

Panel Data Analysis

Course Outline

1. Introduction

2. The One-Way Error Component Regression Model

- 2.1 Model and Notation
- 2.2 The Fixed Effects Model
- 2.3 The Random Effects Model
- 2.4 Maximum Likelihood Estimation

3. The Two-Way Error Component Regression Model

- 3.1 Introduction
- 3.2 The Fixed Effects Model
- 3.3 The Random Effects Model
- 3.4 Alternative Estimation Methods (for estimating variance components)

4. Testing Hypotheses

- 4.1 Introduction
- 4.2 Tests for Poolability of the Data
- 4.3 Tests for Individual and Time Effects
- 4.4 Hausman's Specification Test

5. Heteroskedasticity and Serial Correlation

- 5.1 Heteroskedasticity
- 5.2 Serial Correlation

6. Seemingly Unrelated Regressions (SUR) with Error Components

7. Simultaneous Equations with Error Components

- 7.1 Introduction

7.2 Single Equation Estimation

7.3 System Estimation

7.4 Endogenous Effects

8. Dynamic Panel Data Models

8.1 Introduction

8.2 Fixed Effects Model

(Inconsistency of the Fixed Effects Estimator)

8.3 Random Effects Models: Basic Problems

8.4 The Arellano & Bond Estimator

9. Panel Data Models for Qualitative Dependent Variables

9.1 Introduction

9.2 Parameter Estimation (for Binary Response Models)

Appendix: Discussion of Assumptions

Literature

- Baltagi, B.H. (1995, 2nd ed.: 2001, 3rd ed.: 2005). *Econometric Analysis of Panel Data*. Wiley.
- Hsiao, C. (1986, 2nd ed.: 2005). *Analysis of Panel Data*. Cambridge University Press.
- Arellano, M. (2003). *Panel Data Econometrics*. Oxford University Press.