

**ECO 7938 (026D)**  
**Mat 336**  
**392 7859**

**Spring 2018**  
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## **Empirical Industrial Organization**

This is the second course on the economics of industrial organization. The goal of this course is to introduce you to some modern empirical work in industrial organization. The reading list is more extensive than what we will actually cover; it is intended to serve as a reference guide for your future work and as a general bibliography. At the beginning of each section, I will announce which articles we will cover in class.

**Prerequisites** Some knowledge about Ph.D. level of microeconomic theory, game theory and econometrics are required prerequisites.

### **Requirements**

#### *Class Discussion:*

I will expect all students to come to class prepared to discuss the assigned readings (to be announced at least one class ahead). Each student will have an assignment to present one (or more) papers in class. You are expected to attend all class sessions; unexcused absences will result in grade penalties.

#### *Written Assignments:*

There will be approximately one every two weeks. Part of these assignments will be problems related to material covered in class. You may discuss these problems with other students, but you must turn in your own answers.

#### *Take-home final exam:*

It will comprise problems and essays on topics covered. It may also include a careful analysis of a paper not covered in class. You are forbidden to discuss the exam questions with anyone other than the instructor; noncompliance will be a serious violation of academic honesty.

**Class Times** MW 5<sup>th</sup> and 6<sup>th</sup> periods, MAT 114

**Office Hours** by appointment

**Text:** There is no text for this class, although you may find it useful to consult the texts from the first module class. The *Handbook of Industrial Organization* and the *Handbook of Econometrics* (both published by Elsevier) have many useful chapters to guide you through the relevant literature. Chapters can be

downloaded from <http://www.sciencedirect.com/>. I list some chapters in the syllabus, but you should be aware of other chapters for later research.

### **Abbreviations of Journal Titles**

The following abbreviations are used for journal titles:

AER American Economic Review

BJE Bell Journal of Economics

EMA Econometrica

IER International Economic Review

IJO International Journal of Industrial Organization

JE Journal of Econometrics

JEH Journal of Economic History

JEL Journal of Economic Literature

JEMS Journal of Economics & Management Strategy

JEP Journal of Economic Perspectives

JET Journal of Economic Theory

JIE Journal of Industrial Economics

JLE Journal of Law and Economics

JPE Journal of Political Economy

QJE Quarterly Journal of Economics

ReStat Review of Economics and Statistics

ReStud Review of Economic Studies

RJE Rand Journal of Economics

### **I. Introduction**

D. Akerberg, L. Benkard, S. Berry and A. Pakes, "Econometric Tools for Analyzing Market Outcomes," *Handbook of Econometrics*, Volume 6A, Chapter 63.

M. Armstrong and R. Porter, eds., *Handbook of Industrial Organization*, Volume 3, North-Holland, 2007. (*HIO3*)

P. Davis and E. Garces, *Quantitative Techniques for Competition and Antitrust Analysis*, Princeton University Press, 2010.

L. Einav and J. Levin, "Empirical Industrial Organization: A Progress Report," *JEP*, Spring 2010, 145-62.

P. Reiss and F. Wolak, "Structural Econometric Modeling: Rationales and Examples from Industrial Organization," *Handbook of Econometrics*, Volume 6A, Chapter 64.

R. Schmalensee and R. Willig, eds., *Handbook of Industrial Organization*, Volumes 1 and 2, North-Holland, 1989. (*HIO1 and HIO2*)

## II. Empirical Studies of Pricing

### 1. Static Models

O. Ashenfelter and D. Sullivan, "Nonparametric Tests of Market Structure: An Application to the Cigarette Industry," *JIE*, June 1987, 483-98.

J. Baker and T. Bresnahan, "Estimating the Residual Demand Curve Facing a Single Firm," *IJIO*, September 1988, 283-300.

\*T. Bresnahan, "The Oligopoly Solution is Identified," *Economics Letters*, 1980, 87-92.

\*T. Bresnahan, "Empirical Studies of Industries with Market Power," *HIO2*, Chapter 17.

A. Carvajal, R. Deb, J. Fenske and J. Quah, "Revealed Preference tests of the Cournot Model," *EMA*, November 2013, 2351-79.

