6. Exercise: Estimates and estimators

Exercises due Apr 8, 2020 05:29 IST *Completed*

Exercise: Estimates and estimators

3/3 points (graded)

Valerie wants to find an estimator for an unknown random variable Θ. She can observe a random variable X whose distribution satisfies $\mathbf{E}\left[X^2 \mid \Theta\right] = \Theta$. She goes ahead and observes that X took a numerical value of 5. She then estimates Θ as the square of the observed value, namely, 25.

For each of the following questions, choose the most appropriate answer.

1) X^2 is an

Estimator ✔ **Answer:** Estimator

2) 25 is an

Estimate ✔ **Answer:** Estimate

3) $X^3 + 2$ is another (not necessarily good)

Estimator ✔ **Answer:** Estimator

Solution:

In the first and the third cases, we have a random variable $g\left(X\right)$, which is determined as a function of the observation X. Such a random variable is called an estimator.

In the second case, we are dealing with the realized numerical value of an estimator, which we call an estimate.

Submit You have used 1 of 1 attempt

Answers are displayed within the problem

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? 6 - Exercise : Estimates & Estimators 1
It is mentioned that estimates Θ is the square of the observed value, namely, 25 . But, the equation is Ex...

? Why E[X^2|Theta] in this problem? 2

Why isn't E[X^2 | \Theta] the estimator? 3
According to the lecture definition, an estimator is a random variable that is a function of the data X, i.e. ...