

EE211

PRINCIPLES OF MICROECONOMICS

Topic 8:

Market Structure

Types of Market Structure

- **Perfect competition**
 - Many firms & (almost) identical products
 - Ex: Rice, milk, salt
- **Monopolist competition**
 - Many firms & differentiated products
 - Ex: Movies, coffee
- **Oligopoly**
 - Few firms
 - Ex: Internet providers, OPEC
- **Monopoly**
 - One firm
 - Ex: Electricity, ?

COMPETITIVE MARKET

Topics – Competitive Market

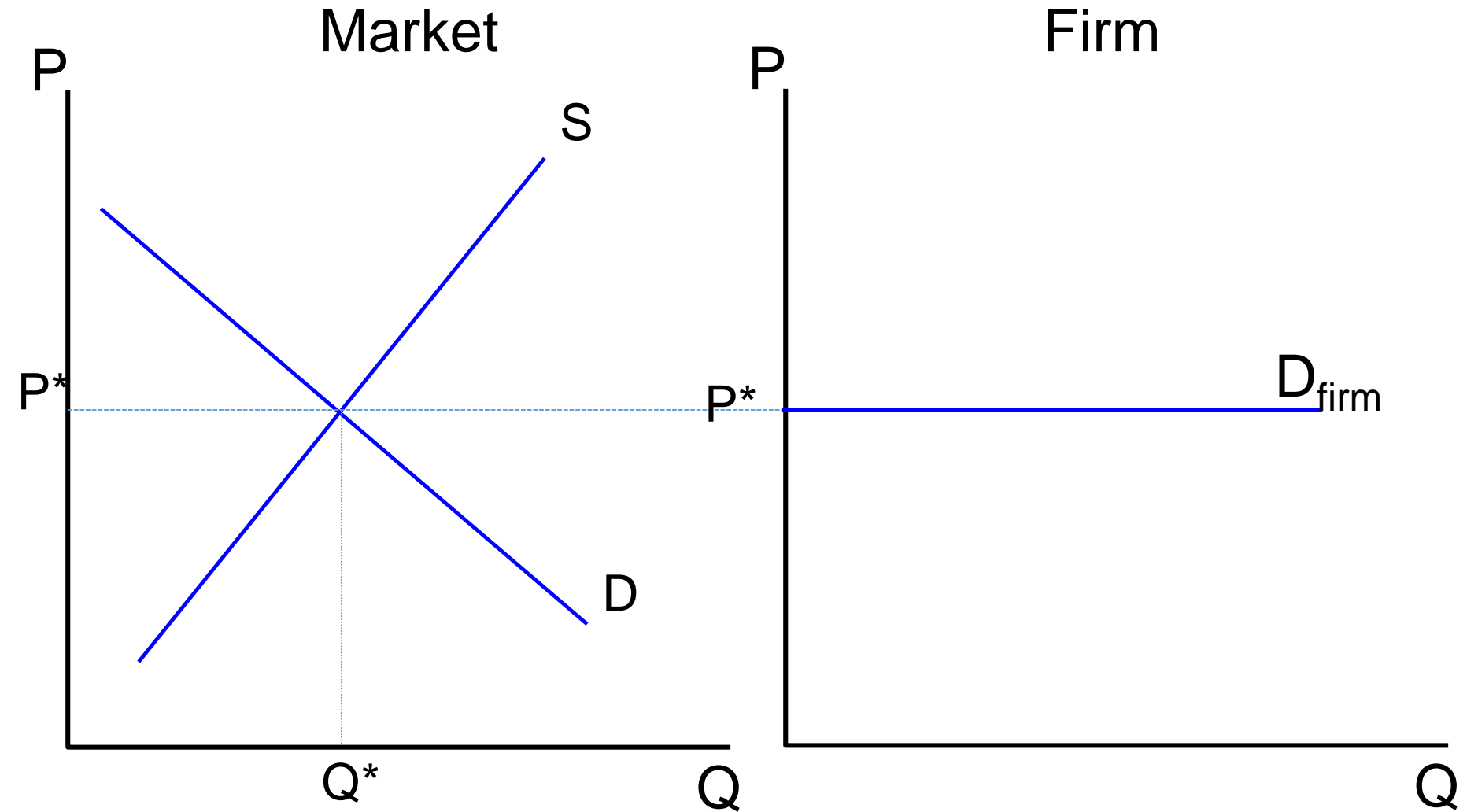
- Nature of Demand, TR, MR, and AR
- Short-run Equilibrium
- Derivation of Firm's and Market's Short-Run Supply Curves
- Long-run Equilibrium

Perfect Competition

Key assumptions:

1. All firms sell a homogenous product.
 2. There are many buyers and sellers (i.e. firms are small relative to the size of the industry).
 3. Buyers have complete information.
 4. Free entry and exit.
- Assumptions 1-3 → each firm is a “price taker”.

Market's and Firm's Demand Curves in Competitive Market



TR, AR, and MR

- Total Revenue:

$$TR = P \times Q$$

- Average Revenue:

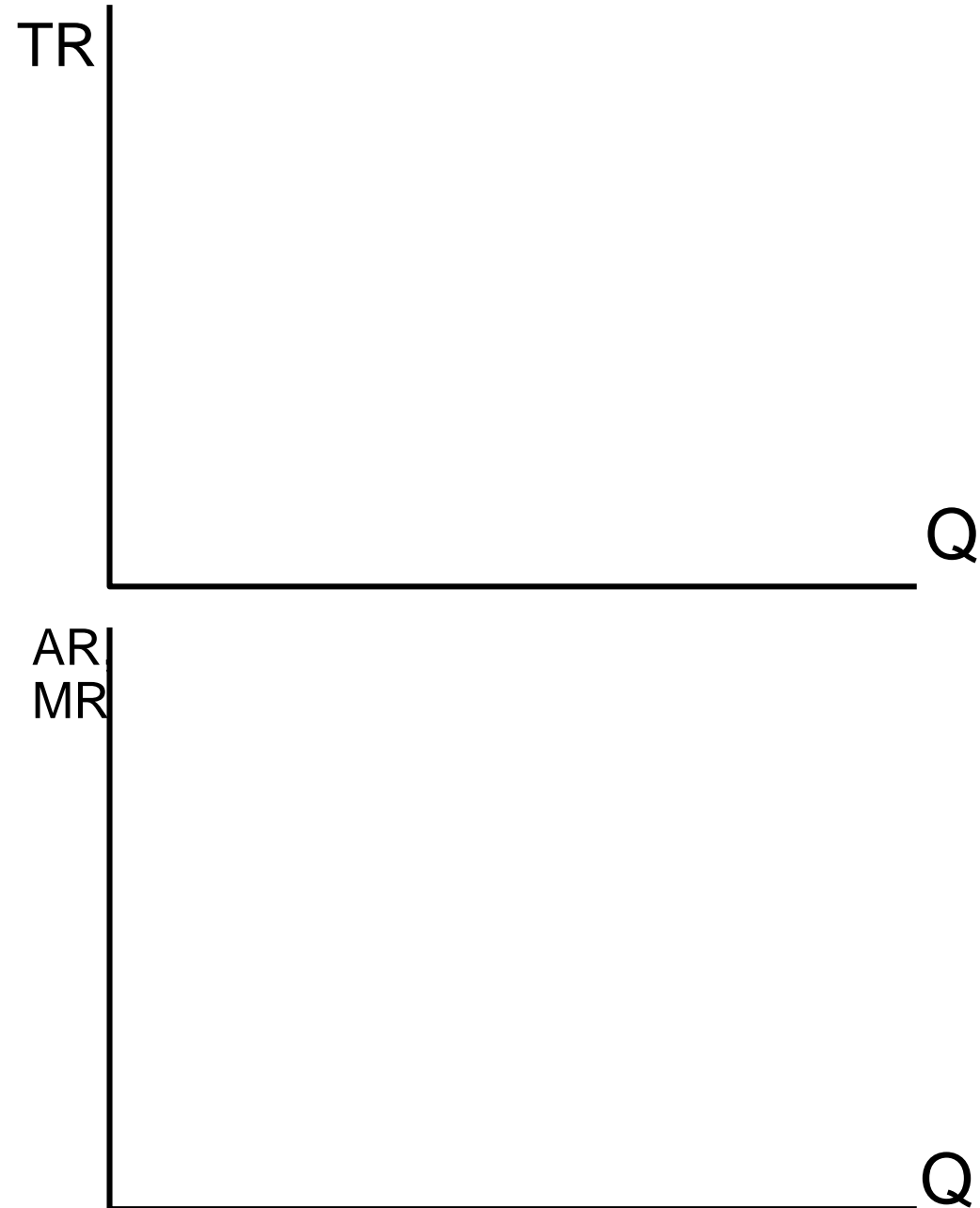
$$AR = \frac{TR}{Q} = P$$

- Marginal Revenue:

$$MR = \frac{\Delta TR}{\Delta Q}$$

Example:

P	Q	TR	AR	MR
\$10	0	\$0	\$10	\$10
\$10	1	\$10	\$10	\$10
\$10	2	\$20	\$10	\$10
\$10	3	\$30	\$10	\$10
\$10	4	\$40	\$10	\$10
\$10	5	\$50	\$10	\$10



Short-Run Decisions

- Rules for all profit-maximizing firms:

Rule 1: Firms should not produce at all if, for all levels of output, $TR < TVC$ (i.e. $P < AVC$).

- Firms shut down if $P < AVC$.

Rule 2: If it is worthwhile for the firm to produce at all, the firm should produce the output at which $MR = MC$. (Why is this so?)

- For a firm in a perfectly competitive market, it maximizes output when $P = MC$.

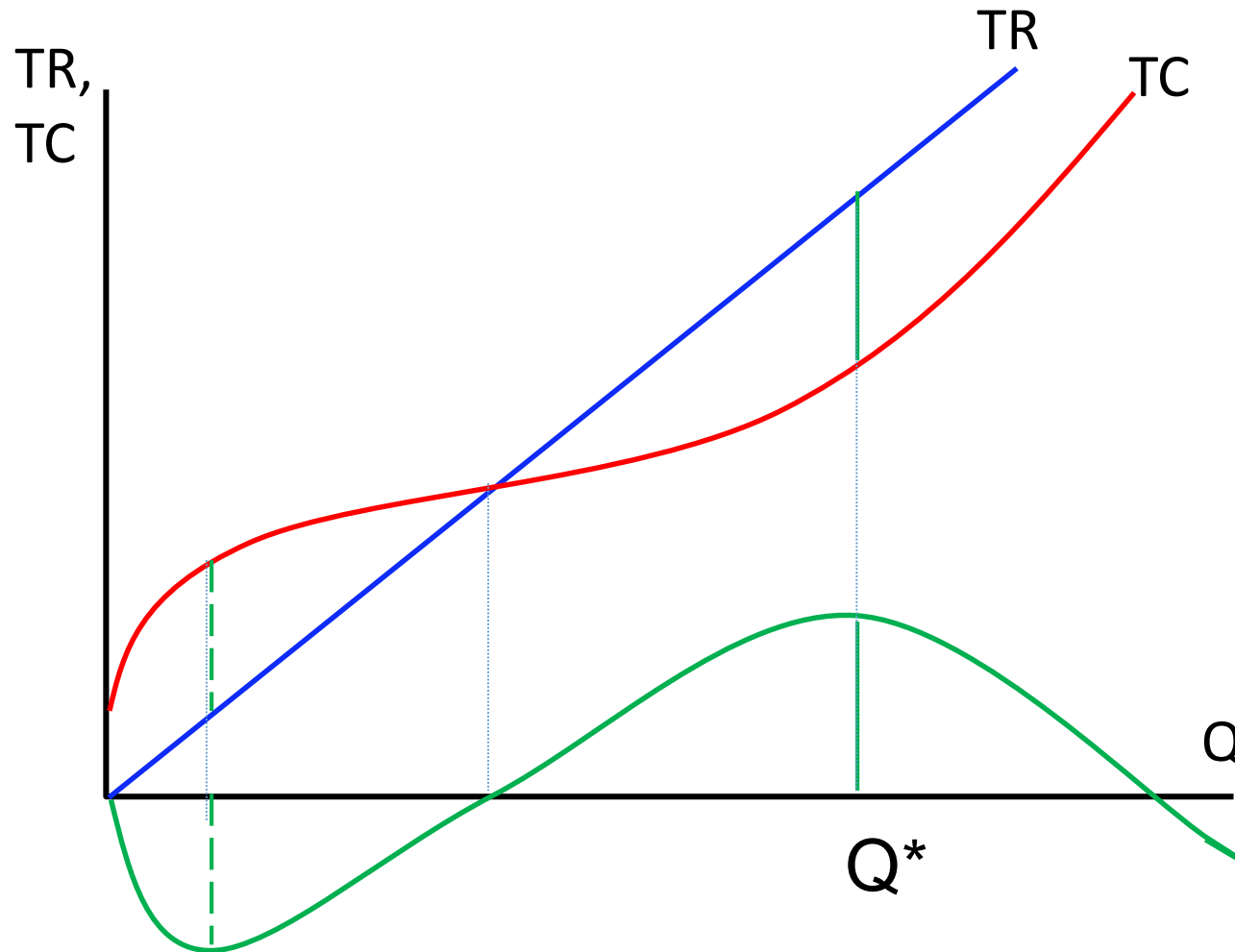
Example (Continued):

