ECO 3450H1F
Methods for Empirical Microeconomics

University of Toronto

Department of Economics
Fall 2021

Course Description

This course is directed at graduate students conducting research in the applied micro fields, especially (but not exclusively) labour, development, and public economics. While it has a labour course number, this is not purely a labour economics course: it is a course in empirical and applied econometrics. The tools covered in the course, however are central to those used in empirical labour economics, as well as other applied microeconomics fields like development and public economics. The focus will be on the identification of casual relationships using regression-based analysis. Empirical examples will be drawn from recent work in labour economics.

Instructor

Instructor: Carolina Arteaga
Email: carolina.arteaga@utoronto.ca
Office: 150 St. George Street, #300

Office Hours: By appointment after class

Meetings

Lectures are Monday 3:10pm to 5pm
Location: TBD

Readings

The core lecture material is based on:

Joshua D. Angrist & Jörn-Steffen Pischke, ***Mostly Harmless Econometrics: An Empiricist's Companion***, Princeton University Press, 2009.

In addition to the textbook, a central part of the course will be selected journal articles that illustrate the various empirical strategies and methods that we will be discussing. The articles will be drawn broadly from empirical microeconomic fields, and the course will therefore have "economic content" in addition to the focus on applied econometrics. A more complete list of the readings is listed below.

The course website (on Quercus).

I will post the slides from my lectures on the Quercus website. I tend to use Quercus extensively as a means of communication with the class, so I recommend you check the announcements regularly.

Email Policy

Please feel free to email me questions or comments pertaining to the course, with the following caveat:

The answer requires a one or two-line response. It is my experience that email is an inefficient way to discuss economics. Questions that require more than one or two-line answers are more appropriate for office hours.

I will normally reply to emails within 24 hours, except on weekends.

Evaluation

A solid understanding of the various empirical strategies, and how they are implemented in real research is a key objective of the course. As such, a detailed understanding of important/illustrative papers in the field is an excellent way to acquire this understanding. There are two main components to the graded course work:

- **Class participation (15%)**

This is a very interactive class. I expect you to engage in discussion constantly. All types of questions are welcomed and encouraged.

- **Research Presentation 1 (10%)**

Prepare a 10-minute presentation for October 25th where you will present a sketch of your term paper. This will help you receive early feedback for your future presentation and final paper. It should include your research question, motivation, basic lit-review and future plan.

- **Method and Paper presentation (20%)**

You will choose a paper to replicate and present in front of the class. The objective of this exercise is to provide each of you with a do file that implements the methods we discuss in class. You will present the paper (Motivation/Data/Method/Results/Opinion) and share with your classmates a do file that replicate one of the main results in the paper. Plan for 35-minute class presentation
Topics: Event Study or Diff in Diff/Bartik/Judge Instrument/Other IV/RD
https://docs.google.com/spreadsheets/d/1UogX858msX5-ntGwpiJWaezw7BV-GSb4gEHYdDqyIj4/edit?usp=sharing

- **Research Presentation 2 (20%)**

Research Project Proposal – a 25-minute class presentation (allow time for questions / discussion) with slides.

The presentation will:

- establish a research question;
- briefly survey an existing literature in applied microeconomics that addresses it;
- describe a planned research project to address the question (data; design);
- potentially conduct preliminary data analysis (descriptive work, background work to show the validity of the strategy, etc.)
    - how preliminary the analysis is, depends on when the presentation takes place – presentations earlier in the term will have a lower bar. The tradeoff is that while presentations later in the year should be more developed, fewer revisions will be expected for the paper submission.

This presentation will occur during the last 3 classes of the term (Nov 23rd, Nov 30th, Dec 7th).

- **Peer feedback (15%)**

You will provide detailed feedback to your classmates on their research presentation. Literature suggestions, data, methods, scope of the question, framing, robustness checks are the type of comments expected. Feedback is due on the Friday of the week of the presentation. Email me your report.

- **Paper (20%)** - students will hand in a research paper that will:
    - establish a research question;
    - briefly survey an existing literature in Applied Microeconomics that addresses it;
    - describe a planned research project to address the question (data; design);
    - conduct data analysis.

Look to papers published in *AER: Insights* or *AER: Papers and Proceedings* (both journals publish short papers) for an example of structure, length, etc.

- The due date for the paper is **December 12th at 1:00pm**. Details of the assignment itself will be provided early in the semester. Submissions will be by email.

- The goal is to replicate the process academics go through when putting together a research project. Part of the grade will include your ability to take-on comments or concerns that are brought up during the presentation, and revise the analysis/discussion accordingly.

