

**Class 11<sup>th</sup> | ECONOMICS**



# MEANING, SCOPE AND IMPORTANCE OF STATISTICS

**LECTURE - 4**

## LIMITATIONS OF STATISTICS

The main limitations of statistics are:

- Statistics does not study qualitative phenomena:

Statistics can be applied in studying only those problems which can be stated and expressed quantitatively.

- Qualitative characteristics such as honesty, poverty, welfare, beauty, health, etc. cannot directly be measured quantitatively.
- As a result, qualitative characteristics are not suitable for statistical analysis.





## LIMITATIONS OF STATISTICS

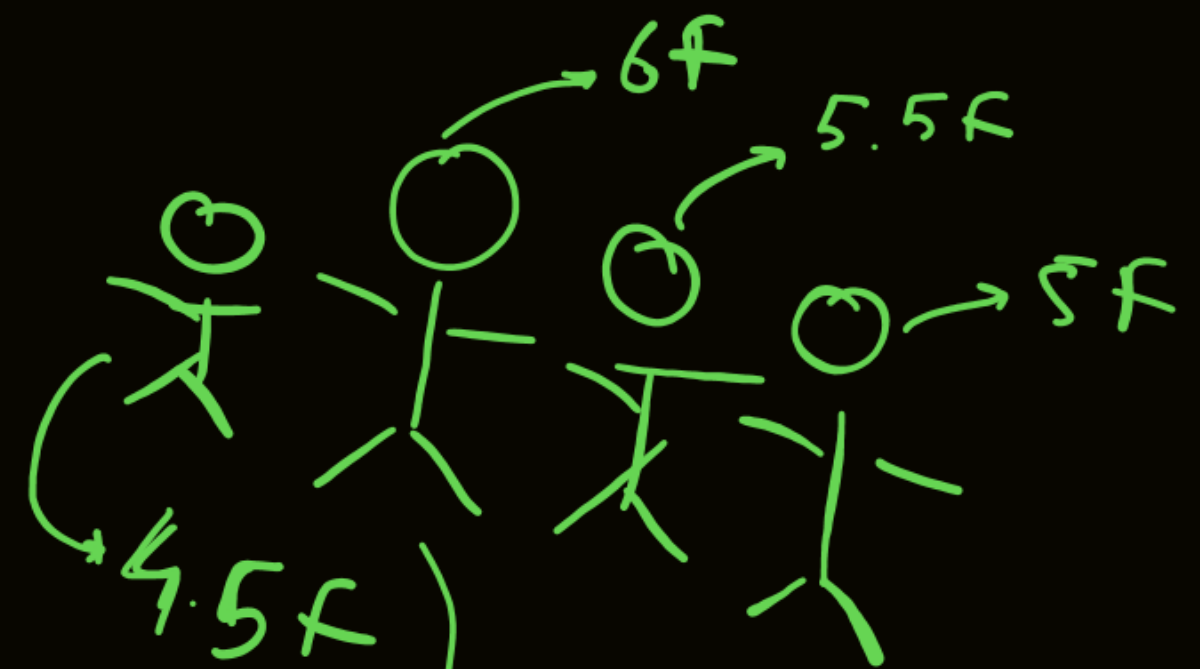
- **Statistics does not deal with individuals:** Statistics deals only with aggregates of facts and no importance is attached to individual items) For example, marks of one student of a class does not constitute statistics, but the average marks have statistical relevance.
- **Statistics can be Misused:** Statistics can be misused by ignorant or wrongly motivated persons. Any person can misuse statistics and draw any type of conclusion he likes.





Avg: height

$$= 4 F$$



Rameth



## **Statistical Methods are no substitute for Common Sense!**

There is an interesting story which will justify this viewpoint:

Once a family of four persons (husband, wife and two children) set out to cross a river. The father knew the average depth of the river. So, he calculated the average height of his family members. Since the average height of his family members was greater than the average depth of the river, he thought they could cross safely. Consequently some members of the family (children) drowned while crossing the river.

In the given case, the fault is not with the statistical method of calculating averages, but with the misuse of average. The Statistics has been be misused by the father as he has drawn wrong conclusions. So, it is rightly said "Statistical methods are no substitute for common sense".

## LIMITATIONS OF STATISTICS

- **Statistical results are true only on average:** Statistical results are true on an average as the results are affected by a large number of causes. In other words, statistical laws are not universally true. For example, if average marks of fifty students of class XI are 76, it does not mean that every student of the class has secured 76 marks.
- **Statistical laws are not exact:** As statistical laws are probabilistic in nature, inferences based on them are only approximate and not exact like inferences based on mathematical or scientific laws.



lady 105 yrs old  
India life expectancy 67 yrs old



## LIMITATIONS OF STATISTICS

- **Only Experts can make the Best Possible use of Statistics:** The techniques of Statistics are not so simple to be used by any layman. These techniques can only be used by the experts as they are complicated in nature.)
- **Statistical data should be uniform and homogeneous:** It is essential that data must be uniform and homogeneous. Heterogeneous data are not comparable. For example, it would be of no use to compare the heights of trees with the heights of men because these data are of heterogeneous nature.





