

Term Information

Effective Term Autumn 2019

General Information

Course Bulletin Listing/Subject Area Economics
Fiscal Unit/Academic Org Economics - D0722
College/Academic Group Arts and Sciences
Level/Career Graduate
Course Number/Catalog 8876
Course Title Industrial Organization IV: Empirical Research Methods
Transcript Abbreviation IO IV
Course Description Recently developed techniques for estimating market power and costs with incomplete data, with applications to antitrust economics. The goal is to give you an understanding of state of the art empirical tools, with the purpose of preparing students for research.
Semester Credit Hours/Units Fixed: 3

Offering Information

Length Of Course 14 Week
Flexibly Scheduled Course Never
Does any section of this course have a distance education component? No
Grading Basis Letter Grade
Repeatable No
Course Components Lecture
Grade Roster Component Lecture
Credit Available by Exam No
Admission Condition Course No
Off Campus Never
Campus of Offering Columbus

Prerequisites and Exclusions

Prerequisites/Corequisites 8714 and permission of instructor
Exclusions
Electronically Enforced No

Cross-Listings

Cross-Listings

Subject/CIP Code

Subject/CIP Code 45.0601
Subsidy Level Doctoral Course
Intended Rank Doctoral

Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

Course Details

Course goals or learning objectives/outcomes

- Gain understanding of latest empirical tools in the field. Upon successful completion, students will have a working knowledge of the latest techniques for estimating market power and costs.

Content Topic List Sought Concurrence

- Demand Estimation, Collusion, Horizontal Merger Analysis, Vertical Relationships, Productivity
No

Attachments

- Econ 8876 Syllabus.pdf
(Syllabus. Owner: Tobin,Ricky Mase)

Comments

- We should be consistent with Econ 8876 (which is listed as 7 weeks) and Econ 8874 (which was approved at 14 weeks) *(by Peck,James D on 01/29/2019 09:14 AM)*
- Updated syllabus with requested revisions. *(by Tobin,Ricky Mase on 01/29/2019 07:09 AM)*
- See 1-23-19 feedback email. *(by Vankeerbergen,Bernadette Chantal on 01/23/2019 03:41 PM)*

Workflow Information

Status	User(s)	Date/Time	Step
Submitted	Tobin,Ricky Mase	01/09/2019 10:34 AM	Submitted for Approval
Approved	Peck,James D	01/09/2019 11:01 AM	Unit Approval
Approved	Haddad,Deborah Moore	01/09/2019 11:19 AM	College Approval
Revision Requested	Vankeerbergen,Bernadette Chantal	01/23/2019 03:41 PM	ASCCAO Approval
Submitted	Tobin,Ricky Mase	01/29/2019 07:09 AM	Submitted for Approval
Revision Requested	Peck,James D	01/29/2019 09:14 AM	Unit Approval
Submitted	Tobin,Ricky Mase	01/30/2019 07:07 AM	Submitted for Approval
Revision Requested	Peck,James D	01/30/2019 09:20 AM	Unit Approval
Submitted	Tobin,Ricky Mase	01/30/2019 09:49 AM	Submitted for Approval
Approved	Peck,James D	01/30/2019 09:52 AM	Unit Approval
Approved	Haddad,Deborah Moore	01/30/2019 11:12 AM	College Approval
Pending Approval	Nolen,Dawn Vankeerbergen,Bernadette Chantal Oldroyd,Shelby Quinn Hanlin,Deborah Kay Jenkins,Mary Ellen Bigler	01/30/2019 11:12 AM	ASCCAO Approval

Econ 8876
Empirical Industrial Organization II
SPRING 2020

Instructor: Dr. Matthew Weinberg,

Time and Location: TBD

Contact: email: weinberg.133@osu.edu

Office Hours: TBD, 469 Arps Hall

Overview and Objectives

This course focuses on empirical methods and issues in Industrial Organization. Most of the course will focus on the application of econometric techniques to specific markets, with a focus on antitrust policies. We will cover the evaluation of market power and mergers, collusion, vertical relations, productivity, and the dynamics of industry. The course will also discuss research methodologies related to microeconomic theory, computational methods, and econometric analysis that are broadly useful across fields within economics, including labor, public, health, and trade economics.

Grading and Requirements

- 70% Problem Sets. There will be two computer based problem sets. The first will ask you to implement recently developed methods for estimating production functions. The second will ask you to implement recently developed methods for estimating demand systems.
- 30% Presentations. You will give a presentation of your second year paper topic that should last about 20 minutes. If you are not a second year student, you should present your current research.