Planned Coverage

We will follow the material outlined in Angrist & Pischke closely, with some recent innovations:

1. Introduction to the “Experimental Ideal” (Chapters 1 and 2);
2. Detailed review of Ordinary Least Squares and Regression analysis (Chapter 3);
3. Instrumental Variables (Chapter 4);
4. Differences-in-Differences (Chapter 5);

Event Studies

5. Regression Discontinuity (Chapter 6);

Preliminary List of Readings

The following is a list of the key parts of the text, and associated journal articles that we will be (mostly) covering in class (or that are discussed in some detail in Angrist and Pischke). The articles that form the basis of the assignment will be ADDED to this list (and they are required readings for the entire class).

In addition to the presentation in Angrist and Pischke, a denser, but clear and comprehensive discussion of the course material is provided by:

Guido Imbens and Jeffrey Wooldridge (2009): "Recent Developments in the Econometrics of Program Evaluation," *Journal of Economic Literature*, 47:1, pages 5-86.

1. Introductory Material

Angrist and Pischke, Chapters 1 and 2

2. The Regression Model

Angrist and Pischke, Chapter 3, Sections 3.1 and 3.2

3. Instrumental Variables

Angrist and Pischke, Chapter 4

Angrist, Joshua (1990): "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records," *American Economic Review*.

Imbens, Guido, and Joshua Angrist (1994): "Identification and Estimation of Local Average Treatment Effects," *Econometrica*, Vol. 62, No. 2, pp. 467-475.

Angrist, Joshua (1998): "Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants," *Econometrica*.

3.1 Weak Instruments

Angrist, Joshua, and Alan Krueger (1991): "Does Compulsory Schooling Attendance Affect Schooling and Earnings?" *Quarterly Journal of Economics* 106.

Bound, John, David Jaeger, and Regina Baker (1995): "Problems with Instrumental Variables when the Correlation Between the Instruments and Endogenous Variable is Weak," *Journal of the American Statistical Association*.

3.2 Judge Instrument

Bhuller, Manudeep, Gordon B. Dahl, Katrine V. Løken, and Magne Mogstad. "Incarceration, recidivism, and employment." Journal of Political Economy 128, no. 4

(2020): 1269-1324.

3.3 Bartik Instrument

Goldsmith-Pinkham, P., Sorkin, I., & Swift, H. (2020). Bartik instruments: What, when, why, and how. American Economic Review, 110(8), 2586-2624.

4. Differences-in-Differences

de Chaisemartin, C., & d'Haultfoeuille, X. (2019). Two-way fixed effects estimators with heterogeneous treatment effects (No. w25904). National Bureau of Economic Research.

Angrist and Pischke, Chapter 5

Card, David (1990): "The Impact of the Mariel Boatlift on the Miami Labor Market," *Industrial and Labor Relations Review*, 1990.

Ashenfelter, Orley, and Alan B. Krueger (1994): "Estimates of the economic returns to schooling from a new sample of twins," *American Economic Review* 84, (5) (December 1994): 1157-73.

Duflo, Esther (2001): "Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment," *American Economic Review*, 91(4), 795-813.

4.1 Event Studies

Goodman-Bacon (2020) Difference-in-Differences with Variation in Treatment Timing

5. Regression Discontinuity

Angrist and Pischke, Chapter 6

<u>RDD</u>

Lee, David, and Thomas Lemieux (2010): "Regression Discontinuity Designs In Economics," *Journal of Economic Literature*, 48, pages 281-355.

Angrist, Joshua, and Victor Lavy (1999): "Using Maimonides' Rule to Estimate the Effect of Class Size on Scholastic Achievement," *Quarterly Journal of Economics*, pp. 533-575.

Lee, David (2008): "Randomized experiments from non-random selection in U.S. House elections," *Journal of Econometrics*.

Lemieux, Thomas, and Kevin Milligan (2008): "Incentive effects of social assistance: A regression discontinuity approach," *Journal of Econometrics*.

Imbens, Guido W., and Karthik Kalyanaraman (2012). "Optimal Bandwidth Choice for the Regression Discontinuity Estimator." Review of Economic Studies, 79(3), 933-959.

"Nation Building Through Foreign Intervention: Evidence from Discontinuities in Military Strategies" (with Melissa Dell), Quarterly Journal of Economics, 133(2), pp. 701-764, 2018.

Dell, M. "The Persistent Effects of Peru's Mining Mita." Econometrica 78, no. 6 (2010): 1863-1903