MANAGERIAL ECONOMICS CHAPTER 10

Pure Competition and Monopolistic Competition

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Chapter 10

- **Pure competition** is a standard against which other market structures are compared. The product is perfectly undifferentiated.
- When there are many firms, but the product is differentiated, the market is **monopolistically competitive**.
  - This **brand competition** often involves advertising campaigns and promotional expenditures to stress often minor distinctions among products

Forces of Competition

- Michael Porter, in his *Competitive Advantage,* lists 5 forces that determine competitive advantage.
  - **Substitutes** (threat of substitutes can be offset by brands and special functions served by the product).
  - **Potential Entrants** (threat of entrants can be reduced by high fixed costs, scale economies, restriction of access to distribution channels, or product differentiation).
  - **Buyer Power** (threat of concentration of buyers).
  - **Supplier Power** (threats from concentrated suppliers of key inputs affect profitability).
  - **Intensity of Rivalry** (market concentration, price competition tactics, exit barriers, amount of fixed costs, and industry growth rates impact profitability).

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Market Structure: Competition

Pure Competition assumes:

1. a very large number of buyers and sellers
2. homogeneous product (standardized)
3. free entry and exit (no barriers)
4. no collusion among the firms
5. complete knowledge of all market information

These assumptions imply several things about competitive markets.

Price and Output Under Pure Competition

Competitive firms attempt to maximize profits.

Competitive firms cannot charge more than the market price of others, since their product is identical to all others.

Hence, competitive firms are **price takers.**

Total revenue, TR, is P·Q, where price is given. Therefore, marginal revenue, MR, is price, P.

Profit is total revenue minus total cost π = TR - TC).

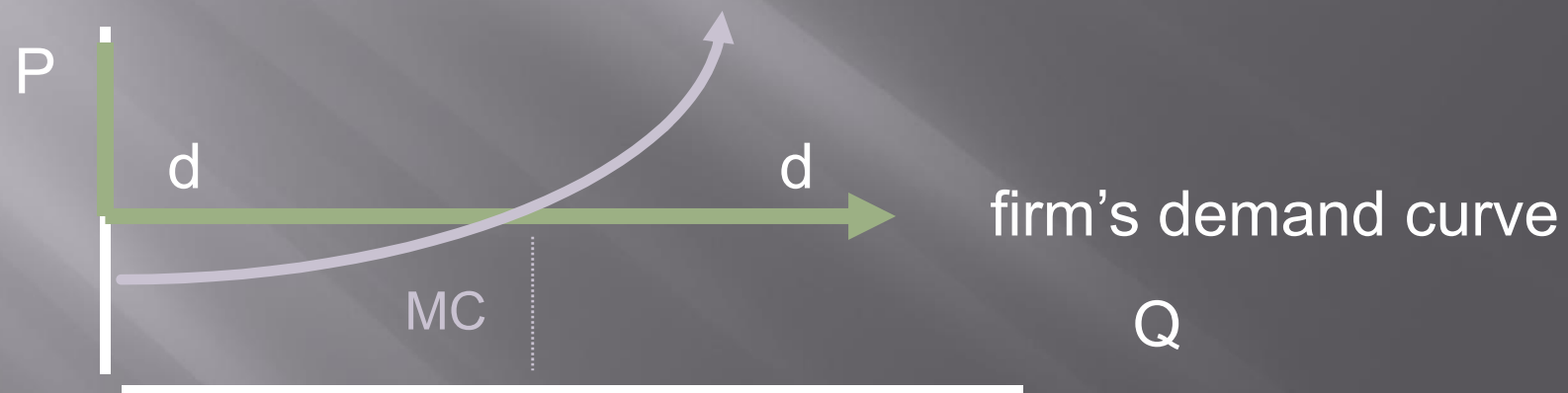Profit maximization implies that each firm produces an output where Price = Marginal Cost (P = MC).

- To produce more than this quantity implies that   P < MC, which is not the most profitable decision.
- To produce less than where P=MC, implies that   P > MC, and the firm could increase profits by expanding output.

