

Winter 2011
TuTh(F) 1:15 to 3:05 pm

Liran Einav
Frank Wolak

Econ 259: Industrial Organization IIb

This course is part of the three-quarter sequence in industrial organization (IO). It covers selected topics of recent interest in industrial organization; unlike Econ 257, which covered many IO topics, each relatively briefly, in this class we plan to focus on a small set of topics, and cover each in greater depth and in more detail. The parallel IO class (Econ 258, taught by Jakub Kastl and Kyle Bagwell) is complementary, and students would certainly benefit from taking both 258 and 259; there shouldn't be any overlap.

We strongly recommend the class to students in the economics department who intend to write theses in industrial organization. The class should also be useful for students working in other applied microeconomics fields who wish to learn about a wide range of approaches to empirical research and some specific methods used in IO. As a prerequisite, students should have completed Economics 257. Students with training in other applied fields should probably be able to follow the course as well, but check with one of us to see if you have adequate preparation.

Our goals in the course are to take students closer to the research frontier in several areas, and to help students acquire the skills required to write a thesis in IO and other fields of applied microeconomics. We hope to balance two objectives: learning how to identify and pose interesting questions, and learning how to formulate and execute empirical analysis that sheds light on these questions. We also plan to highlight the use of theory to guide hypothesis testing and the specification of empirical models.

In order to focus on the details of how to pose and answer interesting research questions in IO, we will cover a smaller number of topics in greater depth. This will allow us to highlight unanswered questions on the research frontier, as well as show how alternative empirical methods can be used to answer questions in the same area. Frank will lecture for the first half of the quarter and Liran will lecture for the second half.

Frank's lectures will first focus on general strategies for undertaking empirical work in applied microeconomics. He will then describe empirical methods to estimate economic primitives such as production functions, individual and aggregate demand functions, and total factor productivity that are common to many contexts in applied microeconomics. The remainder of his lectures will focus on topics in regulatory economics, with a specific focus on energy and environmental markets, which are an increasingly popular topic because of the rich data available and well-defined market and regulatory rules governing their operation.

Liran's lectures will focus on recent research on insurance markets and credit markets. Both markets are plagued with various aspects of asymmetric information, including moral hazard and adverse selection. The industrial organization and competitive environment of such markets is not well understood, and the increased availability of excellent data from these markets makes them great candidates for dissertation research.

Course logistics and requirements

The class meets on Tuesdays and Thursdays, 1:15-3:05pm in Room 2 of the basement of the Art Building. Occasionally, the class will meet on Friday from 1:15-3:05 pm in this same location. We will be using Coursework to post material and send announcements.

Student requirements will include three components: problem sets that include programming and estimation exercises, assignments that require the students to write referee reports on existing working papers, and adequate reading and preparation before each class and periodic class presentations. The weighting of the final grade will be based on Class Participation/Presentations (20%), Homeworks (30%), and a take-home final exam (50%).

Class schedule (FW=Frank Wolak and LE=Liran Einav)

1. FW (1/4)
2. FW (1/6)
3. FW (1/11)
4. FW (1/14) (note this is a Friday – there is no class on Thu, 1/13)
5. FW (1/18)
6. FW (1/20)
7. FW (1/25)
8. FW (1/27)
9. FW (2/1)
10. FW (2/3)

11. LE (2/8)
12. LE (2/10)
13. LE (2/15) (note there is no class on Thu, 2/17)
14. LE (2/22)
15. LE (2/24)
16. LE (3/1)
17. LE (3/3)
18. LE (3/8)
19. LE (3/10)
20. LE (3/11) (note this is a Friday)

Reading List and Course Topics—Frank Wolak

1. Introduction to Structural Econometric Modeling

Reiss, Peter C. and Wolak, Frank A. (2003) “Structural Econometric Modeling: Rationales and Examples from Industrial Organization” Handbook of Econometrics, North-Holland, 2007 (available at <http://www.stanford.edu/~wolak>)

Porter, Robert (1983), "A Study of Cartel Stability: The Joint Executive Committee, 1880-1886," *Bell Journal of Economics*, 14(2, Autumn), 301-314.

2. Empirical Models of Producer Behavior

Christensen, Laurits and Greene, William H. (1976), "Economies of Scale in U. S. Electric Power Generation," *Journal of Political Economy*, 84 (4, August), 655-676.

