## Industrial Organization



- A Brief Introduction
- The Extremes: Perfect Competition and Monopoly
  - Week 1

## Practical Sessions

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**Office Hours**: Tuesday at 11am or by appointment (send me an email if you want to schedule a meeting)

Moodle password: IOSPRING25



# Practical Sessions

TIMELINE

#### **On Moodle you can find:**

- The IO Exercise Book
- Practical classes slides
- Recommended readings ("Material")
- Past Midterms
- Past Exams

1. The Extremes: Perfe 2. Market Structure (M 3. Game Theory: Static 3. Game Theory: Dyna 4.1. Dominant Firm 4.1. Monopolistic Com 4.2. Cournot Model 4.2. Cournot Model 4.3. Stackelberg Model 4.4. Bertrand Mode Diff. Products 5. Market Power (Coll 5. Market Power (Collu Midterm Revision Midterm 6. Barriers to Entry Normal Exam

**Resit Exam** 

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Topic	Exercises	Tuesday Classes	Thursday Class
ect Competition and Monopoly	Section 1 – 1, 3	February 11	February 13
Ieasures of Concentration and Volatility) c Games	Section 2 – 1 Section 3 – 1, 3	February 18	February 20
amic Games	Section 3 – 5, 6 Section 4.1 – 2	February 25	February 27
npetition (+ Intro to Cournot - TBD)	<b>Section 4.1 – 4</b>	March 11	March 6
	Section 4.2 – 1, 4, 8	March 18	March 13
1	Section 4.2 – 6 Section 4.3 – 1	April 1	April 3
el and Competition in Prices with	Section 4.4 – 9, 10	April 8	April 10
usion)	Section 5 – 1, 3	April 15	May 8
usion II)	Slides Exercises	April 22	<b>May 13</b>
	<b>Relevant Exercises</b>	April 29	April 24
		May 5, 5:30 PM	
	Section 6 – 1 and/or 3	11 May	May 15
		May 24, 8:30 AM June 21, 1:30 PM	

### Introduction

WHAT IS INDUSTRIAL ORGANIZATION?

#### INDUSTRIAL ORGANIZATION IS THE FIELD OF ECONOMICS THAT STUDIES THE <u>BEHAVIOUR</u> OF FIRMS IN <u>IMPERFECTLY COMPETITIVE</u> MARKETS AS WELL AS THE <u>PERFORMANCE</u> OF SUCH MARKETS

#### (SOME OF THE) CENTRAL QUESTIONS OF IO:

- How do markets function?
- Why do markets function in a given market power?
   way?
   What is the role
- Do firms possess market power?



- What are the consequences of
- What is the role of public policy regarding market power?



## Perfect Competitions

- Homogeneous product
- ✓ Free entry and exit ( $\pi^{LR} = 0$ )
- Perfect information
- Many buyers and sellers



All agents are **price-takers**: each agent individually is small enough and is not able to influence the market price

### Perfect Competition

#### FIRM'S OPTIMAL DECISION

#### Goal of all firms $(\rightarrow)$ Maximize profits

To solve this, we want to set the derivative of profits with respect to Q equal to zero:

$$\frac{d\pi}{dQ} = 0 \leftrightarrow I$$

#### The firm will produce the Q that ensures the MC is equal to the market price





 $P^* - MC = 0 \leftrightarrow P = MC$ 

EXERCISE

## Perfect Competition

#### 1. Consider the industry of Portuguese footwear, which is a perfectly competitive one with a demand function given by P = a - bbQ. In this market every firm sells the same product and they all have the same cost structure, TC = cQ.

- (a) Define the long-run equilibrium price, quantity (aggregate and firm level) and profit.
- (b) Draw and calculate the consumer surplus, the producer surplus and the total welfare.



## Monopoly

A single firm that chooses its price!

#### **Profits** = Total Revenues – Total costs $\leftrightarrow \pi = TR(Q) - TC(Q)$ $max \, \pi = TR(Q) - TC(Q)$

$$\frac{d\pi}{dQ} = 0 \leftrightarrow TR$$
Margina
Revenue



$$\mathbf{R'} - \mathbf{TC'} = \mathbf{0} \leftrightarrow \mathbf{MR} = \mathbf{MC}$$

al Marginal Cost 10

## Monopoly

A single firm that chooses its price!

#### $\frac{d\pi}{dQ} = \mathbf{0} \leftrightarrow TR' - TC' = \mathbf{0} \leftrightarrow \mathbf{MR} = \mathbf{MC}$ Marginal Marginal

Revenue

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#### 3. Consider a market supplied by a single firm, The Monopolist. This company faces a market demand of P = a - bQ and it has a total cost TC = cQ.

- (a) Formalize the problem of the Monopolist and find the equilibrium quantity and price.
- (b) Draw and calculate the consumer surplus, the producer surplus and the total welfare.
- (c) Compare the results of the Perfect Competition exercise (first one in this section) and point out the effect over: i. Price, ii. Total quantity, iii. Firm profits, iv. Consumer Surplus, v. Producer Surplus, vi. Total welfare.
- (d) Draw and calculate the Deadweight loss (excess burden) created by this monopoly.





## The extremes compared

		Monopoly	Competitive market
	Behaviour	Sets price and quantity to maximize profits (" <u>Price-</u> <u>maker</u> ")	Takes market determined price as given and chooses quantity to maximizes profits (" <u>Price-</u> <u>takers</u> ")
Optima	<b>Optimal decision</b>	MR = MC	P = MC
	Efficiency	Pareto inefficient ( <i>DWL</i> > 0)	Pareto efficient ( $DWL = 0$ )



#### Recommended readings CABRAL, LUIS MB. INTRODUCTION TO INDUSTRIAL ORGANIZATION. MIT PRESS, 2017.

- Chapter 1: What is Industrial Organization
- ✓ Chapter 5.1: Monopoly
- ✓ Chapter 6.1: Perfect Competition
- ✓ Chapter 6.2: From Theory to Stylized Facts
- ✓ Chapter 6.3: Competitive Selection



