

EUI Ph.D. Programme 2020/2021

**Advanced Industrial Organization**

Syllabus

Web Site: <http://www.eui.eu/Personal/Calzolari/teaching.html>

Professor: Giacomo Calzolari (email: [giacomo.calzolari@EUI.eu](mailto:giacomo.calzolari@EUI.eu))

Office Hours: By appointment

**Credits.** Full credit.

**Teaching Block III:** February-March

**Purpose of course.** Students attending this course will acquire a thorough knowledge of how firms interact in non-competitive markets and how they may gain and exploit a competitive advantage. A general introduction will be provided, and some specific topics will be further explored (see list below). Two topics in particular may be covered: competition policy (its aims, how it works), the industrial organization of banking. Although the course is mainly based on models, empirical applications will be emphasized and discussed, with a focus to policy design.

The course will also contemplate a self contained set of classes on *Empirical methods for Industrial Organization* (on first week of Feb.). This is intended to be an introduction to empirical methods in Industrial Organization. It covers the basics of empirical modeling of market interactions, going from markets from homogeneous products to differentiated product markets. This part has an applied focus, thus it will sacrifice scope for more details on the empirical methods and coding.

**List of topics** (not all covered)

1. Introduction, benchmark market structure, standard models, product differentiation
2. Empirical IO
3. Collusion and algorithmic pricing
4. Relational contracts
5. Vertical restraints and contracts
6. Platforms
7. Consumer search and market outcomes
8. Privacy policies
9. Competition policy
10. Models of banks competition

Other topics

- Price discrimination
- Entry
- Innovation, R&D and patents

**Prerequisites.** You are expected to be familiar with the material covered in the 1<sup>st</sup> year sequence of microeconomics.

**Teaching method.** There will be 10 lectures.

**Examination policy.** The grading will be based on a written referee report.

**Reading material.** A very useful evergreen is *The Theory of Industrial Organization* (1988). Jean Tirole. MIT Press. For some topics also, *Industrial Organization: Markets and Strategies* (2010). P. Belleflamme and M. Peitz. Cambridge University Press. Other material is listed below for specific topics.

### **Bibliography**

1. Introduction, benchmark market structure, standard models, product differentiation  
Tirole chapters 5, 7.1, 7.2, 7.5  
Anderson, S., Erkal, N. and Piccinin, D. (2012). 'Aggregative games and entry'.  
Jonathan Levin "Supermodular Games" lecture notes  
Kreps, D. M. and Scheinkman, J. a. (1983). Quantity Precommitment and Bertrand Competition Yield Cournot Outcomes. *The Bell Journal of Economics*, 14(2):326–337.
2. Empirical Industrial Organization  
Train (2009). Discrete choice methods with simulation.  
Deaton and Muellbauer (1980, AER). The Almost Ideal Demand System.  
Berry (1994, Rand). Estimating Discrete Choice Models of Product Differentiation  
Berry, Levinsohn, Pakes (1995, ECMA). Automobile Prices in Market Equilibrium  
Dube, Fox, Su (2013, ECMA). Improving the Numerical Performance of Static and Dynamic Aggregate Discrete Choice Random Coefficients Demand Estimation  
Reynaert and Verboven (2012, JoE). Improving the Performance of Random Coefficients Demand Models: the Role of Optimal Instruments
3. Dynamic models, collusion and algorithmic pricing  
Tirole chapter 6  
Ericson and Pakes 1995 "Markov-Perfect Industry Dynamics: A Framework Studies" Restud  
Abreu, Dilip (1986), "Extremal equilibria of oligopolistic supergames," *Journal of Economic Theory* 39, 191-225  
Rotemberg Julio J. and Garth Saloner. A supergame-theoretic model of price wars during booms. *American Economic Review*, 76:390–407, 1986.  
Bernheim, D. and M. Whinston (1990), "Multimarket Contact and Collusive Behavior," *RAND Journal of Economics*, Vol. 21, pp. 1-26.  
Green Edward J. and Robert H. Porter. Noncooperative collusion under imperfect price information. *Econometrica*, 52:87–100, 1984.  
Harrington Joe, 2018, *The Theory of Collusion and Cartels*, wp  
Calvano, Calzolari, Denicolò, Pastorello, Artificial intelligence, algorithmic pricing, and collusion, wp
4. Relational contracts  
Bolton Dewatripont 2005, *Contract Theory*, MIT press, chapter 10.4  
MacLeod, W.B. and Malcomson, J.M., (1989), "Implicit Contracts, Incentive Compatibility, and the Involuntary Unemployment," *Econometrica*, 57(2), 447-480.  
Levin, J., (2003), "Relational Incentive Contracts," *American Economic Review*, 93(3), 835-847

