

Econ 717: Graduate Level Applied Econometrics, Part I

Spring 2023

Course Time: Mon and Wed 9:30-10:45am
Location: VAN VLECK B223
Webpage: Canvas
Instructor: Panle Barwick
Office Hours: By Appointment

Learning outcome

This course is designed for second-year Economics PhD students. The course prerequisites include at least one semester of the graduate-level econometric class. Professor Barwick and Professor Aizawa coteach this class. Professor Barwick will primarily lecture in the first half of the semester, while Professor Aizawa will primarily lecture in the second half.

Students will gain a solid understanding of structural and reduced-form modeling techniques and learn about popular econometric tools in applied economic fields, including but not limited to Industrial Organization, Public Finance, Labor, and Trade.

This 3-credit course has two 75-min lectures each week. Students are expected to work approximately 6 hours per week outside of class to learn the relevant material and complete assignments. There will be one problem set in the first half of the semester and additional problem sets in the second half of the semester. All students are required to give a presentation at the end of the semester on either Apr 29th (Saturday), May 1st (Monday, in class), and May 3rd (Monday, in class). There will be a term paper (max 5 pages) that is due on May 5th, Friday, the last day of class for the spring semester. The grading will be: problem sets (40%), presentation (30%), and term paper (30%).

There is no textbook for the course. Some useful readings are listed below.

Topics and Readings for the First Half Semester

[Tentative and subject to changes]

Endogeneity in Linear and Nonlinear Models Readings:

Olley, G. Steven, and Ariel Pakes. "The Dynamics of Productivity in the Telecommunications Equipment Industry." *Econometrica* 64, no. 6 (1996): 1263–97. <https://doi.org/10.2307/2171831>.

Amil Petrin and Kenneth Train. "A Control Function Approach to Endogeneity in Consumer Choice Models." *Journal of Marketing Research*, Volume XLVI, 2009.

Richard W. Blundell And James L. Powell. "Endogeneity in Semiparametric Binary Response Models." *Review of Economic Studies* (2004) 71, 655–679



Whitney Newey and James Powell, “Instrumental Variable Estimation of Nonparametric Models,” *Econometrica*, 2003, Vol.71 (5), p.1565-1578

Rosa Matzkin, “Estimation of Nonparametric Models with Simultaneity,” *Econometrica*, Vol. 83, No. 1, 1-66.

Blundell, R., D. Kristensen, and R.L. Matzkin, “Individual Counterfactuals in Nonseparable Models with Unobserved Heterogeneity,” 2020 UCLA Working Paper.

Partial Inference and Moment Inequalities Readings:

Donald Andrews and Gustavo Soares, “Inference for Parameters Defined by Moment Inequalities Using Generalized Moment Selection,” *Econometrica*, 2010

Donald W. K. Andrews and Panle Jia Barwick, “Inference for Parameters Defined by Moment Inequalities: A Recommended Moment Selection Procedure,” *Econometrica*, November 2012

Joseph P. Romano, Azeem M. Shaikh, Michael Wolf, “A Practical Two-Step Method for Testing Moment Inequalities,” *Econometrica*, October 2014

Gregory Cox, Xiaoxia Shi, “Simple Adaptive Size-Exact Testing for Full-Vector and Subvector Inference in Moment Inequality Models,” *RESTUD* 2023

Richard Blundell, Amanda Gosling, Hidehiko Ichimura and Costas Meghir, “Changes in the Distribution of Male and Female Wages Accounting for Employment Composition Using Bounds,” *Econometrica* Mar 2007

Federico Ciliberto, Elie Tamer, “Market Structure and Multiple Equilibria in Airline Markets,” *Econometrica* December 2009

Kate Ho and Ariel Pakes, “Hospital Choices, Hospital Prices, and Financial Incentives to Physicians,” *AER* DECEMBER 2014

A. Pakes, J. Porter, Kate Ho, Joy Ishii, “Moment Inequalities and Their Application,” *Econometrica* February 2015

Shuyang Sheng, “A structural econometric analysis of network formation games through sub-networks,” 2020 *Econometrica*

Michael J Dickstein and Eduardo Morales. “What do Exporters Know?” *The Quarterly Journal of Economics*, Volume 133, Issue 4, November 2018, Pages 1753–1801, <https://doi.org/10.1093/qje/qjy015>

Tom Holmes. “The Difusion of Wal-Mart and Economics of Density.” *Econometrica*, 79(1), 253-302.

