

**Week 7 & 8**

**Market Structure**



**Perfect Competition and  
Monopolistic Competition**

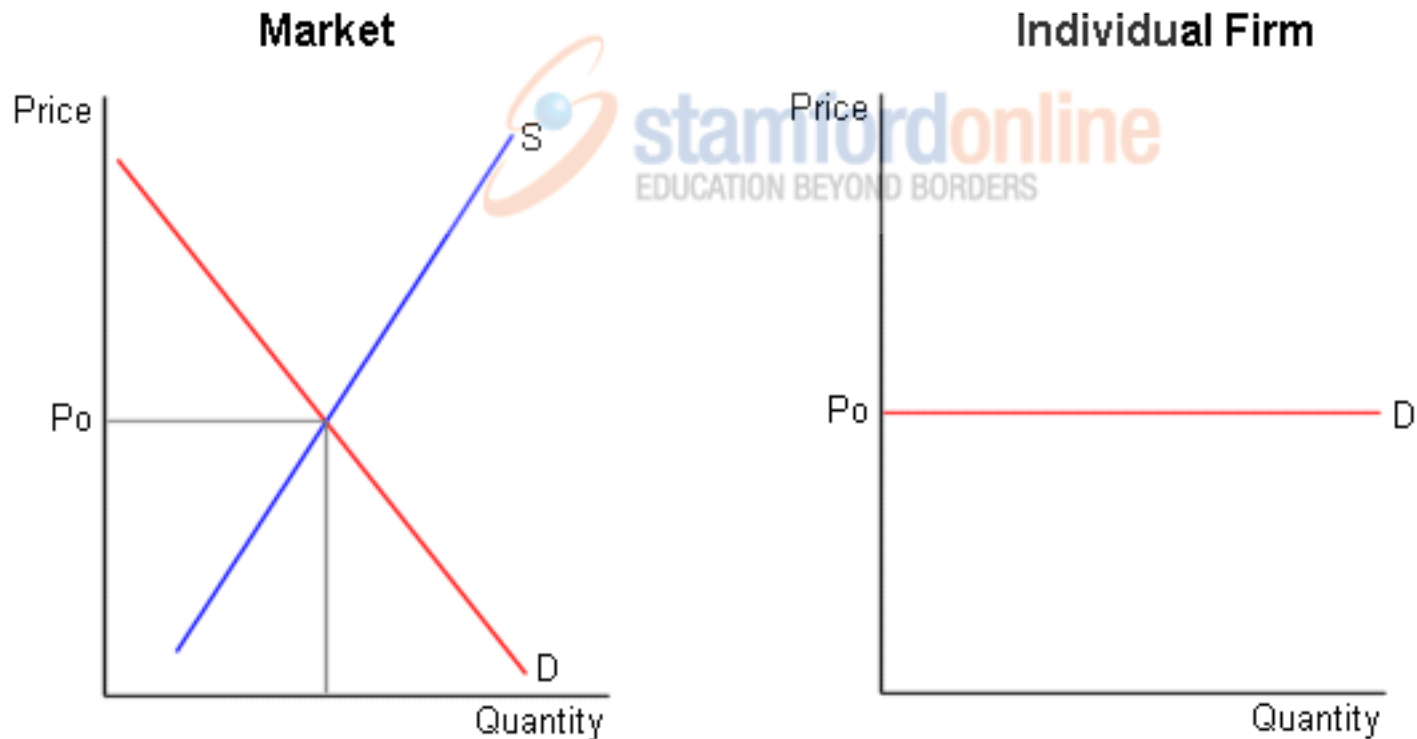
# Perfectly competitive market

- many buyers and sellers,
- identical (also known as homogeneous) products,
- no barriers to either entry or exit, and
- buyers and sellers have perfect information.



# Demand curve facing a single firm

- no individual firm can affect the market price
- demand curve facing each firm is perfectly elastic



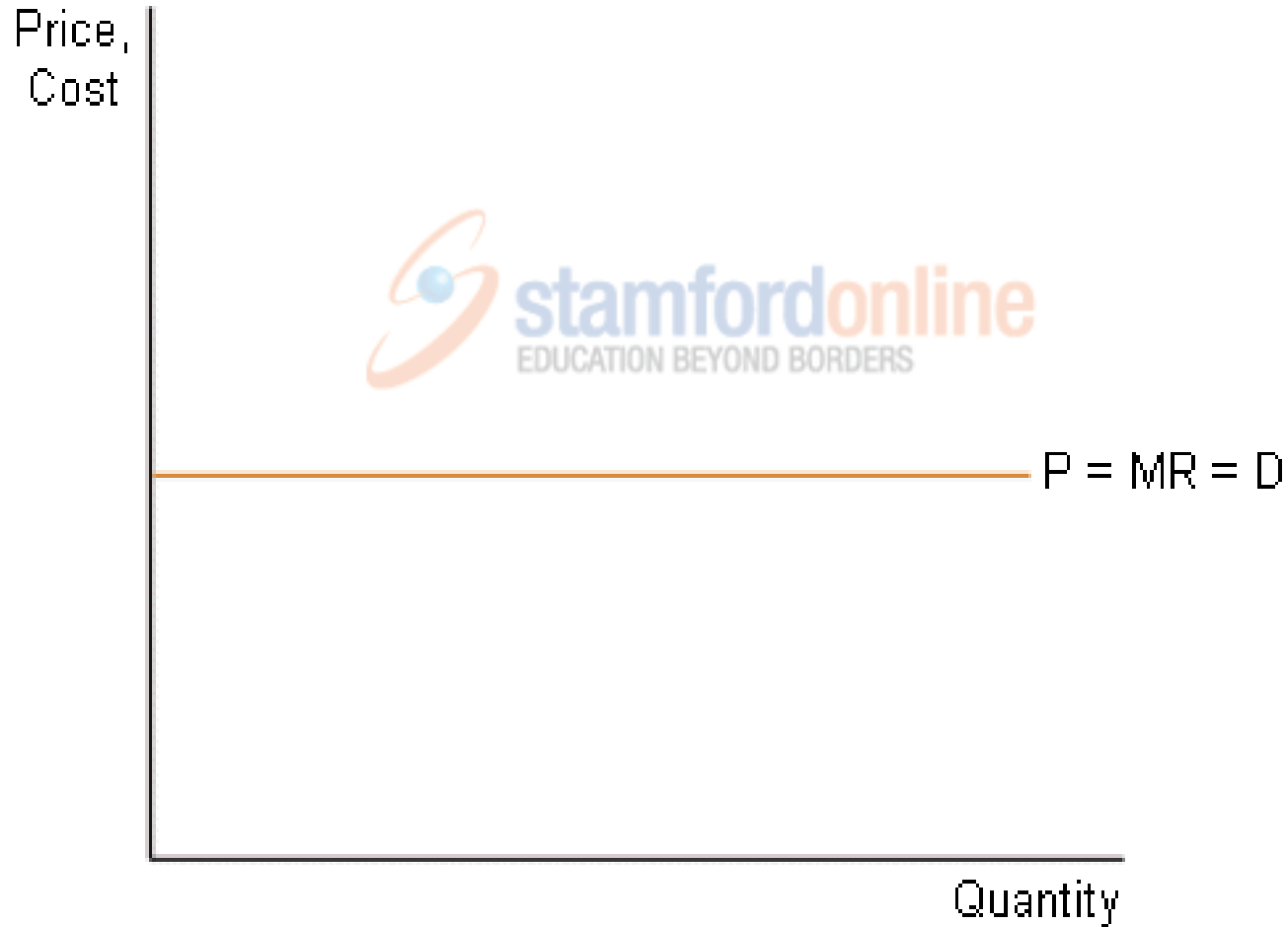
# Profit maximization

- produce where  $MR = MC$

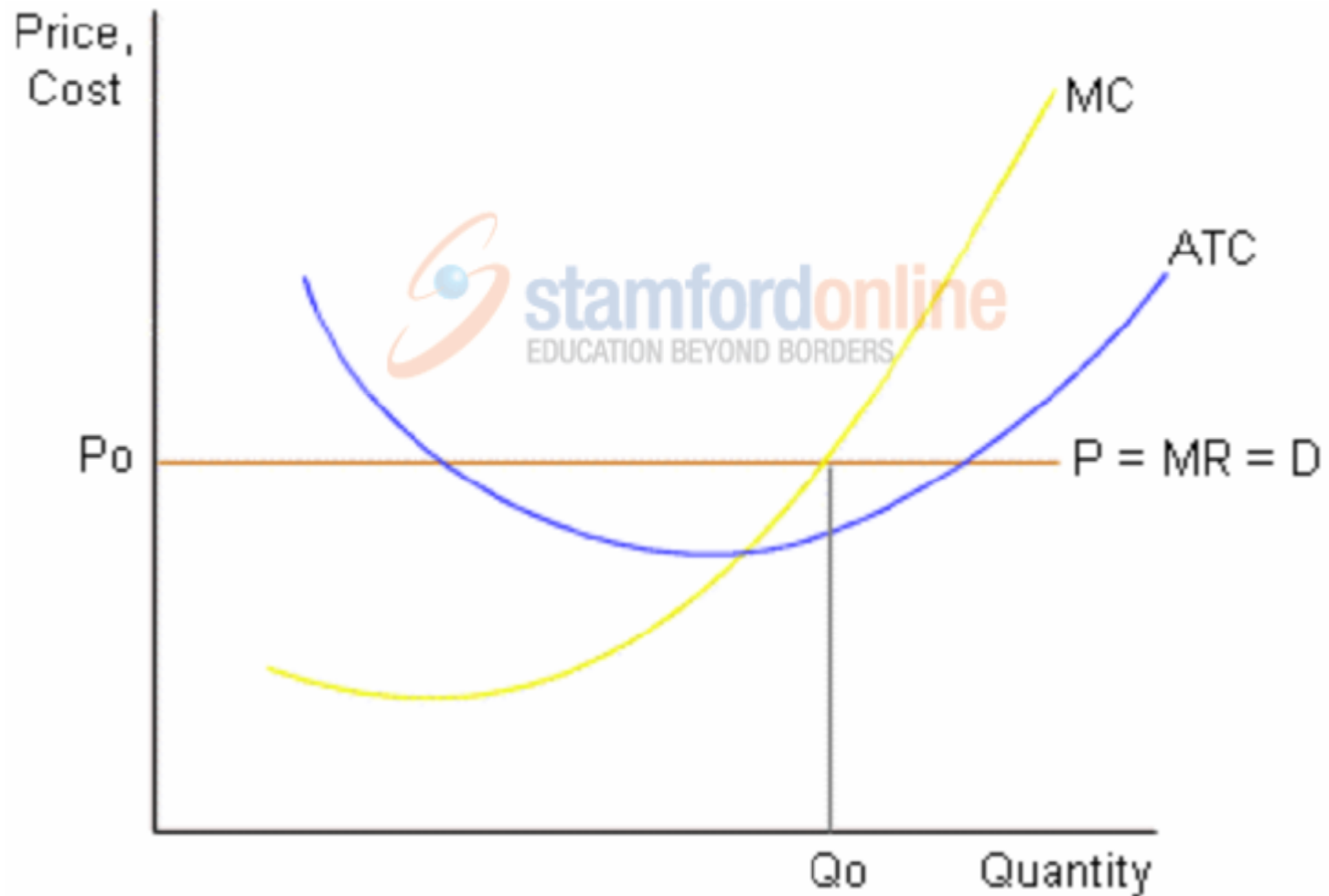
$$\text{Marginal revenue} = \frac{\Delta TR}{\Delta Q}$$

