

# Industrial Economics

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## Course description

Industrial Economics or Economics of Industry, is a one-year course which is one of 'further units' of the external programme of the University of London (UoL). IO is one of the main 'special' economics courses which applies microeconomic and econometric techniques to the study of firms as organizations, market structures, strategic interaction, market efficiency and industrial policy. An undergraduate IO course at ICEF is based on students' knowledge of Intermediate Microeconomics and the first course of Econometrics. Inasmuch as many topics in modern IO require extensive use of game-theoretic tools, a few introductory classes will be used to review the relevant techniques and applications. Further reviews of specific topics will be included in the course curriculum whenever necessary.

The programme of this course mostly follows the requirements of the University of London external programme as covered by the Study Guide, with some thematic extensions. The course consists of three major parts. The first part constitutes a methodological and theoretical introduction into the tools, methods and approaches used all over the course. It provides a quick review of game theoretic concepts, followed by the discussion of the nature of markets, the firm and the agency relations within business organizations. The second part constitutes the core of the course, and covers imperfect competition in static and dynamic settings, theoretical and empirical studies of collusion, entry and accommodation, product differentiation, monopolistic behaviour, vertical integration and determinants of market structure. The third part is devoted to industrial policy and efficiency analysis, including government regulation and natural monopolies reforms with examples and applications.

## Teaching objectives

- Give a simple yet thorough introduction into the main methods of economic analysis of industry structure and firm behaviour under various conditions of technology, competition, and organization;
- Elaborate students' skills and abilities to use modern theoretical and empirical tools to formulate and solve economic problems;
- Explore in details how economists approach and answer specific empirical questions, such as whether a particular industry is vertically integrated,

whether there is evidence of price collusion, or whether the industry has features of natural monopoly;

- Provide the students with a sound intuition into the specific features of particular markets, including those of contemporary Russia.

## Teaching methods

The following methods and forms of study are used in the course:

- lectures
- classes
- home assignments (to be submitted before class)
- self-study.

Timetable of lectures and classes will be announced in due course. Given the limited number of contact hours, regular self study is crucial for successful completion of the course, including external examination.

## Assessment

Two examinations: the winter examination at the end of the Autumn semester, and the final examination at the end of the Spring semester (this latter covers all course material). Besides, there will be one control work in the middle of the Autumn semester. Home assignments are to be handled regularly, and also contribute to the final grade for the course.

External examination at the University of London takes place in May-June; its results do not count towards the final grade for the course at SU-HSE. IO is an integral part of the separately graded State Graduate Examination for the Russian degree programme (to be held in June 2007); this examination will consist of the same type of questions as those in the other papers.

## Grade determination

Course grades are determined as follows:

Autumn semester:

- Home assignments — 15%
- Midterm control work — 25%
- Winter examination — 60%

Spring semester and final grade:

- Home assignments — 15%
- Autumn semester grade — 25%
- Final examination — 60%

## Main reading

There is no single textbook for the course, although the most valuable one is the (now classical) text by Jean Tirole. Another useful and more new text is that by Church and Ware. Both texts will be used throughout the course at a regular basis, alongside with the UoL Study Guide and Examiners' Reports. A few more texts will be used occasionally or for the sake of reference — these are listed as additional readings. Further references for each theme (mostly journal articles, with the relevant weblink) can be found below, with compulsory readings starred (\*). Published sources may be complemented by lecture notes and other teaching material available at <http://mief.hse.ru>. Please check this source at regular rate, and pay attention to the other sources suggested by the course instructors.

1. Tirole, Jean (Tir) *The Theory of Industrial Organization*. MIT Press, 1992.
2. Church J., and R.Ware. (CW) *Industrial Organization. A Strategic Approach*. Irwin. 2000.
3. Symeonidis, George. *Industrial Economics*. University of London Study Guide (SG), 1999 and Examiners' reports (ER), various years.

