POPULATION AND SAMPLING

A population is defined as a group of individuals of the same species living and interbreeding within a given area. Members of a population often rely on the same resources and are subject to similar environmental constraints and depend on the availability of other members to persist over time.

Sampling is a process in statistical analysis where researchers take a predetermined number of observations from a larger population. The method of sampling depends on the type of analysis being performed, but it may include simple random sampling or systematic sampling.

IMPORTANCE OF POPULATION AND SAMPLING IN A RESEARCH

Studies are conducted on samples because it is usually impossible to study the entire population .Conclusions drawn samples are intended to be generalised to the population, and sometimes to the future as well. The sample must be therefore being representative of the problem.

What is an example of population sampling?

Researcher intents to collect a systematic sample of 500 people in a population of 5000. He/she numbers each element of the population from1 to 5000 and will choose every 10^{th} individual to be a part of the entire sample.

The major difference between population and sampling are listed out in the given Table

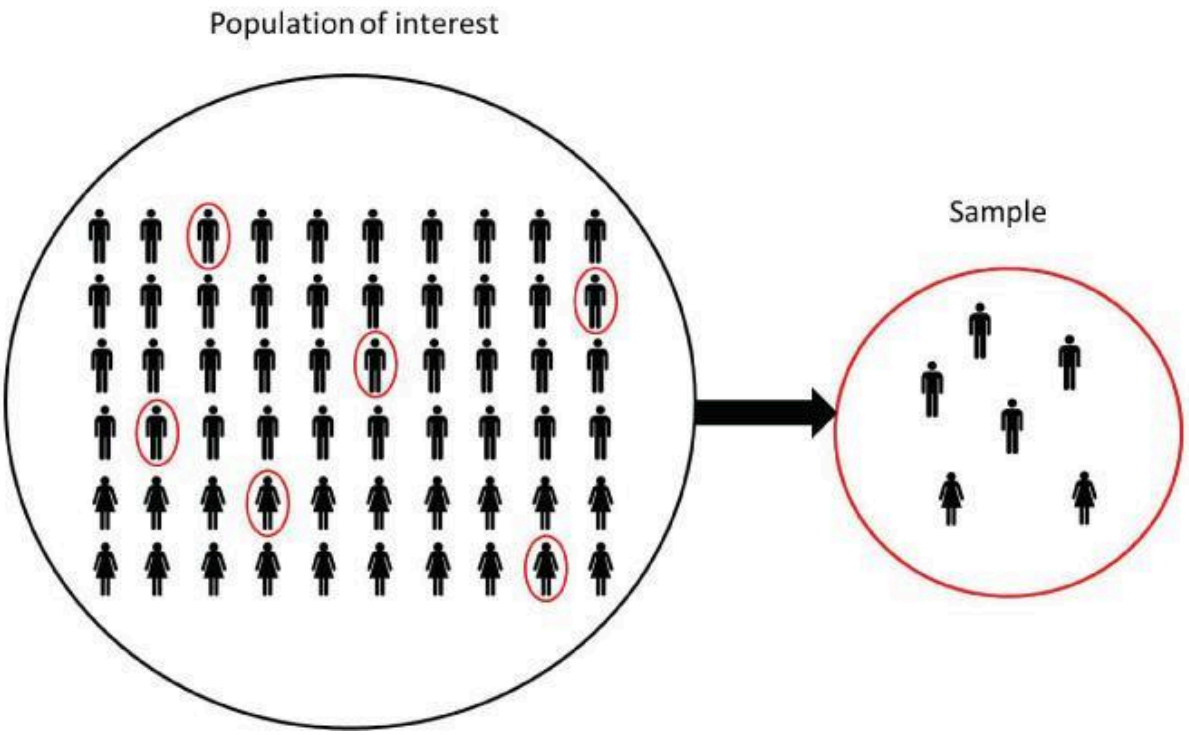
Table 1

The major differences between population and sampling are listed in the table below

population	sampling
The measurable quantity is called a parameter.	The measurable quantity is called a statistic.
The population is a complete set.	The sample is a subset of population.
It contain all members of a specified group.	It has a subset that represents the entire population.
Reports are true representation of a specified group.	The reports are margin error and Confidence interval.
Group of individuals	Conducted on samples.

The concept of population and sample can be traced out from the given Diagram.

Figure 1



STAGES OF SAMPLING

Defining the target population

It is the first step in sampling. In general the target population is defined in terms of the element, sampling unit, extent, and time frame .The definition should be in line with the objectives of the research study.

Specifying the sampling frame

Once the definition of the population is clear, the researcher should decide on the sampling frame. A sampling frame is the list of elements from which the sample may be drawn.

Specifying the sampling unit

A sampling unit is a basic unit that contains single elements of the population to be sampled. This is one among the most important methods in the sampling process.

Selection of the sampling method

The sampling method outlines the way in which the sample units are to be selected. The choice of the sampling method is influenced by the objectivity of the business research, availability of financial resources, time constrain, and the nature of the problem to be investigated. All sampling methods can be grouped under two distinct heads that is probability and non probability sampling.

