# Monopoly

## Roger Arnold: Chapter 10

**Videos for review:**

https://www.youtube.com/watch?v=rPAY9U0E7dA

https://www.youtube.com/watch?v=oTUukiZjHmw

https://www.youtube.com/watch?v=n175XrDoVls

https://www.youtube.com/watch?v=fg08G21ZiV0

# The Theory of Monopoly

- **opposite** of the perfectly competitive market structure (PCMS).
- Based on **3** major **assumptions**.

- **Assumption 1 - ONE SELLER**

**Firm = industry.**

- **Assumption 2 - NO CLOSE SUBSTITUTES**

**The monopolist/monopoly firm faces little to no competition.**

- **Assumption 3 - EXTREMELY HIGH BARRIERS TO ENTRY**

**Almost impossible for a firm to enter the industry. Extremely high barriers keep out new firms.**

- Complete monopoly = extremely rare in real life. However, one firm can dominate the supply of a good or a group of goods.

- Some examples include – The London Tube, Bangladesh Railway, WASA, Waste Management by the City Corporation, Bangladesh Postal Service (Post Office), Luxottica (a Company that owns all the major brands of sunglasses and produces more than 80% of the eyewear worldwide), Google in the market for search engines.

# Barriers to Entry

# 1. LEGAL BARRIERS

- **i. Public Franchises -** A **right** that **government grants** to a firm and that permits the firm to provide a particular good or service and excludes all others from doing the same = **eliminates potential competition by law.**
- **E.g.** WASA, Bangladesh Power Development Board (BPDB), Bangladesh Rural Electrification Board (BREB), Waste Management by the City Corporation, The British East India Company in 1600.

- **ii. Patents -** A form of intellectual property that gives its owner the legal right to **exclude others** from making, using, selling and importing an invention for a limited period of years.
- Patents are granted **for a specific period of time**
- **E.g.** The recipe for Coca-Cola, Microsoft Corp's copyright of its Windows.
- For that period of time, the patent holder is **protected from competitors = no one else can legally produce and sell**
- Done to encourage innovation in an economy.

- **iii. Government Licences (or permits)** - Entry into some industries and occupations requires a government-granted license.
- **E.g.** radio and television stations, to practice medicine (doctors), lawyers, taxi services in New York, etc.
- To maintain quality/strict monitoring, but reduce the level of competition at the same time.

# 2. ECONOMIES OF SCALE (EOS)

- In some industries, low ATC are obtained only through **large-scale production** as FC are very high (e.g. high initial costs to drill a new oil well, setting up a nuclear power plant).
- So, new entrants must enter on a large scale = risky and costly = **a barrier to entry**.
- **Natural monopoly** = If EOS are so severe that only one firm can survive in the industry, the firm is called a natural monopoly.
- E.g. - gas network, electricity grid, railway infrastructure, tap water, etc.

# 3. EXCLUSIVE OWNERSHIP OF A NECESSARY RESOURCE

- Existing firms may be protected from the entry of new firms by the **exclusive/nearly exclusive ownership of a resource needed to produce the good**.
- **Examples include:**
- The **Aluminium Company of America (Alcoa) =** for a time controlled almost all sources of bauxite in the USA and was the only producer of aluminium in the country.
- **De Beers Company** of South Africa = controls a large % of diamond production and sales.
- **Standard Oil** took control of over 90% of the oil pipelines and refineries in the USA in the past.

# MONOPOLY PRICING AND OUTPUT DECISIONS

- **Price searcher/setter/maker** = a seller with the ability to control to some degree the price of the product it sells.
- Since there is only one firm selling the product, it becomes the price maker for the whole industry.

# Government Monopoly VS Market Monopoly

- **Government Monopoly:** When **competition is legally prohibited** and high barriers take the form of public franchises, patents, or government licenses

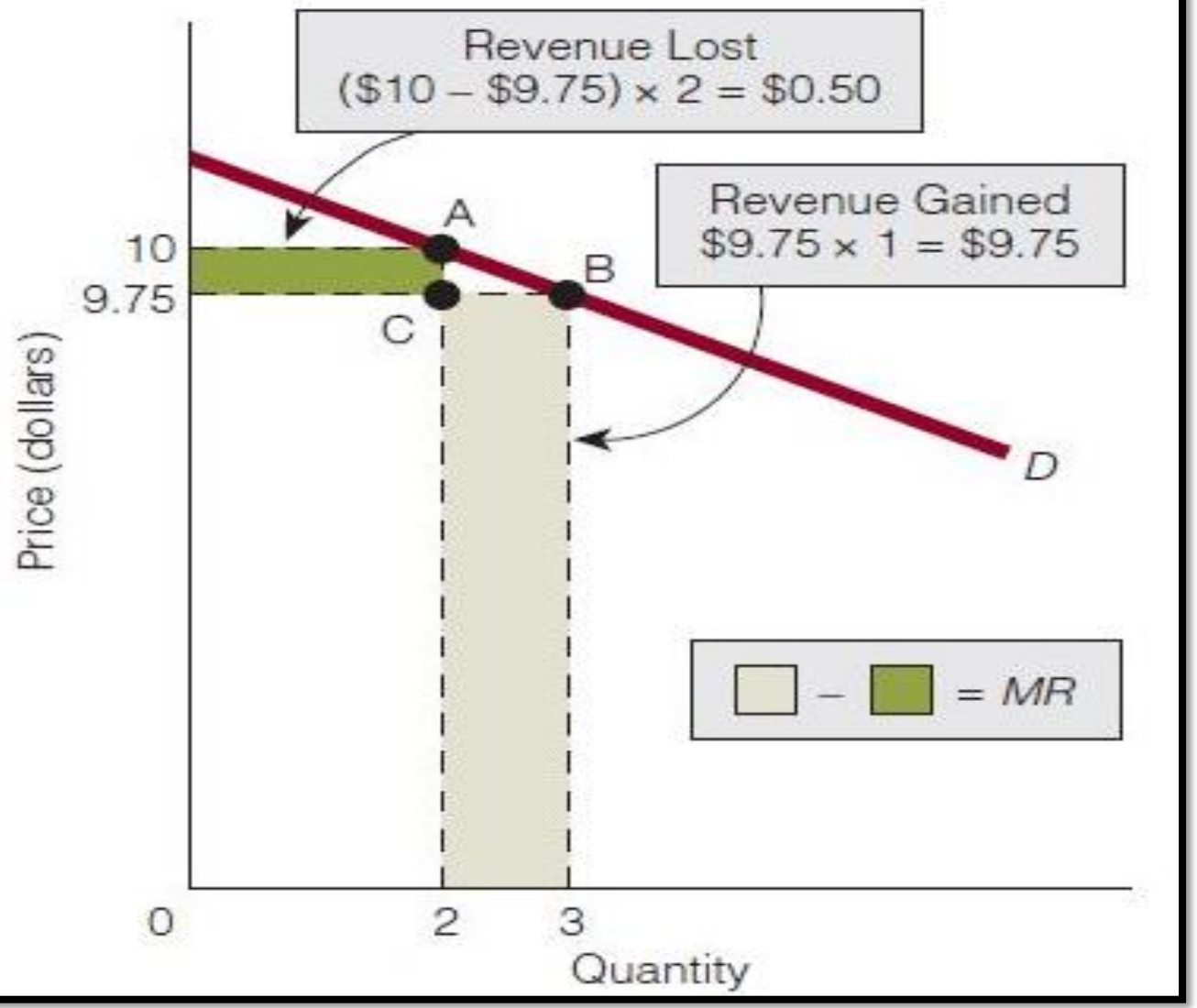
- **Market Monopoly:** Barriers exist independently and high barriers take the form of EOS or exclusive ownership of a resource, **competition is not legally prohibited.**

# The Monopolist's Demand and Marginal Revenue

- The monopoly firm = industry
- The demand curve for the monopoly firm **is** the market demand curve, which is **downward sloping**.
- The monopolist can raise its price and still sell its product.
- To sell an additional unit of its product, the monopolist **must** lower price → **Law of Demand**.