P	Q	TR	TC	Profit	MR	MC	MR-MC
\$10	0	0	5				
\$10	1	10	9				
\$10	2	20	15				
\$10	3	30	23				
\$10	4	40	33				
\$10	5	50	45				

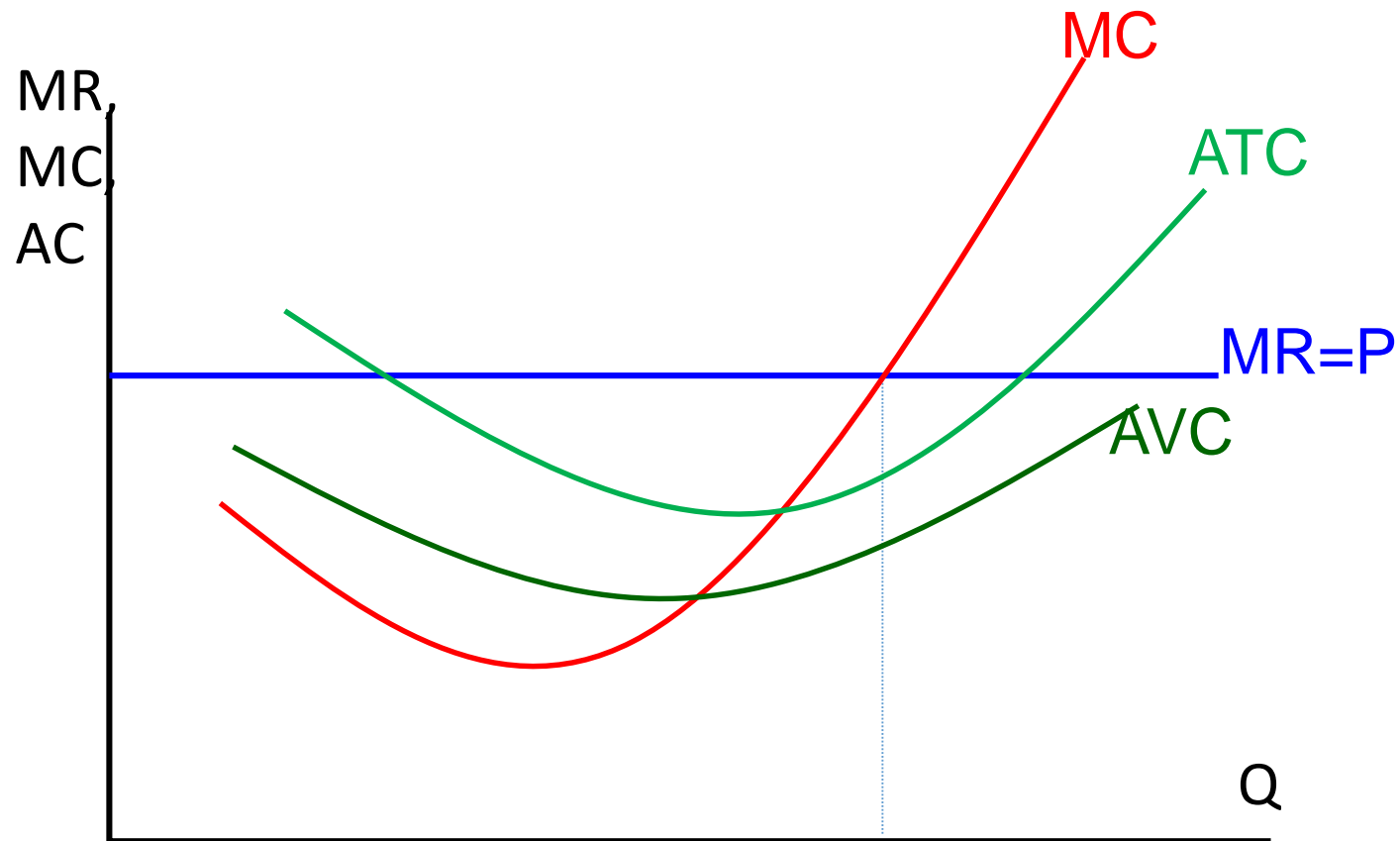
Graph (from the previous example)



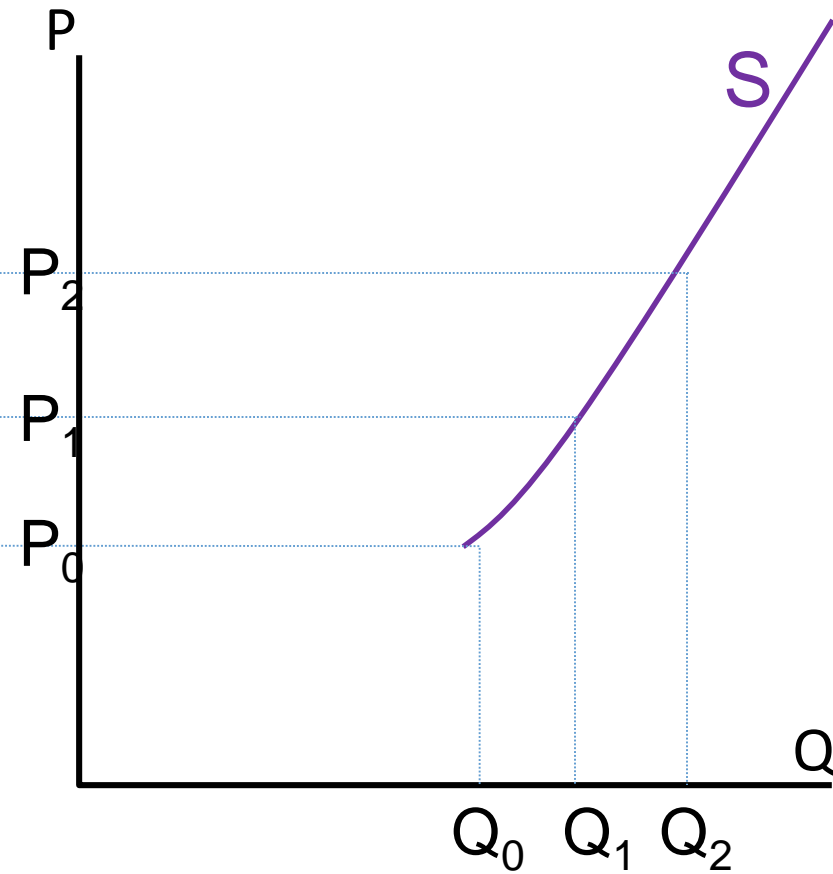
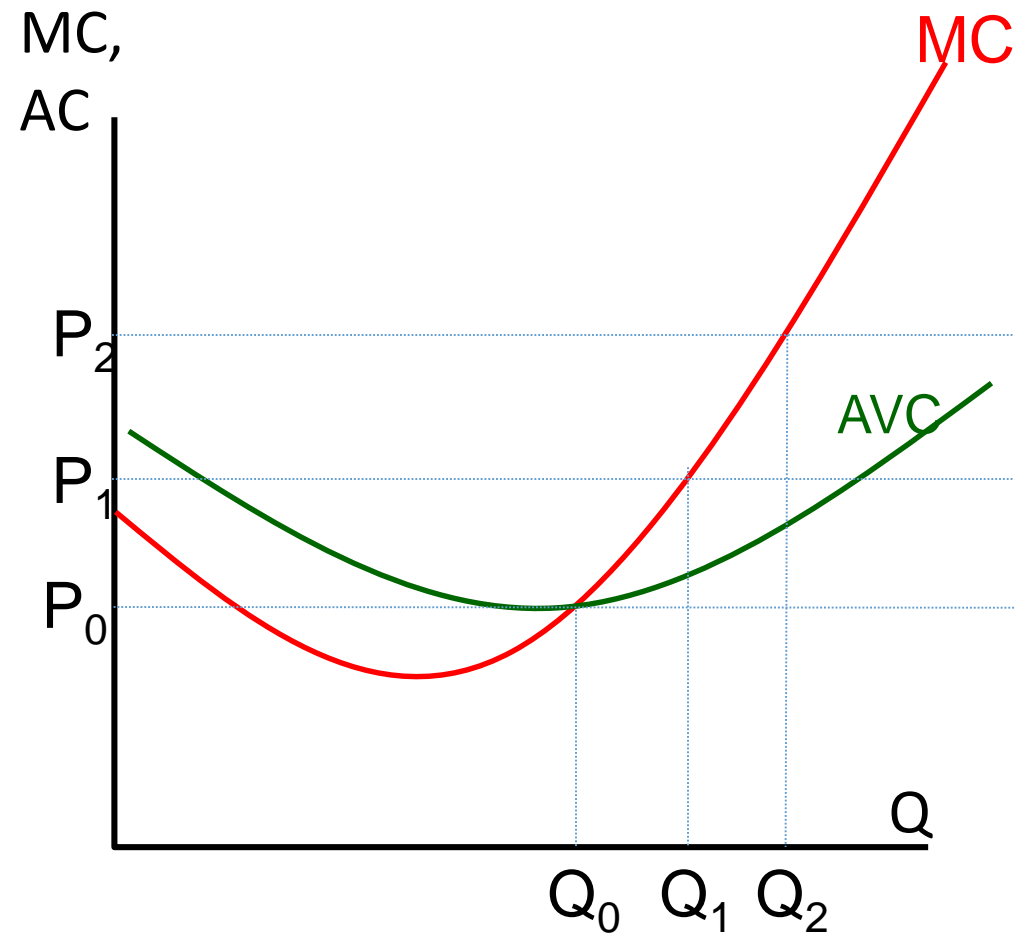
Profit Maximization Using TR&TC



Profit Maximization: MR-MC Approach



Firm's Short-Run Supply Curve

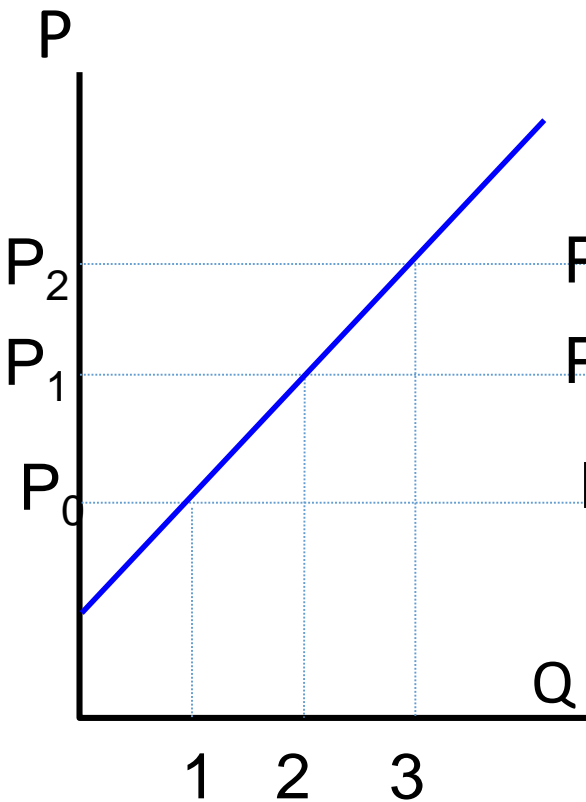


Applications

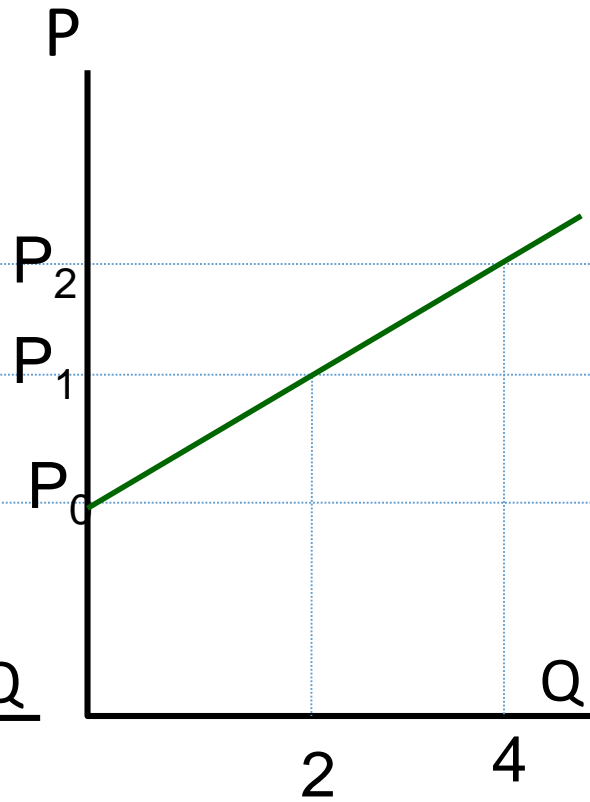
- What would happen to AVC and MC curves if:
 - Firm is charged a lump-sum tax (e.g. property tax) of T_0 ?
 - Firm is charged a per-unit tax (say, \$5 per unit)?