Gil Ricard Giorgio Zanarone, 2014, "Testing for the Interaction of Formal and Informal Contracts," wp.

Calzolari and Spagnolo 2016 Relational contracts, procurement competition and suppliers collusion, wp.

Calzolari G., L. Felli, J. Koenen, G. Spagnolo, K. O. Stahl, 2018, *Trust, Investment and Competition: Theory and Evidence from German Car Manufacturers*, wp

5. Vertical restraints and contracts

Tirole chapter 4

Motta M. chapter 6, Competition Policy. Cambridge University Press 2009.

Rey, Patrick and Tirole, Jean (1986), "The Logic of Vertical Restraints," *American Economic Review*, Vol. 76 (5), pp. 921-939.

Aghion, P. and P. Bolton (1987), "Contracts as a barrier to entry," *American Economic Review*, 77, 388-401.

Bernheim, D. and M. Whinston (1998), Exclusive dealing, *Journal of Political Economy*, 106, 64-103.

Fumagalli, C., M. Motta and C. Calcagno, (2018), *Exclusionary Practices*, Cambridge, Cambridge University Press.

Calzolari, G. and V. Denicolò (2013), "Competition with exclusive contracts and market-share discounts," *American Economic Review*, 103, 2384-2411.

Calzolari, G. and V. Denicolò (2015), "Exclusive dealing and market dominance," *American Economic Review*, 105, 11, 3321-51.

Rasmusen, E., Ramseyer, J. and J. Wiley (1991), "Naked exclusion," *American Economic Review* 81, 1137-1145.

Segal, Ilya, and Michael D. Whinston (2000), "Naked Exclusion: Comment", *American Economic Review* 90(1):296-309.

6. Introduction to empirical industrial organization

[see documents in DX folder]

7. Platforms and Intermediaries

Belleflamme Paul and Martin Peitz. *Industrial Organization* Cambridge University Press 2009, chapter 22.

Amstrong, M. (2006) "Competition in Two-Sided Markets," *Rand Journal of Economics*, 37: 668--691.

Caillaud, B. and B. Jullien (2003) "Chicken & Egg: Competition Among Intermediation Service Providers," *Rand Journal of Economics*, 34(2): 309--328.

Rochet, J.C. and J. Tirole (2003) "Platform Competition in Two-Sided Markets," *Journal of the European Economic Association*, 1(4): 990--1029.

Rochet, J.C. and J. Tirole (2006) "Two-Sided Markets: A Progress Report," *Rand Journal of Economics* 35: 645--667.

Weyl, G. (2010) "A Price Theory of Multi-Sided Markets," *American Economic Review*, 100(4): 1642--1672.

Evans, D., and R. Schmalensee (2005) *Paying with Plastic: The Digital Revolution in Buying and Borrowing*, MIT Press.

Evans, D., and R. Schmalensee *The Antitrust Analysis of Multi-Sided Platform Businesses*, NBER Working Paper No. 18783 Issued in February 2013 NBER Program(s): Industrial Organization

Evans, D., Hagiu, A., and R. Schmalensee (2006) *Invisible Engines: How Software Platforms Drive Innovation*

Filistrucchi: OECD Rethinking-antitrust-tools-for-multi-sided-platforms-2018

8. Consumer search and market outcomes
9. Privacy policies
10. Competition policy
11. Models of banks competition

**List of papers for Referee reports (first come first served) [coming soon, students can also propose related papers]**

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