

ECON 762: Advanced Industrial Organization, Part I

Panle Jia Barwick
Spring 2023

MW 8-9:15am

Format: in-person

Classroom: SS Building 6116

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Office hours by Appt

This course is co-taught by me and Prof Houde. I will teach in the first half of the semester and cover the third module in the series of graduate-level industrial organization. Prof Houde will teach in the second half of the semester.

The emphasis of this course is heavily weighted toward recent, cutting-edge research papers. Our aim is to provide the tools necessary to write a solid dissertation using structural estimation techniques. While our focus is empirical industrial organization, the tools can be applied more widely across fields such as urban, labor, trade, environmental, marketing, etc.

Topics that will be discussed in this module include 1) urban applications of IO demand analysis, including sorting models and the interaction between sorting and transportation policies; 2) productivity, including panel analysis, control functions, and semi-parametric estimation of productivity; 3) dynamic models, including oligopolistic dynamic models and recent advancement in methodology; 4) bargaining models, including Nash bargaining over price, Nash bargaining over both price and quantity; 5) two-sided markets and network economics; 6) implication of market power in environmental regulations. This is a tentative list and might change as we go along.

The course has some difficult econometrics, and it is expected that students have a basic comfort level with estimation. It is also expected that students will do requisite background reading in econometric theory where necessary. There is no primary textbook for this class. We will be using a combination of lecture notes and journal articles. All of the references are easily accessible from the web.

Class participation requirement We will send out a weekly announcement on papers to be discussed in class in the following week. All students are **REQUIRED** to read papers before class discussion. For some papers (especially recent successful job market papers), we will experiment with ‘turning the table around’ and combine formal lecturing with student-led discussions.

Presentations and research report Students are required to make one in-class presentation of their own research toward the end of the class and submit a 5-page research report before the semester concludes. In both your presentation and research report, you need to explain and motivate the research question. Why is it important and how does it extend the extant literature? Describe the structure governing agent behavior and explain how the data identifies the parameters of interest. Present data patterns and preliminary results if you have them. The presentation and

research proposal are intended to help you get started with your second-year paper, which will hopefully become part of your thesis.

In addition, we will assign one reading paper each week that is related to the class material. All students should prepare fifteen-minute presentation slides. We will randomly choose one student to present the paper at the end of the class.

Grading The course will be graded on class-attendance (10%), paper-presentation (30%), own research presentation (30%), and term paper (30%).

Topics and Readings

IO Applications in Urban Economics Patrick Bayer, Fernando Ferreira, and Robert McMillan. “A Unified Framework for Measuring Preferences for Schools and Neighborhoods.” *Journal of Political Economy*, 2007, vol. 115, no. 4.

Rebecca Diamond. “The Determinants and Welfare Implications of US Workers’ Diverging Location Choices by Skill: 1980-2000.” *American Economic Review*, 106(3): 479-524. 2016.

Milena Almagro and Tomás Domínguez-Iino. “Location Sorting and Endogenous Amenities: Evidence from Amsterdam.” University of Chicago Working Paper, 2022.

Sophie Calder-Wang. “The Distributional Impact of the Sharing Economy on the Housing Market.” Wharton working paper. Revise and Resubmit, *American Economic Review*, 2022.

Nick Tsivanidis. “Evaluating the Impact of Urban Transit Infrastructure: Evidence from Bogotá’s TransMilenio.” Berkeley working paper. Revise and Resubmit, *American Economic Review*, 2022.

Minseon Park and Dongwoo Hahm: “Location Choice, Commuting, and School Choice,” UW-Madison working paper. Park’s JMP.

Panle Barwick, Shanjun Li, Andrew Waxman, Jing Wu and Tianli Xia. “Efficiency and Equity Impacts of Urban Transportation Policies with Equilibrium Sorting.” Revise and resubmit at *American Economic Review*.

Productivity G. Steven Olley and Ariel Pakes. “The Dynamics of Productivity in the Telecommunications Equipment Industry.” *Econometrica*. Vol. 64, No. 6 (Nov., 1996), pp. 1263-1297

PLE Grieco, RC McDevitt. “Productivity and quality in health care: Evidence from the dialysis industry.” *The Review of Economic Studies*, 2017, 84 (3), 1071-1105

Daniel A. Akerberg, Kevin Caves, Garth Frazer. “Identification Properties of Recent Production Function Estimators.” *Econometrica*. December 2015

James Levinsohn, Amil Petrin. “Estimating Production Functions Using Inputs to Control for Unobservables.” *The Review of Economic Studies*, Volume 70, Issue 2, April 2003, Pages 317–341

Amit Gandhi, Salvador Navarro, and David A. Rivers. “On the Identification of Gross Output Production Functions.” *Journal of Political Economy*, 2020, Volume 128, Number 8

Mert Demirer, “Production Function Estimation with Factor-Augmenting Technology: An Application to Markups,” 2020 working paper

Jan De Loecker and Frederic Warzynski. “Markups and Firm-Level Export Status.” *American Economic Review* 2012, 102(6): 2437–2471

Michael Rubens: “Market Structure, Oligopsony Power, and Productivity,” 2023, Conditional Acceptance at AER

Kory Kroft, Yao Luo, Magne Mogstad, and Bradley Setzler: “Imperfect Competition and Rents in Labor and Product Markets: The Case of the Construction Industry,” 2022 working paper, R&R at AER

Bee Yan Aw, Mark J. Roberts, and Daniel Xu: “R&D Investment, Exporting, and Productivity Dynamics,” *American Economic Review*, June, 2011

Ulrich Doraszelski, Jordi Jaumandreu: “R&D and Productivity: Estimating Endogenous Productivity,” *The Review of Economic Studies*, October 2013,

For papers that use IO demand methods to estimate markup:

Paul Grieco, Charlie Murry, and Ali Yurukoglu, “The Evolution of Market Power in the US Auto Industry (April 2022)”, R&R at *The Quarterly Journal of Economics*

Nathan Miller, Matthew Osborne, Gloria Sheu, and Gretchen Sileo, “The Evolution of Concentration and Markups in the United States Cement Industry”, Working paper

Dynamic Models Rust, J. (1987). Optimal replacement of gmc bus engines: An empirical model of harold zurcher. *Econometrica: Journal of the Econometric Society* 55 (5), 999-1033.

