

Economics for Business Environment

Unit 5

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Lecture Outline

- ① Introduction
- ② Perfect Competition
- ③ Monopolistic competition
- ④ Monopoly
- ⑤ Oligopoly
- ⑥ Market Structures Summary
- ⑦ Conclusion

Previously on 101LON

- Market Equilibrium.
- Every firm seeks to maximize profits and chooses the Q^* .
- We distinguish between the **short-run** (when at least one factor is fixed) and the **long-run** (when everything can vary).
- Different types of cost (revenue, product) used to analyse different aspects of production.

Previously on 101LON

- **Fixed cost** is independent of the quantity produced, while variable cost depends on the quantity produced.
- **Average cost** (*revenue, product*) is simply total cost (*revenue, product*) divided by the quantity.
- **Marginal cost** (*revenue, product*) is the change in total cost (*revenue, product*) when the quantity changes by one unit.
- Firms maximize profits when **MR=MC**

Learning Outcome

- You will acquire an understanding of the different market structures
- You will be able to distinguish and discuss the differences between them
- Who sets the price and what kind of profits the firms get.

Perfect Competition

Assumptions

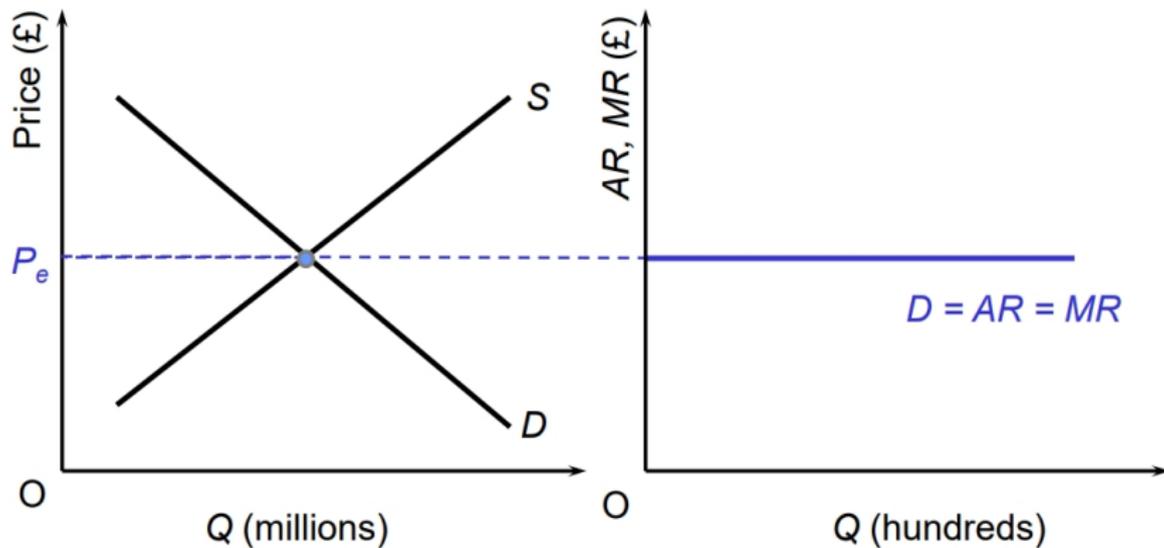
- There are many firms and none of them dominates the market.
- All firms produce identical products (product is homogeneous).
- No entry barriers. Firms are free to enter or leave the market.
- Perfect information. Firms and consumers know everything about the market.
- The firms are price takers, i.e. the demand curve (for the firm) is horizontal.

Perfect Competition

Unrealistic

- It is obvious that most of the assumptions are not realistic.
- Products are never identical, they have some degree of differentiation, e.g. high end android phones.
- Also it is not completely free to enter or leave the market.
- Imperfect information. Firms and consumers do not know everything about the market.
- Perfect competition is a useful tool that provides insights into how markets operate.

