

Economics 488 Fall 2020 Midterm Exam

Directions

Feel free to use any notes, books, or classroom materials to answer the questions in the exam. You may also look on the internet. You may not, however, discuss material or solicit or accept help from any human in any manner during the exam period. Your exam must be turned via learning suite prior to the start of class on Wednesday, Oct 14. I may clarify vague wording in questions but will otherwise not provide assistance with the exam. Please follow the word limit for each question. If you exceed the word limit, we will stop grading your question at the limit.

Reading Questions (70 words each)

RCTS

1. What is statistical power? If you're designing an RCT what are two ways that you can increase power?

"The Role of Application Assistance and Information in College Decisions: Results from the H&R Block FAFSA Experiment"

2. What is the author's first stage? What would be the IV if they did it (they don't, but they could have. Also there are several possible outcomes, you can pick one).

Regression

3. In the example of Dale and Krueger (discussed in Mastering Metrics), they control for indicators for the selectivity of colleges that students applied to. What kind of omitted variable bias problem does this solve? What is an example of an omitted variable that it does not address. (The regressor of interest is an indicator on private college attendance)

Improving College Performance and Retention the Easy Way: Unpacking the ACT Exam

4. Tell an omitted variables story that is consistent with the authors results but that suggests no causal relationship between ACT performance and success in college

Rubin Causal Model

5. Using notation from the potential outcomes framework, what outcome do you observe for Always Takers, Compliers, Never Takers, Defiers. Note: you can use a variety of notations we have used, but be clear about what you mean.

Instrumental Variables

6. You're interested in the effect of military service on earnings later in life. You use the Vietnam draft lottery numbers (which are based on birthday) as an instrument for military service. State the four assumptions you would need for a LATE.

The Signaling Value of a High School Diploma

7. What is identified in this paper? Be specific. How does the estimated effect on GEDs affect the authors' preferred interpretation

"Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size"

8. Discuss the Pros and Cons of this study. Topics could include identifying assumptions and external validity

Hypothetical Questions (150 words)

1. Let's say you're interested in the effect of longer jail sentences. In some areas your score on an index (which includes many factors such as prior offenses, etc). For this problem, assume that criminals cannot predict/manipulate their index score. If a score is above a threshold judges are supposed to sentence a criminal to 3 years of prison, if it's below they are supposed to sentence to 2 years. However, judges can deviate from this rule if they view the case to merit it. Is this a fuzzy or sharp RD? What would the reduced form tell you? What would the IV tell you? Which is more interesting?
2. Every person admitted to BYU is assigned a random number from 0 to 1. People with a number below .6 are given the Jeff Denning scholarship. What are two ways to identify the effect of the Jeff Denning scholarship?
3. You have data from a middle school Physical Education Class. In this class, if you do 5 pull ups, you get a trophy. If you ran an RD and were interested in the treatment of a trophy on student confidence, would you recover the causal effect? Why or why not? (Hint: discuss the identifying assumption and its tests for RD)
4. You run an RCT where you assign certain schools to have teachers receive training on best practices for teaching. However, after the RCT is run, all schools in the treatment group provide you outcome data but only 60% of schools in the control group do. If you run your analysis on this data are you likely to get unbiased estimates of the effect of the training? Explain.
5. Suppose you're interested in the effect of Chapter 13 bankruptcy vs. Chapter 7 on owning a home in 10 years (don't worry about the policy details of the types of bankruptcy). What is Y? What is D (you need to make a choice here, not one right answer)? Let's say your instrument is how often your lawyer files 13s for all other cases they handle. State the identifying assumptions in this case.

Reading (70 words each)

The following questions refer to "Nudging at Scale: Experimental Evidence from FAFSA Completion Campaigns". This is available at this [link](#)

- A. This paper has many treatment arms and samples. What is one advantage of doing this? How does this respond to previous, similar studies who found positive effects?

- B. The authors do not observe FAFSA completion for individual students. If they did what would be a good IV strategy. List Y, D, and Z. Further discuss the assumptions for an IV. (Can be 150 words, doesn't need to be)
- C. Are the results of Tables 4 and 5 surprising? Why are they presented?
- D. In Table 9, there are 3 coefficients that are statistically significant at the 10% level. Why don't the authors emphasize these (apparently) statistically significant results? Give both an economic reason and a statistical reason.