# The neoclassical theory of the firm

# Aim of the NT

- To explain the determination of price and output, for both the industry and the single firm, based on the assumption of **profit maximisation** on the part of each firm.
- Main contributors: Adam Smith, Augustin Cournout, John Bates Clark, Alfred Marshall, David Ricardo …

# Typologies of market structures

Within the NT, there are different models describing price and output determination for different market structures.

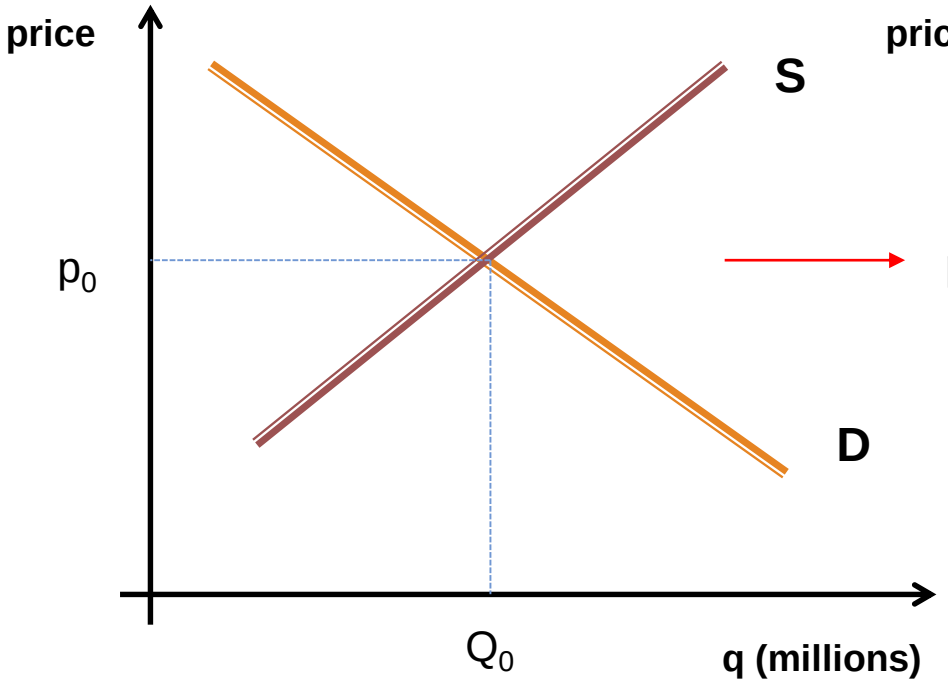
| | No. of firms | Entry conditions | Product differentiation |
|---|---|---|---|
| **Perfect competition** | Many | Free entry | Identical products |
| **Imperfect competition** | | | |
| **Monopolistic competition** | Many | Free entry | Some differentiation |
| **Oligopoly** | Few | Barriers to entry | Some differentiation |
| **Monopoly** | One | No entry | Complete differentiation |

# 1. Perfect competition Characteristics

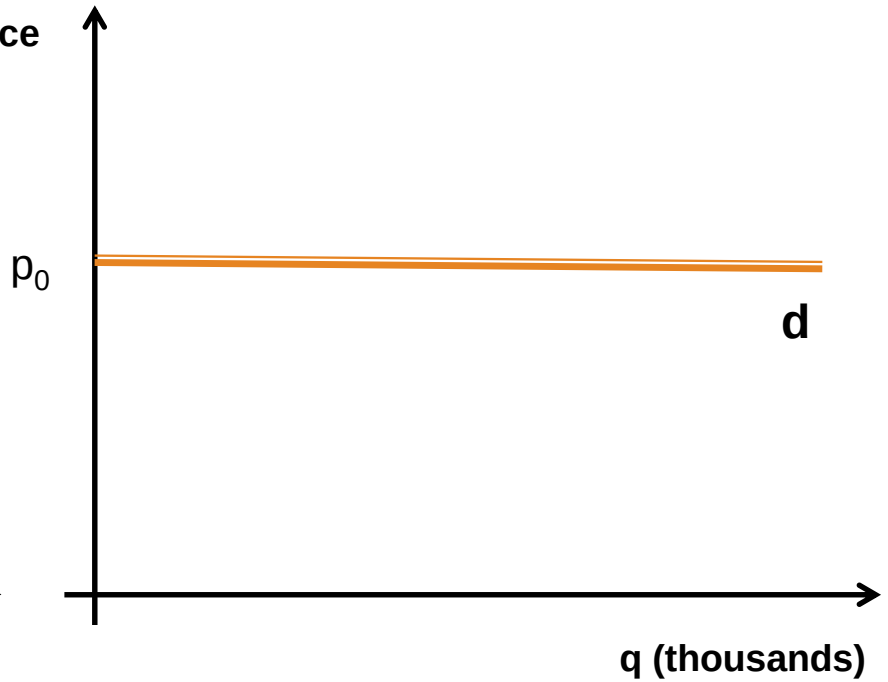
1) There are **many** buyers and sellers;
2) No one is large enough to individually affect the price of the good/service (firms have no market power, they are ***price-takers***);
3) The offered goods or services are **identical** or **homogeneous.** There are no differences between products sold by different producers or, if there are, they are not important for buyers;
4) There is **technological symmetry**: all firms can access the same productive technologies;
5) Buyers and sellers have **perfect information**, to allow them to evaluate the quality of goods/services;
6) There are **no barriers** to entry and exit (no incentives to **collusion**);
7) There are **no transportation costs**: the geographic location of actors do not affect their decisions;
8) The single firm faces an **horizontal demand curve**: the price is given and the firm can only choose the quantity to offer.
9) There are no **transaction costs.**