- In short run, a competitive firm may earn economic profits.

- In long run, entry pushes price down to the minimum point of the average cost curve, so that economic profits are zero.

Welcome Properties of Pure Competition

1. Firms are Price Takers

- Assume the opposite
- P1 > P2
  - But everyone knows this
  - The products are homogeneous.
  - So, no one buys from firm 2.

Diagram of firm demand in pure competition

P

d   d   firm's demand curve

MC   Q

2. A firm's demand curve is **perfectly elastic** at the competitive price

3. Profit Maximization implies each firm produces at a quantity where P = MC

Max Π = P•Q - TC(Q)

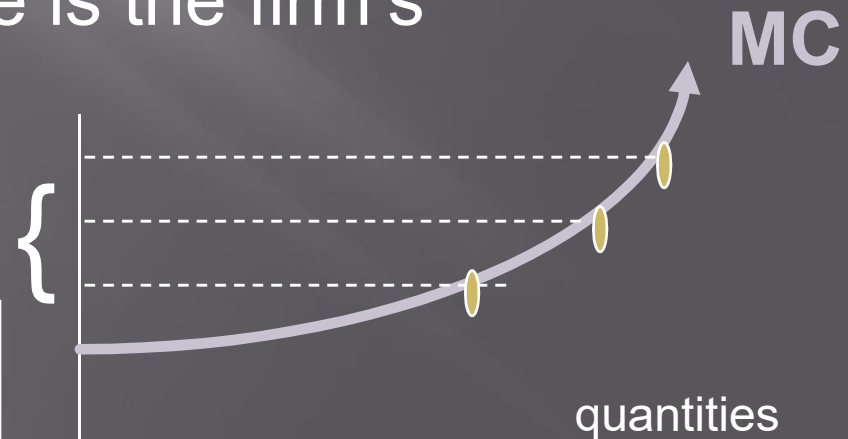$\partial P/\partial Q = 0$ implies that:

$P = MC$

decision rule

**4.** The firm's MC curve is the firm's **SUPPLY CURVE**

MC

prices {

As price changes, the optimal amount SUPPLIED changes

quantities

Equilibrium Price in a Competitive Market

- Equilibrium for each firm if P = MC. Each firm is "happy"
- Equilibrium for the industry if: Demand equals Supply at the going price
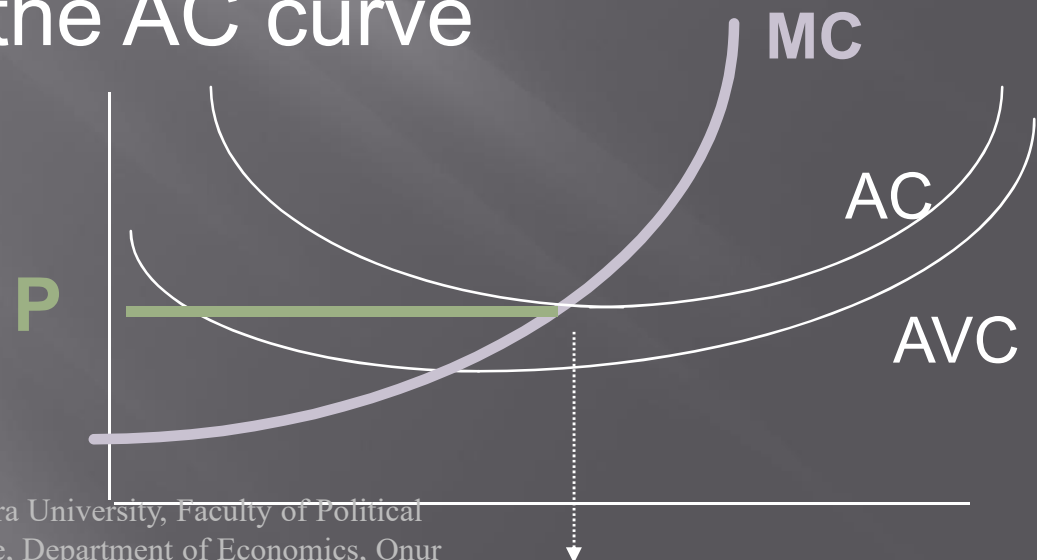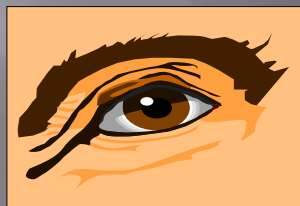 - When both occur, the market is in a **Competitive Equilibrium**

