

NORTHEASTERN UNIVERSITY
Department of Economics

ECNG771
Framework of Industrial Organization
Spring 2006

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Lectures: M/Th 4:00 PM-5:30 PM, 204 Behrakis
Office Hours: Tuesday 10:30am to 11:59am, Wednesday 2:30pm to 4:30pm, and by appointment

Objectives: This course provides a graduate level introduction to theoretical and empirical industrial organization. It is the first in the two-course Ph.D. industrial organization sequence. It is designed to provide a framework of this field and to expose students to useful techniques commonly used in the field. This course also aims to foster thinking about the process of conducting original research in industrial organization.

Prerequisites: ECNG 710 (Micro Theory II) and ECNG740 (Applied Econometrics II).

Required Texts:

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

Useful Books:

Carlton, Dennis W., and Jeffrey M. Perloff. 2004. *Modern Industrial Organization*. New York, New York: Addison-Wesley.

Church, Jeffrey and Roger Ware. 2000. "Industrial Organization: A Strategic Approach." Irwin McGraw-Hill.

Martin, Stephen. 2001. *Advanced Industrial Economics*. Malden, Massachusetts: Blackwell Publishing.

Schmalensee, Richard, and Robert D. Willig, eds. 1989. *Handbook of Industrial Organization, Volumes I and II*. New York: North Holland.

Assessment: a midterm Exam (15%), a final exam (30%), a presentation (10%), a research paper/proposal (35%) and class participation (10%).

Class participation: It is very important for you to read the assigned book chapters and papers before the lectures. Only by reading first, can you participate in class discussions and learn in an active way. Listening to the lectures passively will not help you in terms of creative thinking or doing original research. When you read the papers, keep in mind the following questions. Ideally you should prepare an answer to each question before the class meets.

Empirical paper:

- What is the research question? Why is it interesting to study this question?

- What are the related theories and literature? What are the testable implications from the theories?
- What is the data? How do the authors get their data?
- What are the key empirical relationships?
- What is the estimation method and identification strategy?
- What are the key empirical findings? How do the authors interpret the empirical findings? What are the implications for theory and policy?
- What are the strengths and weaknesses of this paper? Any criticism?
- What did you learn from this paper?

Theoretical paper:

- What is the main idea or theory?
- What are the key assumptions? Why these assumptions?
- What are the main conclusions?
- What concepts and techniques are used to prove the results?
- Does the theory have empirical implications? How can you go about testing the theory?
- Any criticism for the paper?
- What did you learn from the paper?

I will occasionally assign problem sets. The answers will be reviewed during the lecture. Some of the questions are from the textbooks. Even though the textbook provides answers to those questions, I expect you to try to work out the answers by yourself. Doing this will help you prepare for exams and deepen your understanding of the material.

Exams:

- Exams are closed-book, closed-notes. The midterm will be held in class. The time and place of the final are to be determined. There are no make-up exams for either the midterm or the final.

Presentations:

- You will be required to present (with overhead transparencies or PowerPoint) a published or working paper in industrial organization.
- I will make suggestions as to which paper to present. The paper should be related to the topics covered in this class. A useful resource for selecting papers is the course reading list. The paper you chose is subject to my approval.
- Each presentation should take the form of a mini-seminar: you should assume that the audience has not read the paper and be prepared to answer questions about the paper both during and after the presentation.
- The presentations will be 45 minutes long, but to allow for interruptions and questions at the end, you should plan to speak for only 35-40 minutes.
- Dates: to be discussed.

Research Paper:

- This is a research paper (or proposal) intended to get you started thinking about original work and help you learn how to discover or develop a dissertation topic.

- However, it is not the objective of this course that you will be able to discover a dissertation topic during the course of this class.
- My preference is that the research paper focuses on topics addressed in class, but subject to my approval, you may choose a different topic to research.
- In keeping with the applied nature of the program, the research should be an empirical paper. A good empirical paper tests new (your own) or existing theory or has important implications for theory. The paper should clearly state (1) the specific research question to be addressed, (2) why the research question is of interest to economists, and (3) how you will answer the question.
- With respect to addressing your question, you should review the relevant theoretical and empirical literature, discuss your methodology (including the hypotheses and empirical methods), identify the necessary data and, if feasible, provide descriptive statistics and preliminary analysis.
- It is often difficult to obtain the data. Therefore, you will not be penalized if you cannot obtain the data by the due date, but you need to convince me that the data is obtainable.
- A one-page summary of the research proposal is due on **Monday March 13, 2006**. Final proposal is due on the last class.

