




VNIVERSITAT  VALÈNCIA

Departamento de Estructura Económica

Degree in Economics
Department of Estructura Económica

APPLIED INDUSTRIAL ECONOMICS

Academic Year 2006-2007

Lecturer:

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1. General characteristics

Applied Industrial Economics is a 2nd/3rd year optional subject at the Degree in Economics of the University of Valencia. Its academic credit weighting is 6 credits and it is taught in the 2nd term.

2. Objectives

The aim of this subject is the study of firms' behaviour in imperfectly competitive markets. Our aim is to introduce the students in the area of *Industrial Economics* and make them familiar with some of the dominant research lines within this field of study.

The syllabus content is divided into three parts. The first one includes four topics. The first of them is introductory in nature is devoted to present Bain's structure-conduct-performance paradigm (SCP). The next four topics provide some of the Basic tools required for the study of Industrial Economics. In the first of them, "Oligopoly models", that analyses direct causality in the SCP paradigm, we examine the theoretical models of imperfect competition and strategic interaction among firms. To get this aim, we introduce the basic elements of game theory that will be needed along course. The three following topics are devoted to analyse the so-called retroactive effects of the SCP paradigm. These two topics include both traditional models based on technological factors and more sophisticated models that try to embody firms' strategic behaviour.

Topics 6, 7 and 8, that constitute the second part of the course syllabus, can be considered as further developments of topics 2 to 5. In these topics we analyse non-price competition aspects as: product differentiation or advertising expenditures. We also study the effects of these non-price forms of competition on market structure and intensity of between-firms price competition. In order to carry out these analyses we use recently developed theoretical models.

The third part of the course syllabus, just one topic, is devoted to the analysis of the role of public institutions from a Industrial Economics perspective.

The exercises, that will be worked out in the classes, are closely related to the theoretical explanations and it is mainly based on the solving problems and discussing case studies.

2. References

Very likely the introductory Industrial Economics book that better adapts to the proposed syllabus is CABRAL, L. (2000): *Introduction to Industrial Organization*, The MIT press, Cambridge. However, this book does not include some relevant theoretical development that we consider necessary for a course as the one we aim to teach. In order to make easily available to students these developments the course lecturers have elaborated the *Topics in Industrial Economics* [ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a)]. These topics include both parts of CABRAL (2000), although sometimes using a different modelling approach, as some simplification of recent research papers carried out by the course lecturers. The *Topics in Industrial Economics* are available in the course web page.

Therefore both the *Topics in Industrial Economics* and CABRAL (1997) should be considered as course books.

As regards further (complementary) reading that can help to clarify some ideas or concepts we recommend another two industrial organization manuals.

CARLTON, D. W. AND J. M. PERLOFF (1994): *Modern Industrial Organization*, Harper-Collins, New-York

TIROLE, J. (1988): *The theory of industrial organization*, The MIT press, Cambridge.

CARLTON AND PERLOFF (1994) is an undergraduate book with a strong game-theoretical approach. TIROLE (1988) is more a post-graduate book and you should ask your lecturer about concrete section that can result helpful for an introductory course in Industrial Economics.

As regards the classes workbook, we will use a set of questions and numerical problems titled *Questions in Applied Industrial Economics* [ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b)] available in the course web page.

3. Method of assesment

The method of assess is an exam paper. This exam paper will include both theorertical and practical questions. Adittionally students have the possibility of handing in the questionnaires proponed in the classes. The assistance to classes and regular handing in of the questionnaires will be taken into account to set the course final mark.

4. La página web de la asignatura

The course web page is:

<http://www.uv.es/jamc/=econinde.html>

This web page includes the following information:

- Syllabus
- Course book: ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a): *Topics in Industrial Economics*
- Class questionnaires : *Questions in Applied Industrial Economics* (ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A., 2006b)
- Course lecturers' office hours.
- Latest news and announcements on the course.

6. Topics and topic content summary

PART I: MARKET STRUCTURE AND STRATEGIC INTERACTION

TOPIC 1: Introduction

Summary and aims

In this introductory topic, we introduce the Industrial Economics discipline in a broad sense. We examine the main questions that Industrial Economics approaches and introduce the paradigm structure-conduct-performance. This paradigm constitutes the traditional analytical benchmark of the Industrial Economics discipline. Furthermore, we briefly describe the historical evolution of this economic discipline.

Theory contents

- 1.1. What do we mean by Industrial Economics or Industrial Organization?
- 1.2. Main Industrial Economics questions
- 1.3. Historical evolution of Industrial Economics

Recommended reading:

CABRAL, L. (2000): Op. Cit.; chapter 1 .

ESTEVE, S, MAÑEZ, J.A. Y SANCHIS, A. (2006a): Op. Cit.; *Topic 1: Market structure and concentration*, <http://www.uv.es/jamc/=econinde/econind1.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 1 and 9.