## LIMITATIONS OF STATISTICS

- Statistics is only one of the methods of studying a problem: Statistical methods are only a means to understand any given problem rather than a method to solve any problem. There are other methods also for studying a problem. These methods should be used to supplement the conclusions derived with the help of statistics. So, it is rightly said that 'Statistics is only a means and not the end'.



## DISTRUST OF STATISTICS

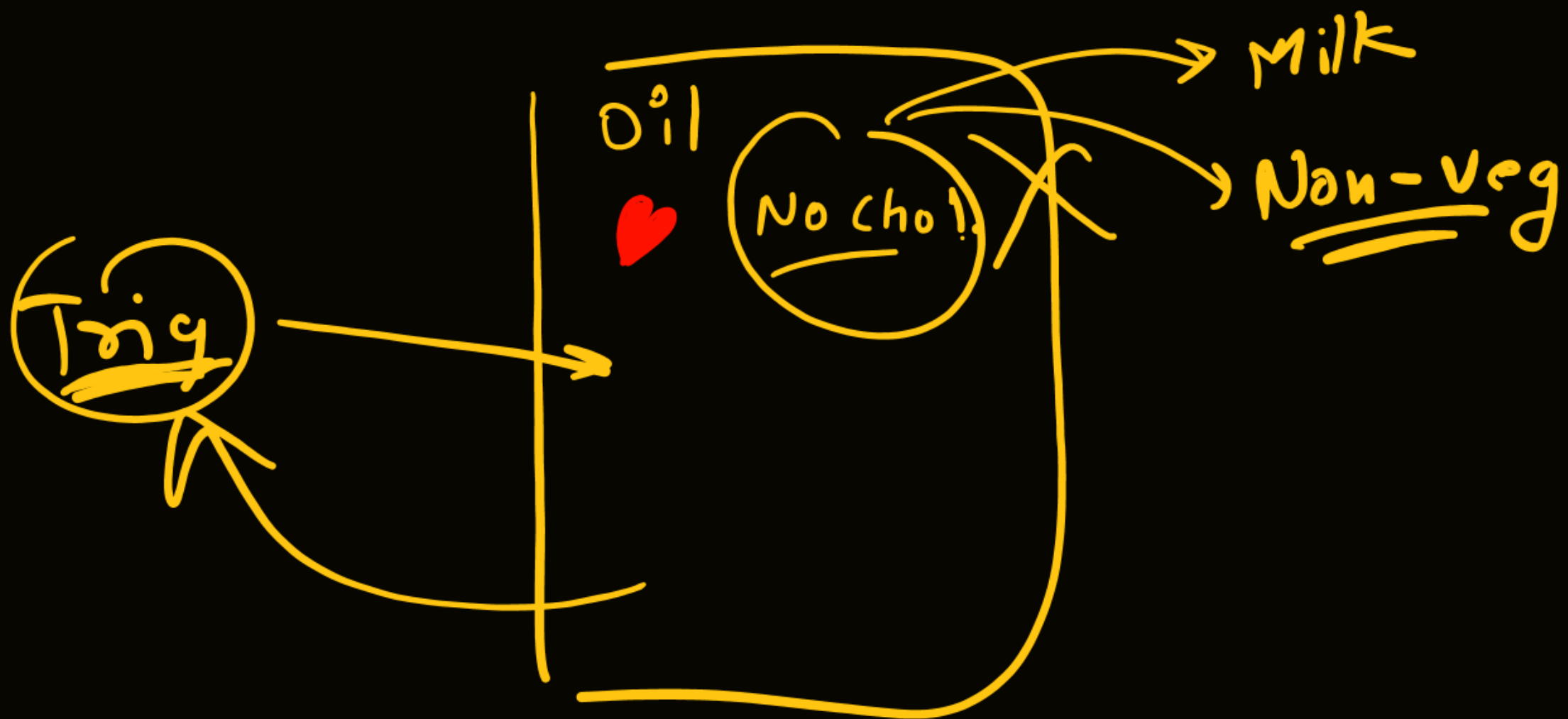
1 glass → Wine → Heart Health  
Research

Distrust of statistics means lack of confidence in statistical methods and statements.

- In spite of the services provided by statistics, considerable distrust exists in the minds of people with regard to its reliability and usefulness.
- The reason for this distrust is improper use of statistical tools by unscrupulous, irresponsible, inexperienced and dishonest persons.



Bharosa rakhiye purane khiladi hai





## DISTRUST OF STATISTICS

The 'Distrust of Statistics' refers to lack of confidence in the statistical methods and statements. Undoubtedly, statistical tools have yielded important results in almost every field of knowledge. Statistics does not prove or disprove a thing. It is merely a tool.

→ It is like a Gun

### Causes of Distrust

The distrust of statistics occurs due to following reasons:

- (i) Incomplete Knowledge of Statistical Methods;
- (ii) Unrealistic Assumptions;
- (iii) Deliberate Misuse of Statistics;
- (iv) Ignoring Limitations of Statistics;
- (v) Wrong Application of Statistical Methods.

