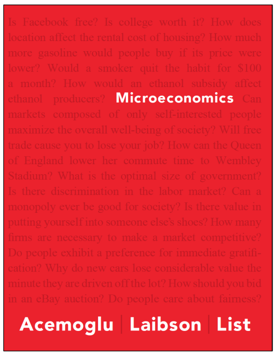


Chapter 14 Oligopoly and Monopolistic Competition

Modified by Joseph Tao-yi Wang

Chapter Outline

Key Ideas

1. Two market structures that lie between perfect competition and monopoly are oligopoly and monopolistic competition.
2. In both of these markets the seller must recognize actions of competitors.
3. In oligopolies, economic profits in the long run can be positive.

Key Ideas

4. In monopolistically competitive markets, entry and exit drive economic profits to zero in the long run.
5. There are several important variables such as the number of firms in the industry, the degree of product differentiation, entry barrier, and the presence or absence of collusion that determine the competitiveness of a market.

Evidence-Based Economics Example

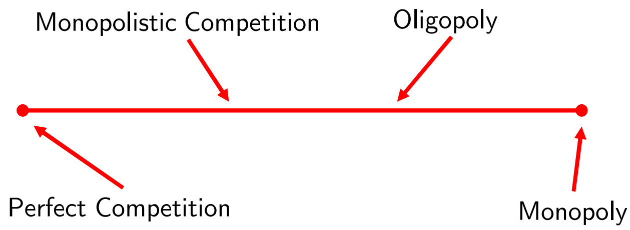
How many firms are necessary to make a market competitive?

Oligopoly and Monopolistic Competition

- Why do firms say they will match a competitor's price?

Two More Market Structures

- Between the two extremes…



Two More Market Structures

- Differentiated products
  - Goods that are similar but not identical
- Homogeneous products
  - Goods that are identical, making them perfect substitutes
- Two characteristics of markets:

1. The number of firms AND
2. The degree of product differentiation

Two More Market Structures

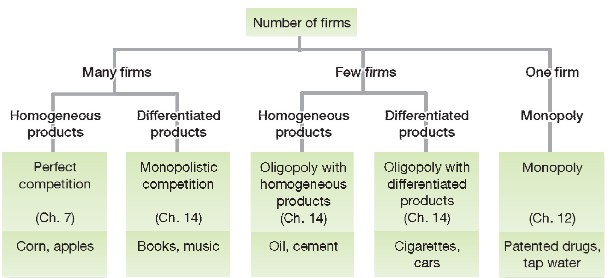


Exhibit 14.1 Characteristics of Four Market Structures

Two More Market Structures: Oligopoly

- Market where there are only a few firms competing
- Products can be either homogeneous or differentiated
- Significant barriers to entry and exit
- Each firm's decisions are dependent upon other firms' actions
- Positive economic profits in the long run

Two More Market Structures: Monopolistic Competition

- Many competing firms
- Products are similar but slightly differentiated
- No barriers to entry or exit
- Zero economic profits in the long run

Oligopoly can sell either…

- Homogeneous products—examples:
  - Steel
  - Oil
  - Gasoline
  - Computer hard drives
- Differentiated products—examples:
  - Cereal
  - Automobiles
  - Laundry detergent
  - Cigarettes

Oligopoly
Oligopolist's problem

1. Like a monopolist, has
   - significant barriers to entry,
   - resulting in long-run economic profits
2. High degree of interdependence
   - between the few firms that occupy the market

Oligopoly: Oligopoly Model with
Homogeneous Products

- Duopoly: Industry with two firms
  - Example: two landscaping companies, Dogwood and Rose Petal (sell homogeneous products)
- How much market power do these companies have?
  - Because products are perfect substitutes, if they charge the same price, they will split the market.
- What if one firm lowers its price?

