance of being chosen in the sample.

Random Sampling

- Simple Random Sampling: It is done either by the use of random number table or by random choosing of slips.
- Systematic Sampling: Choose the person or item with fixed number and then following the fixed interval. For example every tenth candidate.
- Stratified Sampling: Divide population into homogeneous strata then choose sample using above methods. For example, people from different age groups, or products of different days.

Random Sampling Cont.

- Cluster Sampling: Divide population into groups or clusters. For example to know the amount of money spent byganeshmandalsfrom the city divide the city in different wards and then take the sample from a certain ward.
- Stratified sampling and cluster sampling may look alike. Stratified sampling is adopted when each group has small variation within itself but there is a wide variation between the groups. Cluster sampling on the other hand is adopted when there is a considerable variation within each group but groups are essentially similar.

Thank you, Would monkey's decision depend on sampling distribution?