MC   **Σ MC**

AC

D

a firm   **the industry**
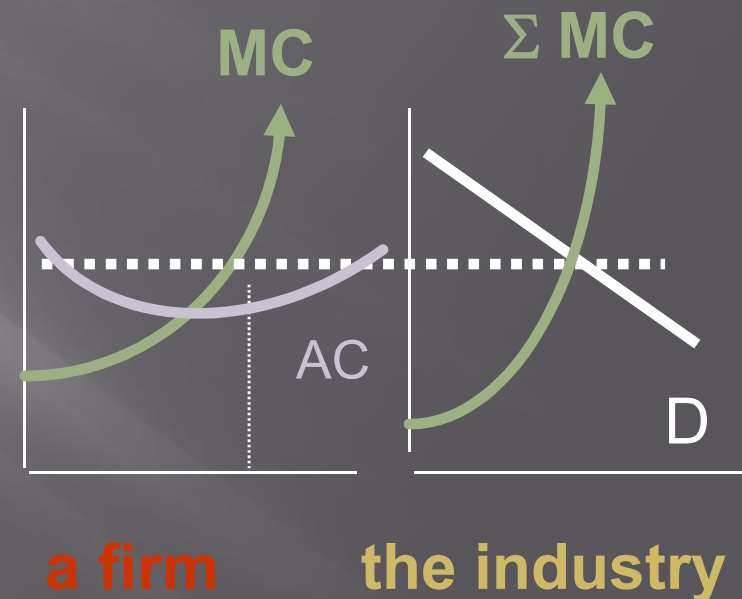
CAN EARN ECON PROFITS IN THE SHORT RUN

A Competitive Equilibrium Implies:

1. Competitive firm can earn **economic profits** in SR
2. If Price < AVC, firm will shut down so-called "*shut down price*" is AVC
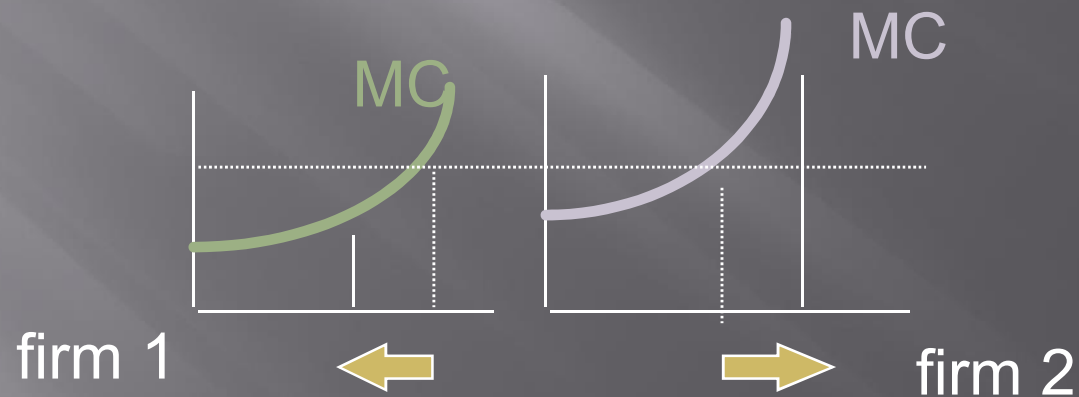3. In LR, entry forces price down to the minimum of the AC curve

NOTICE:

