G31.3002-04 Advanced Topics in Econometrics
Fall 2014
Course Syllabus

Class meets in 19 W4th St, Room 624
Thursday 10-12am

Instructor: Konrad Menzel
Email: konrad@nyu.edu
Office: 19 W4th St, Room 829
Office Hours: by appointment

Course Description and Prerequisites

This course will be about econometric methods for cross-sectional and panel data relevant for empirical research in economics. Topics include the bootstrap, nonparametric and semiparametric estimation, and bounds. The methods will be illustrated with economic applications. This class is intended for students who have already taken econometrics at the level of the first-year graduate sequence.

Requirements

The course grade will be based on three problem sets over the course of the semester. The assignments will consist of both theoretical and programming exercises which can be done in Matlab, GAUSS, or any other comparable matrix-based software. Problem sets and other course material will be posted on NYU Classes.

Main Texts

Cameron, A., and P. Trivedi (2005): Microeconometrics: Methods and Applications, Cambridge University Press

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

van der Vaart, A. (1998): Asymptotic Statistics, Cambridge University Press

Cameron and Trivedi (**CT**), and Wooldridge (**W**) are both great first references if you want to apply the methods discussed in this class, but do not give an in-depth discussion of the technical aspects. The van der Vaart (**vdV**) book is a good source for a more technical treatment of asymptotic theory in statistic if you are interested in theoretical econometrics, but for this class I'll mostly use references which are written more specifically for economists and econometricians.

In addition, we will discuss several chapters from the Handbook of Econometrics which is available online at
`http://www.sciencedirect.com/science/handbooks/15734412`
Koenker's book on quantile regression is available online to members of the Econometric Society via
`http://www.econometricsociety.org/monograph.asp`

List of Topics

1. Introduction: Statistical Experiments and Asymptotics (1 lecture, vdV 7-8)

Newey, W., and D. McFadden (1994): Large Sample Estimation and Hypothesis Testing, in Engle and McFadden (eds.): *Handbook of Econometrics*, Volume 4, 2111-245

Flinn, Ch. and J. Heckman (1982): New Methods for Analyzing Structural Models of Labor Force Dynamics, *Journal of Econometrics* **18**, 115-68

* Hirano, K. and J. Porter (2003): Asymptotic Efficiency in Parametric Structural Models with Parameter-Dependent Support, *Econometrica* **71(5)**, 1307-38

Müller, U. (2011): Efficient Tests under a Weak Convergence Assumption, *Econometrica*, **79(2)**, 395-435

2. Discrete Choice and Models of Strategic Interaction (2 lectures, CT 14-15, W 15)

- Train, K. (2009): Discrete Choice Methods with Simulation, Cambridge

* Manski, C. (1975): Maximum Score Estimation of the Stochastic Utility Model of Choice, *Journal of Econometrics* **3**, 205-28

Powell, J. and J. Stock and T. Stoker (1989): Semiparametric Estimation of Index Coefficients, *Econometrica* **57(6)**, 1403-1430

Berry, S. and J. Levinsohn and A. Pakes (1995): Automobile Prices in Market Equilibrium, *Econometrica* textbf63(4), 841-890

Heckman, J. (1978): Dummy Endogenous Variables in a Simultaneous Equation System, *Econometrica* **46(6)**, 931-959

* Tamer, E. (2003): Incomplete Simultaneous Discrete Response Model with Multiple Equilibria, *Review of Economic Studies* **70**, 147-165

* Ciliberto, F. and E. Tamer (2009): Market Structure and Multiple Equilibria in Airline Markets, *Econometrica* **77(6)**, 1791-1828

Bjorn, P. and Q. Vuong (1984): Simultaneous Equations Models for Dummy Endogenous Variables: A Game Theoretic Formulation with an Application to Labor Force Participation, *working paper*, Caltech

Bresnahan T. and P. Reiss (1990): Entry in Monopoly Markets, *Review of Economic Studies* **57(4)**, 531–553

Beresteanu, A. and I. Molchanov and F. Molinari (2011): Sharp Identification Regions in Models with Convex Moment Predictions, *Econometrica* **79(6)**, 1785–1821

* Menzel, K. (2013): Matching Markets as Two-Sided Demand Systems, working paper

Hendel, I., and A. Nevo (2006): Measuring the Implications of Sales and Consumer Inventory Behavior, Econometrica 74(6), 1637-1673

3. Empirical Processes (3 Lectures, vdV 18-20)

van der Vaart, A., and J. Wellner (1996): Weak Convergence and Empirical Processes, Springer