Oligopoly: Oligopoly Model with
Homogeneous Products

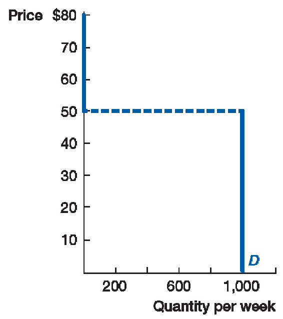


Exhibit 14.2 Market Demand Curve for an Oligopoly with Homogeneous Products

Oligopoly: Oligopoly Model with
Homogeneous Products

- Residual demand
  - The demand not met by the other firm(s) and
  - dependent on the prices of all the firms in the industry

Oligopoly: Oligopoly Model with
Homogeneous Products

- Dogwood is charging $50
- Rose Petal is charging $45
  - Both have a MC of $30
  - Who would you pick to do your landscaping?

1. Is this a Nash equilibrium?
2. What should Dogwood do?
3. What should Rose Petal do?

Oligopoly: Oligopoly Model with
Homogeneous Products

- Where does the madness end????
- At P = $30!
- Long run equilibrium:
  - P = MC
- Does this look familiar?

Oligopoly: Oligopoly Model with Differentiated Products

- Because products are differentiated,
  - the demand function is not all-or-nothing.
- Firms can charge higher prices and not lose all sales because
  - the differentiation creates preferences on the part of consumers.

Oligopoly: Oligopoly Model with Differentiated Products

- Example: Coke and Pepsi
  - If Coke raises its price, it will lose sales to Pepsi,
  - but (unlike sales of homogeneous products)
- Coke's sales won't go to zero
  - because of differentiation.
  - Some consumers would still rather have Coke, for example.

Oligopoly: Oligopoly Model with Differentiated Products

- How should Coke and Pepsi decide on their prices?
  - It depends…
- Whether Coke thinks Pepsi will match a lower price
- Whether Coke thinks Pepsi will match a higher price

Oligopoly: Collusion: One Way to Keep Prices High

- How could oligopolists avoid a price war?
- Collusion
  - Firms conspiring to set the quantity or the market price
- This is illegal! But what if it weren't illegal?
  - Could Rose Petal and Dogwood agree to charge $50, divide the market, and each do 500 jobs?

Oligopoly: Collusion: One Way to Keep Prices High

- Collusion is not illegal in some places!
- Cartel
  - A formal organization of producers who collude
- OPEC (Organization of the Petroleum Exporting Countries)
  - Comprised of oil-producing nations that collude to control the price of oil by limiting production

Oligopoly: Collusion: One Way to Keep Prices High

- When can collusion work?
  - If there is an enforcement mechanism
  - If the long-run profits associated with not cheating outweigh the short-run gains of cheating

Oligopoly:
Collusion: One Way to Keep Prices High

- Why do firms say they will match a competitor's price?

Monopolistic Competition

- Shares all of the characteristics of perfect competition except
- monopolistic competitors sell products that are slightly different.
- Examples:
  - Clothing firms
  - Restaurants
  - Over-the-counter medications
  - Food manufacturers

