Oligopoly

Chapter 12-2

Models of Oligopoly Behavior

• No single general model of oligopoly behavior exists.

Oligopoly

• An oligopoly is a market structure characterized by:
  – Few firms
  – Either standardized or differentiated products
  – Difficult entry

Interdependence

• A key characteristic of oligopolies is that each firm can affect the market, making each firm’s choices dependent on the choices of the other firms. They are interdependent.

Characteristics Oligopoly

• Oligopolies are made up of a small number of mutually interdependent firms.
• Each firm must take into account the expected reaction of other firms.

Interdependence

• The importance of interdependence is that it leads to strategic behavior.

• Strategic behavior is the behavior that occurs when what is best for A depends upon what B does, and what is best for B depends upon what A does.

• Oligopolistic behavior includes both ruthless competition and cooperation.
**Game Theory**

- Strategic behavior has been analyzed using the mathematical techniques of [game theory](#).
- **Game theory** provides a description of oligopolistic behavior as a series of strategic moves and countermoves.

**Why Are Prices Sticky?**

- When there is a kink in the demand curve, there has to be a gap in the marginal revenue curve.
- The kinked demand curve is not a theory of oligopoly but a theory of sticky prices.

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**The Kinked Demand Curve**

- The kinked demand curve is not a theory of oligopoly but a theory of sticky prices.

**Game Theory and Strategic Decision Making**

- The prisoner’s dilemma is a well-known game that demonstrates the difficulty of cooperative behavior in certain circumstances.

**Game Theory and Strategic Decision Making**

- In the prisoner’s dilemma, where mutual trust gets each one out of the dilemma, confessing is the rational choice.
Prisoner’s Dilemma and a Duopoly Example

- The prisoners dilemma has its simplest application when the oligopoly consists of only two firms—a duopoly.

Payoff Matrix of Strategic Pricing Duopoly

- By analyzing the strategies of both firms under all situations, all possibilities are placed in a payoff matrix.
- A payoff matrix is a box that contains the outcomes of a strategic game under various circumstances.

Firm and Industry Duopoly Equilibrium

- The duopoly is a variation of the prisoners dilemma game.
- The results can be presented in a payoff matrix that captures the essence of the prisoner's dilemma.
Dominant Strategy

- In an oligopoly, firms try to achieve a **dominant strategy**—a strategy that produces better results no matter what strategy other firms follow.
- The interdependence of oligopolies decisions can often lead to the prisoner’s dilemma.

Implicit Price Collusion

- Formal collusion is illegal in the U.S. while 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.

Cooperation and Cartels

- If the firms in an oligopoly cooperate, they may earn more profits than if they act independently.
- **Collusion**, which leads to secret cooperative agreements, is illegal in the U.S., although it is legal and acceptable in many other countries.
- **Price-Leadership Cartels** may form in which firms simply do whatever a single leading firm in the industry does. This avoids strategic behavior and requires no illegal collusion.

Prisoner’s Dilemma

- Figure 2 illustrates the dominant strategy game. The dominant strategy for firm A is to advertise. If firm A does not advertise, firm A is worse off advertising, since firm B advertises. If firm B does not advertise, firm A is better off advertising even if it advertises. Similarly, firm B is better off advertising even if firm A does. Both A and B have dominant strategies—advertising.

Implicit Price Collusion

- Sometimes the largest or most dominant firm takes the lead in setting prices and the others follow.

Why Are Prices Sticky?

- Informal collusion is an important reason why prices are sticky.
- Another is the kinked demand curve.
**Cartels**

- A **cartel** is an organization of independent firms whose purpose is to control and limit production and maintain or increase prices and profits.
- Like collusion, cartels are illegal in the United States.

**Conditions necessary for a cartel to be stable (maintainable):**
- There are few firms in the industry.
- There are significant barriers to entry.
- An identical product is produced.
- There are few opportunities to keep actions secret.
- There are no legal barriers to sharing agreements.

**OPEC as an Example of a Cartel**

- **OPEC**: Organization of Petroleum Exporting Countries.
- Attempts to set prices high enough to earn member countries significant profits, but not so high as to encourage dramatic increases in oil exploration or the pursuit of alternative energy sources.
- Controls prices by setting production **quotas** for member countries.
- Such cartels are difficult to sustain because members have large incentives to cheat, exceeding their quotas.

**The Diamond Cartel**

- In 1870 huge diamond mines in South Africa flooded the gem market with diamonds.
- Investors at the time wanted to control production and created De Beers Consolidated Mines, Ltd., which quickly took control of all aspects of the world diamond trade.
- The Diamond Cartel, headed by DeBeers, has been extremely successful. While other commodities’ prices, such as gold and silver respond to economic conditions, diamonds’ prices have increased every year since the Depression.
- This success has been achieved by DeBeers’ influence on the supply of diamonds, but also via the cartel’s influence on demand.
- In the 1940s DeBeers’ instigated an advertising campaign making the diamond a symbol of status and romance.

**Behavior of a Cartel:**

**Firms Agree to Act as a Monopolist**

**Cartel: Firms Act Alone**
Cartels and Technological Change

- Cartels can be destroyed by an outsider with technological superiority.
- Thus, cartels with high profits will provide incentives for significant technological change.

Facilitating Practices

- *Facilitating practices* are actions by oligopolistic firms that can contribute to cooperation and collusion even thought the firms do not formally agree to cooperate.
- *Cost-plus or mark-up pricing* is a pricing policy whereby a firm computes its average costs of producing a product and then sets the price at some percentage above this cost.