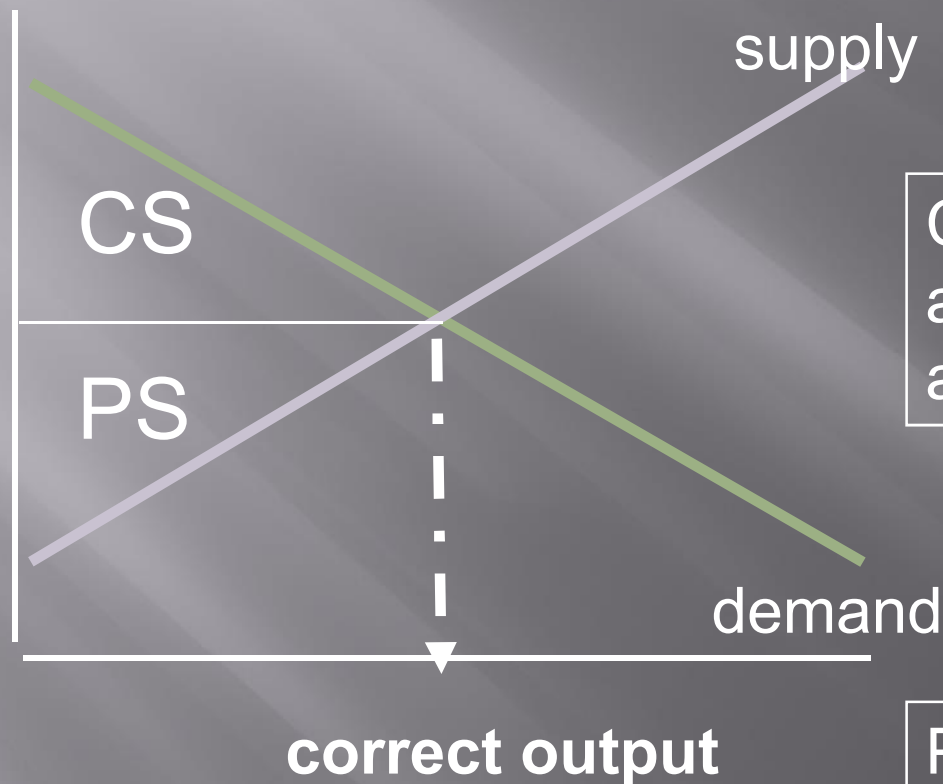# NORMATIVE PROPERTIES of Competitive Markets:

1. The Division of Output Among Firms is EFFICIENT

Suppose 2 firms with different MC

firm 1   firm 2

If firm 2 expands and firm 1contracts production, TC rises.

**2.** The total output of the Industry is CORRECT, *i.e.,* Maximizes the Sum of Consumer & Producer Surplus

supply

CS

PS

demand

correct output

Consumer surplus is area Below demand and Above price

Producer surplus is area Below price and Above supply

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3. In the LR, each firm produces at the lowest point of their AC curves