# A monopoly seller both gains and loses by lowering price!

| (1) P | (2) Q | (3) TR | (4) MR |
|---|---|---|---|
| $10.00 | 2 | $20.00 | |
| | | | —— $9.25 |
| 9.75 | 3 | 29.25 | |

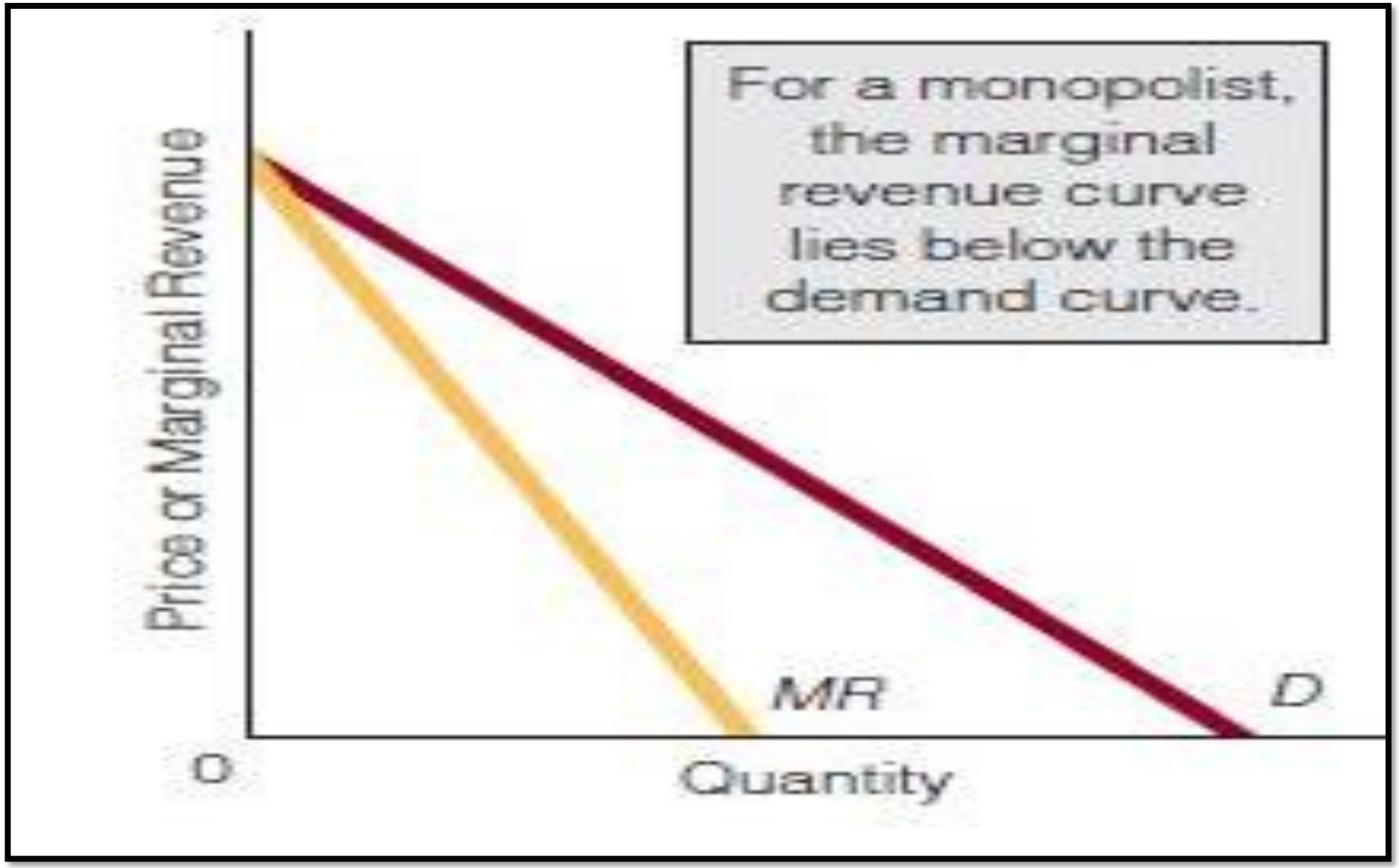


- Before the monopolist earned 20 taka from 2 units (10 x 2)
- Now it is earning 19.5 taka from 2 units (9.75 x 2)
- So it is losing 0.50 taka in revenue from selling those 2 units
- However, now by lowering price it can sell more, therefore
- The revenue earned from the third unit is the price, 9.75 taka (PxQ = 9.75x1)
- **Gains are greater than losses**
- The monopolist's net gain from selling the additional unit of output is 9.25 taka (9.75 - 0.50).
- This is the monopolist's marginal revenue (MR).
- **MR = Change in TR/Change in Q = (29.25 – 20)/(3-2) = 9.25 taka.**

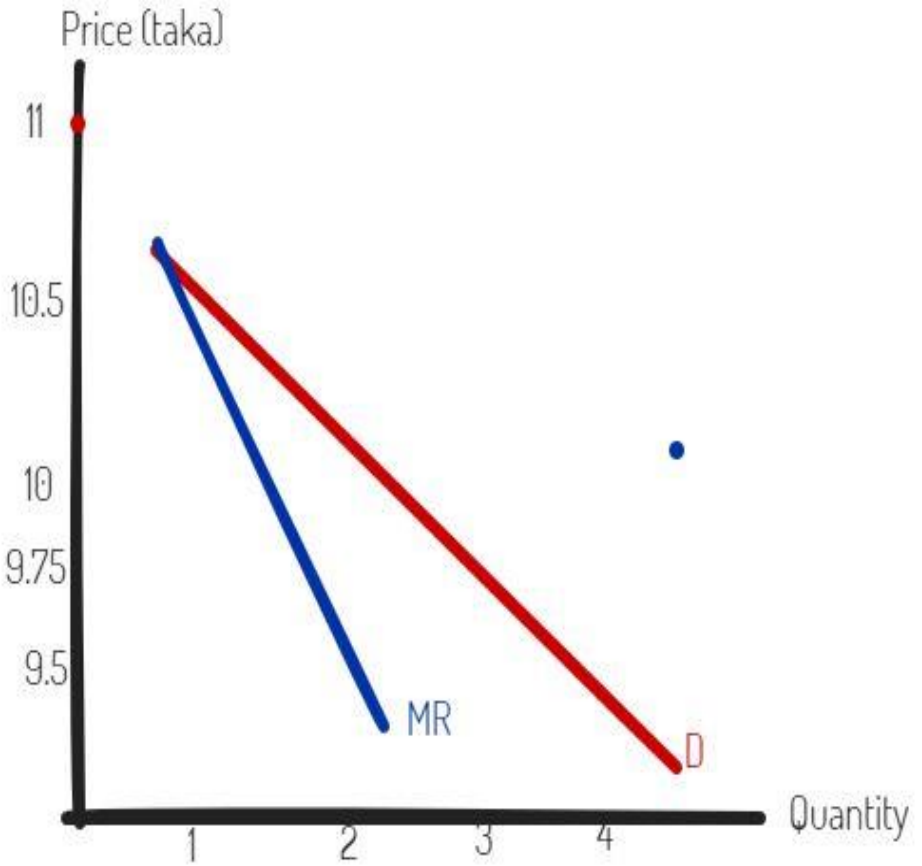
- NOTICE: P > MR
- This is the case for a monopoly seller or any price searcher.
- Therefore, **For a monopolist, P > MR**