# 1. Perfect competition
# Demand curve

a) Of the whole industry

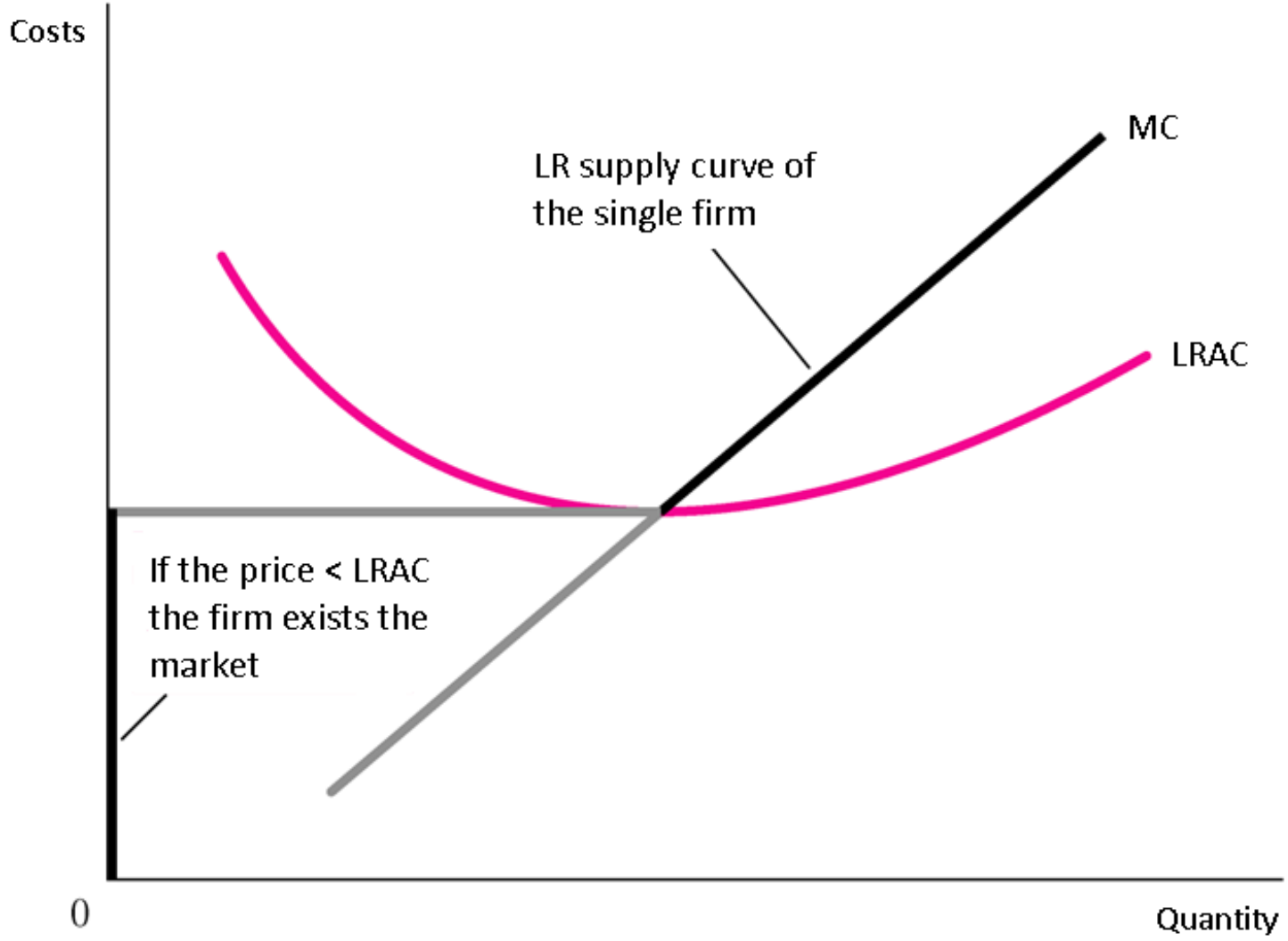



b) Of the single firm



# 1. Perfect competition
## Supply curve

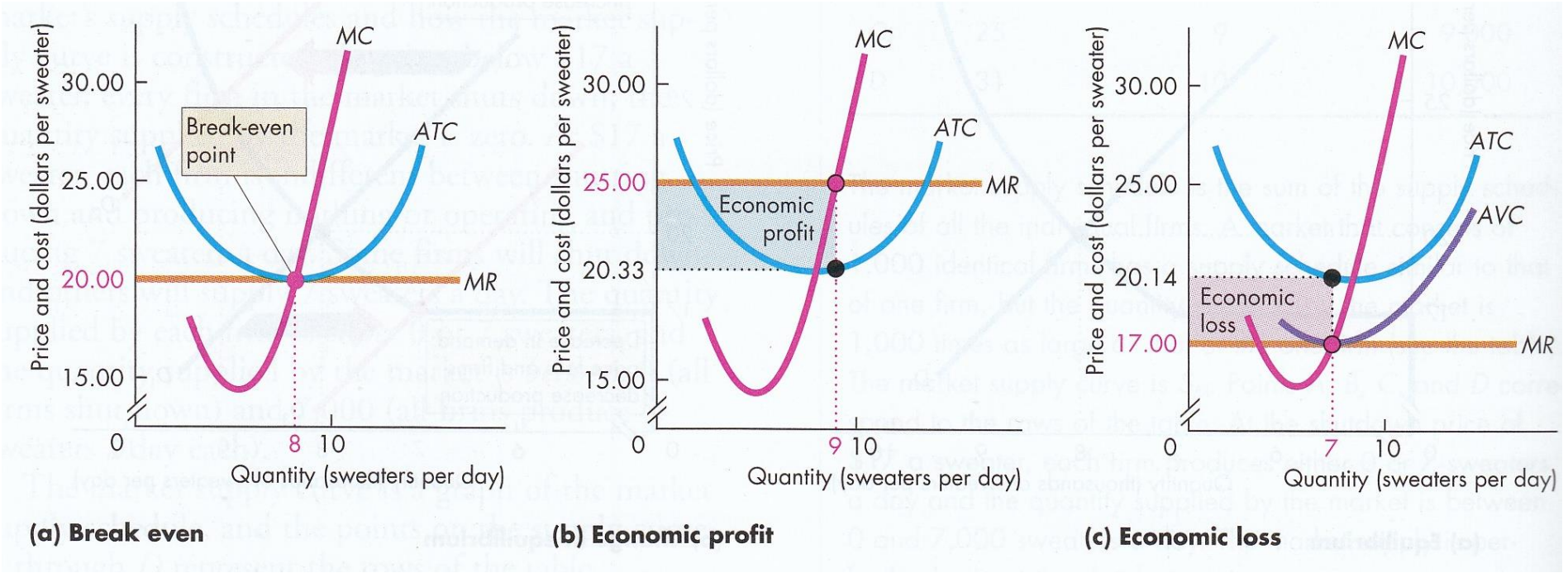
**p = MR = MC**



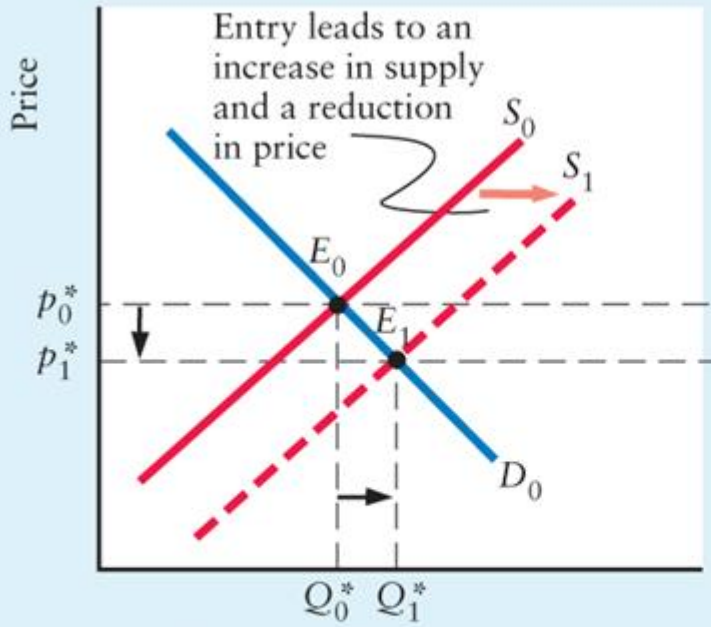
# Why is price = MR in perfect competition?