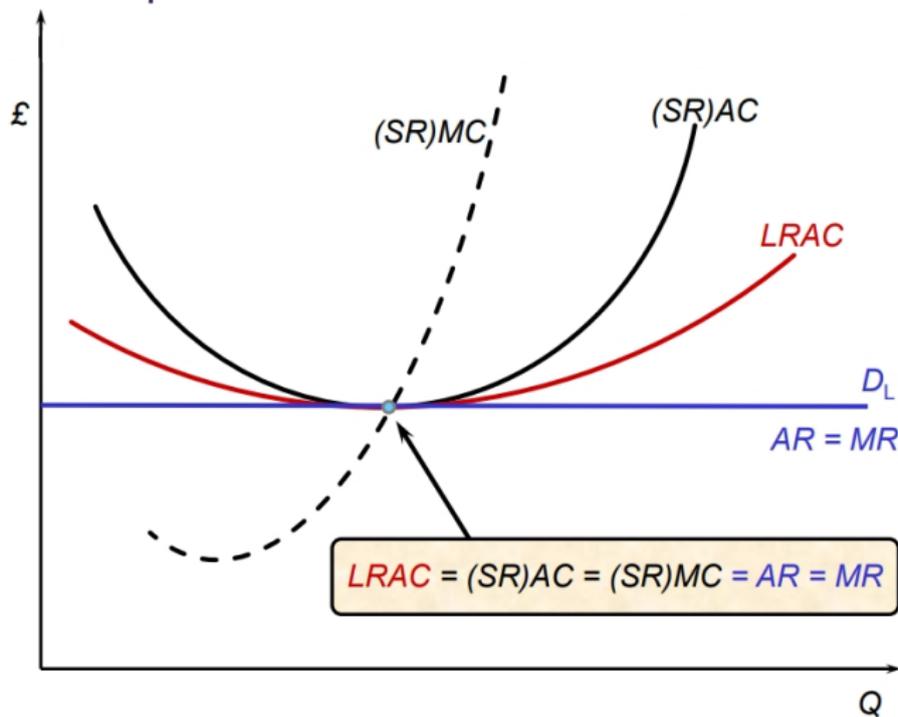
Perfect Competition



(a) The market

(b) The firm

The long-run equilibrium of the firm



Perfect competition

Perfect competition is socially optimal.

- Prices equal marginal costs. $P = MC$
- Long-run production is at minimum average cost and the firm makes only normal profits, i.e. zero.
- *Survival of the fittest*: Firms are encouraged to be as efficient as possible.
- Goods are produced at minimum costs
- Consumers get maximum benefit from their income.

Under perfect competition resources are optimally allocated in the most efficient way of production.

Economies of scale

As we discussed in the previous lecture:

Economies of scale refer to reduced costs per unit that arise from increased total output of a product.

- lower long run average cost
- gain market power, become price maker

However for perfect competition:

- we need MANY small firms (price takers)
- they operate for zero profit

Perfect Competition

- Perfect Competition is unrealistic.
- There are no real world examples.
- we need it as a tool to understand the process