K. Corts, "Conduct Parameters and the Measurement of Market Power," *JE*, November 1998, 227-50.

N. Fabra and M. Reguant, "Pass-Through of Emissions Costs in Electricity Markets," *AER*, September 2014, 2872-99.

D. Genesove and W. Mullin, "Testing Static Oligopoly Models: Conduct and Cost in the Sugar Industry, 1890-1914," *RJE*, Summer 1998, 355-77.

J. Panzar and J. Rosse, "Testing for 'Monopoly' Equilibrium," *JIE*, June 1987, 443-56.

\*R. Schmalensee, "Inter-industry Studies of Structure and Performance," *HIO2*, Chapter 16.

### 2. Repeated Interaction

\*S. Borenstein and A. Shepard, "Dynamic Pricing in Retail Gasoline Markets," *RJE*, Autumn 1996, 429-51.

M. Chicu and N. Ziebarth, "Multi-market Contact and Competition: Evidence from the Depression-Era Portland Cement Industry," *IJIO*, September 2013, 603-11.

\*G. Ellison, "Theories of Cartel Stability and the Joint Executive Committee," *RJE*, Spring 1994, 37-57.

\*R. Porter, "A Study of Cartel Stability: The Joint Executive Committee, 1880-1886," BJE, Autumn 1983, 301-14.

### **III. Production, Technology and Industry Structure**

\*D. Akerberg, K. Caves and G. Frazer, "Structural Estimation of Production Functions," mimeo, UCLA, 2007.

L. Benkard, "Learning and Forgetting: The Dynamics of Aircraft Production," AER, September 2000, 1034-54.

R. Blundell and S. Bond, "GMM Estimation with Persistent Panel Data: An Application to Production Functions," Econometric Reviews, 2000, 321-340.

U. Doraszelski and J. Jaumandreu, "R&D and Productivity: Estimating Endogenous Productivity," ReStud, October 2013, 1338-83.

\*A. Gandhi, S. Navarro and D. Rivers, "On the Identification of Production Functions: How Heterogeneous is Productivity?" mimeo, Wisconsin, 2013.

\*Z. Griliches and J. Mairesse, "Production Functions: The Search for Identification," mimeo, NBER, 1995.

J. Levinsohn and A. Petrin, "Estimating Production Functions Using Intermediate Inputs to Control for Unobservables," ReStud, April 2003, 317-41.

S. Levitt, J. List and C. Syverson, "Toward an Understanding of Learning by Doing: Evidence from an Automobile Assembly Plant," JPE, August 2013, 643-81.

J. De Loecker, "Product Differentiation, Multi-Product Firms and Estimating the Impact of Trade Liberalization on Productivity," EMA, September 2011, 1407-51.

J. De Loecker and F. Warzynski, "Markups and Firm Level Export Status," AER, October 2012, 2437-71.

\*S. Olley and A. Pakes, "The Dynamics of Productivity in the Telecommunications Industry," EMA, November 1996, 1263-97.

J. Panzar, "Technological Determinants of Firm and Industry Structure," *HIOI*, Chapter 1.

C. Syverson, "Market Structure and Productivity: A Concrete Example," JPE, December 2004, 1181-222.

F. Wolak, "An Econometric Analysis of the Asymmetric Information, Regulator-Utility Interaction," *Annales d'Economie et de Statistique*, 1994, 13-69.

## **IV. Empirical Studies of Differentiated Products Industries**

### **1. Pricing and Demand Models**

S. Anderson, A. de Palma and J. Thisse, *Discrete Choice Theory of Product Differentiation*, MIT Press, 1992.

S. Berry, "Estimating Discrete-Choice Models of Product Differentiation," *RJE*, Summer 1994, 242-62.

S. Berry and P. Haile, "Identification in Differentiated Products Markets Using Market Level Data," *EMA*, September 2014, 1749-97.

\*S. Berry, J. Levinsohn and A. Pakes, "Automobile Prices in Market Equilibrium," *EMA*, July 1995, 841-90.

S. Berry, J. Levinsohn and A. Pakes, "Differentiated Products Demand Systems from a Combination of Micro and Macro Data: The New Car Market," *JPE*, February 2004, 68-105.

S. Berry and A. Pakes, "The Pure Characteristics Demand Model," *IER*, November 2007, 1193-450-2, 225.

T. Bresnahan, "Competition and Collusion in the American Automobile Market: The 1955 Price War," *JIE*, June 1982, 457-482.