Course Outline

A good overview of empirical industrial organization methodology is “Econometric Tools for Analyzing Market Outcomes” by Akerberg, Benkard, Berry, and Pakes in the Handbook of Industrial Organization. We will refer to this throughout the section throughout the course. It is required reading.

For an econometrics reference, I highly recommend “Econometrics” by Fumio Hayashi. The book is excellent on GMM, an important estimation framework in IO.

Productivity

Week 1: Course overview, Measurement and Econometric Issues in Productivity Estimation, Industry Dynamics. **Problem Set 1 Out.** In this week we discuss biases in OLS and fixed effects estimators of production function stemming from endogenous variable input choices, measurement error (primarily in capital), and exit of unproductive firms.

Required Readings:

- Syverson, C. (2011), “What Determines Productivity?” *Journal of Economic Literature*.
- Grilliches, Z. and Mairesse (1995), “Production Functions: The Search for Identification” in *Econometrics and Economic Theory in the Twentieth Century: The Ragnar Frisch Centennial Symposium*.
- Hopenhayn, H. (1992), “Entry, Exit, and Firm Dynamics in Long Run Equilibrium”, *Econometrica*.
- Jovanovic, B. (1982), “Selection and the Evolution of Industry”, *Econometrica*.

Week 2: Industry Dynamics. **Problem Set 1 Out.** Models of industry dynamics are described to motivate alternative approaches to production function estimation.

Required Readings:

- Syverson, C. (2011), “What Determines Productivity?” *Journal of Economic Literature*.
- Grilliches, Z. and Mairesse (1995), “Production Functions: The Search for Identification” in *Econometrics and Economic Theory in the Twentieth Century: The Ragnar Frisch Centennial Symposium*.
- Hopenhayn, H. (1992), “Entry, Exit, and Firm Dynamics in Long Run Equilibrium”, *Econometrica*.

- Jovanovic, B. (1982), “Selection and the Evolution of Industry”, *Econometrica*.

Week 3: Modern Approaches to Production Function Estimation. In this week we discuss timing assumptions on unobserved productivity shocks and how they justify various proxy variables to deal with endogeneity. We also discuss approaches to correct for exit related to unobserved productivity shocks.

Required Readings:

- Olley, S. and A. Pakes. (1996), “The Dynamics of Productivity in the Telecommunications Industry”, *Econometrica*.
- Akerberg, D., K. Caves, G. Frazer (2015), “Identification Properties of Recent Production Function Estimators”, *Econometrica*.
- Levinsohn, J. and A. Petrin. (2003), “Estimating Production Functions Using Inputs to Control for Unobservables”, *Review of Economic Studies*.

Week 4: Applied Productivity Analysis and the Production Function Approach to Markup Estimation. **Problem set 1 due.** In this week we discuss a definition of misallocation based on dispersion in the value of the marginal product of capital across firms along with possible rationalizations. We also discuss the production function approach to markup estimation.

Required Readings:

- Hsieh, Chang-Tai and Peter J. Klenow (2009), “Misallocation and Manufacturing TFP in China and India”, *Quarterly Journal of Economics*.
- Asker, John, A. Collard-Wexler, and J. de Loecker, “Dynamic Inputs and Resource (Mis)Allocation”, *Journal of Political Economy*.
- Haltiwanger, S., Kulick, R., and Syverson, C. (2017), “Misallocation Measures: The Distortion that Ate the Residual” working paper.
- De Loecker, J. and J. Eeckhout, (2017) “The Rise of Market Power and Macroeconomic Implications”.
- De Loecker, J. and J. Eeckhout, (2018) “Global Market Power”.

Suggested readings on productivity that we will mention but not discuss in detail:

- Athey, S. and S. Stern (2002), “The Impact of Information Technology on Emergency Health Outcomes” *RAND Journal of Economics*.
- Bartel, A., C. Ichniowski, and K. Shaw (2007), “How Does Information Technology Affect Productivity? Plant-Level Comparisons of Product Innovation, Process Improvement, and Worker Skills,” *Quarterly Journal of Economics*.