Readings

(Required readings are indicated by an asterisk. I will designate more required reading as we go along.)

1. Firm

*Tirole, Theory of the Firm

Alchian, A., and H. Demsetz. 1972. "Production, Information Costs, and Economic Organization." *American Economic Review*. 62:777-795.

Coase, Ronald. 1937. "The Nature of the Firm." *Economica*. 4:386-405.

*Grossman, Sanford J., and Oliver D. Hart. 1986. "The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration." *Journal of Political Economy*. 94(4):691-719.

*Hart, Oliver. 1995. Chapter 1 and 2 of Firms, *Contracts, and Financial Structure*. Oxford: Clarendon Press.

Hart, Oliver, and John Moore. "Property Rights and the Nature of the Firm." *Journal of Political Economy* 1119-1158.

Holmstrom, Bengt. 1982. "Moral Hazard in Teams." *Bell Journal of Economics*. 8:324-340.

Holmstrom, Bengt. 1999. "The Firm as a Subeconomy." *Journal of Law, Economics and Organization*. 15(1): 74-102.

- Holmstrom, Bengt, and Paul Milgrom. 1991. "Multitask Principal-Agent Analysis: Incentive Contracts, Asset Ownership, and Job Design." *Journal of Law, Economics and Organization* 7: 24-52.
- Holmstrom, Bengt, and Paul Milgrom. 1994. "The Firm as an Incentive System." *American Economic Review*. 84(4):972-991.
- Holmstrom, Bengt R., and Jean Tirole. 1989. "The Theory of the Firm." In *Handbook of Industrial Organization, Volume I*, ed. Richard Schmalensee and Robert D. Willig. New York: North Holland.
- Holmström, B. and J. Roberts (1998), "The Boundaries of the Firm Revisited", *Journal of Economic Perspectives* 12(4), 73-94.
- *Williamson, Oliver E. 1979. Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics*. 22:233-261.
- Williamson, Oliver E. 1985. "The Economic Institutions of Capitalism." Free Press.
- Williamson, Oliver E. 2000. "The New Institutional Economics: Taking Stock, Looking Ahead." *Journal of Economic Literature* 38(3): 595-613.
- Evidence**
- *Baker, George P., and Thomas N. Hubbard. 2003. "Make versus Buy in Trucking: Asset Ownership, Job Design, and Information." *American Economic Review*. 93(3):551-572.
- *Joskow, Paul L. 1987. "Contract Duration and Relationship-specific Investments: Empirical Evidence from Coal Markets." *American Economic Review*. 77(1):168-185.
- *Joskow, Paul L. 1985. "Vertical Integration and Long-Term Contracts: The Case of Coal-Burning Electric Generating Plants." *Journal of Law, Economics, and Organization* 1(1): 33-80.
- *Lazear, Edward P. 2000. "Performance Pay and Productivity." *American Economic Review*, 90(5): 1346-1361
- Akerberg, Daniel A. and Maristella Botticini. 2002. "Endogenous Matching and the Empirical Determinants of Contract Form", *Journal of Political Economy*, 110(3), 564-591.
- Azoulay, Pierre. 2004. "Capturing Knowledge within and across Firm Boundaries: Evidence from Clinical Development." *American Economic Review* 94(5): 1591-1612.
- Baker, George P. and Thomas Hubbard. 2004. "Contractibility and Asset Ownership: On-Board-Computers and Governance in US Trucking." *Quarterly Journal of Economics* 119(4): 1443-79.
- Corts K. and J. Singh. 2004. "The Effect of Repeated Interaction on Contract Choice: Evidence from Offshore Drilling." *Journal of Law, Economics, and Organization* 20: 230-60.

Hubbard, Thomas. 2001. "Contractual Form and Market Thickness in Trucking", *Rand Journal of Economics* 32(2), 369-386.

Kalnins A. and K. Mayer. 2004. "Relationships and Hybrid Contracts: An Analysis of Contract Choice and Information Technology." *Journal of Law, Economics, and Organization*, 20: 207-29.

