**Applied Econometrics Take Home Final Exam**

For each of the identification methods we covered in this course, complete the following. Note that for each method you will answer e OR f, but not both. This final part depends on your research paper so you should wait to work on this part until the end of the semester. Every other part can be completed as we cover the material in class. I’ve completed #1 for you to show you an example of what I’m looking for your answers to look like.

This is an individual assignment. Collaboration is not allowed. I strongly suggest not looking for answers on the internet or from AI. I will be looking for answers based on my class. Please reach out to me if you need help instead of cheating.

Grading for each identification strategy:

Parts a-d are worth 2 points each.

Part e/f is worth 6 points.

1. Randomized Controlled Trials
   1. Explain to my mom the basic idea behind this identification strategy.

**If we *randomly* assign a treatment to some people and not others, then any difference in their outcomes has to be a result of the treatment, and not any other factor.**

* 1. What are the requirements to use this method to identify causal effects?

**Money, IRB approval, time, treatment needs to be feasible to randomly assign to people**

* 1. What are the advantages of using this identification method?

**It provides a very clean identification of causal effects.**

* 1. What are the limitations of using this method?

**It has a lot of requirements. These requirements are especially hard to meet for economic topics. Additionally, it’s not always clear how generalizable the results are to situations outside of the experiment.**

* 1. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do.

**Example if my topic was related to obesity and health:**

**Carrell, Hoekstra, and West (2011) randomly assigns people to different potential friend groups. They find that people randomly assigned to less fit friends end up being less fit as a result. {** [**https://doi.org/10.1016/j.jpubeco.2010.12.005**](https://doi.org/10.1016/j.jpubeco.2010.12.005) **}**

* 1. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.

**Example if my topic was related to the effect of oil discovery in Ghana on the country’s development:**

**It is impossible to randomly assign oil discovery to some countries.**

***(Answers for this part will vary based on the topic of your paper and the identification strategy you are writing an answer for. Please don’t hesitate to contact me if you have questions about whether or not your answer is on the right track.)***

1. “Extremely Good” Natural Experiments
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do.
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.
2. Controlling for Observables
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do. Do you believe that this paper meets the requirements to use this method to identify causal effects?
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.
3. Instrumental Variables
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do. Do you believe that this paper meets the requirements to use this method to identify causal effects?
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.
4. Regression Discontinuity Designs
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do. Do you believe that this paper meets the requirements to use this method to identify causal effects?
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.
5. Fixed Effects
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do. Do you believe that this paper meets the requirements to use this method to identify causal effects?
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.
6. Difference in Differences
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do. Do you believe that this paper meets the requirements to use this method to identify causal effects?
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.
7. Matching
   1. Explain to my mom the basic idea behind this identification strategy.
   2. What are the requirements to use this method to identify causal effects?
   3. What are the advantages of using this identification method?
   4. What are the limitations of using this method?
   5. Look through the papers in your literature review of your research paper. Which ones use this identification strategy? Briefly explain how they use this identification strategy if any do. Do you believe that this paper meets the requirements to use this method to identify causal effects?
   6. If none of the papers in your literature review of your research paper used this identification strategy, why do you think they did not? Be specific about what likely prevented any researchers working on similar topics from utilizing this strategy.