

17M024

3 ECTS

Panel Data and Duration Models

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

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- Discrete durations
- 5. Unobserved Heterogeneity
 - Unobserved heterogeneity vs spurious state dependence
 - Dealing with heterogeneity in continuous hazard models
- 6. 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.

Arellano, M. (2003) Panel Data Econometrics. Oxford University Press.

Arellano, M. and Bond, S. (1991) "Some tests of specification for panel data: Monte Carlo Evidence and an application to employment equations", Review of Economic Studies, 58, 277-297.

Arellano, M. and Bover, O. (1995) "Another look at the instrumental variable estimation of error-components models", Journal of Econometrics, 68, 29-52

Blundell, R. W. and Bond, S.R. (2000) "GMM estimation with persistent panel data: an application to production functions", Econometric Reviews, 19, 321-340

Caselli, F., G. Esquivel, and F. Lefort (1996): "Reopening the convergence debate: a new look at cross-country growth empirics", Journal of Economic Growth, 18, 5-46

Zeldes, S.P. (1989): "Consumption and liquidity constraints: an empirical investigation" Journal of Political Economy, 97, 305-346.

Duration analysis.

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

Cox, David R. (1972), "Regression Models and Life Tables (with Discussion)", Journal of the Royal Statistical Society, B, 34, 187-220.

Lancaster, Tony (1979), "Econometric Models for the Duration of Unemployment", Econometrica, 47, 939-956.

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

Van den Berg, Gerard (2001), "Duration Models: Specification, Identification and Multiple Durations", in J.J. Heckman and E. Leamer (eds.), Handbook of

12M012

4.5 ECTS

Advance Time Series and Panel
Data

Econometrics, Vol. 5, Ch. 55.