

MICROECONOMETRICS

Manuel Arellano
CEMFI, 2016-2017

Lectures: Mon 15:30-17:00, Wed 9:30-11:00.

Exercises: Wed 11:30-13:00 conducted by **Tincho Almuzara** almuzara@cemfi.edu.es

Workshop (Almuerzos): 13:15-15:00 on weeks 6 (Wed), 8 (Wed), and 10 (Wed).

Grades will be based on class exercises (20%), presentation (20%), and final exam (60%).

Textbooks

M. Arellano, *Panel Data Econometrics*, Oxford University Press, 2003.

C. Cameron and P. Trivedi, *Microeconometrics*, Cambridge University Press, 2005.

J. Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, MIT Press 2nd ed 2010.

Course outline and readings

1. Generalized method of moments and optimal instruments

- 1.1 Instrumental variables.
- 1.2 General formulation.
- 1.3 Testing overidentifying restrictions.
- 1.4 Optimal instruments.

Class Notes:

Generalized Method of Moments and Optimal Instruments

GMM with Nonsmooth Moments

Arellano, Appendices A and B.

Wooldridge, Chapter 14.

Newey, W. and D. McFadden (1994): "Large Sample Estimation and Hypothesis Testing", in R. Engle and D. McFadden (eds.), *Handbook of Econometrics*, Vol. 4, Elsevier.

2. Linear panels

- 2.1 Within-groups.
- 2.2 Error in variables.
- 2.3 Predeterminedness and dynamics.
- 2.4 Random coefficients.

Class Notes:

Linear Panels and Random Coefficients

Static Panel Data Models

Dynamic Panel Data Models I and II

3. Discrete choice

- 3.1 Binary models.
- 3.2 Multinomial models.
- 3.3 Endogeneity and control functions.
- 3.4 Binary endogenous regressors.

Class Notes:

Binary Models with Endogenous Explanatory Variables
LATE in Binary Choice

Cameron and Trivedi, Chapters 14, 15.
Wooldridge, Chapter 15.

4. Duration models

- 4.1 The hazard function. Proportional hazard models.
- 4.2 Unobserved heterogeneity *versus* state dependence.
- 4.3 Discrete time duration models.
- 4.4 Interdependent durations.

Class Note: *Duration Models*

Cameron and Trivedi, Chapters 17, 18, 19.
Wooldridge, Chapter 19.

5. Endogenous selection and treatment effects

- 5.1 Tobit models.
- 5.2 Sample selection models.
- 5.3 Roy models.
- 5.4 Local and marginal treatment effects.

Class Notes:

Tobit and Selection models
Econometric Methods of Program Evaluation

6. Differences in differences and synthetic controls

- 6.1 Comparisons based on policy changes.
- 6.2 Identifying the average treatment effect for the treated.
- 6.3 Changes in the distribution of effects vs. changes in means.
- 6.4 Synthetic control methods.

Class Note: *Econometric Methods of Program Evaluation*

Abadie, A., A. Diamond, and J. Hainmueller (2010): “Synthetic Control Methods for Comparative Case Studies”, *Journal of the American Statistical Association*, 105, 493-505.