

Chapter 13 Monopolistic Competition and Oligopoly

- Monopolistic competition.
 - Definition.
 - Output and price determination in SR and LR.
 - Explain why advertising costs are high in a monopolistically competitive industry
- Oligopoly
 - Definition.
 - Price and output determination – game theory
 - Cartels
 - Anti-trust laws and regulation of markets

Monopolistic Competition

Characteristics of Monopolistic competition

- A large number of firms.
 - limited market power (demand relatively elastic).
 - Independent decision making
 - Collusion impossible
- Each firm produces a differentiated product.
 - compete on product quality, price, and marketing.
- Firms are free to enter and exit the industry.
 - Economic profits driven to zero in long run

Monopolistic Competition

Red=4 largest.
Green=5-8
Blue=9-20
The numbers are the HHI.



Output and Price in Monopolistic Competition

The Firm's Short-Run Output and Price Decision

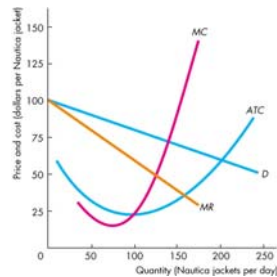
Holding quality and marketing constant, profit maximization is achieved by choosing the price/quantity where

$$MR = MC$$

SR Output and Price in Monopolistic Competition



What is profit maximizing price? Quantity?
 What is the level of profit?
 What is socially efficient level of output?
 What is the deadweight loss?



Output and Price in Monopolistic Competition

Long Run: Zero Economic Profit

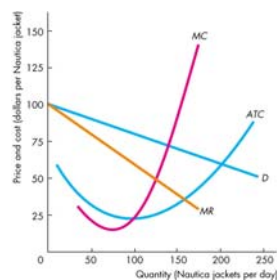
In the long run, economic profit induces entry.

Entry causes demand curve for existing firms to shift downward.

Entry continues as long as firms in the industry earn an economic profit—as long as $(P > ATC)$.

SR Output and Price in Monopolistic Competition

Given the short run equilibrium described, why does entry occur?
 As entry occurs, demand shifts leftward until profit equals zero.

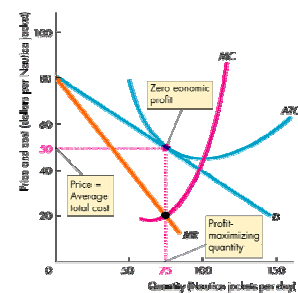


Output and Price in Monopolistic Competition



Diagram at right shows long run equilibrium for a monopolistically competitive firm.

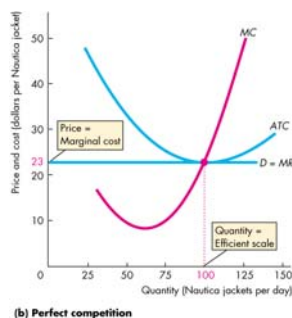
- economic profits?
- price mark-up (P vs MC)?
- excess capacity?
- socially efficient output?
- deadweight loss?



Output and Price in Monopolistic Competition

Contrast to LR equilibrium for firms in perfect competition:

- Economic profits?
- Excess capacity?
- Socially efficient?
- Deadweight loss?



Output and Price in Monopolistic Competition

Is Monopolistic Competition Efficient

Because in monopolistic competition $P > MC$, marginal benefit exceeds marginal cost ("deadweight loss").

But the markup of price above marginal cost arises from product differentiation.

Monopolistic competition brings the profitable and possibly efficient amount of variety to market.

Government tends not to regulate monopolistically competitive markets.

Product Development and Marketing

Innovation and Product Development

To keep earning an economic profit, a firm in monopolistic competition must be in a state of continuous product development.

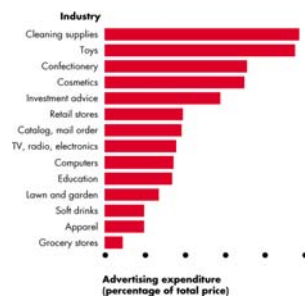
New product development allows a firm to gain a competitive edge, if only temporarily, before competitors imitate the innovation.

Product Development and Marketing

Advertising

Firms in monopolistic competition incur heavy advertising expenditures.

- Why? How can advertising be "profitable"?
- Changes in product demand versus changes in ATC.

