

Spring 2020

Empirical Analysis of Economic Policy and Program Effects (ECON 466)

Instructor:

Myoung-jae Lee

E-mail: myoungjae@korea.ac.kr

Office: Political Science & Economics Building 418.

Goal:

The goal is to cover econometric methods to evaluate economic policy and public program effects, and apply the methods to real data. Viewed more broadly, this course is for causality analysis where the cause can be an economic policy, education program and medicine, and their effects on economy, test score and health are of interest. In the course, the students will learn how to estimate those effects with data.

This is not an economic theory course; rather, this is a course where the students actually estimate those effects and interpret them. The detailed topics are listed below, among which only the topics suitable for undergraduate students will be covered. Through this course, the students will realize that economics and econometrics are actually “useful” for real economic questions.

Textbook and Software

The textbook is “Lee, M.J., 2016, Matching, regression discontinuity, difference in differences, and beyond, Oxford University Press”. However, since some lecture notes will be provided free of charge, you may be able to get by without purchasing the book. A software named “GAUSS” will be provided also free of charge to be used throughout the course.

Prerequisites:

The students are required to have passed an undergraduate econometrics (or an equivalent statistics) course *with B or higher*, and some knowledge on matrix algebra is also required.

Evaluation:

Participation and attendance random checks (10%);

Two or three data analysis homeworks (each with 10%; in total, 20-30%);

One exam near the semester end (40% if 3 HW's, and 50% if 2 HW's);

Final data analysis project and its presentation (20%);

Missing more than 4 regular lectures will result in a F without exception.

Remarks

1. *The course will be taught in Korean, not in English.*
2. Occasionally, there will be an extra class on Saturday, particularly during the first half of the semester. You should be able to attend these classes, just as you attend the regular classes.
3. The data sets for the HW's will be provided. Each student should find a data set for his/her final project. The final project, in which any software/program can be used, should be presented in class. No joint work for the final project will be allowed.
4. It is essential to make independent efforts for each HW and the final project. Plagiarizing other students' works or allowing other students to copy your own work will result in a failing grade for both parties.
5. No late submissions will be given the full credit, no matter how closely they are late. If submitted within 24 hours after the deadline, then 50% of the full credit will be given at maximum. All submissions later than 24 hours will be given zero credit.

Chapter 1: Basics of Treatment Effect Analysis

- 1.1 Counter-Factual, Intervention and Causal Relation
- 1.2 Various Treatment Effects and No Effects
- 1.3 Group-Mean Difference and Randomization
- 1.4 Overt Bias, Hidden Bias and Selection Problems
- 1.5 Estimation with Group Mean Difference and LSE
- 1.6 Structural Form, Assignment, and Marginal Models
- 1.7 Simpson's Paradox and False Covariate Control

Chapter 2: Matching

- 2.1 Basics of Matching and Various Effects
- 2.2 Implementing Matching
- 2.3 Propensity Score Matching

Chapter 3: Non-Matching and Sample Selection

- 3.1 Weighting
- 3.2 Regression Imputation
- 3.3 Complete Pairing with Double Sum

Chapter 4: Regression Discontinuity (RD)

- 4.1 Introducing RD with Before-After (BA)
- 4.2 RD Identification and Features
- 4.3 RD Estimators
- 4.4 Specification Tests

Chapter 5: Difference in Differences (DD)

- 5.1 DD Basics
- 5.2 DD with Repeated Cross-Sections

Chapter 6: Triple Difference (TD) and Beyond

- 6.1 TD Basics and More
- 6.2 TD with Repeated Cross-Sections