



Relevance of Statistics in Social Research

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Introduction

- Statistics is a term used to summarize a process that an analyst uses to characterize a data set. If the data set depends on a sample of a larger population, then the analyst can develop interpretations about the population primarily based on the statistical outcomes from the sample. Statistical analysis involves the process of gathering and evaluating data and then summarizing the data into a mathematical form.
- Statistics is a mathematical science involving the collection, interpretation, measurement, enumerations or estimation analysis, and presentation of natural or social phenomena, through application of various tools and technique the raw data becomes meaningful and generates the information's for decision making purpose. It is the systematic arrangement of data and information exhibits their inner relation between the things. Statistics plays a vital role in every fields of human activity.

Definitions

- According to W. I. King “The science of statistics is the method of judging collective natural or social phenomena from the results obtained by the analysis of an enumeration or collection of estimates.”
- According to A. L. Bowley “Statistics are numerical statements of facts in any department of enquiry, placed in relation to each other.”
- According to A. L. Boddington “Statistics is the science of estimates and probabilities.”
- According to F. E. Croxton and D. J. Cowden “Statistics may be defined as a collection, presentation, analysis and interpretation of numerical data.”
- According to Horace Secrist “By statistics we mean aggregates of facts, affected to a marked extent by multiplicity of causes, numerically expressed, enumerated or estimated according to reasonable standard of accuracy, collected in a systematic manner for a predetermined purpose and placed in relation to each other.”

Types of Statistical Methods

- Two types of statistical methods are used in analyzing data:
 1. Descriptive Statistics
 2. Inferential statistics.
- Descriptive statistics are used to synopsise data from a sample exercising the mean or standard deviation.
- Inferential statistics are used when data is viewed as a subclass of a specific population.

Types of Statistics

- Statistics is a general, broad term, so it's natural that under that umbrella there exist a number of different models.
 1. A **mean** is the mathematical average of a group of two or more numerals. The mean for a specified set of numbers can be computed in multiple ways, including the arithmetic mean, which shows how well a specific commodity performs over time, and the geometric mean, which shows the performance results of an investor's portfolio invested in that same commodity over the same period.
 2. **Regression analysis** determines the extent to which specific factors such as interest rates, the price of a product or service, or particular industries or sectors influence the price fluctuations of an asset. This is depicted in the form of a straight line called linear regression.
 3. **Skewness** describes the degree a set of data varies from the standard distribution in a set of statistical data. Most data sets, including commodity returns and stock prices, have either positive skew, a curve skewed toward the left of the data average, or negative skew, a curve skewed toward the right of the data average.
 4. **Kurtosis** measures whether the data are light-tailed (less outlier-prone) or heavy-tailed (more outlier-prone) than the normal distribution. Data sets with high kurtosis have heavy tails, or outliers, which implies greater investment risk in the form of occasional wild returns. Data sets with low kurtosis have light tails, or lack of outliers, which implies lesser investment risk.
 5. **Variance** is a measurement of the span of numbers in a data set. The variance measures the distance each number in the set is from the mean. Variance can help determine the risk an investor might accept when buying an investment.

Sociological Importance of Statistics

1. Simplicity
2. Quantitative Form
3. Comparison
4. Correlation
5. Enlarging Individual knowledge and Experience
6. Guidance for Policy formulation
7. Predictions
8. Testing theories and Hypothesis
9. Helpful in Understanding Problems

Limitations of Statistics

1. Study of Aggregates
2. Statistical results are misleading without proper reference and context
3. Study of Quantitative aspects only
4. Homogeneous Data
5. Extent of Accuracy in results.
6. Misuse
7. Mean of Studying a problem.