Classes contents

ESTEVE, S, MAÑEZ, J.A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics* questions 1.1 y 1.2, <http://www.uv.es/jamc/=econinde/ejer1e.html>]

TOPIC 2: Oligopolistic behaviour models

Summary and aims

This topic examines firms behaviour in oligopolistic. We start with a brief introduction to the basic concepts of game theory and introduce the traditional Cournot, Bertrand y Stackelberg models. Then we approach the more modern approaches based on game theory as it is the case of the Bertrand supergame. The aim of this topic is the analysis of firms' strategic behaviour in those situations in which each firm recognises that market price and production, and so each firm profit, depends both on their own actions and on its competitors actions.

Theory contents

- 2.1. Introduction to game theory: Nash equilibrium and Perfect equilibrium.
- 2.2. Static models: Bertrand, Cournot y Stackelberg.
- 2.3. A dynamic model of oligopolistic competition: a supergame *a la Bertrand*
- 2.4 Monopolistic competition and dominant firm (firnge of firms) models

Recommended reading:

CABRAL, L. (2000): Op. Cit.; chapters 4, 7 and 8.

ESTEVE, S, MAÑEZ, J.A. Y SANCHIS, A. (2006a): Op. Cit.; *Topic 2: Oligopolistic behaviour models*, <http://www.uv.es/jamc/econinde/econind2.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 7.

TIROLE, J. (1988): Op. Cit.; sections 5.1, 5.2, 5.4, 6.3.1 y 11.1-11.3.

Classes content

ESTEVE, S., MAÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics*, <http://www.uv.es/jamc/econinde.html>

TOPIC 3: Entry costs, market structure, and welfare

Summary and aims

In former Topic market structure has been considered as given. However, both in Topics 3 and 4, we analyse the endogenous determination of market. Thus, this topic is devoted to the the análisis of the impact of entry costs in market structure. Following recent theoretical development we distinguish between exogenous and endogenous entry costs.

Theory contents

- 3.1. Introduction
- 3.2. Entry costs and market structure.
- 3.3 Exogenous y and endogenous entry costs.
- 3.4 Free entry and social welfare

Recommended reading:

CABRAL, L. (2000): Op. Cit.; capítulo 14.

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a): *Topic 3: Entry costs, market structure and welfare*, <http://www.uv.es/jamc/=econinde/econind3.html>

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics*, <http://www.uv.es/jamc/=econinde.html>]

TOPIC 4: The entrance of new competitors.

Summary and aims

This topic analyses potential competition and barriers to entry. After analysing Bain's concept of entry barriers, we introduce the limit price theory. The limit price model constitutes the traditional approach to entry barriers and price setting in oligopolistic markets. Finally, we present more recent models based on incumbents' strategic behaviour to prevent or limit the scope of entrants of rival firms such as: overinvestment in productive capacity, product proliferation and predatory behaviour.

Theory contents

- 4.1. Traditional definitions of barriers to entry and main criticisms
- 4.2. Limit price theory.
- 4.3. Other strategic behaviours to limit entrance: overinvestment in capacity, product proliferation, predatory behaviour.

Recommended reading:

CABRAL, L. (2000): Op. Cit.; chapter 15.

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a): *Topic 4: The entrance of new competitors*, <http://www.uv.es/jamc/econinde/econind4.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 10.

TIROLE, J. (1988): Op. Cit.; introduction to chapter 8 y section 8.2 (except 8.2.2.2-final).

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics* <http://www.uv.es/jamc/econind.html>

TOPIC 5: Fusiones y relaciones verticales

Summary and aims

The first part of this topic analyses the strategic aspects of horizontal mergers (and acquisitions). We will set aside possible financial motives explaining mergers and acquisitions to focus on the analysis of the trade-off between efficiency gains and increase of market power. Whenever two firms operating in the same market merge, it is usual to observe efficiency gains; however, the merger also raises market concentration. Commonly, this increase in concentration involves a price increase that has negative consequence over social welfare as it reduces consumers' welfare. In the second part of the topic we analyse the monopolist incentives for vertically integrating forward. These incentives vary depending on the market structure of the downstream firm. If the downstream firm is monopolist integration forward solves the double-marginalization problem and it is profitable both for the firm and the consumers. However, if the downstream industry operates in perfect competition regime integration forward neither increases profits of the firm integrating forward nor consumer surplus.

Theory contents

5.1. Introduction

5.2. Mergers and acquisitions

5.3. Vertical relationships.

5.3.1. Vertical integration forward.

5.3.2. Successive monopolies: double marginalization y and two-parts tariffs.

5.3.3. Other vertical control instruments.

Recommended reading:

CABRAL, L. (2000): Op. Cit., chapters 11, 15.3 y 3.2.