Market Supply Curve

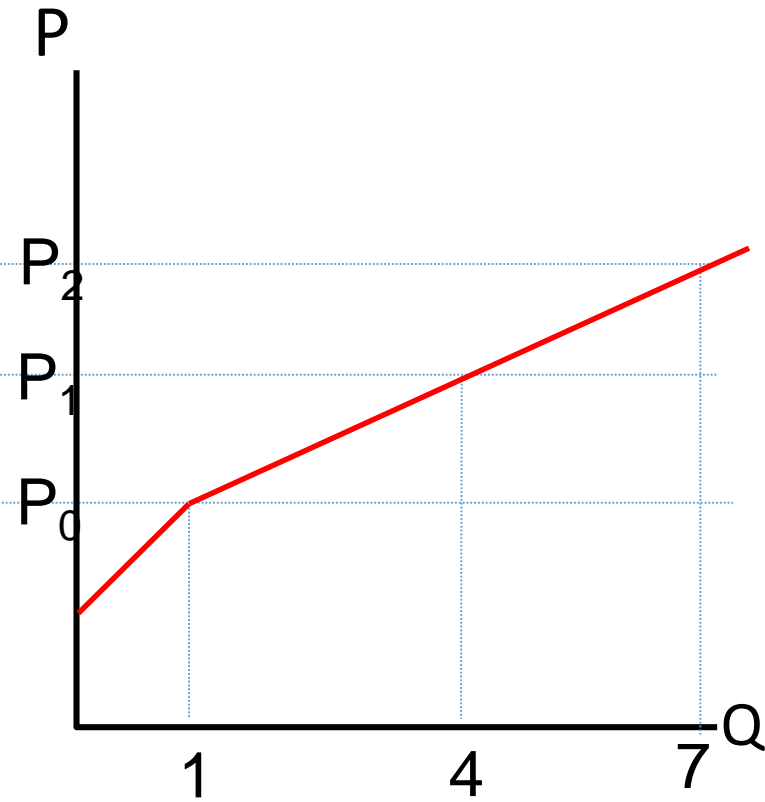
Firm 1



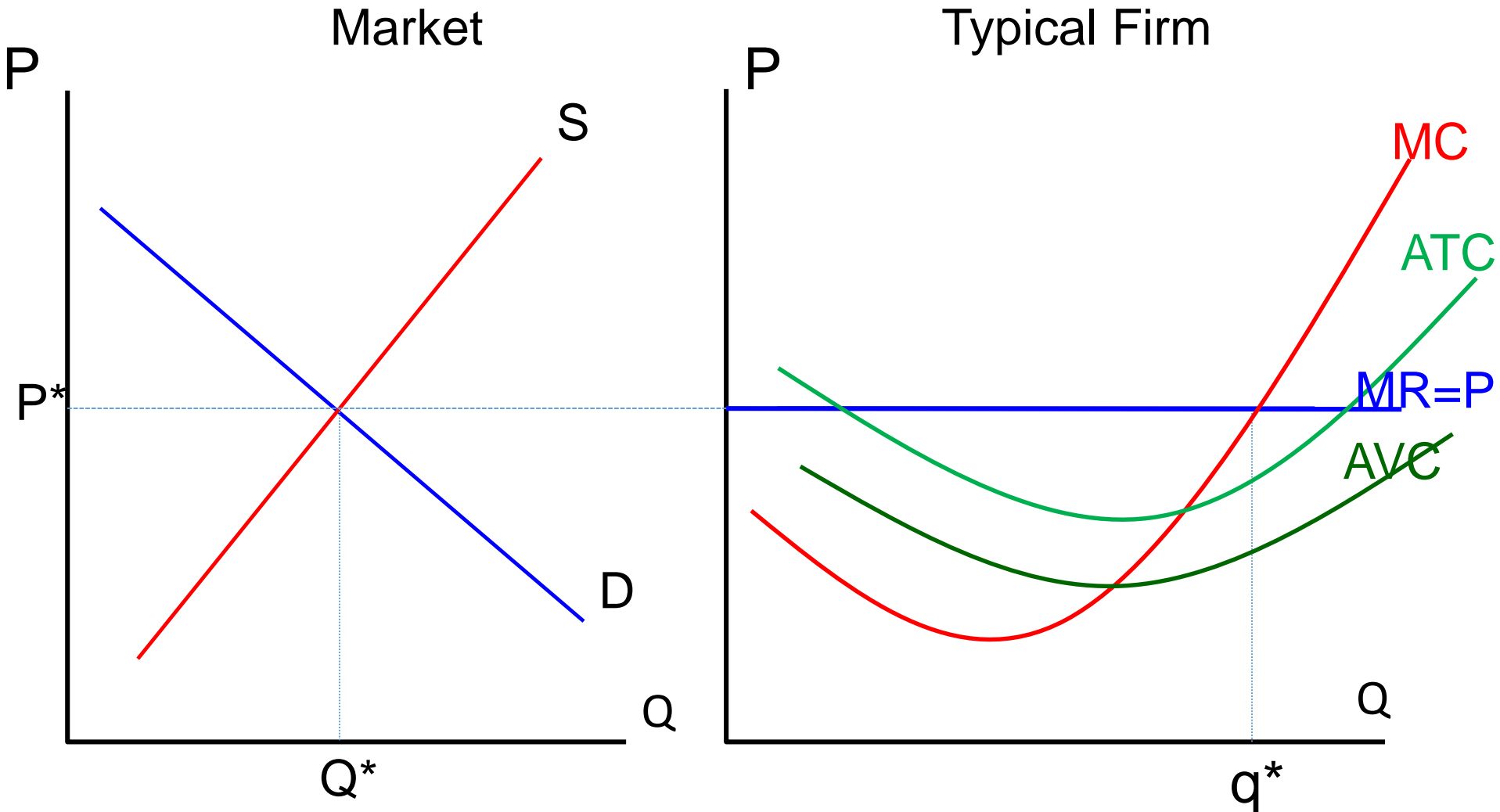
Firm 2



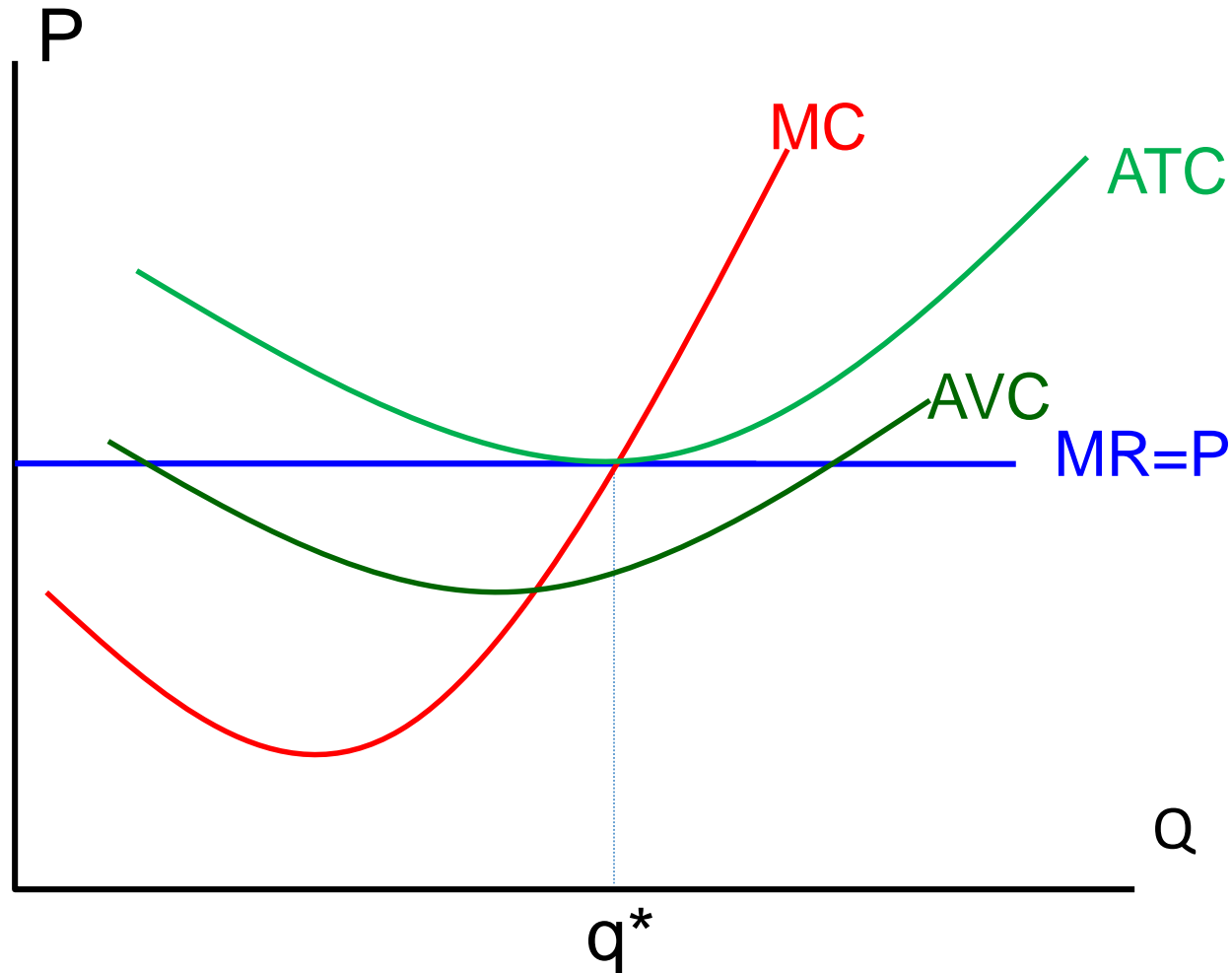
Market



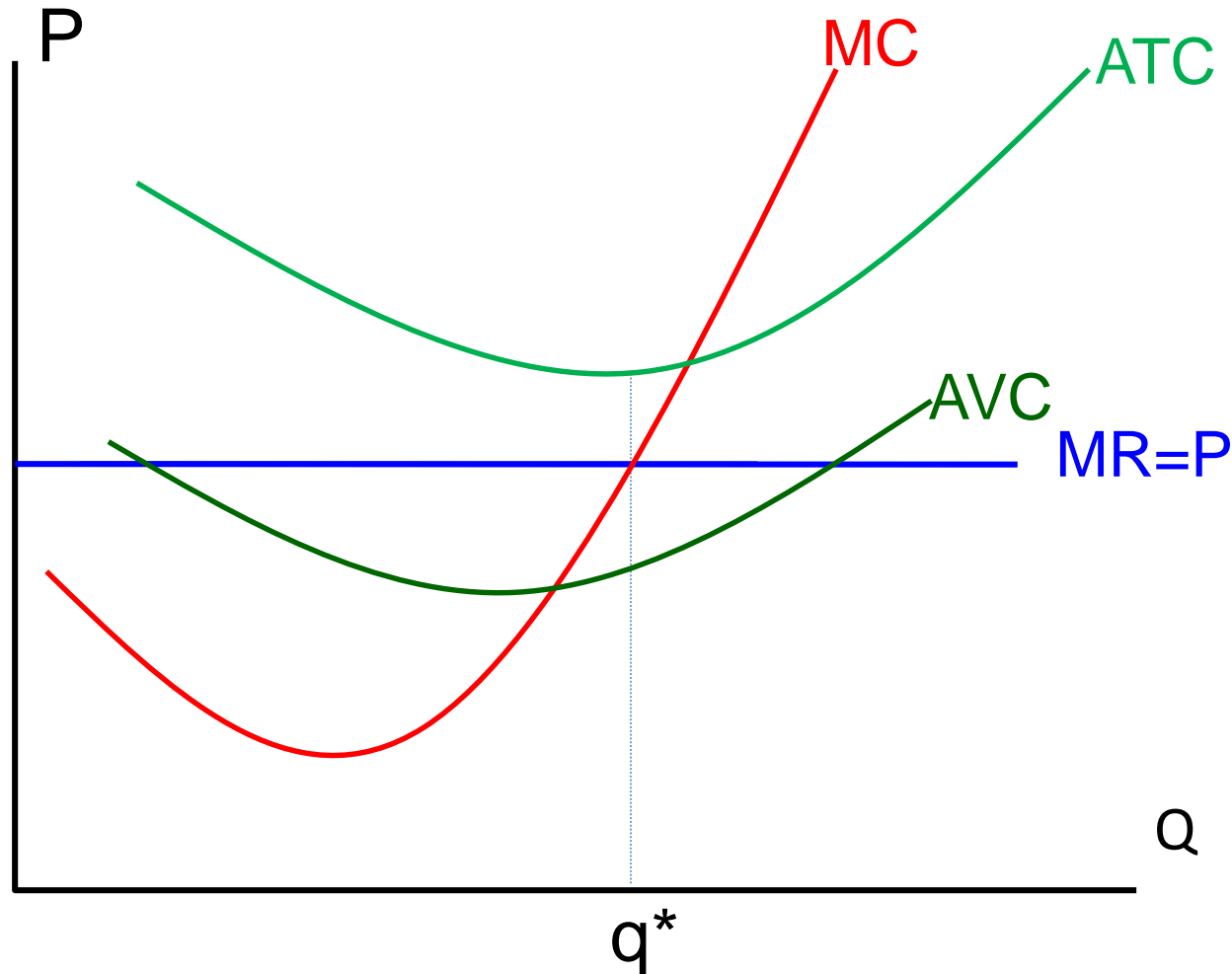
Short-Run Equilibrium: Positive Profit



Short-Run Equilibrium: Zero Profit



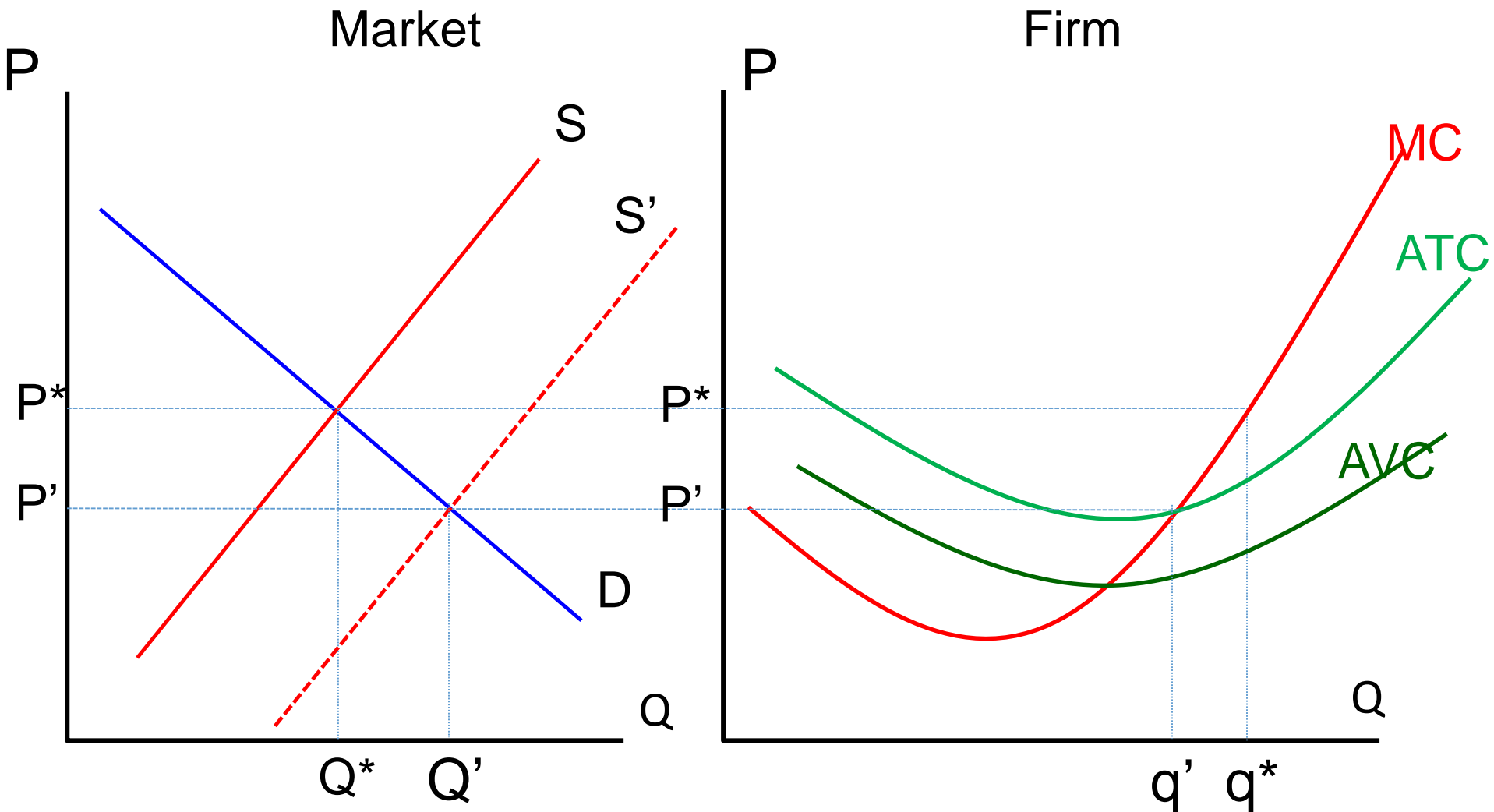
Short-Run Equilibrium: Negative Profit



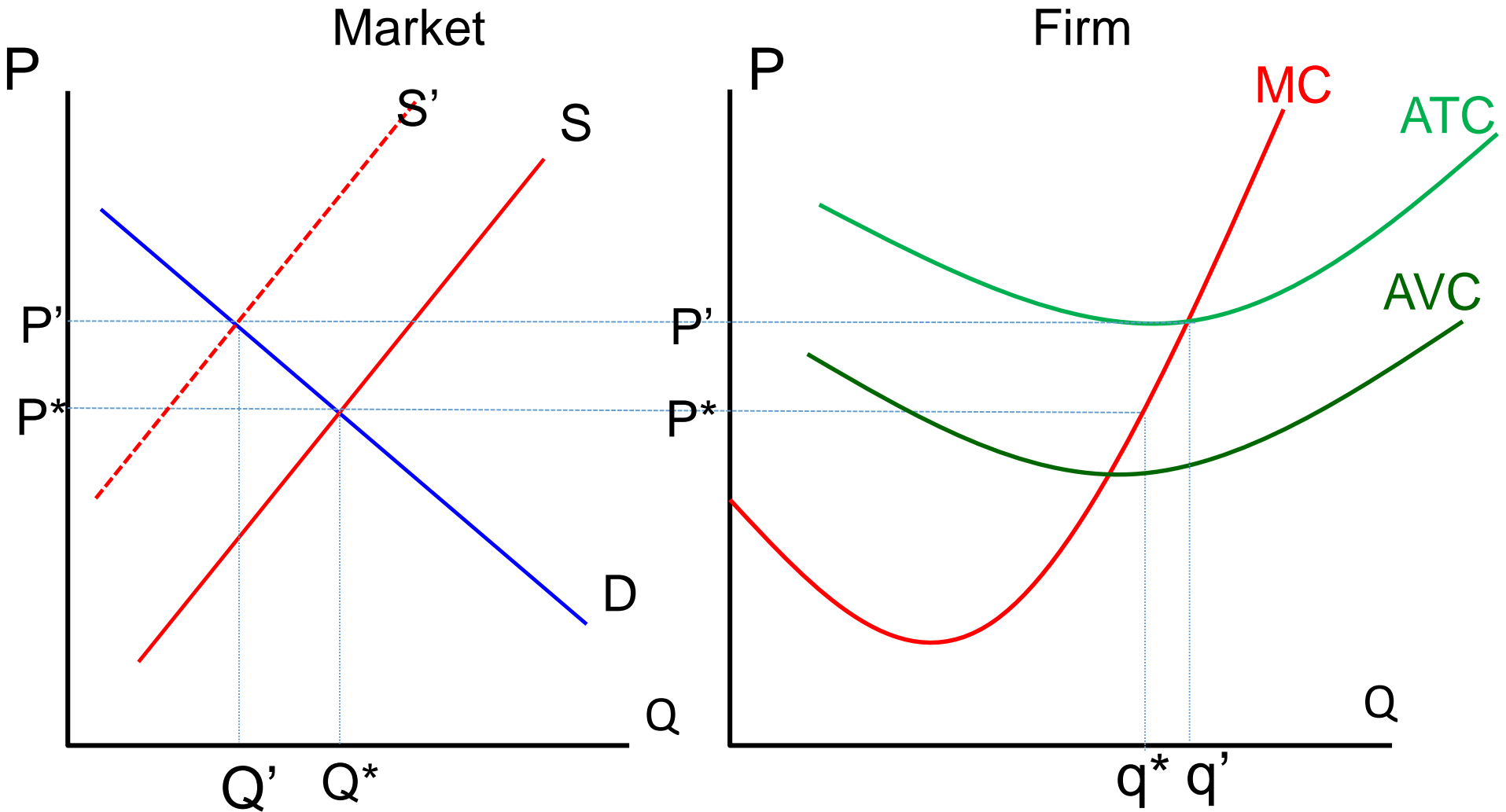
Long-Run Decisions

- In the long-run, the number of firms can change due to entry & exit.
- If existing firms earn **positive economic profit**,
 - New firms enter.
 - SR market supply curve shifts right.
 - P falls, reducing firms' profits.
 - Entry stops when firms' economic profits have been driven to zero.
- If existing firms incur **losses**,
 - Some firms will exit the market.
 - SR market supply curve shifts left.
 - P rises, reducing remaining firms' losses.
 - Exit stops when firms' economic losses have been driven to zero.

New Entrants Attracted by Positive Profits (SR)



Exits Caused by Losses (SR)

