Overview

This is a course in the Graduate Industrial Organization sequence. We have designed it to be a complement to the other IO course being taught this fall by Ariel Pakes. The topics we cover are designed to flesh out aspects of topics covered in Ariel’s course (the theory in particular), give an opportunity to discuss a wider selection of empirical and theoretical work in IO and introduce students to the empirics of asymmetric information via looking at recent empirical auction work. The goal is to familiarize students with selected theoretical and empirical topics in industrial organization and help students start their own research agendas.

Course Requirements

1. Participation: where the syllabus lists a paper with a star next to it, this indicates reading is required before class. This paper will be discussed in class and an inability to discuss the paper will reflect badly on you and, more importantly, you won’t get much from the class.

2. Problem Sets: a few problem sets will be given

3. Exam: an exam will be given that covers selected topics (we will be clear about what is covered and what is not).

4. Research Proposal: In 6 months you will be starting dissertation research, now is the right time to start mulling over ideas. To encourage you to do this we will require a research proposal of around 5 pages. Use this to look for topics that excite you for your dissertation.
Books

Tirole’s “The Theory of Industrial Organization” is a required text. If you haven’t got it already, buy it. It is an invaluable reference.

Many other books are useful generally for IO economists and may be referred to from time-to-time. These include:

John Sutton, “Technology and Market Structure”
Oz Shy, “Industrial Organization” [an undergraduate version of Tirole that is useful when you want to see the simplest possible version of a model - good bedtime reading]
Andersen, de Palma and Thisse, “Discrete Choice Theory of Product Differentiation” [a very useful companion to the section on demand estimation that provides all the conceptual underpinnings of the models used to think about product differentiation]
Robert Wilson, “Nonlinear Pricing”
JJ Laffont and Jean Tirole, “A Theory of Incentives in Procurement and Regulation”
Vijay Krishna, “Auction Theory” [a super-useful reference for accessing the auction literature]
Pagan and Ullah, *Nonparametric Econometrics* is a great introduction to the nonparametric methods used in auction empirics

Course Structure

The course will be a mixture of theory and empirics. The theory components will be taught by Mariagiovanna Baccara and the empirical bits by John Asker. The course will jump from one to the other so that, loosely speaking, the empirical sections will complement the theory sections and vice versa.

The Theory Component

Starting from the 1970s, an increasing number of theorists have been becoming interested in Industrial Organization. This is because noncooperative game theory became the standard tool to analyze strategic conflicts and it lent itself naturally to the analysis of industrial organization topics (while until then the tools of general equilibrium analysis were not ideal to tackle the same issues).

The theoretical component of this course aims to give you a concise but solid background of the classical results in IO theory, and then to highlight some very recent contributions to the same literature. We will give a particular attention to the topics that are more complementary to the empirical part of the course.

Since IO theory has became increasingly formal in the last years, familiarity with the game
Theoretical tools covered in the first year Micro sequence is essential. In particular circumstances, I might cover a specific tool useful for some results myself. The best reference for game theoretical tools is the book “A Course in Game Theory” by M.Osborne and A.Rubinstein (1994) (“Game Theory” by D.Fudenberg and J.Tirole is also good).

To avoid wasting time going over the most basic materials, you should at least have read the relevant parts of the Tirole book before class. However, it is also a good idea if you start reading the papers beforehand.

**The Empirical Component**

The empirical component of the course aims to prepare you as both a producer and consumer of empirical work in IO. The last 15 years has seen a resurgence in empirical work in IO. A large amount of work in IO is now empirical, often combining sophisticated econometrics with serious theory. Even as a theorist interested in IO it is important to be able to be an informed consumer of empirical work.

The empirical component will do two things: First, we will look at several different topics from an empirical point of view, after we have dealt with the theory. These classes will be run as a reading group. It is a waste of time to turn up to these classes if you have not done the assigned reading.

Second, it will provide a coverage of the empirics of asymmetric information models. We will do this by looking closely at the literature on auction markets, which contains the most developed empirical work applied to markets where asymmetric information is important. I will briefly mention other areas likely to be fruitful for research. A brief flick through Laffont and Tirole should be enough to convince you that, conditional on having the data, the methods used to analyse auctions empirically are applicable in other contexts.

When doing the assigned reading try to make sure you can understand the following questions about the paper:

1. What is the research question?
   - How does the research question relate to existing theoretical and empirical literature?
   - Why is it worth asking?

2. What is are the data being used here?
   - How was it collected?
   - What are the important variables?
• How are they defined?
• What is the unit of observation?

