

Ingmar R. Prucha
Department of Economics
University of Maryland
College Park, MD 20742

TOPICS IN MICROECONOMETRICS

Preliminary Syllabus (2011-11-21)

COURSE OVERVIEW

The course will cover the following topics

- Binary Response Models
- Multinomial Response Models
- Non-parametric and Semi-parametric Estimation Methods
- Spatial/Cross Sectional Interaction Models
- Dynamic Panel Data Models
- Quantile Regression
- Weak Instruments

COURSE AIMS

The course is oriented to provide students with a rigorous and broad knowledge of econometric methods on selected topics especially important for conducting empirical research in micro-economics. The course is not geared towards training econometric theorists. In particular, the aim of the course is to provide students with the necessary tools to (i) read intelligently all empirical research (with a proper understanding of the underlying methodology of inference), and (ii) to conduct empirical research suitable for publication in **any** economics or econometrics journal.

ASSUMED REQUIREMENTS

Students are assumed to have knowledge of the of a typical first year graduate econometrics sequence.

PRINCIPAL TEXTS

Cameron, A.C., and P.K. Trivedi, *Microeconometrics, Methods and Applications*, Cambridge, 2005.

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

SUPPLEMENTARY TEXTS

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

Baltagi, B.H., Econometric Analysis of Panel Data, Wiley, Fourth Edition, 2008.

Li, Q., and J.S. Racine, Nonparametric Econometrics, Theory and Practice, Princeton University Press, 2007.

Pagan, A., and A. Ullah, Nonparametric Econometrics, Cambridge University Press, 1999.

EXAM

The examination mode will most likely consist of a combination of attendance and take home exam.

READING LIST

Binary Choice Models

Cameron and Trivedi Chapter 14

Multinomial Response Models

Cameron and Trivedi Chapter 15

Nonparametric and Semiparametric Estimation

Prucha, I.R., Handout on Nonparametric and Semiparametric Estimation

Below is a list of some texts and review articles. References to research articles are given in the handout.

Cameron, A.C., and P.K. Trivedi, 2005, *Microeconometrics, Methods and Applications*, Cambridge University Press, Cambridge, Ch. 9.

Fan, J., and I. Gijbels, 1996, *Local Polynomial Modeling and Its Applications*, Chapman & Hall, New York.

Haerdle, W., 1990, *Applied Nonparametric Regression*, Cambridge University Press, Cambridge.

Haerdle, W., and O. Linton, 1994, *Applied Nonparametric Methods*, in E.F. Engle and D.L. McFadden, *Handbook of Econometrics*, Vol. IV, Elsevier, New York, pp. 2297-2339.

Horowitz, J.L., 1998, *Semiparametric Methods in Econometrics*, Springer, New York.
Ichimura, H., and P. E. Todd, 2007, *Implementing Nonparametric and Semiparametric Estimators*, in J. Heckman and E. Leamer, eds., *Handbook of Econometrics*, Vol. VI B, Elsevier, New York, pp. 5360-5468.

Li, Q., and J.S. Racine, 2007, *Nonparametric Econometrics, Theory and Practice*, Princeton University Press, Princeton.

Pagan, A., and A. Ullah, 1999, *Nonparametric Econometrics*, Cambridge University Press, Cambridge.

Powell, J.L., 1994, *Estimation of Semiparametric Models*, in E.F. Engle and D.L. McFadden, *Handbook of Econometrics*, Vol. IV, Elsevier, New York, pp. 2444-2521.

Prakasa Rao, B.L.S., 1983, *Nonparametric Functional Estimation*, Academic Press, New York.
Silverman, B.W., 1986, *Density Estimation for Statistics and Data Analysis*, Chapman and Hall, New York.

Wassermann, L., 2006, *All of Nonparametric Statistics*, Springer, New York.

Yatchew, A., 2003, *Semiparametric Regression for the Applied Econometrician*, Cambridge University Press, Cambridge.