MC

AC

P_{LR}

Q (at least cost point)
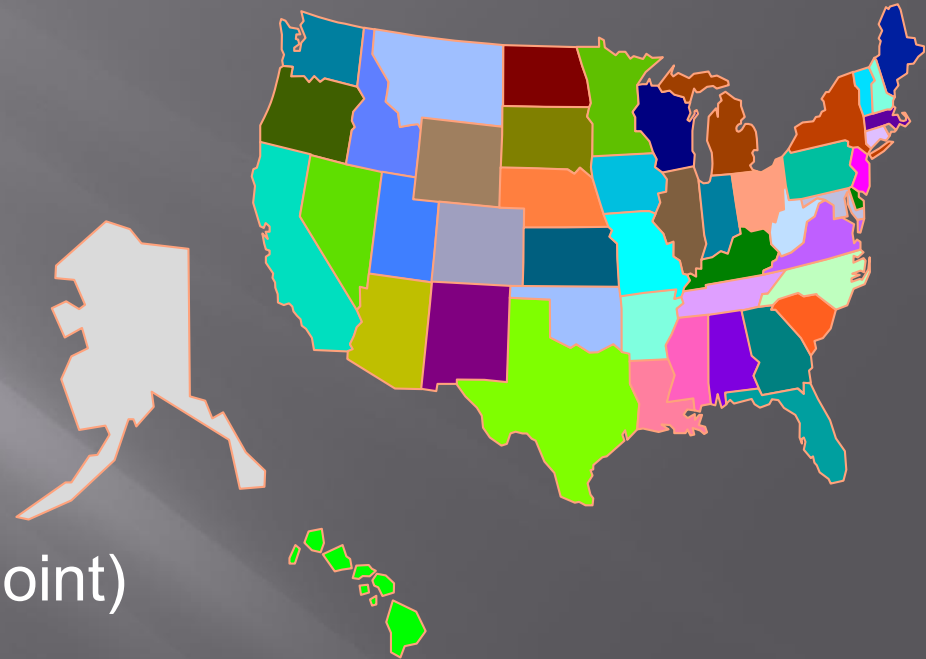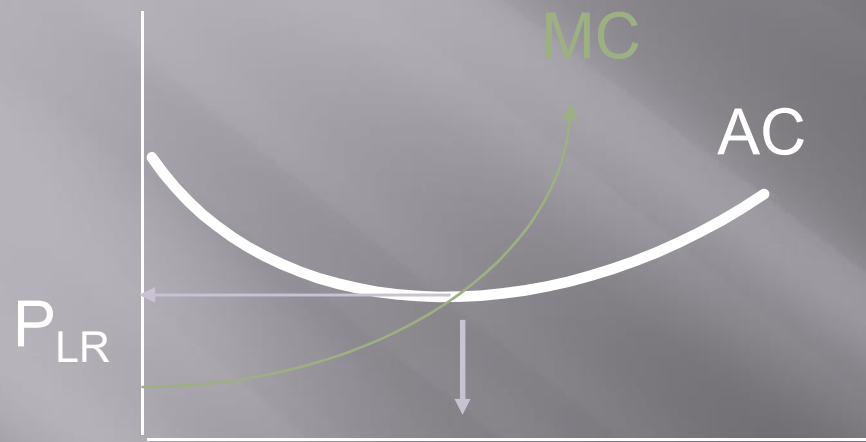
4. Political Decentralization
5. Price signals the true cost to society
6. Economic profits are zero in the LR

PROBLEM: The following is given:

For the industry:

$$Q_S = 3000 + 200\,P \text{ and}$$

$$Q_D = 13500 - 500\,P$$

For the firm:

$$FC = 50$$

$$MC = 15 - 4\,Q + 3\,Q^2 / 10$$

$$AVC = 15 - 2\,Q + Q^2 / 10$$

FIND OPTIMAL **output** for this firm.

Answer: Find equilibrium price. Set D = S
we see 3000 + 200 P = 13500 - 500 P. This implies:

10500 / 700 = P = **$15**.

At this price, the firm produces where P = MC, so
$15 = 15 - 4 Q + 3 Q² / 10

$$4Q = .3 Q^2$$
$$\text{so } Q = 13.33$$

PROFIT = TR - TC at this output.

Profit = (15)(13.33) - 50 - 81.43 = $68.52
= *TR - FC - VC*

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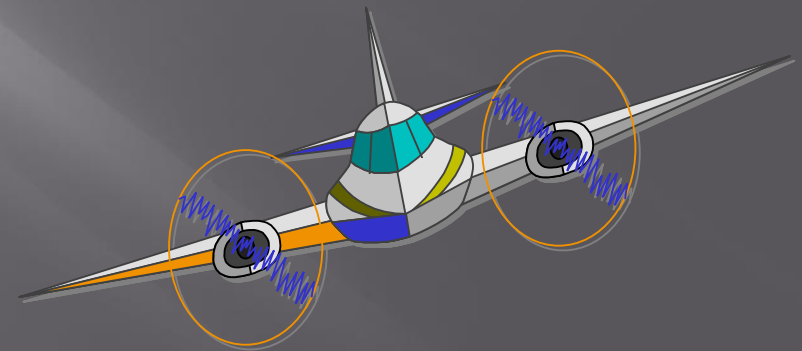Özsoy