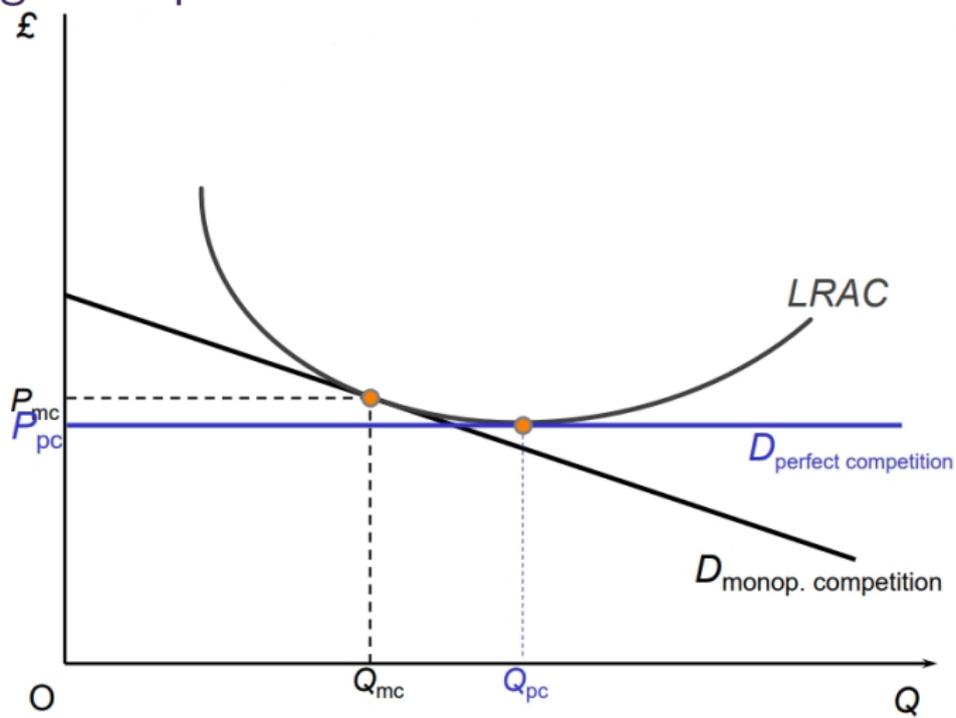
Monopolistic Competition

- There are many producers and many consumers
- Competition exists but is not perfect
- Firms differentiate their products to beat their rivals.
- They have power over prices

Monopolistic Competition

- Demand is highly elastic due to many close substitutes
- Demand curve is not horizontal.
- The barriers to entry and exit into and out of the market are low

The long-run equilibrium of the firm



Monopoly

- Just one company operating in the market
- Restricted entry into the industry or even completely blocked, by law or otherwise
- Unique product, e.g. Water, train or ferry routes, etc.
- Product differentiation, brand loyalty

Monopolies

- Competitive firms are price takers.
- Monopoly firm is a price setters.
- Price setter: downward sloping demand curve, rather inelastic

Monopolies

- Lower costs for established firms, i.e. Economies of Scale
- can achieve supernormal profits
- The fundamental cause of monopoly is barriers to entry.

Barriers to entry

- **Legal Barriers to Entry:** Competition and entry are restricted by the concentration of ownership of a natural resource or by the granting of a public franchise, government license, patent, or copyright.

Example: Microsoft, railway, postal system.

- **Natural Barriers to Entry:** Production technology allows one firm to meet the entire market demand at a lower price than two or more firms could.

Example: The monopoly has the control of a key resource. DeBeers controls about 80% of diamonds.

Natural Monopolies

Definition

William Baumol (1977): "An industry in which multi-firm production is more costly than production by a monopoly" (p. 810).

- A natural monopoly could be the result of the high fixed costs or startup costs of operating a business in a specific industry, e.g supply of electricity.
- And/or extremely high fixed costs of distribution, such as exist when large-scale infrastructure is required to ensure supply.

Monopoly and costs

- Firms face some cost: $TC = FC + MC$
- *Marginal Cost*: is the cost associated with "serving" one more customer
- *Fixed Cost*: includes the initial set up cost and the expenses of running a business (e.g. rent)

Regular vs Natural Monopolies

What is the difference between a regular and a natural monopoly?