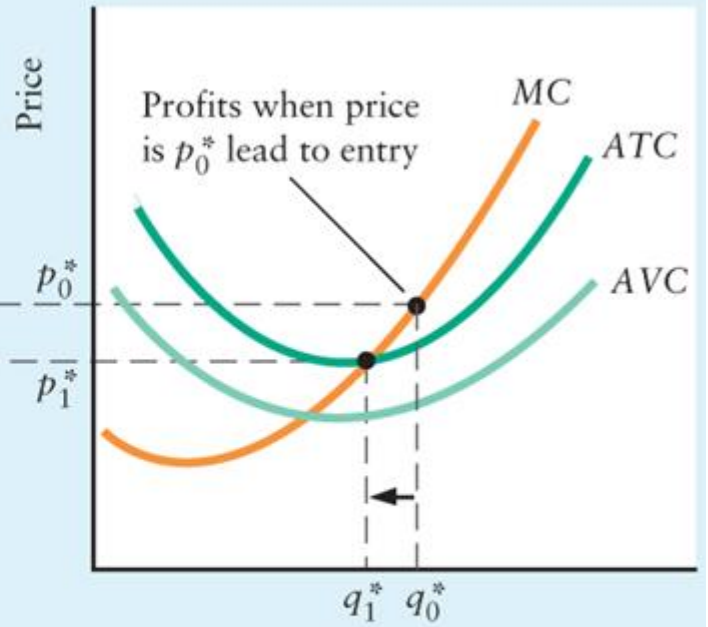
| q | price | TR | MR |
|---|---|---|---|
| 1 | 10 | 10 | 10 |
| 2 | 10 | 20 | 10 |
| 3 | 10 | 30 | 10 |
| 4 | 10 | 40 | 10 |

# 1. Perfect competition
# Single competitive firm profitability in the SHORT RUN

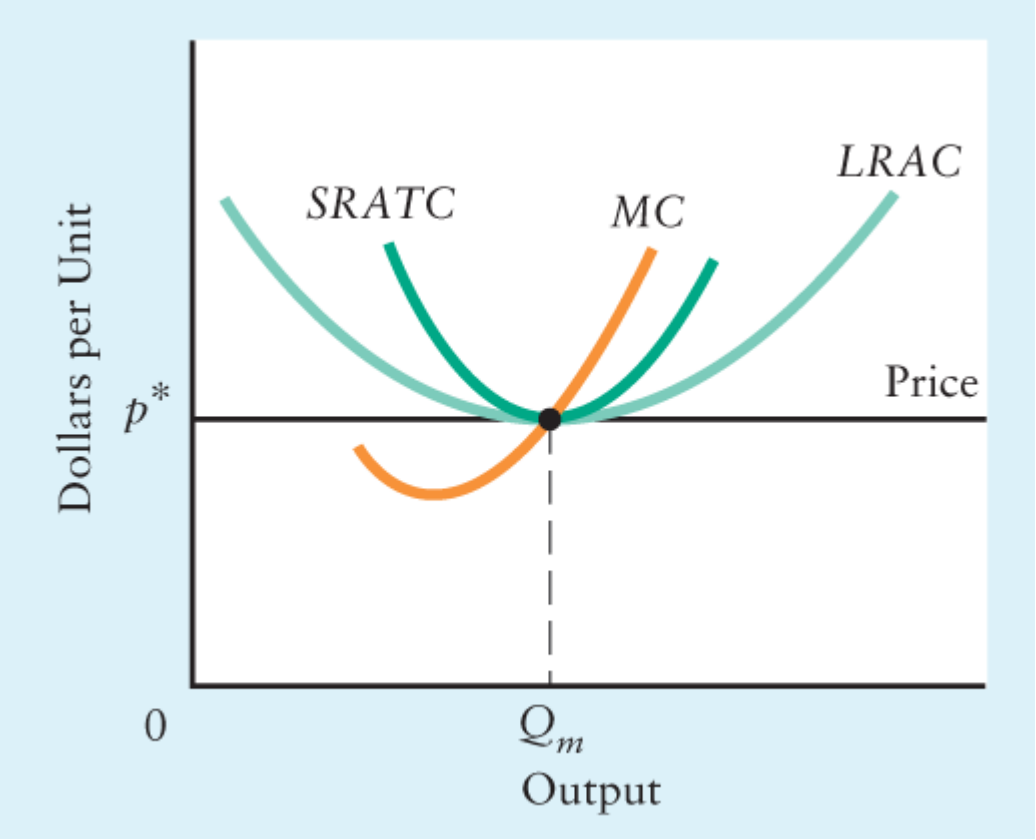


# 1. Perfect competition
# Equilibrium adjustments



# 1. Perfect competition
## Single competitive firm profitability in the LONG RUN



# 2. Monopoly Characteristics

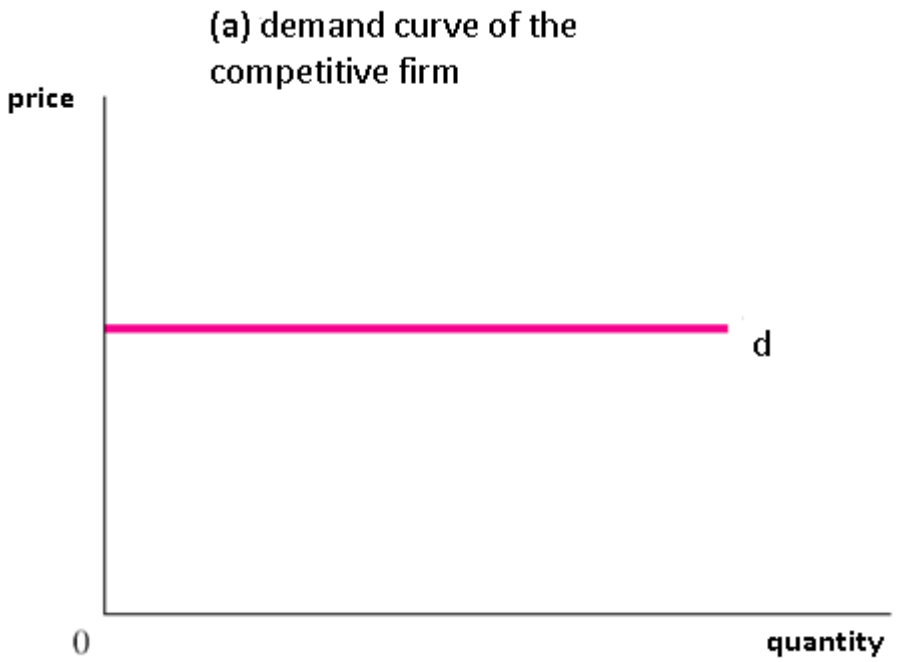
- Many buyers, but only **one seller**;
- The market is **not contestable**, i.e. there are insurmountable barriers to entry;
- The good or service produced is **unique**, there are no substitutes (perfect differentiation);
- **Information** may be perfect or imperfect;
- **Geographical location** could matter.