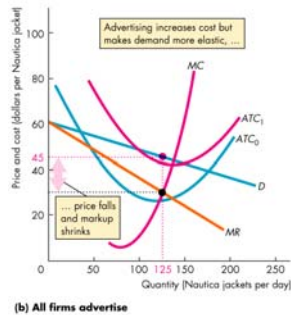


Product Development and Marketing

Advertising could increase product demand and also make it more elastic.

Profits could rise or fall.

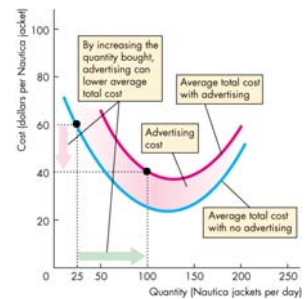
If product demand becomes more elastic, (P-MC) markup could fall.



Product Development and Marketing

With advertising, the firm produces 100 units of output at an average total cost of \$40.

The advertising expenditure shifts the average total cost curve upward, but the firm operates at a higher output and lower ATC than it would without advertising.



What is Oligopoly?

The distinguishing features of oligopoly are:

- Natural or legal barriers that prevent entry of new firms
- A small number of firms compete

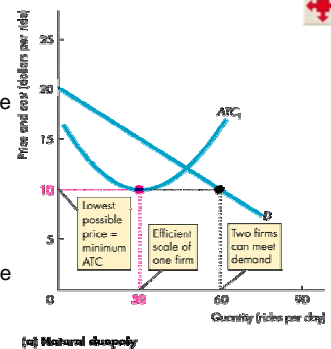
What is Oligopoly?

Barriers to Entry

Either natural or legal barriers to entry can create oligopoly.

With demand as drawn, there is a natural **duopoly**—a market with two firms.

How would answer change if demand increases?



What is Oligopoly?

Small Number of Firms

Because an oligopoly market has a small number of firms, the firms are **interdependent** and face a temptation to cooperate.

Interdependence: With a small number of firms, each firm's profit depends on every firm's actions.

Cartel: A **cartel** is an illegal group of firms acting together to limit output, raise price, and increase profit.

Firms in oligopoly face the temptation to form a cartel, but aside from being illegal, cartels often break down.

What is Oligopoly?

Examples of Oligopoly

An HHI that exceeds 1800 is generally regarded as an oligopoly by Department of Justice.

An HHI below 1800 is generally regarded as monopolistic competition.

Recall earlier caveats on HHI (e.g. geographic boundaries, entry barriers)



Two Traditional Oligopoly Models

The Kinked Demand Curve Model. SKIP IT.

Dominant Firm Oligopoly SKIP IT.

Oligopoly Games

Game theory

▪ a tool for studying strategic behavior, which is behavior that takes into account the expected behavior of others and the mutual recognition of interdependence.

What Is a Game?

All games share four features:

- Rules
- Strategies
- Payoffs
- Outcome.

Oligopoly Games

The Prisoners' Dilemma

Each prisoner is told that both are suspected of committing a more serious crime.

If one of them confesses, he will get a 1-year sentence for cooperating while his accomplice gets a 10-year sentence for both crimes.

If both confess to the more serious crime, each receives 3 years in jail for both crimes.

If neither confesses, each receives a 2-year sentence for the minor crime only.

Oligopoly Games

Nash equilibrium—first proposed by John Nash -- if a player makes a rational choice in pursuit of his own best interest, he chooses the action that is best for him, given any action taken by the other player.

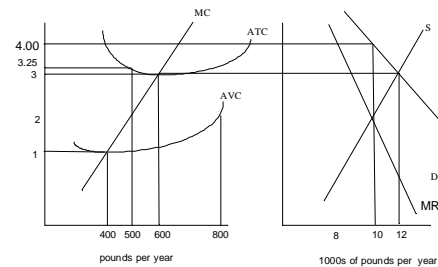
What's the Nash Equilibrium?

What's the "cooperative" equilibrium?

		Art's strategies	
		Confess	Deny
Bob's strategies	Confess	3 years / 3 years	10 years / 1 year
	Deny	1 year / 10 years	2 years / 2 years

Oligopoly Games

An Oligopoly Price-Fixing Game: Cartels.