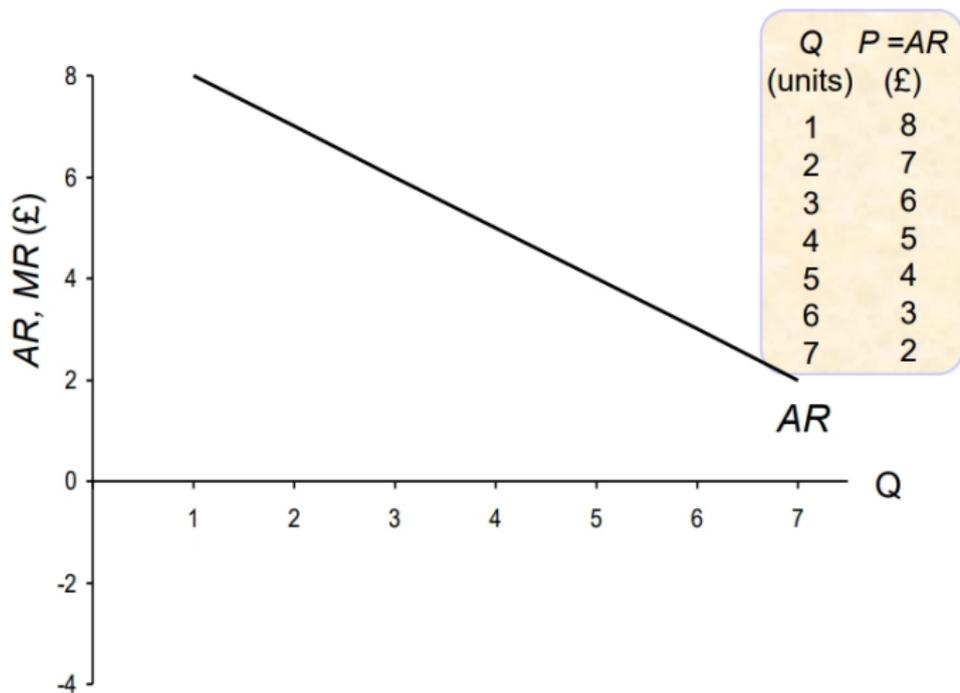
- Average Total Cost (ATC) is flatter.
- ATC minimized at a higher quantity.
- A natural monopoly has a higher advantage in cost.

Cost - Price

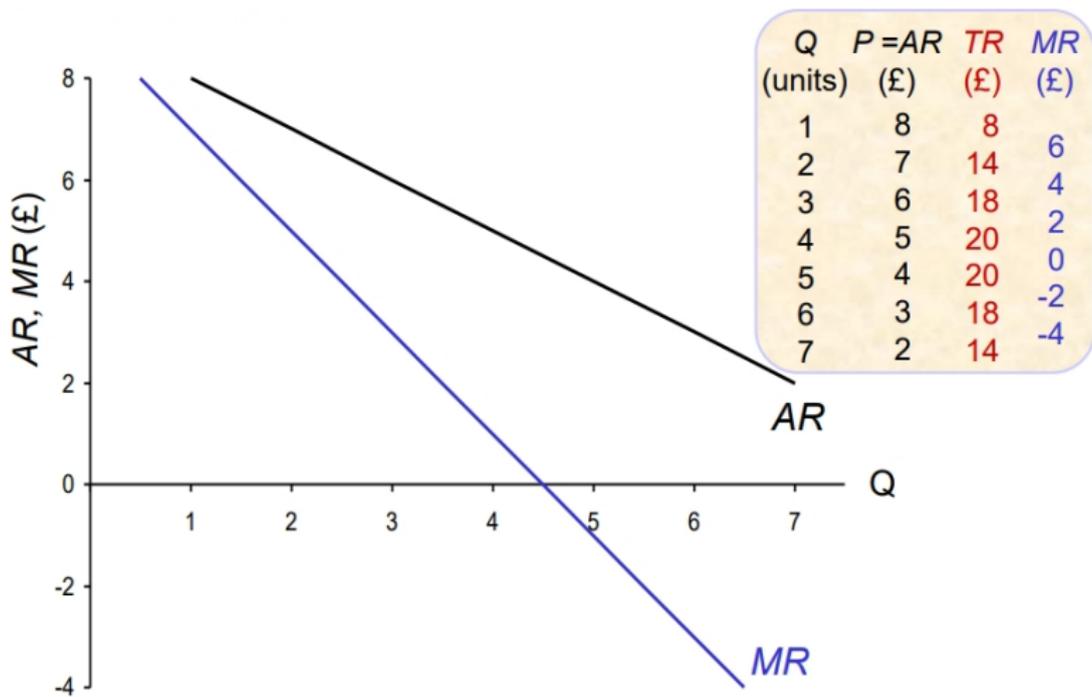
- Price is set when: $MR = MC$
- Social optimum: $D = MC$
- The natural monopoly can charge an even higher price than the social optimum.

Rule of thumb: If D intersects ATC while it is still downward sloping \Rightarrow Natural Monopoly, i.e. there is not enough demand to justify another firm.

