Sampling

Module II

Chapter 3

Topics

- *Introduction*

- *Terms in Sampling*

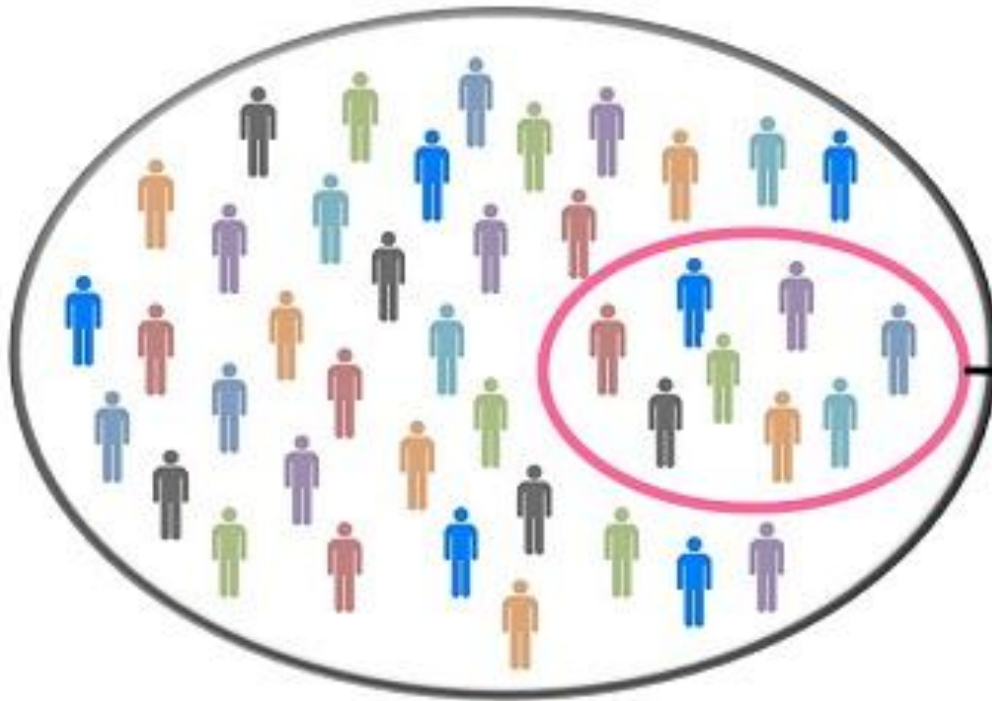- *Techniques of Sampling*

- *Essentials of Good Sampling*

Introduction

- In research terms a sample is a group of people, objects, or items that are taken from a larger population for measurement.

- The sample should be representative of the population to ensure that we can generalise the findings from the research sample to the population as a whole.

Key Concepts

- A carefully selected sample can provide accurate information about a population.

- Selecting an appropriate sampling technique is important to ensure that the sample reflects the characteristics of the population. Randomly selected samples have a good chance of being representative of the population.

