

Sampling

When a researcher needs to gather data or information during systematic research process, he cannot get select whole population of any geographical area. He does every step in research process with logic and through use of justified necessary techniques. Mostly, researchers go through sampling procedure while getting information from large populations. Sampling is very important and justified way to make research process possible. Here, before discussion on sampling, we need to know about population. Population includes all people or items having characteristics a researcher wants to study. It is not possible in limited time and resources to collect information from everyone in population. This leads a researcher towards a suitable and justified process for getting information from that total population. This is possible only through sampling. A sample means:

“A portion or piece that is representative of a whole”

In other words we can say that sample is set of data taken from a larger population to describe any characteristics of that population. Now, it is easy to define and understand sampling. Sampling is the process of selecting a subset of units from the population. Sampling has been defined as:

“Sampling is the method of selecting a fraction of the population in such a way that it represents the whole population”

It means sampling is the process of obtaining information about an entire population by examining only a part of it. So we can now define a sample is any number of persons, units or objects selected to represent the population according to some rule or plan. Sampling is used in research process because:

- Sampling is cheaper than census method.
- As the size of operations is small in case of sampling, so data collection and analysis can be carried out accurately and efficiently.
- Sampling is the only way to get information when the population is as large as the population of a country.

When we talk about sampling methods, there are mainly two methods i.e., Probability sampling and non-probability sampling.

Probability Sampling

In probability sampling methods the population from which the sample is taken should be known to the researcher. Under this sampling every item of the universe has an equal chance to be selected as the sample. For example lottery methods or selecting a student from the complete students names from a box with blind eyes. It is the best technique and unbiased method. But in this technique we need the list of the complete items or population which is not always available.

Probability sampling has following types:

Simple Random Sampling: This sampling is the purest form of probability sampling. Each member of the population has an equal and known chance of being selected. An example of a simple random sample would be a group of 25 employees chosen out of a hat from a company of 250 employees. In this case, the population is all 250 employees, and the sample is random because each employee has an equal chance of being chosen.

Systematic Random Sampling: **Systematic sampling** is often used instead of random sampling. It is also called an Nth name selection technique. After the required sample size has been calculated, every Nth record is selected from a list of population members. Its only advantage over the random sampling technique is simplicity. For example, if you wanted to select a random group of 25 people from a population of 250 using systematic sampling, you would simply select every 10th person, since $250/25 = 10$.

Stratified Random Sampling: In stratified random sampling the population is first divided into different homogeneous group or strata which may be based upon a single criteria such as male or female. The stratification could be on the basis of more criteria like sex, caste, level of education. This method is generally applied when different category of individuals constitutes the population.

Non-probability Sampling

In many researches, it becomes very difficult or impossible to sample whole population due to time, money and workforce limitations. Here researchers employ another sampling technique which is non-probability sampling. In such cases, the population is unknown to researchers. Under non-probability sampling every item of the population has not equal chance to be selected as the sample. Subjects in a non-probability sample are usually selected on the basis of their accessibility or by the purposive personal judgment of the researcher. Probability sampling has following types:

Convenience sampling: This type of sampling is the most common of all sampling techniques. With convenience sampling, the samples are selected because they are accessible to the researcher. Subjects are chosen simply because they are easy to include. This technique is considered easiest, cheapest and least time consuming.

Judgment sampling: This sampling is commonly known as purposive sampling. In this type of sampling, samples are selected with a specific purpose in mind. With judgmental sampling, the researcher believes that some subjects are more fit for the research compared to other individuals. This is the reason why they are purposively chosen as subjects.

Quota sampling: This sampling is a non-probability sampling technique when the researcher ensures equal or proportionate representation of samples depending on some specific criteria as basis of the quota. For example, if basis of the quota is college year level and the researcher needs equal representation with a sample size of 100. He must select 25 1st year students, another 25 2nd year students, 25 3rd year and 25 4th year students. The bases of the quota are usually age, gender, education, and religion.

Snowball sampling: It is a special non-probability method used when the desired sample characteristic is rare. It may be difficult to locate respondents in these situations. In snowball sampling, the researcher asks the initial subject to identify another potential subject who also meets the criteria of the research.