2. Monopoly (durable goods, advertising, information, quality, price discrimination)

*Tirole, chapters 1-3

Borenstein, Severin. 1991. "Selling Costs and Switching Costs: Explaining Retail Gasoline Markets." *RAND Journal of Economics*. 22(3):354-369.

Bulow, Jeremy I. 1982. "Durable-goods Monopolists." *Journal of Political Economy*. 90(2):314-332.

Fishman, Arthur, and Rafael Rob. 2000. "Product Innovation by a Durable-good Monopoly." *RAND Journal of Economics*. 31(2):237-252.

Fudenberg, Drew, and Jean Tirole. 1998. "Upgrades, Trade-ins, and Buybacks." *RAND Journal of Economics*. 29(2):235-258.

*Martin, Robert. 1982. "Monopoly Power and the Recycling of Raw Materials." *Journal of Industrial Economics* 30(4): 405-419.

Mussa, M. and S. Rosen. 1978. "Monopoly and Product Quality." *Journal of Economic Theory*. 18:301-317.

Varian, Hal R. 1989. "Price Discrimination." In *Handbook of Industrial Organization, Volume I*, ed. Richard Schmalensee and Robert D. Willig. New York: North Holland.

Evidence:

Chevalier, Judith and Austan Goolsbee. 2005. "Are Durable Goods Consumers Forward Looking? Evidence from College Textbooks." NBER working paper.

Dranove, David, et al. 2003. "Is More Information Better? The Effect of Report Cards on Health Care Providers." *Journal of Political Economy* 111(3): 555-588.

*Hubbard, Thomas. 1998. "An Empirical Examination of Moral Hazard in the Vehicle Inspection Market." *Rand Journal of Economics* 29: 406-426.

*Genesove, David. 1993. "Adverse Selection in the Wholesale Used Car Market," *Journal of Political Economy* 101: 644-665.

*Jin, Ginger and Phillip Leslie. 2003. "The Effect of Information on Product Quality: Evidence from Restaurant Hygiene Grade Cards." *Quarterly Journal of Economics*, 118(2), 409-51.

*Kwoka, John E. 1984. "Advertising and the Price and Quality of Optometric Services." *American Economic Review* 74(1): 211-216.

Shepard, Andrea. 1991. "Price Discrimination and Retail Configuration." *Journal of Political Economy*. 99(1):30-53.

Nevo, Aviv, and Catherine Wolfram. 2002. "Why Do Manufacturers Issue Coupons? An Empirical Analysis of Breakfast Cereals." *RAND Journal of Economics*. 33(2):319-339.

Suslow, Valerie Y. 1986. "Estimating Monopoly Behavior with Competitive Recycling: An Application to Alcoa." *RAND Journal of Economics*. 17(3):389-403.

3. Price Dispersion

Diamond, Peter. 1971. "A Model of Price Adjustment." *Journal of Economic Theory* 3: 156-168.

*Varian, Hal. 1980. "A Model of Sales." *American Economic Review*, 70, 651-658.

Baye, Michael and John Morgan. 2001. "Information Gatekeepers on the Internet and the Competitiveness of Homogeneous Product Markets." *American Economic Review* 91(3)454-474.

Salop, Steven and Joseph Stiglitz. 1977. "Bargains and Ripoffs: A Model of Monopolistically Competitive Price Dispersion." *Review of Economic Studies* 44: 493-510.

Evidence:

*Sorensen, Alan. 2000. "Equilibrium Price Dispersion in Retail Markets for Prescription Drugs." *Journal of Political Economy* 108: 833-850.

Bayne, Michael R, John Morgan and Patrick Scholten. 2004a. "Price Dispersion in the Small and in the Large: Evidence from an Internet Price Comparison Site." *Journal of Industrial Economics* (4): 463-96.

Bayne, Michael R, John Morgan and Patrick Scholten. 2004b. "Temporal Price Dispersion: Evidence From an Online Consumer Electronics Market." *Journal of Interactive Marketing* 18(4): 101-115.

Villas-Boas J. Miguel. 1995. "Models of Competitive Price Promotions: Some Empirical Evidence from the Coffee and Saltine Crackers Markets." *Journal of Economics and Management Strategy* 4(1): 85-107.

