

Fundamental of Business Statistics Assignment-1

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ASSIGNMENT - 1

Introduction to statistics.

Define survey design and explain different techniques of conducting surveys.

Survey Design:-

Surveys are used in a variety of ways to determine the opinion, approaches and buying preferences of customer as well as to calculate employees issues like job satisfaction

Sources of Data:-

The sources of data can be classified into two types

Statistical

Non-statistical

Statistical sources refer to data that is gathered for some official purposes, incorporate census, and officially administered surveys.

Non-statistical sources refer to the collection of data for other administrative purpose or for the private sector.

Two sources of data

Internal sources

When data is collected from reports and records of the organization itself, they are known as the

internal sources.

e.g.; a company publishes its annual report on profit and loss, total sales, loans, wages etc.

External sources.

When data is collected from sources outside the organization, they are known as the external sources.

e.g., if a tour and travel company obtains information on Andhra Pradesh tourism from Andhra Pradesh Transport Corporation.

Sources of data

Data sources are classified into

Primary data

Secondary data

Primary and secondary Data in statistics:

The difference between primary and secondary data in statistics is that primary data is collected firsthand by a researcher (organization, person, authority, agency or party etc) through experiments, surveys, questionnaires, focus groups, conducting interviews and taking (required) measurements, while the secondary data is readily available (collected by someone else) and is available to the public through publications, journals and newspapers.

i) Explain the methods of collecting primary data?

Primary data means first hand information collected by an investigator.

It is collected for the first time.

It is original and more reliable.

e.g.: The population census conducted by the government of India after every ten years is primary data.

Sources of primary data:

The sources of primary data are primary units such as basic experimental units, individuals households.

Following methods are used to collect data from primary units usually and these methods depends on the nature of the primary unit.

Personal investigation:

The researcher conducts the experiment or survey himself/herself and collects data from it. The collected data is generally accurate and reliable. This method of collecting primary data is feasible only in case of small scale industry, laboratory field experiments or pilot surveys and is not practicable for large scale experiments and surveys because it take too much time.

Through Investigators:

The trained (experienced) investigators are employed to collect the required data. In case of surveys, they contact the individuals and fill in the questionnaire after asking the required information, where a questionnaire is an inquiry from having several questions designed to obtain information from the respondents. This method of collecting data is usually employed by most of the organizations and it gives reasonably accurate information but it is very costly and may be time taking too.

Through questionnaire:

The required information (data) is obtained by sending a questionnaire (printed or soft form) to the selected individuals (respondents) (by mail) who fill in the questionnaire and return it to the investigator. This method is relatively cheap as compared to through investigator method but non response rate is very high as most of the respondents don't bother to fill in the questionnaire and send it back to investigator.

Through local sources:

The local representatives or agents are asked to send requisite information who provide the information based upon their own experience. This method is quick but gives rough estimates only.

Through Telephone :

The information may be obtained by contacting the individuals on telephone. It's a quick and provide accurate required information.

Through Internet:

With the introduction to information technology, the people may be contacted through internet and the individuals may be asked to provide relevant information. Google survey is widely used as online method for data collection now a day. There are many paid online survey services too.

Explain the methods of collecting secondary Data?

Secondary data refers to second hand information. It is not originally collected and rather obtained from already published or unpublished sources. eg : the address of a person taken from the telephone directory or the phone number of a company taken from Just Dial are secondary data.

Sources of secondary Data

The secondary data may be available from the following sources

Government organizations

Federal and provincial Bureau of statistics, collect

Reporting service, Agriculture Department, census and

Registration organization etc.

Semi-government organization

Municipal committees, District councils & commercial and financial Institutions like banks etc.

Teaching and Research organizations.

Research journals and newspaper.

Internet.

u) Discuss different types of probability sampling techniques.

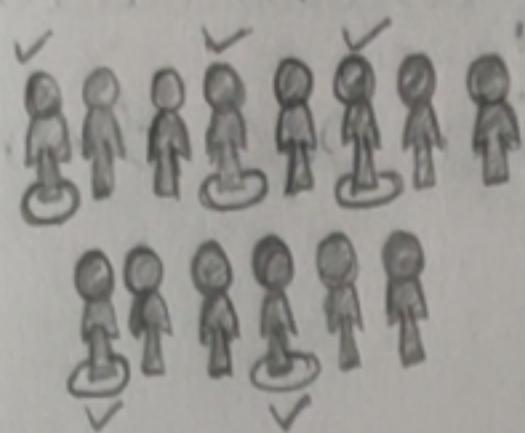
Probability sampling involves random selection allowing you to make strong statistical inferences about the whole group.