McElroy, Marjorie (1987), "Additive General Error Models for Production, Cost, and Derived Demand or Share Systems," *Journal of Political Economy*, 95(4), 737-757.

Evans, David and Heckman, James (1984), "A Test of Subadditivity of the Cost Function with an Application to the Bell System," *American Economic Review*, 74 (4, September), 615-623.

Roller, Lars-Hendrik, (1990) “Modeling Cost Structure: the Bell System Revisited,” *Applied Economics*, 22, 1661-1674.

3. Empirical Models of Consumer and Aggregate Demand Behavior

Brown, Byron and Walker, Mary Beth (1989), "The Random Utility Hypothesis and Inference in Demand Systems," *Econometrica*, 57, 815-829.

Jorgenson, Dale, Stoker, Thomas and Lau, Lawrence (1982), "The Transcendental Logarithmic Model of Aggregate Consumer Behavior," in *Advances in Econometrics, Vol. 1.*, ed. by R. Basmann and G. Rhodes, Greenwich, Connecticut: JAI Press, pp. 97-238.

Banks, Blundell, and Lewbel, (1994), "Quadratic Engel Curves and Consumer Demand," *Review of Economics and Statistics*, v79, n4, November, 1997, 527-39.

Wolak, Frank (1997), "The Welfare Impacts of Competitive Telecommunications Supply: A Household-Level Analysis," *Brookings Papers on Economic Activity: Microeconomics*, 269-340.

Patrick, R. and Wolak, F.A., (1998), “Estimating the Customer-Level Demand for Electricity Under Real-Time Market Prices,” (<http://www.stanford.edu/~wolak>).

4. Productivity: Measurement and Stylized Facts

Diewert, Erwin (1976), "Exact and Superlative Index Numbers," *Journal of Econometrics*, 4, 115-145.

Pakes, Ariel, and Olley, Steven (1996), "The Dynamics of Productivity in the Telecommunications Equipment Industry," *Econometrica*, 64(6), 1263-1297.

Van Biesebroeck, Johannes "Robustness of Productivity Estimates," *Journal of Industrial Economics*, (July 2006)

Van Biesebroeck, Johannes "The Sensitivity of Productivity Estimates: Revisiting Three Important Productivity Debates," *Journal of Business and Economic Statistics*, (October, 2006).

5. Estimating Demand and Cost Functions from Market Equilibria 1 meeting

Rosse, James, N. (1970), "Estimating Cost Function Parameters without Using Cost Data: Illustrated Methodology," *Econometrica*, 38(2), 256-275.

Bresnahan, Timothy (1987), "Competition and Collusion in the American Automobile Market: The 1955 Price War," *Journal of Industrial Economics*, 45(4, June) (special issue), 457-482.

Wolak, "Identification and Estimation of Cost Functions Using Observed Bid Data: An Application to Electricity," *Advances in Econometrics: Theory and Applications, Eighth World Congress, Volume II*, Mathias Detwatripont, Lars Peter Hansen, and Stephen J. Turnovsky (editors), Cambridge University Press, 2003, 133-169.

6. Regulation with Full Information

Sharkey, William W. (1982) *Theory of Natural Monopoly*, Cambridge University Press, Chapters 1-4.

Averch, H. and Johnson, L. 1962. Behavior of the Firm Under Regulatory Constraint. *American Economic Review*, 52(5), 1052-1069.

Joskow, P.L. (1974) "Inflation and Environmental Concern," *Journal of Law and Economics*, October.

Baumol and Bradford, "Optimal Departures from Marginal Cost Pricing," *AER*, June 1970

7. Regulation with Asymmetric Information

Wolak, F. A. (2007) "Public Utility Pricing," available from web-site.

Baron, D.P. (1989) "The Design of Regulatory Mechanisms and Institutions," *Handbook of Industrial Organization*, Volume II,

Wolak, (1994), "An Econometric Analysis of the Asymmetric Information Regulator-Utility Interaction," *Annales D'Economie et de Statistique*, 34, 12-69.

8. Supply Function and Multi-Unit Auction Markets

Klemperer, Paul, and Meyer, Margaret A. (1989) "Supply Function Equilibria in Oligopoly under Uncertainty," *Econometrica*, 57(6), 1243-1277.

Allaz, Blaise and Vila, Jean-Luc, (1993) "Cournot Competition, Forward Markets and Efficiency," *Journal of Economic Theory*, 59, pp. 1-16.

