

# ECON 5480 – Industrial Organization

Spring 2024

Thursday 12:30 – 3:15 PM ELB 304

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Office hours: TBD and by appointment

**Course Description:** This is the second half of the graduate industrial organization (IO) course. While our main focus is on empirical methodology and applied research topics in modern IO, we will review and discuss relevant theoretical topics on a need basis. The objective of this course is to introduce students to empirical methods commonly used in the field, including structural econometric approaches to estimation of consumer demand, static entry games, and (single-agent) dynamic discrete choice problems. We will cover applications of empirical IO methods in analyzing anti-trust, regulations, and a variety of policy issues in other related fields (e.g., marketing, public, environmental, banking, innovation, trade, media, and political economy).

## **Suggested Readings:**

(General textbooks for IO theory)

Tirole, Jean, 1988. *The Theory of Industrial Organization*. MIT Press.

Belleflamme, Paul and Martin Peitz, 2015. *Industrial Organization: Markets and Strategies*. Cambridge University Press.

(Other topics) [See the materials on the course Blackboard site.](#)

## **Method of Evaluation: Participation (5%), Referee Report (10%), In-class Presentations (15%), and Assignment (20%)**

**Participation:** Participation will be graded based on attendance and contribution to the class. Lecture attendance is mandatory. You may want to notify me in advance or give me a note afterward for any medical emergency, religious holiday, etc. Communication is highly valued in this class. I encourage you to ask questions and express your thoughts during the lectures. *There is no such thing as a stupid question.* When necessary, I will randomly choose a name to answer my question and/or to speak up. One can lose one participation point if she/he is absent without a valid excuse or refuses to speak.

**Assignment:** There will be one group assignment on demand estimation à la BLP (Berry, Levinsohn, and Pakes, 1995, *Econometrica*). Students will work in groups of 2-3 members. More details will be announced in class.

**Presentation:** Students will form groups of two for a 40-minute presentation, which accounts for 15% of the overall grade. Students need to discuss with the professor on their choice of paper 2-3 weeks in advance. All students – including non-presenters - are expected to carefully study the assigned readings and actively participate in the discussion. More details will be announced in class.

**Referee report:** Writing a referee report is an essential service of researchers for the academic community. In this class, students will practice writing a referee report on a recent IO research paper (from a list of papers that will be provided later in class). More detailed guidance will be available on the Blackboard site.

**Tentative Class Schedule:**

<i>Date</i>	<i>Topics</i>
March 7	Introduction, structural vs. reduced-form analysis, production function
March 14	Theories of product differentiation, empirical analysis of market power
March 21	Demand estimation and applications
March 28	Empirical research using demand estimation techniques
April 4	(Qing Ming festival, no class)
April 11	Information & advertising, platforms, media markets
April 18	Static entry game, endogenous product characteristics
April 22-23 (make up)	Other topics ( <i>class presentation</i> )

**Students with Special Needs:** If you have a documented disability and need special accommodations, please see me as soon as possible.

**Academic Honesty:** Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations. Details may be found at <http://www.cuhk.edu.hk/policy/academichonesty/>. The sample statement can be downloaded at [http://www.cuhk.edu.hk/policy/academichonesty/Eng\\_hm\\_files\\_\(2013-14\)/declaration\\_en.doc](http://www.cuhk.edu.hk/policy/academichonesty/Eng_hm_files_(2013-14)/declaration_en.doc).

## **Selected Readings (by topics):**

### **"Reduced-form" and structural approaches to empirical research**

\*Joshua D. Angrist and Jörn-Steffen Pischke. (2010). The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics. *Journal of Economic Perspectives*, 24(2), 3-30.

\*Aviv Nevo and Michael D. Whinston. (2010). Taking the Dogma out of Econometrics: Structural Modeling and Credible Inference. *Journal of Economic Perspectives*, 24(2), 69-82.

Raj Chetty. (2009). Sufficient Statistics for Welfare Analysis: A Bridge Between Structural and Reduced-Form Methods. *Annual Review of Economics*, 1, 451-488.

Ariel Pakes. (2010). Comments on "Sufficient Statistics for Policy Evaluation".

E. Glen Weyl. (2019). Price Theory. *Journal of Economic Literature*, 57(2), 329-84.

John Rust. (2014). The Limits of Inference with Theory: A Review of Wolpin (2013). *Journal of Economic Literature*, 52(3), 820-850.

Christopher A. Sims. (2010). But Economics Is Not an Experimental Science. *Journal of Economic Perspectives*, 24(2), 59-68.

### **Production function estimation**

\*Olley, S. and Pakes, A. (1996). The Dynamics of Productivity in the Telecommunications Equipment Industry. *Econometrica* 64:1263-1295

Griliches, Z. and J. Mairesse. (1998). Production Functions: The Search for Identification. In: *Econometrics and Economic Theory in the Twentieth Century: The Ragnar Frisch Centennial Symposium*, ed. S. Strom. Cambridge, UK: Cambridge University Press.

Levinsohn, J. and Petrin, A. (2003). Estimating Production Functions Using Inputs to Control for Unobservables. *Review of Economic Studies*, 317-342

Ackerberg, D., K. Caves and G. Fraser. (2004). Structural Identification of Production Functions. mimeo, UCLA.

Amit Gandhi, Salvador Navarro and David Rivers. (2018). On the Identification of Production Functions: How Heterogeneous is Productivity. *Journal of Political Economy*.

### **Oligopoly analysis of price competition and product differentiation**

\*Tirole, Chapter 7

Belleflamme and Peitz, Chapter 4

Anderson, S.P, A De Palma, J. Thisse. (1992). *Discrete choice theory of product differentiation*. MIT Press.