Ariel Pakes. “Patents as Options: Some Estimates of the Value of Holding European Patent Stocks.” *Econometrica*. Vol. 54, No. 4 (Jul., 1986), pp. 755-784

Richard Ericson and Ariel Pakes, “Markov-Perfect Industry Dynamics: A Framework for Empirical Work,” *The Review of Economic Studies*, Jan 1995

Ariel Pakes and Paul McGuire, “Computing Markov-Perfect Nash Equilibria: Numerical Implications of a Dynamic Differentiated Product Model,” *The RAND Journal of Economics* Vol. 25, No. 4 (Winter, 1994), pp. 555-589 (35 pages)

Aguirregabiria, V. and P. Mira (2007). Sequential estimation of dynamic discrete games. *Econometrica* 75, 1-53.

Bajari, P., L. Benkard, and J. Levin (2007). Estimating dynamic models of imperfect competition. *Econometrica*.

Pesendorfer, M. and P. Schmidt-Dengler (2007). Asymptotic least squares estimators for dynamic games. *Review of Economic Studies*.

Pakes, A., M. Ostrovsky, and S. Berry (2007). Simple estimators for the parameters of discrete dynamic games (with entry / exit examples). *RAND Journal of Economics* 38 (2), 373-399.

Peter Arcidiacono, Robert A. Miller. “Conditional Choice Probability Estimation of Dynamic Discrete Choice Models With Unobserved Heterogeneity.” *Econometrica*. November 2011

Olivier De Groote and Frank Verboven, “Subsidies and Time Discounting in New Technology Adoption: Evidence from Solar Photovoltaic Systems,” *AER* 2019

Benkard, L. (2004, July). A dynamic analysis of the market for wide-bodied commercial aircraft. *Review of Economic Studies*.

Collard-Wexler, A. (2013). Demand fluctuations and plant turnover in the ready-mix concrete industry. *Econometrica* 81 (3), 1003-1037.

Ronald L. Goettler and Brett R. Gordon. “Does AMD Spur Intel to Innovate More?” *Journal of Political Economy*, Vol. 119, No. 6 (December 2011), pp. 1141-1200

Stephen P. Ryan. “The Costs of Environmental Regulation in a Concentrated Industry.” *Econometrica*, Vol. 80, No. 3 (May, 2012), 1019–1061

A Collard-Wexler. “Demand fluctuations in the ready-mix concrete industry.” *Econometrica* 81 (3), 1003-1037. 2013.

Sweeting, A. (2013). Dynamic product repositioning in differentiated product industries: The case of format switching in the commercial radio industry. *Econometrica* 81 (5).

Mitsuru (Michi) Igami. “Estimating the Innovator’s Dilemma: Structural Analysis of Creative Destruction in the Hard Disk Drive Industry, 1981–1998.” *The Journal of Political Economy*, 125:3 (June 2017), 798–847.

Mitsuru (Michi) Igami and Kosuke Uetake. “Mergers, Innovation, and Entry-Exit Dynamics: Consolidation of the Hard Disk Drive Industry, 1996–2016.” *The Review of Economic Studies*, 87:6 (November 2020), 2672–2702.

Panle Barwick, Myrto Kalouptsi and Nahim Zahur, “Industrial Policy Implementation: Empirical Evidence from China’s Shipbuilding Industry,” conditionally accepted at *Review of Economic Studies*. NBER working paper 26075.

Two-sided Markets and Network Economics Marc Rysman. “Competition between Networks: A Study of the Market for Yellow Pages.” *The Review of Economic Studies*, Vol. 71, No. 2 (Apr., 2004), pp. 483-512

Robin S. Lee. “Vertical Integration and Exclusivity in Platform and Two-Sided Markets.” *American Economic Review*, VOL. 103, NO. 7, December 2013

Michael Sullivan. “Price controls in a multi-sided market.” Job market paper. Yale University. 2022

Jullien, Bruno, Alessandro Pavan, and Marc Rysman. 2021. “Two-sided markets, pricing, and network effects.” In *Handbook of Industrial Organization*, Volume 4, edited by Ho, Kate, Ali Hortacsu, and Alessandro Lizzeri Volume 4. of *Handbook of Industrial Organization* 485-592.

Gaineddenova, Renata. 2022. “Pricing and efficiency in a decentralized ride-hailing platform.” Unpublished working paper.

Juan Camilo Castillo. “Who Benefits from Surge Pricing?” *Revise and Resubmit at Econometrica*.

Market Power and Environmental Regulations Buchanan, James M., “External Diseconomies, Corrective Taxes, and Market Structure,” *The American Economic Review*, 1969, 59 (1), 174–177.

Fowlie, Meredith, Mar Reguant, and Stephen P Ryan, “Market-based emissions regulation and industry dynamics,” *Journal of Political Economy*, 2016, 124 (1), 249–302.

Panle Barwick, Hyuk-soo Kwon, and Shanjun Li. “Attribute-based Subsidies and Market Power: an Application to Electric Vehicles.” Working paper.