

Sampling

Sampling is the process of selecting a subset of individuals or objects from a population for study. The purpose of sampling is to obtain information about the population while minimizing the cost and time involved in collecting data from the entire population.

There are two main types of sampling: probability sampling and non-probability sampling. Probability sampling involves selecting individuals from the population at random, ensuring that each individual has an equal chance of being selected.

Common probability sampling techniques include simple random sampling, stratified sampling, and cluster sampling. Non-probability sampling, on the other hand, involves selecting individuals from the population based on non-random criteria, such as convenience or judgement.

Sampling error is the difference between the sample statistic and the population parameter, and it is a result of random sampling variability. To minimize sampling error, it is important to have a large sample size and to use appropriate sampling techniques.

Regression Analysis

Regression analysis is a statistical technique used to study the relationship between a dependent variable and one or more independent variables. The dependent variable is the variable being predicted or explained, while the independent variable is the variable that is used to make the prediction.

There are two main types of regression analysis: simple linear regression and multiple linear regression. Simple linear regression involves a single independent variable, while multiple linear regression involves two or more independent variables.

The goal of regression analysis is to develop a model that can be used to predict the value of the dependent variable based on the values of the independent variables. The quality of the model can be assessed using the coefficient of determination, also known as R-squared, which measures the proportion of the variance in the dependent variable that is explained by the independent variables.