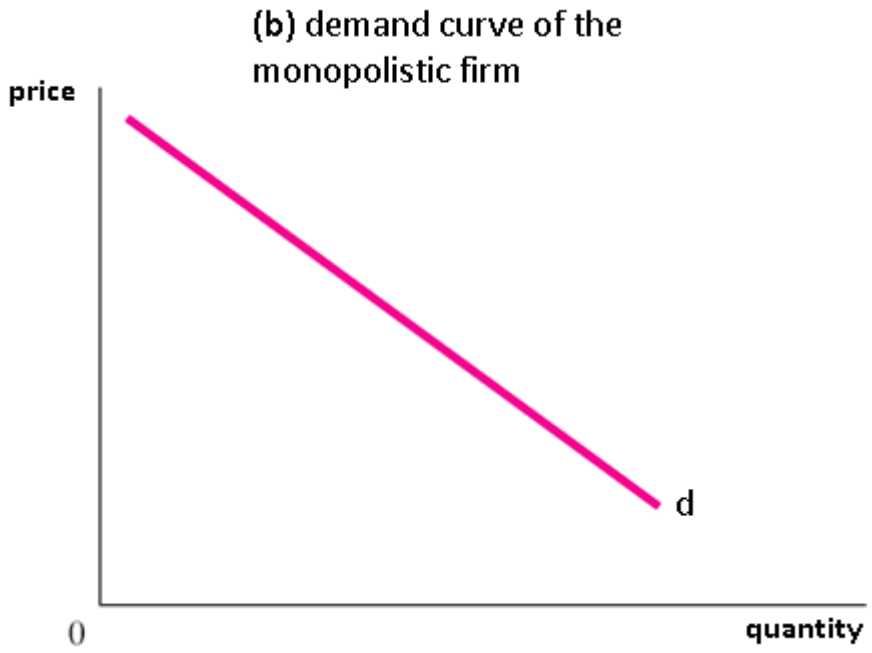
# Monopoly types

1. **LEGAL**: the government grants the authorisation to produce and sell only to one firm OR a firm owns an exclusive right due to patents or copyrights (temporary);
2. **TECHNICAL**: a firm is able to maintain a technological advantage on the competitors (ex. Intel) or to control exclusively the natural resources (De Beers).
3. **NATURAL**: due to some structural features, the optimal number of operating firms in the market is one. Accordingly, competition is neither desirable nor efficient. One firm alone can satisfy the market needs at costs that are lower than those faced by two or more firms. The frequent definition of natural monopoly is related to the existence of scale economies. When a production technology exhibits scale economies, the average cost of production for the firm decreases if the output increases. In these cases we have the property of **subadditivity of costs**: the costs related to the production of the output are lower when a single provider serves the entire market than in the case where the production is shared among two or more firms.

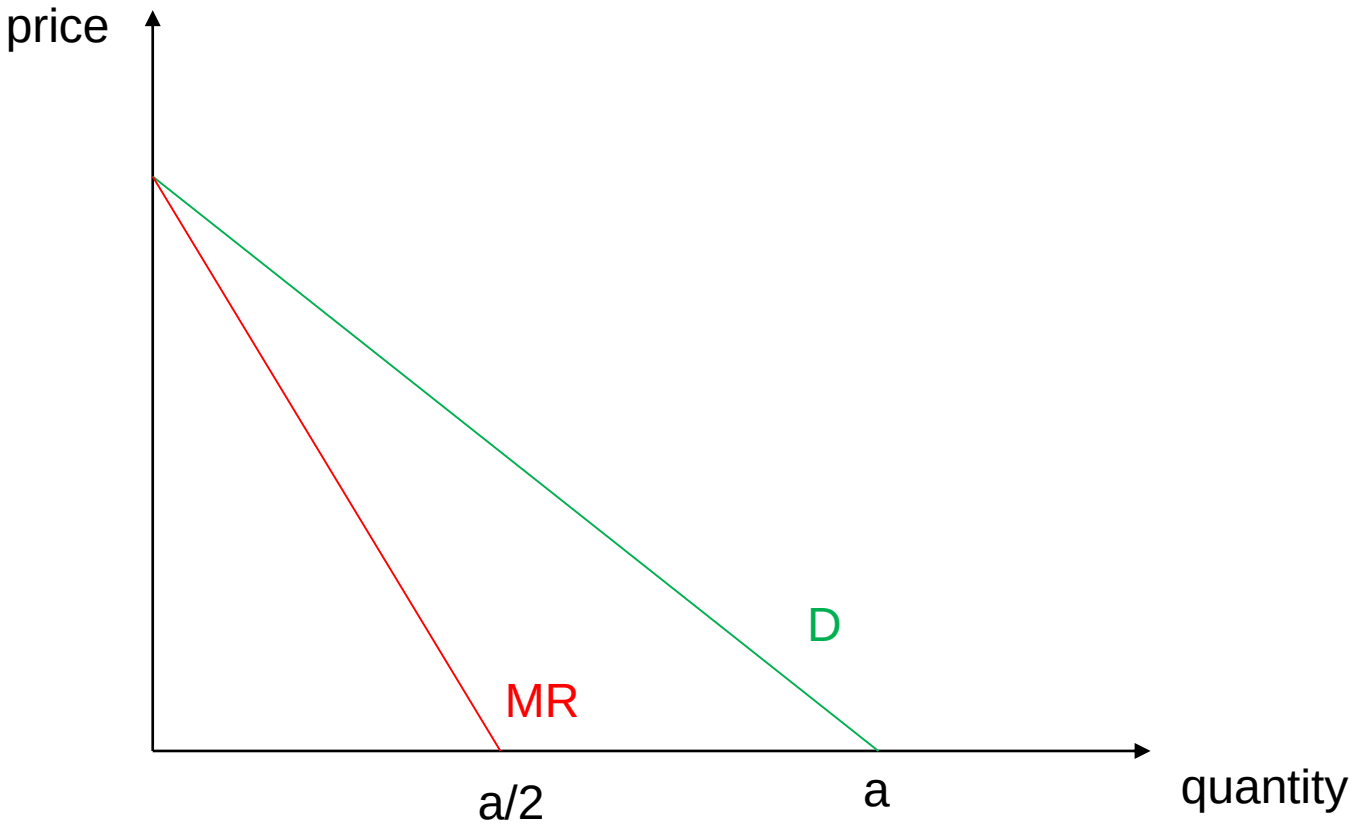
$$C(q1)+C(q2)+C(q3)+\ldots+C(qn) > C(Q)$$