\*P. Goldberg, "Product Differentiation and Oligopoly in International Markets: The Case of the U.S. Automobile Industry," *EMA*, July 1995, 891-951.

J. Hausman, G. Leonard and J. Zona, "Competitive Analysis with Differentiated Products," *Annales D'Economie et de Statistique*, April/June 1994, 159-80.

\*I. Hendel, "Estimating Multiple Discrete Choice Models: An Application to Computerization Returns," *ReStud*, April 1999, 423-46.

D. McFadden, "Econometric Analysis of Qualitative Response Models," *Handbook of Econometrics*, Volume 2, Chapter 24.

\*A. Nevo, "A Practitioner's Guide to Estimation of Random Coefficients Logit Models of Demand," *JEMS*, Winter 2000, 513-48.

\*A. Nevo, "Measuring Market Power in the Ready-to-Eat Cereal Industry," *EMA*, March 2001, 307-42.

A. Nevo, "Empirical Models of Consumer Behavior," *Annual Review of Economics*, 2011, 51- 75.

## **2. Welfare (if time permits)**

### *Welfare Measures Computed from Estimated Demand Systems*

D. Akerberg and M. Rysman, "Unobservable Product Differentiation in Discrete Choice Models: Estimating Price Elasticities and Welfare Effects," *RJE*, Winter 2005, 771-88.

\*T. Bresnahan, S. Stern and M. Trajtenberg, "Market Segmentation and the Sources of Rents from Innovation," *RJE*, 1997, S17-S44.

M. Gentzkow, "Valuing New Goods in a Model with Complementarity: Online Newspapers," *AER*, June 2007, 713-44.

J. Hausman, "Valuation of New Goods Under Perfect and Imperfect Competition," in T. Bresnahan and R. Gordon, eds. *The Economics of New Goods*, NBER, 1996. Including comment by Bresnahan (in the same volume) and [reply to comment](#) (and [reply to reply](#)).

J. Hausman, "Cellular Telephone, New Products and the CPI," *Journal of Business and Economic Statistics*, 1999, 188-94.

A. Nevo, "New Products, Quality Changes and Welfare Measures Computed from Estimated Demand Systems," *ReStat*, 2003, 266-75.

\*A. Petrin, "Quantifying the Benefits of New Products: The Case of the Minivan," *JPE*, August 2002, 705-29.

\*M. Trajtenberg, "The Welfare Analysis of Product Innovations, with an Application to Computed Tomography Scanners," *JPE*, April 1989, 444-79.

## **V. Price Discrimination**

\*J. Allen, R. Clark and J.-F. Houde, "The Effect of Mergers in Search Markets: Evidence from the Canadian Mortgage Industry," *AER*, October 2014, 3365-96.

M. Busse and M. Rysman, "Competition and Price Discrimination in Yellow Pages Advertising," *RJE*, Summer 2005, 378-90.

\*C. Chu, P. Leslie and A. Sorensen, "Bundle-Size Pricing as an Approximation to Mixed Bundling," *AER*, February 2011, 263-303.

- \*G. Crawford and A. Yurukoglu, "The Welfare Effects of Bundling in Multi-Channel Television Markets," *AER*, March 2012, 643-85.
- K. Gerardi and A. Shapiro, "Does Competition Reduce Price Dispersion? New Evidence from the Airline Industry," *JPE*, February 2009, 1-37.
- P. Goldberg, "Dealer Price Discrimination in New Car Purchases: Evidence from the Consumer Expenditure Survey," *JPE*, June 1996, 622-54.
- M. Grennan, "Price Discrimination and Bargaining: Empirical Evidence from Medical Devices," *AER*, February 2013, 145-77.
- J. Lazarev, "The Welfare Effects of Intertemporal Price Discrimination: An Empirical Analysis of Airline Pricing in U.S. Monopoly Markets," mimeo, NYU, 2013.
- P. Leslie, "Price Discrimination in Broadway Theater," *RJE*, Autumn 2004, 520-41.
- B. McManus, "Nonlinear Pricing in an Oligopoly Market: The Case of Specialty Coffee," *RJE*, Summer 2007, 512-32.
- J. Mortimer, "Price Discrimination, Copyright Law and Technological Innovation: Evidence from the Introduction of DVDs," *QJE*, August 2007, 1307-50.
- A. Nevo and C. Wolfram, "Why Do Manufacturers Issue Coupons? An Empirical Analysis of Breakfast Cereals," *RJE*, Summer 2002, 319-39.
- A. Shepard, "Price Discrimination and Retail Configuration," *JPE*, February 1991, 30-53.
- B. Shiller and J. Waldfogel, "Music for a Song: An Empirical Look at Uniform Song Pricing and its Alternatives," *JIE*, December 2011, 630-60.
- L. Stole, "Price Discrimination and Competition," *HIO3*, Chapter 34.
- \*A. Sweeting, "Dynamic Pricing Behavior in Perishable Goods Markets: Evidence from Secondary Markets for Major League Baseball Tickets," *JPE*, December 2012, 1133-72.
- H. Varian, "Price Discrimination," *HIO1*, Chapter 10.
- \*S. Villas-Boas, "An Empirical Investigation of the Welfare Effects of Banning Wholesale Price Discrimination," *RJE*, Spring 2009, 20-46.

