

Using Simulations in Statistics

Estimator:

An estimator is a function that will estimate the value of a specific parameter.

Unbiased:

For an estimator to be unbiased, then the expected value of the parameter will equal the value of the estimator of the desired parameter.

Variation:

Variation, or variance, is a measure of how spread out a set of data is. The outcome of situations is not always the same, and so it is helpful to know how much it varies.

S^2 :

$$s^2 = \frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n - 1}$$

σ^2 :

$$\sigma^2 = \sum_{i=1}^n (X_i - \mu)^2 f(x)$$

(Where $f(x)$ is the probability function)

We want to get a handle on how much variation is in given situations. S^2 is our estimation of how much there is, while σ^2 is the theoretical variation out there.

Next time:

I will be taking this topic one step further by using simulation to compare two estimators for the same parameter.