# 2. Monopoly
# Demand curve

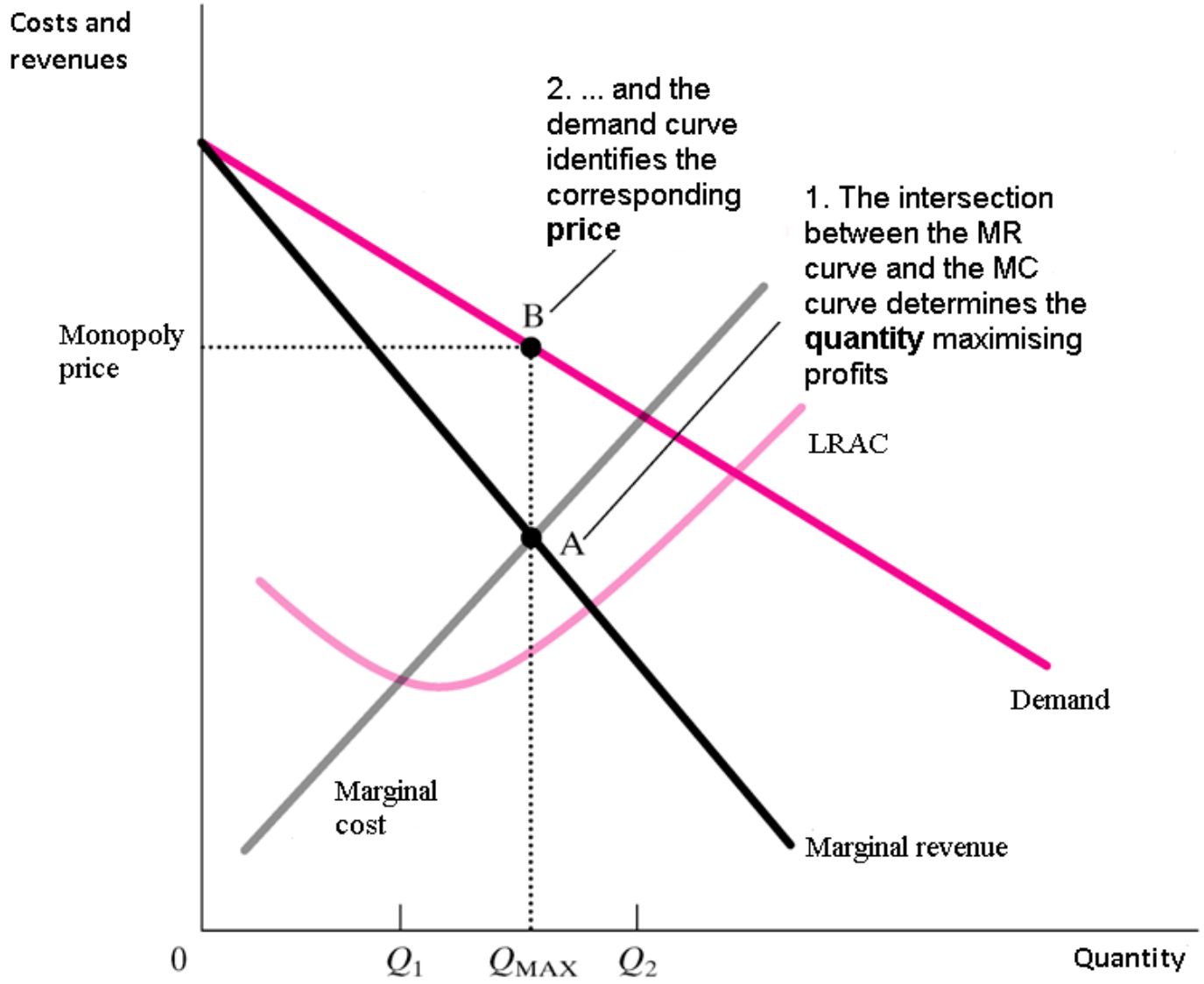


# Marginal revenues in case of linear demand



# 2. Monopoly
## Long run equilibrium



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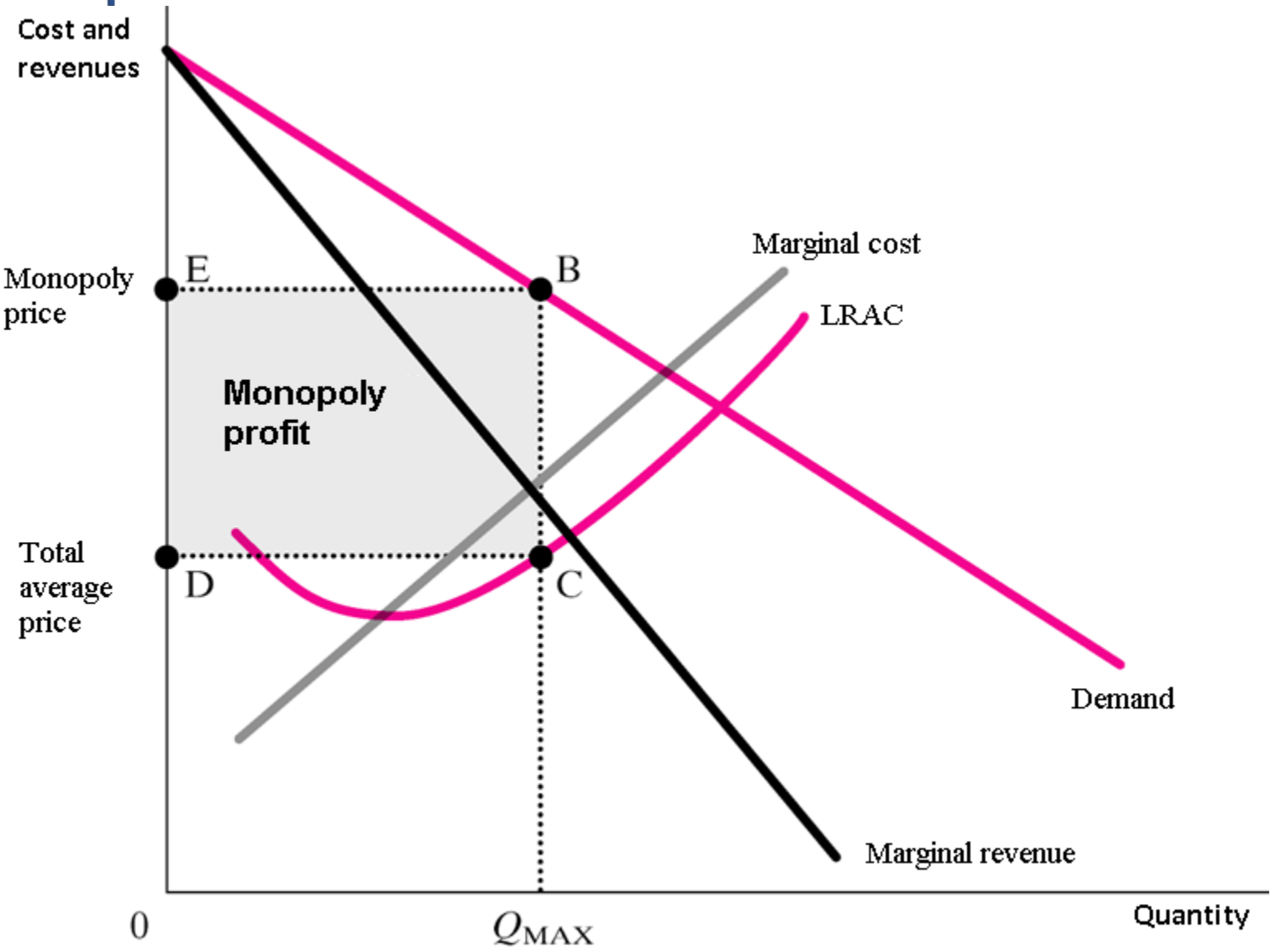

