More on Criteria for Assessing Estimators - Quiz

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Question 1

1/1 point (graded)

True or False: To prove an estimator is unbiased, you need to know the value of the parameter it is trying to estimate.

- a. True
- b. False ✔

Explanation

You can prove an estimator to be unbiased through a mathematical proof, without knowing the underlying value of the parameter. In Segment 4 of this lecture, Professor Ellison mathematically proved that the sample mean is an unbiased estimate of the mean.

Submit You have used 1 of 1 attempts

✔ Correct (1/1 point)

Question 2

1 point possible (graded)

For the example distribution in lecture, which of the following methods would result in an unbiased estimate of θ?

- [ ] a. Compute the median of the sample and multiply by 2 ✔
- [x] b. Compute the maximum (nth order statistic) of the sample
- [ ] c. Have R generate a random value from the underlying distribution.
- [x] d. Compute the sample mean and multiply by 2 ✔

✖

Explanation

The expected value of the sample mean and the sample median will be $\frac{\theta}{2}$. Multiplying that by 2 gives us an expected value of θ. Having R generate a random value from the underlying distribution would have an expected value of only $\frac{\theta}{2}$. Computing the maximum (n^{th} order statistic of the sample) would have an expected value of less than θ. The n^{th} order statistic will always be less than or equal to θ, so it will be a downwardly biased estimate of θ.

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✖ Incorrect (0/1 point)

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