

Sampling

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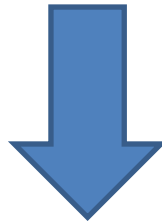
Motihari, East Champaran, Bihar

SAMPLING

Selection of a subset of individuals



Within a Statistical Population

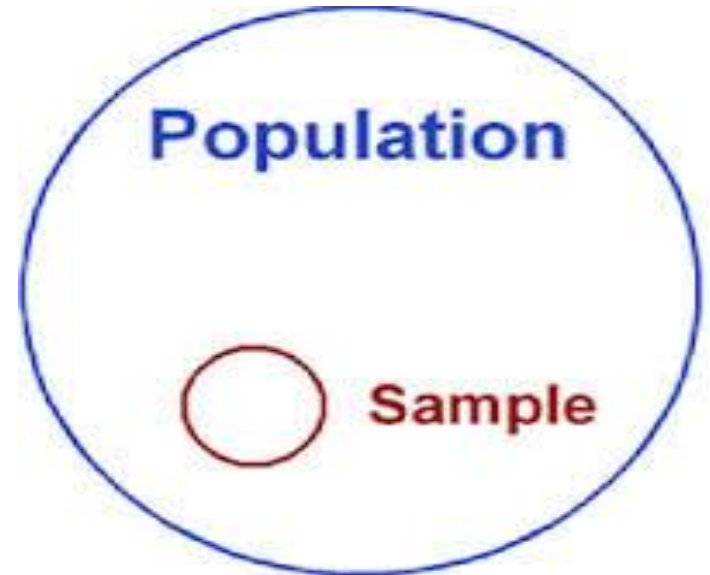
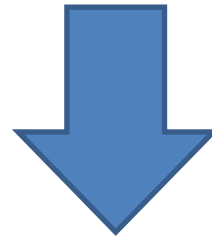


**To estimate characteristics of the
whole population**

IN RESEARCH TERM

Sample is a group of

- People,
- Objects,
- Items



Taken from a

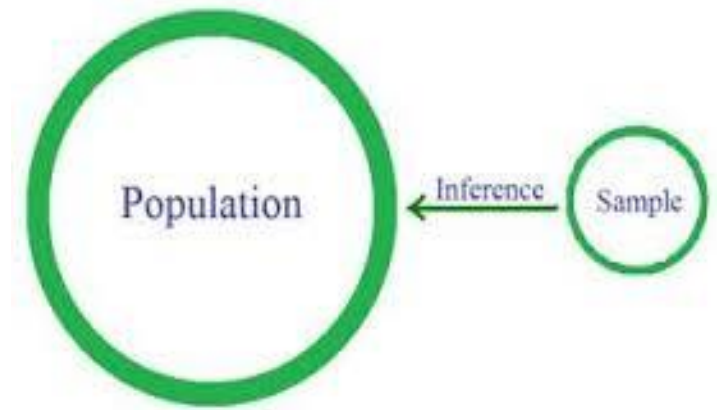
Larger Population

SAMPLE SIZE

Sample size depends on

- **The type of data analysis to be performed**
- **The desired precision of the estimates one wishes to achieve**
- **The kind and number of comparisons that will be made**

- **The number of variables that have to be examined simultaneously**



- **How heterogeneous the sampled population is.**

TYPES OF SAMPLING

- **Probability Sampling**
- **Non-Probability Sampling**

PROBABILITY SAMPLING

A probability sampling method is any method of sampling that utilizes some form of *random selection*



Population have equal probabilities

SOME BASIC TERMS

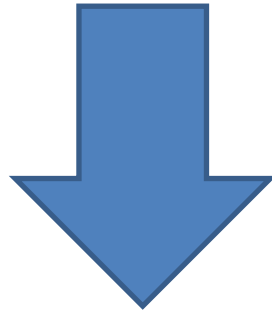
- N = the number of cases in the sampling frame
- n = the number of cases in the sample
- ${}_N C_n$ = the number of combinations (subsets) of n from N
- $f = n/N$ = the sampling fraction

SIMPLE RANDOM SAMPLING

- **Objective:** To select n units out of N such that each ${}_N C_n$ has an equal chance of being selected.
- **Procedure:** Use a table of random numbers, a computer random number generator, or a mechanical device to select the sample.