Two Theories on Competition & Price

- The **MORE firms** there are, the greater is competition, and the lower is price

- **Contestable Markets**--Potential Entry as well as actual number of firms, so the number of actual firms may not matter empirically

PRICE
of Air
Travel

no effect after
a certain number
of firms

MES

N = number of firms

Price-cost margin percentage $(PCM) \equiv (P - MC)/P.$

- A price cut may help or hurt profitability depending on price elasticities and price cost margins.

- See how much quantity must change after a price cut to breakeven If the price cut were 10%, to breakeven the percentage change in quantity $(\Delta Q/Q)$ must be large enough to satisfy the equation:

$$\textbf{PCM / (PCM – .10) > (1 + } \Delta Q/Q \textbf{).}$$

- The larger is the price-cost margin percentage, the smaller will be the necessary quantity response to justify cutting price.

Examples

- If the <u>PCM = .8</u> or 80%
- Then a 10% cut in price must increase output by:
- **PCM / (PCM – .10)** = .8/.7 = 1.14286 = **(1 + ΔQ/Q)**.
- So a 14.3% increase in output would keep profits constant
- If the price elasticity > 1.43, it should work
- %ΔQ / %ΔP = +14.3% / 10% = - 1. 43

- If the <u>PCM = .2</u> or 20%
- Then a 10% cut in price must increase output by:
- **PCM / (PCM – .10)** = .2/.1 = 2
- So a 100% increase in output is necessary to keep profits constant
- Only if the price elasticity > - 10, would it work
- %ΔQ / %ΔP = +100% /-10% = - 10

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Monopolistic Competition

- Monopolistic Competition
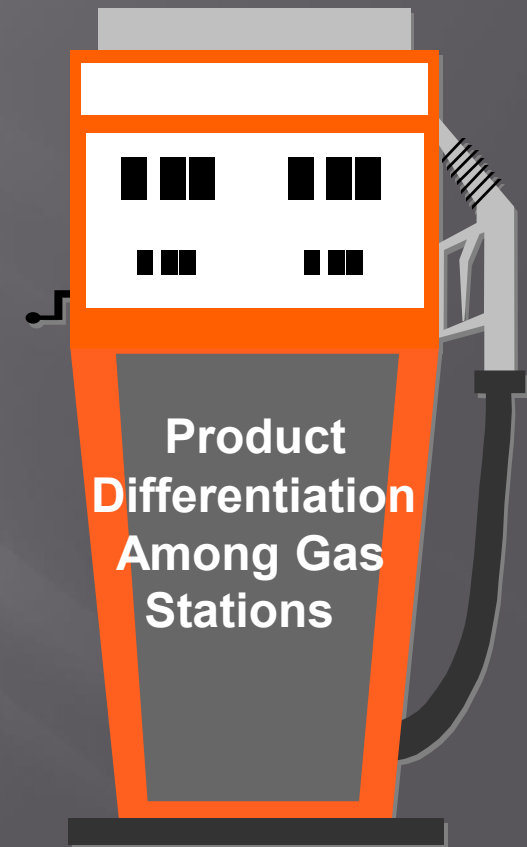 - MARKET STRUCTURE
    - Many Firms and Many Buyers
    - Easy Entry & Exit
    - PRODUCT DIFFERENTIATION ! ! !
- Historical Background
  - Joan Robinson "Economics of Imperfect Competition," 1933
  - Edward Chamberlin, "Theory of Monopolistic Competition, 1933
    - Small Groups & Large Groups

Product Differentiation Among Gas Stations

Product Differentiation

- **Differentiation** occurs when consumers perceive that a product differs from its competition on any physical or nonphysical characteristic, including price.