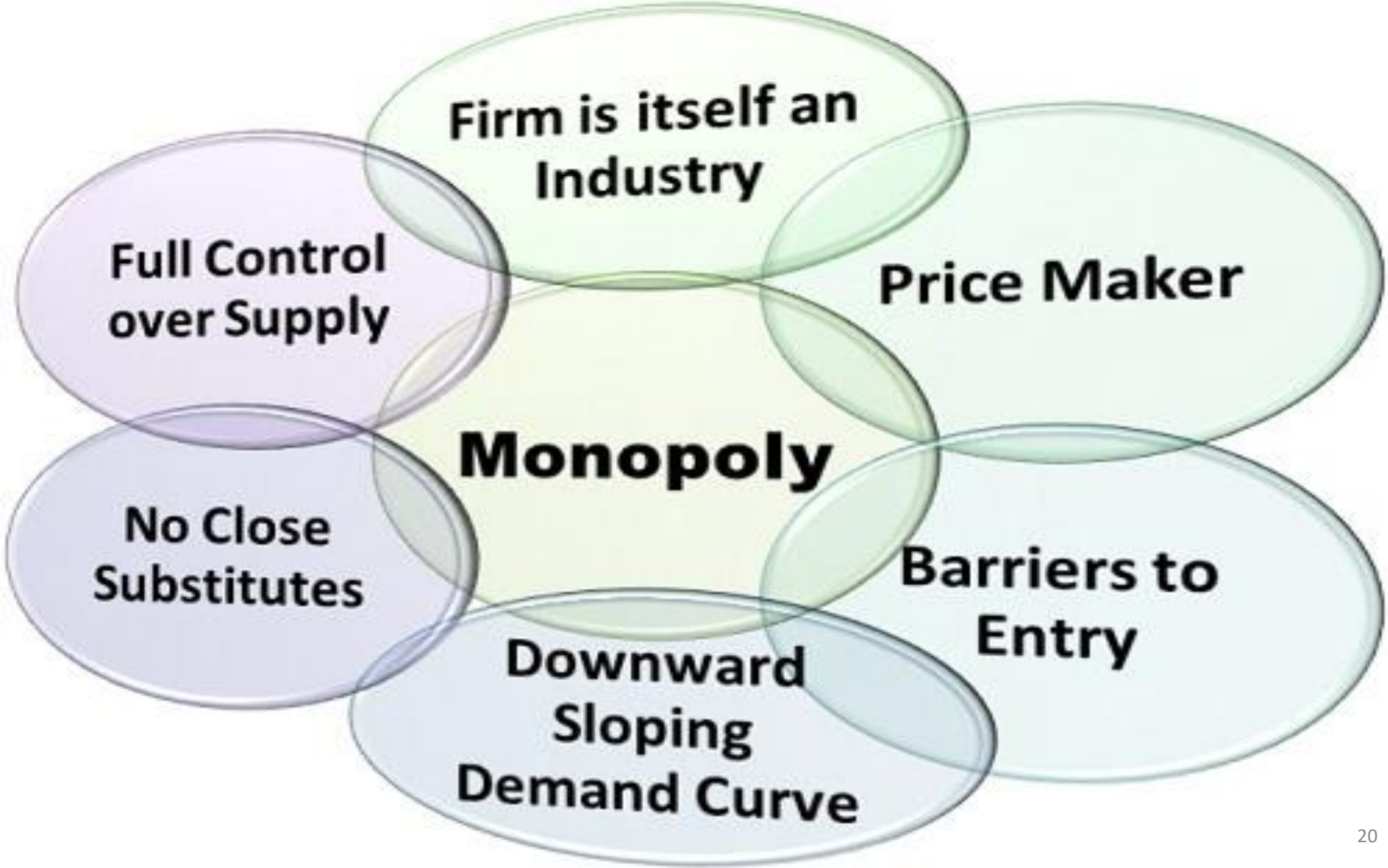
# The Monopolist's Demand and MR Curves Are Not the Same

- The demand curve plots *P* and *Q*
- The MR curve plots *MR* and *Q*
- Because **P > MR** for a monopolist (except for the first unit), its demand curve lies **above** its MR curve.


For a monopolist, the marginal revenue curve lies below the demand curve.
Price or Marginal Revenue
MR
D
0
Quantity

| PRICE | Quantity | TR (PxQ) | MR (Change in TR/Change in Q) |
|---|---|---|---|
| 10.5 | 1 | 10.5 | 10.5 |
| 10 | 2 | 20 | 9.5 |
| 9.75 | 3 | 29.25 | 9.25 |
| 9.5 | 4 | 38 | 8.75 |

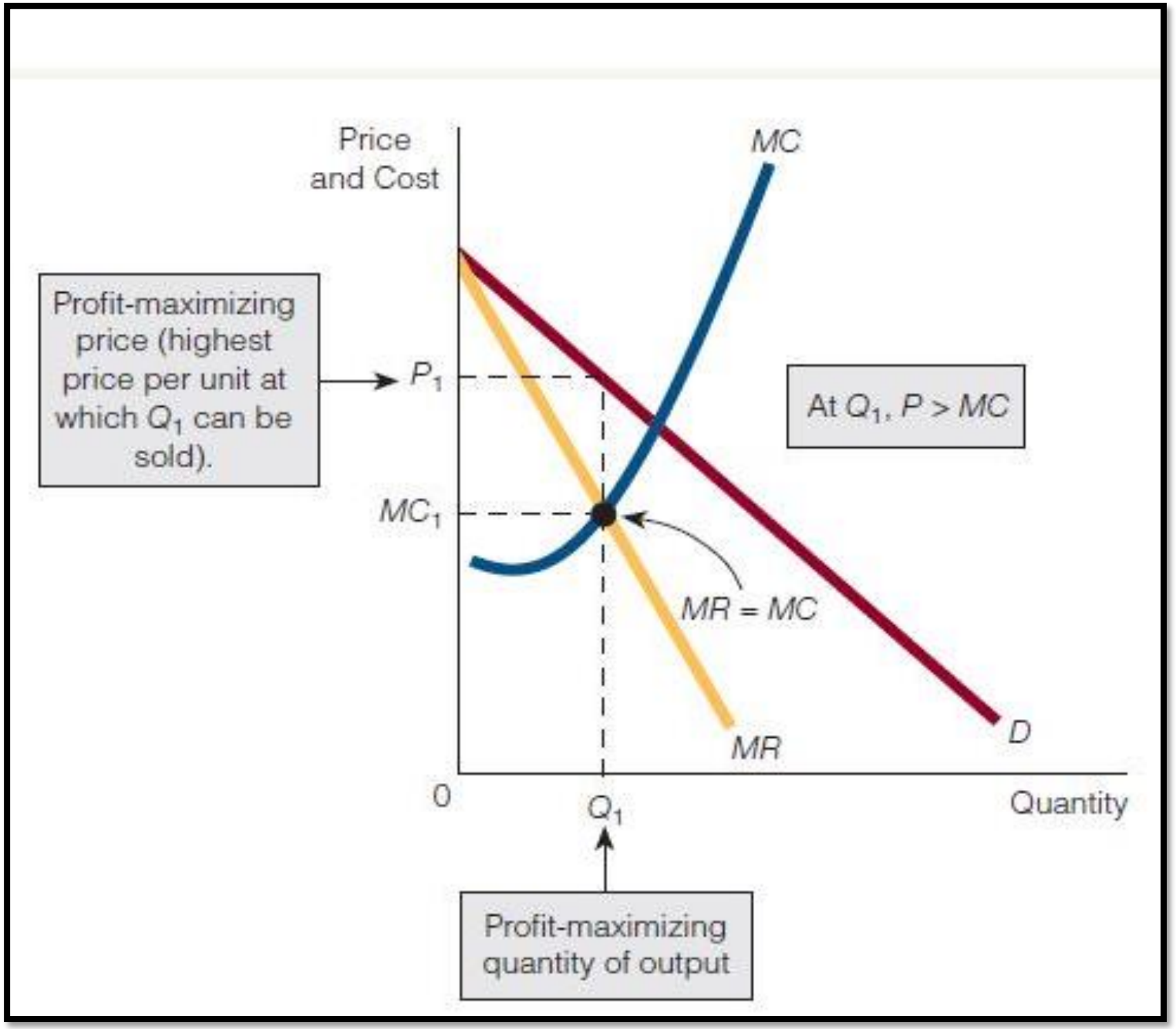



Firm is itself an Industry
Full Control over Supply
Price Maker
Monopoly
No Close Substitutes
Barriers to Entry
Downward Sloping Demand Curve