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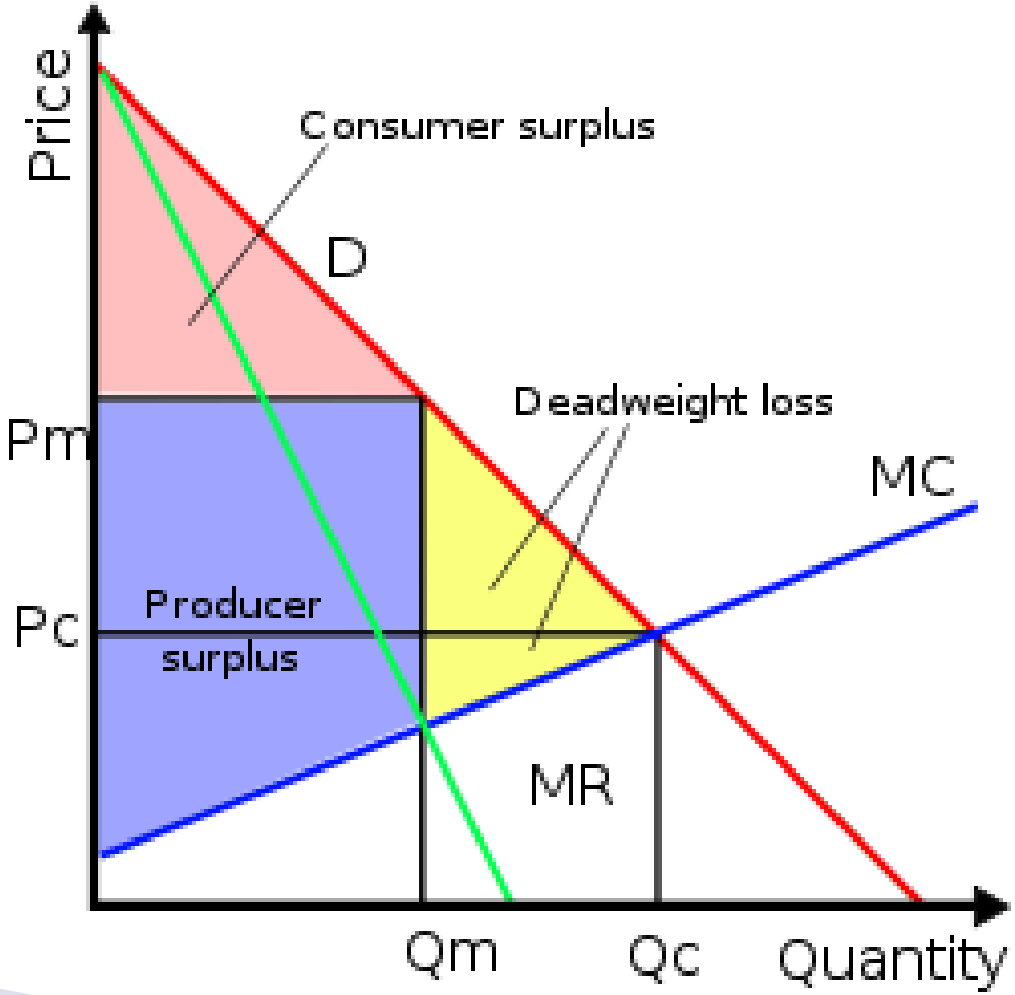


# Monopoly and inefficiencies

a) No **Allocative efficiency**. You have AE when it is not possible to reallocate resources that could make one agent (producer or consumer) better off without making at least one other agent worse off. Condition for AE: the marginal benefit to society of an additional unit of output being produced equals the marginal cost of producing the additional unit.

b) No **Productive efficiency**: (a) x-efficiency (or technical efficiency): the firm produces the maximum quantity of output that is technologically feasible; (b) economic efficiency: the firm has selected the combination of inputs that allows to produce its current output level at the lowest possible cost.

**c)** **Deadweight loss**: welfare loss resulting from the fact that less output is produced.

**d)** **Rent seeking**, spending wealth on political lobbying to increase one's share of existing wealth without creating wealth. The effects of rent-seeking are reduced economic efficiency through poor allocation of resources, reduced wealth creation, lost government revenue, increased income inequality and national decline.

# Monopoly and inefficiencies

Given these inefficiencies, the government might decide to intervene by:

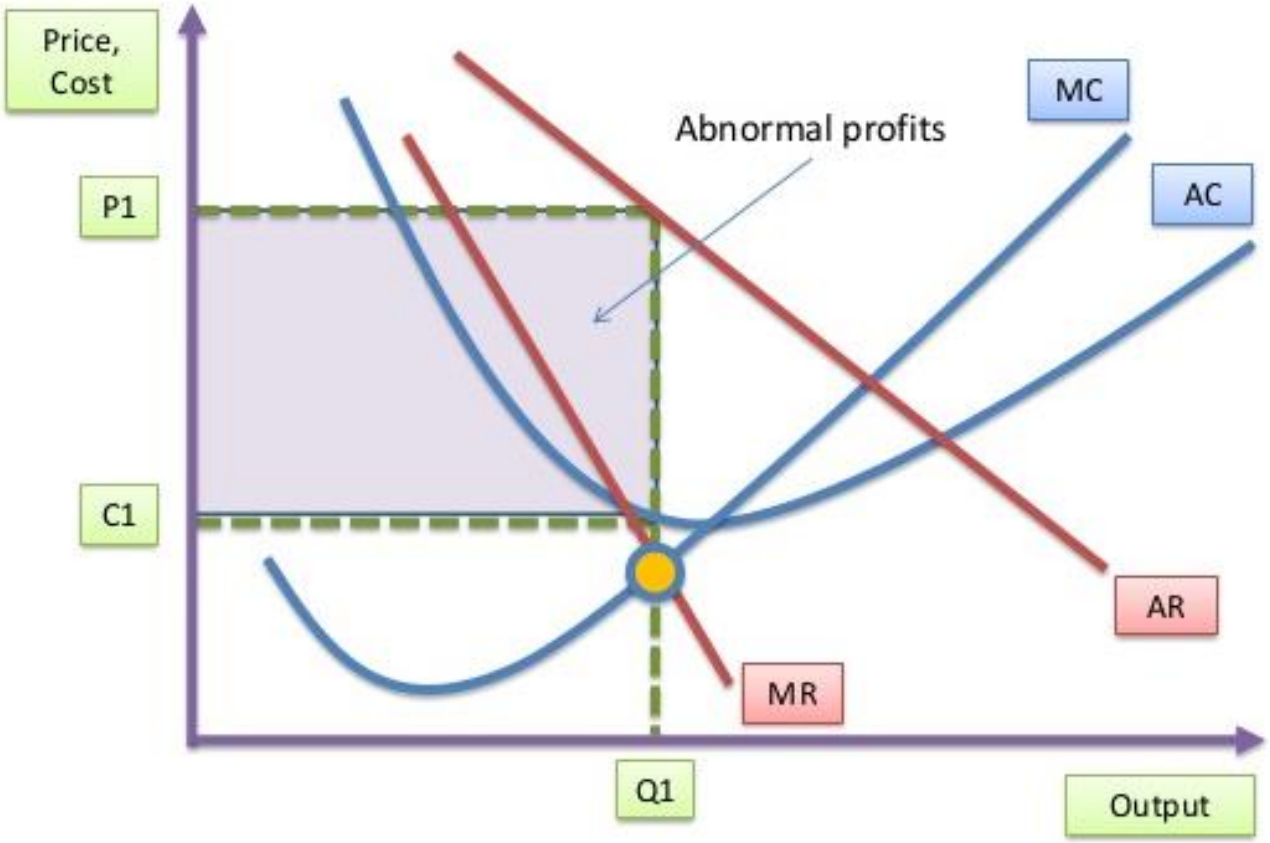
1) Stimulating competition;
2) Regulating the monopolist's behaviour;
3) Transforming some private monopolies in public companies.