$$\text{Marginal cost} = \frac{\Delta TC}{\Delta Q}$$

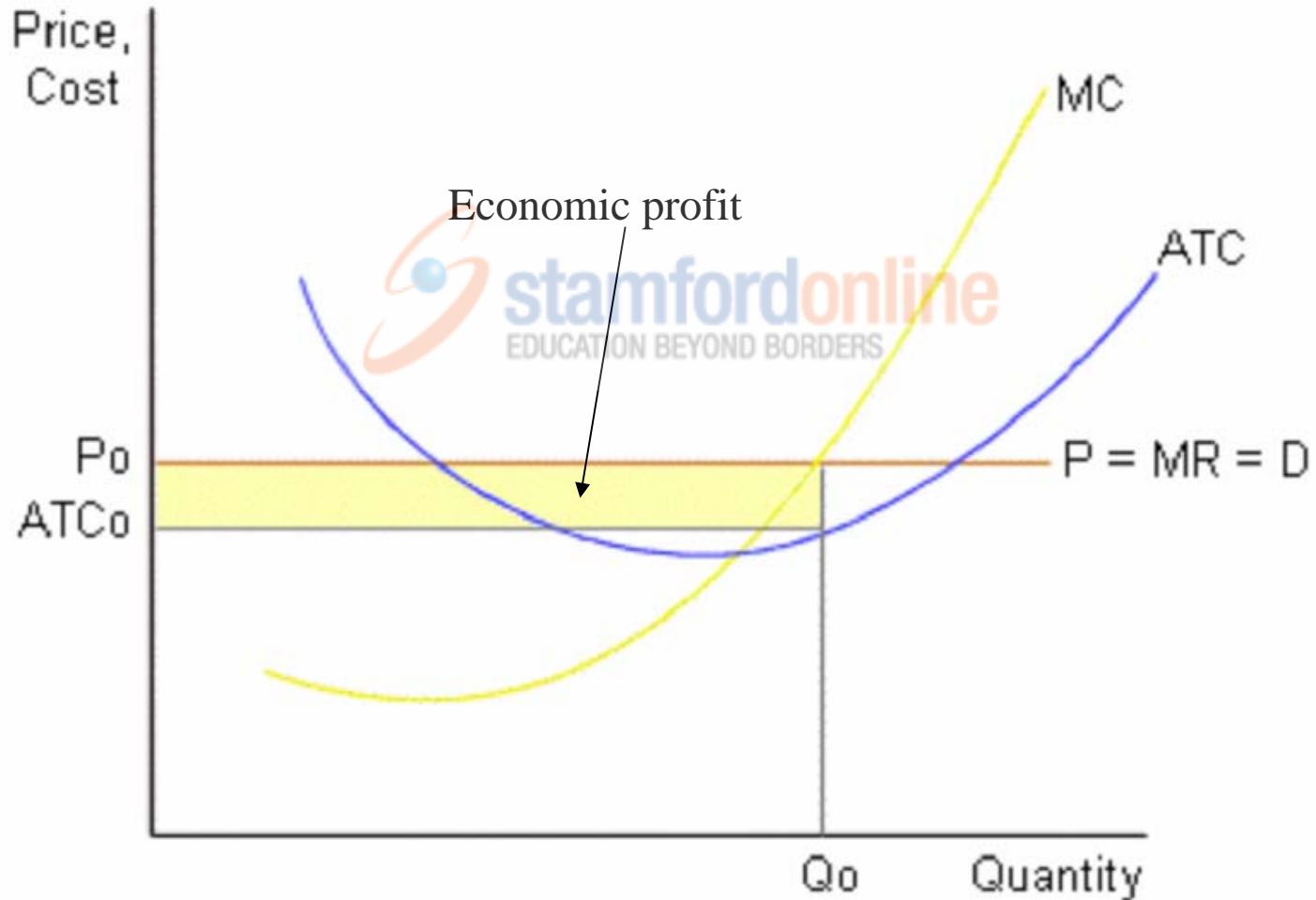
$$P = MR$$



# Profit-maximizing level of output



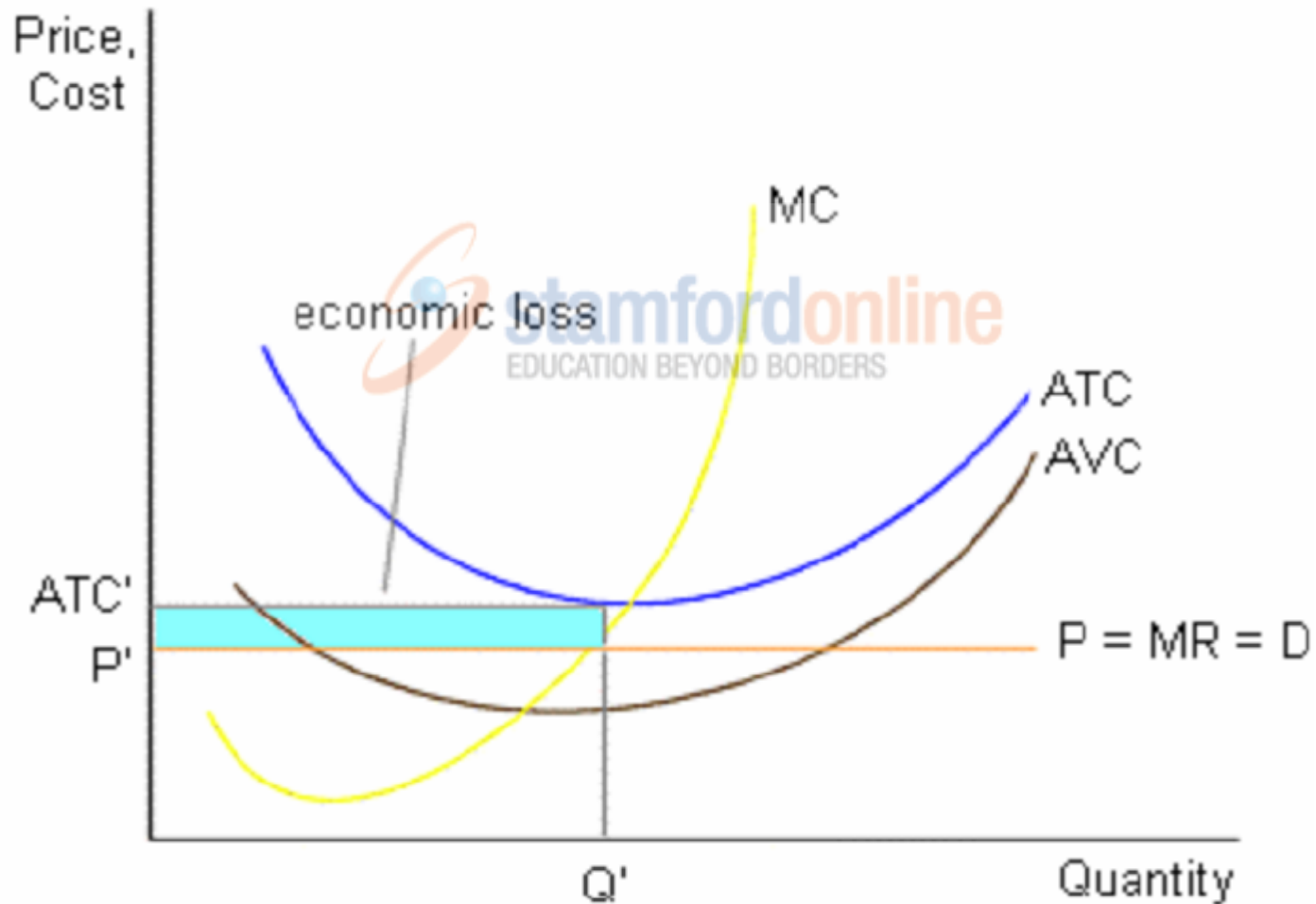
# Economic Profits $> 0$



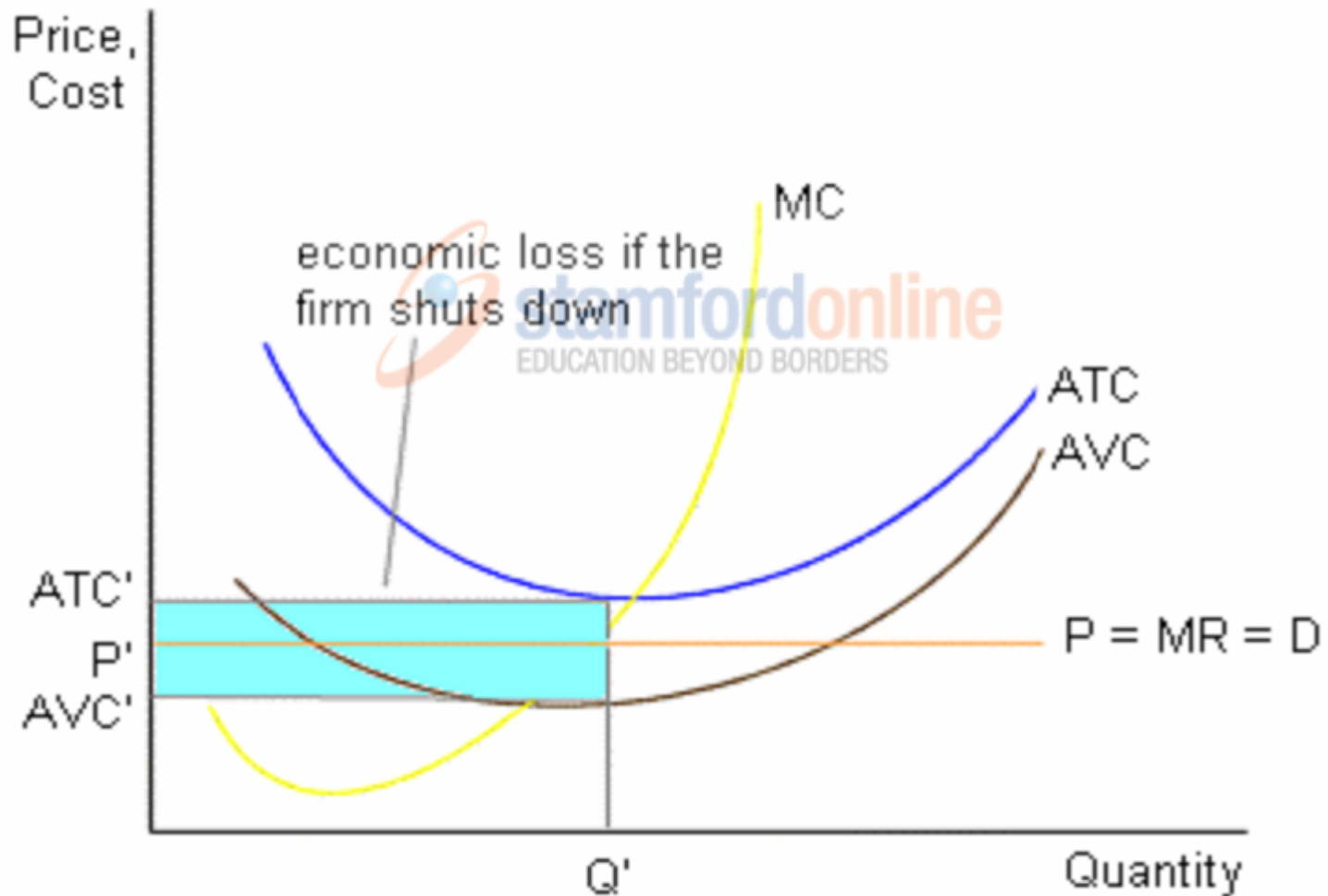
# Loss minimization and the shut-down rule

- Suppose that  $P < ATC$ . Since the firm is experiencing a loss, should it shut down?
- Loss if shut down = fixed costs
- Shut down in the short run only if the loss that occurs where  $MR = MC$  exceeds the loss that would occur if the firm shuts down (= fixed cost)
- Stay in business if  $TR > VC$ . This implies that  $P > AVC$ . Shut down if  $P < AVC$ .

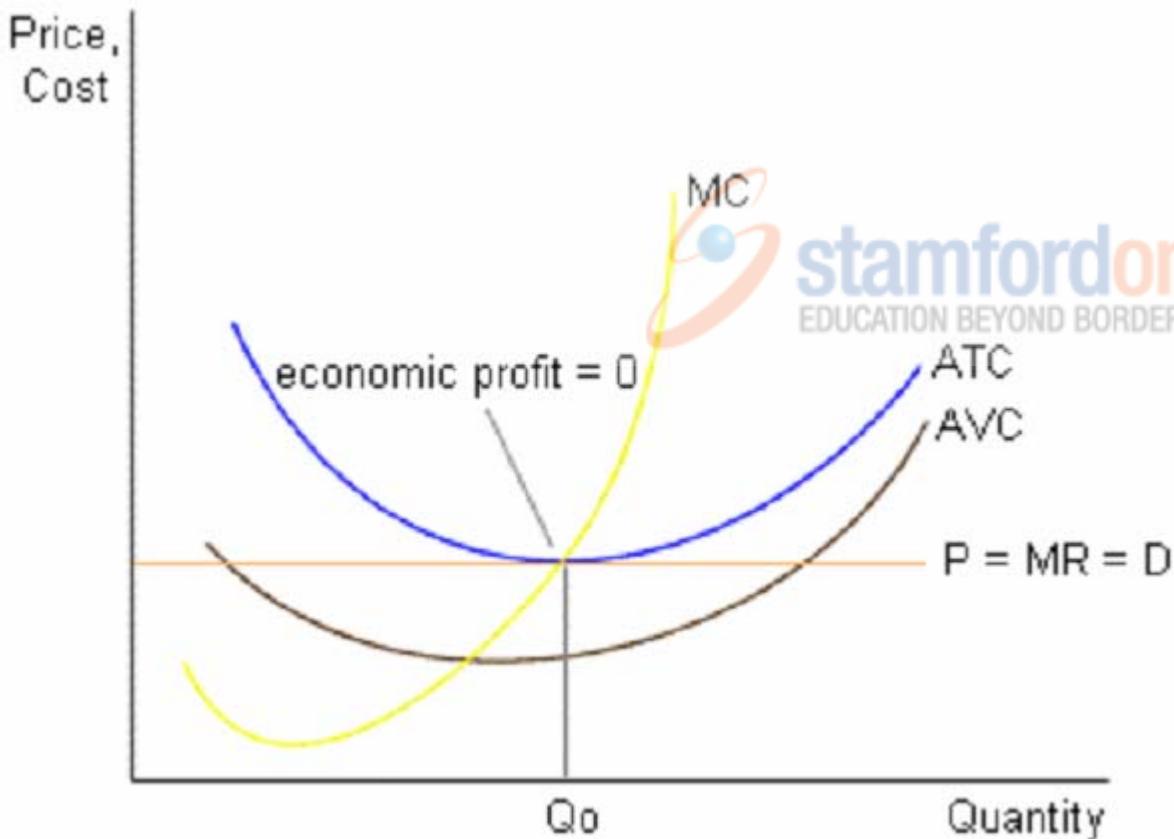
# Economic loss ( $AVC < P < ATC$ )



