

BSE · Policy Evaluation · 2024/25

Assignment 8 (due December 2nd)

This assignment covers the topic of difference-in-differences estimation.

Instructions:

- Assignment is due December 2nd, 11:59pm. No late assignments accepted.
 - You can choose groups with up to 3 people for the assignment. Properly identify team members at the top of page 1.
 - Each group should submit a **zipped folder** with:
 1. A PDF document with the analytical/discussion parts of the solution as well as all Figures/Tables required.
 2. A README file, with instructions on how to run your code and where to locate the required outputs (Figures/Tables).
 3. The code, which should run without any errors.
 - Please email the zipped folder to **lucia.sauer@bse.eu**, cc'ing your teammates. Only one email per team! As subject, please write **Assignment 8**.
 - Original team work is expected (i.e., no identical answers across teams!).
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1 Difference-in-Differences

In the following exercise you will replicate some parts of [Card and Krueger \(1994\)](#). This paper studies the effect of a minimum wage increase in New Jersey using a simple diff-in-diff strategy. In February 1992, NJ changed the state minimum wage from \$4.25 to \$5.05, whereas Pennsylvania's minimum wage stayed at \$4.25. The authors surveyed approximately 400 fast food restaurants both in NJ and PA before and after the minimum wage increase in NJ.

The minimum wage debate has a long tradition: under a streamlined model with perfect competition in factor and product markets, a higher minimum wage leads to lower employment. But, there are many reasons as to why this might not hold in the data: product market power, labor market power, social norms, etc.

Data

The file *assignment8.dta* contains the data used by Card and Krueger (1994). Each row is an observation, meaning that there are two rows (one pre and one post) for each firm in the sample. For details about the data see Appendix A.

1.1

Replicate Figure 1 in the paper and comment.

1.2

Estimate the following model as in the paper:

$$\Delta E_i = \alpha_0 + \beta \mathbf{X}_i + \gamma N J_i + \epsilon_i$$

Comment on the results: what was the impact of the policy on employment?

1.3

Investigate whether the price of a full meal was affected by the policy. That is, estimate

$$\Delta P_i = \alpha_0 + \beta \mathbf{X}_i + \gamma N J_i + \epsilon_i$$

and comment. Does your finding support the idea of product market power driving the results?

Note: a full meal is an entree, medium soda and small fries all together.

References

David Card and Alan B Krueger. American economic association. *The American Economic Review*, 84(4):772–793, 1994.

Appendix A

File *assignment8.dta* contains data used in [Card and Krueger \(1994\)](#). The list of variables is:

- store: unique store id.
- chain: 1=Burger King, 2=KFC, 3=Roys, 4=Wendys.
- co-owned: 1 if company owned (else 0).
- state: 1 if New Jersey; 0 if Pennsylvania.
- southj: 1 if in south NJ.
- centralj: 1 if in central NJ.
- northj: 1 if in northern NJ.
- pa1: 1 if in PA, northeast suburbs of Philadelphia.
- pa2: 1 if in PA, otherwise.
- shore: 1 if on NJ shore.
- ncalls: Number of call-backs (0 if contacted on first call)
- empft: Number FT employees.
- emppt: Number PT employees.
- nmgrs: Number managers/assistant managers.
- wage_st: Starting wage (dollars per hour).
- inctime: Months to usual first raise.
- firstinc: Usual amount of first raise (dollars/hour)
- meals: Free/reduced price code.
- open: Hour of opening.
- hoursopen: Number hours open per day.
- pricesoda: Price of medium soda, including tax
- pricefry: Price of small fries, including tax
- pricecentree: Price of entrée, including tax

- nregisters: Number of cash registers in store
- nregisters11: Number of registers open at 11am
- time: 0 if first survey wave, 1 if second survey.