- Bloom, N. and J. Van Reenen (2007), “Measuring and Explaining Management Practices across Firms and Countries,” *Quarterly Journal of Economics*
- Bloom, N., R. Sadun, and J. Van Reenen (2012), “Americans Do I.T. Better: U.S. Multinationals and the Productivity Miracle,” *American Economic Review*
- Arellano, M. and S. Bond (1991), “Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations,” *Review of Economic Studies*
- Arellano, M. and Honore, B. (2001), “Panel Data Models: Some Recent Developments,” *Handbook of Econometrics*
- Blundell, R. and Bond, S. (2000), “GMM Estimation with Persistent Panel Data: An Application to Production Functions,” *Econometric Reviews*
- De Loecker (2011), “Product Differentiation, Multiproduct Firms, and Estimating the Impact of Trade Liberalization on Productivity” *Econometrica*.
- Foster, L., Haltiwanger, S., and Syverson, C. (2008), “Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability,” *American Economic Review*.
- Pavcnik, N. (2002), “Trade Liberalization, Exit, and Productivity Improvements: Evidence from Chilean Plants”, *Review of Economic Studies*
- Syverson, C. (2004), “Market Structure and Productivity: A Concrete Example”, *Journal of Political Economy*

Horizontal Merger Analysis

Week 5: Horizontal Merger Analysis. **Problem Set 2 Out.** In these weeks we discuss merger policy focusing on unilateral effects. Most of this boils down to understanding “who competes with who”, so we also review demand estimation in differentiated product markets.

Required Readings:

- FTC/DOJ Merger Guidelines
- Azar, J., Schmalz, M., and Tecu, I. (2018), “Anticompetitive Effects of Common Ownership”, *Journal of Finance*.
- Dafny, L., M. Duggan and S. Ramanaryanan (2012), “Paying a Premium on Your Premium: Consolidation in the U.S. Health Insurance Industry”, *American Economic Review*.
- Nevo (2010), “Mergers with Differentiated Products: The Case of the Ready-to-Eat Cereal Industry”, *Rand Journal of Economics*.
- Farrell and Shapiro (2010), “Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition”, *The B.E. Journal of Theoretical Economics*.

- Ashenfelter, O., D. Hosken and M. Weinberg (2015), “Efficiencies Brewed: Pricing and Consolidation in the U.S. Beer Industry”, *Rand Journal of Economics*
- Miller, N. and M. Weinberg (2017), “Understanding the Price Effects of the Miller/Coors Joint Venture”, forthcoming at *Econometrica*.

Collusion

Week 6: In these weeks we discuss empirical work on tacit collusion.

Required Readings:

- Green, E. and R. Porter (1984) “Noncooperative Collusion under Imperfect Price Information,” *Econometrica*.
- Rotemberg, J. and G. Saloner, (1986) “A Supergame-Theoretic Model of Price Wars During Booms” *Econometrica*.
- Igami, M, (2017) “Measuring the Incentive to Collude: The Vitamins Cartels, 1990-1999,”, available on Mitsuri Igami’s webpage.
- Miller, N., G. Sheu and M. Weinberg (2019) “Oligopoly Price Leadership: An Empirical Model of the U.S. Brewing Industry,”, available on my webpage.

Suggested Readings on Collusion

- Abreu, D. (1988) “Noncooperative Collusion under Imperfect Price Information,” *Econometrica*.
- Athey, S., K. Bagwell, and C. Sanchirico, (2005) “Collusion and Price Rigidity,” *Review of Economic Studies*.
- Bernheim, D. and Erik Madsen, (2017) “Price Cutting and Business Stealing in Imperfect Cartels,” *American Economic Review*.
- De Loecker, J. and J. Eeckhout, (2017) “The Rise of Market Power and Macroeconomic Implications”.
- De Loecker, J. and J. Eeckhout, (2018) “Global Market Power”.
- Genesove, D. and W. Mullin, (2001) “Rules, Communication, and Collusion: Narrative Evidence from the Sugar Institute Case,” *American Economic Review*.
- Green, E. and R. Porter (1984) “Noncooperative Collusion under Imperfect Price Information,” *Econometrica*.
- Igami, M, (2017) “Measuring the Incentive to Collude: The Vitamins Cartels, 1990-1999,”, available on Mitsuri Igami’s webpage.
- Levenstein, M. (1997) “Price Wars and the Stability of Collusion,” *American Economic Review*.

- Miller, N. (2009) “Strategic Leniency and Cartel Enforcement,” *American Economic Review*.

Vertical Relationships

Week 7 We primarily focus on Nash in Nash bargaining, a framework for understanding market outcomes where prices are negotiated between buyers and sellers. This is a common feature of many business-to-business markets. **Problem Set 2 due.**

- Grennan, M. (2007) “Price Discrimination and Bargaining: Empirical Evidence from Medical Devices,” *Journal of Political Economy*.
- Nevo, A., G. Gowrisankaran, and B. Town (2015) “Mergers When Prices are Negotiated: Evidence from the Hospital Industry,” *American Economic Review*.
- Crawford, G.S. and A. Yurokoglou (2012) “The Welfare Effects of Bundling in Multi-channel Television Markets,” *American Economic Review*.

