Empirical Industrial Organization

Instructor: Jianwei Xing

This course is a graduate-level introduction to empirical industrial organization. Students will learn the basic techniques of structural estimation in the field of Industrial Organization and will be able to apply the estimation techniques in other fields upon completing the course. This course does not intend to cover all the topics in IO, but aims to mainly cover demand estimation and static entry models in a fairly extensive way such that students will get enough hands-on experience with the estimation. With a deep understanding of the models covered in this course, students will be able to study more advanced IO topics in future if they want to pursue empirical IO as their primary research interest.

Prerequisites:

Students who want to register for this course should have completed at least one graduate-level econometrics course and should be familiar with GMM and MLE estimation.

Grading:

- Class participation (10%): There will be readings assigned before each lecture, mainly from academic journals. Students are expected to read the papers before coming to lectures and actively participate in in-class discussion.

- In-Class presentation (15%): Students will be assigned into groups of 2-4 members and make a group presentation of one paper selected from the reading list. The grading will be based on reviews from both the instructor and peers.

- In-class quizzes (15%): Short quizzes will be given in the beginning of each lecture, which are expected to be finished within 15 minutes. The quizzes will cover either the materials that were discussed in the previous lecture or those to be covered in the current lecture.

- One homework project (20%): A problem set will be posted sometime during the first half of the semester. Students will be estimating a demand model using real-world data. Students are encouraged to work in groups of 2-4 and submit a single PDF document including discussions and answers to all questions and a printout of the code used for computation.

- Final Exam (20%): The exam will cover the materials mainly from the required readings and focus on basic concepts and modeling.

- Research proposal and presentation (20%): students are required to submit an original research proposal on the last day of class. Students should not submit any research project that is currently ongoing or has been finished. Students are encouraged but no required to apply the tools and techniques learned from this course, and are welcome to submit research proposals in fields other than IO as long as they are empirical (e.g., labor, health, development, environmental). All students will make a short presentation of their research proposals on the last day of class.

Course Structure (tentative):

Week 1: Introduction and Review of Microeconomics and Econometrics

Week 2: Demand Estimation-Logit

Required Reading:

- Steven Berry (1994), "Estimating Discrete-Choice Models of Product Differentiation," *Rand Journal of Economics*, 25 (2), pp. 242-262.

Suggested Reading:

- Shanjun Li, Yanyan Liu and Junjie Zhang (2011), "Lose some, save some: Obesity, Automobile demand, and gasoline consumption," *Journal of Environmental Economics and Management*, 61, pp. 52-66.

Week 3-6: Demand Estimation- Random Coefficient

Required Readings:

- Steven Berry, James Levinsohn, and Ariel Pakes (1995), "Automobile Prices in Market Equilibrium,"*Econometrica*, 63 (4), pp. 841-890.

- Amil Petrin (2002), "Quantifying the Benefits of New Products: The Case of Minivan," *Journal of Political Economy*, 110 (4), pp. 705-29.

- Steven Berry, James Levinsohn, and Ariel Pakes (2004), "Differentiated Products Demand Systems from a Combination of Micro and Macro Data: The New Car Market ,"*Journal of Political Economy*, 112 (1), pp. 68-105.

- Aviv Nevo (2001), "Measuring Market Power in the Ready-to-Eat Cereal Industry," *Econometrica*, 69 (2), pp. 307-342.

- Tomothy F. Bresnahan (1987), " Competition and Collusion in the American Automobile Industry: The 1955 Price War," *The Journal of Industrial Economics*, 35 (4), pp. 457-482.

- Kenneth E. Train and Clifford Winston (2007), " Vehicle Choice Behavior and The Declining Market Share of U.S. Automakers," *International Economics Review*, 48 (4), pp. 1469-1496.

Suggested Readings:

- Avio Nevo (2000) "A Practitioner's Guide to Estimation of Random Coefficients Logit Models of Demand," *Journal of Economics & Management Strategy*, 9 (4), pp. 513-548.

- Arie Beresteanu and Shanjun Li (2011)"Gasoline Prices, Government Support, and the Demand For Hybrid Vehicles in the United States," *International Economic Review*, 52 (1), pp.161-182.

- Austin Goolsbee and Amil Petrin (2004) "The Consumer Gains From Direct Broadcast Satellites and The Competition With Cable TV," *Econometrica*, 72 (2), pp.351-381.

- Shanjun Li (2017) "Better Lucky Than Rich? Welfare Analysis of Automobile License Allocations in Beijing and Shanghai," *Review of Economic Studies*, forthcoming.

- Katalin Springel (2017) "Network Externality and Subsidy Structure in Two-Sided Markets: Evidence from Electric Vehicle Incentives," working paper

Textbook Reference:

- Kenneth Train (2003), "Discrete Choice Methods with Simulation," Cambridge University Press.

- Fumio Hayashi (2000), "Econometrics," Princeton University Press.

Week 7-8: Demand Estimation- Extension

Required Readings:

- Ying Fan (2013), "Ownership Consolidation and Product Characteristics: A Study of the US Daily Newspaper Market," *American Economic Review*, 103 (5): pp.1598-1628.

- Alon Eizenberg (2014), "Upstream Innovation and Product Variety in the U.S. Home PC Market," *Review of Economic Studies*, 81, pp. 1003-1045.

- Thomas Wollmann (2017), "Trucks without Bailouts: Equilibrium Product Characteristics for Commercial Vehicles," *American Economic Review*, forthcoming.

Suggested Readings:

- Matthew Gentzkow (2007), "Valuing New Goods in a Model with Complementarity: Online Newspapers," *American Economics Review*, 97 (3), pp.713-744.

- Michelle Goeree (2010), "Limited Information and Advertising in the U.S. Personal Computer Industry," *Econometrica*, 76 (5), pp.1017-1074

- Ying Fan and Chenyu Yang (2017), "Competition, Product Proliferation and Welfare: A study of the U.S. Smartphone Market," working paper

Week 9-11: Static Entry

Required Readings:

- Timothy Bresnahan and Peter C. Reiss (1991), "Entry and Competition in Concentrated Markets," *Journal of Political Economy*, 99 (5), pp. 977-1009.

- Steven Berry (1992), "Estimation of a Model of Entry in the Airline Industry," *Econometrica*, 60 (4), pp.889-917.

- Katjia Seim (2006), "An Empirical Model of Firm Entry with Endogenous Product-type Choices," *RAND Journal of Economics*, 37 (3), PP. 619-640.

- Panle Jia (2008), "What Happens When Wal-Mart Comes to Town: An Empirical Analysis of the Discount Retail Industry," *Econom*trica,* 76 (6), pp. 1263-1316.

Week 12-13: Introduction to Single Agent Dynamic Models

Required Readings:

- John Rust (1987), "Optimal Replacement of GMC Bus Engines: An Empirical Model of Harold Zurcher," *Econometrica*, 55 (5), pp. 999-1033.

- Ariel Pakes (1986), "Patents as Options: Some Estimates of the Value of Holding European Patent Stocks," *Econometrica*, 54 (4), pp. 755-784.

- Igal Hendel and Aviv Nevo (2006), "Measuring the Implications of Sales and Consumer Inventory Behavior, " *Econometrica*, 74 (6), pp. 1637-1673.

- Gautam Gowrisankaran and Marc Rysman (2012), "Dynamics of Consumer Demand for New Durable Goods," *Journal of Political Economy*, 120 (6), pp. 1173-1219.

Week 14: Student Research Proposal Presentation