## DISTRUST OF STATISTICS

### Removal of Distrust

To overcome the problems of distrust, following precautions should be taken:

- (i) Limitations of statistics should be kept in mind;
- (ii) Only Experts should make use of the statistics;
- (iii) Data should be used after a careful enquiry;
- (iv) Great care and caution should be exercised while using statistics;
- (v) The user should be impartial.

## DISTRUST OF STATISTICS

### Conclusion

From the above observations, it has become clear that fault does not lie with statistics. These techniques are innocent techniques which may be used for the betterment of the society. A knife may be used in cutting one's throat instead of cutting fruits and vegetables. Fault is not with knife but with a person who handles it. Similarly, if the statistician misuses data, then the fault purely lies on the statistician and not on the data.



## MCQ's

1. Economic problem arises due to:
  - a. Unlimited wants
  - b. Scarcity of resources
  - c. Alternative uses of resources
  - ☒ d. All of the above

## MCQ's

2. Choose the correct statement:

- ~~a.~~ According to Adam Smith, Economics is the science of wealth
- b. Scarcity Definition was given by Samuelson X
- c. Production is a non-economic activity
- d. In non-economic activities, there is an expectation of benefit

## MCQ's

**3.** Activities which are undertaken to earn a living are known as \_\_\_\_\_

- ☒ **a.** Economic Activities
- b.** Non-Economic Activities
- c.** Either (a) or (b)
- d.** Both (a) and (b)



## MCQ's

4. Welfare definition of Economics has been given by:

- a. Lionel Robbins  $\times \rightarrow$  Scarcity
- b. Adam Smith  $\times \rightarrow$  Wealth
- ☒ c. Alfred Marshall  $\rightarrow$  Welfare
- d. Prof. Samuelson  $\rightarrow$  Growth

## MCQ's

5. The law of scarcity:

- a. Does not apply to rich, developed countries
- b. Applies only to the less developed countries
- c. Implies that consumers want will be satisfied in a socialistic system
- ✓ d. Implies that consumer's wants will never be completely satisfied



## MCQ's

**6.** Which of the following is not a limitation of Statistics?

**a.** Statistics can be Misused

**b.** Statistics does not study qualitative phenomena

**c.** Statistical laws are not exact

☒ **d.** Statistics deals with aggregates of facts

## MCQ's

7. The word 'statistics' is used as:

- a. Singular ✓ → Method
- b. Plural → Numerical Information.
- ✓ c. Both (a) and (b)
- d. None of these



## MCQ's

8. The proper use of statistics can be made by:

a. Cheats ✗

b. Everyone ✗

c. Experts ✓

d. Common Man ✗

## MCQ's

**9.** Statistics as a singular noun means:

**a.** Statistical Data

~~**b.** Statistical Methods~~

**c.** Inductive Statistics

**d.** Descriptive Statistics

## MCQ's

**10.** Statistics is the science of analysing:

**a.** Qualitative data ✗

**b.** Quantitative data ✓

**c.** Any kind of data ✗

**d.** Both (a) and (b) ✓



## MCQ's

**11.** The statistics is concerned with:

- a.** Aggregate of organised facts ✓
- b.** Aggregate of disorganised facts ✗
- c.** Aggregate of useless facts ✗
- d.** Aggregate of unrelated facts ✗

## MCQ's

**12.** Statistics as a plural noun indicates:

- a.** Statistical Methods
- b.** Descriptive Statistics
- c.** Statistical Data ✓
- d.** Inductive Statistics

## MCQ's

**13.** Distrust of statistics is due to:

- a.** Misuse of statistics ✓
- b.** Insufficient statistical methods
- c.** Scope of statistics is limited
- d.** Limitations of statistics



## MCQ's

**14.** Statistics in singular sense includes:

- a.** Collection of data ✓
- b.** Organisation of data ✓
- c.** Presentation of data ✓
- d.** All of the above ✓

## MCQ's

**15.** Statistics is defined in terms of numerical data in the:

**a.** Singular Sense

**b.** Plural Sense

**c.** Either (a) or (b)

**d.** Both (a) and (b)

## MCQ's

**16.** The characteristics of statistics in plural sense are:

- a.** Aggregate of facts
- b.** Collected for a pre-determined purpose
- c.** Affected by multiplicity of causes
- ~~**d.** All of the above~~



## MCQ's

**17.** Statistics is used by:

- a.** Businessmen
- b.** Economists
- c.** Government
- d.** All of the above

## MCQ's

**18.** In singular sense, which of the following is not a characteristic of Statistics?

**a.** Collection of Data

**b.** Aggregate of facts

**c.** Analysis of Data

**d.** Interpretation of Data

# BYE KABOOTARS!!!



"Pehle mein bachha tha,  
Fir mene padhaai na kari,  
**AUR AB MEIN YE HUN**"

-Gillu badmosh

Stay connected,  
& Keep learning!!!

"TOGETHER WE CAN, WE WILL"



\*Bye cutiees\*



Chalo bhyiii,  
Cheptarr khatam!!!

Made by- KHUSHNUMA