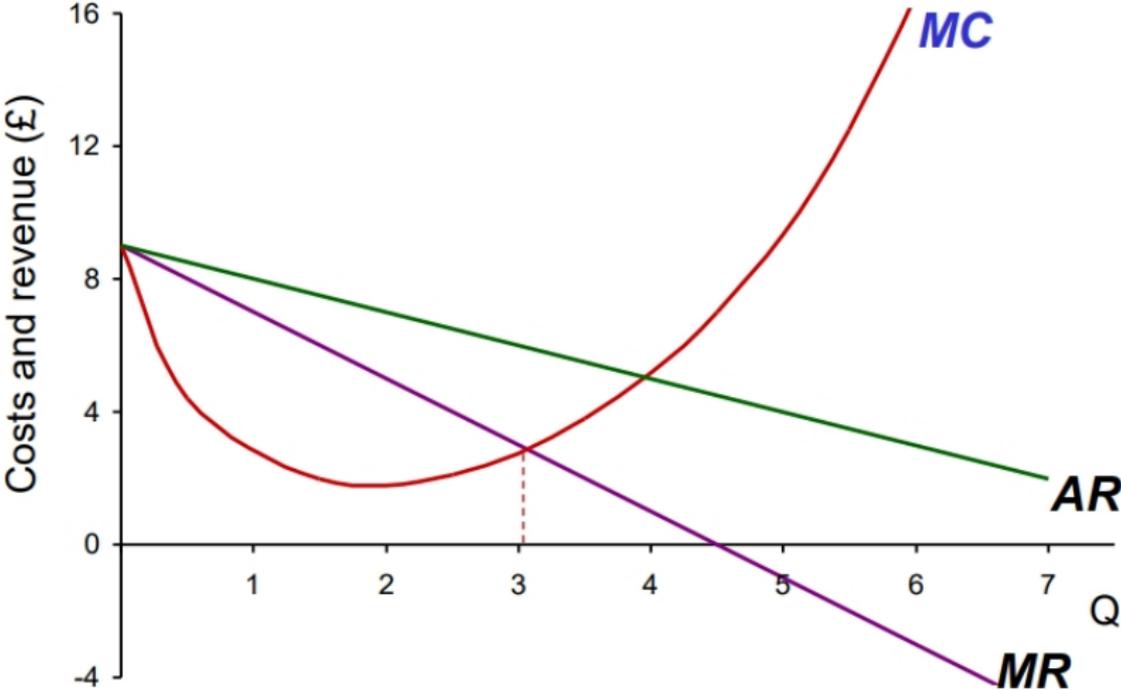
Monopoly



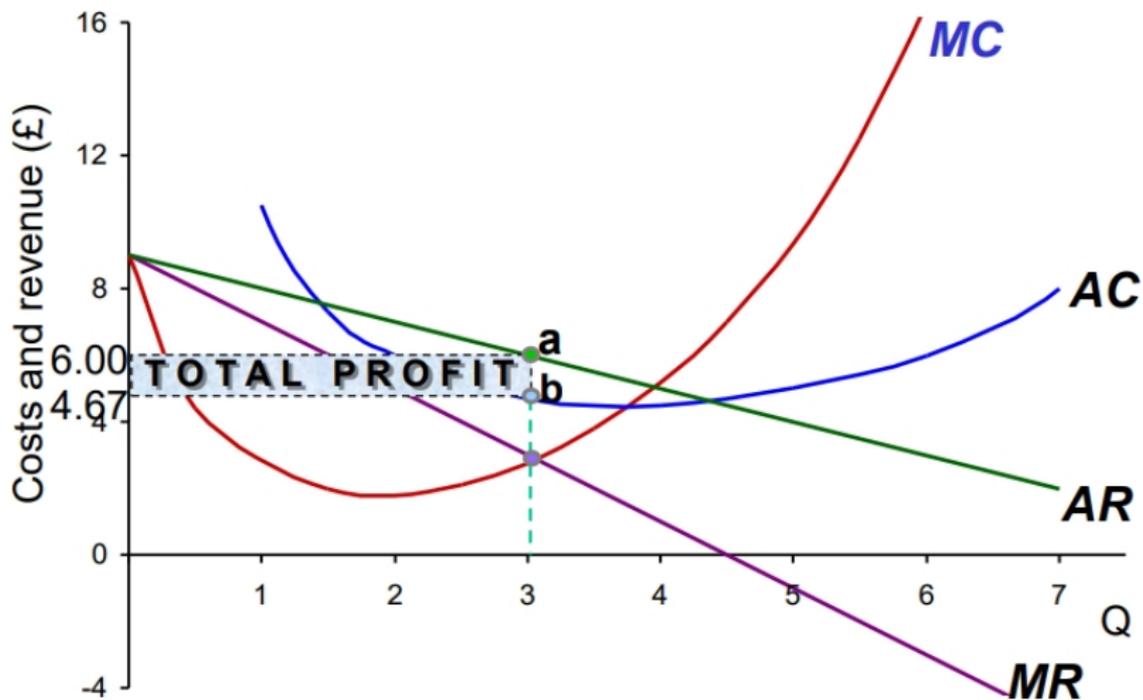
Monopoly



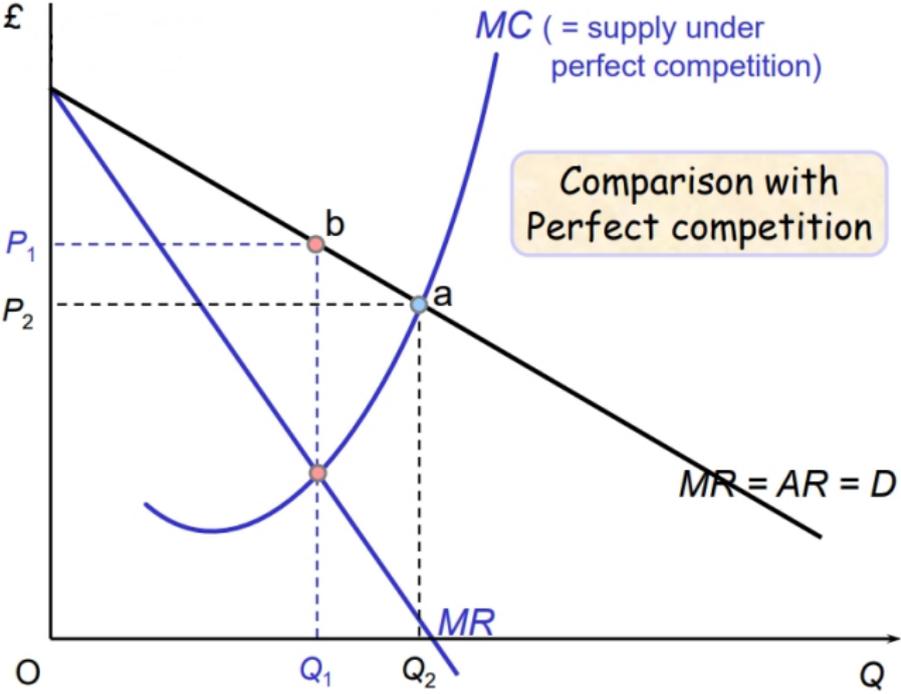
Monopoly



Monopoly



Monopoly



Monopoly vs Perfect Competition

Monopolies tend to

- Produce less
- For higher prices
- Natural monopoly has a significant advantage in the production of the good (e.g. control of a key resource).
- Monopolies are inefficient in allocating production resources.

compared with perfect competition

Oligopoly

- *Small* number of **large** firms
- Interdependence of firms
- Barriers to entry
- **Collusive oligopoly**: Firms club together and behave like a monopoly (informal or formal as a “cartel”)
- **Non-collusive oligopoly**: Firms compete against each other

Oligopoly

- The main reason oligopolies exist are barriers to entry.
- In many cases a large investment is needed to start a business
- Or the legal framework acts as a barrier.
- **Example:** Oil companies (OPEC) need a large investment to start drilling.
- **Example:** Google vs Microsoft for office software application.

