



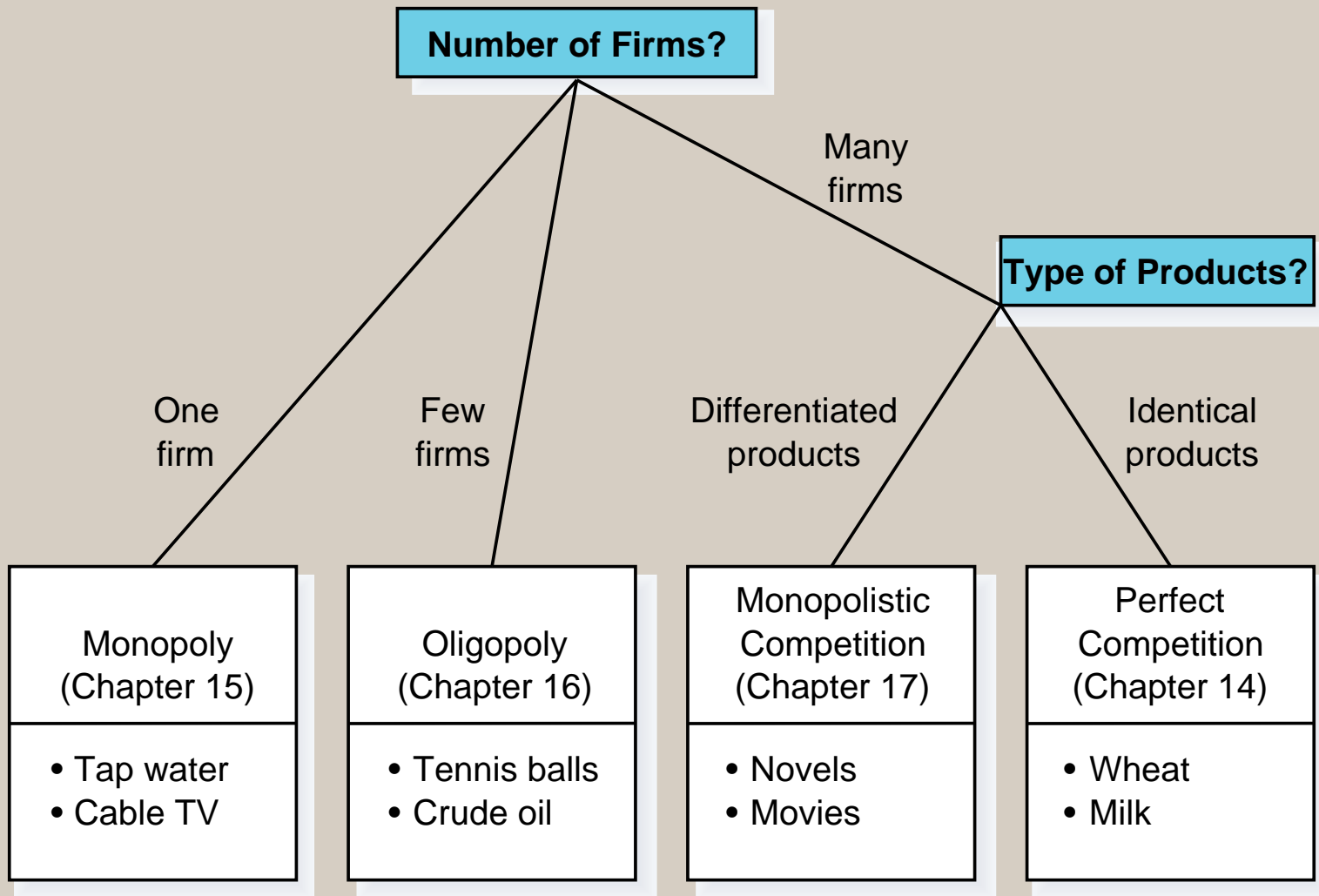
Oligopoly

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BETWEEN MONOPOLY AND PERFECT COMPETITION

- Types of Imperfectly Competitive Markets
 - *Oligopoly*
 - Only a *few sellers*, each offering a similar or identical product to the others.
 - *Monopolistic Competition*
 - *Many firms* selling products that are similar but not identical.

Figure 1 The Four Types of Market Structure



MARKETS WITH ONLY A FEW SELLERS

- Because of the few sellers, the key feature of oligopoly is the tension between cooperation and self-interest.

MARKETS WITH ONLY A FEW SELLERS

- Characteristics of an Oligopoly Market
 - Few sellers offering similar or identical products
 - Interdependent firms
 - Best off cooperating and acting like a monopolist by producing a small quantity of output and charging a price above marginal cost

The Equilibrium for an Oligopoly

- A *Nash equilibrium* is a situation in which economic actors interacting with one another each choose their best strategy given the strategies that all the others have chosen.