# Loss if shut down



# Break-even price

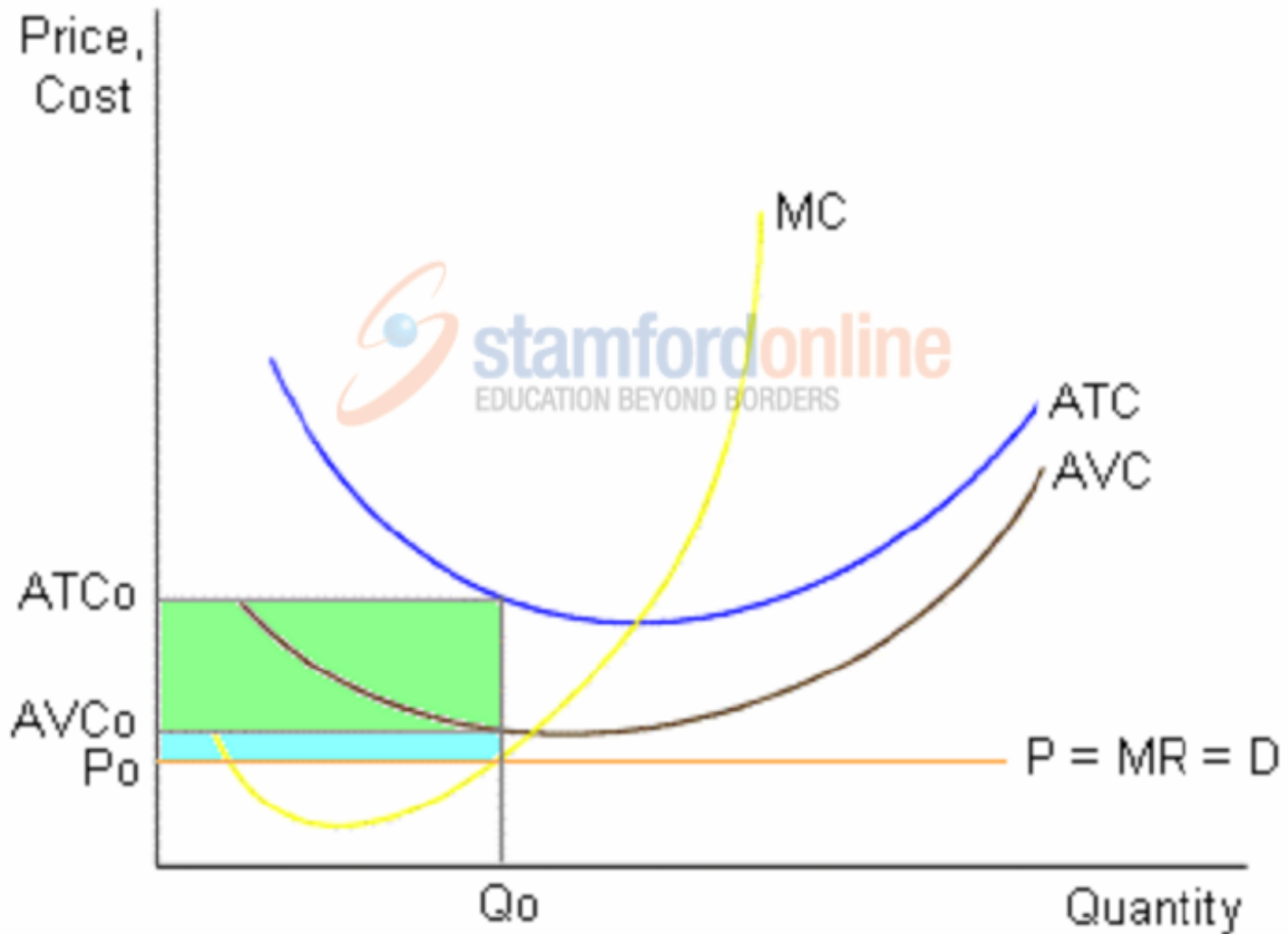


- If price = minimum point on ATC curve, economic profit = 0.

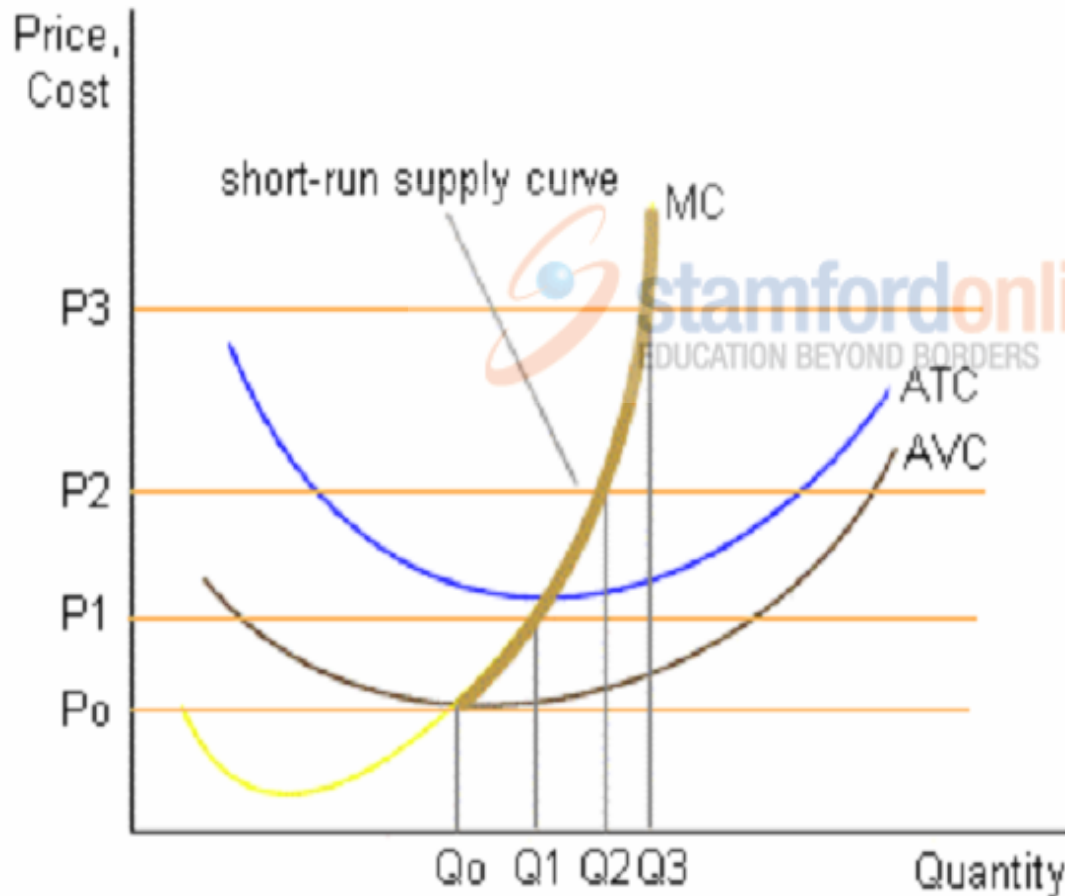
Owners receive normal profit.

No incentive for firms to either enter or leave the market.

$$P < AVC$$



# Short-run supply curve



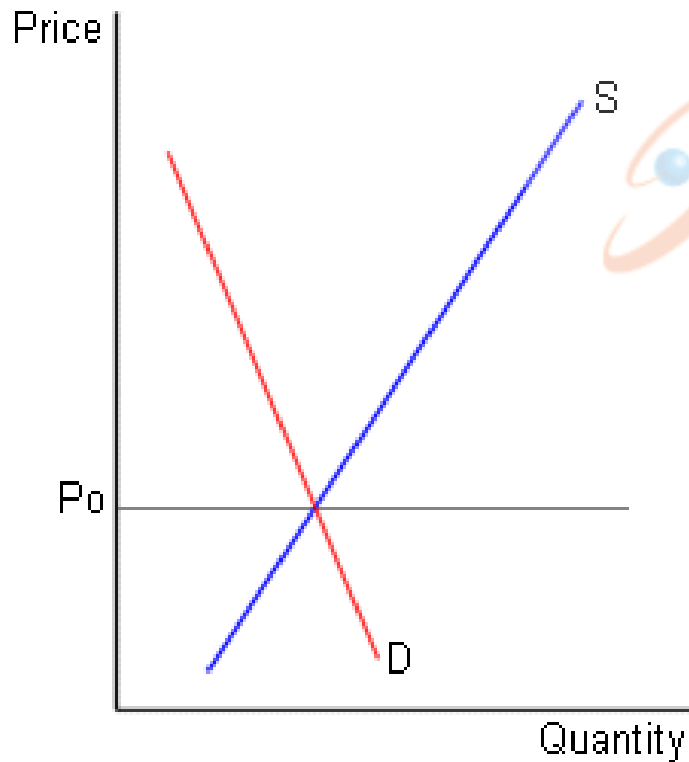
A perfectly competitive firm will produce at the level of output at which  $P = MC$ , as long as  $P > AVC$ .

# Long run

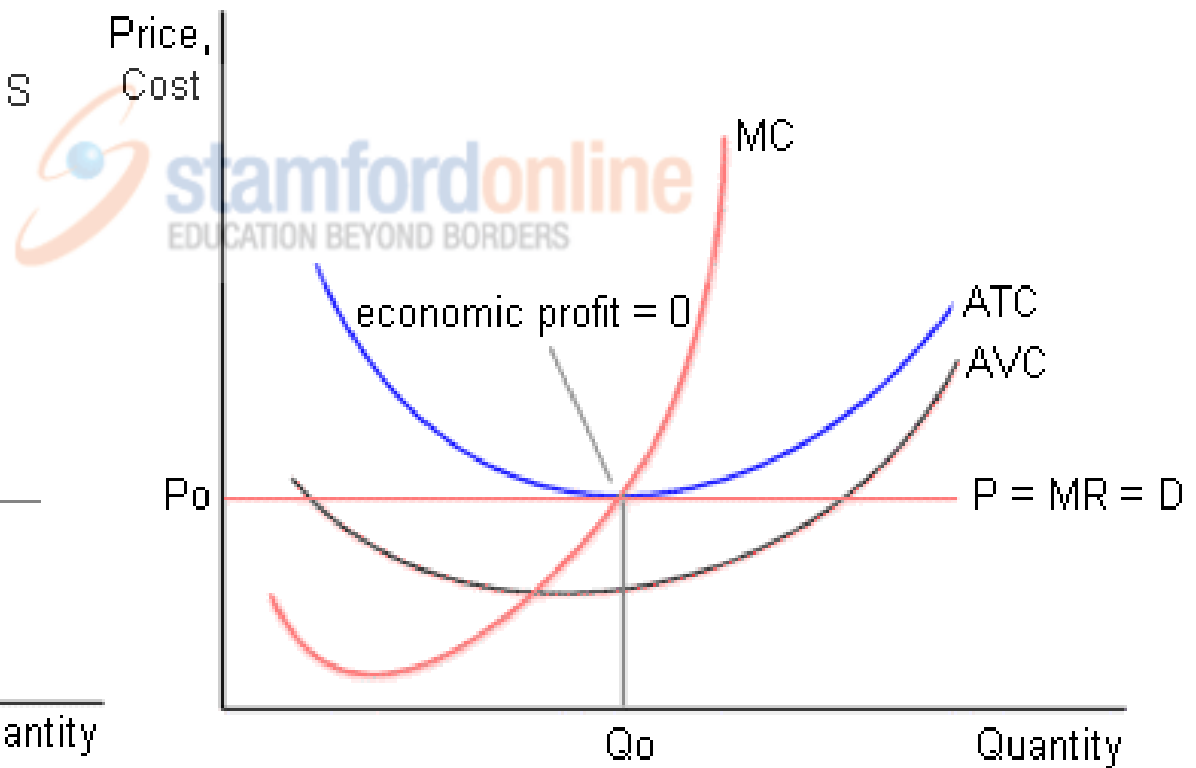
- Firms enter if economic profits  $> 0$ 
  - market supply increases
  - price declines
  - profit declines until economic profit equals zero (and entry stops)
- Firms exit if economic losses occur
  - market supply decreases
  - price rises
  - losses decline until economic profit equals zero