# 3. Monopolistic competition Characteristics

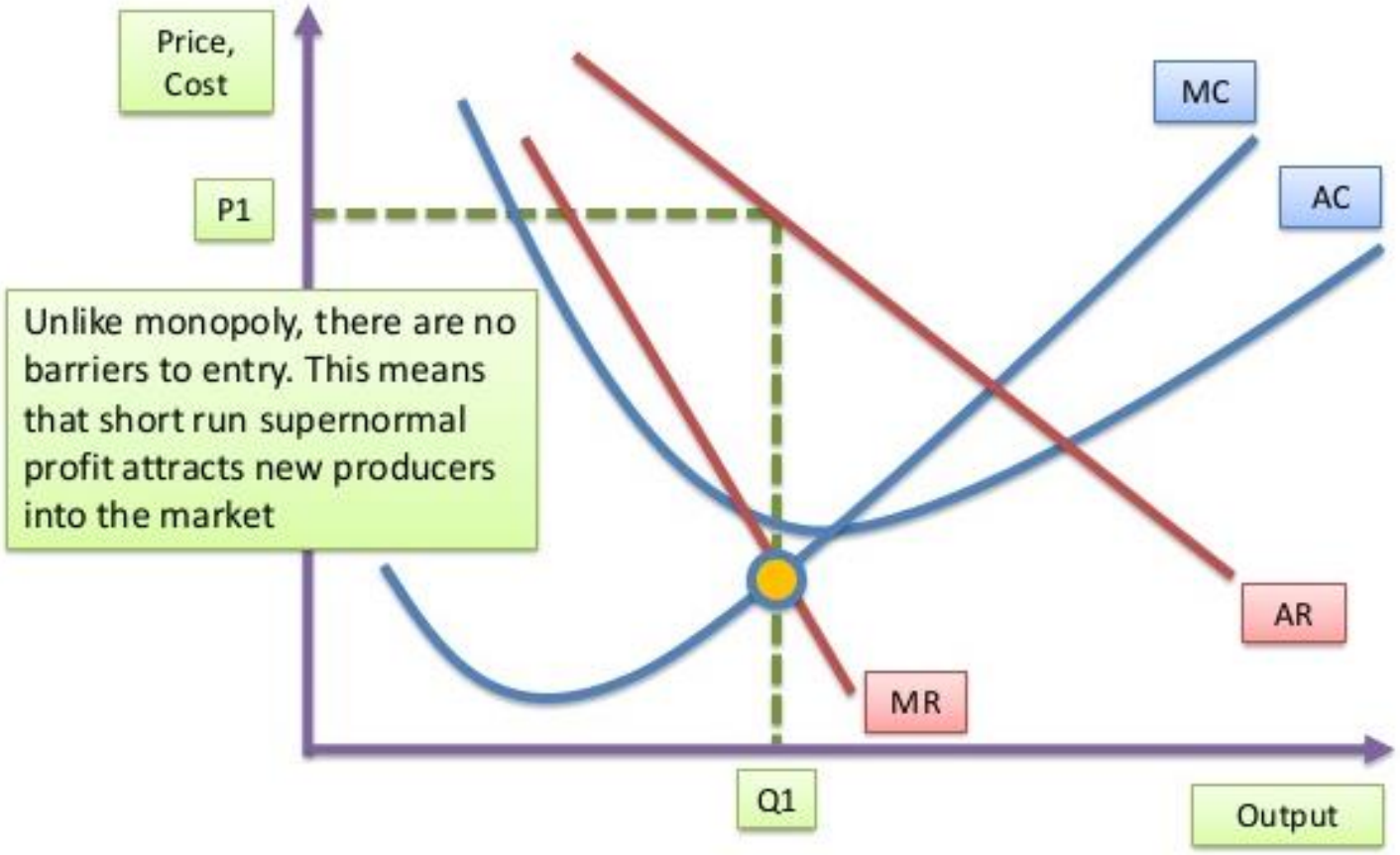
1) There are **many** buyers and sellers (interdependence can be ignored);
2) There are **no barriers** to entry and exit (firms have to price competitively);
3) The offered goods or services are **similar** but **not identical**. There are some real or perceived differences between products/services;
4) Buyers and sellers may have **perfect** or **imperfect information**;
5) **Geographic location matters** and it could be a characteristic differentiating the products/services produced by two different firms.