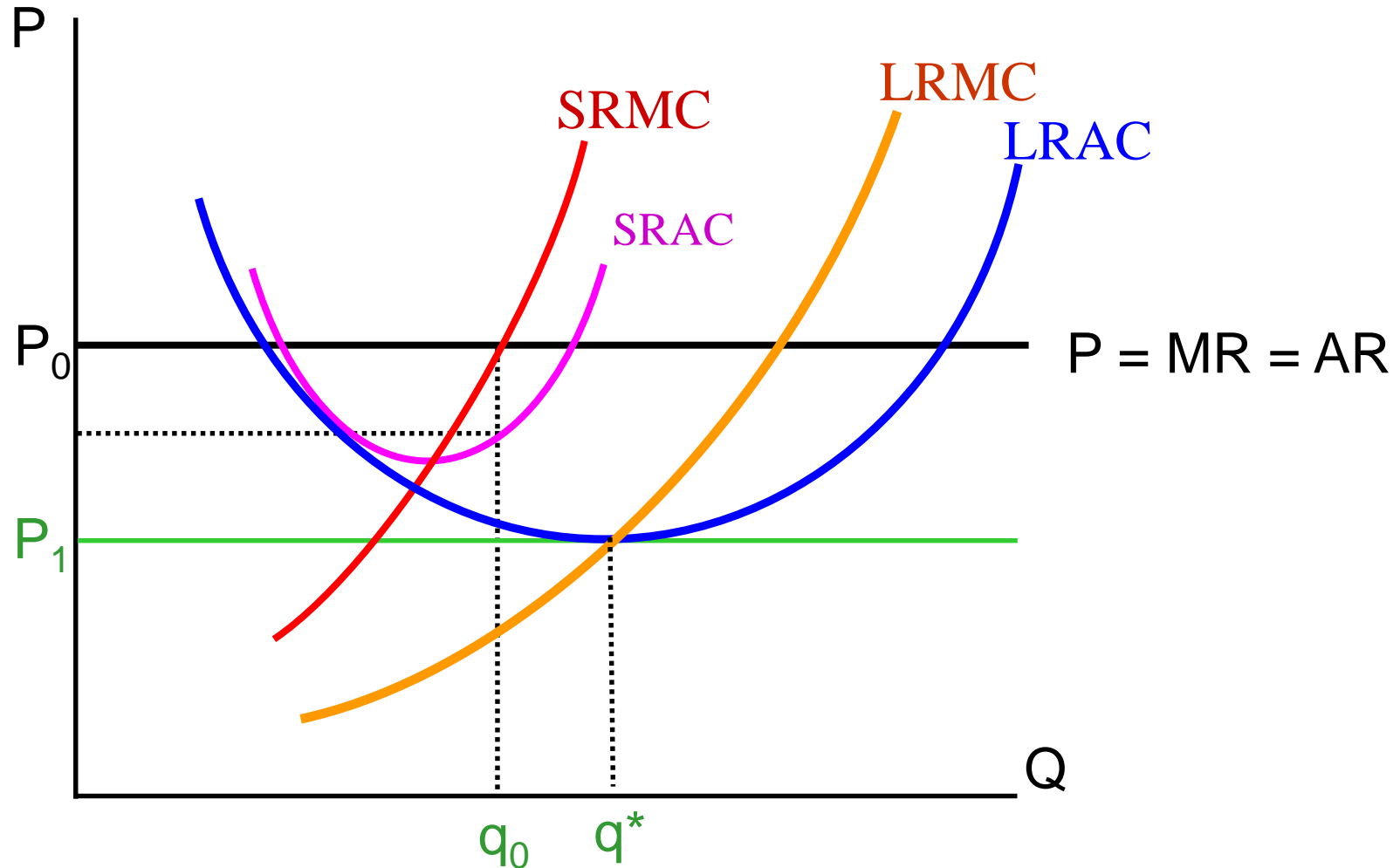


Long-Run Equilibrium

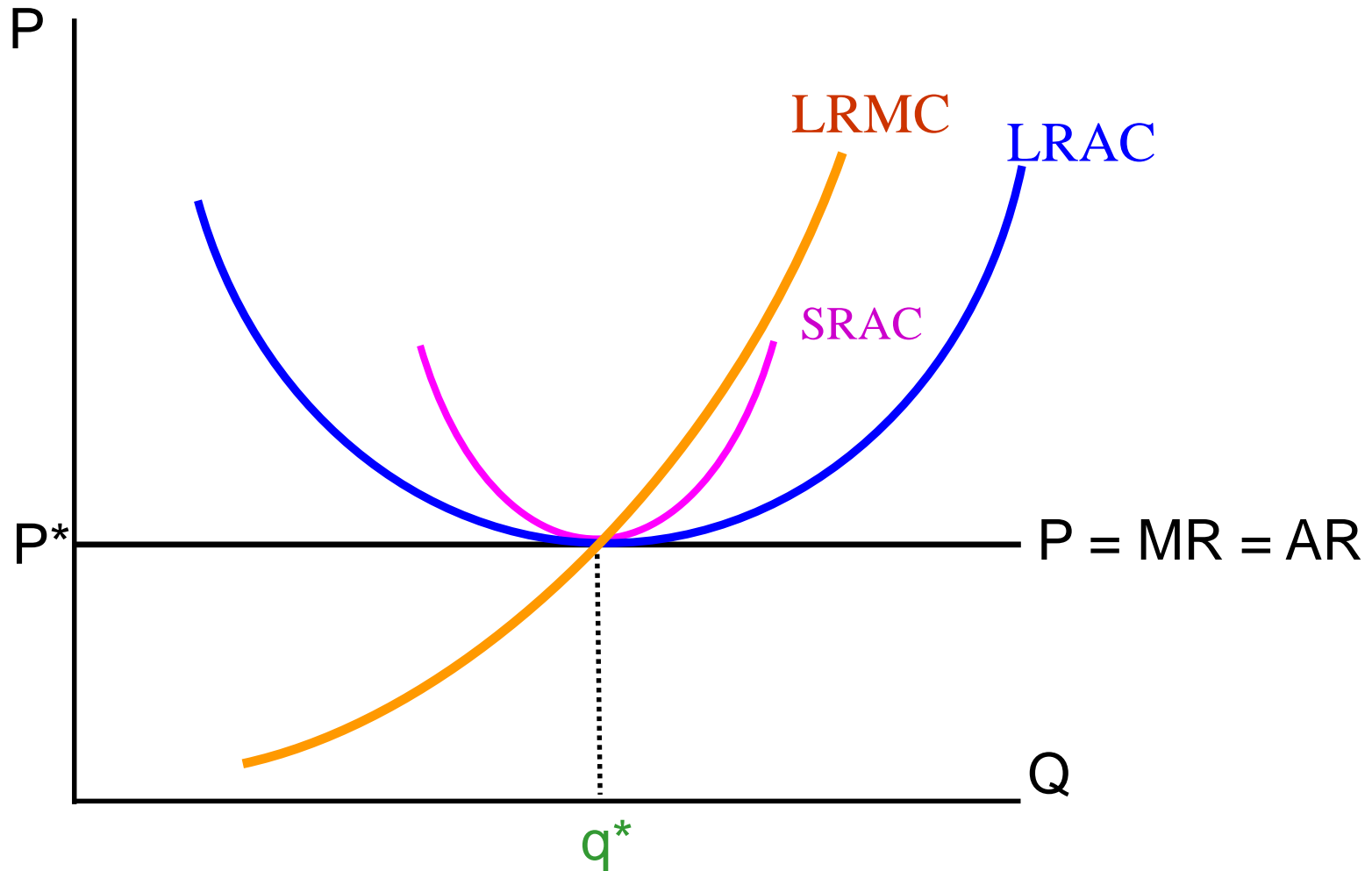
Conditions for a competitive market to be in a long-run equilibrium:

- Existing firms must be maximizing their profits.
 - $P = MC$
- Existing firms must not be suffering losses.
 - Not having negative profits
- Existing firms must not be earning profits.
 - Each receives normal profit (economic profit = 0).
- Each existing firm must be at the minimum point of its LRAC curve.
 - Unable to increase profits by changing size of the production.

SR vs. LR Profit Maximization



Long-Run Equilibrium for A Competitive Firm



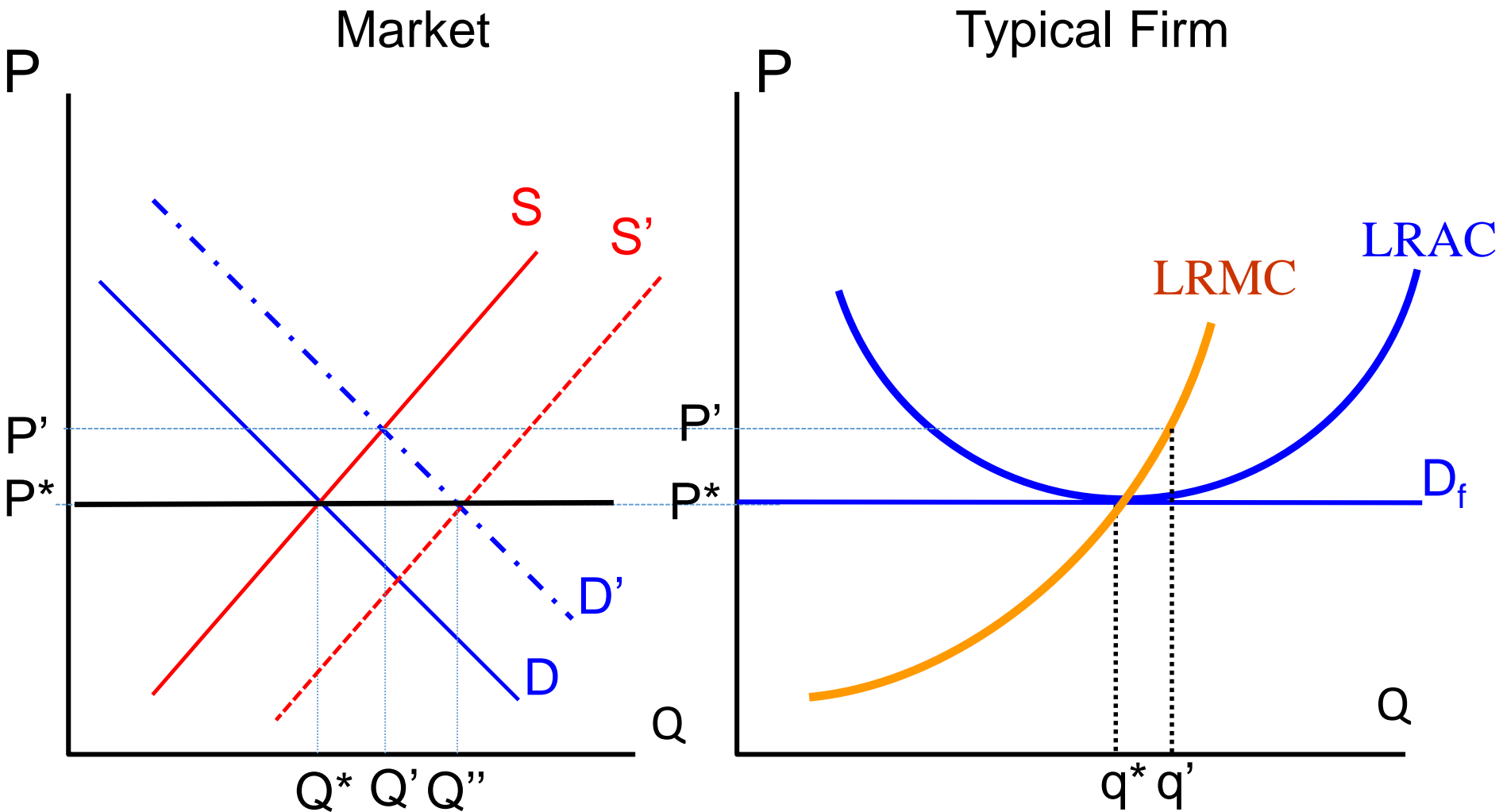
Efficiency in Perfectly Competitive Market

- In the long-run equilibrium, we have:

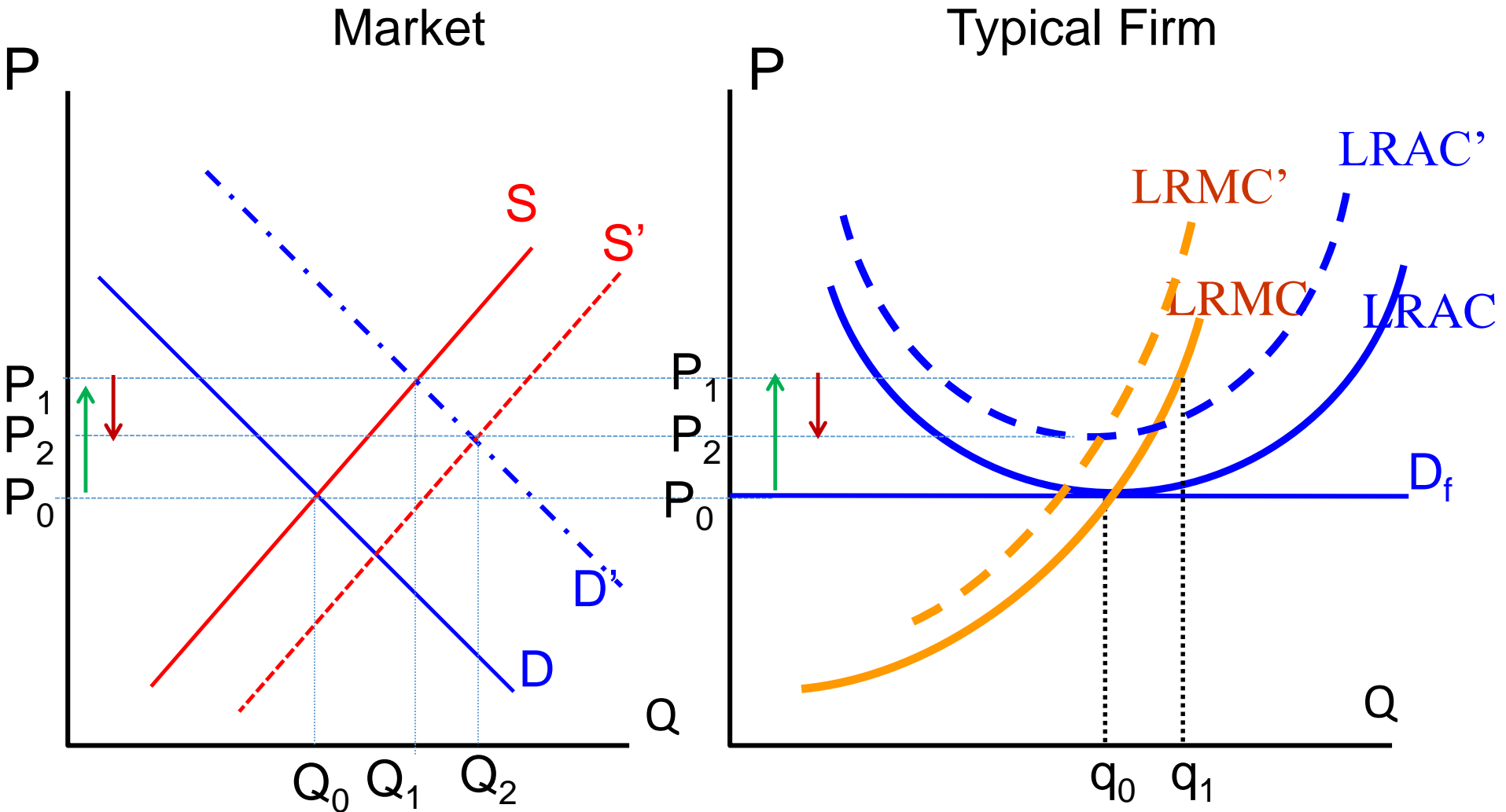
$$P = LRMC = \text{Minimum LRAC.}$$

- $P = MC \rightarrow$ Allocative efficiency
- $P = \text{Minimum LRAC} \rightarrow$ Productive efficiency
- Hence, market outcome in perfect competition is efficient!