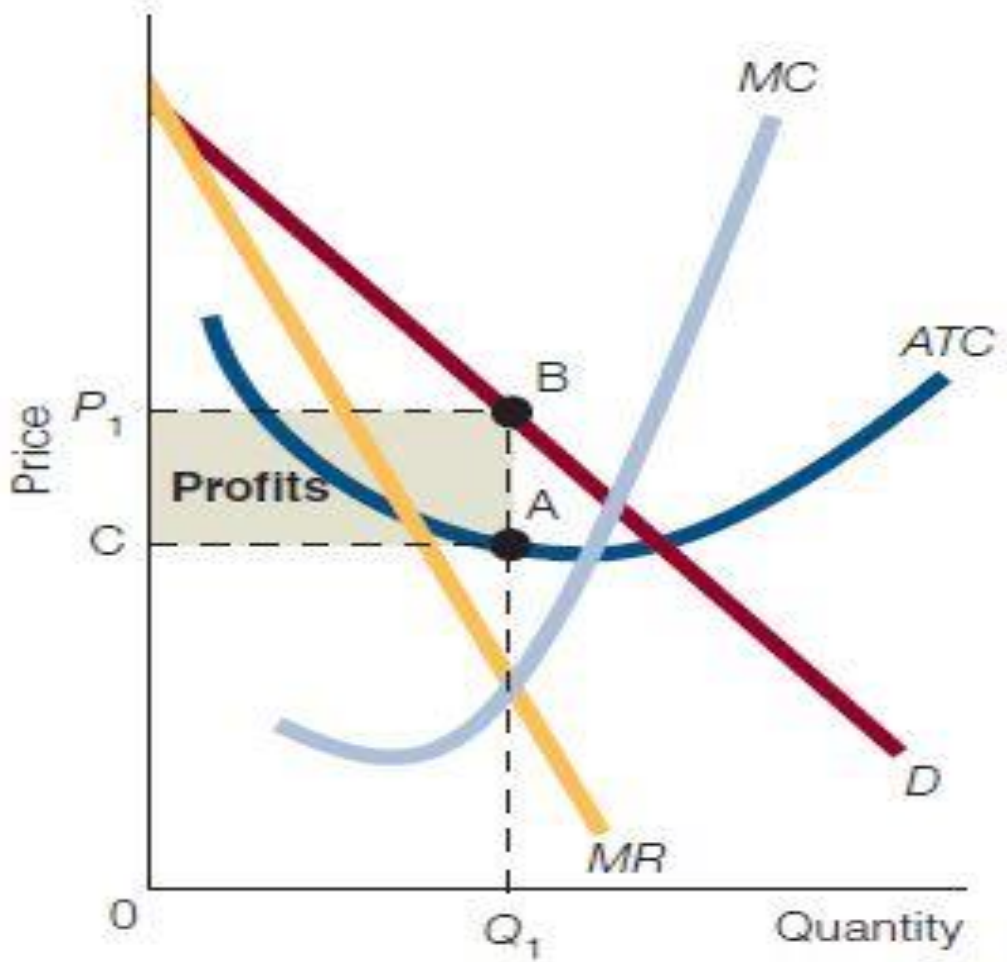
# Price and Output for a Profit-Maximizing Monopolist

- MR = MC → profit maximizing rule.
- P ≠ MC or MR at the profit maximizing level of output for a monopolist.
- As the monopolist has the ability to significantly control the P, it charges the **highest price per unit at which this quantity of output can be sold.**
- Meaning as much as the demand curve will allow it = consumers willingness and ability to pay that P for that Q.

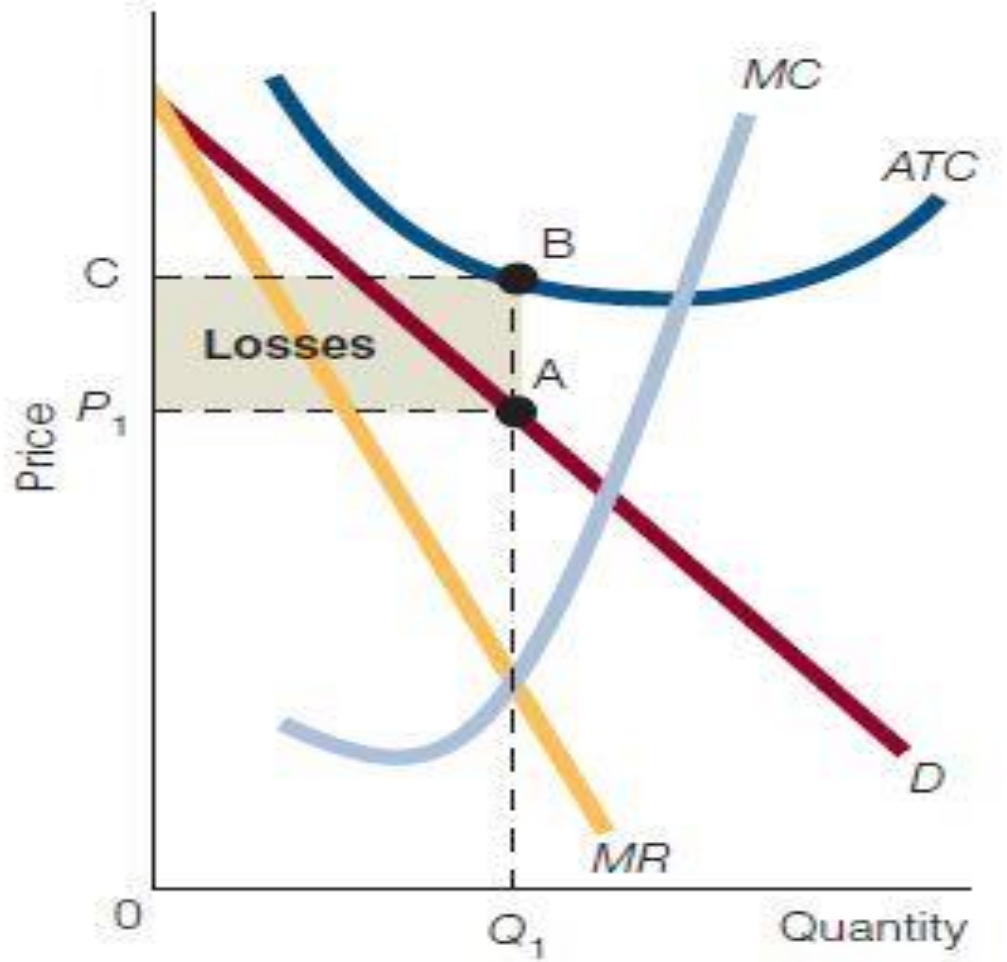
- Given the profit maximizing Q1, the monopolist chooses the P the market will pay = **height of the demand curve.**
- For a monopolist, **P>MC = not resource allocative efficient.**
- *Is the monopolist making a profit or a loss?*



- Profits/losses depend on whether P is greater or less than ATC at the profit maximizing output (i.e. whether TR is less than or more than TC).
- Being the only seller in a market **does not guarantee profit**.
- Cannot charge any price it wants for its good.
- Charges the highest price that the demand curve **allows** it to charge.
- And the highest price **may be <** firm's ATC (per unit costs) = **loss**




**(a)**
**Monopoly Profits**




**(b)**
**Monopoly Losses**

# PERFECT COMPETITION AND MONOPOLY

Here are two key differences between perfect competition and monopoly:

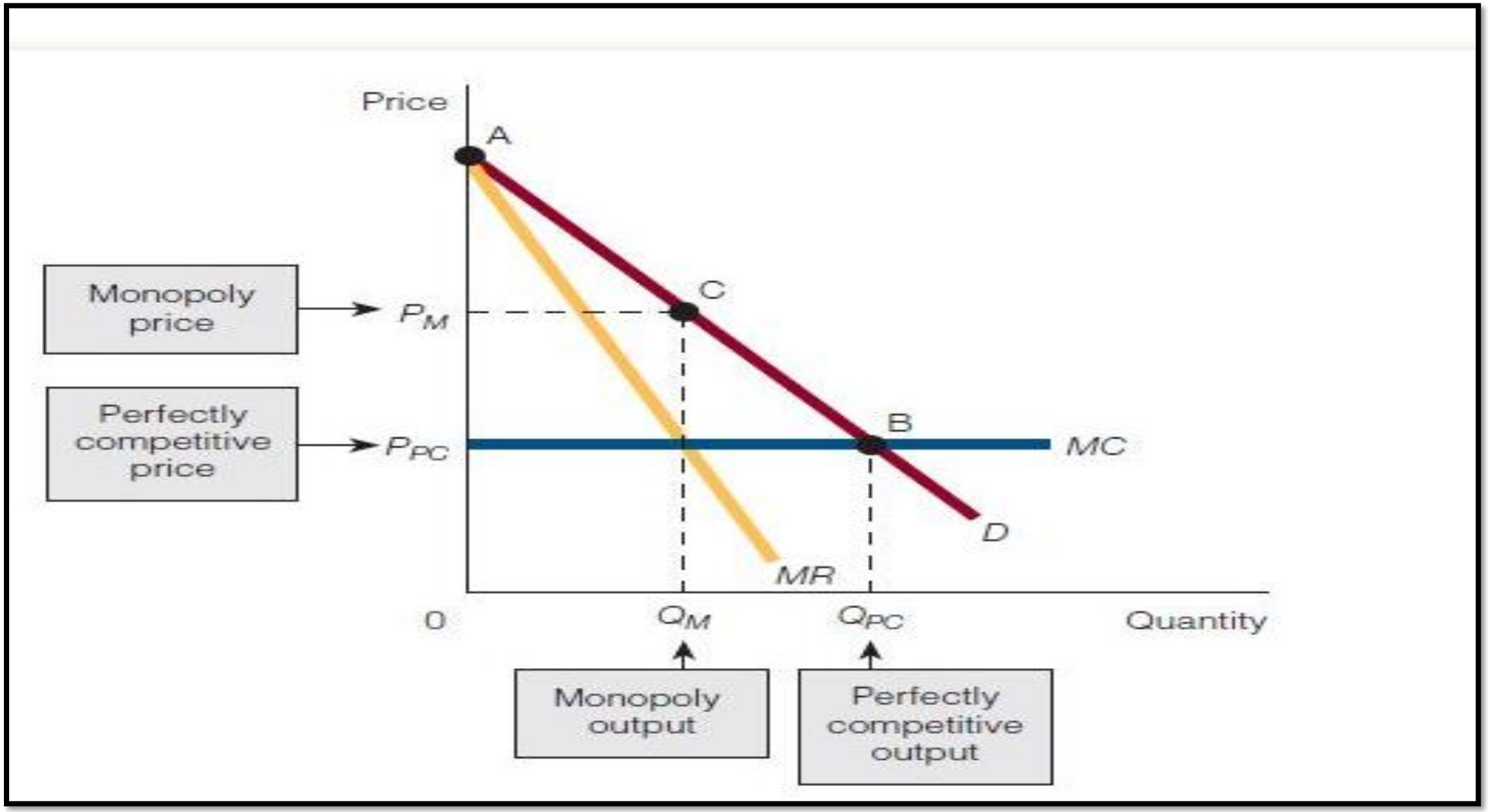
1. For the perfectly competitive firm, $P = MR$; for the monopolist, $P > MR$. The perfectly competitive firm's demand curve *is* its marginal revenue curve; the monopolist's demand curve lies *above* its marginal revenue curve.
2. The perfectly competitive firm charges a price equal to marginal cost; the monopolist charges a price greater than marginal cost.

