

MITx: 14.310x Data Analysis for Social Scientists

Heli



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Comparative Statics - Quiz

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Question 1

1/1 point (graded)

If the error variance (σ^2) of our estimates is larger, we can estimate the linear relationship between Y and X more precisely.

- a. True
- b. False

Explanation

A higher error variance means that the variance of our $\hat{\beta}$ s is higher, meaning that we should be less sure of our estimates. This means we should have less confidence in our ability to estimate the linear relationship precisely.

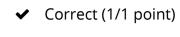
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- Module 5: Moments of a Random Variable,
 Applications to Auctions,
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- Module 6: Special
 Distributions, the
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- Module 7: Assessing and Deriving Estimators - Confidence Intervals, and Hypothesis Testing
- Module 8: Causality,
 Analyzing Randomized
 Experiments, &
 Nonparametric
 Regression
- Module 9: Single and Multivariate Linear Models

The Linear Model

due Nov 28, 2016 05:00 IST



Question 2

1/1 point (graded)

Greater variance in $X(\sigma_x^2)$ means greater variance in our estimates $\hat{\beta}$.

a. True

b. False

Explanation

As the variance in X decreases, the variance in our estimates increases because we don't have a lot of variation in X to identify the effect we are interested in. Remember that the limit (when there is no variance in X), we cannot estimate the linear regression coefficients $\hat{\beta}$ at all.

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✓ Correct (1/1 point)

Question 3

1/1 point (graded)

The Multivariate Linear Model

due Nov 28, 2016 05:00 IST

Module 9: Homework due Nov 21, 2016 05:00 IST

- Module 10: Practical
 Issues in Running
 Regressions, and
 Omitted Variable Bias
- Exit Survey

Professor Ellison discusses a mechanical relationship between the two estimates β_0 and β_1 . Which of the following is true about the relationship between \bar{X} , estimates of β_0 and β_1 ?

- lacksquare a. If $ar{X}>0$, an overestimate of $\hat{eta_0}$ will likely lead to an overestimate of $\hat{eta_1}$.
- $^{f arphi}$ b. If ar X>0, an underestimate of \hateta_0 will likely lead to an overestimate of \hateta_1 .
- $^{\square}$ c. If $ar{X}>0$, an underestimate of $\hat{eta_0}$ will likely lead to an underestimate of $\hat{eta_1}$.
- ullet d. If $ar{X}>0$, an overestimate of \hat{eta}_0 will likely lead to an underestimate of \hat{eta}_1 .



Explanation

We know that $\hat{\beta}_0$ and $\hat{\beta}_1$ are related as follows: $\hat{\beta}_0 = \overline{Y} - \hat{\beta}_1 \overline{X}$. Therefore, if we overestimate or underestimate the intercept β_0 , then the slope β_1 will have to make up for it (by doing the opposite).

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Correct (1/1 point)

Discussion

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Topic: Module 9 / Comparative Statics - Quiz

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