# Long-run equilibrium

Market



Individual Firm



# Long-run equilibrium and economic efficiency

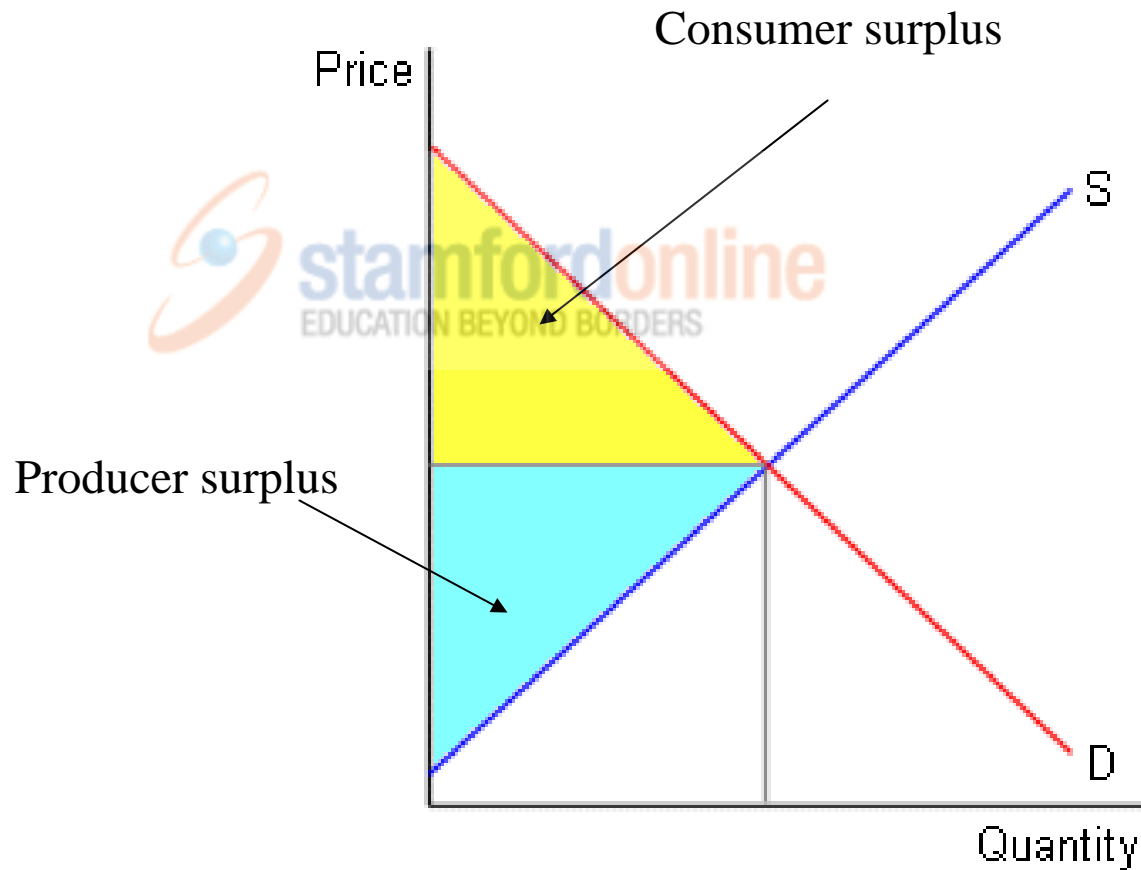
- Two desirable efficiency properties (assuming no market failure)
  - $P = MC$  (Social marginal benefit = social marginal cost)
  - $P = \text{minimum ATC}$

# Consumer and producer surplus

- Consumer surplus = net gain from trade received by consumers ( $MB > P$  for consumers up to the last unit consumed)
- Producer surplus = net gain received by producers ( $P > MC$  up to the last unit sold)

# Consumer and producer surplus

- Gains from trade = consumer surplus + producer surplus



# Monopolistic Competition



# Characteristics of a monopolistically competitive market

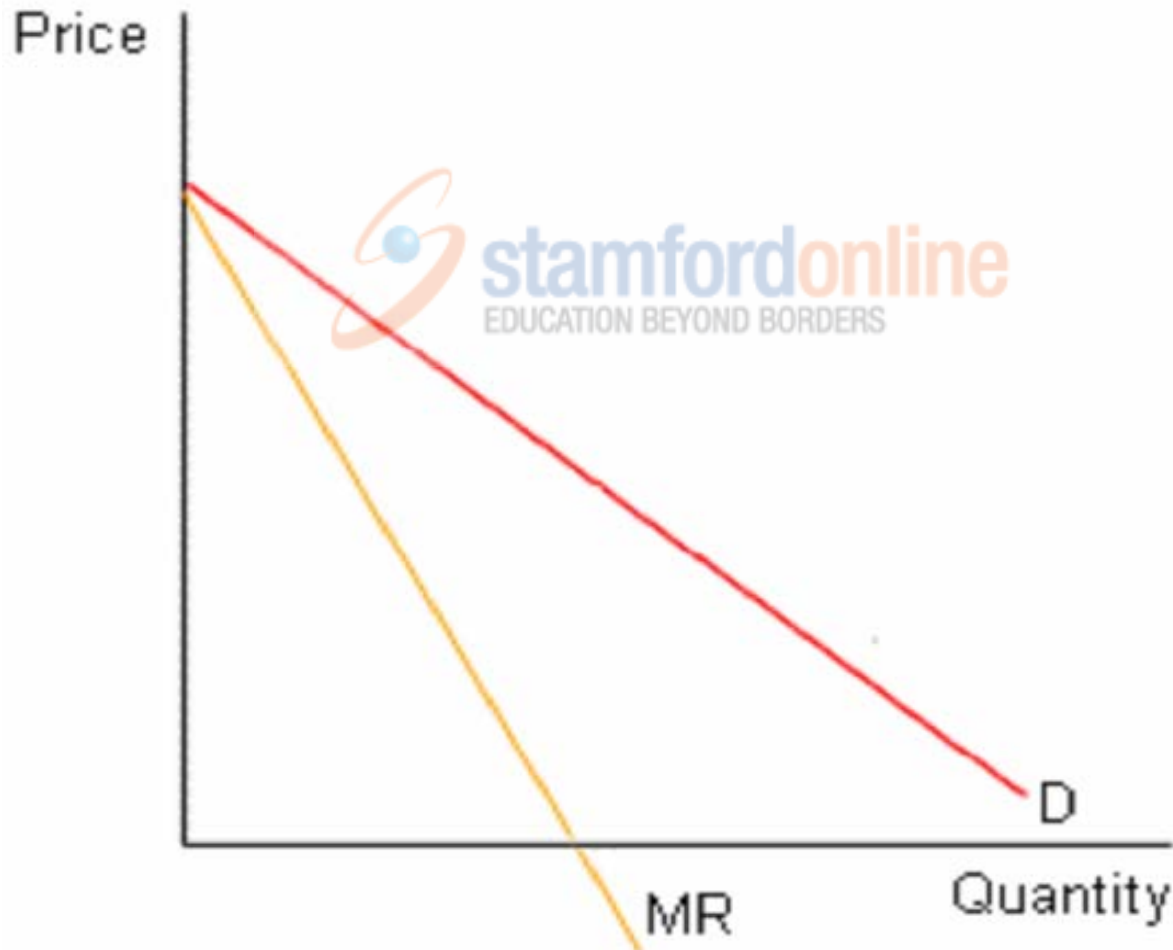
- Many buyers and sellers
- Differentiated products
- Easy entry and exit



# Relationship to other market models

- Monopolistic competition is similar to perfect competition in that:
  - There are many buyers and sellers
  - There are no barriers to entry or exit
- Monopolistic competition is similar to monopoly in that:
  - Each firm is the sole producer of a particular product (although there are close substitutes)
  - The firm faces a downward sloping demand curve for its product

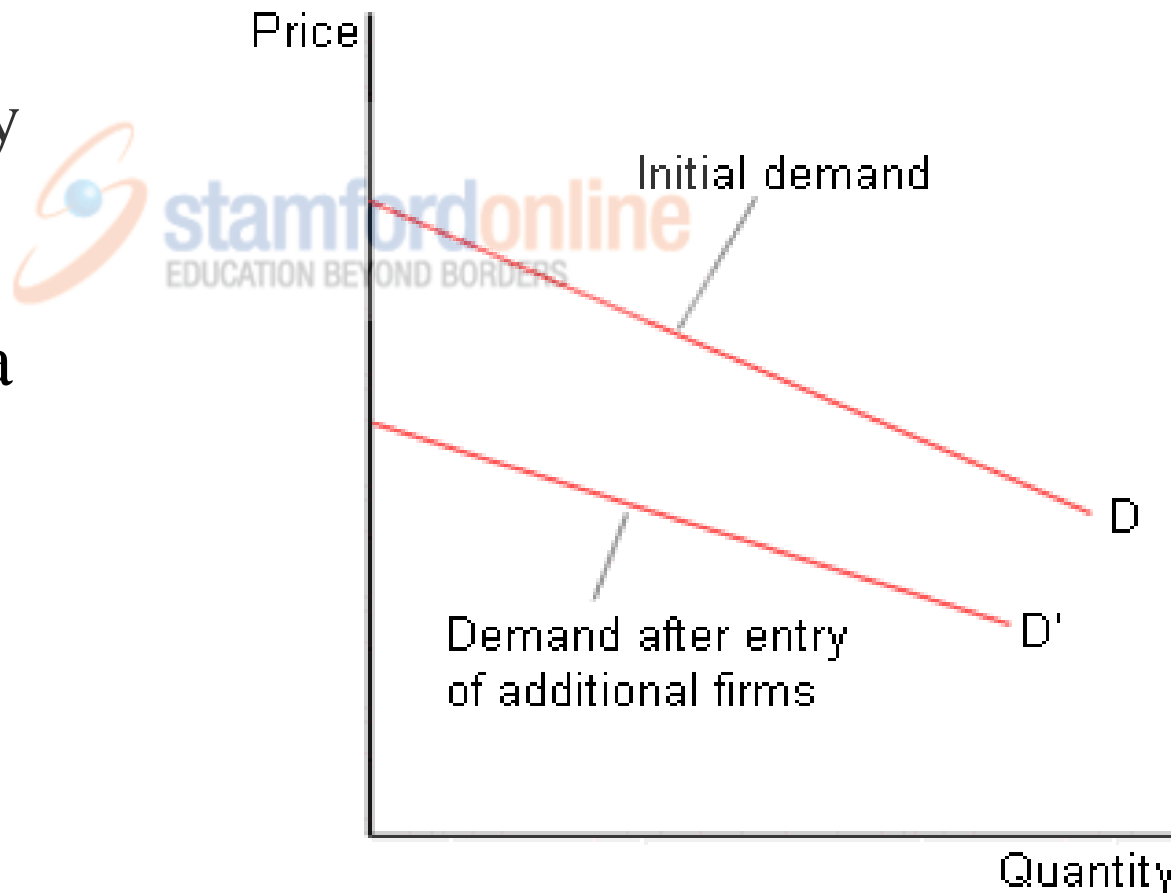
# Demand curve facing a monopolistically competitive firm



# The firm's demand curve and entry and exit

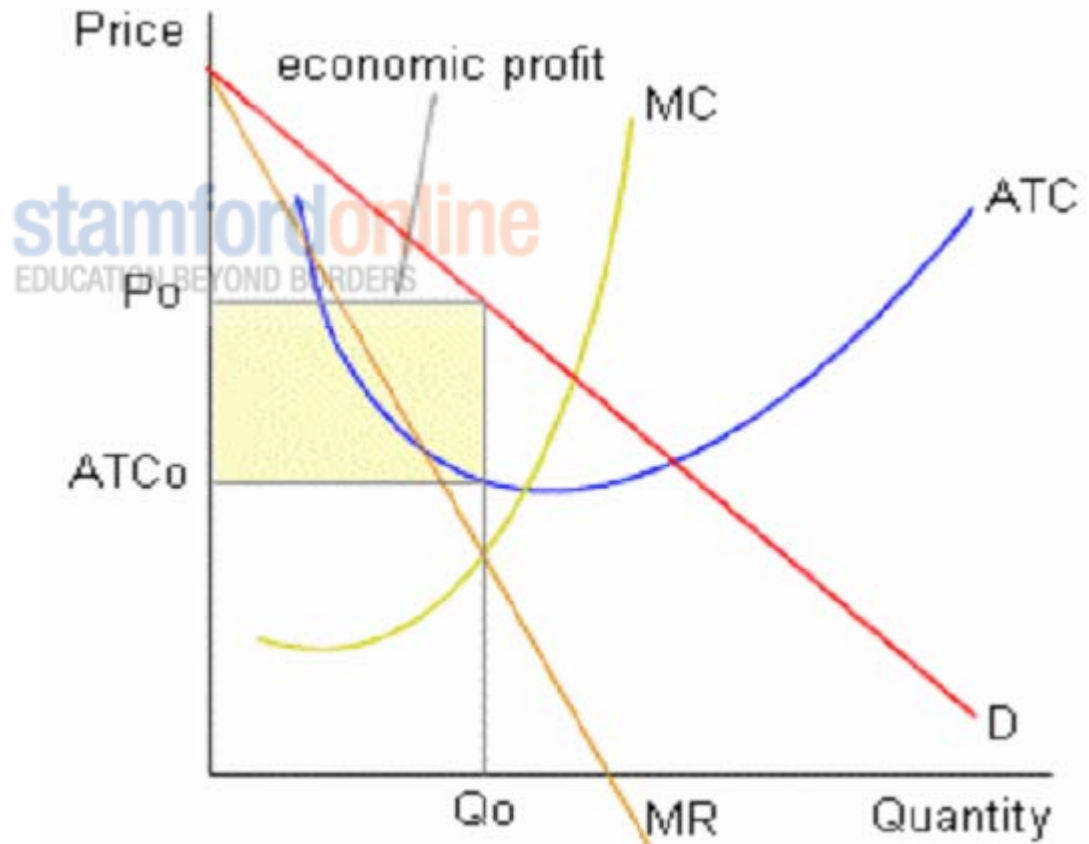
## Typical firm in an oligopoly market

- As firms enter a monopolistically competitive market, the demand facing a typical firm declines and becomes more elastic.