## Additional reading

1. Schmalensee, Richard, and Robert Willig, eds. (HB) *Handbook of Industrial Organization*. Vols. 1–2. North–Holland, 1989.
2. Shy, Oz. (Shy) *Industrial Organization. Theory and Applications*. MIT Press. 1995.
3. Carlton, Dennis W., and Jeffrey M. Perloff (CP) *Industrial Organization*. 3d ed. Addison–Wesley, 1999.
4. Martin, Stephen. (Mar) *Industrial Economics*. 2d ed. Prentice Hall. 1994.

5. Pepall, Lynne; Daniel J. Richards; George Norman. (PRN) *Industrial Organization: Contemporary Theory and Practice*. 2d. ed. South–Western, 2002.
6. Hay, D., and D.Morris. *Industrial Economics and Organization*. 2d ed. Oxford. 1996.
7. Milgrom, Paul, and John Roberts. *Economics, Organization and Management*. 1998. (Милгром П., Робертс Дж. Экономика, организация и менеджмент. Дело, 1999)
8. Sherer, F.M. and D.Ross. *Industrial market structure and economic performance*. Houghton Mifflin, 1990 (Шерер Ф.М. и Д. Росс. Структура отраслевых рынков. Инфра–М, 1997.)
9. Sutton, John. *Sunk cost and market structure*. MIT Press, 1991.
10. Armstrong, Mark, Simon Cowan and John Vickers. *Regulatory Reform: economic analysis and British experience*. MIT Press, 1994.

Other readings, including journal articles, are listed under particular topics.

## Course outline

### 1. Noncooperative games for applied analysis

- \* Gibbons, Robert J. *A primer in game theory* (aka *Game theory for applied economists*). Addison-Wesley, 1993, ch.1 & 2.
- \* [Tir], Appendix on game theory.
- Osborne, Martin J., and Ariel Rubinstein. *A course in game theory*. MIT Press, 1995.
- Fudenberg, Drew, and Jean Tirole. *Noncooperative game theory for IO: introduction and overview*. In: [HB], ch.5.

### 2. Introduction to Industrial Organisation

- \* [Mar], Ch. 1.
- \* [PRN], Ch. 1.

### 3. Size and structure of the firm

- \* [Tir], The theory of the firm (Introductory chapter)

- \* [SG], ch.1
- \* Williamson O. Transaction cost economics. In: [HB], ch.3, или Williamson O. Economic institutions of capitalism. Free press, 1985, ch.2-3 (рус.пер: О.Уильямсон, Экономические институты капитализма, СПб, 1997; THESIS, 1993, #3, с.39-49.
- \* Hart O. Firms, contracts and financial structure. OUP, 1995, ch.1-3.
- \* Monteverde, Kirk, and David J.Teece. Supplier Switching Costs and Vertical Integration in the Automobile Industry. The Bell Journal of Economics, Vol. 13, No. 1 (Spring, 1982), pp. 206-213
- \* Joskow, Paul L. Contract Duration and Relationship-Specific Investments: Empirical Evidence from Coal Markets. The American Economic Review, Vol. 77, No. 1 (Mar., 1987), pp. 168-185
- [CP], ch. 2
- Grossman, Sanford, and Oliver Hart. The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration. Journal of Political Economy (1986) 94(4): 691-719.
- Hart, Oliver, and John Moore. Property rights and the nature of the firm. Journal of Political Economy, 1990, v.98, p.1119-1158.
- Klein, Benjamin; Robert G. Crawford; Armen A. Alchian. Vertical Integration, Appropriable Rents, and the Competitive Contracting Process. Journal of Law and Economics, Vol. 21, No. 2 (Oct., 1978), pp. 297-326.
- Klein, Benjamin, and Kevin M. Murphy. Vertical Restraints as Contract Enforcement Mechanisms. Journal of Law and Economics, Vol. 31, No. 2 (Oct., 1988), pp. 265-297.

