

Principles of Microeconomics

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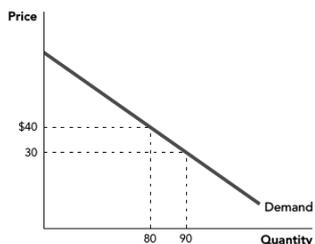
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For each pair below, choose the case where the cartel is more likely to stick together.

- An industry where it's easy for new firms to enter vs. an industry where the same firms stick around for decades.
- When the government makes it legal for all the firms to agree on prices vs. when the government makes it illegal for all firms in an industry to agree on prices.
- Cartels where all the industry leaders went to the same schools and live in the same neighborhood vs. cartels where the industry leaders don't really know or trust each other.
- An industry where it's easy for a firm to sell a little extra product without anyone knowing (e.g., music downloads) vs. an industry where all sales are public and visible (e.g., concert tickets).
- An industry where a high price spurs new production vs. an industry with highly inelastic supply.

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The 5 landscapers in your neighborhood form a cartel and decide to restrict output to 16 lawns each per week (for a total of 80 lawns in the entire market) in order to keep prices high. Assume that the marginal cost of mowing a lawn is a constant \$10 per lawn.

- What is the market price under the cartel's arrangement? How much profit is each landscaper earning per week under this arrangement?
- Suppose one untrustworthy landscaper decides to cheat and increase her own output by an additional 10 lawns. For this landscaper, what is the total increase in revenue from such behavior? What is the marginal revenue per lawn from cheating? Which is higher: the marginal revenue from the extra lawns, or the marginal cost?
- Is it a good idea for the untrustworthy landscaper to cheat? What considerations, other than weekly profit, might enter into the landscaper's decision about whether to cheat?

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True or false?

A price-discriminating business will be willing to spend money to make a product worse. Why?

The textbook mentions that airlines charge much more for flights booked at the last minute than for flights booked well in advance, even for exactly the same flight. This is because people who tend to book at the last minute tend to have inelastic demand.

Think of other characteristics that airlines use to vary their pricing: Do you think these characteristics are correlated with business travel or any other sort of inelastic demand?

Usually, we think of cheating as a bad thing. But in this chapter, cheating turns out to be a very good thing in some important cases.

- Who gets the benefit when a cartel collapses through cheating: consumers or producers?
- Does this benefit usually show up in a lower price, a higher quantity, or both?
- Does cheating increase consumer surplus, producer surplus, or both?
- So, is cheating good for the cheaters or good for other people?

Suppose Sam sells apples in a competitive market, apples picked from his apple tree. Assume all apples are equal in quality, but grow at different heights on the tree. Sam, being fearful of heights, demands greater compensation the higher he goes: So for him, the cost of grabbing an apple rises higher and higher, the higher he must climb, as shown in the Total Cost column below. The market price of an apple is \$0.50.

- What is Sam's marginal revenue for selling apples?
- Which apples does Sam pick first? Those on the low branches or high branches? Why?
- Does this suggest that the marginal cost of apples is increasing, decreasing, or staying the same as the quantity of apples picked increases? Why?

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Competition vs. Collusion

Prisoner's dilemma

d Complete the table below.

| Apples | Total Cost | Marginal Cost | Marginal Revenue | Change in Profit |
|--------|------------|---------------|------------------|------------------|
| 1 | \$0.10 | \$0.10 | \$0.50 | \$0.40 |
| 2 | \$0.22 | \$0.12 | \$0.50 | \$0.38 |
| 3 | \$0.50 | \$0.28 | \$0.50 | \$0.22 |
| 4 | \$1.00 | \$0.50 | \$0.50 | \$0.00 |
| 5 | \$1.73 | \$0.73 | \$0.50 | -\$0.23 |
| 6 | \$2.78 | \$1.05 | \$0.50 | -\$0.55 |

e How many apples does Sam pick?

Payoff matrix for the price setting game

| | | Firm 2 | |
|--------|---|--------|--------|
| | | 4 | 6 |
| Firm 1 | 4 | 12, 12 | 20, 4 |
| | 6 | 4, 20 | 16, 16 |

Question: Why do both firms charge only 4 Euro even though they could increase their profits if both charged 6 Euro?

- ▶ Both firms play a *non-cooperative game*.
- ▶ Each firm optimizes its decision by considering the behavior of his competitor.