Suggested additional readings on vertical relations.

- Whinston, M. (2003), “On the Transaction Cost Determinants of Vertical Integration,” *Journal of Law, Economics, and Organization*.
- Chipty, T., (2001) “Vertical Integration, Market Foreclosure, and Consumer Welfare in the Cable Television Industry,” *American Economic Review*.
- Hortacsu, A. and C. Syverson, (2007) “Cementing Relationships: Vertical Integration, Foreclosure, Productivity, and Prices,” *Journal of Political Economy*.
- Villas-Boas, S.B. (2007) “Vertical Relationships Between Manufacturers and Retailers: Inference with Limited Data,” *Review of Economic Studies*.

Search and Matching Frictions

Week 8: We discuss empirical estimation of models of search.

- Allen, J., R. Clark, and J.F. Houde (2014), “The Effect of Mergers on Negotiated Mortgage Prices,” *American Economic Review*.
- Allen, J., R. Clark, and J.F. Houde (2017), “Search Frictions and Market Power in Negotiated Price Markets,” *American Economic Review*.
- Gavazza, A. (2011), “The Role of Trading Frictions in Real Asset Markets,” *American Economic Review*.
- Gavazza, A. (2017), “An Empirical Equilibrium Model of a Decentralized Asset Market,” *Econometrica*.

Static Entry Models/Empirical Discrete Games

Weeks 9-10: We discuss empirical estimation of reduced form profit functions accounting for endogenous market structure.

- Berry, S. (1992) “Estimation of a Model of Entry in the Airline Industry,” *Econometrica*.
- Berry, S and Waldfoegel, J. (1999) “Free Entry and Social Inefficiency in Radio Broadcasting,” *Rand Journal of Economics*.
- Ciliberto, F. and Tamer, E. (2009) “Market Structure and Multiple Equilibria in Airline Markets,” *Econometrica*.
- Bresnahan, T., and Reiss, P. (1991) “Entry and Competition in Concentrated Markets,” *Journal of Political Economy*.
- Mazzeo, M. (2002) “Product Choice and Oligopoly Market Structure,” *Rand Journal of Economics*.
- Mankiw, N.G., and Whinston, M. (1986) “Free Entry and Social Efficiency,” *Rand Journal of Economics*.
- Seim, K. (2006) “Spatial Differentiation and Firm Entry: The Video Rental Industry,” *Rand Journal of Economics*.
- Li, Sophia, Mazur, J., Roberts, J., Park, Y. Sweeting, A., and Zhang, J. (2018) “Endogenous and Selective Service Choices after Airline Mergers,” *working paper*.
- Wollman, T. (2018) “Trucks Without Bailouts: Equilibrium Product Characteristics for Commercial Vehicles,” *Rand Journal of Economics*.

Dynamic Discrete Choice

Weeks 11-12: We discuss single agent models of investment, durable goods and stockpiling, and brand loyalty and experience goods.

- Rust, J. (1987) “Optimal Replacement of GMC Bus Engines: An Empirical Model of Harold Zurcher”, *Econometrica*.
- Hotz, V. J. and R.A. Miller (1993), “Conditional Choice Probabilities and the Estimation of Dynamic Models”, *Review of Economic Studies*.
- Aguirregabiria and V. Mira (2002), “Swapping the Fixed Point Algorithm: A Class of Estimators for Discrete Markov Decision Processes”, *American Economic Review*.
- Hendel, I. and A. Nevo (2006), “Measuring the Implications of Sales and Consumer Stockpiling Behavior”, *American Economic Review*.
- Lee, R. (2013), “Vertical Integration and Exclusivity in Platform and Two-Sided Markets”, *American Economic Review*

Markov Games

Weeks 13-14: We discuss strategic dynamic Markov models of competition.

- Aguirregabiria and V. Mira (2002), “Sequential Estimation of Dynamic Discrete Games”, *American Economic Review*.
- Hotz, V.J., R.A. Miller, S. Sanders, and J. Smith (1994), “A Simulation Estimator for Dynamic Discrete Models of Choice”, *Review of Economic Studies*.
- Bajari, P., L. Benkard, J. Levin (2007), “Estimation Dynamic Models of Imperfect Competition”, *Econometrica*.
- Dorazelski, U. and A. Pakes (2006), “A Framework for Applied Dynamic Analysis in Industrial Organization”, *Econometrica*.