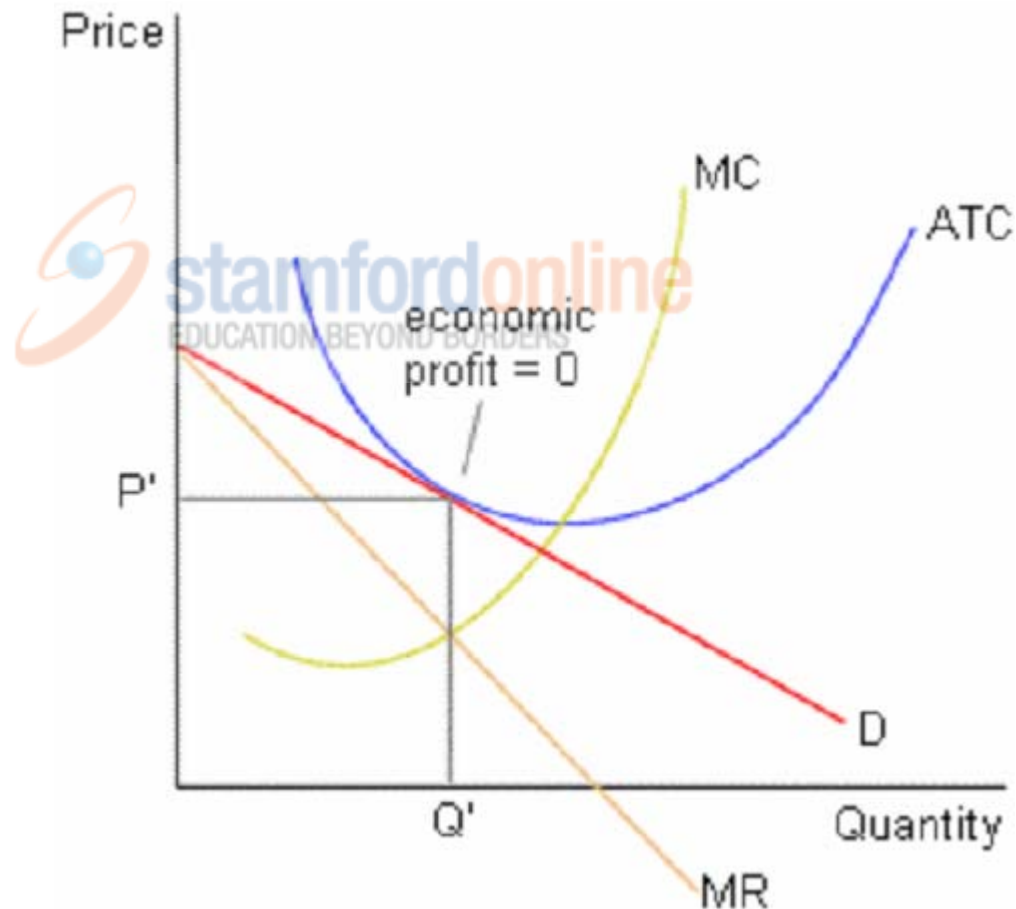
# Short-run equilibrium in a monopolistically competitive industry

- Economic profits lead to entry and a reduction in the demand facing a typical firm.

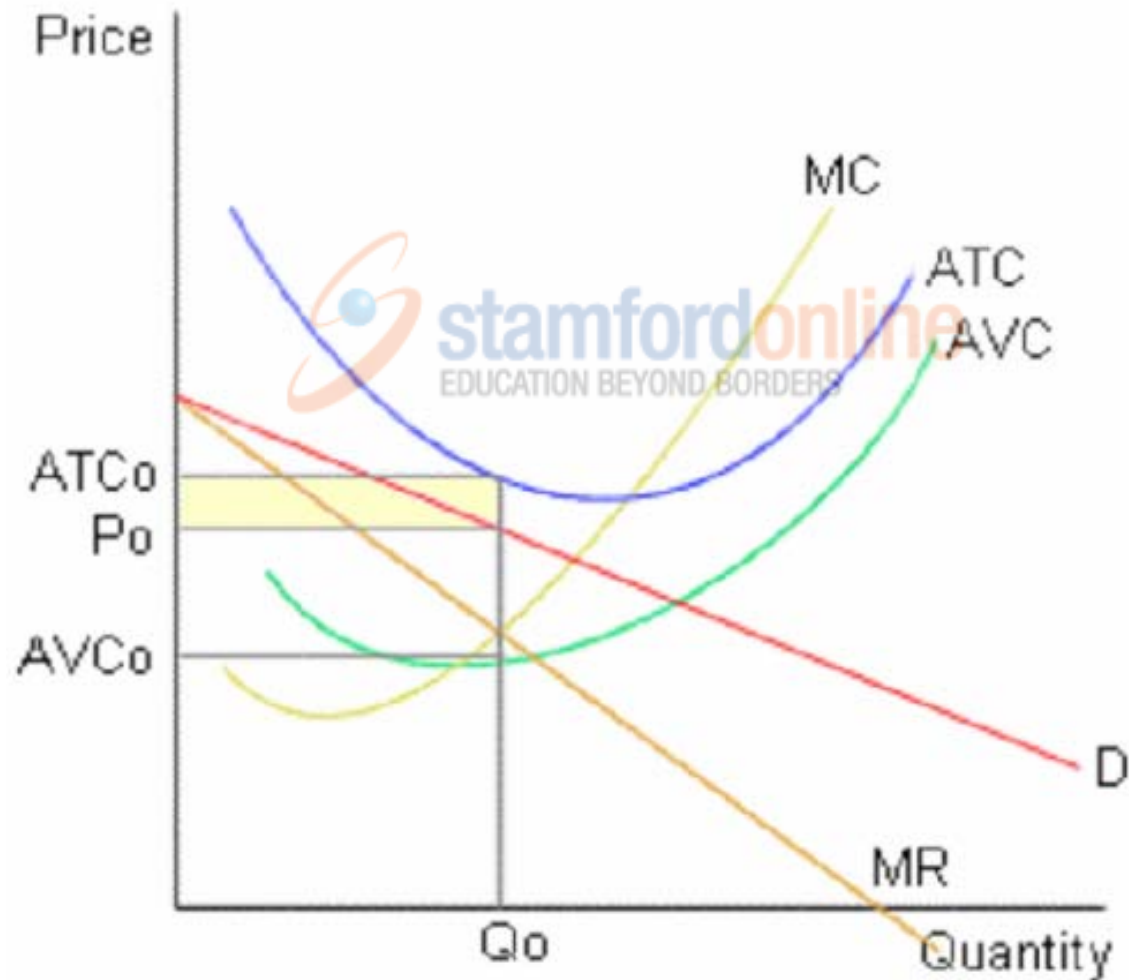


# Long-run equilibrium in a monopolistically competitive industry

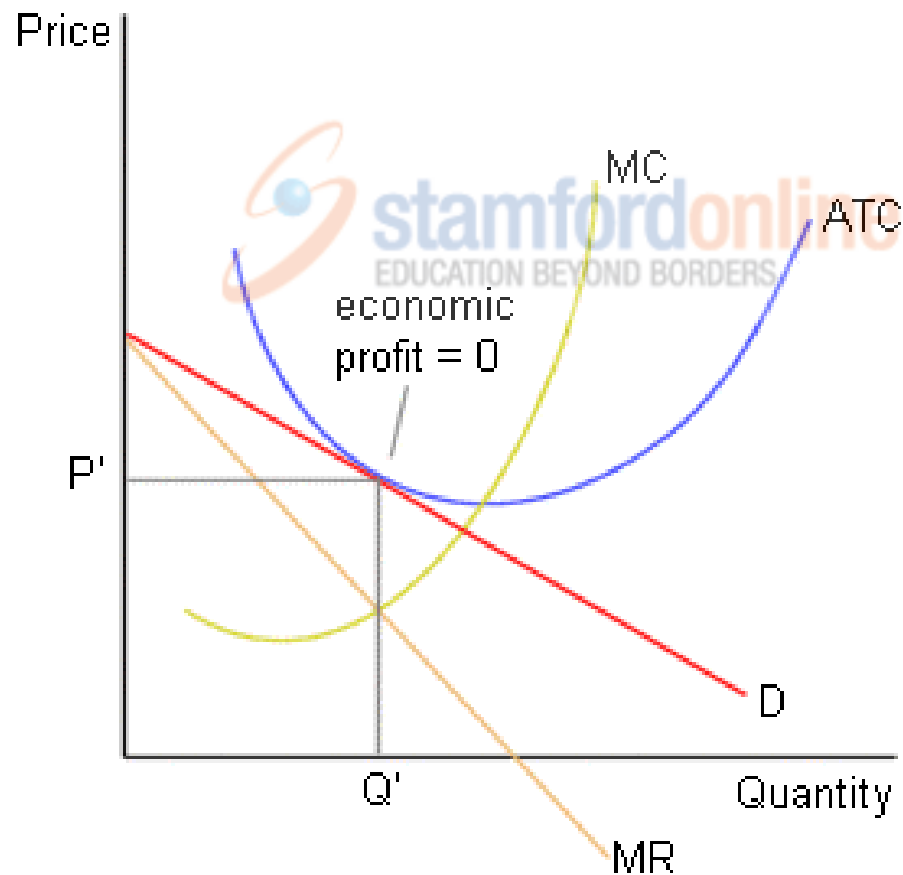
- Entry continues until economic profit equals zero for a typical firm.
- This equilibrium is often referred to as a “tangency equilibrium.”



# Short-run equilibrium with economic losses

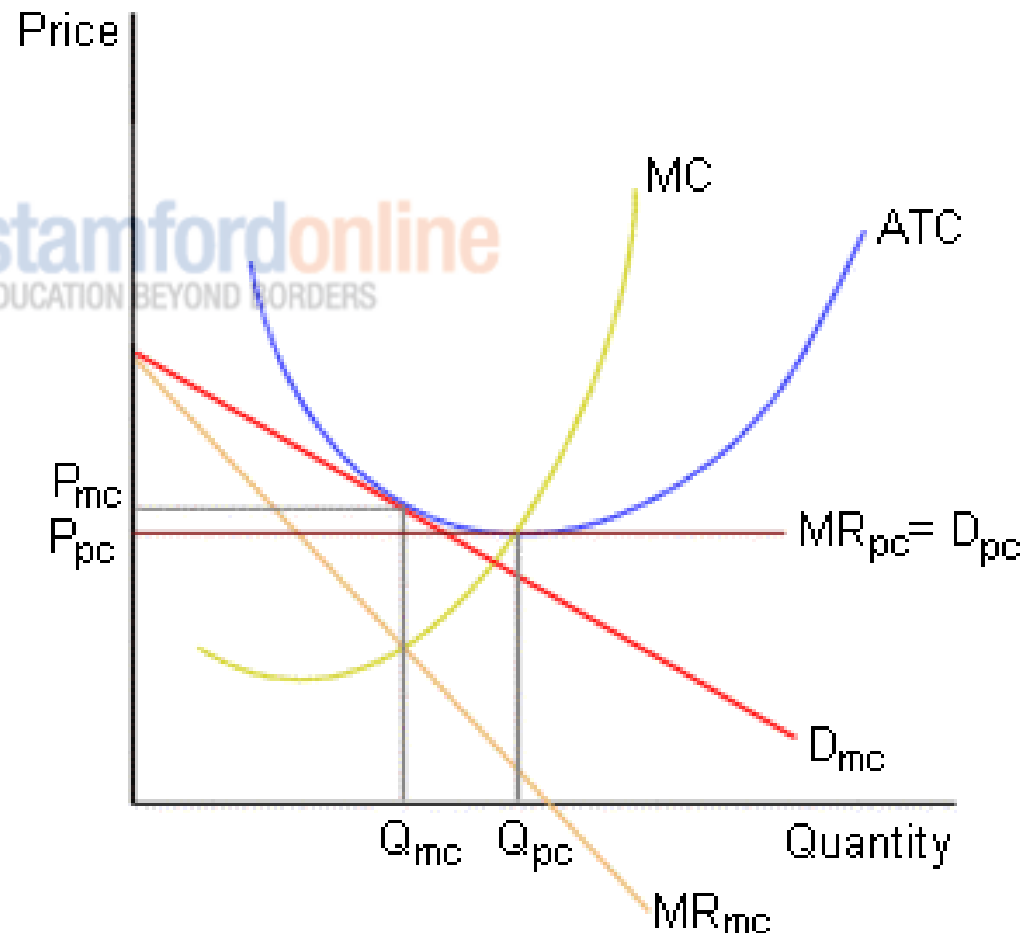


# Long-run equilibrium



# Monopolistic competition vs. perfect competition

- A monopolistically competitive firm, in the long run, has “excess capacity” – (*i.e.*, it produces a level of output that is below the least-cost level).
- This is a cost of product variety.



# Monopolistic competition and efficiency

- As the number of firms rises, a monopolistically competitive firm's demand curve becomes more elastic.
- As the number of firms in a market expands, the market approaches a perfectly competitive market.
- Thus, economic inefficiency may be smaller when there is a large number of firms in a monopolistically competitive market.

# Product Differentiation, Advertising and Social Welfare

- *Product differentiation* is a strategy that firms use to achieve market power.
- Accomplished by producing products that have distinct positive identities in consumers' minds.
- This differentiation is often accomplished through advertising.

# Product Differentiation and Advertising

- The advocates of free and open competition believe that differentiated products and advertising give the market system its vitality and are the basis of its power.
- Product differentiation helps to ensure high quality and efficient production.

# Product Differentiation and Advertising

- Advertising provides consumers with the valuable information on product availability, quality, and price that they need to make efficient choices in the marketplace.