Ellison Glen and Sara Fisher Ellison. 2005. "Lessons About Markets from the Internet." *Journal of Economic Perspectives* 19(2): 139-158.

4. Vertical Relationships

*Tirole, chapter 4

Telser, Lester. 1960. "Why Would Manufacturers Want Fair Trade?" *Journal of Law and Economics* 3: 86-105.

*Hastings, Justine S. 2004. "Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence from Contract Changes in Southern California." *American Economic Review* 94: 317-318.

*Kalnins, Arturs, and Francine Lafontaine. 2004. "Multi-unit Ownership in Franchising: Evidence from the Fast Food Industry in Texas." *Rand Journal of Economics* 35(4): 747-61.

*Lafontaine, Francine. 1992. "Agency Theory and Franchising: Some Empirical Results." *RAND Journal of Economics*. 23(2):263-283.

*Shepard, Andrea. 1993. "Contractual Form, Retail Pricing and Asset Characteristics in Gasoline Retailing." *Rand Journal of Economics*, 24: 58-77.

5. Static Oligopoly

*Tirole, chapter 5

Borenstein, Severin, James B. Bushnell, and Frank A. Wolak. 2002. "Measuring Market Inefficiencies in California's Restructured Wholesale Electricity Market." *American Economic Review*. 92(5):1376-1405.

*Bresnahan, Timothy F. 1982. "The Oligopoly Solution Concept is Identified." *Economics Letters*. 10:87-92.

*Bresnahan, Timothy F. 1987. Competition and collusion in the American automobile industry: The 1955 Price War. *Journal of Industrial Economics*. 35(4):457-482.

Bresnahan, Timothy F. 1989. "Empirical Studies of Industries with Market Power." In *Handbook of Industrial Organization, Volume I*, ed. Richard Schmalensee and Robert D. Willig. New York: North Holland.

Corts, Kenneth S. 1999. "Conduct Parameters and the Measurement of Market Power." *Journal of Econometrics*. 88(2):227-250.

*Genesove, David, and Wallace P. Mullin. 1998. "Testing Static Oligopoly Models: Conduct and Cost in the Sugar Industry, 1890-1914." *RAND Journal of Economics*. 29(2):355-377.

6. Dynamic Oligopoly

*Tirole, chapter 6

Bernheim, B. Douglas, and Michael D. Whinston. 1990. "Multimarket Contact and Collusive Behavior." *RAND Journal of Economics*. 21(1):1-26.

Green, E., and R. Porter. 1984. "Noncooperative Collusion under Imperfect Price Information." *Econometrica*. 52:87-100.

Haltiwanger, John and Joseph E. Harrington Jr. 1991. "The Impact of Cyclical Demand Movements on Collusive Behavior." *Rand Journal of Economics* 22(1): 89-106.

*Lau, Sau-Him Paul. 2001. "Aggregate Pattern of Time-dependent Adjustment Rules, II: Strategic Complementarity and Endogenous Nonsynchronization." *Journal of Economic Theory* 98: 199-231.

*Maskin, Eric, and Jean Tirole. 1988. "A Theory of Dynamic Oligopoly, II: Price Competition, Kinked Demand Curves, and Edgeworth Cycles," *Econometrica*. 56(3):571-599.

Rotemberg, J.J., and Garth Saloner. 1986. "A Supergame-theoretic Model of Price Wars During Booms." *American Economic Review*. 76:390-407.

Stigler, George. 1964. "A Theory of Oligopoly." *Journal of Political Economy*, 72: 44-61.

Evidence:

Albaek, Svend, *et al.* 1997. "Government-Assisted Oligopoly Coordination? A Concrete Case." *Journal of Industrial Economics* 45(4): 429-443.

*Genesove, David, and Wallace P. Mullin. 2001. "Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case." *American Economic Review* 91 (3): 379-98.

*Wang, Zhongmin. 2005. "Strategy, Timing and Oligopoly Pricing: Evidence from a Repeated Game in a Timing-Controlled Gasoline Market." Mimeo, Northeastern University.

*Wang, Zhongmin. 2005. "Edgeworth Price Cycle and Oligopoly Coordination: Trial Evidence from Australia." Mimeo, Northeastern University.

