

Standard Error of the Mean

Sample statistics are a direct function of the sample collected. This means that if a different sample was collected, the sample statistics would change. However, we collect only one sample due to time and resources.

The variability associated with the sample mean, \bar{x} , is measured by the standard error. The standard error of our estimate is the standard deviation of the sample data divided by the square root of the total number of sampled data points.

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

Thus, the larger the sample, the closer we get to measuring all the data of the population, and the smaller the standard error will be. The smaller the standard error, the more precise our estimate, and the more confident we are that the sample mean is a good estimate of the population mean.

Statistics 1: Introduction to ANOVA, Regression, and Logistic Regression

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