

Problem Set 1: Replicating Card and Krueger's Minimum Wage Experiment

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1 Introduction

The point of this problem set is to take what we've learned about identifying treatment effects and do some empirical work of our own. The data comes from the minimum wage experiment in Card and Krueger (1994), and in particular contains their surveys. There is a CSV file called `check.csv` with the data as well as the codebook codebook on my webpage.

The standard for doing empirical work here and in the future is the following:

- Comment your code in STATA so that it is clear what you are doing. This also helps when you need to get back into a project after it spends a year or so at a journal in the future. I've attached a section of code to give you an idea of what I believe to be well commented code (`ChoicePanel_10.do`). Your code should be sent in an email along with the writeup of the answers.
- Tables of means of the data, with all the variables labelled. You may want to investigate the STATA modules for generating nicely formatted tables (`sutext` for means and `estout` for regression results).
- The results should be in well formatted tables, basically look up the American Economic Review and try to use these as a template for your results. In particular, I should be able to take a look at an individual table and know exactly what's being done in your results without reading anything else you've done. Remember, bad tables are hard to interpret, and this will make it hard for you to understand your results.
- I want an introduction and a description of which regressions you are running and what are the assumptions for identification.
- Discuss the results in your tables. If you don't discuss a result, then it is usually a good idea to drop that column or row from the table.
- Look up the tools for automatically producing tables at <http://www.ats.ucla.edu/stat/stata/latex/default.htm> in LATEX.

2 Questions

1. Write down the model that generates hiring decisions based on the wage rate w_i , and a price for output p that may be state specific. You may need to revisit your intermediary micro notes to do this or look at example 5.C.1 on page 136 in MWG's Microeconomics. What is the implied model of how a minimum wage will affect hiring choices?
2. Summary Statistics for before and after the change for New Jersey and Pennsylvania. What are the relevant variables that need to be analyzed given the model you've written up in (1)?¹
3. Kernel Density of Wages (look up `kdensity` in STATA) in New Jersey and Pennsylvania before and after the change in the law, the kernel density of Employment and Employment Changes in New Jersey and Pennsylvania.
4. Diff in Diff Results on the effect of the minimum wage on employment (both change in employment and change in log employment). Don't do the gap measure, just the effect of the law in New Jersey.
5. What is the estimated elasticity of employment with respect to the minimum wage? What is the confidence interval on this elasticity? Is the effect economically significant or not?
6. Suppose that we believe the assumption of ignorable treatment. What does this imply for the groups we can use to look at the effect of minimum wage on employment at fast food restaurants? Run this empirical exercise.
7. Suppose that we believe that the minimum wage law only binds certain firms, i.e. those that don't hire above the minimum wage. What groups can we use to test the effect of the minimum wage? Run this empirical exercise.
8. Now estimate the effect of law in New Jersey using difference in difference matching (you can look up **nnmatch** in state for more information). The dependent variable will be change in employment.
 - (a) Using employment as a matching variable.
 - (b) Using employment and chain as matching variables (chain should be an exact match).
 - (c) Using wage and employment as matching variable.

¹You don't need to put all the variables in the summary stats, just the ones you are going to discuss).