- **Examples:** restaurants, dealer-owned gas stations, Video rental stores, book & convenience stores, *etc*.

- **Assumptions of the Model:**
  - Large number of firms
  - Differentiated Product
  - Conditions of Cost and Demand are Similar
  - Easy Entry & Exit

Basic Model of Monopolistic Competition

- In the Short Run
  - produce where MR= MC
  - price on the demand curve
- NOTICE:
  - P > MC
  - economic profits exist
    P > AC
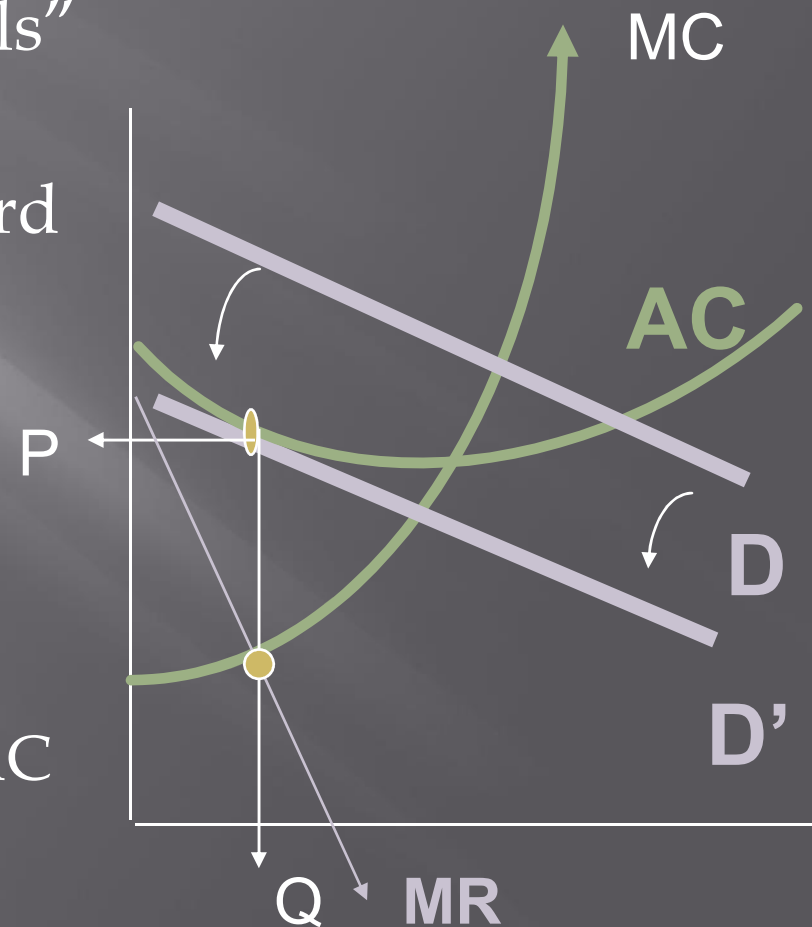 - there exists incentives for entry into this industry
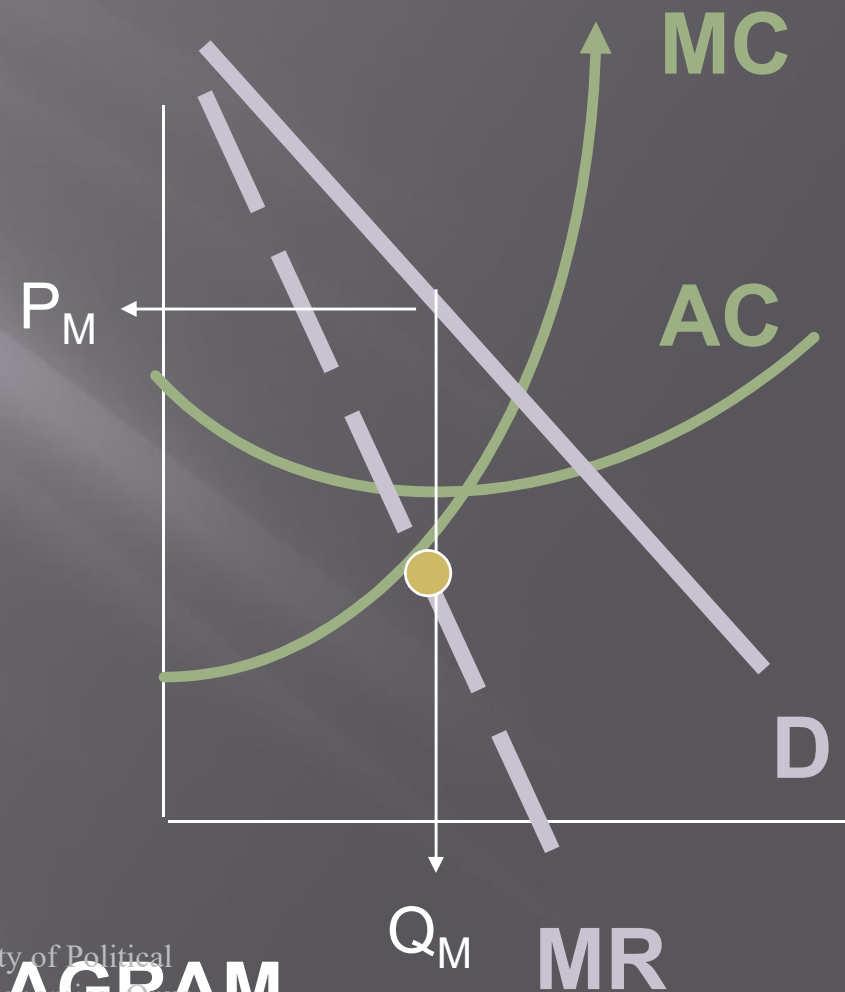
SHORT RUN DIAGRAM