Wolak, F.A. (2007) Quantifying the Supply-Side Benefits from Forward Contracting in Wholesale Electricity Markets, *Journal of Applied Econometrics*, 22, 1179-1209 (on web-site).

9. Measuring Unilateral Market Power and Market Performance

Wolak, Frank A. (2003) "Measuring Unilateral Market Power in Wholesale Electricity Markets: The California Market 1998 to 2000," *AER*, May 2003. (draft on web-site)

McRae, Shaun D. and Wolak, Frank A. "How Do Firms Exercise Unilateral Market Power: Evidence from Bid-Based Multi-Unit Auction Market," March 2009. (draft on web-site)

10. Measuring Market Performance

Borenstein, Severin, Bushnell, James, and Wolak, Frank A.. "Measuring Market Inefficiencies in California's Restructured Wholesale Electricity Market," *AER*, December 2002. (draft on web-site)

Wolak, Frank A. "Diagnosing the California Electricity Crisis," *Electricity Journal*, Aug./Sept. 2003. (draft on web site)

Reading List and Course Topics—Liran Einav

(*) = paper discussed in class

1. Testing for Asymmetric Information in Insurance Markets

- (*)Chiappori and Salanie, “Testing for Asymmetric Information in Insurance Markets,” JPE, 2000.
- Chiappori and Salanie, “Testing Contract Theory: A Survey of Some Recent Work,” in M. Dewatripont and L. Hansen, ed., *Advances in Economics*.
- Fang, Keane, and Silverman, “Sources of Advantageous Selection: Evidence from the Medigap Insurance Market,” JPE, 2008.
- (*)Finkelstein and McGarry, “Multiple dimensions of private information: evidence from the long-term care insurance market,” AER, 2006.
- Finkelstein and Poterba, “Adverse Selection in Insurance Markets: Policyholder Evidence from the U.K. Annuity Market,” JPE, 2004.
- Genesove, “Adverse Selection in the Wholesale Used Car Market,” JPE, 1993.
- Israel, “Do We Drive More Safely When Accidents Are More Expensive? Identifying Moral Hazard from Experience Rating Schemes,” working paper.
- Puelitz and Snow, “Evidence on Adverse Selection: Equilibrium Signaling and Cross-Subsidization in the Insurance Market,” JPE, 1994.

2. Estimating Demand for Insurance

- (*)Cardon and Hendel, “Asymmetric Information in Health Insurance: Evidence from the National Medical Expenditure Survey,” Rand, 2001.
- (*)Cohen and Einav, “Estimating Risk Preferences from Deductible Choice,” AER, 2007.
- Einav, Finkelstein, and Schrimpf, “Optimal Mandates and The Welfare Cost of Assymetric Information: Evidence from the U.K. Annuity Market,” *Econometrica*, 2010.

3. Welfare in Insurance Markets

- (*)Einav, Finkelstein, and Cullen, “Estimating welfare in insurance markets using variation in prices,” QJE, 2010.
- (*)Bundorf, Levin, and Mahoney, “Pricing, Matching and Efficiency in Health Plan Choice,” working paper.
- Einav, Finkelstein, and Levin, “Beyond Testing: Empirical Models of Insurance Markets,” *Annual Reviews of Economics*, 2010.
- Carlin and Town, “Adverse Selection, Welfare and Optimal Pricing of Employer-Sponsored Health Plans,” working paper.
- Lustig, “The Welfare Effects of Adverse Selection in Privatized Medicare,” working paper.

4. Additional topics in Insurance Markets

- (*)Einav, Finkelstein, Ryan, Schrimpf, and Cullen, "Selection on Moral Hazard in Health Insurance," working paper
- (*)Handel, "Adverse Selection and Switching Costs in Health Insurance Markets: When Nudging Hurts," working paper
- Cabral, "Claim Timing and Ex Post Insurance Selection: Evidence from Dental 'Insurance'," working paper.
- Cohen, "Asymmetric Information and Learning in the Automobile Insurance Market," REStat, 2005.
- (*)Hendel and Lizzeri, "The role of commitment in dynamic contracts: evidence from life insurance," QJE, 2003.