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Price signaling & price leadership – A Cartel Model

- ▶ In some oligopolistic industries a tacit agreement between firms emerges after a period of stable price setting patterns. The firms begin to collude.
- ▶ In other oligopolistic industries competitors remain aggressive and no tacit agreement emerges. The firms keep competing.

Price signaling

Tacit agreement under which one firm can expect that other firms will follow if it announces a price change.

Price leadership

Price formation pattern under which one and the same firm regularly announces new prices that other firms accept and implement themselves afterwards

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New Entry as a Limit on the Cartelization Strategy and Price Wars

- ▶ The threat of outside competition limits oligopolies from acting as a cartel
- ▶ The threat will be more effective if the outside competitor is much larger than the firms in the oligopoly
- ▶ Price wars are the result of strategic pricing decisions gone wild
- ▶ A predatory pricing strategy involves temporarily pushing the price down in order to drive a competitor out of business

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Competition vs. Collusion – The Cartel Model

- ▶ A best price policy promising the customer that he can buy the good always at the lowest price any (nearby) competitor charges for the good is a coordination device of a high price cartel. The customer has to pay a higher price than without the best price policy.

Implicit Price Collusion

- ▶ Explicit (formal) collusion is illegal in most countries while implicit (informal) collusion is permitted
- ▶ Implicit price collusion exists when multiple firms make the same pricing decisions even though they have not consulted with one another
- ▶ Sometimes the largest or most dominant firm takes the lead in setting prices and the others follow

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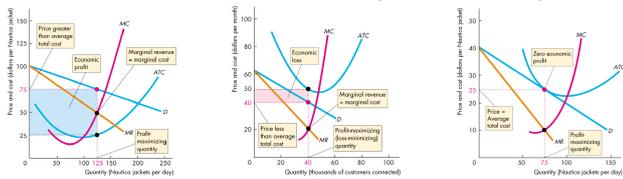
Characteristics of Monopolistic Competition

Four distinguishing characteristics:

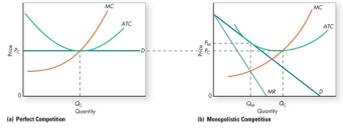
1. Many sellers that do not take into account rivals' reactions
2. Product differentiation where the goods that are sold aren't homogeneous
3. Multiple dimensions of competition make it harder to analyze a specific industry, but these methods of competition follow the same two decision rules as price competition
4. Ease of entry of new firms in the long run because there are no significant barriers to entry

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Output, Price, and Profit of a Monopolistic Competitor



- ▶ Like a monopoly,
 - ▶ The monopolistic competitive firm has some monopoly power so the firm faces a downward sloping demand curve
 - ▶ Marginal revenue is below price
 - ▶ At profit maximizing output, marginal cost will be less than price
- ▶ Like a perfect competitor, zero economic profits exist in the long run



Advertising

What functions does advertising serve?

Comparing Monopolistic Competition with Monopoly

- ▶ It is possible for the monopolist to make economic profit in the long run because of the existence of barriers to entry
- ▶ No long-run economic profit is possible in monopolistic competition because there are no significant barriers to entry
- ▶ For a monopolistic competitor in long-run equilibrium,

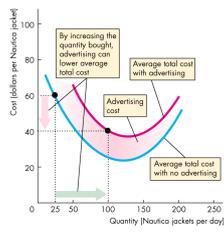
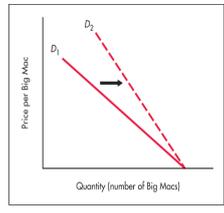
$$(P = ATC) \geq (MC = MR)$$

Advertising

- ▶ "Informative" Advertising: price, quality and availability information
- ▶ Advertising as Signaling "If they are spending so much money on advertising for this product, they must expect it to be profitable and around a long time. Must be good."
- ▶ Advertising as Part of the Product: Even if NO information is given, does "Branding" make the product more enjoyable?

Advertising and Monopolistic Competition

- ▶ Perfectly competitive firms have no incentive to advertise, but monopolistic competitors do
- ▶ The goals of advertising are to increase demand and make demand more inelastic
- ▶ Advertising increases ATC
- ▶ The increase in cost of a monopolistically competitive product is the cost of "differentness"



Standards: Competition to acquire monopoly power

- ▶ competition within standards vs competition between standards
- ▶ network effects: demand side economies of scale
- ▶ network markets are "tippy"; coexistence of incompatible products is unstable
- ▶ path dependence

Network Goods

A Network Good is a good whose value to one consumer increases the more that other consumers use the good.