# Product Differentiation and Advertising

- Critics of product differentiation and advertising argue that they amount to nothing more than waste and inefficiency.
- Enormous sums are spent to create minute, meaningless, and possibly nonexistent differences among products.

# Product Differentiation and Advertising

- Advertising raises the cost of products and frequently contains very little information. Often, it is merely an annoyance.
- People exist to satisfy the needs of the economy, not vice versa.
- Advertising can lead to unproductive warfare and may serve as a barrier to entry, thus reducing real competition.

# Location decisions

- Monopolistically competitive firms often locate near each other to appeal to the “median” customer in a geographical region. (*e.g.*, fast food restaurants and car dealerships)

# Oligopoly and Monopoly



# Main Characteristics of Monopoly

- single seller for a product
- many buyers are available
- barriers to entry
- no close substitutes
- Monopolist can only control price or quantity but not both



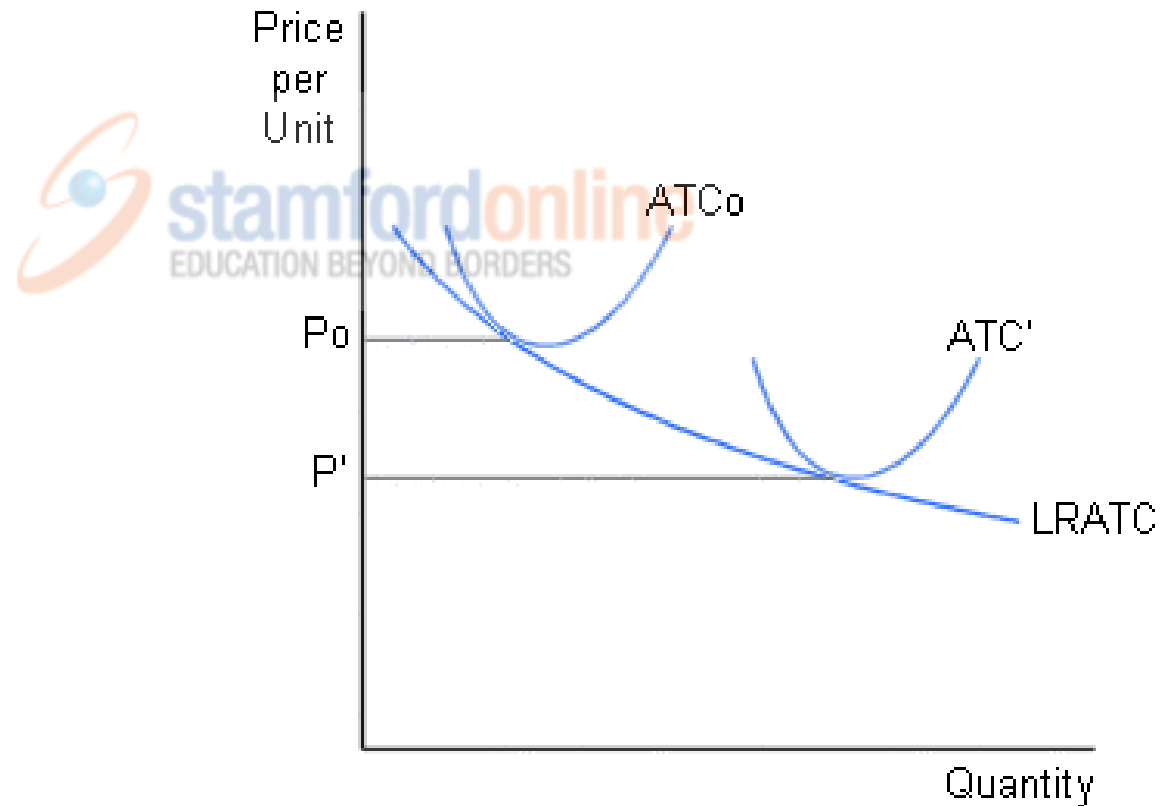
# Barriers to entry

- economies of scale
- actions by firms
- actions by government



# Economies of scale – natural monopolies

- Natural monopolies are often regulated monopolies



# **Actions by firms to create and protect monopoly power**

- patents and copyrights,
- high advertising expenditures result in high sunk costs (costs that are not recoverable on exit), and
- illegal actions designed to restrict competition.

# Monopolies created by government action

- patents and copyrights,
- government created franchises, and
- licensing.



# Local monopoly

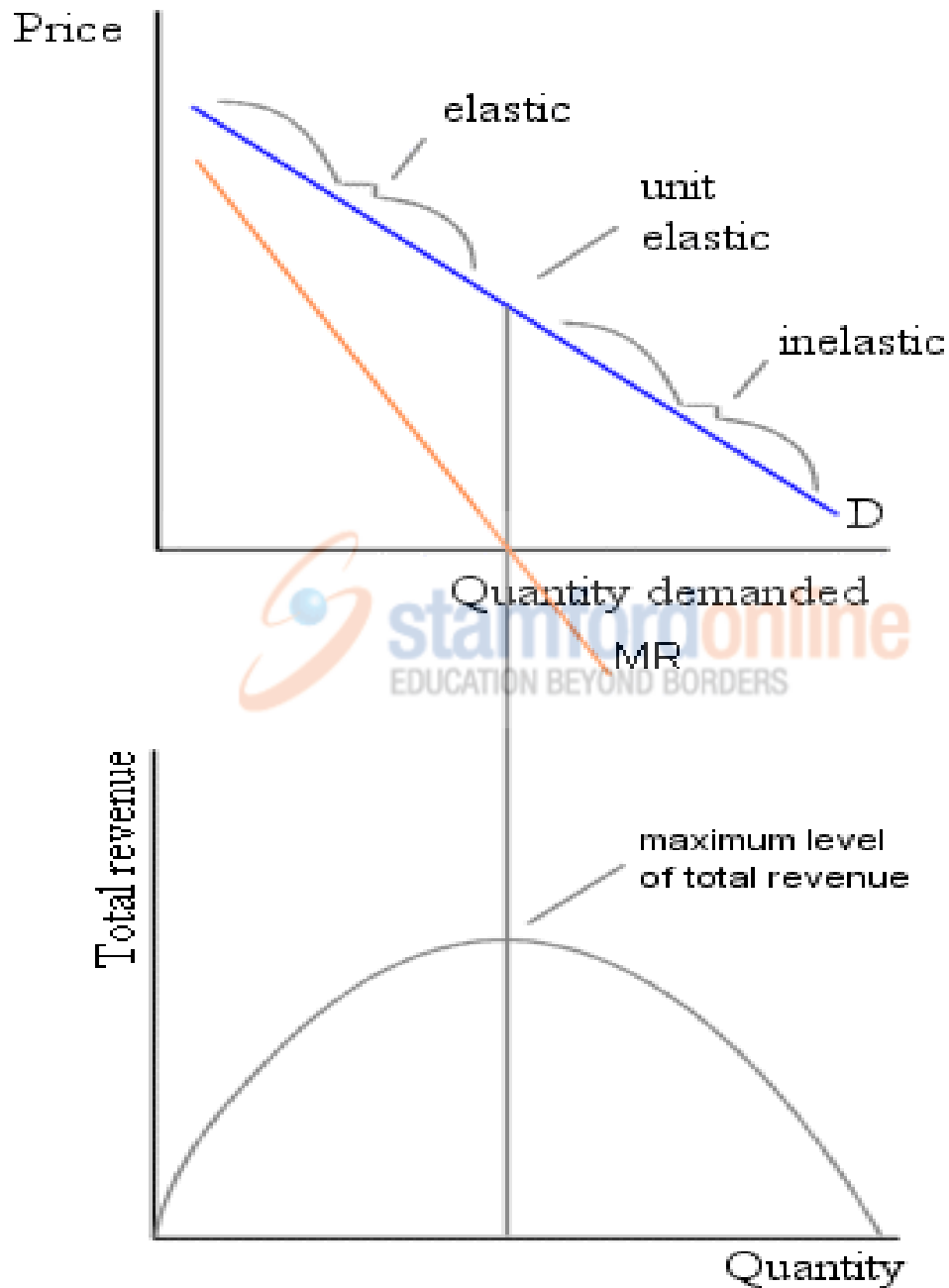
- Local monopoly – a monopoly that exists in a local geographical area (*e.g.*, local newspapers)



# Price elasticity and MR

- As noted earlier, since the demand curve facing a monopoly firm is downward sloping,  $MR < P$
- $MR > 0$  when demand is elastic
- $MR = 0$  when demand is unit elastic
- $MR < 0$  when demand is inelastic