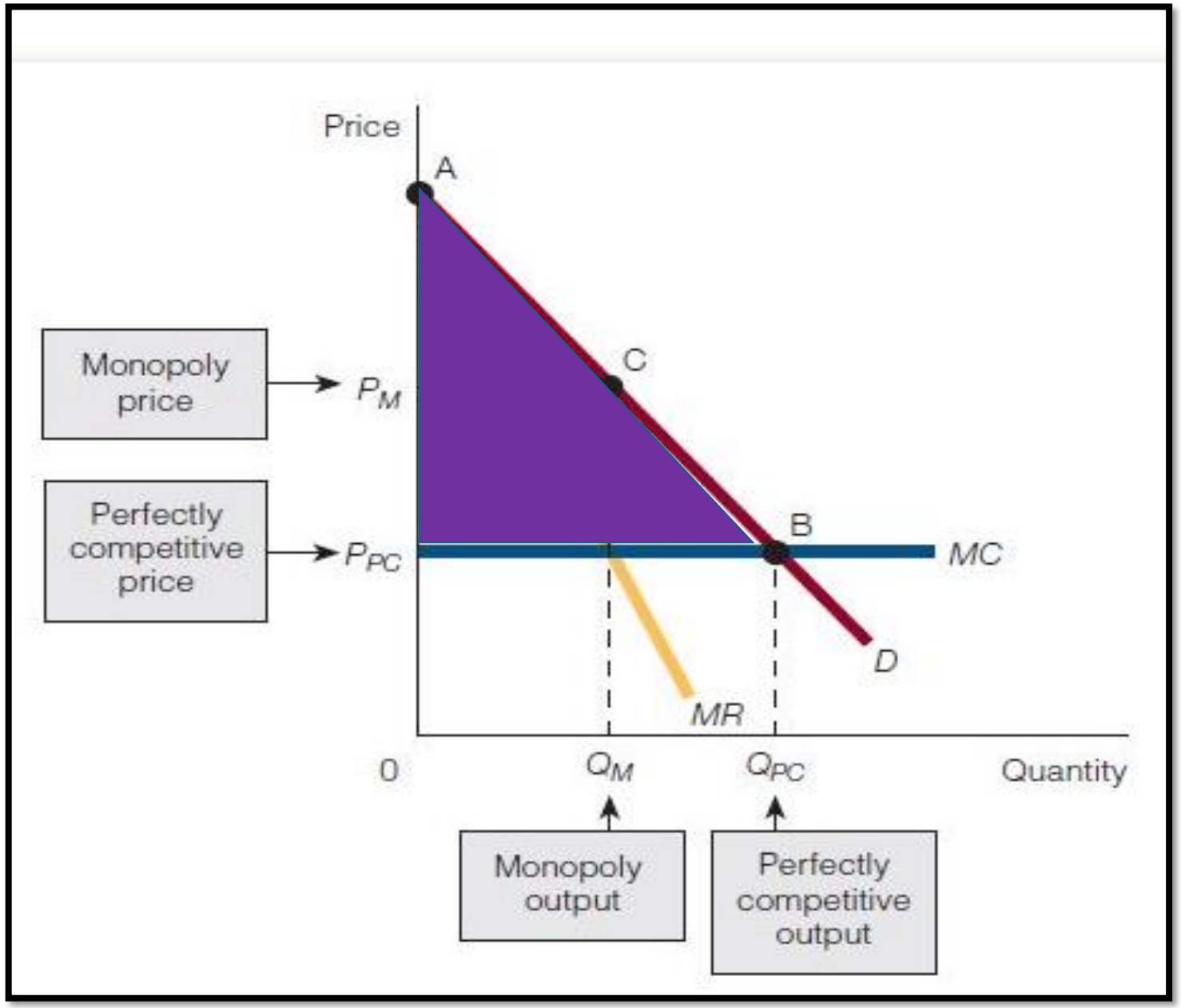
Perfect competition: $P = MR$ and $P = MC$

Monopoly: $P > MR$ and $P > MC$

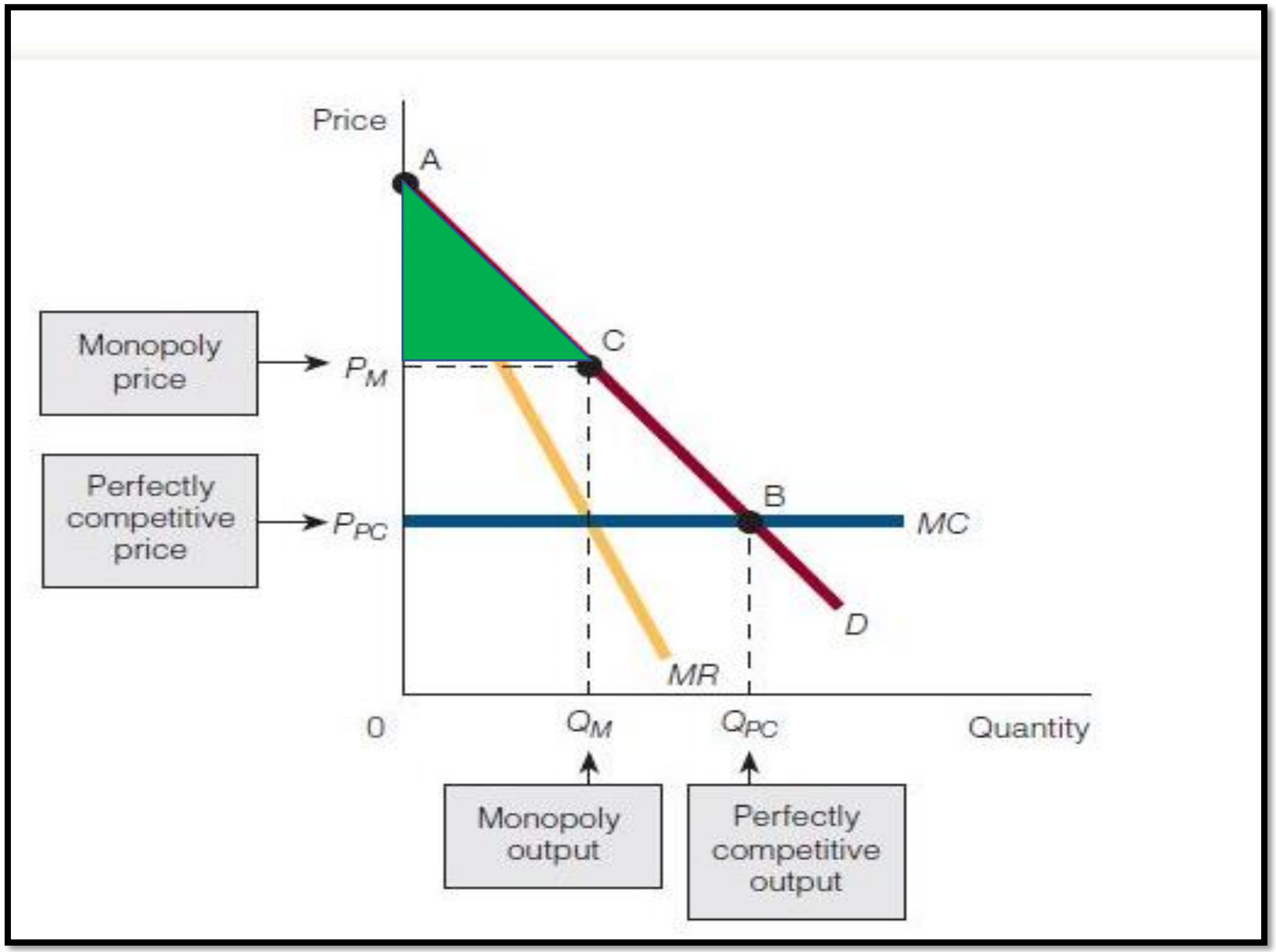
# Monopoly, Perfect Competition, and Consumers' Surplus