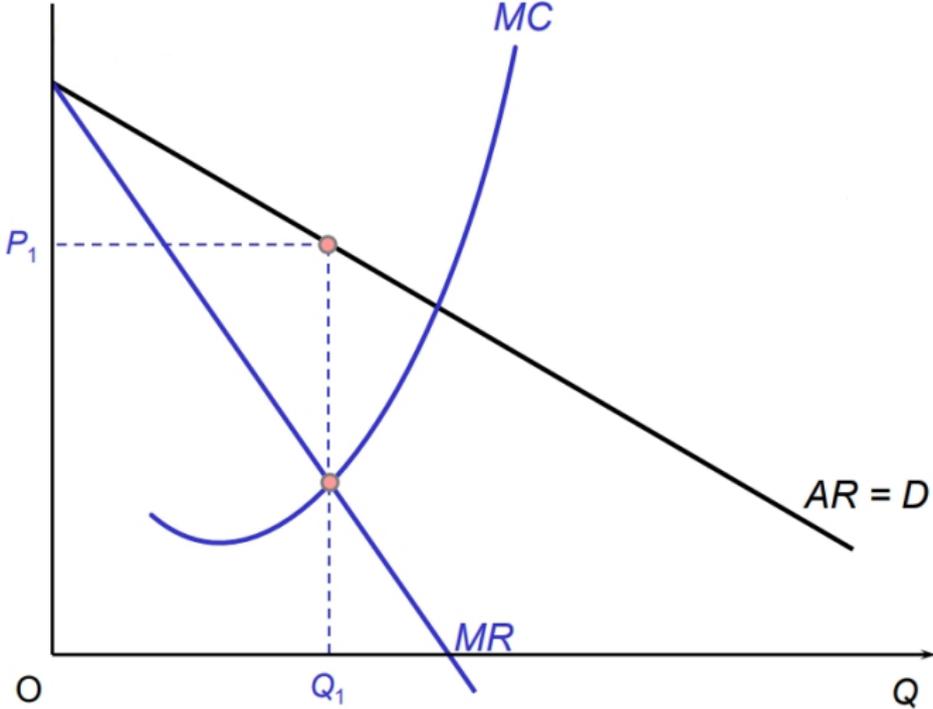
Collusive Oligopoly

- Only very few firms with power over the market
- Firms are open to each other
- Similar products
- Similar production methods and AC

Collusive Oligopoly

- There is a dominant firm
- Barriers to entry exist, thus little fear of disruption by new firms
- The market is stable
- The government does not intervene
- Collusive oligopoly acts like a Monopoly

Collusive Oligopoly



Non-Collusive Oligopoly

- Not many factors favouring collusion
- Breakdown of a collusive oligopoly
- Game theory: what is the best strategy?

Game Theory

- Game theory is "the study of mathematical models of conflict and cooperation between intelligent rational decision-makers", (Myerson, 1991)
- We can use it to understand how firms decide what, how and when.
- If we reduce prices or produce more, what will the competitors do?
- Two players, decide what is their best strategy.
- Nash Equilibrium: Every player plays his best strategy.

Nash Equilibrium

- To find a Nash Equilibrium you need to ask
- Knowing the strategies of the other players, and treating the strategies of the other players as set in stone, can I benefit by changing my strategy?
- If any players answer YES \Rightarrow it is not a Nash equilibrium as they can choose a different strategy and improve their outcome.
- If all players answer NO \Rightarrow Nash Equilibrium
- Nash Equilibrium: Every player plays his best strategy.