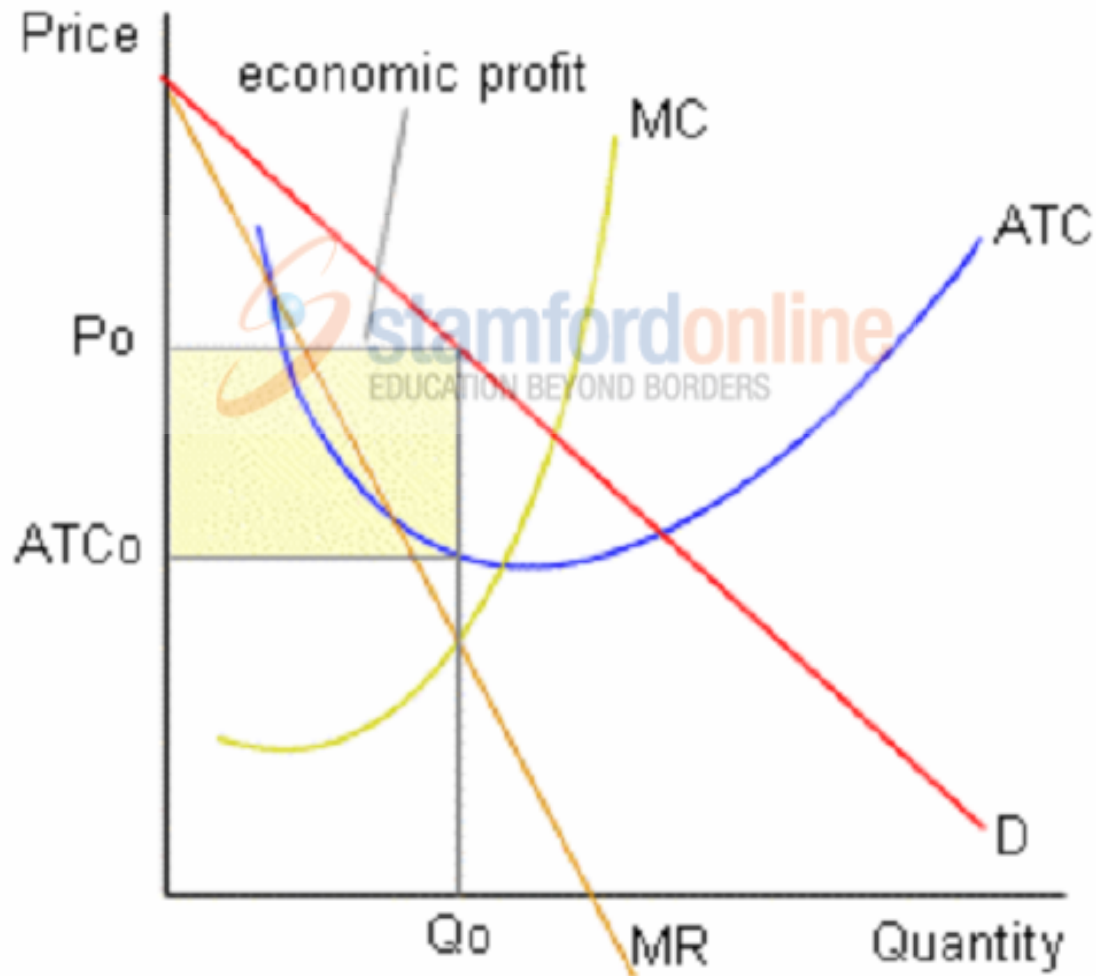
# Elasticity and total revenue



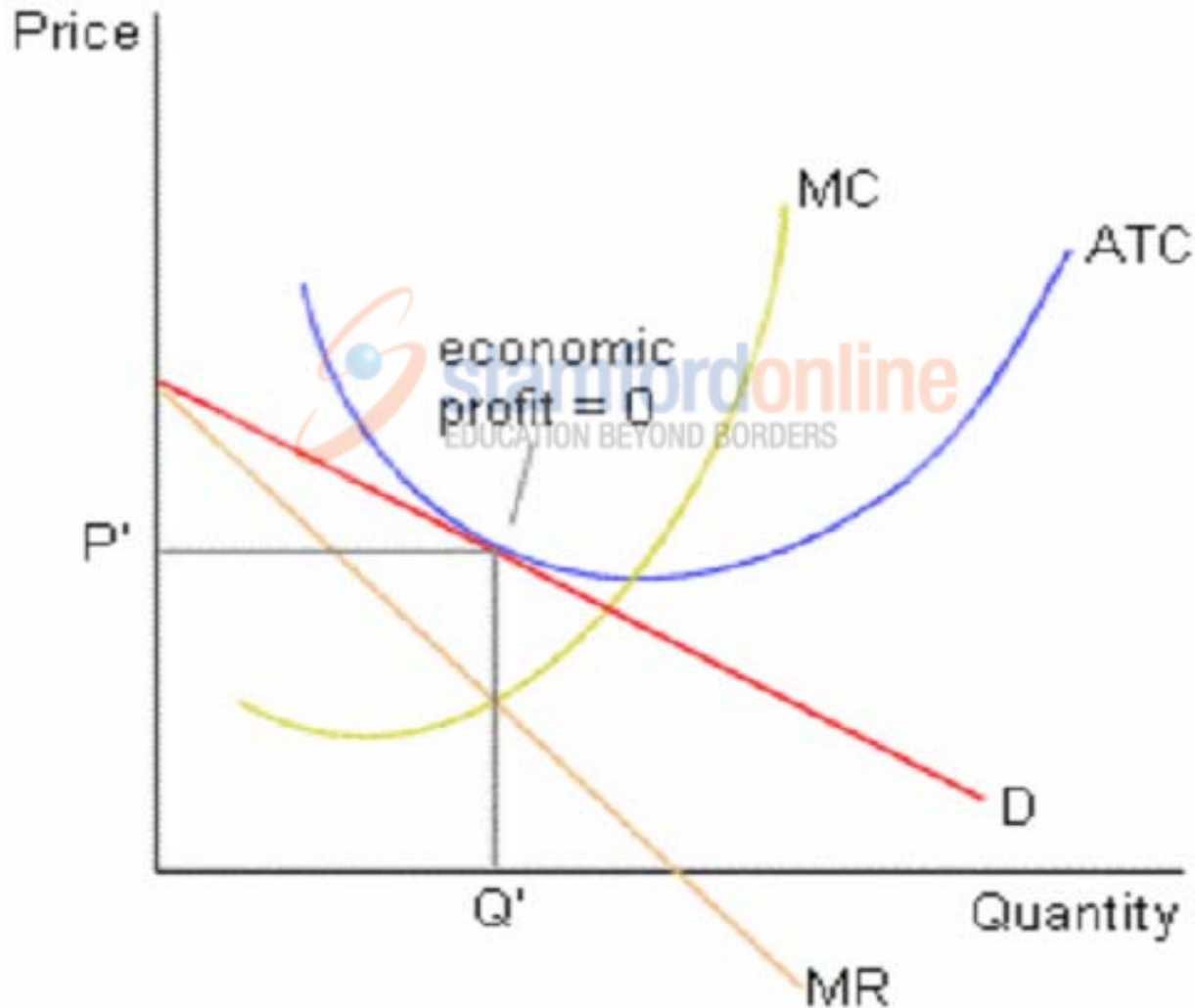
# Average revenue

- As in all other market structures,  $AR=P$   
(note that  $AR = TR/Q = (P \times Q) / Q = P$ )
- The price given by the demand curve is the average revenue that the firm receives at each level of output.

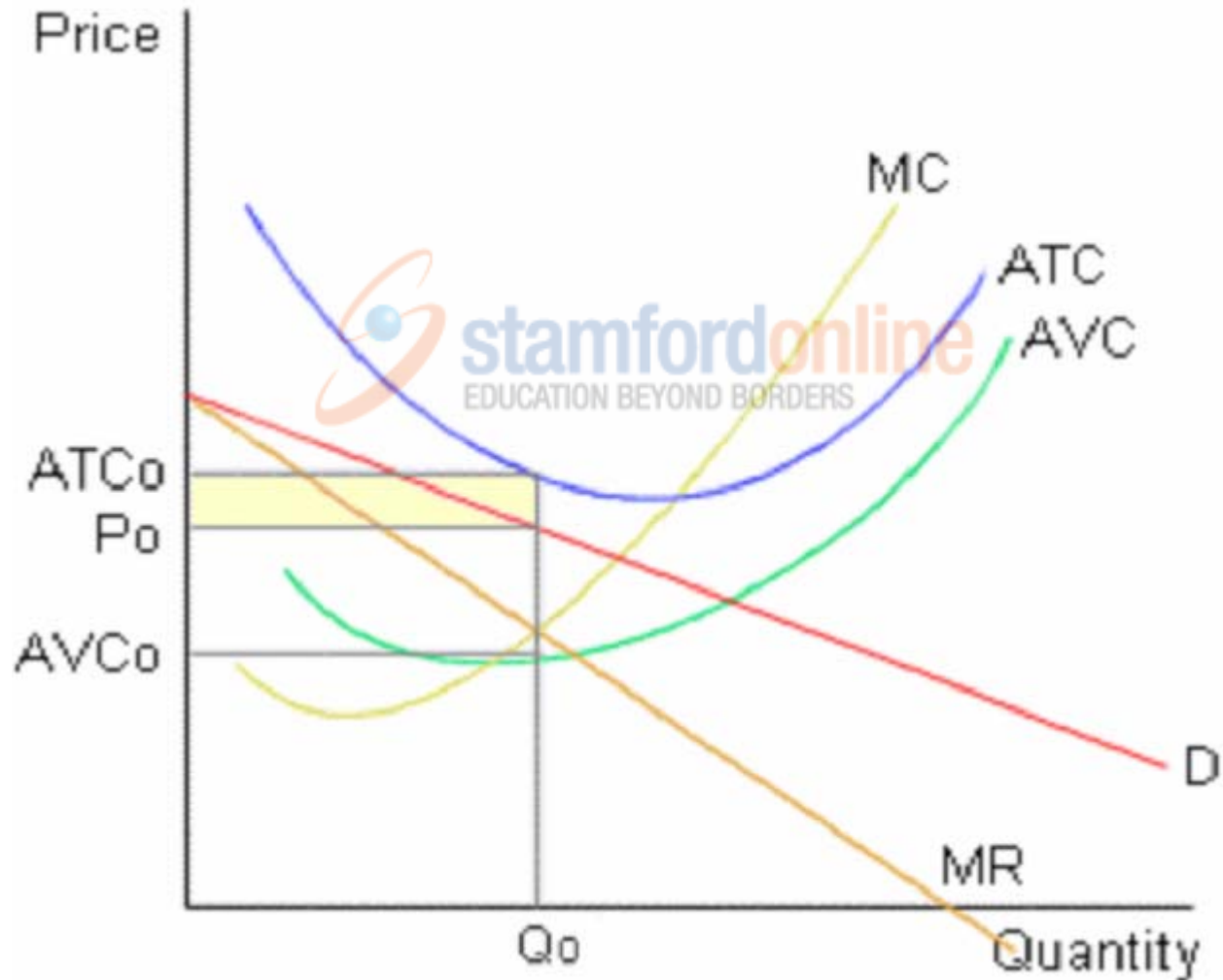
# Monopoly receiving supernormal profits



# Monopoly receiving normal profits



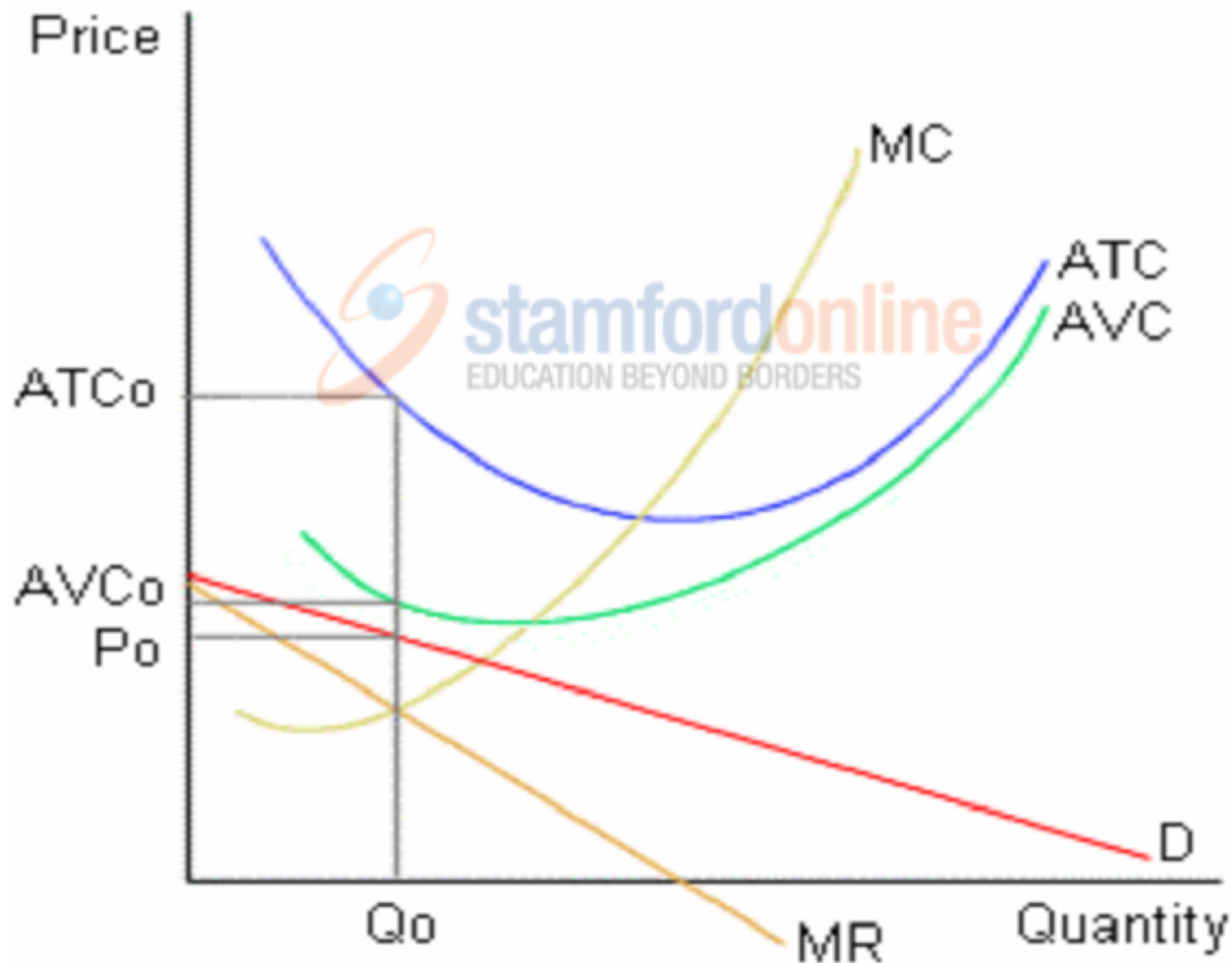
# Monopoly receiving subnormal profits - loss



# Conclusion

- In both long run and short run, the monopoly firm will be earning supernormal profits because there is no competition and barriers to entry.

# Monopolist that shuts down in the short run



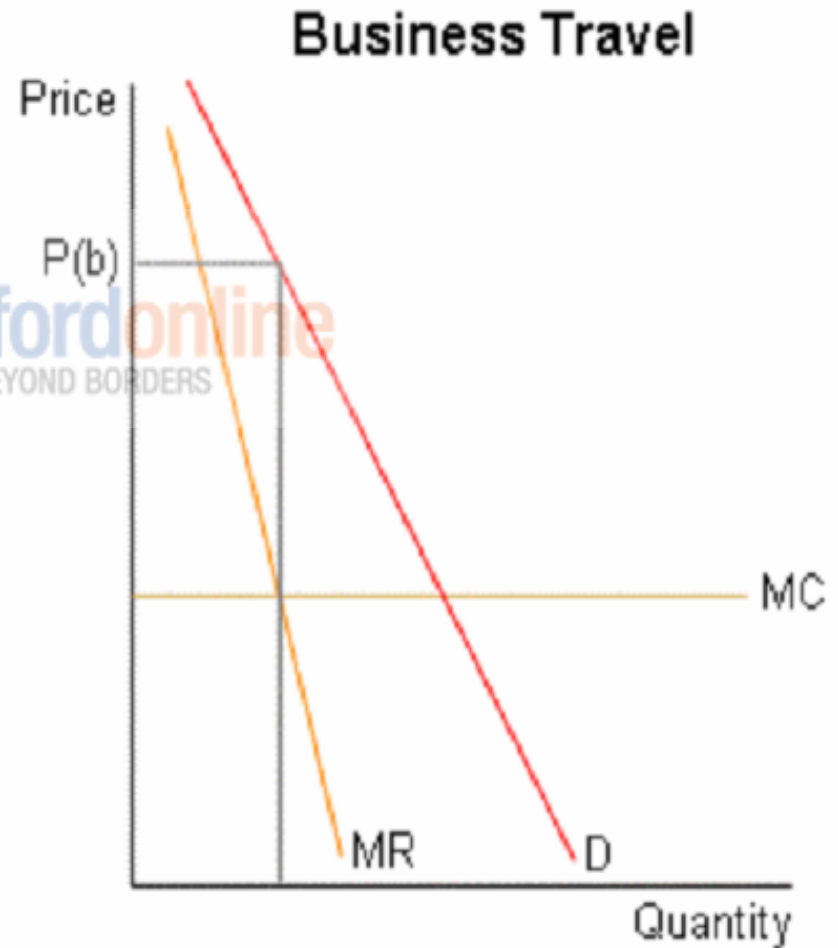
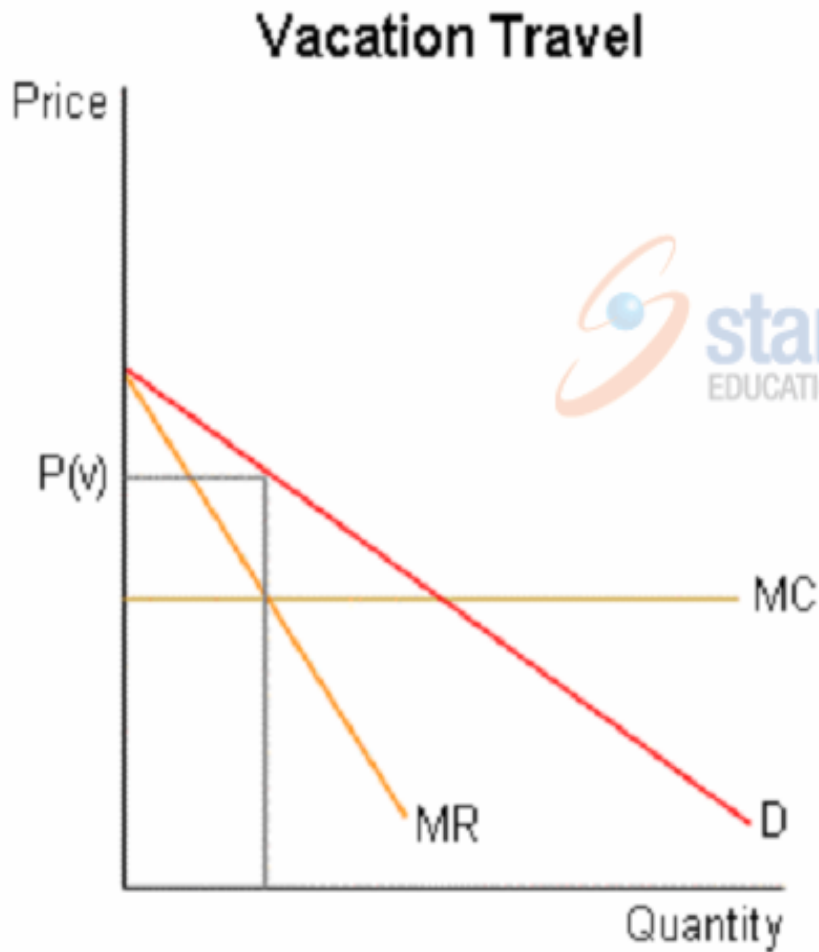
# Monopoly price setting