Oligopoly Games

Based on above diagram:

- What is competitive price, firm output, industry output, profit?
- What is cartel ("collusive agreement") price, output, profit?
- What is deadweight loss?
- Effect on consumer?
- Effect on producers?
- What is "incentive to cheat"?
- How is this like "prisoner's dilemma"?
- How do each of following affect ability to enforce cartel?
 - Entry restrictions.
 - Ability to monitor each other.

Oligopoly Games

Suppose that the two firms enter into a collusive agreement.

A **collusive agreement** (or **cartel agreement**) is an agreement between two (or more) firms to restrict output, raise price, and increase profits.

Such agreements are illegal in the United States and are undertaken in secret.

Oligopoly Games

Other Oligopoly Games

Advertising and R & D games are also prisoners' dilemmas.

An R & D Game

Procter & Gamble and Kimberley Clark play an R & D game in the market for disposable diapers.

Oligopoly Games

Here is the payoff matrix for the Pampers Versus Huggies game.

		Procter & Gamble's strategies	
		R&D	No R&D
Kimberly-Clark's strategies	R&D	<div>\$45m</div> <div>\$5m</div>	<div>-\$10m</div> <div>+\$85m</div>
	No R&D	<div>+\$85m</div> <div>-\$10m</div>	<div>+\$70m</div> <div>+\$30m</div>

What's the Nash Equilibrium?

What's the collusive (cooperative) equilibrium?

Anti-trust policy

..Measuring concentration.

A. DOJ formed merger guidelines in early 1980s.

- if post-merger $HHI < 1000$ \implies industry competitive.
- if $1000 < HHI < 1800$ \implies merger scrutinized (gray area).
- if $HHI > 1800$ \implies merger likely to be challenged (red zone).

B. Difficulties in using concentration measures as indicators of competition for mergers.

- geographical scope of market
- product boundaries
- firms produce multiple products.

Anti-trust policy

Likelihood of collusion and DOJ anti-trust policy.

When HHI is in a questionable area, other factors are considered.

- Barriers to entry
- Ability to monitor each other's behavior.
- Is the game "repeated"?

Anti-trust policy

Theories of regulation.

- Public interest theory
 - political process generates regulations designed to achieve "socially efficient" outcome.
- Capture theory
 - regulations are designed to satisfy the demand of producers to maximize producer surplus.
 - benefit producers (concentrated group) at expense of consumers (disperse group).

Anti-trust policy

Evidence on Deregulation of 1980s.

AIRLINES

- prices fell and volume increased.
- consumer surplus increased \$11.8 billion
- producer surplus increased \$4.9 billion.
- rapid change in structure of airline industry (hubs, excess capacity reduced, pricing changes, etc.)

TRUCKING

- consumer surplus increased \$15.4 billion
- producer surplus decreased \$4.8 billion.
- truck driver's wages fell.

Anti-trust policy

OTHER INDUSTRIES THAT HAVE BEEN DEREGULATED.

- natural gas
- long distance telephone
- cable

DEREGULATION IN PROCESS

- electric
- local telephone

Anti-trust policy

Anti-trust policy.

The Standard Oil Story:

- John D. Rockefeller owned standard oil.
- Able to extract discounts from the railroads for shipping
- During the 1870s, Standard Oil increased its capacity from 10 to 90 percent of the U.S. total.
- In 1882, the independent members of standard oil contributed shares to a central trust
- Allowed a central body to manage all firms.
- The central body shut down some refineries, restricted production, and drove up oil prices.

Anti-trust policy

1890: Sherman Act

- passed partly in response to the monopolization of the oil industry.
- Law prohibited “combination, trust, or conspiracy to restrict interstate or international trade”.
- Sherman Act used in 1911 to break up Standard Oil (created Exxon, Sohio, Chevron, etc.)

Anti-trust policy

1914: Clayton Act.

- prohibited interlocking directorates & tying contracts
- 1914: Federal Trade Commission Act
 - created FTC to prosecute “unfair competition”
 - outlawed misleading advertising.

Anti-trust policy

- 1936: Robinson-Patman Act (Chain store law)
 - made “quantity discounts” illegal
 - prevented stores from selling to public at “unreasonably low” prices.
- 1937: Miller-Tydings Act
 - allowed Resale Price Maintenance if state approved.
 - arguments against RPM (cartel enforcement)
 - argument for RPM (high quality service)
 - McTravel
 - Apple computer