- The choice of sampling technique will depend on a number of factors, such as the nature of the population, cost, convenience, and reliability.
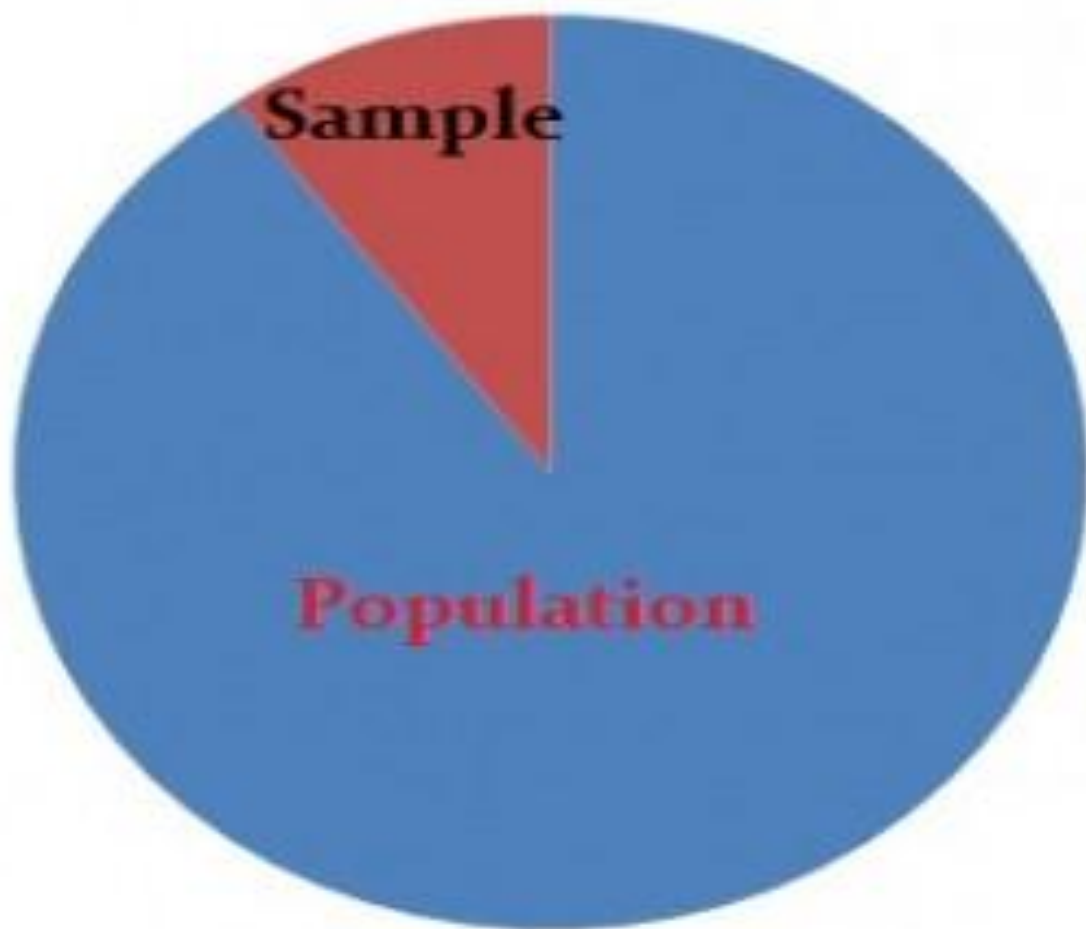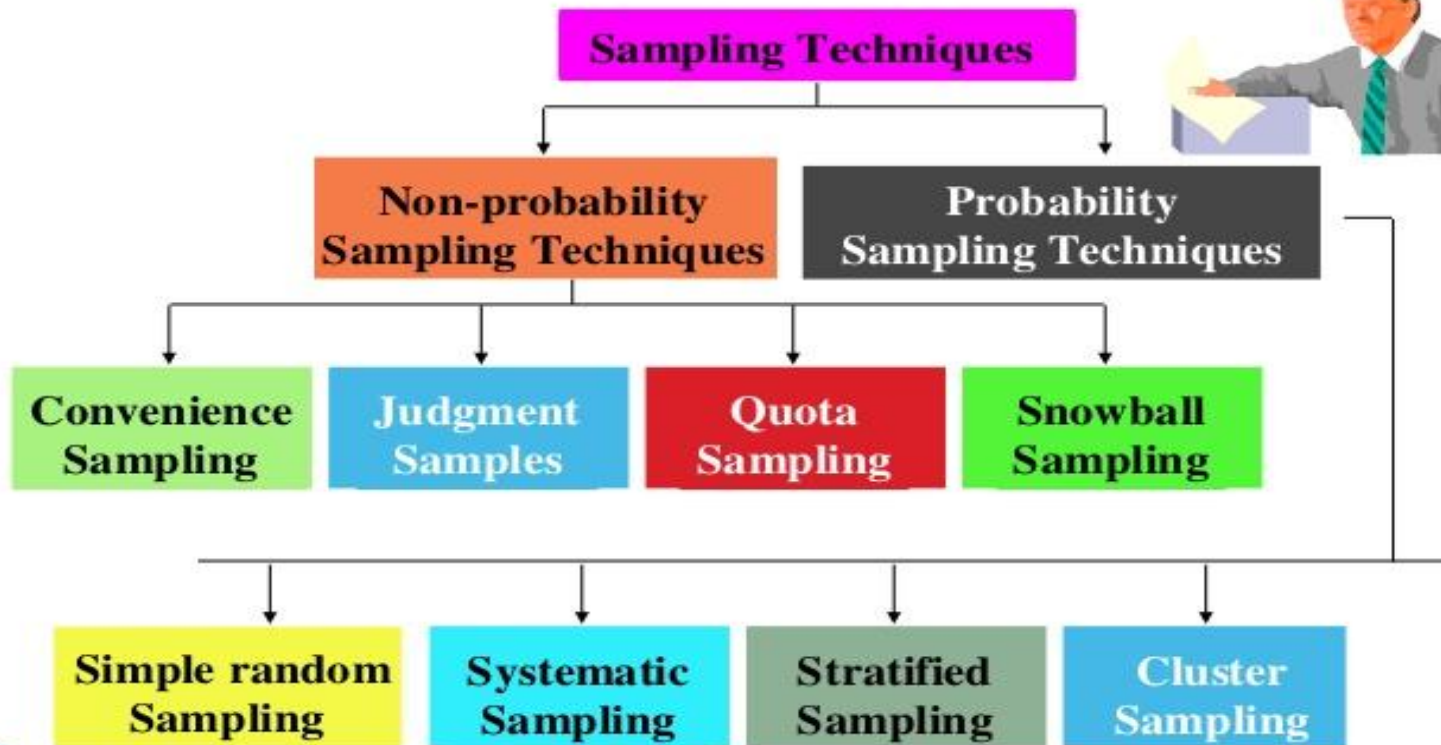
Terms