Monopolistic Competition
The Monopolistic Competitor's Problem

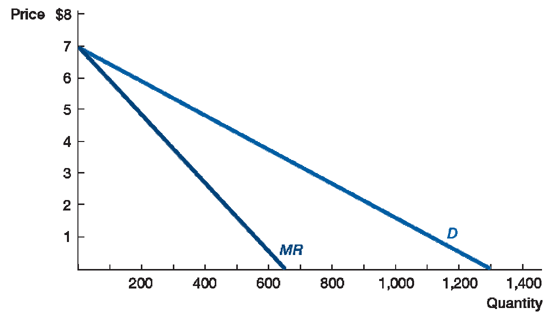


Exhibit 14.5 Dairy Queen's Demand Curve and Marginal Revenue Curve

Monopolistic Competition
The Monopolistic Competitor's Problem

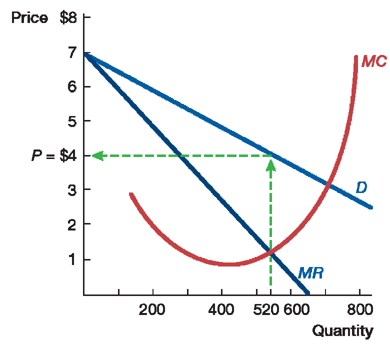


Exhibit 14.6 Optimal Pricing Strategy for a Monopolistic Competitor

Monopolistic Competition
The Monopolistic Competitor's Problem

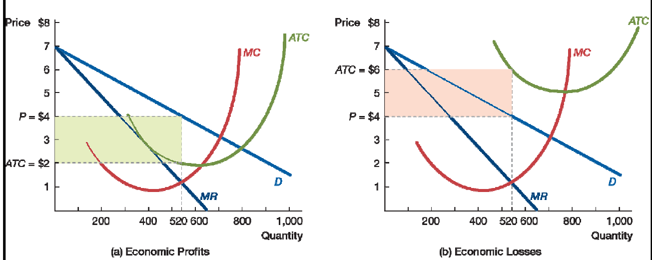


Exhibit 14.7 Economic Profits and Economic Losses

Monopolistic Competition
The Monopolistic Competitor's Problem

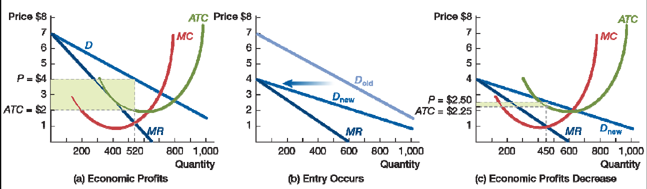


Exhibit 14.8 The Effect of Market Entry on an Existing Firm's Demand Curve

Monopolistic Competition
The Monopolistic Competitor's Problem

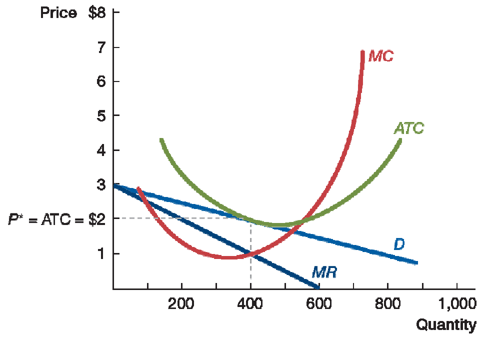


Exhibit 14.6 Optimal Pricing Strategy for a Monopolistic Competitor

The "Broken" Invisible Hand

Market power breaks the hand...

The "Broken" Invisible Hand

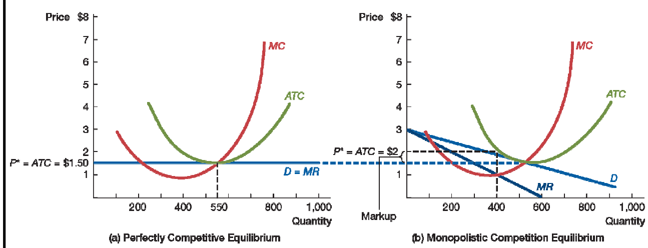


Exhibit 14.10 Equilibria for a Perfectly Competitive Market and a Monopolistically Competitive Market

The "Broken" Invisible Hand
Regulating Market Power

- Should the government regulate, in the case of market power?
  - It depends.
- It might if
  - There is suspected collusion
  - The benefits exceed the costs
  - The industry is too concentrated

The "Broken" Invisible Hand
Regulating Market Power

- Herfindahl-Hirschman Index
  - measure of market concentration to determine degree of competition
- HHI is sum of square of market share of each firm.
  - The higher the HHI, the more concentrated the industry.