3. What is the empirical strategy for answering this research question?

• If you had an ideal data set, what would it look like? What empirical strategy would you use on it?
• How is the data set in this paper different from that ideal data set?
• How does identification work in this paper?
• What are the sources of exogenous variation?
• How much of the identification is coming from the model and how much from the data?

4. What econometric techniques are being used in this paper?

• Are they appropriate?
• What is the central estimating equation (or equations)?
• What is in the unobservable component?
• What are the instruments being used? Do you think they are valid?
• How does the econometric model relate to the theoretical framework?

5. What are the main results of the paper?

• What are the economic implications of the results?

6. What do we learn from this paper?

7. What questions does this paper leave unanswered? How might you answer them?

1 Outline and selected reading

An asterisk next to a paper means it is required reading before class

Warning for the theory parts: This list includes the papers we will focus on in class, plus some we will briefly refer to. It is far from being an exhaustive account of all the relevant IO literature on each given topics. For a more complete list of the classics, simply refer to the bibliography at the end of each chapter of the Tirole book.
**Class 1: Monopoly Theory (MB) 9/7**

**Price Discrimination and Non-Linear Pricing**  *Tirole, Chapters 1,2,3  
Wilson, Chapters 4,9,11,12  
Rochet and Chone (1998) “Ironing, Sweeping and Multidimensional Screening”, EMA 66(4) 783-826

**Dynamic Monopoly**  

**Class 2: Empirical Models of Price Discrimination (JA) 9/14**

US Cellular Telephone Industry, CEPR Discussion Paper 4069. (on Eugenio Miravete’s web site at UPenn)

Shepard (1991) Price Discrimination and Retail Configuration, JPE 99(1), 30-51

Mortimer and Sorenson: DVDs

Class 3: Auctions I (JA) 9/21

These papers are central:


Haile, Phil and Elie Tamer (2003), Inference with an Incomplete Model of English Auctions, JPE, 111, 1-52

Campo, Perrigne and Vong (2003), Assymetry in First Price Auctions with Affiliated Private Values, Journal of Applied Econometrics, 18, 197


These papers are cited:


Li, Perrigne and Vong (2002), Structural Estimation of the Affiliated Private Value Auction Model, RAND, 33,171

Manski and Tamer (2002), Inference on Regressions with Interval Data on a Regressor or Outcome, E’metrica, 70, 519

Haile, Hong and Schum (2003), Nonparametric Tests for Common Values in First Price Sealed Bid Auctions NBER WP 10105


Class 4: Auctions II (JA) 9/28

As for class 3.

Class 5: Auction III and other Assymetric Information Topics (JA) 10/5

As for class 4, plus:


Also, come to Quang Vong’s seminar this semester on Econometrics of Incentive Regulation in the IO seminar.

Class 6: Oligopoly (MB) 10/12

Homogeneous Product  *Tirole, Chapter 5


Product Differentiation  *Tirole, Chapter 7


Class 7: Collusion (MB) 10/19

*Tirole, Chapter 6


Class 8: Entry and Exit (MB) 10/26

Tirole, Chapter 8


Fudenberg and Tirole “The Fat Cat Effect, the Puppy Dog Ploy and the Lean and Hungry Look”, AER Papers and Proceedings 74 361-368


*Cabral, L. and Riordan, M., "The Learning Curve, Market Dominance, and Predatory Pricing," EMA 62, 1115-1140


Class 9: R&D Theory (MB) 11/2

*Tirole, Chapter 10


Class 10: R&D related empirics (JA)


**Class 11: Vertical Contracting and Integration (MB)**

*Tirole, Chapter 4

Spengler (1950) “Vertical Integration and Anti-trust Policy”, JPE 58, 347-352


**Class 12: Theory of the firm (MB)**

*Tirole, Chapter 1


**Class 13: Empirics of Contracting and Integration (JA)**


Asker (2004), Diagnosing Foreclosure from Exclusive Dealing, mimeo NYU Stern


Chipty (2001) Vertical Integration, Market Foreclosure and Consumer Welfare, AER 91(3) 428-453


**Class 14: Empirical work on the boundaries of the firm (JA)**

*Baker and Hubbard (2003), Make vs Buy in Trucking: Asset Ownership, Job Design and Information, AER 551-572

*Garicano and Hubbard (2003) Specialization, Firms, and Markets: The Division of Labor Within and Between Law Firms, Mimeo Chicago GSB*