- A monopoly firm differs from a perfectly competitive firm (PCF) in terms of how much consumers' surplus buyers receive.
- Let's assume constant MC.
- The demand curve is downward sloping because we are looking at the **market demand curve.**
- In a Perfectly Competitive Market (PCM) the **demand curve *is* the MR curve**.


Price
A
C
B
Monopoly price
$P_M$
Perfectly competitive price
$P_{PC}$
MC
D
MR
0
$Q_M$
$Q_{PC}$
Quantity
Monopoly output
Perfectly competitive output

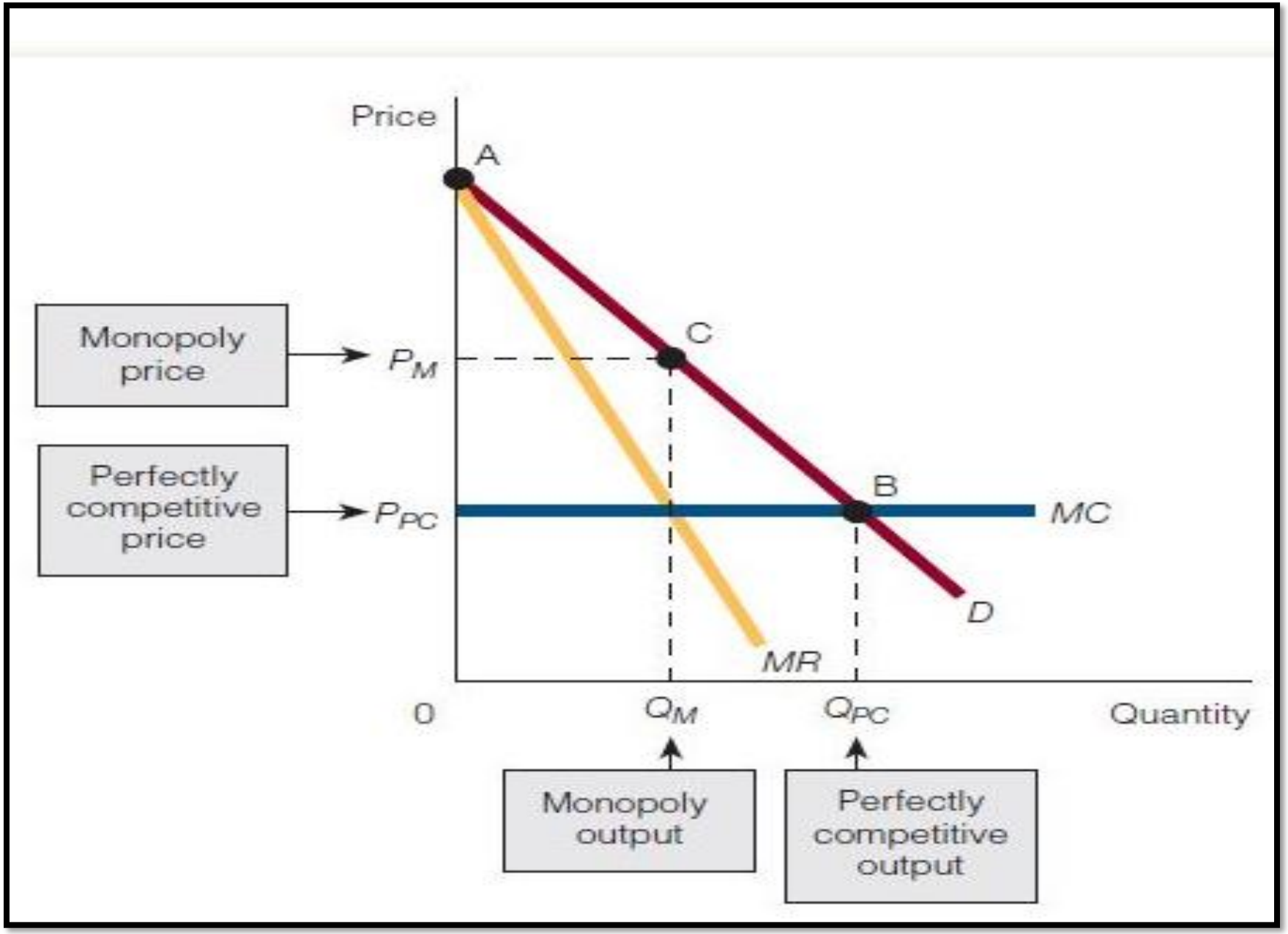



**Purple Triangle** = Area PpcAB = **Consumer Surplus** (area above the P below the D curve) **under PC**



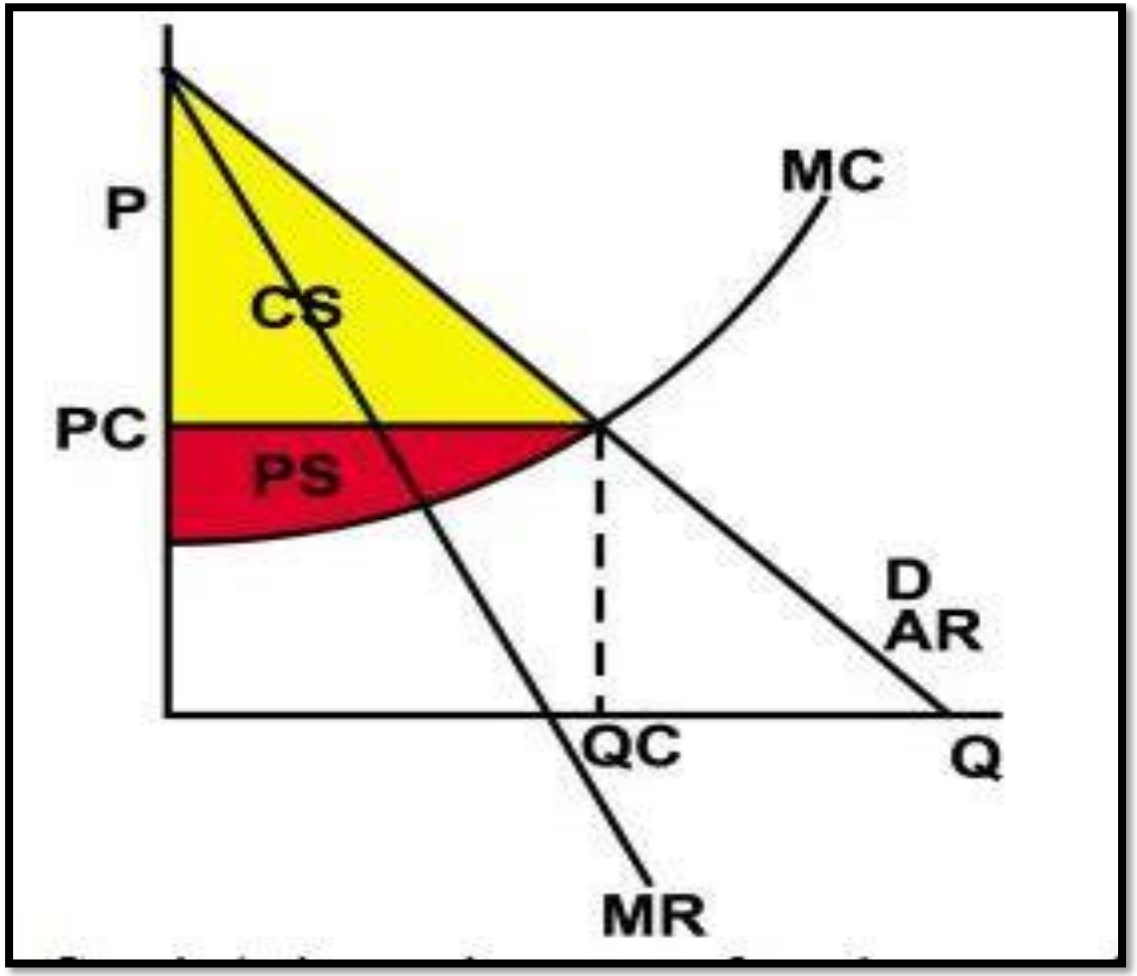

**Green triangle** = Area PmAC = **Consumer Surplus** (area above the P below the D curve) **under monopoly**

- Obviously, CS is greater in the PC case than in the monopoly case **by the area *PpcPm*CB**.
- This is the **loss in CS** due to monopolization

