

Final Project Part One: Understanding the Design

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Purpose: In order to assist in time managing your final project, I have broken it into three parts. The first part is about understanding the paper assigned, *Examining Medicaid Expansion and the Treatment of Substance Use Disorder* (Grooms & Ortega, 2019) which we will henceforth call GO19.

In order to understand the paper, you have to understand the design of the model they are using – Difference in Differences (DiD). I have provided you with several resources to facilitate your understanding of the design.

Reflect on the following questions about DiD design and the paper you were to read. **You should turn in your written responses as either a .pdf or a Word document.**

Your Understanding of Difference in Differences

1. In more than five sentences, set up the problem that DiD addresses. In particular, comment on the exogeneity assumption – defining it and explaining why it is sometimes hard to assume – and how it may affect our OLS coefficients.
2. In 3-5 sentences, explain how the DiD design addresses the exogeneity problem set up in your first answer.
3. True or False: Does the DiD design address *time-varying* bias/endogeneity?
4. Suppose you have run the following specification:

$$Y_{it} = \beta_0 + \beta_1 Treated_i + \beta_2 Post_t + \beta_3 Treated_i \times Post_t + \epsilon_{it}$$

In 1-2 sentences each, explain/interpret the coefficients $\beta_0, \beta_1, \beta_2, \beta_3$.

5. For the four categories, write the combination of coefficients corresponding. I filled in the first for you so you understand how they should be written:
 - (a) Control Group, Pre: β_0
 - (b) Control Group, Post:
 - (c) Treated Group, Pre:

- (d) Treated Group, Post:
6. Interpret in 1-3 sentences β_3 , the DiD coefficient of interest. What does it tell us?
 7. In 3-5 sentences, explain to a layman (pretend it is your parent or a someone who has no knowledge of econometrics/regression) what a design like DiD does. What is the comparison being made? Why do we need to make it?
 8. In 3-5 sentences, propose your own idea for a DiD study. Then, search the interwebs to see if someone has written that paper already. If they have, read the abstract and write the name of the article. If the paper has not been written, write a reason why you think it might not be (do we have the right data? do we have a good quasi-experiment to test it on?)

Your Understanding of The Paper

First, off **CONGRATULATIONS!** You have read your first economics paper. It is *not* easy, but you have taken the first step.

The following questions should help facilitate your understanding of the article in the context of both the question they are answering and the causal design/claims they make. I will split this into sets of questions by section/paragraph.

1. Based on the *first paragraph*, write 2-3 sentences about what the author is conveying that we should care about¹.
2. What does the second paragraph say about how the passing of the ACA might affect the problem identified in the first paragraph (3-5 sentences).
3. Based on the last paragraph of the introduction, what is the question they hope to answer? What area of literature do they add/contribute to?
4. Based on your reading of part (I), what is the difference between research on the impact of the ACA on *admissions* to treatment, compared to what the authors are doing?
5. In 1-2 sentences, what do the authors state *has* and *has not* been discussed in the literature?²
6. Where does their main data come from?
7. What years of data are they using? How many years before and after the policy do they have, in this case?
8. Based on paragraph two, what is the comparison they are making? (1-2 sentences)

¹We typically call this the “motivation” of the article.

²i.e. It might help to frame your answer as: “Prior work has established X, but we do not yet know about Y. Their work fills that role by...”

9. In 3-5 sentences, why is a control necessary? In other words, why can I not just do a simple before and after comparison of expansion states?
10. Based on Figure I, write 3-5 sentences comparing admissions for people with differing insurance statuses. What did the ACA do for substance use treatment admissions?
11. Think of admissions as a quantity outcome; in earlier economics courses, you learned that quantity is an equilibrium outcome resulting from the intersection of supply and demand. You also understood that changes in either supply or demand can shift quantity and price. In 3-5 sentences, explain how this research connects to that theory, and what the authors claim is driving the change in admissions seen in Figure 1.
12. Do the authors find that the number of facilities in expansion states increased, decreased or remained the same? In 2-3 sentences, cite possible reasons why these results may be. (Hint: starting in paragraph three of the Results section, the authors start to provide reasons for their results).