

Sampling Design

A researcher investigating a population with an extremely small number of population elements may elect to conduct a census rather than a sample because the cost, manpower, and time drawbacks are relatively insignificant. On the other hand, sampling is preferred when there are cost, resource, and time advantages. In some cases, sampling can be very accurate, and, in some cases, more accurate than a survey

Sampling Errors- Investigators expect a sample to be representative of the population. However, errors occur.

Statistical Error- It is the difference between the value of a sample statistic of interest (for example, average-willingness-to-buy-the-service score) and that of the corresponding value of the population parameter (again, willingness to-buy score). It is classified into: random sampling errors and systematic (non-sampling) errors.

➤ **Random sampling error** -Random sampling error occurs because of chance variation in the scientific selection of sampling units. Random sampling error is a function of sample size. As sample size increases, random sampling error decreases.

➤ **Systematic (non-sampling) errors-** This type of errors are not due to sampling. They are result of a study's design and execution. Sample biases account for a large portion of errors in business research.

Probability Versus Non-Probability Sampling- The major alternative sampling plans may be grouped into probability techniques and non-probability techniques.

➤ **Probability sampling** every element in the population has a known nonzero probability of selection; each member of the population has an equal probability of being selected.

➤ **Non-probability sampling**, the probability of any particular member of the population being chosen is unknown.

Non Probability Sampling Techniques- In non-probability sampling, the probability of any particular member of the population being chosen is unknown. As there are no appropriate

statistical techniques for measuring random sampling error from a non-probability sample, the results cannot be generalized.

Convenience Sampling- Convenience sampling (also called haphazard or accidental sampling) refers to the sampling procedure of obtaining / gathering responses from the people who are most conveniently available. For example, a college professor wishes to conduct a media study- say celebrity endorsement and recall rate / credibility of the celebrity endorser, taking a sample of youth. He uses his or her students as it is convenient.

Quota Sampling -This is another accidental sampling method. When the population is not homogeneous, it is necessary to create representation for each of such groups in the study. The purpose of quota sampling is to ensure that the various such subgroups in a population are represented on pertinent sample characteristics to the exact extent that the marketing researcher desire. In quota sampling, the interviewer has a quota to achieve.

Judgment Sampling- Judgment or purposive sampling is another non-probability technique in which an experienced individual selects the sample upon his or her judgment about some appropriate characteristic required of the sample members. For example, a fashion manufacturer regularly selects a sample of key accounts that it believes are capable of providing the information to predict what will sell in the nearer time period; the sample has been selected to satisfy a specific objective.

Snowballs Sampling- In this, initial respondents are selected by probability methods, but additional respondents are then obtained from information provided by the initial respondents. This technique is used to locate members of rare populations by referrals.

Probability Sampling-Techniques If the researchers are interested in ensuring maximum precision and accuracy in a sample, then probability sampling is the answer for them. Probability sampling method is any method of sampling that utilizes some form of random selection of sample elements from the population. In order to have a random selection method, you must set up some process or procedure that assures that the different units in your population have prior defined probabilities of being chosen.

Simple Random Sampling- A simple random sample is a sampling procedure that assures that each element in the population will have an equal chance of being included in the sample.

Stratified Random Sampling- When population elements are heterogeneous, researcher cannot make use of simple random sampling. A researcher selecting a stratified sample will proceed in the following stages. First, a variable (sometimes several variables) is identified as an efficient basis for stratification. The variable chosen should increase the homogeneity within each stratum and increase the heterogeneity between strata. The stratification variable is usually a categorical variable or one easily converted into categories, that is, subgroups.

Systematic Sampling -Systematic sampling is extremely simple to apply: An initial starting point is selected by a random process; then every n th number on the list is selected. To illustrate this procedure, suppose the researcher wishes to Notes 85 take a sample of 100 dealers from a list consisting of 1000 names for a FMCG marketing company.

Cluster Sampling- The purpose of cluster sampling is to sample economically while retaining the characteristics of a probability sample. In a cluster sample, the primary sampling unit is no longer the individual element in the population (for example, grocery stores or individual respondents or dealers) but a larger cluster of elements located in proximity to one another (for example, cities, two very large apartments consisting of 100s of houses). The area sample is the most popular type of cluster sample.

Multistage Sampling- The four methods discussed above covered so far simple, stratified, systematic and cluster are the simplest random sampling strategies. In most real applied research situations, it will not so easy to select the respondents so easily; we may have to make use sampling methods that are considerably more complex than these simple variations. However, it is not a completely different method; this procedure combines the simple methods described earlier in appropriate manners which would help the researcher to address sampling related requirements more efficiently and effective manner as possible. Since, we combine many of the sampling methods, we call this multi-stage sampling.

Internet Sampling With the advent of internet surveys are organized using the medium.

Web Site Visitors At the present time, many Internet surveys are conducted with volunteer respondents who by intention or happenstance visit an organization's web site or willing to respond email communication, in which a survey link is attached. These kind of unrestricted samples are clearly convenience samples. They may not be representative because of the haphazard manner by which many respondents arrive at a particular web site or because of self-selection bias.

Factors Deciding an Appropriate Sampling Design

Degree of Accuracy of the Sample- The degree of accuracy required or the researcher's tolerance or the organisational prerequisites for sampling and non-sampling error may vary from project to project. Often accuracy is related to the type of research design as well; if the study seeks information, which are highly technical or the respondents have to work and give responses, the population members find it difficult to understand the research/questions, various constraints like cost savings, time pressure or other considerations, which would lead to a trade-off for a reduction in accuracy.

Resources- If the researcher's financial and human resources are restricted, this limitation of resources will eliminate certain methods. If the organisation does not have a separate department to handle marketing research, the staffs, which are assigned to oversee the development from research work, could create issues.

Time- Researchers / organisations that have to meet a deadline or complete a project quickly will be more likely to select simple, less time-consuming sample designs.

Need for Statistical Analysis- The need for statistical projections based on the sample are often a criterion. Non-probability sampling techniques do not allow the researcher to utilize statistical analysis to project the data beyond the sample.