

MITx: 14.310x Data Analysis for Social Scientists

Help



- Module 1: The Basics of R and Introduction to the Course
- Entrance Survey
- Module 2:

 Fundamentals of
 Probability, Random

 Variables, Distributions, and Joint Distributions
- Module 3: Gathering and Collecting Data, Ethics, and Kernel Density Estimates
- Module 4: Joint, Marginal, and Conditional Distributions &

Module 12: Endogeneity, Instrumental Variables, and Experimental Design > Experimental Design > Two Stage Least Squares, cont. - Quiz

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.")

<u>Functions of Random</u> Variable

- Module 5: Moments of a Random Variable,
 Applications to
 Auctions, & Intro to
 Regression
- Module 6: Special
 Distributions, the
 Sample Mean, the
 Central Limit Theorem,
 and Estimation
- 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

Submit

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

Submit

You have used 1 of 2 attempts

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:

$\frac{ \textbf{Reduced Form coefficient on instrumental variable} }{ \textbf{First stage coefficient on instrumental variable} }$

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.

Submit You have used 2 of 2 attempts

✓ Correct (1/1 point)

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

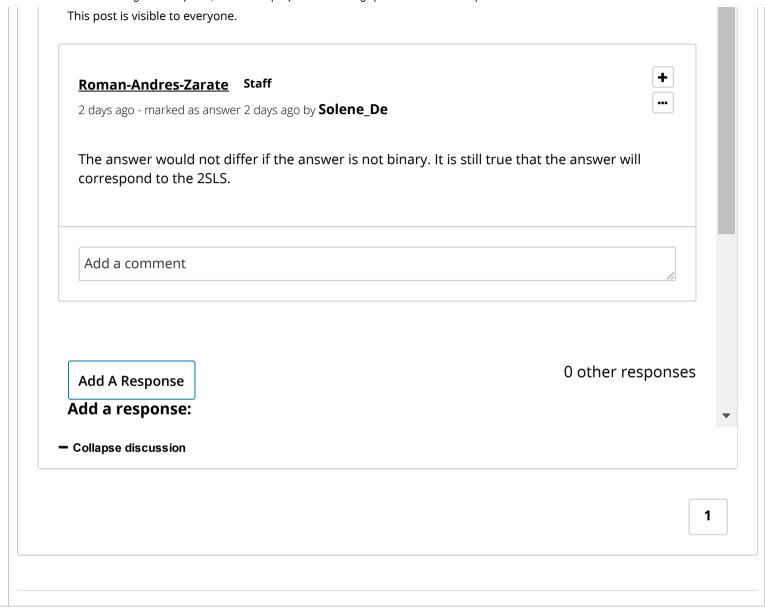
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[staff] question 3

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

non binary?

question posted 3 days ago by Solene_De



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