CHAPTER 7: DATA COLLECTION METHODS

Data collection is a process of collecting data using different methodologies. It is a very important topic of statistics as well as mathematics. The data collections are known as, any information collected from some person or some other ways to get news. Data collection can be defined as a term which is used to explain the process of preparing and collecting data, such as, a part of a process improvement. The purpose of data collection is to collect important information to keep on record for further use, to make important decisions about different issues, and to pass vital information on to others.

Introduction to Data Collection Methods

The data collection is to collect important information to keep on record for further use, to make important decisions about different issues, and to pass vital information on to others. In terms of the method of data collection that will be used for the study, there are mainly two types of data:

- Primary data
- Secondary data

Primary Data
They are collected afresh and for the first time, and thus happens to be original in character. They are the most original data and mostly have not undergone any sort of statistical test.

Secondary Data
They are those that has already been collected by someone else and which has been already been passed through the statistical process. They are not pure and have undergone some treatment at least once.

Data Edition:
After collecting the required data, either from primary or secondary means, the next step leads to edition. Editing is a process by which the data collected is examined to discover any error and mistake before it is presented. It has to be understood beforehand itself to what degree the accuracy is needed and to what extent the errors can be tolerated in the inquiry. The editing of secondary data is much simpler than that of primary data.

Types of Data Collection Methods

Data collection simply defines that, how the information was gathered? It is known as data collection. The getting data is may be given us to particular information related to that data.

There are two different methods of data's are collected in data collection.

- Primary data
- Secondary data.

And these two data collection methods are having some important tools used for collecting data. Such a data collection tools used for the two methods are given below:

Primary data tools are interviews, surveys, direct observations, focusing groups.

Secondary data tools are telephone, mobile phones, e - mails, post cards, etc.

Selecting Appropriate Data Collection Method

As there are many method to collect the data it important that we choose the most appropriate according to the situation provided. So the following factors has to be kept in mind while selecting a particular method:

1. The nature, the scope as well as the object of the enquiry is very important as it will affect the choice of the method.
2. When a method is chosen it's important to check whether there is adequate amount of funds to make it work. If the method is too expensive, it will be very hard to do the experiment.
3. Time is an important factor as decided when the experiment has to end.
4. Precision is also another important factor.

But it must be always remembered theta each method of data collection has its use and none is superior in all situations.

After data collection, the method can be broadly divided into two types

- **Ungrouped data:** They are those data's that are not arranged in any systematic order. It can be arranged only in ascending or descending order. They are also termed as raw data.
- **Grouped data:** They are data's that are presented in the form of frequency distribution.

Classification of Data

The process of arranging data into homogenous group or classes according to some common characteristics present in the data is called classification.

For Example: The process of sorting letters in a post office, the letters are classified according to the cities and further arranged according to streets.

Bases of Classification:
There are four important bases of classification:
Classifications of data
A. According to Nature
1. Quantitative data- information obtained from numeral variables(e.g. age, bills, etc)

2.Qualitative Data- information obtained from variables in the form of categories, characteristics names or labels or alphanumeric variables (e.g. birthdays, gender etc.)

B. According to Source
1. Primary data- first- hand information (e.g. autobiography, financial statement)
2. Secondary data- second-hand information (e.g. biography, weather forecast from news papers)

C. According to Measurement
1. Discrete data- countable numerical observation.
- -Whole numbers only
- - has an equal whole number interval
- - obtained through counting(e.g. corporate stocks, etc.)
2. Continuous data-measurable observations.
- -decimals or fractions
- -obtained through measuring(e.g. bank deposits, volume of liquid etc.)

D. According to Arrangement
1. Ungrouped data- raw data
- - no specific arrangement
2. Grouped Data - organized set of data
- - at least 2 groups involved
- -arranged

Data Tabulation and Presentation
The process of placing classified data into tabular form is known as tabulation. A table is a symmetric arrangement of statistical data in rows and columns. Rows are horizontal arrangements whereas columns are vertical arrangements. It may be simple, double or complex depending upon the type of classification.

one of the most important aspect in any statistical investigation is the manner by which the researcher presents the data

various modes of data presentation are:
  a) Textual-data are presented in the form of texts, phrases or paragraphs. Common among newspapers and reports
  b) tabular – a more reliable and effective way of showing relationships or comparisons of data
  c) graphical-the most effective way of presenting data through the use of statistical graph