- There is a unique profit-maximizing price and output level for a monopoly firm.
- It is optimal to produce at the level of output at which  $MR = MC$  and to charge the price given by the demand curve at this output level.
- Charging a higher (or lower) price results in lower profits.

# Price discrimination

- In imperfectly competitive markets, firms may increase their profits by engaging in **price discrimination** (charging higher prices to those customers with the most inelastic demand for the product).
- Necessary conditions for price discrimination:
  - the firm must not be a price-taker
  - firms must be able to sort customers by their elasticity of demand
  - resale must not be feasible

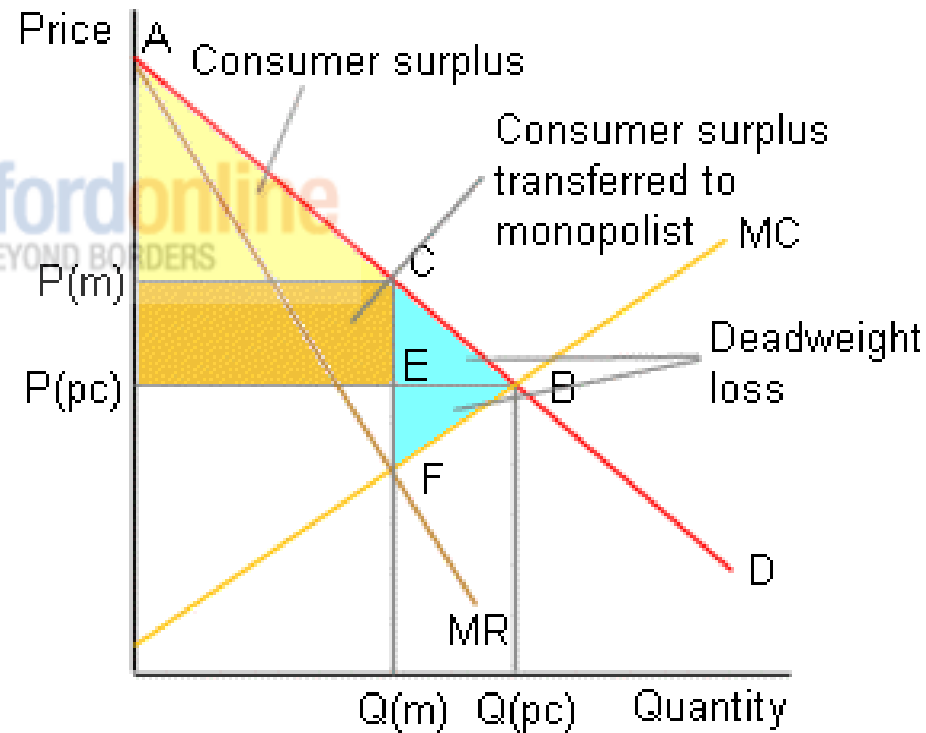
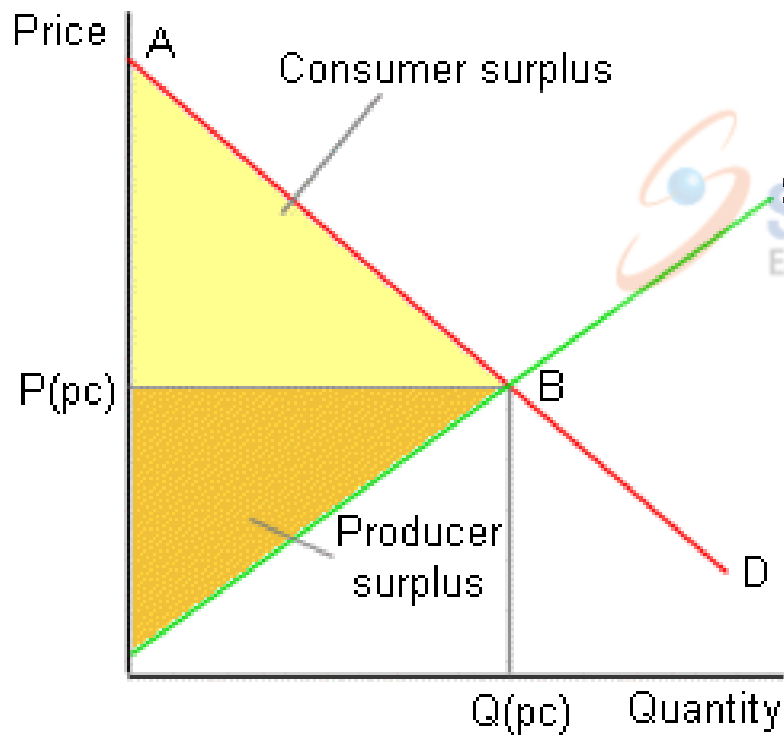
# Example: air travel



# Dumping

- If firms practice price discrimination by charging different prices in different countries, they are often accused of dumping in the low-price country.
- **Predatory** dumping occurs if a country charges a low price initially in an attempt to drive out domestic competitors and then raises prices once the domestic industry is destroyed.
- There is little evidence of the existence of predatory dumping.

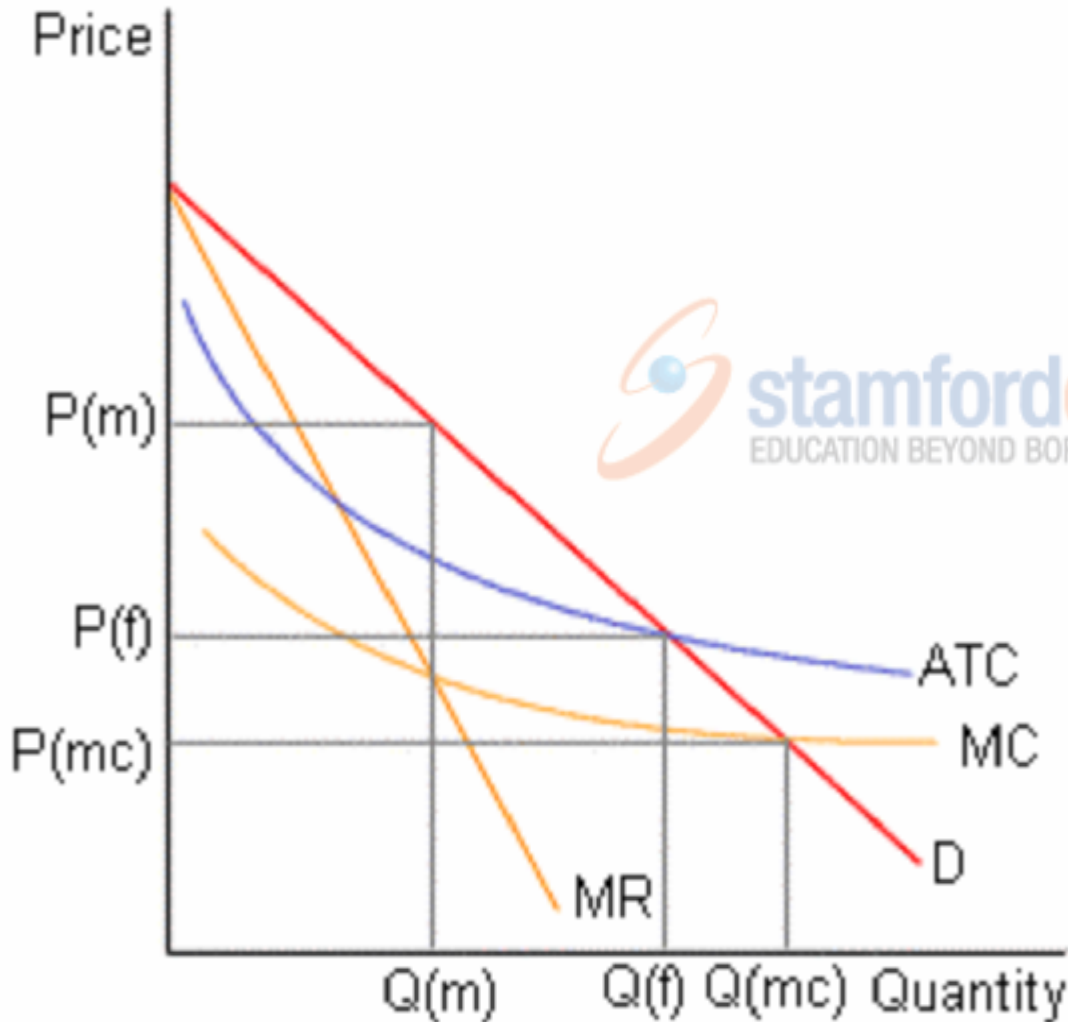
# Deadweight loss due to monopoly



# Other costs associated with monopoly

- X-inefficiency – occurs if firms do not have an incentive to engage in least-cost production (since they are not faced with competitive pressure).
- Rent-seeking behaviour – the cost of using resources (such as lawyers, lobbyists, etc.) in an attempt to acquire monopoly power. This behaviour does not benefit society and diverts resources away from productive activities.

# Regulation of natural monopoly



- monopoly outcome:  $P(m)$ ,  $Q(m)$
- marginal-cost pricing:  $P(mc)$ ,  $Q(mc)$
- “fair-rate of return” pricing system:  $P(f)$ ,  $Q(f)$

# Oligopoly

- a small number of firms produce most output
- a standardized or differentiated product
- recognized mutual interdependence, and
- difficult entry.

# Strategic behaviour

- Strategic behaviour occurs when the best outcome for one party depends upon the actions and reactions of other parties.



# Kinked demand curve model

- Other firms are assumed to match price decreases, but not price increases.
- There is little evidence suggesting that this model describes the behaviour of oligopoly firms.
- Game theory models are more commonly used.

# The Collusion Model

- A group of firms that get together and makes price and output decision to maximize joint profits is called a cartel.
- Collusion occurs when price- and quantity-fixing agreements are explicit.
- *Tacit collusion* occurs when firms end up fixing price without a specific agreement, or when such agreements are implicit.

# The Price- Leadership Model

- *Price leadership* is a form of oligopoly in which one dominant firm sets prices and all the smaller firms in the industry follow its pricing policy.

# The Price- Leadership Model

- The price-leadership model outcome:
  - The quantity demanded in the industry is split between the dominant firm and the group of smaller firms.
  - This division of output is determined by the amount of market power of the dominant firm.
  - The dominant firm has an incentive to push smaller firms out of the industry in order to establish a monopoly.

# Predatory Pricing

- The practice of a large, powerful firm driving smaller firms out of the market by temporarily selling at an artificially low price is called *predatory pricing*.
- Such behaviour became illegal in the United States with the passage of antimonopoly legislation around the turn of the century.

# Game Theory

- *Game theory* analyzes oligopolies behaviour as a complex series of strategic moves and reactive countermoves among rival firms.
- In game theory, firms are assumed to anticipate rival reactions.

# Price Cartels

- Price cartels are legal in some countries
- A cartel arrangement can maximize industry profits
- Each firm can increase its profits by violating the agreement
- Cartel agreements have generally been unstable.



# Imperfect information

- Brand name identification – serves as a signal of product quality. Customers are willing to pay a higher price for products produced by firms that they recognize.
- Product guarantees also serve as a signal of product quality