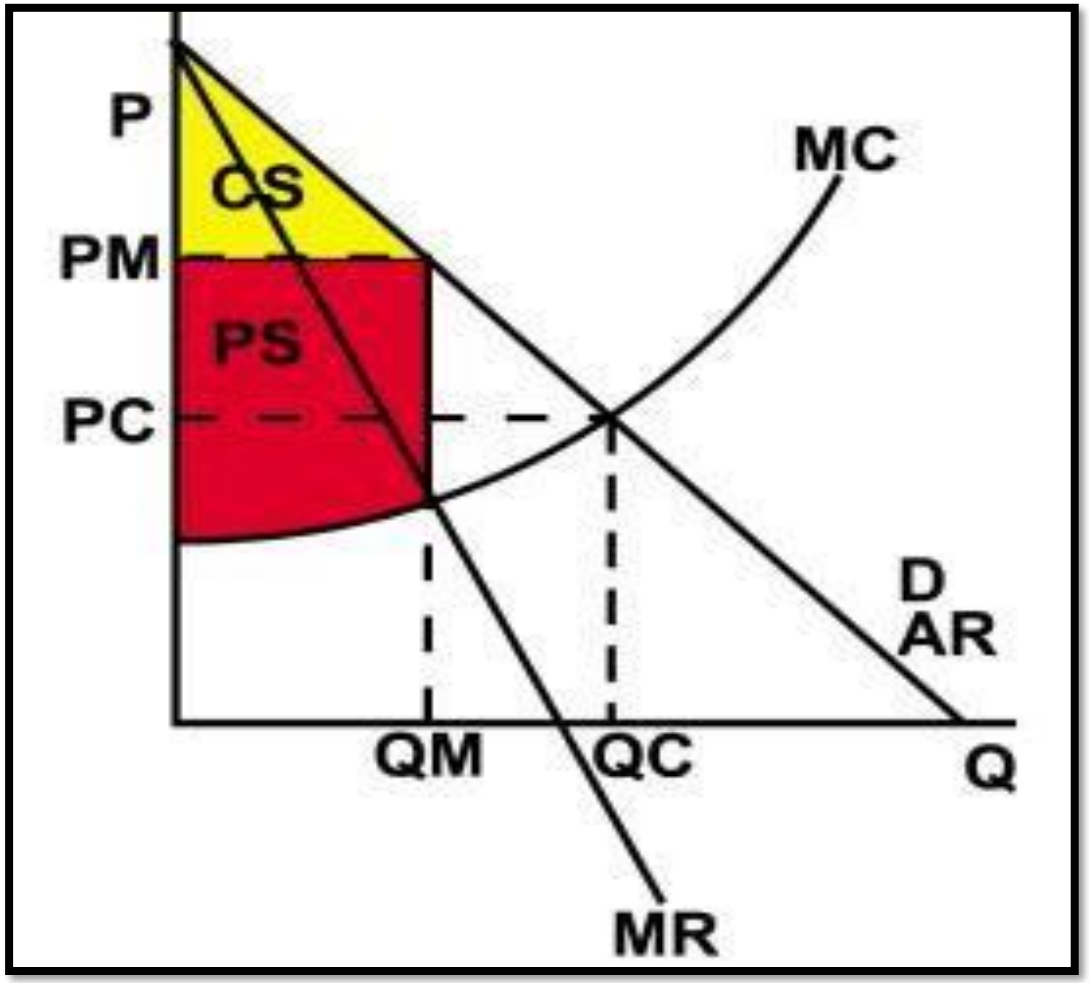


# Same outcome → With a typical looking MC

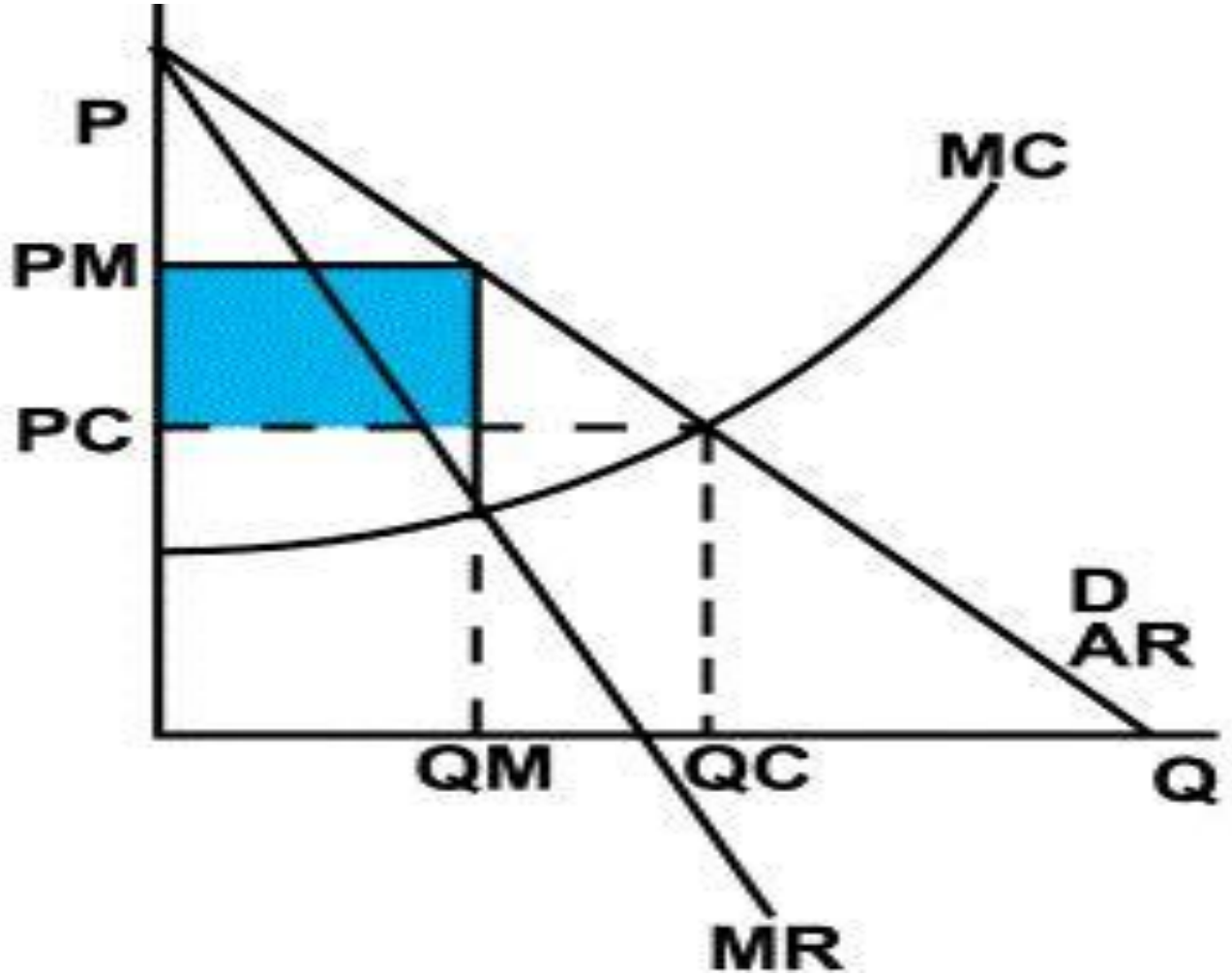
## PC market




## Monopoly



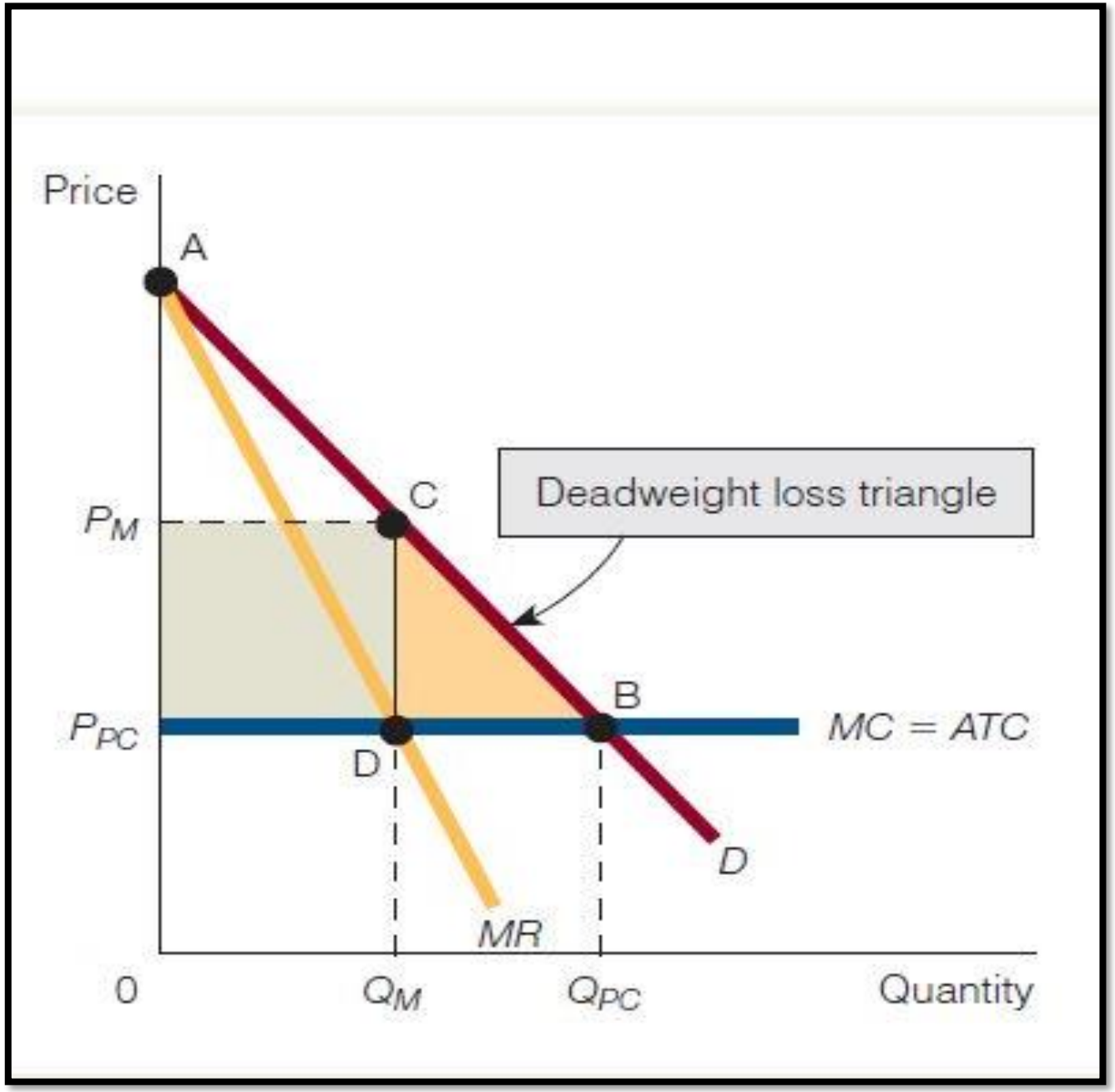
# Transfer of CS to producers/fall in CS due to monopoly = blue rectangle



# The Case Against Monopoly - The Deadweight Loss of Monopoly

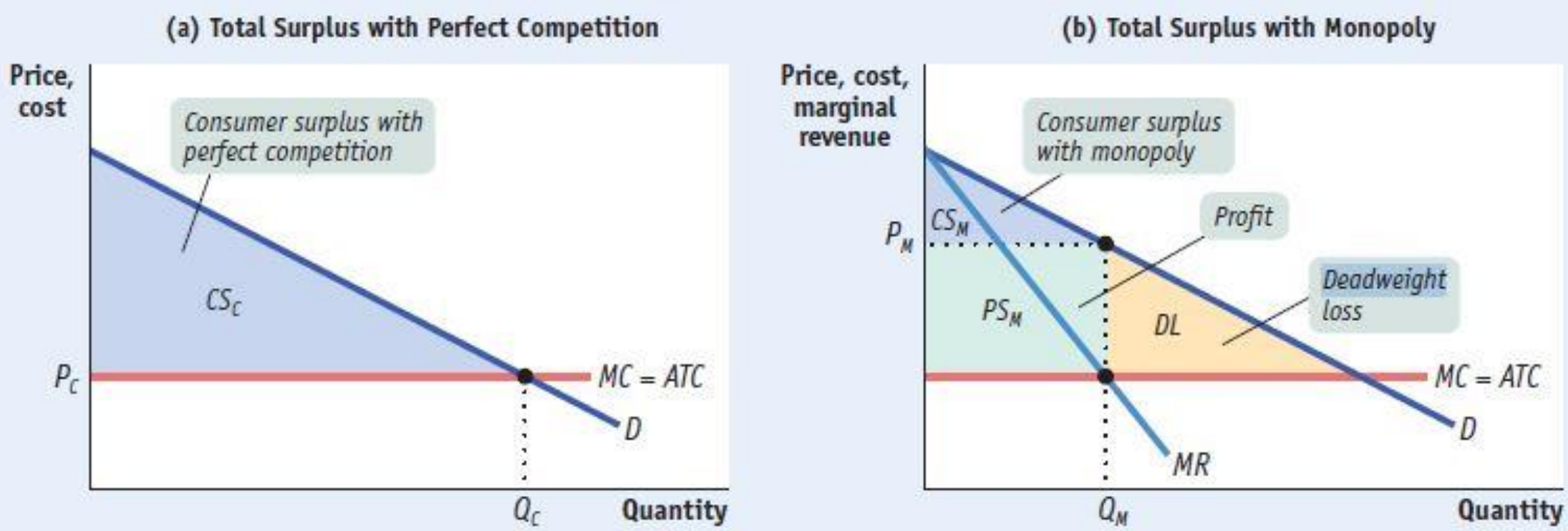
- **Monopoly = inefficient in comparison to perfect competition.**
- **A monopolist, by reducing output and raising prices, benefits at the expense of consumers.**
- We **assume**, that the product is produced under constant cost conditions.
- Meaning it is experiencing Constant Returns to Scale (CRS).
- So ATC remains the same regardless of Q produced.
- So that MC = average total cost.

- Qpc is produced under PC
- Ppc is charged under PC
- As Ppc = ATC, therefore 0 economic profit and no PS
- Qm is produced by the monopolist
- Pm is charged by the monopolist
- The industry (monopolist) now earns profit as Pm > ATC
- The profit is also the PS = area PpcPmCD



- **Greater output is produced under PC than under monopoly (Qm < Qpc).**
- The net value of the difference in these two output levels = the deadweight loss of monopoly = a welfare loss to the society.
- It is the **loss due to not producing the competitive quantity** of output.
- The triangle DCB is referred to as the *deadweight loss triangle.*

FIGURE 13-8 Monopoly Causes Inefficiency




Panel (a) depicts a perfectly competitive industry: output is $Q_C$, and market price, $P_C$, is equal to $MC$. Since price is exactly equal to each producer's average total cost of production per unit, there is no profit and no producer surplus. So total surplus is equal to consumer surplus, the entire shaded area. Panel (b) depicts the industry under monopoly: the monopolist decreases output to $Q_M$ and charges $P_M$. Consumer surplus (blue area) has shrunk: a portion of it has been captured as profit (green area), and a portion of it has been lost to deadweight loss (yellow area), the value of mutually beneficial transactions that do not occur because of monopoly behavior. As a result, total surplus falls.

# Same story just different looking MCs