CHAPTER 9
Monopolistic Competition and Oligopoly
In this chapter you will learn:

9.1 The characteristics of monopolistic competition
9.2 About price and output in monopolistic competition
9.3 The characteristics of oligopoly
9.4 How game theory relates to oligopoly
9.5 The incentives and obstacles to collusion among oligopolies
9.6 The positive and potential negative effects of advertising
9.1 Characteristics of Monopolistic Competition

• Relatively Large Number of Sellers
  – Small Market Shares
  – No Collusion
  – Independent Action
Characteristics of Monopolistic Competition

Differentiated Products
  Product Attributes
  Service
  Location
  Brand Names and Packaging
  Some Control Over Price
Characteristics of Monopolistic Competition

Relatively Large Number of Sellers
Differentiated Products
Easy Entry and Exit
Advertising
Measures of Industry Concentration

Concentration Ratio

• The % of total output produced and sold by an industry’s largest firms
• Industry considered oligopolistic if four-firm concentration ratio > 40%
Figure 9-1
% of Output Produced by Four Largest Firms in Selected Low-Concentration Sectors

- occupational clothing industry
- plastic bag industry
- feed industry
- fish products
- children's clothing industry
- construction & mining machinery
- sawmills & planing mills products
- metal dies & moulds
- women's clothing contractors
- sign & display industry
- machine shop industry

% of industry total
9.2 Price and Output in Monopolistic Competition

Complications:
Persistent positive profits may persist if:

• there is continuing and significant product differentiation

• entry is somewhat limited by the financial investment required to establish product differentiation

Overall, we still expect the general results
Figure 9-2 Monopolistic Competition

Short-Run Profits

Price and Costs

Economic Profit

MR = MC

D1

MC

ATC

P1

A1

0

Q1

Quantity

LO 9.2
**Monopolistic Competition**

**Short-Run Losses**

- **Price and Costs**
- **Quantity**

- **LO 9.2**
Monopolistic Competition

Long-Run Equilibrium

\[ P_3 = A_3 \]

\[ Q_3 \]

\[ MC \]

\[ ATC \]

\[ D_3 \]

\[ MR = MC \]
Monopolistic Competition and Efficiency

1. Allocative Efficiency
   \[ P > MC \]
   Too little is produced

2. Productive Efficiency
   Costs high
   Excess capacity
Product Variety

Benefits
Better match to consumer tastes
Better products
Tradeoff between variety and efficiency

Further Complexity
Price, product, and advertising must be juggled to achieve maximum profit
Figure 9-3 Monopolistic Competition

\[ P = MC = \text{Min ATC for pure competition (recall)} \]

Monopolistic competition is not efficient

\[ Q_3 \]

\[ Q_4 \]

Price is Lower

Excess Capacity at Minimum ATC

LO 9.2
9.3 Oligopoly: Characteristics

A Few Large Producers
Homogeneous or Differentiated Products
Control Over Price, but Mutual Interdependence
Entry Barriers
  - Economies of scale
  - High capital costs
  - Ownership of raw materials
Mergers

LO 9.3
Measures of Industry Concentration

Concentration Ratio

• Three shortcomings:
  1. Localized Markets
  2. Interindustry Competition
  3. World Trade
  4. Dominant Firms

• Herfindahl Index

\[ \text{Herfindahl Index} = (\%S_1)^2 + (\%S_2)^2 + (\%S_3)^2 + \ldots + (\%S_n)^2 \]
Figure 9-4
% of Output Produced by the Four Largest Firms in Selected High-Concentration Industries

- tobacco products: 4775
- brewery products: 4365
- potato chip, pretzel & popcorn: 3481
- motor vehicles: 2453
- tea & coffee: 2273
- biscuit industry: 2069
- frozen fruit & vegetables: 1965
- steel pipe & tube: 1038

Herfindahl Index

% of industry output

LO 9.3
9.4 Game Theory Overview

Oligopolists must make plans in light of the actions and expected reactions of their rivals.

Basic concepts:
- Players
- Rules
- Strategies
- Payoffs
- Equilibrium
Prisoner’s Dilemma

Two prisoners cannot communicate
Difficult to cooperate, even when mutually beneficial
Prisoner’s Dilemma Payoff Matrix

Figure 9-5

Al’s strategies

Bruno’s strategies

Confess

Not confess

Confess

Not confess

A 4

B 12

C 1

D 2

4

12

1

2

Figure 9-5
### Profit Payoff for a Two-Firm Oligopoly

#### RareAir’s Price Strategy

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Low</th>
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<tbody>
<tr>
<td>High</td>
<td>$12</td>
<td>$6</td>
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<tr>
<td>Low</td>
<td>$15</td>
<td>$8</td>
</tr>
</tbody>
</table>

#### Uptown’s Price Strategy

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#### Collusive Tendencies

If both firms choose a high-price strategy, each earns $12 million in profit.
Strategies in a Two-firm Oligopoly

**RareAir’s price strategy**

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<td>$6</td>
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<tr>
<td>D</td>
<td>$8</td>
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**Uptown’s price strategy**

- **High:**
  - $15 million
- **Low:**
  - $6 million

**If RareAir uses a low-price strategy against Uptown’s high prices,**

- **Uptown’s profits fall to $6 million**
- **RareAir’s profits increase to $15 million**
Strategies in a Two-firm Oligopoly

**Uptown’s price strategy**

- **High**
  - A: $12
  - C: $6
  - Uptown could also profit by switching to lower prices, as long as RareAir charges high prices.