Simple random sampling : The items are selected from the target population by selecting the random selection point and selecting the order method after a fixed sample interval.

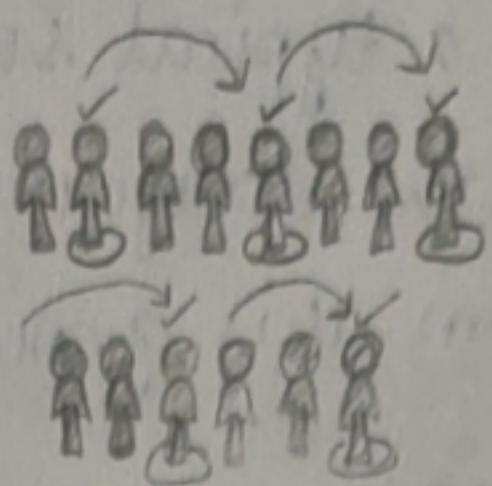
Stratified Sampling : Respondents are split into sub groups and then randomly selected from each group.

cluster sampling :- the cluster or group of people are formed from the population set. The group has similar significatory characteristics.

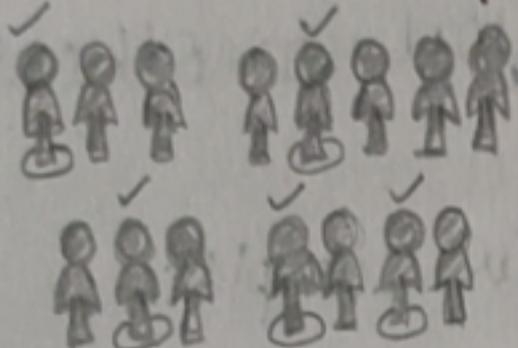
Simple random sample



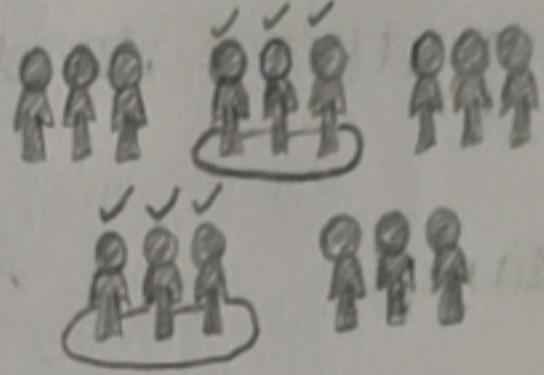
Systematic sample



Stratified sample



clustered sample



Discuss different types of non-probability sampling techniques?

Non - probability sampling : involves non-random selection based on convenience or other criteria allowing you to easily collect data.

Convenience sampling

Quota sampling

Judgmental sampling

Snowball sampling

Convenience sampling :

the samples are selected from the population directly because they are conveniently available for the researcher

Quota sampling :

the researcher forms a sample that involves the individual to represent the population and then collects data from this group.

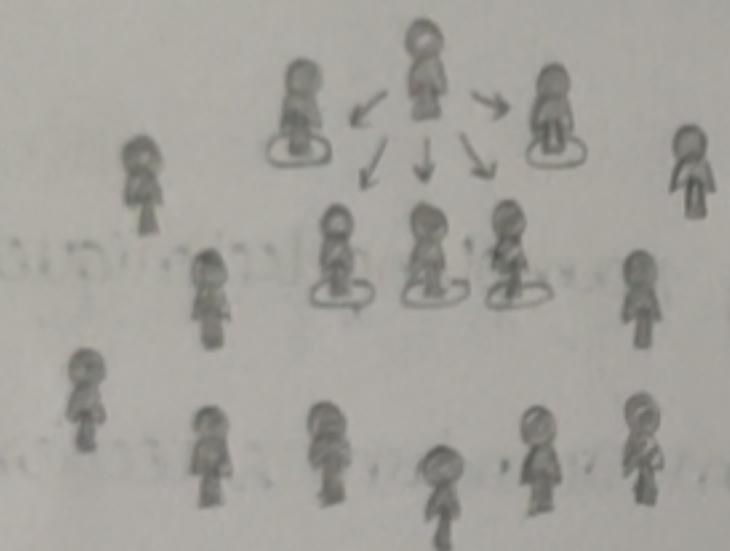
Purposive or Judgemental sampling

Researcher selects a typical sound of individuals who might represent the larger population and then collects data from this group.