Spatial/Cross Sectional Interaction Models

Prucha, I.R., Handout on Estimation of Spatial Models

Below is a list of some texts and review articles. References to research articles are given in the handout.

Anselin, L., 1988, *Spatial Econometrics: Methods and Models* (Kluwer Academic Publishers, Boston).

Anselin L. 2001. Spatial econometrics. In *A Companion in Theoretical Econometrics*. Baltagi B. (Ed.). Basil Blackwell: New York, NY.

Arbia, G., 2006, *Spatial Econometrics, Statistical Foundations and Applications to Regional Convergence* (Springer, New York)

Cressie, N., 1993, *Statistics of Spatial Data* (Wiley, New York).

Cliff, A. and J. Ord., 1973, *Spatial Autocorrelation* (Pion, London).

Cliff, A. and J. Ord., 1981, *Spatial Processes, Models and Applications* (Pion, London).

Haining, R., 2003, *Spatial Data Analysis, Theory and Practice* (Cambridge University Press: Cambridge).

Below are some recent articles that explicitly connect spatial models and social interaction models

Lee, L.-F., 2007, Identification and Estimation of Econometric Models with Group Interactions, Contextual Factors and Fixed Effects, *Journal of Econometrics*, 140, 333-374.

Lee, L.-F., X. Liu and X. Lin, 2008, Specification and Estimation of Social Interaction Models with Network Structure, Contextual Factors, Correlation and Fixed Effects, Working paper.

Liu, X., and L.-F. Lee, 2009, Identification and GMM Estimation of Social Interaction Models with Centrality, Working Paper, 2009.

Dynamic Panel Data Models

Prucha, I.R., Handout on Panel Data Models

Below is a list of some texts and review articles. References to research articles are given in the handout.

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

Arrelano, M., and B. Honore, Panel Data Models: Some recent Development, in in J. Heckman and E. Leamer, eds., Handbook of Econometrics, Vol. V, Elsevier, New York, pp. 3229-3296.

Baltagi, B.H., 2005, Econometric Analysis of Panel Data, Wiley, Ch. 8.

Hsiao, C., 2003, Analysis of Panel Data, Cambridge University Press, Ch.4.

Wooldridge, J.M., Econometric Analysis of Cross Section and Panel Data, MIT Press, Ch. 10, 11.

Quantile Regression

Prucha, I.R., Handout on LAD and Quantile Regression

Below is a list of some texts and review articles. References to research articles are given in the handout.

Koenker, R. and K. Hallock, 2001, Quantile Regression, Journal of Economic Perspectives, 15, 143-156.

Cade, B. and B. Noon, 2003, A Gentle Introduction to Quantile Regression for Ecologists, Frontiers in Ecology and the Environment, 1, 412-420.

A more extended treatment of the subject is now also available:

Koenker, R., 2005, Quantile Regression, Econometric Society Monograph Series, Cambridge University Press. Errata list (<http://www.econ.uiuc.edu/~roger/research/rq/errata.pdf>)

Weak Instruments

Andrews, DWK., and J.H. Stock, "Inference with Weak Instruments," with, in *Advances in Economics and Econometrics, Theory and Applications: Ninth World Congress of the Econometric Society*, Vol. III, ed. by R. Blundell, W.K. Newey and T. Persson. Cambridge, UK: Cambridge University Press, forthcoming 2006.
(<http://cowles.econ.yale.edu/P/cd/d15a/d1530.pdf>)

Hansen, C., J. Hausman, and W. Newey, Estimation with Many Instrumental Variables, Working Paper, 2006 (<http://faculty.chicagobooth.edu/christian.hansen/research/manyiv3jun14.pdf>)

Stock, J. H., J. H. Wright, and M. Yogo (2002): "A Survey of Weak Instruments and Weak Identification in Generalized Method of Moments," Journal of Business and Economic Statistics, 20, 518-529.