"Microeconometria"

Anno accademico 2016-17

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Course Materials and readings: http://www.cafed.sssup.it/∼federico/teaching.html

Texts:

- Cameron and Trivedi (2005), "Microeconometrics: Methods and Applications", Cambridge University Press (labeled as CT in the following)
- Wooldridge (2002), "Econometric Analysis of Cross Section and Panel Data", MIT Press (labeled as WO in the following)
- Lecture Notes

Il corso introduce le fondamentali nozioni teoriche e l'applicazione delle principali tecniche per l'analisi econometrica dei dati micro e panel. Le lezioni forniscono anche una introduzione all'utilizzo del software STATA, di cui ci si avvale per le applicazioni e gli esempi.

1. Introduction to STATA
    - Getting started: interface, the HELP system, general syntax of commands, DO and LOG files
    - Datasets and variables management
    - Overview of estimation commands

2. Regression analysis and OLS: basics and problems
    - Standard OLS model: notation, assumptions, properties and inference (CT Capitolo 4.4)
    - Sources of bias: omitted variables, measurement error and endogeneity (CT 4.7)
    - Overview of Instrumental Variables solution to endogeneity: estimators, properties and related tests (CT 4.8,4.9,8.4)

3. Discrete Choice Models for Binary Outcomes (CT 14.1,14.2,14.3):
    - Linear Probability Model
    - Probit and Logit models: definition, estimation, and interpretation
    - Binary outcomes and endogenous regressors

4. Linear Panel Data Models

   - The "panel solution" to the omitted variable problem
   - Overview of main methods: definition, examples, the strict exogeneity assumption (CT 21.1,21.2)
   - Models for strict exogeneity (CT 21, tutto)
     - Introduction: RE vs FE approach
     - Main estimators (POLS, RE-GLS and RE-MLE, LSDV, FE-WG, FE-DIFF, Correlated RE): definition, underlying assumptions, interpretation, and comparisons
     - Issues: non-spherical disturbances; Hausman test for RE; sources of within-variation and parameter identification; multi-dimensional panels
   - Relaxing strict exogeneity (CT 22.1,22.2,22.4,22.5; NON FARE 22.4.4, 22.4.5)
     - Introduction: endogeneity of regressors and instruments; basics of GMM estimation
     - Main estimators: GMM-DIFF, GMM-SYS
     - Discussion: dynamic (lagged dependent) as a special case; when apply the estimators; mispecification tests; weak instruments; practical issues

5. Selected Samples

   - Definition of Truncation, Censoring and "True" Sample Selection (WO 16.1,16.2,16.3,16.4)
   - Inconsistency of OLS, ML estimation and definition of marginal effects
   - Sample Selection (CT 16.5; WO 17.1,17.2.1,17.3,17.4)
     - Definition: origins of selection (observables vs. unobservables)
     - Two-equations/Two-steps Heckman procedure
     - Issues: exclusion restriction; incidental parameter problem; extensions to binary outcomes and endogenous regressors

6. Basics of counterfactual analysis and estimation of average treatment effect (WO 18)

   - Fundamental problem of counterfactual analysis; ATE and ATET
   - Ignorability of treatment and conditional mean independence (CMI)
   - Methods under CMI: regression methods, propensity score methods and matching
   - Intuition behind IV methods when CMI does not apply (Endogenous dummy variable models)
   - Basic formulation of DIFF-in-DIFF to estimate policy effects