# 3. Monopolistic competition

## Profit maximisation short run



# 3. Monopolistic competition
## Equilibrium adjustment



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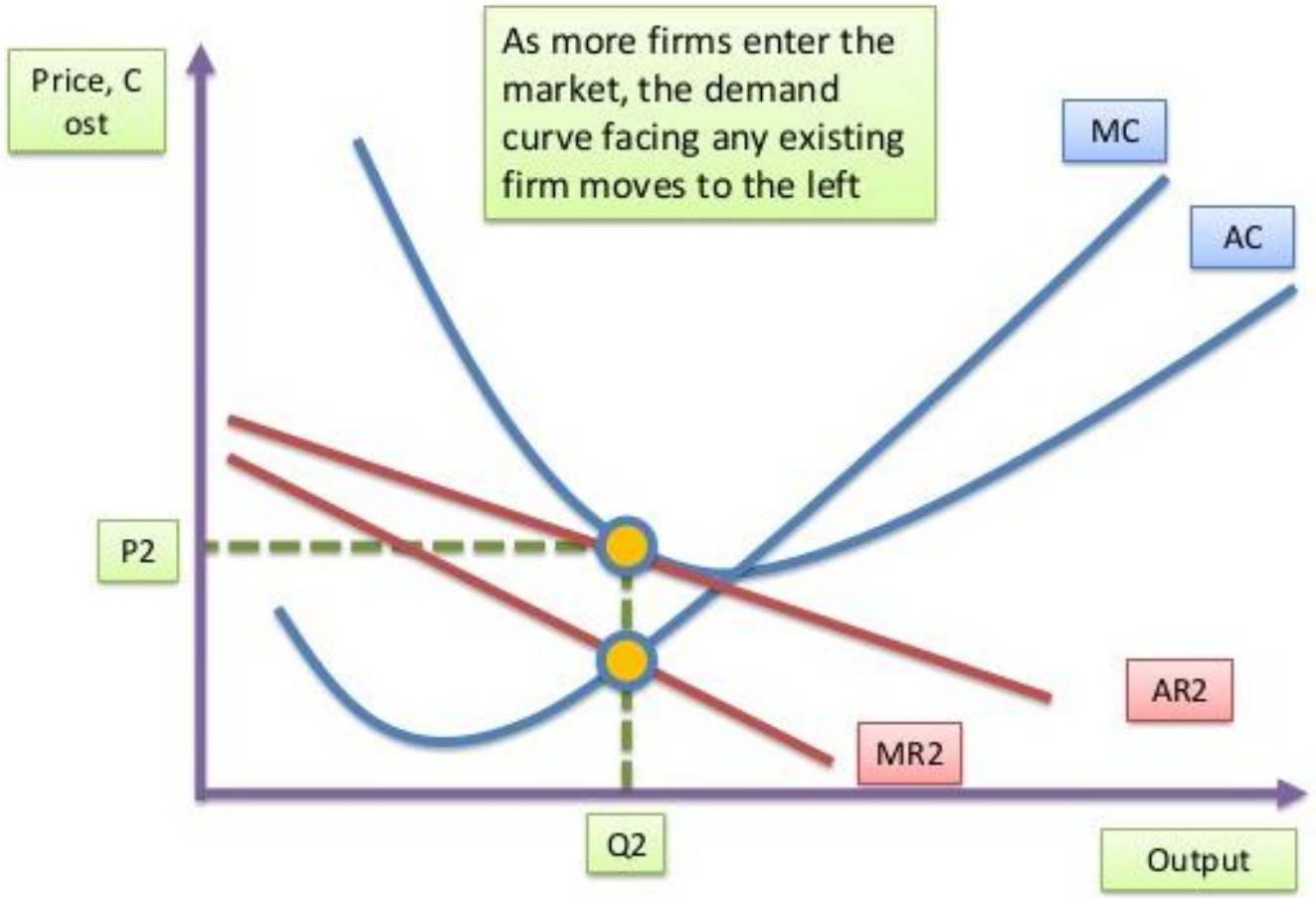
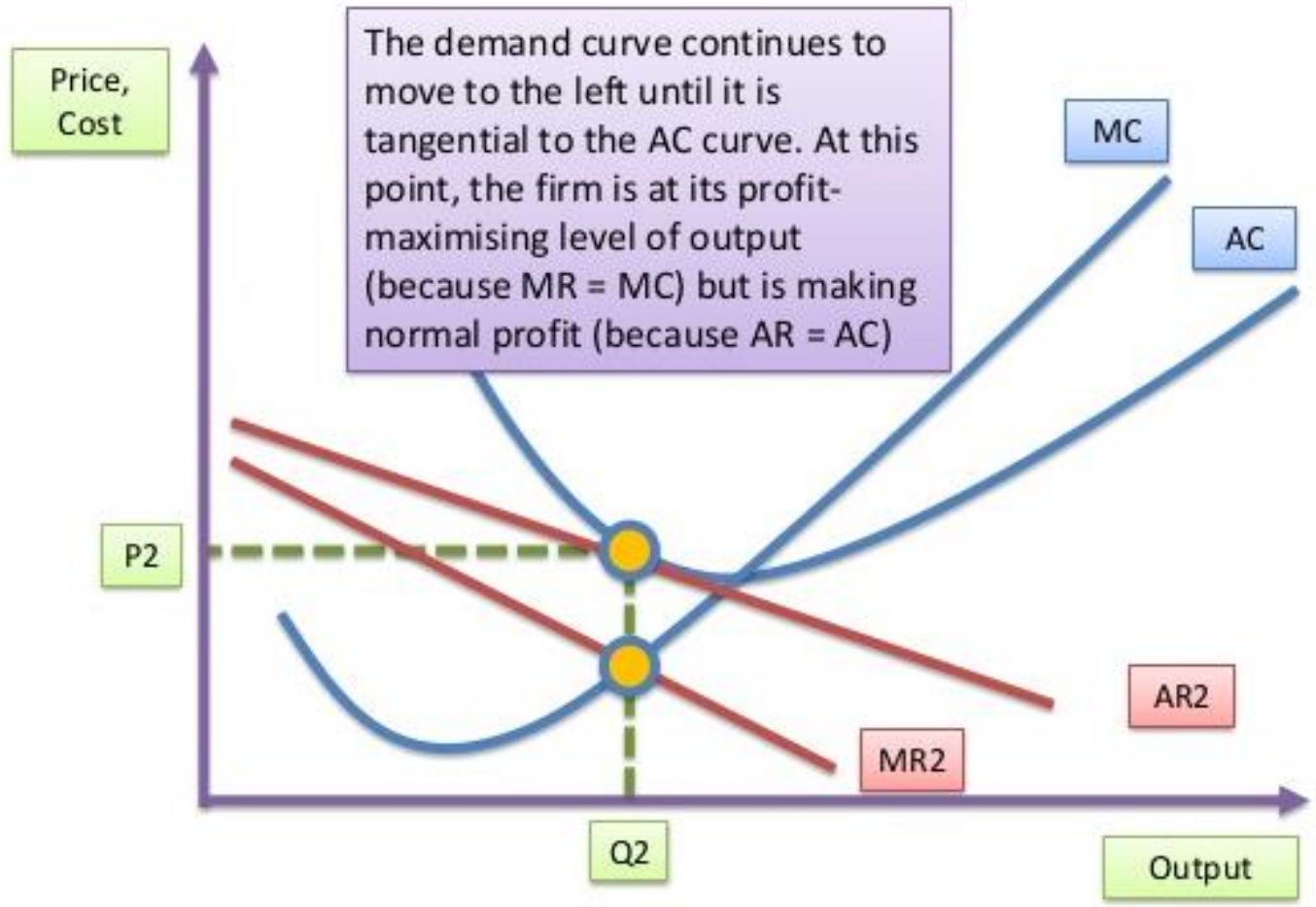


# 3. Monopolistic competition

## Profit maximisation – long run



# 3. Monopolistic competition
## Profit maximisation – long run

- Under monopolistic competition the representative firm fails to produce at the minimum efficient scale (as it usually happens in monopoly);
- Similarly to perfect competition, in the long run the representative firm **only earns normal profits**;
- There is allocative inefficiency because the price exceeds the marginal cost of the firm (there is deadweight loss);
- The representative monopolistic competitor might be able to operate without full efficiency (with x-inefficiencies, economic inefficiencies or both), but it is not fully protected from competition because barriers to entry are low and there are possible (slightly differentiated) substitutes.

# Summary

- Perfect competition:
  - Features
  - Equilibrium
- Monopoly:
  - Features
  - Types
  - Equilibrium
- Monopolistic competition:
  - Features
  - Equilibrium

# Reading list

- Chapter 3 – Lipczynski et al., 2013