5. Economic Theory of Credit Markets

- (*) Jaffee, Dwight and T. Russell, "Imperfect Information, Uncertainty and Credit Rationing," *Quarterly Journal of Economics*, 1976.
- (*) Stiglitz, Joseph and Andrew Weiss, "Credit Rationing in Markets with Imperfect Information," *American Economic Review*, 1981.
- Berger, Allen and Gregory Udell, "Some Evidence on the Empirical Significance of Credit Rationing," *Journal of Political Economy*, 1992.
- Geanakoplos, John, "Liquidity, Default and Crashes," in *Advances in Economics and Econometrics*, 2003.
- Fostel, Ana and John Geanakoplos Leverage Cycles and the Anxious Economy," *American Economic Review*, 2008.

6. Liquidity, Information and Pricing in Subprime Lending

- (*) Adams, William, Liran Einav and Jonathan Levin, "Liquidity Constraints and Imperfect Information in Subprime Lending," *American Economic Review*, March 2009.
- (*) Einav, Liran, Mark Jenkins and Jonathan Levin, "Contract Pricing in Consumer Credit Markets," Stanford Working Paper, 2010.
- Einav, Liran, Mark Jenkins and Jonathan Levin, "The Impact of Information Technology on Consumer Lending," Stanford Working Paper, 2008.
- Jenkins, Mark, "What Drives Default in Subprime Lending?" Stanford Working Paper, 2008.

7. Credit Card Markets

- (*) Ausubel, Larry, "The Failure of Competition in the Credit Card Market," *American Economic Review*, 81(1), March 1991, pp. 50-81.
- (*) Ausubel, Larry, "Adverse Selection in the Credit Card Market," University of Maryland Working Paper, June 1999.
- Agarwal, Sumit, John C. Driscoll, Xavier Gabaix and David Laibson. Learning in the Credit Card Market, Harvard Working Paper, 2008

- (*) Agarwal, Sumit, John C. Driscoll, Xavier Gabaix, and David Laibson. The Age of Reason: Financial Decisions Over the Lifecycle, Harvard Working Paper, 2007.
- Agarwal, Sumit, S. Chomsisengphet, and Nicholas Souleles, "Do Consumers Choose the Right Credit Contracts," Wharton Working Paper, 2008.
- Gross, David and Nicholas Souleles, "Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data, *Quarterly Journal of Economics*, 117(1), February 2002.
- Ponce-Rodriguez, Alejandro, *Consumer and Firm Behavior in the Credit Card Market*, Stanford Ph.D. Dissertation, 2008.

8. Subprime Mortgage Market

- (*)Mayer, Christopher, Karen Pence and Shane Sherlund, "The Rise in Mortgage Defaults," *Journal of Economic Perspectives*, 23(1), Winter 2009.
- Mayer, Christopher, and Karen Pence, "Subprime Mortgages: What, Where and to Whom?" Columbia University Working Paper, 2008.
- "Reducing Foreclosures." with Christopher Foote, Kristopher S. Gerardi and Lorenz Goette. *NBER Macroeconomics Annual 2009*, forthcoming.
- "The Impact of Deregulation and Financial Innovation on Consumers: The Case of the Mortgage Market." with Kristopher S. Gerardi and Harvey Rosen. *Journal of Finance*, forthcoming.
- "Making Sense of the Subprime Crisis." with Kristopher S. Gerardi, Andreas Lehnert and Shane Sherlund. *Brookings Papers on Economic Activity*, forthcoming.
- Coval, Joshua, Jakub Jurek and Erik Stafford, "The Economics of Structured Finance," *Journal of Economic Perspectives*, 23(1), Winter 2009.
- Coval, Joshua, Jakub Jurek and Erik Stafford, "Economic Catastrophe Bonds," *American Economic Review*, 2009.
- Keys, Benjamin, Tammoy Mukherjee, Amit Seru and Vikrant Vig, "Did Securitization Lead to Lax Screening? Evidence From Subprime Loans," Chicago GSB Working Paper, 2008.
- Drucker, Steve and Chris Mayer, "Inside Information and Market Making in Secondary Mortgage Markets," Columbia Working Paper, January 2008.
- Gan, Yingjin Hila and Chris Mayer, "Agency Conflicts, Asset Substitution and Securitization," Columbia University Working Paper, June 2007.
- Ashcraft, Adam and Til Schuerman, "Understanding the Securitization of Subprime Mortgage Credit," New York Federal Reserve Working Paper, 2008.
- Geanakoplos, John, ""Solving the Present Crisis and Managing the Leverage Cycle," Yale University Working Paper, 2008.
- New York Federal Reserve Bank, Description of TALF Program, <http://www.newyorkfed.org/markets/talf.html>.