Andrews, D. (1994): Empirical Process Methods in Econometrics, in Engle and McFadden (eds.): *Handbook of Econometrics*, Volume 4, 2247-94

Pollard, D. (1990): Empirical Processes: Theory and Applications, Institute of Mathematical Statistics and American Statistical Association

* Kim, J. and D. Pollard (1990): Cube Root Asymptotics, *Annals of Statistics*, textbf18(1), 191-219

4. Bootstrap (2 lectures, vdV 23, CT 11)

* Horowitz, J. (2001): The Bootstrap, in: Heckman and Leamer (eds.): *Handbook of Econometrics*, volume 5, chapter 52

Hall, P. (1992): The Bootstrap and Edgeworth Expansion, Springer

* Andrews, D. (2000): Inconsistency of the Bootstrap when the Parameter is on the Boundary of the Parameter Space, *Econometrica*, **68**, 399-405

Politis, D., J. Romano, and M. Wolf (1999): Subsampling, Springer

* Andrews, D., and P. Guggenberger (2010): Asymptotic Size and a Problem with Subsampling and with the m out of n Bootstrap, *Econometric Theory*, **26**, 426-468

5. Nonparametric Estimation (2 lectures, CT 9.1-9.6,9.8)

Härdle, W., and O. Linton (1994): Applied Nonparametric Methods, in Engle and McFadden (eds.): *Handbook of Econometrics*, Volume 4, 2297-339

Pagan, A., and A. Ullah (1999): Nonparametric Econometrics, Cambridge University Press, chapters 2-3

DiNardo, J., N. Fortin, and Th. Lemieux (1996): Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach, *Econometrica* **64(5)**, 1001-44

van der Klaauw, W. (2002): Estimating the Effect of Financial Aid Offers on College Enrollment: A Regression-Discontinuity Approach, *International Economic Review* **43(4)**, 1249-87

6. Semiparametric Models (2 lectures, vdV 25, CT 9.7)

* Powell, J. (1994): Estimation of Semiparametric Models, in Engle and McFadden (eds.): *Handbook of Econometrics*, Volume 4, 2443-521

Horowitz, J. (2009): Semiparametric and Nonparametric Methods in Econometrics, Springer

* Newey (1994): The Asymptotic Variance of Semiparametric Estimators, *Econometrica* **62(6)**, 1349-82

* Robinson, P. (1988): Root-N-Consistent Semiparametric Regression, *Econometrica* **56(4)**, 931-54

Olley, S. and A. Pakes (1996): The Dynamics of Productivity in the Telecommunications Equipment Industry, *Econometrica* **64(4)**, 1263-97

Ahn, H., and J. Powell (1993): Semiparametric Estimation of Censored Selection Models with a Nonparametric Selection Mechanism, *Journal of Econometrics* **58**, 3-29

7. Partial Identification, and Bounds (2 lectures)

C. Manski (2003): Partial Identification of Probability Distributions, Springer

A. Chesher (2005): Nonparametric Identification under Discrete Variation, *Econometrica* **73(5)**, 1525-1550

Imbens, G. and C. Manski (2004): Confidence Intervals for Partially Identified Parameters, *Econometrica* **72(6)**, 1845–1857

Manski, C., and E. Tamer (2002): Inference on Regressions with Interval Data on a Regressor or Outcome, *Econometrica* **70(3)**, 519-546

* E. Tamer (2003): Incomplete Simultaneous Discrete Response Model with Multiple Equilibria, *Review of Economic Studies* **70**, 147-165

* Manski, C., and J. Pepper (2000): Monotone Instrumental Variables, with an Application to the Returns to Schooling, *Econometrica* **68(4)**, 997-1010

* Chernozhukov, V., H. Hong, and E. Tamer (2007): Estimation and Confidence Regions for Parameter Sets in Econometric Models, *Econometrica* **75(5)**, 1243-1284

Andrews, D. and G. Soares (2010): Inference for Parameters Defined by Moment Inequalities Using Generalized Moment Selection, *Econometrica* **78(1)**, 119-157

Chernozhukov, V., S. Lee, and A. Rosen (2009): Inference on Intersection Bounds, *working paper, MIT and UCL*

Beresteanu, A. and F. Molinari (2008): Asymptotic Properties for a Class of Partially Identified Models, *Econometrica* **76(4)**, 763-814

Bontemps, C. and T. Magnac and E. Maurin (2012): Set Identified Linear Models, *Econometrica* **80(3)**, 1129-1155

Chernozhukov, V. and E. Kocatulum and K. Menzel (2014): Inference on Sets in Finance, *Quantitative Economics*, forthcoming