3. Exercise: LMS and LLMS

Exercises due Apr 15, 2020 05:29 IST *Completed*

Exercise: LMS and LLMS

2/2 points (graded)

Suppose that the random variables Θ and X are not independent, but $\mathbf{E}\left[\Theta \mid X = x\right] = 3$ for all x. Then the LLMS estimator of Θ based on X is of the form $aX + b$, with

$a =$ 0 ✔ **Answer:** 0

$b =$ 3 ✔ **Answer:** 3

Solution:

The LMS estimator of Θ based on X is of the form $\mathbf{E}\left[\Theta \mid X\right] = 3$. This is already linear in X (with $a = 0$ and $b = 3$), and therefore it is also the LLMS estimator.

Submit You have used 1 of 3 attempts

Answers are displayed within the problem

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Dependence

? The statement : 'Suppose that the random variables Θ and X are not independent ' is natural in the Infer... 1

where to start?
The last video seemed to be a very general intro. Now suddenly expected to calculate. Not even sure wh... 8

? Dependence of Theta and X
I'm having trouble understanding how the estimator of theta can be independent of X but the r.v. theta i... 2