



# MEDICAL ACADEMY NAMED AFTER S.I.GEORGIEVSKY OF VERNADSKY CFU

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TOPIC – POPULATION-STATISTICAL METHOD

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# POPULATION

- ▶ The entire aggregation of items from which samples can be drawn is known as a population.
- ▶ In sampling, the population may refer to the units, from which the sample is drawn.
- ▶ A population of interest may be the universe of nations or cities.
- ▶ This is one of the first things the analyst needs to define properly while conducting a business research.
- ▶ “N” represents the size of the population.

# Definitions

- ▶ **Population Parameters.**
- ▶ Statistics such as averages and standard deviations, median, mode etc are population parameters.
- ▶ **Bias.**

Bias is a term which refers to how far the average statistic lies from the parameter it is estimating, that is, the error which arises when estimating a quantity.

**OR**

A statistic is **biased** if it is calculated in such a way that is systematically different from the population parameter of interest

- ▶ **Unbiasedness.** This means that the average of large set of unbiased measurements will be close to the



# What is sampling ?

In simple words, sampling consists of obtaining information from a portion of a larger group or an universe. Elements are selected in a manner that they yield almost all information about the whole universe, if and when selected according to some scientific principles and procedures.

## CENSUS

A complete study of all the elements present in the population is known as a census. The national population census is an example of census survey

## SAMPLE

A Sample is a selection of units from the entire group called the population or universe of interest. It is Subset of a larger population

# CONVENIENCE SAMPLING

- ▶ The sampling procedure of obtaining the people or units that are most conveniently available
- ▶ Accidental sampling is a type of non-probability sampling which involves the sample being drawn from that part of the population which is close to hand



# QUOTA SAMPLING

- ▶ in **quota sampling**, the population is first segmented into mutually exclusive In quota sampling the selection of the sample is non-random sub-groups
- ▶ In the quota sampling the interviewers are instructed to interview a specified no of persons from each category. In studying peoples status, living conditions, preference, opinions, attitudes, etc

## JUDGEMENT SAMPLING

- ▶ Samples in which the selection criteria are based on **personal judgment** that the element is representative of the population under study.
  
- ▶ **Example:--**  

In test marketing, a judgement is made as to which cities would constitute the best ones for testing the marketability of a new product.



# SNOWBALL SAMPLING

- ▶ samples in which selection of additional respondents is based on **referrals from the initial respondents**
- ▶ Initial respondents are selected by probability methods
- ▶ Additional respondents are obtained from information provided by the initial respondents

# Simple random sampling

Random sampling mean, the arrangement of conditions in such a manner that every item of the whole universe from which we are to select the sample shall have the same chance of being selected as any other item.

Among all the probability sampling procedures random sampling is the most basic and least complicated.