SR & LR Effects of An Increase in Demand (Constant Cost)



SR & LR Effects of An Increase in Demand (Increasing Cost)



MONOPOLY

Topics - Monopoly

- What is monopoly?
- Causes of monopoly
- Nature of demand, TR, AR, MR, and their relationship
- Short-run equilibrium
- Economic effects of monopoly
- Price discrimination

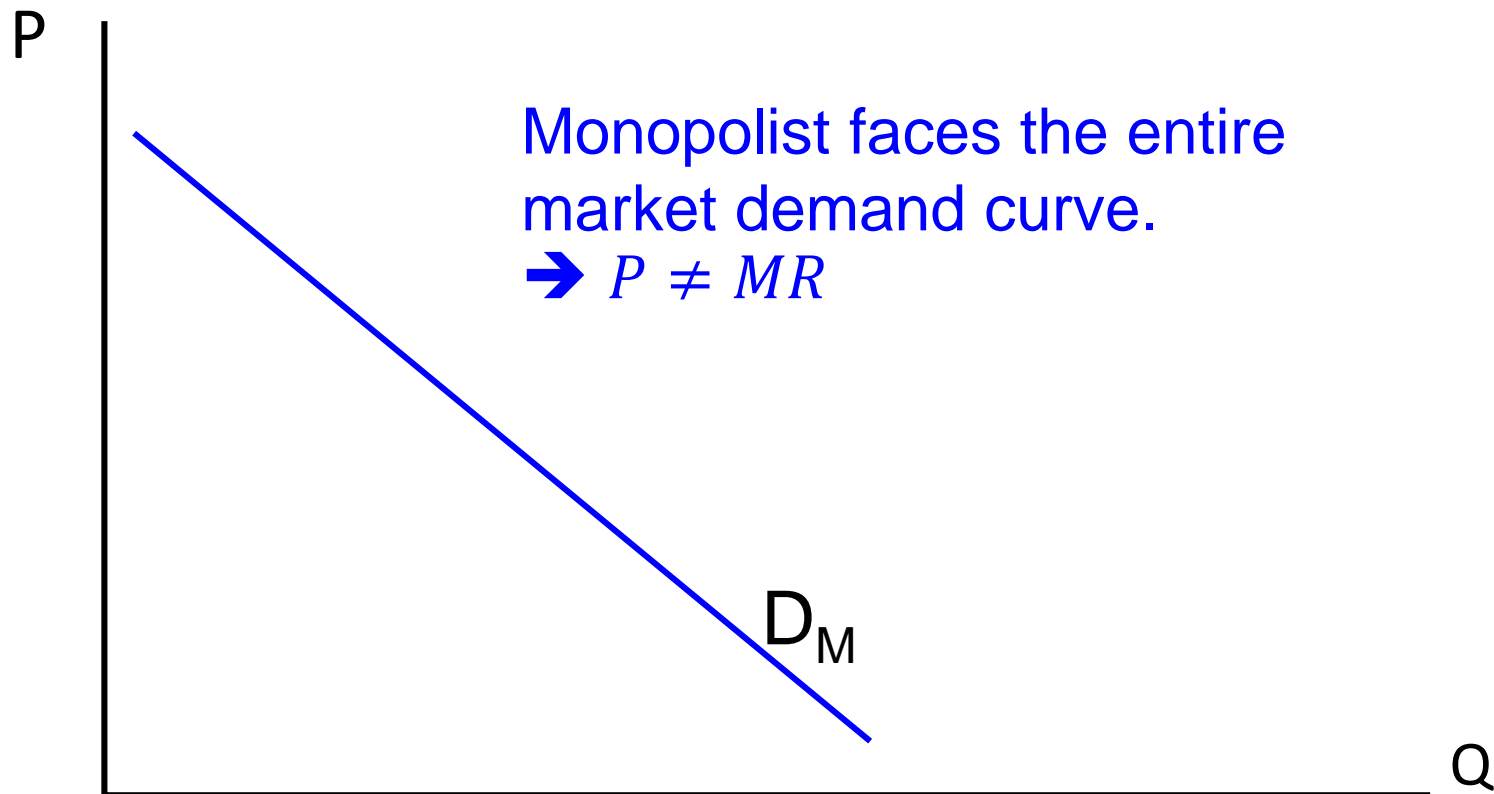
A Single Price Monopolist

- A **monopolist** is a firm that is the **only seller** of a product **without close substitutes**.
- Key difference from perfectly competitive firm: **A monopoly firm has market power**, the ability to influence the market price of the product it sells.
 - A monopolist faces a negatively sloped demand curve.
 - A monopolist is the “**price setter**”.

Causes of Monopoly

- The main cause of monopolies is **barriers to entry**.
- Three sources of barriers to entry:
 1. **Ownership of a key resource**
e.g. DeBeers
 2. **Permission or exclusive right** (granted by the government) to produce the good.
e.g. patents, copyright laws
 3. **Natural monopoly**: A single firm can produce the entire market Q at lower ATC than could several firms.
e.g. electricity, train

Nature of Demand



TR, AR, MR

- Suppose the demand curve in the market is given by:

$$P = 6 - Q.$$

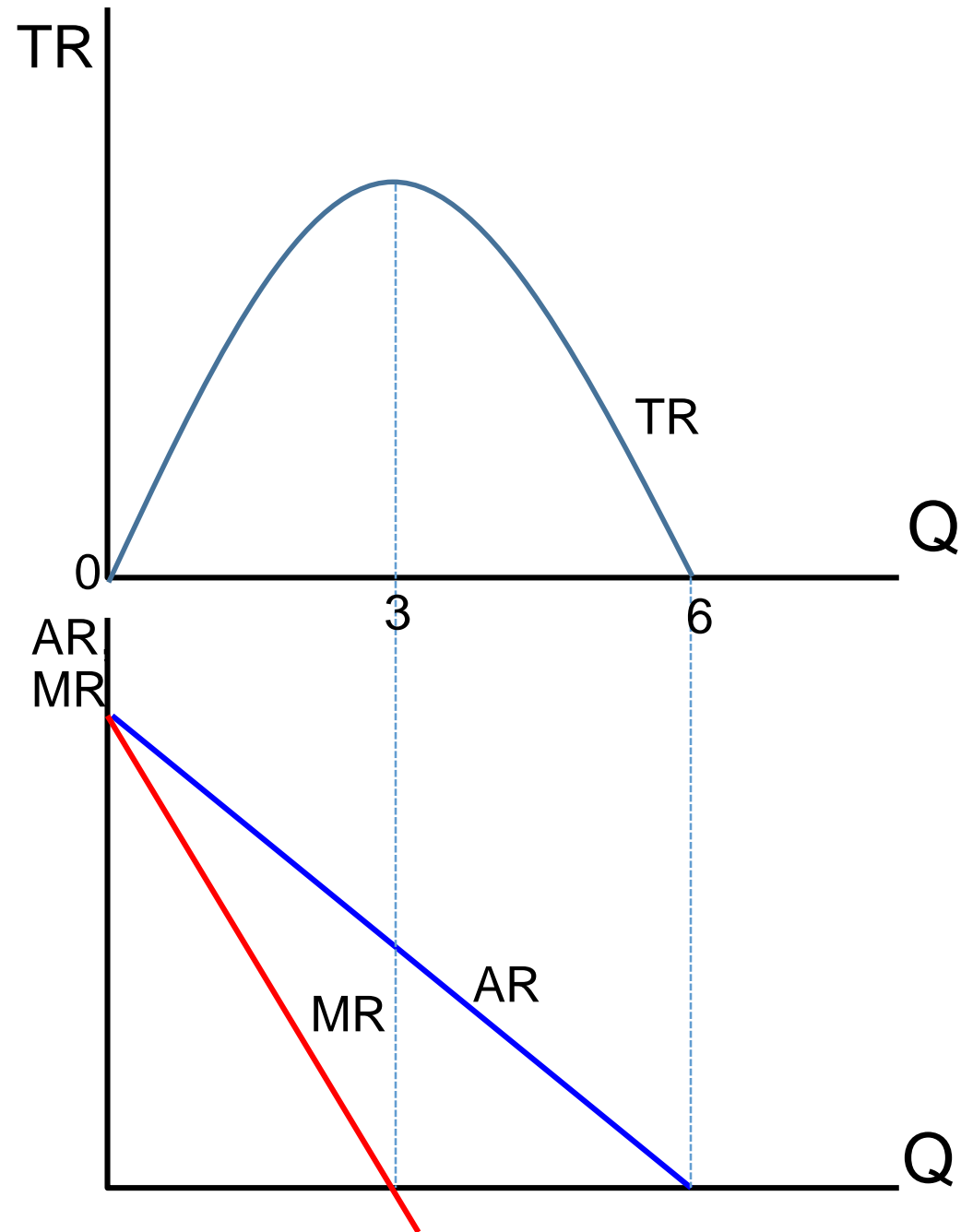
- $TR = P \times Q =$

- $AR = \frac{TR}{Q} =$

- $MR = \frac{\Delta TR}{\Delta Q} =$

Example:
Let $P = 6 - Q$.

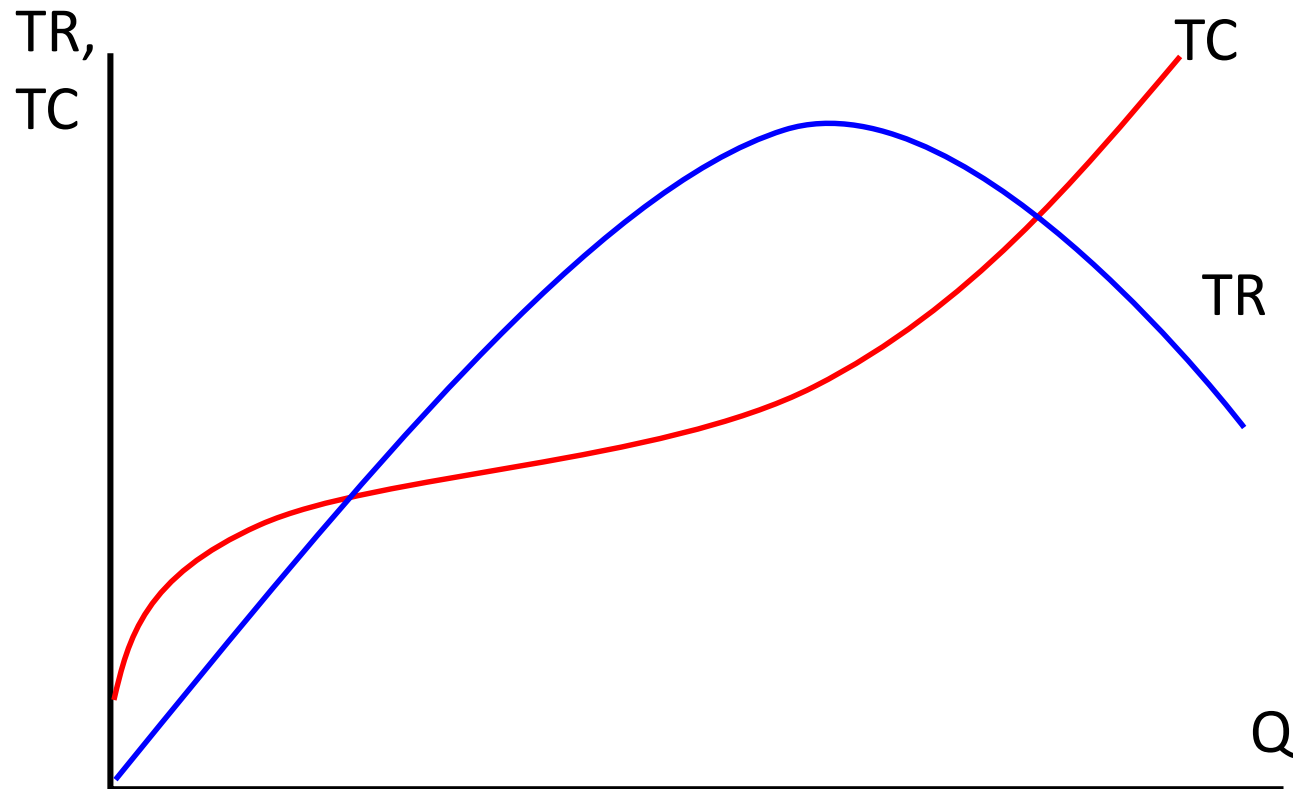
P	Q	TR	AR	MR
\$6	0			
\$5	1			
\$4	2			
\$3	3			
\$2	4			
\$1	5			
\$0	6			



