Introduction

Statistical tools can be used on a data set to draw statistical inferences.

For example, the government uses such data for policy formulation for the welfare of the people, marketing companies use the data from consumer surveys to improve the company and to provide better services to the customer, etc. Such data is obtained through sample surveys. Sample surveys are conducted throughout the world by governmental as well as nongovernmental agencies.

For example, “National Sample Survey Organization (NSSO)” conducts surveys in India, “Statistics Canada” conducts surveys in Canada, agencies of United Nations like “World Health Organization (WHO), “Food and Agricultural Organization (FAO)” etc. conduct surveys in different countries.

There are two ways of obtaining the information
1. Sample surveys
2. Complete enumeration or census

Sample surveys collect information on a fraction of the total population, whereas census collects information on the whole population. Some surveys, e.g., economic surveys, agricultural surveys etc.are conducted regularly. Some surveys are need-based and are conducted when some need arises, e.g.,consumer satisfaction surveys at a newly opened shopping mall to see the satisfaction level with theamenities provided in the mall.

Sampling unit:
An element or a group of elements on which the observations can be taken is called a sampling unit.
The objective of the survey helps in determining the definition of the sampling unit.

Population:
Collection of all the sampling units in a given region at a particular point of time or a particular period
is called the population. For example, if the medical facilities in a hospital are to be surveyed through
the patients, then the total number of patients registered in the hospital during the time period of the
survey will be the population.

Census:
The complete count of the population is called a census. The observations on all the sampling units in the population are collected in the census. For example, in India, the census is conducted at every tenth year in which observations on all the persons staying in India is collected.

Sample:
One or more sampling units are selected from the population according to some specified procedure. A sample consists only of a portion of the population units. Such a collection of units is called the sample.

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Representative sample:
When all the salient features of the population are present in the sample, then it is called a representative sample. It goes without saying that every sample is considered as a representative sample. For example, if a population has 30% males and 70% females, then we also expect the sample to have nearly 30% males and 70% females. In another example, if we take out a handful of wheat from 100 Kg. bag of wheat, we expect the same quality of wheat in hand as inside the bag.

Sampling frame:
The list of all the units of the population to be surveyed constitutes the sampling frame. All the sampling units in the sampling frame have identification particulars. For example, all the students in a particular university listed along with their roll numbers constitute the sampling frame. Similarly, the list of households with the name of the head of family or house address constitutes the sampling frame.

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Ways to ensure representativeness:

1. Random sample or probability sample:
The selection of units in the sample from a population is governed by the laws of chance or probability. The probability of selection of a unit can be equal as well as unequal.

2. Non-random sample or purposive sample:
The selection of units in the sample from the population is not governed by the probability laws. For example, the units are selected on the basis of the personal judgment of the surveyor. The persons volunteering to take some medical test or to drink a new type of coffee also constitute the sample on non-random laws.

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Advantages of sampling over complete enumeration:

1. Reduced cost and enlarged scope
2. Organization of work
3. Greater accuracy
4. Urgent information required
5. Feasibility

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Type of surveys:

1. **Demographic surveys:**
2. **Educational surveys:**
3. **Economic surveys:**
4. **Employment surveys:**
5. **Health and nutrition surveys:**
6. **Agricultural surveys:**
7. **Marketing surveys:**
8. **Election surveys:**
9. **Public polls and surveys:**
10. **Campus surveys:**

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Principal steps in a sample survey:

1. **Objective of the survey:**
2. **Population to be sampled:**
3. **Data to be collected:**
4. **Degree of precision required:**
5. **Method of measurement:**
6. **The frame:**
7. **Selection of sample:**
8. **The Pre-test:**
9. **Organization of the fieldwork:**
10. **Summary and analysis of data:**
11. **Information gained for future surveys:**

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Methods of data collection:

Physical observations and measurements:

Personal interview:

Mail enquiry:

Web-based enquiry:

Registration:

Transcription from records:

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