- Element
- Population
- Sampling Unit
- Sampling Frame
- Sample
- Sample Size
- Bias
- Sampling Error
- Systematic error
- Oversampling

Classification of Sampling Techniques

Probability Sampling

- Probability Sampling is a sampling technique in which sample from a larger population are chosen using a method based on the theory of probability.

- For a participant to be considered as a probability sample, he/she must be selected using a random selection.

- The most important requirement of probability sampling is that everyone in your population has a known and an equal chance of getting selected.

- For example, if you have a population of 100 people every person would have odds of 1 in 100 for getting selected.

- Probability sampling gives you the best chance to create a <u>sample</u> that is truly representative of the population.

Simple random sampling

- as the name suggests is a completely random method of selecting the sample. This sampling method is as easy as assigning numbers to the individuals (sample) and then randomly choosing from those numbers through an automated process. Finally, the numbers that are chosen are the members that are included in the sample.

- There are two ways in which the samples are chosen in this method of sampling: Lottery system and using number generating software/ random number table.

Simple Random Sampling

Stratified Random sampling

- involves a method where a larger population can be divided into smaller groups, that usually don't overlap but represent the entire population together. While sampling these groups can be organized and then draw a sample from each group separately.

- A common method is to arrange or classify by sex, age, ethnicity and similar ways. Splitting subjects into mutually exclusive groups and then using simple random sampling to choose members from groups.