#### 4. Agency theory, ownership and control

- \* [Tir], The theory of the firm (Introductory chapter)
- \* [SG], ch.2
- \* Nickell, Stephen J. Competition and Corporate Performance The Journal of Political Economy, Vol. 104, No. 4 (Aug., 1996), pp. 724-746
- Holmstrom, Bengt and Jean Tirole. The theory of the firm. In: [HB], ch.2
- [CP], ch.2

- Laffont, Jean-Jacques and Ramon Martimort. The Principal-Agent theory. PUP, 2002.
- Hart, Oliver, Jean Tirole, Dennis Carlton, Oliver Williamson. Vertical integration and market foreclosure. Brookings papers on economic activity, 1990, p.205-286.
- Salanie, Bertrand. Contract theory: a primer. MIT Press, 1997.
- Gibbons, R. Incentives between firms (and within). Management Science, v.51 , No.1, 2005, p. 2-17.
- Nickell S., Nocolitsas D., Dryden N. What makes firms perform well? European Economic Review, 1996, v.41, p.783-796.

## 5. Static price competition in oligopoly models

- \* [Tir], ch.5
- \* [SG], ch.3
- [CP], ch.7
- [Shy], ch.6
- [Mar], ch.5
- Chapiro, Carl. Theory of oligopoly behavior. In: [HB], ch.6
- Kreps, David M., and Jose Scheinkman. Quantity precommitment and Bertrand competition yield Cournot outcomes. Bell Journal of Economics, vol.14, no.3, Autumn 1983, p.326-337.
- Bresnahan, Timothy F. Duopoly Models with Consistent Conjectures. The American Economic Review, Vol. 71, No. 5 (Dec., 1981), pp. 934-945

## 6. Dynamic price competition

- \* [Tir], ch.6
- \* [SG], ch.4
- \* [CP], ch.6-7
- \* Porter, Robert H. Study of Cartel Stability: The Joint Executive Committee, 1880-1886. The Bell Journal of Economics, Vol. 14, No. 2 (Autumn, 1983), pp. 301-314

- \* Green, Edward J., and Robert Porter. Noncooperative Collusion under Imperfect Price Information. *Econometrica*, 1984, vol. 52, p.87-100.
- \* Rotemberg, Julio J., and Garth Saloner. A Supergame-Theoretic Model of Price Wars during Booms. *The American Economic Review*, Vol. 76, No. 3 (Jun., 1986), pp. 390-407.
- \* Slade, Margaret E. Strategic pricing models and interpretation of price-war data. *European Economic Review*, 1990, v.31 p.524-537.
- Ellison, Glenn. Theories of Cartel Stability and the Joint Executive Committee. *The RAND Journal of Economics*, Vol. 25, No. 1 (Spring, 1994), pp. 37-57
- Sherer and Ross, 1990, Ch. 7-8.
- [Shy], ch.6
- Levenstein, Margaret C. Price Wars and the Stability of Collusion: A Study of the Pre-World War I Bromine Industry. *The Journal of Industrial Economics*, Vol. 45, No. 2 (Jun., 1997), pp. 117-137.
- Slade, Margaret E. Interfirm Rivalry in a Repeated Game: An Empirical Test of Tacit Collusion. *The Journal of Industrial Economics*, Vol. 35, No. 4, *The Empirical Renaissance in Industrial Economics* (Jun., 1987), pp. 499-516
- Slade, Margaret E. Vancouver's Gasoline Price Wars: An Empirical Exercise in Uncovering Supergame Strategies. *Review of Economic Studies*, 1987, vol.59, no.2, p.257-276.

## **7. Econometric methods for applied work with application to price collusion**

- \* Bresnahan, Timothy. The Oligopolistic Solution Concept is Identified. *Economic Letters* (1982), 87-92.
- \* Nevo, Aviv. Identification of the Oligopoly Solution Concept in a Differentiated Products Industry. *Economic Letters*, 59:3 (1998)
- Bresnahan, Timothy. Empirical Studies of Industries with Market Power, in [HB], Vol. 2.
- Verbeek, Martin. *A guide of modern econometrics*. OUP, 1999.