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a): *Topic 5: Mergers and vertical relationships*, <http://www.uv.es/jamc/=econinde/econind5.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 13.

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics*, <http://www.uv.es/jamc/=econinde.html>

PARTE II: NON-PRICE COMPETITION

TOPIC 6: Product differentiation (I): patterns of price setting

Summary and aims

We have analysed oligopoly models considered in former topics under the assumption of homogeneous product. In this topic we relax this assumption by allowing firms to sell differentiated products. From a theoretical viewpoint, we can distinguish two kinds of product differentiation: horizontal and vertical product differentiation. The models presented in the present topic only cover horizontal product differentiation, as vertical product differentiation model are too complex for an introductory course of Industrial Economics. Thus, we present the Hotelling model (both linear and quadratic transport costs) to analyse the effects of product differentiation on price competition intensity.

Theory contents

- 6.1. Horizontal vs. vertical product differentiation.
- 6.2. The linear city model: linear and quadratic transport costs
- 6.3 Price competition with differentiated products: Coca-Cola *versus* Pepsi-Cola.

Recommended reading:

CABRAL, L. (2000): Op. Cit.; chapter 12.

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a): Op. Cit.; *Topic 7: Diferenciación de producto (I): patrones de fijación de precios*, <http://www.uv.es/jamc/=econind/econinde6.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 8.

TIROLE, J. (1988): Op. Cit.; section 7.1.1.

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics*, <http://www.uv.es/jamc/=econinde.html>

TOPIC 7: Product differentiation (II): market structure

Summary and aims

In this topic we introduce the circular-city model (Salop ,1979) to analyse the effects of product differentiation on market structure. Analogously, using as reference this model we analyse product proliferation as a strategy to prevent entrance.

Theory contents

- 7.1. Salop's model (circular-city model).
- 7.2. Product proliferation as a strategy to prevent entrance

Recommended reading:

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006a): Op. Cit.; *Topic 8: Product differentiation (II): market structure*, <http://www.uv.es/jamc/econinde/econind7.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 8.

TIROLE, J. (1988): Op. Cit.; section 7.1.2

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics*, <http://www.uv.es/jamc/econinde.html>

TOPIC 8: Advertising

Summary and aims

In this topic we analyze firm's optimal advertising expenditure. Whereas in former topics it was supposed that firm's only choice variable was the price, in this topic we widen the analysis and allow the firms to choose both price (quantity) and advertising expenditure to maximize profits. We start introducing the concepts of informative and pervasive advertising. Then, we analyse which are the determinants of a monopolist optimal level of advertising expenditure. The results of this analysis can be summarised in the Dorfman-Steiner condition that states the ratio expenditure over sales is directly related to the sensibility of the demand to the advertising expenditure and inversely related to the sensibility of the demand to price variations. Finally, we analyse the impact of market structure on firms' optimal advertising expenditure. In particular, we explore the possible existence of a non-linear relationship between advertising and market concentration.

Theory contents

- 8.1. Informative and pervasive advertising. Effects on competition
- 8.2. Determination of the monopolist optimal advertising expenditure.
- 8.3. Market structure and advertising.

Recommended reading:

CABRAL, L. (2000): Op. Cit.; chapter, 13

MÁÑEZ, J. A. Y SANCHIS, A. (2006a): Op. Cit.; *Topic 9: Advertising*, <http://www.uv.es/jamc/=econinde/econind8.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 15.

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics* <http://www.uv.es/jamc/=econinde.html>

PARTE III: INTRODUCTION TO REGULATION

TOPIC 9: Introduction to competition policy and regulation

Summary and aims

The increasing importance of competition policy and regulation in modern economies suggest to devote the last topic of this course to briefly describe both of them. First, part of the topic analyses, using a game theoretic approach, which are the possible effects of government intervention on firms behaviour and market structure. Thus, we introduce the concept of natural monopoly and the problem related to it. Secondly, we briefly introduce which are the institutions that are responsible of the competition policy. Finally, we analyse three regulation mechanisms: rate-of return regulation, price cap regulation and yardstick competition.

Theory contents

- 9.1. Introduction: effects of government actions on firms and market structure
- 9.2. The natural monopoly case.
- 9.2. Competition policy
- 9.3. Price regulation mechanisms.

Recommended reading:

CABRAL, L. (1997): Op. Cit.; chapter 5.

MÁÑEZ, J. A. Y SANCHIS,, A. (2006a): *Topic 9: Introduction to competition policy and regulation*, <http://www.uv.es/jamc/=econinde/econind9.html>

Further reading:

CARLTON, D. W. AND PERLOFF, J. M. (1994): Op. Cit.; chapter 21.

Classes content

ESTEVE, S., MÁÑEZ, J. A. Y SANCHIS, A. (2006b): *Questions in Applied Industrial Economics*<http://www.uv.es/jamc/ =econind.html>]