JF Houde, Peter Newberry, and Katja Seim. “Nexus Tax Laws and Economies of Density in E-Commerce: A Study of Amazon’s Fulfillment Center Network.” Forthcoming, *Econometrica*.

Tom Wollman. “Trucks without Bailouts: Equilibrium Product Characteristics for Commercial Vehicles.” *American Economic Review* 2018, 108(6): 1364-1406.

Bayesian Analysis Readings:

Matthew J. Baker, ‘bayesmixedlogit’ and ‘bayesmixedlogitwtp’ – STATA packages to estimate mixed logit models using Bayesian

Peter Rossi, ‘Bayesm’ – R package for Bayesian analysis

Robert McCulloch and Peter E. Rossi: “An exact likelihood analysis of the multinomial probit model,” *J. of Econometrics*, 1994

Timothy G. Conley, Christian B. Hansen, Robert E. McCulloch, Peter E. Rossi, “A semi-parametric Bayesian approach to the instrumental variable problem,” 2008

Renna Jiang a, Puneet Manchanda b, and Peter E. Rossi, “Bayesian analysis of random coefficient logit models using aggregate data,” J of Econometrics, 2009

Li and Ansari (2018): “A Bayesian Semiparametric Approach for Endogeneity and Heterogeneity in Choice Models,” Management Science

Books:

Kenneth Train, “Discrete Choice Methods with Simulation,” 2002

Peter E. Rossi, Greg M. Allenby, Rob McCulloch, “Bayesian Statistics and Marketing,” 2005

Peter E. Rossi, “Bayesian Non- and Semi-parametric Methods and Applications,” 2014

Machine Learning Applications Readings:

Luise Eisfeld. “Entry and Acquisitions in Software Markets.” JMP

Daniel Bjorkegren†, Joshua E. Blumenstock, and Samsun Knight. “(Machine) Learning What Policies Value.” Revise and Resubmit at RESTUD.

Misconduct Statement

Academic Integrity is critical to maintaining fair and knowledge-based learning at UW Madison. Academic dishonesty is a serious violation: it undermines the bonds of trust and honesty between members of our academic community, degrades the value of your degree and defrauds those who may eventually depend upon your knowledge and integrity.

Examples of academic misconduct include, but are not limited to: cheating on an examination (copying from another student's paper, referring to materials on the exam other than those explicitly permitted, continuing to work on an exam after the time has expired, turning in an exam for regrading after making changes to the exam), copying the homework of someone else, submitting for credit work done by someone else, stealing examinations or course materials, tampering with the grade records or with another student's work, or knowingly and intentionally assisting another student in any of the above. Students are reminded that online sources, including anonymous or unattributed ones like Wikipedia, still need to be cited like any other source; and copying from any source without attribution is considered plagiarism.

The Department of Economics will deal with these offenses harshly following UWS14 procedures:

- The penalty for misconduct in most cases will be the removal from the course and a failing grade.
- The department will inform the Dean of Students as required and additional sanctions may be applied.
- The department will keep an internal record of misconduct incidents. This information will be made available to teaching faculty writing recommendation letters and to admission offices of the School of Business and Engineering.

If you think you see incidents of misconduct, you should tell your instructor about them, in which case they will take appropriate action and protect your identity. You can also choose to contact our department administrator, Tammy Herbst-Koel (therbst@wisc.edu), and your identity will be kept confidential.

For more information, refer to <https://www.students.wisc.edu/doso/academic-integrity/>

Grievance Procedure

The Department of Economics has developed a grievance procedure through which you may register comments or complaints about a course, an instructor, or a teaching assistant. The Department continues to provide a course evaluation each semester in every class. If you wish to make anonymous complaints to an instructor or teaching assistant, the appropriate vehicle is the course evaluation. If you have a disagreement with an instructor or a teaching assistant, we strongly encourage you to try to resolve the dispute with him or her directly. The grievance procedure is designed for situations where neither of these channels is appropriate.

If you wish to file a grievance, you should go to room 7238 Social Science and request a Course Comment Sheet. When completing the comment sheet, you will need to provide a detailed statement that describes what aspects of the course you find unsatisfactory. You will need to sign the sheet and provide your student identification number, your address, and a phone where you can be reached. The Department plans to investigate comments fully and will respond in writing to complaints.

Your name, address, phone number, and student ID number will not be revealed to the instructor or teaching assistant involved and will be treated as confidential. The Department needs this information, because it may become necessary for a commenting student to have a meeting with the department chair or a nominee to gather additional information. A name and address are necessary for providing a written response.