# Systematic sampling

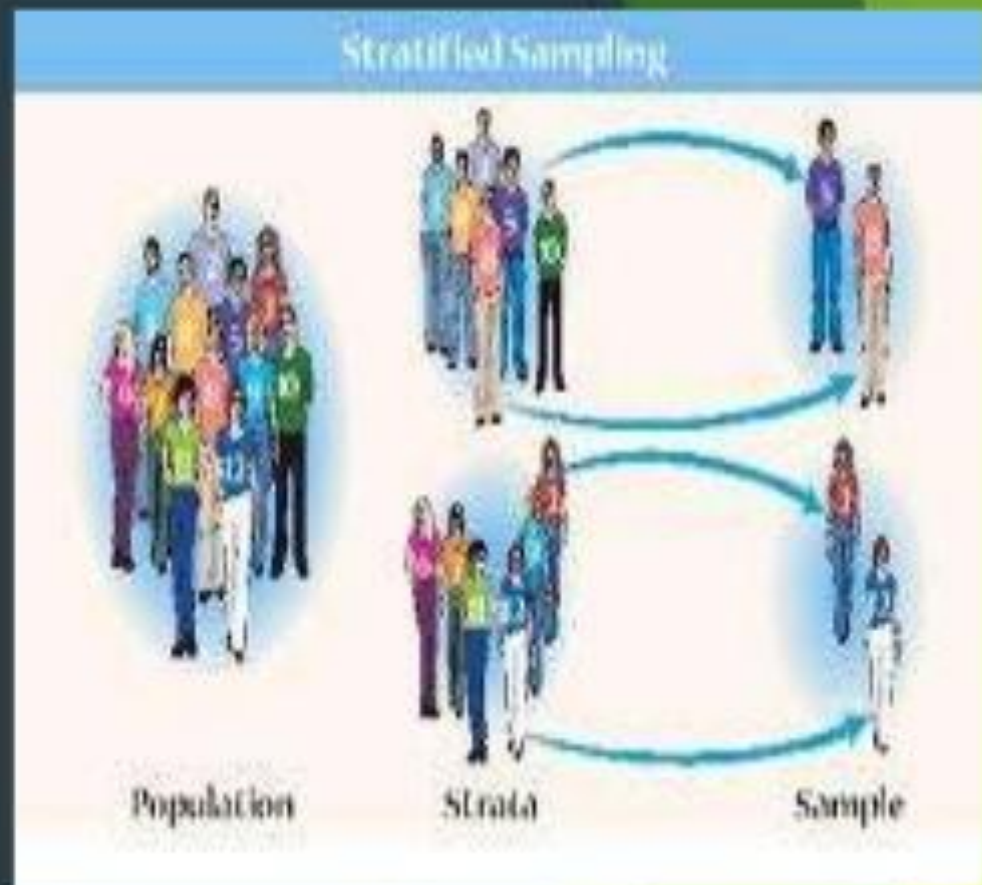
1. Prepare a list of all the elements in the universe and number them. This list can be according to alphabetical order, as in records etc.
2. Then from the list, every third/every 8<sup>th</sup> / or any other number in the like manner can be selected.

For this method, population needs to be homogeneous. This method is frequently used, because it is simple, direct and inexpensive. Also known as patterned, serial or chain sampling.



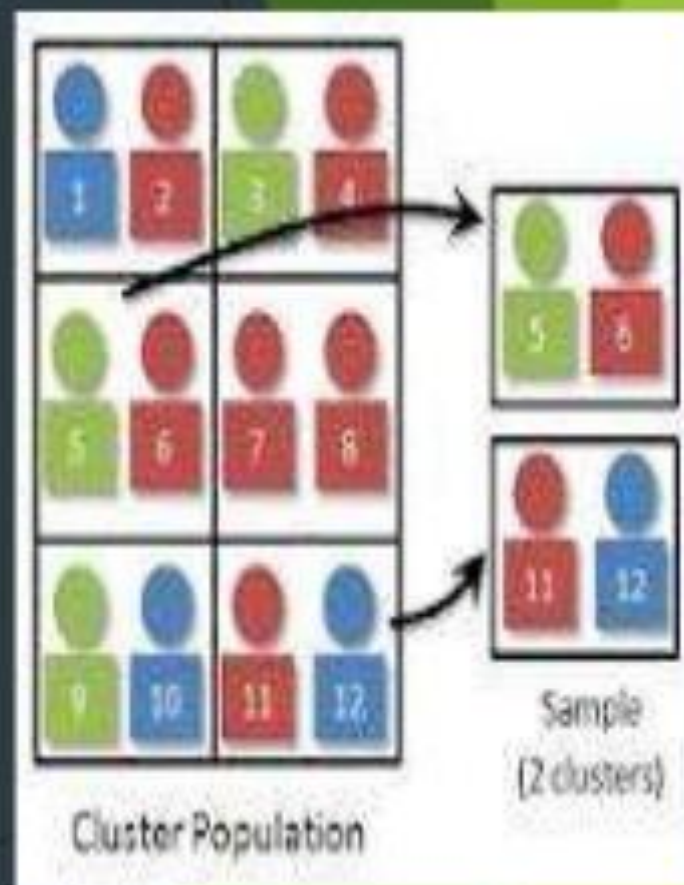
# Stratified sampling

- ▶ When the population is divided into different stratas or groups and then samples are selected from each stratum by simple random sampling procedure, we call it as stratified random sampling



# Cluster Sampling

- ▶ The whole population is divided in small clusters it may be according to location. Then clusters are selected in sample
- ▶ The purpose of cluster sampling is to sample economically while retaining the characteristics of a probability sample.





**THANK YOU**