- ▶ Network goods are usually sold by monopolies or oligopolies;
- ▶ When networks are important the “best” product may not always win;
- ▶ Standard wars are common in establishing network goods;
- ▶ Competition in the market for network goods is for the market instead of in the market.

The “Best” Product May Not Always Win

It’s possible for the market to “lock in” to the “wrong” product.

Recall:

A Nash Equilibrium is a situation in which no player has an incentive to change their strategy unilaterally.

| | | | |
|------|-----------|----------|-----------|
| | | Tyler | |
| | | Apple | Microsoft |
| Alex | Apple | (11, 11) | (3, 3) |
| | Microsoft | (3, 3) | (10, 10) |

Both (Apple, Apple) and (Microsoft, Microsoft) are Nash Equilibria depending on who chooses what first. If Alex chooses Apple, Tyler faces a better payoff if he also chooses Apple (11) or a lower payoff if he chooses Microsoft (3) and vice versa.

Competition is “For the Market” instead of “In the Market”

- ▶ Once there is a winning standard, the loser can disappear quite rapidly.
- ▶ Winners are not guaranteed their victory for long.
 - 1988 Lotus 1-2-3 dominates the market.
 - 1998 Excel dominates.
- ▶ It’s normal for just a few firms to dominate some markets. Does this make us worse off?

Monopolies and Oligopolies Sell Network Goods

Network goods typically involve one firm providing a dominant standard at a high price.

- ▶ These markets usually include a number of other firms offering a slightly different product.
- ▶ These firms tend to service niche areas in the market.

Standard Wars are Common

| | | | |
|---------|---------|---------|---------|
| | | Sony | |
| | | HD-DVD | Blu-Ray |
| Toshiba | HD-DVD | (10, 8) | (0, 0) |
| | Blu-Ray | (0, 0) | (8, 10) |

- ▶ Both companies prefer a standard to none
- ▶ Two Nash equilibria exist

Postscript: The Sony group won the standard war when Blu-Ray technology was imbedded into the Sony PlayStation 3 and increased the audience for Blu-Ray

competition between standards

- ▶ Asymmetric market shares
- ▶ Build early lead
- ▶ Attract suppliers of complements
- ▶ Pre-announce products
- ▶ Price commitments
- ▶ Frequent changes of technology
- ▶ Effect of standard: Limits supply

competition within standards

- ▶ Symmetric market shares
- ▶ Low Cost licensing under Reasonable and non-discriminatory terms (RAND), also known as fair, reasonable, and non-discriminatory terms (FRAND)
- ▶ Hybrid standards
- ▶ Joint or third party development
- ▶ Effect of shared standard: fosters competition on the market

Do you use Facebook?

If so, how much would you REALLY be willing to pay per month for access to Facebook? (if not, use your best guess)

- a \$0
- b \$1.99
- c \$4.99
- d \$9.99
- e \$19.99

Contestable Markets

Contestable Market: when a competitor could credibly enter and take away business from the incumbent.

- ▶ Large market share does not necessarily mean the firm's position is safe
- ▶ Markets are more contestable when:
 1. Fixed costs of market entry are low, relative to potential revenue.
 2. There are few or no legal barriers to entry.
 3. The incumbent has no unique, hard-to-replicate resource.
 4. Consumers are open to the prospect of dealing with a new competitor.

Limiting Contestability with Switching Costs

Facebook hosts free photos: bad business decision? Or saavy?

If you are embedded with Facebook, are you less likely to switch to another network?

If switching costs rise, demand will be less elastic (and firms can charge more)

Music can be considered a network good in the sense that...

1. many people today listen to music online and over computer networks.
2. the preferences of individual consumers are independent of what others like.
3. music is produced by large networks of bands, record labels, and music stores.
4. many consumers prefer to purchase music that others purchase as well.

Music Is a Network Good

An ingenious experiment by Duncan J. Watts (Columbia University) demonstrated that tastes in music have a strong social component.

Watts discovered that the more downloads a song had, the more people wanted to download the song.