UNIT 6 cont...

PRICING UNDER DIFFERENT MARKET STRUCTURES

Oligopoly
Oligopoly

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

- Oligopolies are made up of a small number of firms in an industry

- In any decision a firm makes, it must take into account the expected reaction of other firms

- Oligopolistic firms are mutually interdependent

- Oligopolies can be collusive or noncollusive

- Firms may engage in **strategic decision making** where each firm takes explicit account of a rival’s expected response to a decision it is making
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.
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.
Models of Oligopoly Behavior

• No single general model of oligopoly behavior exists.
Models of Oligopoly Behavior

• There is no single model of oligopoly behavior

• An oligopoly model can take two extremes:
  
  • The **cartel model** is when a combination of firms acts as if it were a single firm and a monopoly price is set
  
  • The **contestable market model** is a model of oligopolies where barriers to entry and exit, not market structure, determine price and output decisions and a competitive price is set

• Other models of oligopolies give price results between the two extremes
The Cartel Model

- A cartel model of oligopoly is a model that assumes that oligopolies act as if they were a monopoly and set a price to maximize profit.

- Output quotas are assigned to individual member firms so that total output is consistent with joint profit maximization.

- If oligopolies can limit the entry of other firms, they can increase profits.

- Like collusion, cartels are illegal in the United States.
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.
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.
New Entry as a Limit on the Cartelization Strategy and Price Wars

• The threat of outside competition limits oligopolies from acting as a cartel

• The threat will be more effective if the outside competitor is much larger than the firms in the oligopoly

• Price wars are the result of strategic pricing decisions gone wild

• A predatory pricing strategy involves temporarily pushing the price down in order to drive a competitor out of business
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.
Comparing Contestable Market and Cartel Models

- The cartel model is appropriate for oligopolists that collude, set a monopoly price, and prevent market entry.
- The contestable market model describes oligopolies that set a competitive price and have no barriers to entry.
- Oligopoly markets lie between these two extremes.
- Both models use **strategic pricing decisions** where firms set their price based on the expected reactions of other firms.
Implicit Price Collusion

- Explicit (formal) collusion is illegal in most countries while implicit (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
- Sometimes the largest or most dominant firm takes the lead in setting prices and the others follow
Facilitating Practices

- **Facilitating practices** are actions by oligopolistic firms that can contribute to cooperation and collusion even though 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.
Why Are Prices Sticky?

• One characteristic of informal collusive behavior is that prices tend to be sticky – they don’t change frequently.
  • Informal collusion is an important reason why prices are sticky.
  • Another is the kinked demand curve.
    • If a firm increases price, others won’t go along, so demand is very elastic for price increases.
    • If a firm lowers price, other firms match the decrease, so demand is inelastic for price decreases.
The principle of the kinked demand curve rests on the principle that:

a. If a firm raises its price, its rivals will not follow suit

b. If a firm lowers its price, its rivals will all do the same

If the firm seeks to lower its price to gain a competitive advantage, its rivals will follow suit. Any gains it makes will quickly be lost and the % change in demand will be smaller than the % reduction in price – total revenue would again fall as the firm now faces a relatively inelastic demand curve.

The firm therefore, effectively faces a ‘kinked demand curve’ forcing it to maintain a stable or rigid pricing structure. Oligopolistic firms may overcome this by engaging in non-price competition.

Assume the firm is charging a price of N$5 and producing an output of 100. If it chose to raise price above N$5, its rivals would not follow suit and the firm effectively faces an elastic demand curve for its product (consumers would buy from the cheaper rivals). The % change in demand would be greater than the % change in price and TR would fall.
The Kinked Demand Curve

Graph

- A gap in the MR curve exists
- A large shift in marginal cost is required before firms will change their price

If P increases, others won’t go along, so D is elastic

If P decreases, other firms match the decrease, so D is inelastic
The Kinked Demand Curve

**FIGURE 6** The Kinked Demand Curve

(a) Competitors Do Not Follow Price Changes

If competitors do not follow price changes, the demand curve faced by an oligopolistic firm is the curve $D_1$ in Figures 6(a) and 6(b). If competitors follow price changes, the demand curve faced by the firm is $D_2$ in 6(b). If competitors match price decreases but not price increases, then the firm faces a combination of the two demand curves. If competitors do not follow a price increase, then above the current price, $P_1$, the relevant demand curve is $D_1$. If competitors do follow a price decrease, then below price $P_1$ the relevant demand curve is $D_2$. The demand curve is the shaded combination of the two demand curves; it has a kink at the current price. The resulting marginal-revenue curve is also a combination of the two marginal-revenue curves. The marginal-revenue curve is $MR_1$ to the left of the kink in the demand curve and $MR_2$ to the right of the kink. Between the two marginal-revenue curves is a gap. The firm produces where $MR = MC$. If the $MC$ curve intersects the $MR$ curve in the gap, the resulting price is $P_1$ and the resulting quantity produced is $Q_1$. If costs fall, as represented by a downward shift of $MC_1$ to $MC_2$, the price and quantity produced do not change.

(b) Competitors Follow Price Changes
Oligopoly

• Competition between the few
  – May be a large number of firms in the industry but the industry is dominated by a small number of very large producers

• Concentration Ratio – the proportion of total market sales (share) held by the top 3, 4, 5, etc firms:
  – A 4 firm concentration ratio of 75% means the top 4 firms account for 75% of all the sales in the industry
Oligopoly

- **Example:**
  - **Music sales** –

The music industry has a 5-firm concentration ratio of 75%. Independents make up 25% of the market but there could be many thousands of firms that make up this ‘independents’ group. An oligopolistic market structure therefore may have many firms in the industry but it is dominated by a few large sellers.
4. The kinked demand curve in an oligopolistic market is defined by the equations:

\[ P = 300 - 3Q \text{ and } P = 470 - 5Q \]

a) Derive equations for the marginal revenue curves.

b) Determine the price and quantity at the "kink" of the demand curve