## **8. Entry deterrence and entry accommodation**

- \* [Tir], ch.8
- \* [SG], ch.5
- \* Fudenberg, Drew, and Jean Tirole. The Fat-Cat Effect, the Puppy-Dog Ploy, and the Lean and Hungry Look. *The American Economic Review*, Vol. 74, No. 2, Papers and Proceedings of the Ninety-Sixth Annual Meeting of the American Economic Association (May, 1984), pp. 361-366
- \* Dixit, Avinash. The Role of Investment in Entry-Deterrence. *The Economic Journal*, Vol. 90, No. 357 (Mar., 1980), pp. 95-106
- [CP], ch.10
- Bulow, Jeremy I.; John D. Geanakoplos; Paul D. Klemperer. Multimarket Oligopoly: Strategic Substitutes and Complements. *The Journal of Political Economy*, Vol. 93, No. 3 (Jun., 1985), pp. 488-511
- Lieberman, Marvin B. Excess Capacity as a Barrier to Entry: An Empirical Appraisal. *The Journal of Industrial Economics*, Vol. 35, No. 4, The Empirical Renaissance in Industrial Economics (Jun., 1987), pp. 607-627

## 9. Product differentiation

- \* [Tir], ch.7
- \* [SG], ch.6
- \* Shaked, Avner, and John Sutton. Relaxing Price Competition Through Product Differentiation. *The Review of Economic Studies*, Vol. 49, No. 1 (Jan., 1982), pp. 3-13
- [Shy], ch.7
- [CP], ch.8
- Salop, Steven C. Monopolistic Competition with Outside Goods. *The Bell Journal of Economics*, Vol. 10, No. 1 (Spring, 1979), pp. 141-156
- D'Aspremont, Claude, J.J.Gabszewicz, Jean-Francois Thisse. On Hotelling's 'Stability in competition'. *Econometrica*, v.47, 1979, p.1145-1150.
- Perloff, Jeffrey M, and Steven C. Salop. Equilibrium with Product Differentiation. *The Review of Economic Studies*, Vol. 52, No. 1 (Jan., 1985), pp. 107-120



- Judd, Kenneth L. Credible Spatial Preemption. *The RAND Journal of Economics*, Vol. 16, No. 2 (Summer, 1985), pp. 153-166
- Shaked, Avner, and John Sutton. Product Differentiation and Industrial Structure. *The Journal of Industrial Economics*, Vol. 36, No. 2 (Dec., 1987), pp. 131-146

## 10. Advertising

- \* [CP]
- \* [Shy]
- \* Gabaix, Xavier, and David Laibson. Consumer Myopia, Shrouded Attributes, and Information Suppression in Competitive Markets. *Quarterly Journal of Economics*, 121 (2), May 2006, p. 505-540.
- Bagwell K. The economics analysis of advertising. Mimeo, Columbia University, 2005.
- Lancaster, Kelvin. The Economics of product variety: a survey. *Marketing Science*, 1990, vol.9, no.3, p.189-203.
- Eaton, B.Curtis and Richard G.Lipsey. Product differentiation. In: [HB], ch.12 item Klemperer, Paul. Markets with Consumer Switching Costs. *Quarterly Journal of Economics*, 102 (1987), 375-394.

## 11. Monopoly and price discrimination

- \* [SG], ch.7
- \* [CP], ch.11-12
- \* [Tir], ch.3
- \* [Mar], ch.15
- Sherer and Ross, ch.13
- Oi, Walter Y. A Disneyland Dilemma: Two-Part Tariffs for a Mickey Mouse Monopoly. *The Quarterly Journal of Economics*, Vol. 85, No. 1 (Feb., 1971), pp. 77-96.
- Varian, Hal R. Price Discrimination and Social Welfare. *The American Economic Review*, Vol. 75, No. 4 (Sep., 1985), pp. 870-875

- Verboven, Frank. International Price Discrimination in the European Car Market. *The RAND Journal of Economics*, Vol. 27, No. 2 (Summer, 1996), pp. 240-268
- Graddy, Kathryn. Testing for imperfect price competition at the Fulton fish market. *The RAND Journal of Economics*, 1995, Vol.26, no.1, p.75-92.