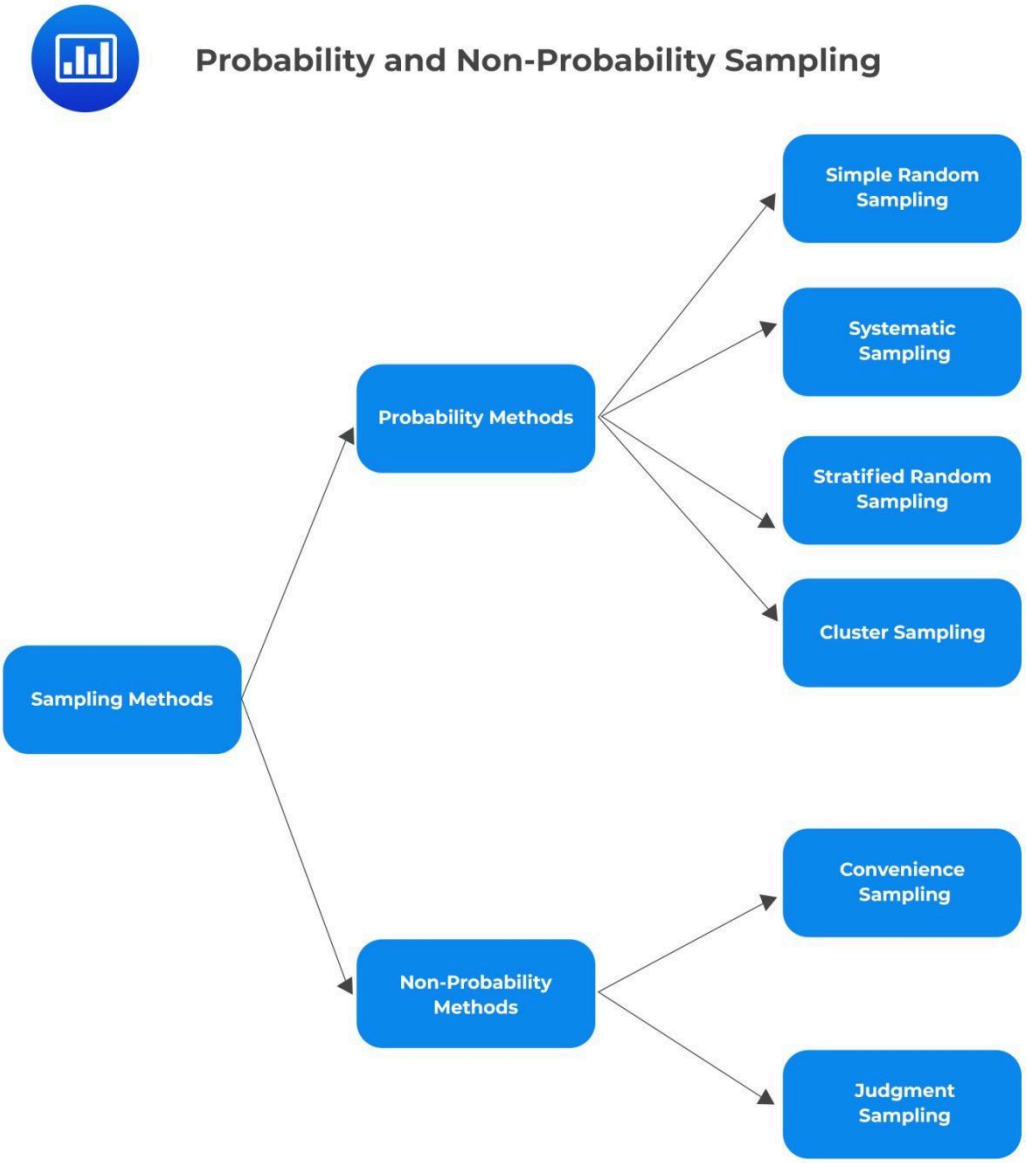
Determination of sample size

The sample size plays a crucial role in the sampling process. There are various ways of classifying the techniques used in determining the sample size.

TYPES OF SAMPLING

There are mainly two types of sampling. They are probability sampling and non probability sampling. Probability sampling involves random selection, allowing you to make strong statistical inferences about the whole group. Non probability sampling involves non random selection based on convenience or other criteria, allowing you to easily collect data. The main difference between probability and non probability sampling is that non probability sampling does not involve random selection and probability sampling does. For example, if you had a population of 100 people, each person would have odds of 1 out of 100 of being chosen. With non probability sampling, those odds are not equal. For example, a person might have a better chance of being chosen if they live close to the researcher or have access to a computer. Basically there are four types of probability sampling which are simple random sampling, stratified sampling, systematic sampling and cluster sampling. This allows researchers to

create a sample that is accurately representatives of the real life population of interest. This gives all people a chance of being selected and makes results more likely to accurately reflect the entire population.



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