Porter, Robert. 1983. "A Study of Cartel Stability: The Joint Executive Committee, 1880-1886." *Bell Journal of Economics*. 14:301-314.

Borenstein, Severin, and Andrea Shepard. 1996. "Dynamic Pricing in Retail Gasoline Markets." *RAND Journal of Economics*. 27(3):429-451.

Ellison, Glenn. 1994. "Theories of Cartel Stability and the Joint Executive Committee." *Rand Journal of Economics* 25(1): 37-57.

7. Product differentiation

*Tirole, chapter 7

- Anderson, Simon P., André de Palma, and Jacques-François Thisse. 1992. *Discrete Choice Theory of Product Differentiation*. Cambridge: MIT Press.
- Berry, Steven T. 1994. Estimating discrete-choice models of product differentiation. *RAND Journal of Economics*. 25(2):242-262.
- Berry, Steven T., James Levinsohn, and Ariel Pakes. 1995. "Automobile Prices in Market Equilibrium. *Econometrica*." 63(4):841-890.
- Gasmi, Farid, Jean-Jacques Laffont, and Quang Vuong. 1992. "Econometric analysis of collusive behavior in a soft-drink market." *Journal of Economics and Management Strategy*. 1(2):277-311.
- Nevo, Aviv. 2001. "Measuring Market Power in the Ready-to-Eat Cereal Industry." *Econometrica*. 69(2):307-342.

8. Entry and Exit

*Tirole, chapter 8

- Aghion, P. and P. Bolton. 1987. "Entry Prevention Through Contracts with Customers," *American Economic Review* 77: 388-401.
- *Bresnahan, Timothy F., and Peter C. Reiss. 1991. "Entry and Competition in Concentrated Markets." *Journal of Political Economy*. 99(5):977-1009.
- *Comments on Bresnahan and Reiss, *Brookings Papers on Economic Activity: Special Issue on Microeconomics*, 3 (1987), pp. 872-882.
- *Dunne, Timothy, Mark J. Roberts, and Larry Samuelson. 1988. Patterns of Firm Entry and Exit in U.S. Manufacturing Industries." *RAND Journal of Economics*. 19(4):495-515.
- *Hsieh, Chang-Tai and Enrico Moretti. 2003. "Can Free Entry be Inefficient? Fixed Commissions and Social Waste in the Real Estate Industry." *Journal of Political Economy* 111(5): 1076-1122.

9. Information and Strategic Behavior

*Tirole Chapter 9

- Genesove, David and Wallace Mullin. 1997. "Predation and Its Rate of Return: The Sugar Industry, 1887-1914." *Forthcoming Rand Journal of Economics*.

10. Technological Change

*Tirole Chapter 10

Adams, James D., and Adam B. Jaffe. 1996. "Bounding the Effects of R&D: An Investigation Using Matched Establishment-Firm Data." *RAND Journal of Economics*. 27(4):700-721.

Bresnahan, Timothy, Scott Stern, and Manuel Trajtenberg. 1997. "Market Segmentation and the Sources of Rents from Innovation." *RAND Journal of Economics*. S:17-44.

Henderson, Rebecca, and Iain Cockburn. 1996. "Scale, Scope, and Spillovers: The Determinants of Research Productivity in Drug Discovery." *RAND Journal of Economics*. 27(1):32-59.

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

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

11. Loss Leader Pricing

Chevalier, Judith A., Anil K. Kashyap, Peter E. Rossi. 2003. "Why Don't Prices Rise During Periods of Peak Demand? Evidence from Scanner Data." *American Economic Review*. 93(1):15-37.

Lal, Rajiv and Carmen Matutes. 1994. "Retail Pricing and Advertising Strategies." *Journal of Business*, 67, 345-370.

Glenn Ellison. 2005. "A Model of Add-on Pricing." *Quarterly Journal of Economics* 120(2): 585-637

James MacDonald. 2000. "Demand, Information, and Competition: Why Do Food Prices Fall at Seasonal Demand Peaks?" *Journal of Industrial Economics*, 48(1), 27-45.

Ellison Glen and Sara Fisher Ellison. 2004. "Search, Obfuscation, and Price Elasticities on the Internet." NBER working paper No. 10570.