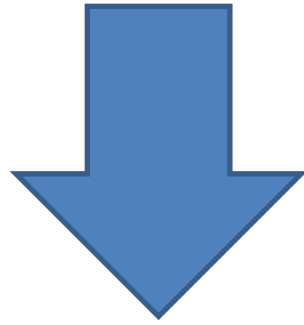
STRATIFIED RANDOM SAMPLING

Sometimes called *proportional*
or quota random sampling



Divide the population into non-
overlapping groups (i.e., *strata*)

- **Then taking a simple random sample in each subgroup**



- **$N_1, N_2, N_3, \dots, N_i$, such that $N_1 + N_2 + N_3 + \dots + N_i = N$. Then do a simple random sample of $f = n/N$ in each strata.**

- **When we use the same sampling fraction within strata we are conducting Proportionate stratified random sampling**
- **When we use different sampling fractions in the strata, we call this Disproportionate stratified random sampling**

SYSTEMATIC RANDOM SAMPLING

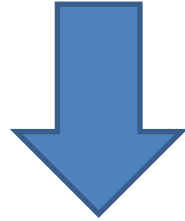
**Here are the steps to achieve a
Systematic random sample**

- **number the units in the
population from 1 to N**

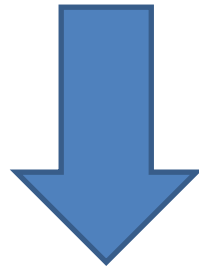


- **decide on the n (sample size)
that you want or need**

- **$k = N/n =$ the interval size**



- **randomly select an integer between 1 to k**

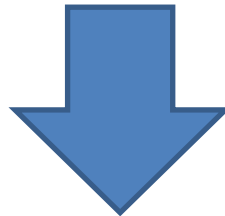


- **then take every kth unit**

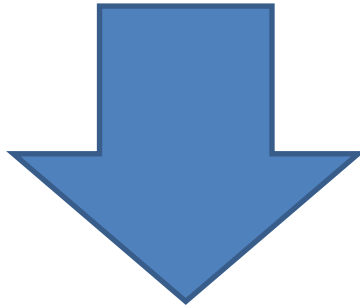
CLUSTER (AREA) RANDOM SAMPLING

We follow these steps:-

- Divide population into clusters
(usually along geographic
boundaries)**



- **Randomly sample clusters**

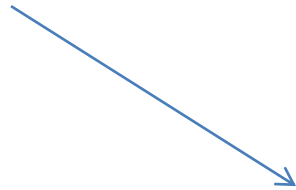


- **Measure all units within sampled clusters**

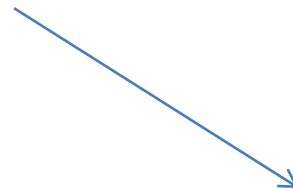
MULTI-STAGE SAMPLING

When we combine sampling methods, we call this **multi-stage sampling**.

Cluster Sampling



Stratified Sampling



Simple Random Sampling

NON-PROBABILITY SAMPLING

It is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected.

A core characteristic of non-probability sampling techniques is that samples are selected based on the subjective judgement of the researcher, rather than random selection (i.e., probabilistic methods), which is the cornerstone of probability sampling techniques.

QUOTA SAMPLING

The aim is to end up with a sample where the strata being studied are proportional to the population being studied.

CONVENIENCE SAMPLING

A convenience sample is simply one where the units that are selected for inclusion in the sample are the easiest to access

PURPOSIVE SAMPLING

Purposive sampling, also known as judgmental, selective or subjective sampling

Each of these purposive sampling techniques has a specific goal

SNOWBALL SAMPLING

**When the population you
are interested in is
hidden and/or hard-to-
reach**

Thank You