K. Williams, "Dynamic Airline Pricing and Seat Availability," mimeo, Yale SoM, 2013.

## **VI. Market Structure**

### **1. Entry Models**

P. Bajari, H. Hong and S. Ryan, "Identification and Estimation of Discrete Games of Complete Information," EMA, September 2010, 1529-68.

\*S. Berry, "Estimation of a Model of Entry in the Airline Industry," EMA, July 1992, 889–918.

S. Berry and P. Reiss, "Empirical Models of Entry and Market Structure," *HIO3*, Chapter 29.

\*S. Berry and E. Tamer, "Identification in Models of Oligopoly Entry," in R. Blundell, W. Newey and T. Persson, eds., *Advances in Economics and Econometrics: Theory and Applications*, Vol. 2, Cambridge, 2007, Chapter 2.

S. Berry and J. Waldfogel, "Free Entry and Social Inefficiency in Radio Broadcasting," RJE, Autumn 1999, 397-420.

S. Berry and J. Waldfogel, "Product Quality and Market Size," JIE, March 2010, 1-31.

T. Bresnahan and P. Reiss, "Entry in Monopoly Markets," ReStud, October 1990, 531-53

T. Bresnahan and P. Reiss, "Entry and Competition in Concentrated Markets," JPE, October 1991, 977–1009.

\*F. Ciliberto and E. Tamer, "Market Structure and Multiple Equilibria in Airline Markets," EMA, November 2009, 1791-828.

M. Gentzkow, J. Shapiro and M. Sinkinson, "Competition and Ideological Diversity: Historical Evidence from US Newspapers," AER, October 2014, 3073-114.

\*P. Grieco, "Discrete Games with Flexible Information Structures: An Application to Local Grocery Markets," RJE, Summer 2014, 303-40.

\*P. Jia, "What Happens When Wal-Mart Comes to Town: An Empirical Analysis of the Discount Retail Industry," EMA, November 2008, 1263-316.



J. Kuehn, "Spillovers from Entry: The Impact of Bank Branch Network Expansion," mimeo, UCLA, 2014.

D. Matsa, "Competition and Product Quality in the Supermarket Industry," QJE, August 2011, 1539-91.

M. Mazzeo, "Product Choice and Oligopoly Market Structure," RJE, Summer 2002, 221-42.

\*K. Seim, "An Empirical Model of Firm Entry with Endogenous Product-Type Choices," RJE, Autumn 2006, 619-40.

A. Sweeting, "The Effects of Mergers on Product Positioning: Evidence from the Music Radio Industry," RJE, Summer 2010, 372-97.

E. Tamer, "Incomplete Simultaneous Discrete Response Model with Multiple Equilibria," ReStud, January 2003, 147-65.

R. Watson, "Product Variety and Competition in the Retail Market for Eyeglasses," JIE, June 2009, 217-51.

T. Wollman, "Trucks without Bailouts: Equilibrium Product Characteristics for Commercial Vehicles," mimeo, Harvard, 2014.

## **2. Entry Deterrence**

\*G. Ellison and S. Ellison, "Strategic Entry Deterrence and the Behavior of Pharmaceutical Incumbents Prior to Patent Expiration," AEJ: Micro, February 2011, 1-36.

\*A. Goolsbee and C. Syverson, "How do Incumbents Respond to the Threat of Entry? Evidence from the Major Airlines," QJE, November 2008, 1611-33.

