Applied Microeconometrics

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Overview

Goals

Structure

Topics

Textbook & software

Course requirements

Learning aims & objectives

Goals of the course

- Aim: to provide the basic tools to do empirical analysis
- Emphasis: intuition and empirical applications
- Focus: treatment effects and reduced form models
- Means: class participation and direct feedback

Structure of the course

- Lectures
  - Statistical challenges
  - Introduction to microeconometric tools
  - Building up on knowledge of econometrics and economic theory
  - Structural models
  - Identification issues
- Presentation of research papers
  - Each student will present the summary of a paper (20 min.)
  - Another student will present a short discussion of the paper (5 min.)
- Problem sets
  - Homework

Topics to be analyzed

- Basic regression analysis (OLS)
  - Introduction
  - Interaction effects
- Instrumental variables (IV)
  - Endogeneity problem; instrumental variables; weak instruments; overidentification tests; testing for endogeneity and GMM.
- Panel data
  - Panel data structure: fixed and random effects models; Hausman test; Breusch- Pagan test; time dummies; clustering or panel-corrected standard errors.
  - Dynamic panel data models: GMM estimators of linear dynamic panel data models; testing for instrument validity; serial correlation test.

...(continued) Topics to be analyzed

- Discrete choice modeling
  - Binary probity and logit; computing marginal effects; goodness-of-fit; receiver operating characteristic analysis; Multinomial choice models; independence of irrelevant alternatives; ordered probit and logit.
- Count data models
  - Poisson model; over-dispersion test; negative binomial model; diagnostics and measure of fit; zero-inflated models.
- Limited dependent variables models
  - Censored data; Tobit models; marginal effects of Tobit models; sample selection models.
- Policy evaluation methods

Background reading

1. Cameron, A. and Trivedi, P. (2005) *Microeconometrics: Methods and Applications*, Cambridge University Press.
2. Cameron, A. and Trivedi, P. (2010) *Microeconometrics Using Stata (Revised Edition)*, StataCorp LP.
3. Angrist Joshua D. and Steffen Pischke. (2009) *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton University Press.
4. Wooldridge, Jeffrey M. (2010) *Econometric Analysis of Cross Section and Panel Data (Second edition)*. MIT Press.
5. Greene, W.H. (2011) *Econometric Analysis, (7th Edition)*, Pearson Prentice Hall: New Jersey.
6. Baum, F.C. (2006) *An Introduction to Modern Econometrics Using Stata*, Stata Press: Texas.

Stata

- We will use @Stata for exercises
- @Stata is an easy-to-use software for doing empirical research
- More info: http://www.ats.ucla.edu/stat/stata/

Teaching methods & assessment

- 3.5 hours lectures. Each lecture will provide the technical background and applied economic context for a specific aspect of microeconometric analysis.
- Computer practical classes will be held, based on exercise sheets whose aim is to illustrate the material covered in lectures, and to aid in the interpretation of empirical results.
- Assessment
  1. Homework (20%)
  2. Assignment (20%)
  3. Written exam (60%)

Specific objectives: develop abilities

1. Use of econometrics in estimating economic models
2. Critically evaluate existing studies in applied microeconometrics
3. Develop and test your own models and hypotheses
4. Produce basic original applied microeconometric studies

Learning outcomes

1. Knowledge and Understanding
   - Demonstrate deep knowledge of advanced core areas of economics
   - Apply core advanced economic theory and quantitative methods
   - Show understanding of advanced methods (theory & model-based)
2. Intellectual Skills
   - apply complex ideas to solve problems
   - work with abstract concepts and in a context of generality
   - reason logically and work analytically
3. Professional/Practical Skills
   - identify appropriate economic models to analyse problems
   - justify conclusions using economic arguments
   - use appropriate econometrics software packages effectively
4. Transferable Skills
   - communicate effectively and clearly (written and oral)
   - apply mathematical, statistical and graphical techniques
   - undertake independent study and undertake research