Course: Microeconometrics

Faculty: Joan Llull

Term: 1st Semester

Module: (will be introduced by the program)

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Office Hours: upon request

Description:

This course introduces the students to frontier econometric methods for the analysis of cross-sectional and panel micro-data. The course explores different techniques that are used in the analysis of discrete, continuous, and limited dependent outcomes.

Objective:

The main goal of this course is to provide students with a frontier econometric toolbox that allows them to produce high level empirical analyses. This course is suitable for any second year student, including those with empirical interests, but also for macro- and micro-oriented students who aim at providing empirical foundations to their research. The course devotes a special emphasis in the implementation of the different techniques, with problem sets in which students are expected to use each of the techniques presented in class in the analysis of real data.

Outline:

1. Panel data
    a. Introduction
    b. Static models
    c. Dynamic models
2. Discrete choice

a. Binary outcome models
        b. Multinomial models
        c. Endogenous variables
        d. Binary models for panel data
    3. Censoring, truncation, and selection
        a. Introduction
        b. Censoring and truncation. The Tobit model
        c. Selection
    4. Duration models
        a. Introduction
        b. The hazard function
        c. Conditional hazard functions: the proportional hazard model
        d. Likelihood functions
        e. Unobserved heterogeneity
        f. Multiple exit discrete duration models

References:

(These are core references. References for applications to be given in the course)

General references

Amemiya, T. (1985), *Advanced Econometrics*, Blackwell

Cameron, A. C. and P. K. Triverdi (2005), *Microeconometrics: Methods and Applications*, Cambridge University Press

Wooldridge, J. M. (2002), *Econometric Analysis of Cross Section and Panel Data*, MIT Press

Panel data

Anderson, T. W. and C. Hsiao (1981), "Estimation of Dynamic Models with Error Components", *Journal of the American Statistical Association*, 76, 598-606.

Anderson, T. W. and C. Hsiao (1982), "Formulation and Estimation of Dynamic Models Using Panel Data", *Journal of Econometrics*, 18, 47-82.

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Arellano, M. and S. Bond (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 O. Bover (1995), "Another Look at the Instrumental-Variable Estimation of Error-Components Models", Journal of Econometrics, 68, 29-51

Arellano, M., and B. Honoré (2001), "Panel Data Models: Some Recent Developments," in J. J. Heckman and E. E. Leamer (Eds.), *Handbook of Econometrics*, Vol, 5, 3229–3296

Balestra, P. and M. Nerlove (1966), "Pooling Cross Section and Time Series Data in the Estimation of a Dynamic Model: The Demand for Natural Gas", *Econometrica*, 34, 585-612

Chamberlain, G. (1984), "Panel Data", in Griliches, Z. and M.D. Intriligator (eds.), *Handbook of Econometrics*, vol. 2, Elsevier Science, Amsterdam

Hansen, L. P. (1982), "Large Sample Properties of Generalized Method of Moments Estimators", *Econometrica*, 50, 1029-1054.

Hausman, J. A. (1978), "Specification Tests in Econometrics", *Econometrica*, 46, 1251-1272

Sargan, J. D. (1958), "The Estimation of Economic Relationships Using Instrumental Variables", *Econometrica*, 26, 393-415.

Windmeijer, F. (2005), "A Finite Sample Correction for the Variance of Linear Efficient Two-Step GMM Estimators", *Journal of Econometrics*, 126, 25-51.

Discrete choice

Arellano, M. and S. Bonhomme (2011), "Nonlinear Panel Data Analysis", *Annual Review of Economics*, Vol. 3: 395–424

Manski, C. F., and D. McFadden Eds. (1981), *Structural Analysis of Discrete Data with Econometric Applications*, MIT Press.

McFadden, D. (1973), "Conditional Logit Analysis of Qualitative Choice Behavior," in *Frontiers in Econometrics*, P. Zarembka (Ed.), New York, Academic Press

McFadden, D. (1974), "The Measurement of Urban Travel Demand," *Journal of Public Economics*, 3, 303–328

McFadden, D. (1984), "Econometric Analysis of Qualitative Response Models," in Z. Griliches and M. Intriligator (Eds.), *Handbook of Econometrics*, Vol. 2, 1395–1457

Models with censored variables

Heckman J. (1979), "Sample Selection Bias and Specification Error", *Econometrica*, 47: 153-161

Powell, J. L. (1986), "Symmetrically Trimmed Least Squares Estimation for Tobit Models," *Econometrica*, 54, 1435–1460.

Tobin, J. (1958), "Estimation of Relationships for Limited Dependent Variables," *Econometrica*, 26, 24–36.

Duration

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

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

Lancaster, T. (1990), *The Econometric Analysis of Transition Data*, Cambridge

Van den Berg, G. (2001), "Duration Models: Specification, Identification and Multiple Durations", in J.J. Heckman and E. Leamer (eds.), *Handbook of Econometrics*, Vol. 5, Ch. 55

Grading:

50% Final exam. 50% Problem sets.*

*Students that also take the course on Policy Evaluation will have a single, combined exam for the two courses.