Prisoner's Dilemma

- Two people, Amelia and Bill, are suspected of committing a crime and are being interrogated in separate rooms.
- Both want to minimize their jail sentences
- Both of them face the same scenario
- They can choose to blame the other party or deny the crime

Prisoner's Dilemma

		Player <i>Amelia</i>	
		Blame	Deny
Player <i>Bill</i>	Blame	-5, -5	-10, -1
	Deny	-1, -10	-2, -2

Prisoner's Dilemma

Amelia's best strategy

		Player <i>Amelia</i>	
		Blame	Deny
Player <i>Bill</i>	Blame	-5, -5	-10, 0
	Deny	0, -10	-1, -1

Prisoner's Dilemma

Bill's Best Strategy

		Player <i>Amelia</i>	
		Blame	Deny
Player <i>Bill</i>	Blame	-5, -5	-10, 0
	Deny	0, -10	-1, -1

Prisoner's Dilemma

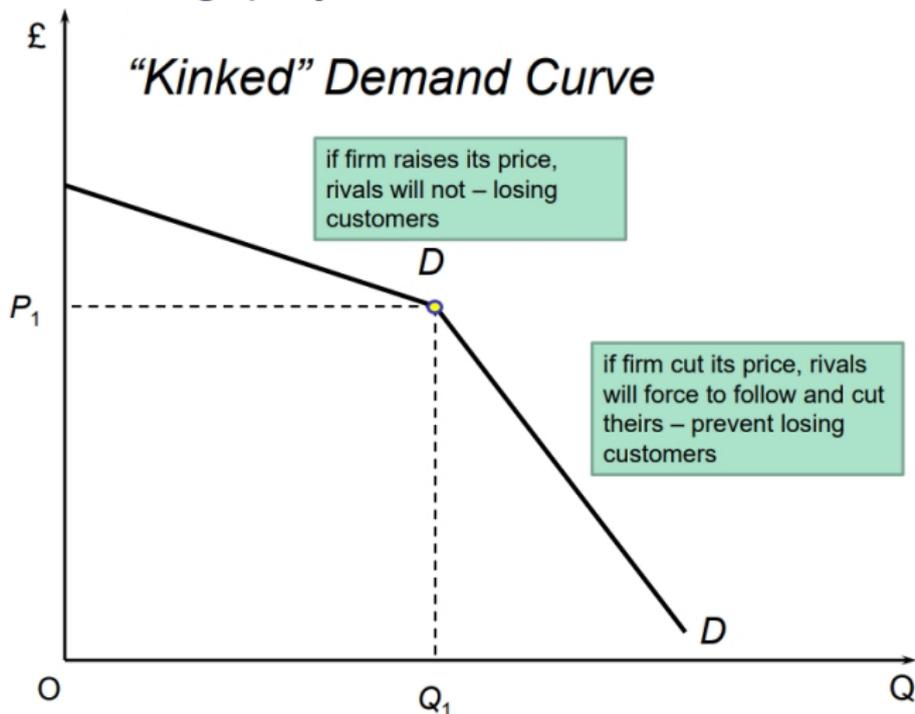
Nash Equilibrium

		Player <i>Amelia</i>	
		Blame	Deny
Player <i>Bill</i>	Blame	-5,-5	-10, 0
	Deny	0, -10	-1, -1

Prisoner's Dilemma

- Cooperation (denying the crime) rather than a war would have benefited both players.
- Even if they did collude both would still be tempted to cheat and cut sentences.
- This type of games are known as prisoner's dilemma.

Non-Collusive Oligopoly



Oligopoly

- Collusive Oligopolies tend to have the same disadvantages as monopolies
- And may have even less scope for economies of scale
- engage in more costly advertising
- However they have more incentives for innovation than monopolies
- Non-price competition may lead to more choice

Market Structures Compared

Table: Market Structures Compared

Type	# of firms	Entry Barriers	Nature of Product	Example	Implications
Perfect Competition	Many	Unrestricted	Homogeneous	Cabbages (approx.)	Horizontal: firm is a price taker
Monopolistic Competition	A lot	Almost Unrestricted	Differentiated	Restaurants	Downward sloping, but relatively elastic
Oligopoly	Few	Restricted	Either	Oil, broadband	Downward sloping Relatively inelastic
Monopoly	One	Blocked	Unique	Utilities, train	Downward sloping: more inelastic than oligopoly. Firm has considerable control over price

Conclusion

- Review today's lesson.
- Read the relevant chapters in the book (Ch. 14,15, and 16, including all boxes and case studies)
- Search online for more sources.
- Ask questions in seminar if anything is unclear.
- Do self-test questions at the end of the chapter and online.