- Members in each of these groups should be distinct so that every member of all groups get equal opportunity to be selected using simple probability. This sampling method is also called "random quota sampling"
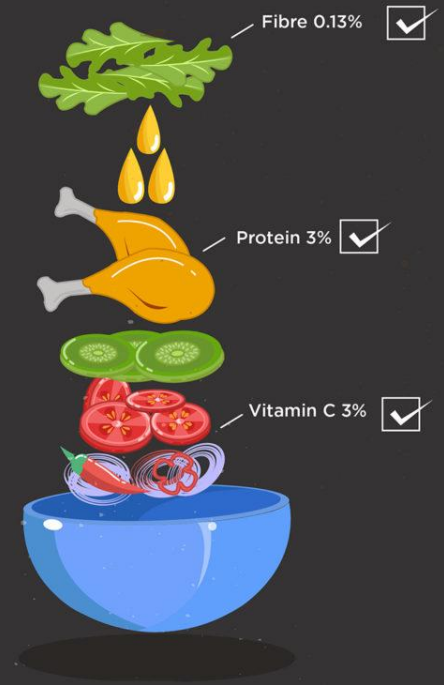
Stratified Random Sampling

Ever wondered how much thought a salad needs?

Fibre 0.13% ✓

Protein 3% ✓

Vitamin C 3% ✓

Random Sampling

Systematic Sampling

Stratified Sampling

Cluster random sampling

- **i**s a way to randomly select participants when they are geographically spread out. For example, if you wanted to choose 100 participants from the entire population of the Mumbai , it is likely impossible to get a complete list of everyone. Instead, the researcher randomly selects areas (i.e. cities or counties) and randomly selects from within those boundaries.

- Cluster sampling usually analyses a particular population in which the sample consists of more than a few elements, for example, city, family, university etc.

- The clusters are then selected by dividing the greater population into various smaller sections.

Cluster Sampling

Systematic Sampling

- It is when you choose every "nth" individual to be a part of the sample. For example, you can choose every 5th person to be in the sample.

- Systematic sampling is an extended implementation of the same old probability technique in which each member of the group is selected at regular periods to form a [sample](#).

- There's an equal opportunity for every member of a population to be selected using this sampling technique.

Systematic Sampling

- NON-PROBABILITY SAMPLING

Convenience Sampling

- is a non-probability sampling technique where samples are selected from the population only because they are conveniently available to researcher.

- These samples are selected only because they are easy to recruit and researcher did not consider selecting sample that represents the entire population.

- An example of convenience sampling would be using student volunteers known to researcher. Researcher can send the survey to students and they would act as sample in this situation.

Quota Sampling

- Hypothetically consider, a researcher wants to study the career goals of male and female employees in an organization. There are 500 employees in the organization. These 500 employees are known as population. In order to understand better about a population, researcher will need only a sample, not the entire population.

- Further, researcher is interested in particular strata within the population.

- Here is where quota sampling helps in dividing the population into strata or groups.

- For studying the career goals of 500 employees, technically the sample selected should have proportionate numbers of males and females. Which means there should be 250 males and 250 females. Since, this is unlikely, the groups or strata is selected using quota sampling.

Judgmental or Purposive Sampling:

- In judgmental sampling, the samples are selected based purely on researcher's knowledge and credibility. In other words, researchers choose only those who he feels are a right fit (with respect to attributes and representation of a population) to participate in research study.

- This is not a scientific method of sampling and the downside to this sampling technique is that the results can be influenced by the preconceived notions of a researcher. Thus, there is a high amount of ambiguity involved in this research technique.

- For example, this type of sampling method can be used in pilot studies.

- **Snowball Sampling:** [Snowball sampling](#) helps researchers find sample when they are difficult to locate. Researchers use this technique when the sample size is small and not easily available. This sampling system works like the referral program. Once the researchers find suitable subjects, they are asked for assistance to seek similar subjects to form a considerably good size sample.

- For example, this type of sampling can be used to conduct research involving a particular illness in patients or a rare disease. Researchers can seek help from subjects to refer other subjects suffering from the same ailment to form a subjective sample to carry out the study.

SNOWBALL SAMPLING