\*C. Snider, "Predatory Incentives and Predation Policy: The American Airlines Case," mimeo, UCLA, 2009.

C. Snider and J. Williams, "Barriers to Entry in the Airline Industry: A Regression Discontinuity Approach," mimeo, UCLA, 2011.

## **3. Entry, Growth, and Turnover**

J. Abbring and J. Campbell, "Last-in First-out Oligopoly Dynamics," EMA, September 2010, 1491-527.

T. Bresnahan and D. Raff, "Inter-industry Heterogeneity and the Great Depression: The American Motor Vehicles Industry, 1929-1935," *JEH*, June 1991, 317-31.

B. Bronnenberg, S. Dhar and J.-P. Dube, "Brand History, Geography, and the Persistence of Brand Shares," *JPE*, February 2009, 87-114.

R. Caves, "Industrial Organization and New Findings on the Turnover and Mobility of Firms," *JEL*, December 1998, 1947-82.

A Collard-Wexler, "Mergers and Sunk Costs: An Application to the Ready-Mix Concrete Industry," *AEJ: Micro*, November 2014, 407-47.

T. Dunne, M. Roberts, and L. Samuelson, "Patterns of Firm Entry and Exit in U.S. Manufacturing," *RJE*, Winter 1988, 495-515.

\*T. Dunne, M. Roberts, and L. Samuelson, "The Growth and Failure of U.S. Manufacturing Plants," *QJE*, November 1989, 671-98.

\*P. Ellickson, "Does Sutton Apply to Supermarkets?" *RJE*, Spring 2007, 43-59.

\*H. Hopenhayn, "Entry, Exit and Firm Dynamics in Long Run Equilibrium," *EMA*, September 1992, 1127-50.

\*B. Jovanovic, "Selection and the Evolution of Industry," *EMA*, May 1982, 649-70. A. Pakes and R. Ericson, "Empirical Applications of Alternative Models of Firm Dynamics," *JET*, March 1998, 1-45.

J. Sutton, "Gibrat's Legacy," *JEL*, March 1997, 40-59.

J. Sutton, "Market Structure: Theory and Evidence," *HIO3*, Chapter 36.

## **VII. Advertising**

D. Akerberg, "Empirically Distinguishing Informative and Prestige Effects of Advertising," *RJE*, Summer 2001, 316-33.

K. Bagwell, "The Economic Analysis of Advertising," *HIO3*, Chapter 28.

L. Benham, "The Effects of Advertising on the Price of Eyeglasses," *JLE*, October 1972, 337-5.

\*B. Bollinger, P. Leslie and A. Sorensen, "Calorie Posting in Chain Restaurants," *AEJ: Economic Policy*, February 2011, 91-128.

B. Bronnenberg, J.P. Dube, M. Gentzkow and J. Shapiro, "Do Pharmacists Buy Bayer? Informed Shoppers and the Brand Premium," mimeo, Chicago Booth, 2014.

D. Dranove and G. Jin, "Quality Disclosure and Certification: Theory and Practice," JEL, 450-2, December 2010, 935-63.

\*G. Ellison and S. Ellison, "Search, Obfuscation and Price Elasticities on the Internet," EMA, March 2009, 427-52.

M. Goeree, "Limited Information and Advertising in the US Personal Computer Industry," EMA, September 2008, 1017-74.

\*G. Jin and P. Leslie, "The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards," QJE, May 2003, 409-51.

\*G. Lewis, "Asymmetric Information, Adverse Selection and Online Disclosure: The Case of eBay Motors," AER, June 2011, 1535-46.

A. Mathios, "The Impact of Mandatory Disclosure Laws on Product Choice: An Analysis of the Salad Dressing Market," JLE, October 2000, 651-77.

R. McDevitt, "'A' Business by Any Other Name: Firm Name Choice as a Signal of Firm Quality," JPE, August 2014, 909-44.

\*J. Milyo and J. Waldfogel, "The Effect of Price Advertising on Prices: Evidence in the Wake of 44 Liquormart," AER, December 1999, 1081-96.

R. Sauer and K. Leffler, "Did the Federal Trade Commission's Advertising Substantiation Program Promote More Credible Advertising?" AER, March 1990, 191-203.

\*A. Sweeting, "The Strategic Timing Incentives of Commercial Radio Stations: An Empirical Analysis Using Multiple Equilibria," RJE, Winter 2009, 710-42