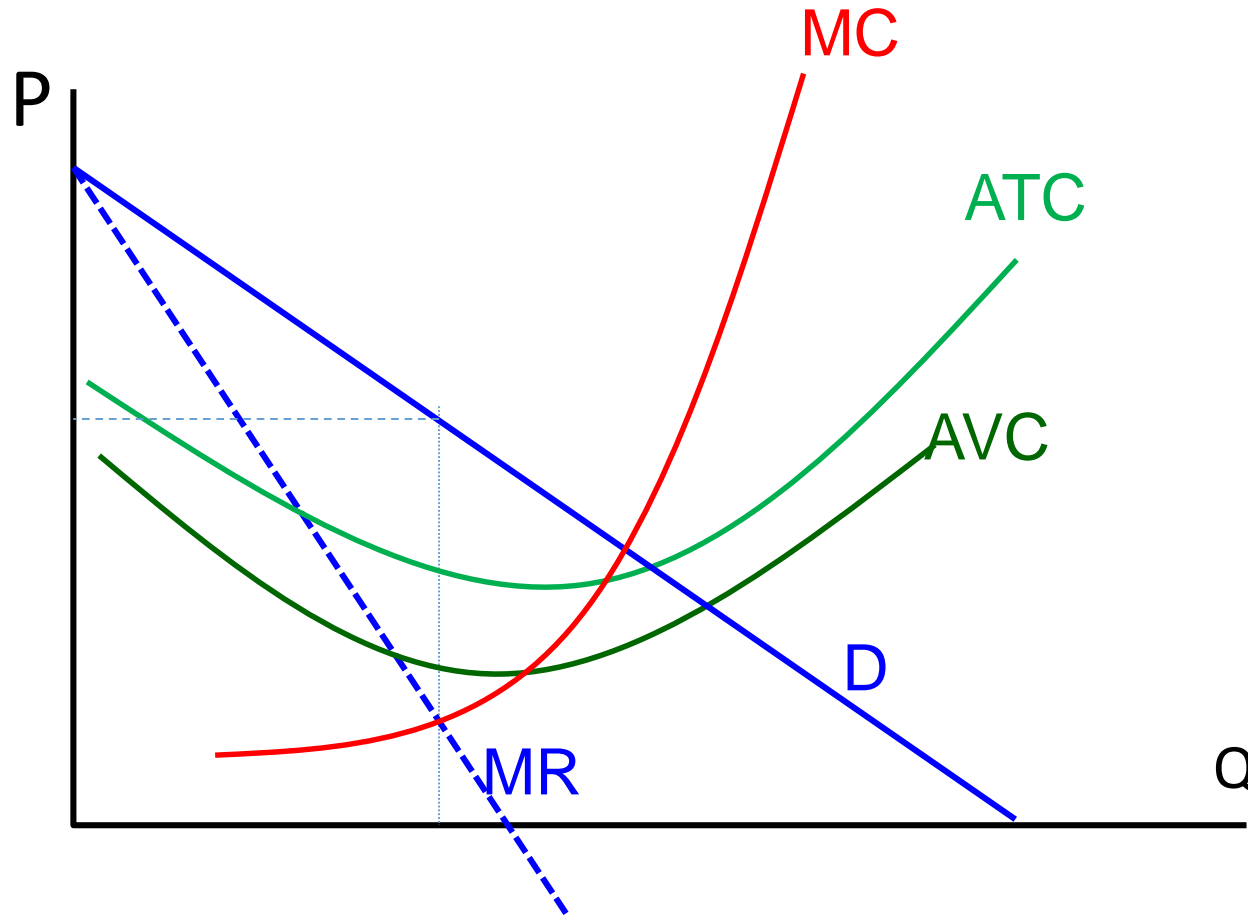
Short-Run Profit Maximization

- **Rule 1:** The firm should not produce at all unless its revenues exceed its variable cost (i.e. produce zero unit if $P < AVC$)
- **Rule 2:** If the firm does produce, it should produce a level of output such that its marginal revenue equals its marginal cost.

Profit Maximization



Monopoly Equilibrium in Short-Run



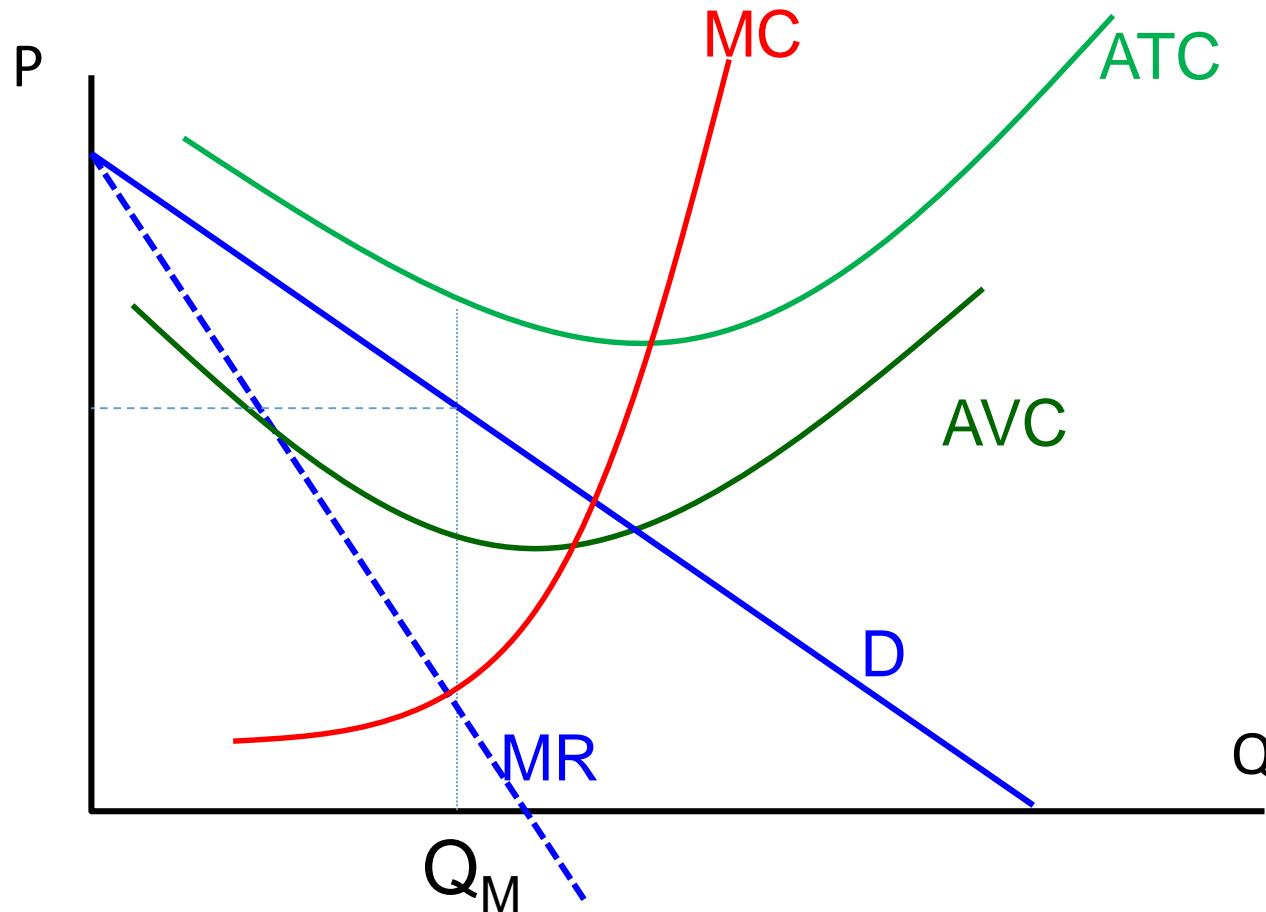
Monopolist's Profit

- Monopolist's profit:

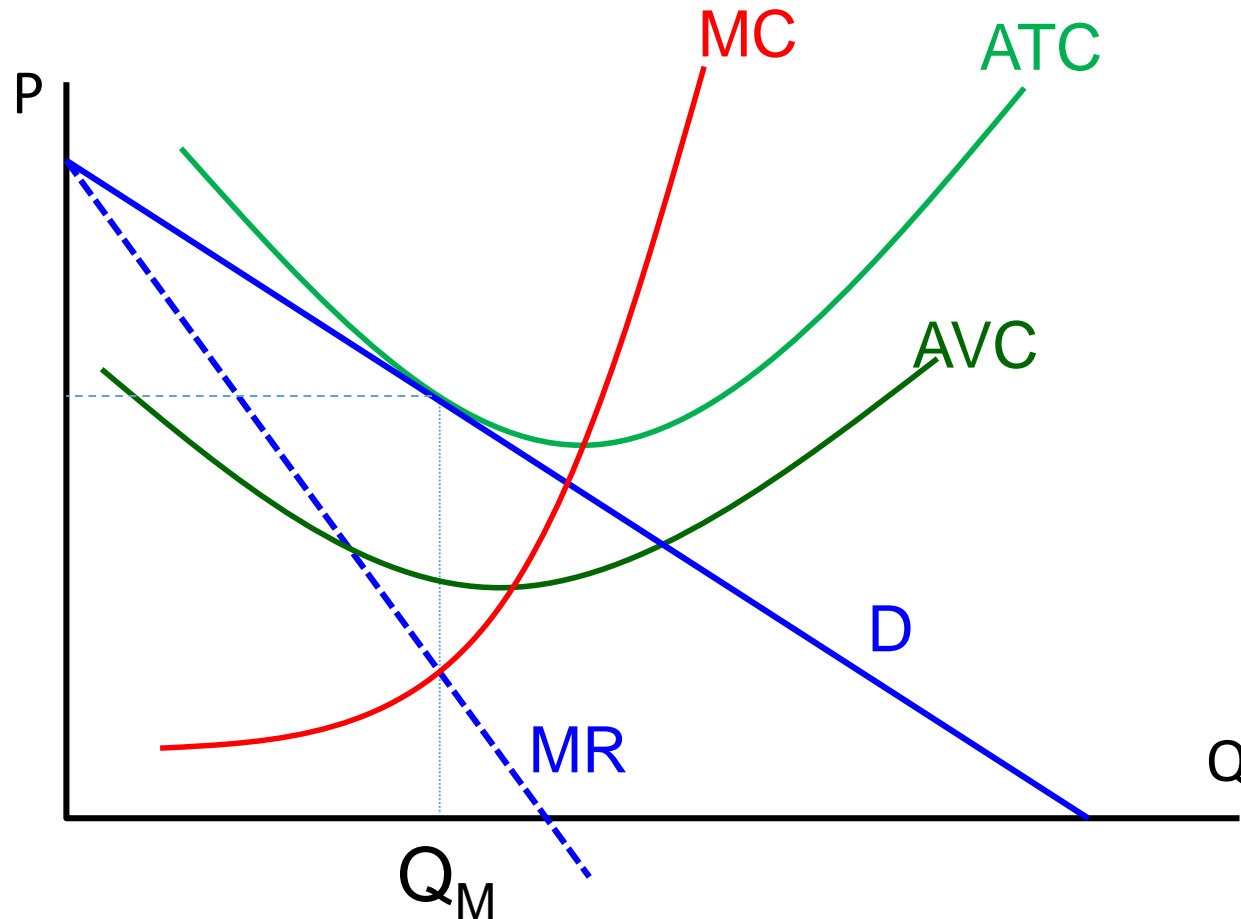
$$\pi_M = (P_M - ATC) \times Q_M$$

- Are the monopolist's profits always positive?
 - Not necessarily!
 - Monopolist can make a loss when $P < ATC$
 - As long as $P > AVC$ monopolist should continue producing Q_M because $TR > TVC$.

Negative Profits



Zero Economic Profits



Does a monopolist have a supply curve?

A competitive firm

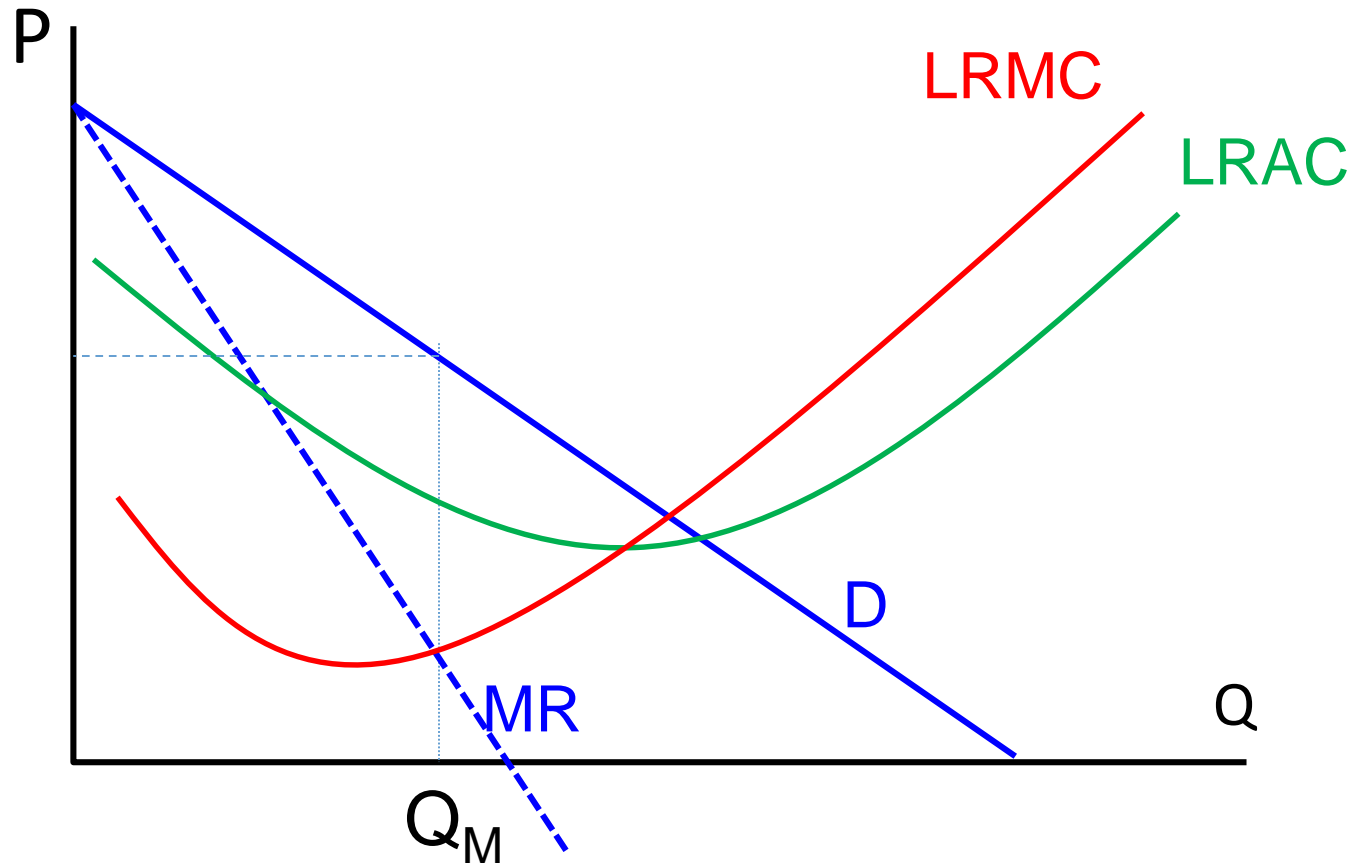
- takes P as given
- has a supply curve that shows how its Q depends on P

A monopoly firm

- is a “price-setter,” not a “price-taker”
- Q does not depend on P ;
rather, Q and P are jointly determined by MC & MR

Hence, there is no supply curve for monopoly.

