Chapter 9
Market Structure: Oligopoly
Oligopoly

A market structure characterized by competition among a small number of large firms that have market power, but that must take their rivals’ actions into consideration when developing their competitive strategies.
Characteristics of an Oligopoly

- Firms have market power derived from barriers to entry
- However, a small number of firms compete with each other
- Each firm doesn’t have to consider the actions of other firms, thus, behavior is interdependent
Noncooperative Oligopoly Models

Assumes that firms pursue profit-maximizing strategies based on assumptions about rivals’ behavior and the impact of this behavior on the given firm’s strategies

1. Kinked demand curve model
2. Game theory models
3. Strategic entry deterrence
Kinked Demand Curve Model

- Assumes that a firm is faced with two demand curves, assuming that other firms will not match price increases but will match price decreases.

- If the firm considers raising the price above \( P_1 \), its quantity demanded will depend upon the behavior of rival firms.
Kinked Demand Curve Model

- Assumes that managers will inflict maximum damage on other firms
- Implies oligopoly prices tend to be “sticky” and not change as they would in other market structures
- Does not explain why price $P_1$ exists initially
Figure 9.1

Kinked Demand Curve

$P_1$  $Q_1$  $Q$

$MC$

$D_1 = \text{rivals follow}$

$D_2 = \text{Rivals don't follow}$

$MR_1$

$MR_2$
Game Theory Models

- Mathematically analyzes situations in which players make various strategic moves and have different outcomes or payoffs associated with those moves.

- Dominant strategy: results in best outcome to a given player.
Nash Equilibrium

- Strategies for which all players are choosing their best strategy, given actions of other players
- Proves useful when there is only one unique equilibrium in the game
- There may be multiple Nash equilibrium
Strategic Entry Deterrence

Policies that prevent rivals from entering the market

- **Limit pricing**: charging a price lower than the profit-maximizing price
- **Predatory pricing**: lowering prices below cost to drive out existing competitors and scare off potential entrants
Limit Pricing Model

Figure 9.2

Potential Entrant

Established Firm

$\text{ATC}_{\text{EN}}$

$\text{ATC}_{\text{M}}$

$\text{ATC}_{\text{L}}$

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9.11
Limit Pricing Model

- Assumes existing firms have lower costs
- Attracts other firms into the industry
- Established firms can thwart entry by charging the limit price (or a lower price) rather than profit-maximization price
Predatory Pricing

Figure 9.3

LRAC = LRMC

Demand

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Determinates of Successful Predatory Pricing

- How far the predatory price is below cost
- Period of time in which the predatory price is in effect
- Rate of return used for judging the investment in predatory pricing
- How many rivals enter the industry after predation ends
- Time over which recouping of profits occurs
Cooperative Oligopoly Models

- Focus on cooperative behavior among rivals
- Two types
  - Cartels
  - Tacit collusion
Cartels

- Firms that get together and agree to coordinate behavior regarding pricing and output decisions

- **Joint profit maximization**: strategy that maximizes profits for a cartel but may create incentives for individual members to cheat

- **Horizontal summation of marginal cost curve**: calculated from marginal cost curve for the cartel
Allocation Rule for Joint Profit Maximization

\[ MC_1 = MC_2 = MC_3 \]

where

- \( MC_1 \) = Firm #1’s marginal cost
- \( MC_2 \) = Firm #2’s marginal cost
- \( MC_C \) = Cartel’s marginal cost
When a Cartel is Successful

- It can raise market price without inducing significant competition from non-cartel members.
- The expected punishment from forming the cartel is low relative to the expected gains.
- The costs of establishing and enforcing agreement are low relative to the gains.
Tacit Collusion

- Tacit collusion: coordinated behavior that is achieved without a formal agreement

- Tacit collusion practices:
  - Uniform prices
  - Penalty for price discounts
  - Advantage notice of price changes
  - Information exchanges
  - Swaps and exchanges
Managerial Rule of Thumb: Coordinated Actions

Managers must

- Coordinate efforts, but within constraints of antitrust legislation
- Recognize incentives for cheating in coordinated behavior
- Remember that even coordinated efforts are fleeting, given the dynamic and competitive nature of a market environment
Summary of Key Terms

- Cartel
- Cooperative oligopoly models
- Dominant strategy
- Game theory
- Horizontal summation of marginal cost curves
- Joint profit maximization
- Kinked demand curve model
Summary of Key Terms

- Limit pricing
- Nash equilibrium
- Noncooperative oligopoly models
- Oligopoly
- Predatory pricing
- Strategic entry deterrence
- Tacit collusion
Do you have any questions?