The Equilibrium for an Oligopoly

- When firms in an oligopoly individually choose production to maximize profit, they produce quantity of output greater than the level produced by monopoly and less than the level produced by competition.

The Equilibrium for an Oligopoly

- The oligopoly price is less than the monopoly price but greater than the competitive price (which equals marginal cost).

Equilibrium for an Oligopoly

- Summary
 - Possible outcome if oligopoly firms pursue their own self-interests:
 - Joint output is greater than the monopoly quantity but less than the competitive industry quantity.
 - Market prices are lower than monopoly price but greater than competitive price.
 - Total profits are less than the monopoly profit.

GAME THEORY AND THE ECONOMICS OF COOPERATION

- *Game theory* is the study of how people behave in strategic situations.
- Strategic decisions are those in which each person, in deciding what actions to take, must consider how others might respond to that action.

GAME THEORY AND THE ECONOMICS OF COOPERATION

- Because the number of firms in an oligopolistic market is small, each firm must act strategically.
- Each firm knows that its profit depends not only on how much it produces but also on how much the other firms produce.

The Prisoners' Dilemma

- The *prisoners' dilemma* provides insight into the difficulty in maintaining cooperation.
- **Often people (firms) fail to cooperate with one another even when cooperation would make them better off.**

The Prisoners' Dilemma

- The prisoners' dilemma is a particular “game” between two captured prisoners that illustrates why cooperation is difficult to maintain even when it is mutually beneficial.

Figure 2 The Prisoners' Dilemma

Bonnie's Decision

Confess

Remain Silent

Confess

Clyde's Decision

Remain Silent

	Confess	Remain Silent
Confess	Bonnie gets 8 years Clyde gets 8 years	Bonnie gets 20 years Clyde goes free
Remain Silent	Bonnie goes free Clyde gets 20 years	Bonnie gets 1 year Clyde gets 1 year

The Prisoners' Dilemma

- The *dominant strategy* is the best strategy for a player to follow regardless of the strategies chosen by the other players.

The Prisoners' Dilemma

- Cooperation is difficult to maintain, because cooperation is not in the best interest of the individual player.

Figure 3 An Oligopoly Game

		Iraq's Decision	
		High Production	Low Production
Iran's Decision	High Production	Iraq gets \$40 billion Iran gets \$40 billion	Iraq gets \$30 billion Iran gets \$60 billion
	Low Production	Iraq gets \$60 billion Iran gets \$30 billion	Iraq gets \$50 billion Iran gets \$50 billion

Oligopolies as a Prisoners' Dilemma

- Self-interest makes it difficult for the oligopoly to maintain a cooperative outcome with low production, high prices, and monopoly profits.

Figure 4 An Arms-Race Game

Decision of the United States (U.S.)

Arm

Disarm

Arm

**Decision
of the
Soviet Union
(USSR)**

Disarm

	Arm	Disarm
Arm	U.S. at risk USSR at risk	U.S. at risk and weak USSR safe and powerful
Disarm	U.S. safe and powerful USSR at risk and weak	U.S. safe USSR safe

Figure 5 An Advertising Game

		Marlboro's Decision	
		Advertise	Don't Advertise
Camel's Decision	Advertise	Marlboro gets \$3 billion profit Camel gets \$3 billion profit	Marlboro gets \$2 billion profit Camel gets \$5 billion profit
	Don't Advertise	Marlboro gets \$5 billion profit Camel gets \$2 billion profit	Marlboro gets \$4 billion profit Camel gets \$4 billion profit

Figure 6 A Common-Resource Game

		Exxon's Decision	
		Drill Two Wells	Drill One Well
Texaco's Decision	Drill Two Wells	Exxon gets \$4 million profit Texaco gets \$4 million profit	Exxon gets \$3 million profit Texaco gets \$6 million profit
	Drill One Well	Exxon gets \$6 million profit Texaco gets \$3 million profit	Exxon gets \$5 million profit Texaco gets \$5 million profit

Why People Sometimes Cooperate

- Firms that care about future profits will cooperate in repeated games rather than cheating in a single game to achieve a one-time gain.

Figure 7 Jack and Jill Oligopoly Game

Jack's Decision

Sell 40 Gallons

Sell 30 Gallons

Sell 40 Gallons

Jill's Decision

Sell 30 Gallons

Jack gets \$1,600 profit Jill gets \$1,600 profit	Jack gets \$1,500 profit Jill gets \$2,000 profit
Jack gets \$2,000 profit Jill gets \$1,500 profit	Jack gets \$1,800 profit Jill gets \$1,800 profit

Summary

- The prisoners' dilemma shows that self-interest can prevent people from maintaining cooperation, even when cooperation is in their mutual self-interest.
- The logic of the prisoners' dilemma applies in many situations, including oligopolies.