## 12. Вертикальная интеграция и вертикальные ограничения

- \* [Tir], ch.4
- \* [SG], ch.8
- \* [Mar], ch.17
- \* Mathewson, G.Frank, and Ralph A. Winter. An Economic Theory of Vertical Restraints. *The RAND Journal of Economics*, Vol. 15, No. 1 (Spring, 1984), pp. 27-38.
- \* Mathewson, G.Frank, and Ralph A. Winter. On Vertical Restraints and the Law: A Reply. *The RAND Journal of Economics*, Vol. 19, No. 2 (Summer, 1988), pp. 298-301.
- \* Mathewson, G.Frank, and Ralph A. Winter. The Competitive Effects of Vertical Agreements: Comment. *The American Economic Review*, Vol. 77, No. 5 (Dec., 1987), pp. 1057-1062.
- [CP], ch.13
- Sherer and Ross, ch.15
- Katz, M.L. Vertical contractual relations. In: [HB], ch.11
- Antitrust Cases: Monopolies and Mergers Commission (MMC) *New Motor Cars*, Cm 1808 (London: H. M. S. O., 1992).
- Rey, Patrick, and Joseph E. Stiglitz. The Role of Exclusive Territories in Producers' Competition. *The RAND Journal of Economics*, Vol. 26, No. 3 (Autumn, 1995), pp. 431-451.

## 13. The determinants of market structure

- \* Bain, Joe S. Economies of Scale, Concentration, and the Condition of Entry in Twenty Manufacturing Industries. *The American Economic Review*, Vol. 44, No. 1 (Mar., 1954), pp. 15-39

- \* Sutton, John. Sunk cost and market structure. MIT Press, 1991
- \* Sutton, John. Game-theoretic models of market structure. In: Kreps D.M. and Wallis K.F., eds. Advances in economics and econometrics. The VIIIth world congress. v.1, CUP, 1997
- \* Sutton, John. Technology and market structure. European Economic Review, 1996, v.40, p.511-530.
- \* [SG], ch.9
- [Mar], ch.8
- Sherer and Ross, ch.3-4

#### **14. Competition and industrial policy**

- \* [Mar], various chapters.
- \* [SG], ch.10
- [CP], ch.17, 20
- Sherer and Ross, ch.3-4.

#### **15. Regulation and natural monopolies**

- \* Armstrong, Mark, Simon Cowan and John Vickers. Regulatory Reform: economic analysis and British experience. MIT Press, 1994.
- \* [SG], ch.11
- Laffont J.J. and Tirole J. Theory of incentives for procurement and regulation. MIT Press, 1999.
- Winston, Clifford. US industry adjustment to economic deregulation. Journal of Economic Perspectives, 1998, v.12, no.3, p.89-110.
- Christensen, Laurtis R., and William H, Greene. Economies of scale in US electric power generation. Journal of Political Economy, 1973, v.84, no.4, p.655-676.
- Evans, David S. and James J.Heckman. A test for subadditivity of the cost function with an application to the Bell system. American Economic Review, 1984, vol.74, p.615-623. and (erratum)

#### **Distribution of hours**

#	Topic	Total hours	Contact hours		Self study
			Lectures	Seminars	
1.	Noncooperative games for applied analysis	18	4	4	10
2.	Introduction to Industrial Organisation	14	2	2	10
3.	Size and structure of the firm	26	4	6	16
4.	Agency theory, ownership and control	14	2	2	10
5.	Static price competition in oligopoly models	18	4	4	10
6.	Dynamic price competition	28	6	6	16
7.	Econometric methods for applied work with application to price collusion	14	2	2	10
8.	Entry deterrence and entry accommodation	18	4	4	10
9.	Product differentiation	34	8	8	18
10.	Advertising	18	4	4	10
11.	Monopoly and price discrimination	28	6	6	16
12.	Vertical integration and vertical restraints	18	4	4	10
13.	The determinants of market structure	30	6	6	18
14.	Competition and industrial policy	14	2	2	10
15.	Regulation and natural monopolies	32	8	6	18
Total:		324	66	66	192