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The Omitted Variable Bias Formula - Quiz

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Question 1

1/1 point (graded)

The omitted variable bias depends on: (Select all that apply)

- [x] a. The relationship between the omitted vatriable and the treatment variable.
- [ ] b. The variance of the dependent variable.
- [x] c. The relationship between the omitted variable and the outcome variable.
- [ ] d. The variance of the independent variable.

✔

Explanation

On the one hand, if we omit a variable that really doesn't matter (in the sense that it doesn't affect the outcome) then it shouldn't matter. Also, if the variable that we omit is totally uncorrelated with what the regressors, then it also doesn't matter. But if it is highly correlated with your regressors, if you omit it, the effect we estimate will pool the effect of the omitted variable. The formula for the omitted

variable bias is the product of the coefficient of the omitted variable in a regression of the omitted variable on the set of included variables (the effect of the of the omitted on the included) and the coefficient on the omitted variable in the true model.

In other words,
$$\mathbf{OVB = Effect\ of\ the\ omitted\ variable\ on\ the\ included\ variables * Effect\ of\ omitted\ in\ "long"\ (true)\ model}$$

The OVB formula is a mathematical result that explains differences between regression coefficients in a model where the variable is omitted, and a model including the omitted variable. It says nothing about variance in both models, since it is only a function of the point estimates.

Submit You have used 1 of 2 attempts

✔ Correct (1/1 point)

Question 2

0/1 point (graded)

True, false or uncertain: Omitting an explanatory variable from a regression leads to bias only if its true coefficient in the regression is nonzero or it is correlated with included explanatory variables.

- a. True ✖
- b. False

c. Uncertain

Explanation
The true coefficient in the regression must be nonzero AND it must be correlated with included explanatory variables.

Submit You have used 1 of 1 attempt

✖ Incorrect (0/1 point)

Discussion
Topic: Module 10 / The Omitted Variable Bias Formula - Quiz

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