

**Bal Bharati Public School**  
**Pitam Pura**  
**New Delhi**  
**Subject Economics**  
**Class 11**

Introduction to Statistics

Definition

**Statistics is the study of the collection, analysis, interpretation, presentation, and organization of data. In other words, it is a mathematical discipline to collect, summarise data.**

**Scope**

Statistics is used in many sectors such as psychology, geology, sociology, weather forecasting, probability and much more. The goal of statistics is to gain understanding from data it focuses on applications and hence, it is distinctively considered as a Mathematical science.

## Methods

The methods involve collecting, summarizing, analyzing, and interpreting variable numerical data. Here are some of the methods provided below.

- Data collection
- Data summarisation
- Statistical analysis

## Data

Data is a collection of facts, such as numbers, words, measurements, observations etc.

## Types of Data-

1. **Qualitative data-** it is descriptive data.
  - Example- She can run fast, He is thin.
2. **Quantitative data-** it is numerical information.
  - Example- An Octopus is an Eight legged creature.

## Types of quantitative data

1. **Discrete data-** has a particular fixed value. It can be counted

Statistics helps in providing a better understanding and exact description of a phenomenon of nature.

(2) Statistics helps in the proper and efficient planning of a statistical inquiry in any field of study.

3) Statistics helps in collecting appropriate quantitative data.

(4) Statistics helps in presenting complex data in a suitable tabular, diagrammatic and graphic form for easy and clear comprehension of the data.

(5) Statistics helps in understanding the nature and pattern of variability of a phenomenon through quantitative observations.

(6) Statistics helps in drawing valid inferences, along with a measure of their reliability about the population parameters from the

**2. Continuous data-** is not fixed but has a range of data. It can be measured.

# Statistics in a Plural Sense

## Features of Statistics in its Plural Sense

- **It is numerically expressed:** Statistics in economics deals with numbers and is quantitative. Qualitative adjectives like rich, poor, tall etc. have no attached significance in the statistical universe.
- **Reasonably accurate:** A statistical conclusion should be reasonably accurate which depends on the purpose of an investigation, its nature, size and available resources.
- **Can involve estimation:** If the field of study is large, for example, the number of people attending a rally, then a fair bit of estimation can do the trick. However for small fields of study, take, for example, the number of students in each field of study in a college, exact number calculation is easy and essential.
- **Systematic collection of data:** Collection of data should be done systematically, which means, accumulating just raw data without any information about its origin, purpose etc is not valid in the statistical universe.
- **Relative:** Statistics in economics in its plural sense has the feature of comparability. This means that the same kind of data from different sources can be compared.
- **Multiple factors:** Statistics is affected by a large number of factors and not just a single factor. For

example rise in the price of a commodity is not because of a change in one factor but it is an effect of a large number of factors.

- **Aggregation:** Statistics is a game of averages or aggregates. A number expressed for a single entity is no way related to statistics. For example, the height of a single student is not a statistical data but the average height of students in a class is.

## Statistics in its Singular Sense

- **Stage 1- Collection of data:** We first need to collect statistical data to commence the journey for statistical study. Census and sampling techniques are generally used for this stage.
- **Stage 2- Organisation of data:** Of course data in a raw or chaotic format is hard to interpret. This is the reason the second stage deals with the organization of the collected data. The organization of data is done with the help of arrays of data and tally bars.
- **Stage 3- Presentation of data:** After organization, this data needs to be nicely presented. Presentation of data is widely achieved with the help of tables, graphs, and diagrams.
- **Stage 4- Analysis of data:** Before moving on to the final stage, we need to first find percentages, averages and so on to draw inferences about the data. Percentages, averages, correlation and regression coefficients form the toolbox for analysis of data.
- **Stage 5- Interpretation of data:** Finally, we need to interpret the data and hence conclude or form

opinions about the data. This is done with the help of magnitude of percentages, averages, and degree of relationship between different economic variables.

## A Solved Example for Understanding

**Q:** What is the first stage of statistical study in a singular sense?

**Ans:** The first stage of singular statistical study deals with the collection of data. There are a few methods of collecting this data including sampling. After such data is collected then we

## Question Bank

Mark the following statements as true or false.

- (i) Statistics can only deal with quantitative data.
- (ii) Statistics solves economic problems.
- (iii) Statistics is of no use to Economics without data.

Answer:

(i) False Statistics deals with both quantitative data as well as with qualitative data. Qualitative data describes the attributes.

(ii) True Economists use Statistics as a tool to understand and evaluate an economic problem by analysing past data. Statistical tools help economists to identify causes of an economic problem and devise policies accordingly.

(iii) True Data is the raw material for economic analysis. Statistical analysis of economic variables cannot be undertaken without having any data.

Question 2.

Make a list of activities that constitute the ordinary business of life. Are these economic activities?

Answer:

The following are the activities that constitute the ordinary business of life

- Buying of goods and services.
- Rendering services to a company by employees and workers.
- Selling of goods and services.
- Production process carried out by a firm.

Yes, the above mentioned activities are regarded as economic activities. This is because, these activities are undertaken for monetary gain and are thus economic activities.

Question 3.

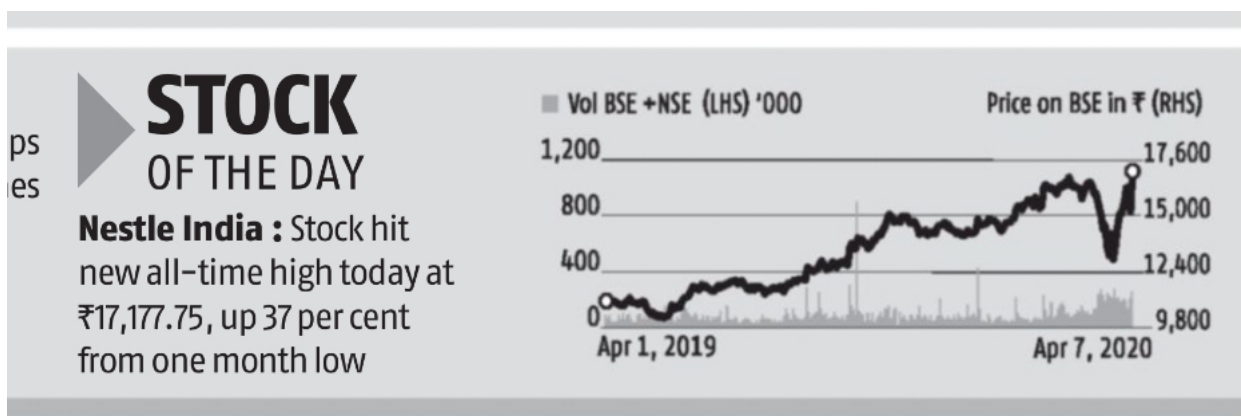
The government and policy makers use statistical data to formulate suitable policies of economic development'.

Illustrate with two examples.

Answer:

The statistical data provide the base for the government and the policy makers to formulate policies. The statistical data not only help them to analyse and evaluate the outcomes of the past policies but also assist them to take corrective measures and to formulate new policies. Statistical data also help the government to ascertain the relationship between economic variables and form policies accordingly.

For example, if Indian Government aims at increasing the national output, then it formulates its investment expenditure policy based on the capital output ratio in the past few years. Another example could be the preparation of monetary policy.



The above example explains the diagrammatic representation of data