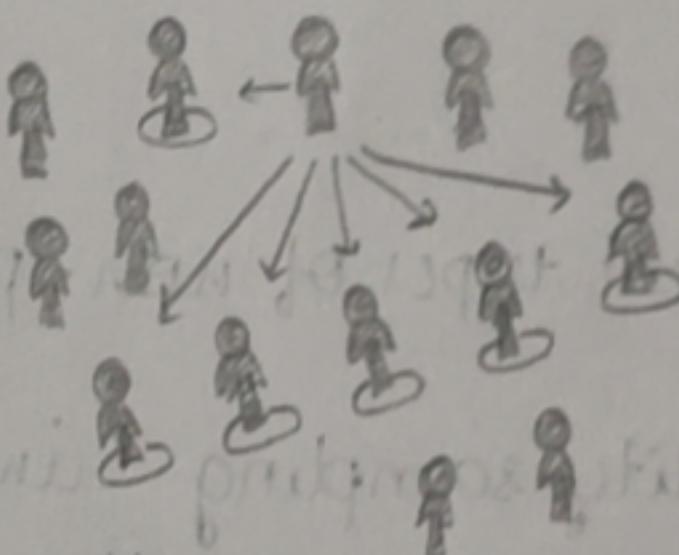
Snowball sampling:

Selecting participants by finding one or two participants and then asking them to refer you to others.

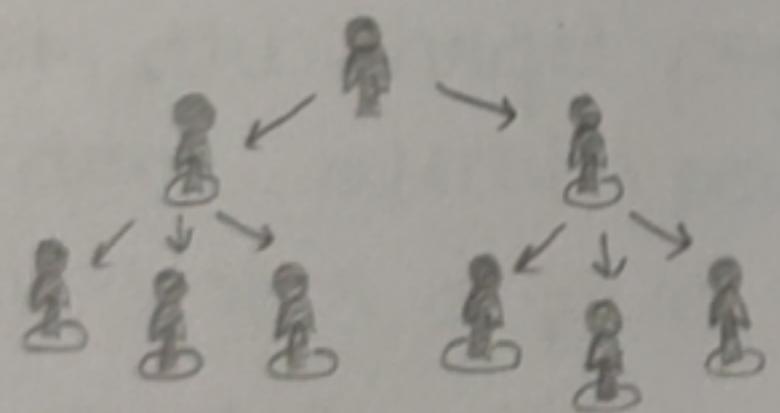
convenience sample



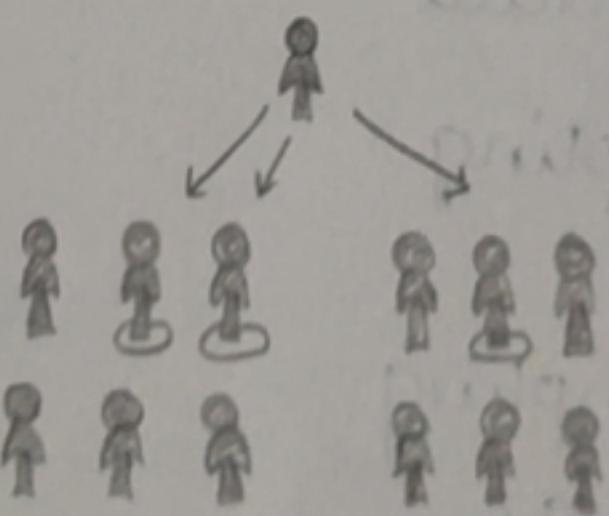
Purposive sample



Snowball sample



Quota sample



- 6) Explain different types of data classification.

Types of data:

Qualitative (categorical) data

Quantitative (numerical) data

Qualitative (categorical) data: are representing characteristics such as

Data at the nominal level consists of names, labels and categories

Eg brand of cell phone.

Data at the ordinal level consists of data that can be ordered.

Eg Pain level measured as low, medium, high.

Data at the interval level consists of data that can be ordered and differences are meaningful

Eg Temperature measured in celsius

Data at the ratio level consists of data that can be ordered differences are meaningful and zero corresponds to none of the value

Eg shoe length in inches

Quantitative (numerical) data are two types:

Discrete data

Continuous data.

Discrete data refers to the data values which can only attain certain specific values.

Eg: The number of students in a class, The number of chips in a bag, The number stars in the sky.

Continuous data can contain values between a certain range that is within the highest and lowest values.

Eg: Height and weight of a student, voltage, temperature, length.