- **Low**
  - B: $15
  - D: $8

**RareAir’s price strategy**

- **High**
  - A: $12
  - B: $15

- **Low**
  - C: $6
  - D: $8

LO 9.4
Strategies in a Two-firm Oligopoly

**RareAir’s price strategy**

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<tr>
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<td>$8</td>
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If both firms shift to a low-price strategy, profits are $8 million.
Strategies in a Two-firm Oligopoly

**RareAir’s price strategy**

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**Uptown’s price strategy**

- A: $12
- B: $15
- C: $6
- D: $8

Incentive to cheat

LO 9.4
9.5 The Incentives and Obstacles to Collusion: Two Oligopoly Strategies

- Two distinct pricing strategies:
  1. Collusive pricing
  2. Price leadership
- There is no one simple model to predict outcomes due to:
  - Diversity of oligopolies
  - Complications of interdependence
Cartels and Other Collusion: Cooperative Strategies

- Collusion: any agreement to fix prices, divide up the market, or otherwise restrict competition
- Each firm acts as if it were a pure monopolist

Illustrated...
Collusion and Joint-Profit Maximization

Price and Costs

Figure 9-7

Economic profit

MR = MC

Q₀

LO 9.5
Cartels and Other Collusion: Cooperative Strategies

- Three identical firms
- Each firm finds it most profitable to charge \( P_0 \), but only if its rivals do
- The answer: collude and agree on price \( P_0 \)
Overt Collusion – The OPEC Cartel

The 12 OPEC nations, daily oil production agreement as of February 2009

The OPEC nations produce about 40 percent of the world’s oil and 60 percent of the oil sold in world markets.

<table>
<thead>
<tr>
<th>OPEC country</th>
<th>Barrels of oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saudi Arabia</td>
<td>7,885,000</td>
</tr>
<tr>
<td>Iran</td>
<td>3,613,000</td>
</tr>
<tr>
<td>Kuwait</td>
<td>2,231,000</td>
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<tr>
<td>Venezuela</td>
<td>2,144,000</td>
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<td>Iraq</td>
<td>2,315,000</td>
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<td>UAE</td>
<td>2,251,000</td>
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<tr>
<td>Nigeria</td>
<td>1,820,000</td>
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<tr>
<td>Angola</td>
<td>1,725,000</td>
</tr>
<tr>
<td>Libya</td>
<td>1,544,000</td>
</tr>
<tr>
<td>Algeria</td>
<td>1,286,000</td>
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<tr>
<td>Qatar</td>
<td>740,000</td>
</tr>
<tr>
<td>Ecuador</td>
<td>476,000</td>
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</tbody>
</table>

Cartels and Other Collusion

Covert Collusion: Relatively Recent Examples

Cement firms in Quebec
Tacit understandings
Obstacles to Collusion

Demand and Cost Differences
Number of Firms
Cheating
Recession
Potential Entry
Legal Obstacles: Competition
Policy

LO 9.5
Price Leadership Model

Dominant firm leads the way

Leadership strategy:
- Infrequent Price Changes
- Communications
- Limit Pricing

Breakdowns in price leadership: price wars
9.6 Oligopoly and Advertising

Oligopolists prefer not to compete on price

Product development and advertising preferred:

Less easily duplicated

Oligopolists have sufficient financial resources
Positive Effects of Advertising

1. Low cost source of information
2. Can diminish monopoly power
3. Can speed up technological progress
Potential Negative Effects of Advertising

1. Only persuasion
2. Misleading claims
3. Barrier to entry
4. Self-cancelling advertising
Global Perspective 9.2

The world’s top 10 brand names, 2007

Here are the world’s top 10 brands, based on four criteria: the brand’s market share within its category, the brand’s world appeal across age groups and nationalities, the loyalty of customers to the brand, and the ability of the brand to stretch to products beyond the original product.

Oligopoly and Efficiency

Impossible to say anything definitive

Outcomes could be identical to monopoly

Unlikely because of:
1. Increased foreign competition
2. Limit pricing
3. Technological advance

LO 9.6
The Last Word: Oligopoly in the Beer Industry

Since WW II degree of concentration has been increasing, mostly due to mergers
Today 80% of production controlled by 2 major companies
However, imports and microbreweries are starting to eat away at market share of majors
Chapter 9 Summary

9.1 Characteristics of Monopolistic Competition
9.2 Price and Output in Monopolistic Competition
9.3 The Characteristics of Oligopoly
9.4 Oligopoly Pricing Behaviour
   A Game Theory Overview
9.5 Two Oligopoly Strategies
   Collusive oligopolists
   Price leadership
9.6 Oligopoly and Advertising