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## Two Stage Least Squares, cont. - Quiz

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### Question 1

1/1 point (graded)

True, false or uncertain: One can use the same instrument for two different endogenous explanatory variables in the same regression.

☐ a. True

☒ b. False ✓

☐ c. Uncertain

### Explanation

You must have at least as many instruments as you have endogenous explanatory variables (this is referred to as the "rank condition.")

## Functions of Random Variable

- ▶ Module 5: Moments of a Random Variable, Applications to Auctions, & Intro to Regression
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- ▶ Module 9: Single and Multivariate Linear

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You have used 1 of 1 attempt

✓ Correct (1/1 point)

### Question 2

1/1 point (graded)

Performing two stage least squares in two steps rather than one will: (Select all that apply)

- ☒ a. Give the correct point estimates
- ☐ b. Give the correct standard errors
- ☐ c. Give the incorrect point estimates
- ☒ d. Give the incorrect standard errors



### Explanation

The point estimates will be correct because the calculations are the same, but the standard errors will be incorrect because running the second step separately ignores the additional error from estimating the first stage rather than using the observed values.


## Models

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


- ▶ Module 11: Intro to Machine Learning and Data Visualization

- ▼ Module 12: Endogeneity, Instrumental Variables, and Experimental Design

### Endogeneity and Instrumental Variables

Finger Exercises due Dec 14, 2016  
05:00 IST 

### Experimental Design

Finger Exercises due Dec 14, 2016  
05:00 IST 

### Module 12: Homework

Homework due Dec 12, 2016  
05:00 IST 

- ▶ Exit Survey

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✓ Correct (1/1 point)

### Question 3

1/1 point (graded)

Which of the following represents the 2SLS estimator that is equivalent to your Wald estimator if your instrument is binary?

- ☐ a. The ratio of the coefficients on your explanatory variable in the first stage divided by the coefficient on your explanatory variable in the second stage.
- ☐ b. The ratio of the coefficients on your explanatory variable in the second stage divided by the coefficient on your explanatory variable in the first stage.
- ☒ c. The coefficient on the “fitted” explanatory variable in the second stage. ✓
- ☐ d. The coefficient on your explanatory variable in the first stage.

### Explanation

If your instrument is binary, then as you saw, your Wald estimator is given by:

Reduced Form coefficient on instrumental variable  
First stage coefficient on instrumental variable

Your 2SLS estimator is just the coefficient on the “fitted” explanatory variable in the second stage. Refer to the slides to see this equivalence mathematically.

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✓ Correct (1/1 point)

## Discussion

**Topic:** Module 12 / Two Stage Least Squares, cont. - Quiz

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### [staff] question 3

question posted 3 days ago by Solene\_De

Could you please explain how the answer would differ if the instrument was non binary?



This post is visible to everyone.

**Roman-Andres-Zarate** Staff



2 days ago - marked as answer 2 days ago by **Solene\_De**



The answer would not differ if the answer is not binary. It is still true that the answer will correspond to the 2SLS.

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