Summing Up: Four Market Structures

	Perfect Competition	Monopolistic Competition	Oligopoly	Monopoly
Number of Firms/Sellers/ Producers	Many	Many	A few	One
Type of Product/ Service Sold	Identical (homogeneous)	Slightly differentiated	Identical or differentiated	Single, undifferentiated product or service
Example of Product	Corn grown by various farmers	Books; CDs	Oil (identical); cars (differentiated)	Patented drugs; tap water
Barriers to Entry	None: free entry and exit	None; free entry and exit	Yes	Yes: high
Price-Taker or Price-Maker?	Price-taker; price given by the market	Price-maker (with a recognition of other sellers)	Price-maker (with a strong recognition of other sellers)	Price-maker—no competitors; no perfect substitutes
Price	$P = MR = MC$	Set $P > MR = MC$	Set $P > MR = MC$ or $P = MR = MC$ depending on type of competition and product differentiation.	Set $P > MR = MC$
Residual Demand Curve	Horizontally sloped; perfectly elastic demand curve	Downward-sloping: slightly differentiated products are available	Downward-sloping	Downward—sloping
Social Surplus	Maximized	Not maximized But society might benefit from product diversity	Not maximized	Not maximized But sometimes society benefits from research and development
Long-run Profits	Zero	Zero	Zero or more than zero	More than zero

Exhibit 14.11 Four Market Structures

Evidence-Based Economics Example

How many firms are necessary to make a market competitive?

Homework

- ALL Chap.14, Problem 2, 4, 8, 10
  - Bonus Question (See next slide)
- Challenge Questions (from Past Finals)
  - 2007 - Essay Q1, Q3
  - 2008 - Multi-Choice Q6-Q8, Essay C
  - 2009 - Multi-Choice Q6, Q8, Essay A, B, C
  - 2010 - Multi-Choice Q1, Q7, Q8
  - 2012 - Essay III
  - 2013 - Essay II, III
  - 2014 - Essay A, C
  - 2015 - Essay C & D

Bonus Question 1 (ALL 14-6)

  - Tobacco companies have often argued that they advertise to attract more people who already smoke and not to persuade more people to begin smoking.
- Suppose there were just two cigarette manufacturers, Jones and Smith.
  - Each can either advertise or not advertise.
- If neither advertises, they each capture 50 percent of the market and each earns $10 million.

Bonus Question 1 (ALL 14-6)

- If they both advertise, they again split the market evenly, but each spends $2 million on ads and so each earns just $8 million
  - (remember, advertising is not supposed to encourage more people to smoke).
- If one company advertises but the other does not, then the company that advertises attracts many of its rival's customers.
  - As a result, the advertising company earns $12 million and the other earns just $6 million.

Bonus Question 1 (ALL 14-6)

1. Show that advertising is a dominant strategy.

2. Suppose the government proposes a ban on cigarette ads.
   - Should the two cigarette companies favor the ban or should they oppose the ban
   - if advertising did not persuade some people to become smokers?

Bonus Question 1 (ALL 14-11)

- Major league baseball teams have imposed the "luxury tax" on themselves.
  - A team is subject to the tax if its payroll exceeds a specific level. The annual threshold for the luxury tax is $189 million for 2014-16.
- A team that exceeds the threshold must pay
- 17.5% to 50% of the amount by which
  - its payroll is above the threshold, where the "tax rate" depends on the number of years the team is over.

Bonus Question 1 (ALL 14-11)

- This question looks at why teams might subject themselves to this tax.
- Suppose there are two MLB teams,
  - Yankees and Red Socks.
- They will both choose to offer either high salaries to players or low salaries.
  - They will make their decisions simultaneously.
- If both choose low, each will earn $0;
- if both choose high each will earn $400.

Bonus Question 1 (ALL 14-11)

- If one chooses high & the other chooses low,
  - the high team will attract the best players and earn $600, but the low team will earn just $300.

1. Show that high is a dominant strategy but both would be better off if both chose low.
   - Under a 1922 Supreme Court decision, MLB is not subject to many antitrust laws.
2. Suppose these two teams agree to a luxury tax so whoever chooses high must pay a tax of $250. Find the new equilibrium.

Bonus Question 1 (ALL 14-11)

  - Some people might argue that the luxury tax in MLB is not an important determinant of major league salaries.
- As evidence, they show that team payrolls rarely exceed the threshold level and so teams rarely pay the tax.

3. What does your answer to this question suggest about the logic of this claim?