Volker Nocke and Nicolas Schutz. (2018). Multiproduct Firm Oligopoly: An Aggregative Games Approach. *Econometrica*, 86(2), 523-557.

Simon P. Anderson, Nisvan Erkal, and Daniel Piccinin. (2020). Aggregative games and oligopoly theory: short-run and long-run analysis. *Rand Journal of Economics*, 51(2), 470-495.

### **Empirical analysis of market power**

\*Porter R.H. (1983). A study of cartel stability: The joint executive committee, 1880–1886. *Bell Journal of Economics*, 14, 301-314.

Timothy F. Bresnahan. (1989). Chapter 17: Empirical studies of industries with market. In *Handbook of Industrial Organization*.

Bresnahan T.F. (1987). Competition and collusion in the American automobile oligopoly: The 1955 price war. *Journal of Industrial Economics*.

Federico Ciliberto and Jonathan W. Williams. (2014). Does multimarket contact facilitate tacit collusion? Inference on conduct parameters in the airline industry. *RAND Journal of Economics*, 45(4), 764-791.

### **Demand estimation and applications**

\*Berry, S. (1994). Estimating Discrete-Choice Models of Product Differentiation. *Rand Journal of Economics*, 25, 242–262.

\*Berry, S., J. Levinsohn, and A. Pakes. (1995). Automobile Prices in Market Equilibrium. *Econometrica*, 63, 841–890.

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

Deaton, A., and J. Muellbauer. (1980). An Almost Ideal Demand System. *American Economic Review*, 70, 312–326.

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

Goldberg, P. (1995). Product Differentiation and Oligopoly in International Markets: The Case of the Automobile Industry. *Econometrica*, 63, 891–951.

Berry, S., J. Levinsohn, and A. Pakes. (1999). Voluntary Export Restraints on Automobiles: Evaluating a Strategic Trade Policy. *American Economic Review*, 89 (3), 400–430.

Aviv Nevo. (2000). Mergers with Differentiated Products: The Case of the Ready-to-Eat Cereal Industry. *RAND Journal of Economics*, 31(3), 95-421, 2000.

Aviv Nevo. (2000). Measuring Market Power in the Ready-to-Eat Cereal Industry. *Econometrica*, 69(2), 307-342.

Amil Petrin. (2002). Quantifying the Benefits of New Products: The Case of the Minivan. *Journal of Political Economy*, 110: 705-729.

### **Economics of advertising and platform markets**

Rochet, J.-C. and J. Tirole. (2003), Platform competition in two-sided markets. *Journal of European Economic Association*, 1: 990-1029.

\*Armstrong, M. (2006), Competition in Two-Sided Markets. *RAND Journal of Economics*, 37: 668-691.

Anderson, S. P. and S. Coate (2006), Market Provision of Broadcasting: A Welfare Analysis. *Review of Economic Studies*, 72 (4): 947-972.

\*Bagwell, K. (2007): The economic analysis of advertising, *Handbook of Industrial Organization*, vol. 3, 1701-1844.

Weyl, E. G., A price theory of multi-sided platforms. *American Economic Review*, 100(4): 1642-1672.

Anderson, S. P., and B. Jullien (2016), "The Advertising-Financed Business Model in Two-Sided Media Markets ." in *The Handbook of Media Economics*, Simon Anderson, David Stromberg and Joel Waldfogel eds., Volume 1A, Elsevier.

Akerberg, D. (2001). Empirically Distinguishing Informative and Prestige Effects of Advertising, *RAND Journal of Economics*, 32, 100-118.

Akerberg, D. (2003). Advertising, Learning, and Consumer Choice in Experience Goods Markets: A Structural Empirical Examination, *International Economic Review*, 44, 1007-1040.

\*Rysman, M. (2004), Competition Between Networks: a Study of the Market for Yellow Pages, *Review of Economic Studies*, 71 (2): 483-512.

Gentzkow, M. (2007), Valuing New Goods in a Model with Complementarities: Online Newspapers, *American Economic Review*, 97 (3): 713-744.

Sovinsky-Goeree, Michelle. (2008). Limited Information and Advertising in the U.S. Personal Computer Industry. *Econometrica*, 76(5), 1017-1074.

Wilbur, K. C. (2008), A Two-Sided, Empirical Model of Television Advertising and Viewing Markets, *Marketing Science*, 27 (3): 356-378.

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

Gentzkow, M., J. M. Shapiro, and M. Sinkinson. (2014), Competition and Ideological Diversity: Historical Evidence from US Newspapers. *American Economic Review*, 104(10).

### **Entry and discrete games**

\*Berry, S. (1992). Estimation of a Model of Entry in the Airline Industry, *Econometrica*, 60, 889-917.

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

Bresnahan, T., and P. Reiss. (1991). Entry and Competition in Concentrated Markets, *Journal of Political Economy*, 99, 977-1009.

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

A. Pakes, J. Porter, K. Ho and J. Ishii. (2015). Moment Inequalities and Their Application, *Econometrica*, 83, 315-334.

### **Applications in the Chinese context**

Ito, Koichiro, and Shuang Zhang, "Willingness to Pay for Clean Air: Evidence from Air Purifier Markets in China, " *Journal of Political Economy*, 128(5), 2020.

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

Xiao, Junji, and Heng Ju, "Market Equilibrium and the Environmental Effects of Tax Adjustments in China's Automobile Industry," *Review of Economics and Statistics*, 96(2), 2014.

Barwick, Panle J., Shengmao Cao and Shanjun Li, "Local Protectionism, Market Structure, and Social Welfare: China's Automobile Market," Forthcoming at *American Economic Journal: Economic Policy*.