Overview and Objectives

This course provides the basic coverage of the main methods and models used in the econometric analysis of panel and duration data, with empirical applications for macroeconomic policy. We review the main set of tools used for the analysis of panel data, including static and dynamic models, using fixed and random effects approaches. The particular focus of this course is in the context of large cross-sections and short time periods. We also review duration analysis, providing an overview for proportional hazard models both for discrete and continuous time durations. The course is designed for students with an interest in empirical macroeconomic analysis.

Course Outline

Part I. Panel Data

1. Introduction to Panel Data
2. Static Models
   - The fixed effects model. Within-groups estimation.
   - The random effects model. Error components.
   - Applications.
3. Dynamic Models
   - Autoregressive models with individual effects.
   - Differenced GMM estimation.
   - System GMM estimation.
   - Applications.

Part II. Duration Analysis

1. Introduction
   - Motivation
   - Duration data
2. The Hazard Function
   - Hazard function for a discrete variable
   - Hazard function for a continuous variable
   - Some frequently used hazard functions
3. Conditional Hazard Functions
   - The proportional hazard model
   - Discrete durations
4. Likelihood functions
   - Complete continuous durations
   - Censored continuous durations
Panel Data and Duration Models

- Discrete durations
- Unobserved Heterogeneity
  - Unobserved heterogeneity vs spurious state dependence
  - Dealing with heterogeneity in continuous hazard models
- Multiple-Exit Discrete Duration Models
  - Discrete competing risks models
  - Full information ML
  - Competing risks models

**Required Activities**

Problem sets (35%). Exam (65%)

**Evaluation**

**Materials**

**Panel data.**


**Duration analysis.**

Cameron, A. Colin and Pravin K. Trivedi (2005), Microeconometrics: Methods and Applications, Cambridge University Press.


Lancaster, Tony (1990), Econometric Analysis of Transition Data, Cambridge.

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Advance Time Series and Panel Data

Econometrics, Vol. 5, Ch. 55.