Monopoly Equilibrium in Long-Run

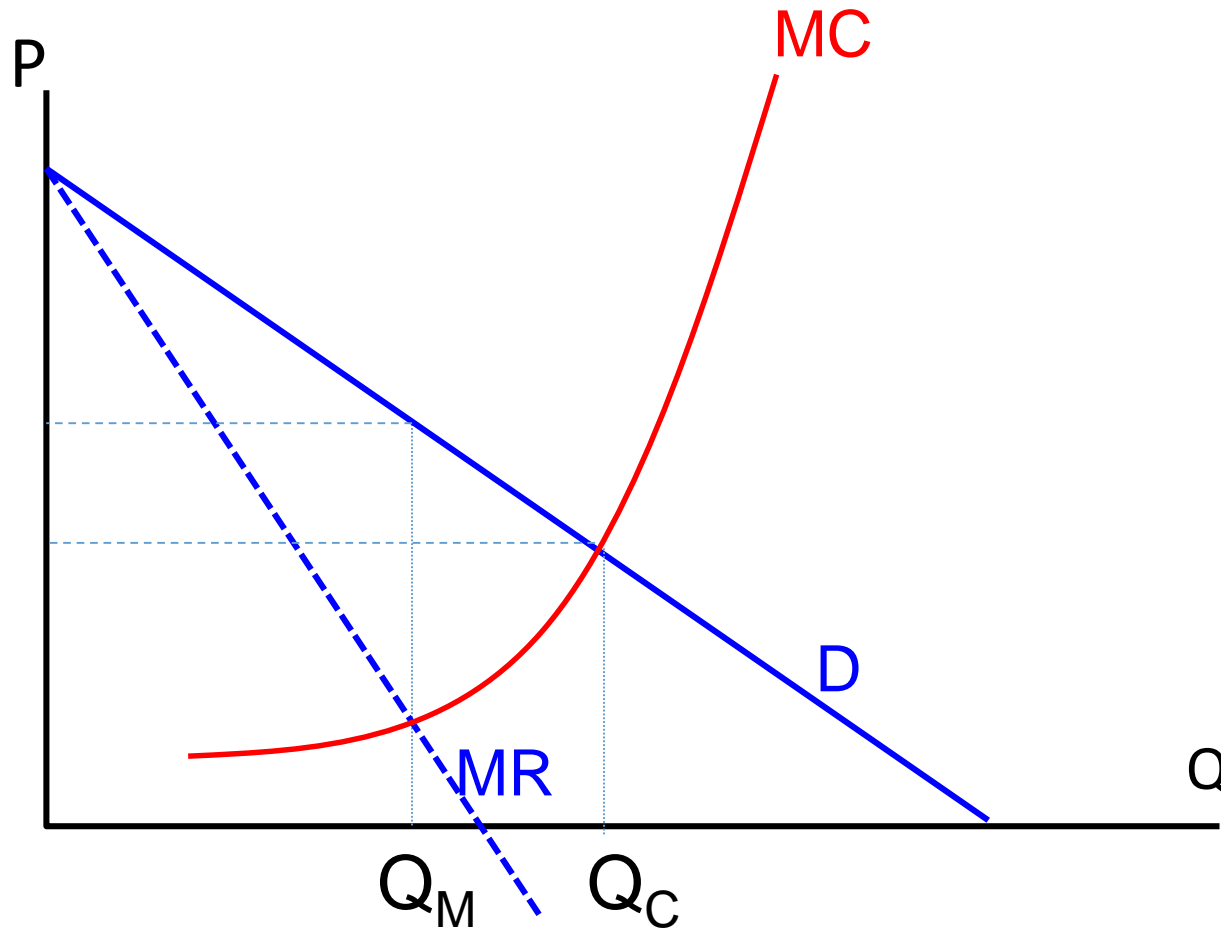


In LR, monopolist can maintain positive profit because there is no entry of new firms to compete in the market.

Market Efficiency

- The long-run equilibrium for monopoly:
 $MR = LRMC.$
- $P_M > MC$ (so, $Q_M > Q_C$) → Allocative inefficiency
- $P_M > \text{Minimum LRAC}$ → Productive inefficiency
- Hence, there is welfare loss to the society.

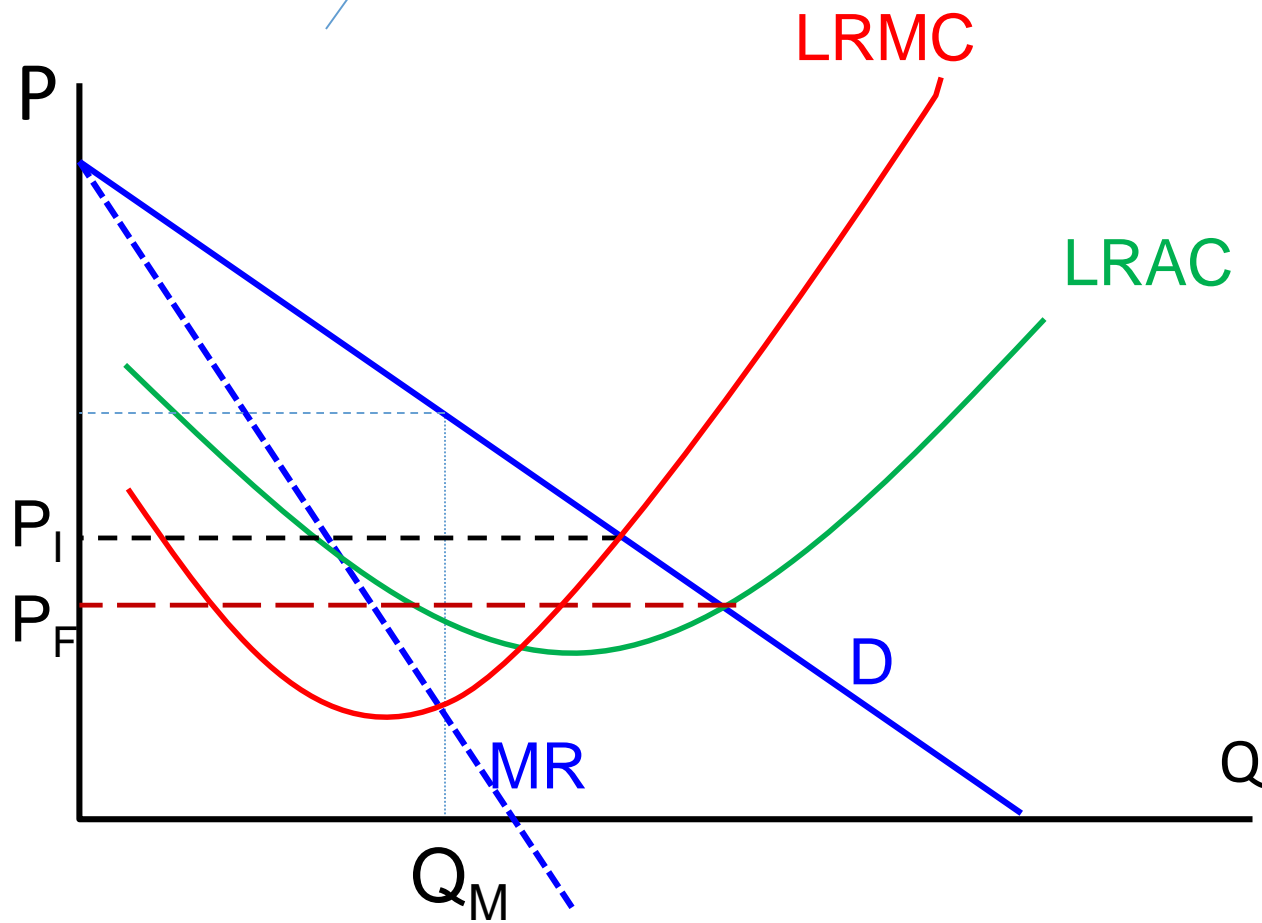
Economic Effects of A Monopoly



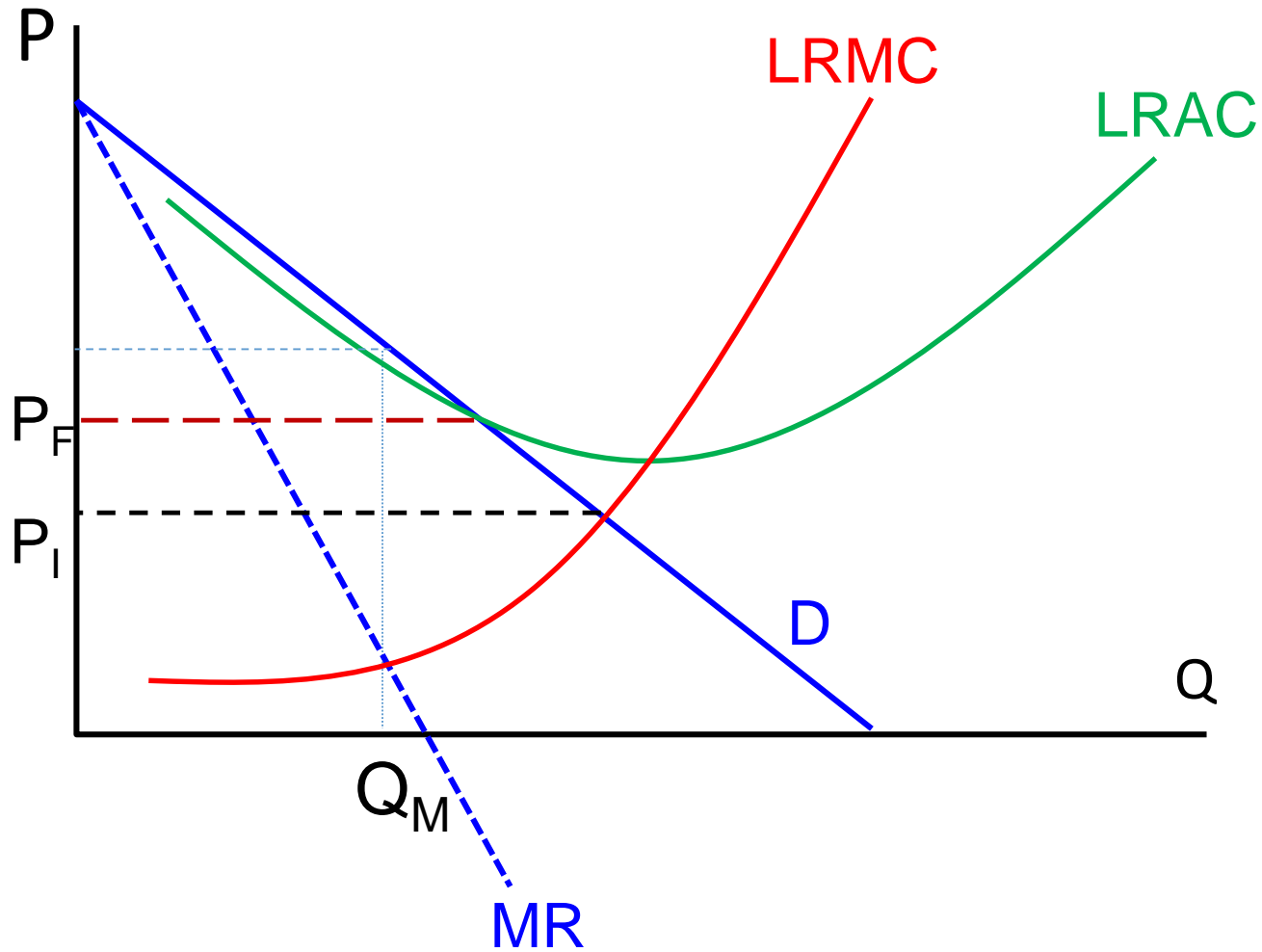
Regulated Monopoly

- The government can reduce inefficiency by forcing the monopolist to produce more.
- 2 options:
 1. Ideal price: $P_I = LRMC$
 2. Fair price: $P_F = LRAC$

$$P_I > P_F$$



$$P_I < P_F$$



Natural Monopoly

The case where economies of scale creates a barrier to entry.