P_M

Q_M

MC

AC

D

MR

Profits in the SR Induces Entry

- Entry in this industry "steals" customers.
- **Demand curve shifts** inward
- RESULTS
  - **MR = MC** (like monopoly)
  - **P = AC** (like competition)
  - **Profits in LR are zero** (like competition)
  - not at Least Cost Point of AC curve (like monopoly)

MC

AC

P

D

D'

Q   MR

LONG RUN DIAGRAM

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Properties of Monopolistic Competition

- **Dead Weight Social Loss** continues to exist
- Inefficient Production
  - **EXCESS CAPACITY**
    - not at least cost point of AC curve
  - Could Avoid Excess Capacity by **JOINTLY PRODUCING** at the same plant

- Kroger Salt & Morton Salt OR **Sears'** Kenmore and Whirlpool
- **Location** -- hard to jointly produce
- Does the decline in profits **stifle** innovation?
- Is there **too much** product differentiation?

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A Continuum of Market Structures

pure competition ✔

monopolistic competition ✔

oligopoly

monopoly

Oligopoly

1. **few firms**
2. the products may be differentiated or standardized
3. there is a noticeable degree of interdependence among the firms

Many outcomes are possible in oligopolies, ranging from acting nearly competitively to acting like a monopoly.

Monopoly

1. **one firm**

2. a perfectly differentiated product (low cross price elasticities with other products.

3. substantial barriers to entry, such as absolute cost advantages, consumer loyalty, scale economies, large capital requirements, or legal barriers to entry.

What Went Wrong With Amazon.com?
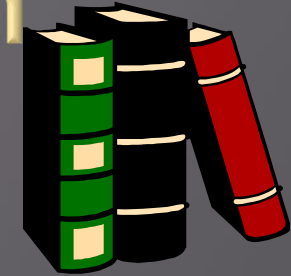
- Stocks only 1,000 books but displays 2.5 million

- Barnes & Noble and Borders are profitable, but Amazon didn't earn a profit

- Classic example of a business with low barriers to entry

- Internet buyers are very price conscience, as they can shop multiple sites with *MySimon.com* and others