



# MANAGERIAL ECONOMICS

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Lecture No - 27 : Monopoly

## Recap from last Session

- **Market supply and firm's supply analysis- Short run**
- **Long Run Profit Maximization**
- **Long Run Supply Analysis**
- **Application in Real world**

## Perfect Competition Market in Real World : Credit Cards

- Credit card industry seem to be a concentrated industry. Visa, Master card and American express are the most familiar names and over 60% of all charges are made using one of these three cards.
- **Number and size distribution of buyers and sellers:** All though these cards are the choice of majority of consumers, these card do not originate from same firm.

## Perfect Competition Market in Real World : Credit Cards

- Credit cards are a relatively **homogeneous product**.
- **Entry in to and exit from** the credit card market is easy.
- Thus it would seem that the credit card industry meets most of the characteristics for a perfectly competitive market.

## Session Outline

- **Feature of Monopoly**
- **Reasons and Types of Monopoly**
- **Demand and Marginal Revenue for a monopoly firm**
- **Price and Output Decision in the short run/Long run**
- **Supply Curve of a Monopoly Firm**
- **Measures of Monopoly power**

## Monopoly

- Monopoly from the Greek word *mono* means single and *polo* means sell.
- It is a form of market where single seller sell a product which has no close substitute.
- Pure monopoly

## Features of Monopoly

- Single Seller
- Single Product
- No difference between Firm and industry
- Independent Decision making
- Restricted Entry

## Reason for Monopoly

- Monopolies often arise as a result of barriers to entry.
- **Barrier to entry**: anything that impedes the ability of firms to begin a new business in an industry in which existing firms are earning positive economic profits.



## Sources - Barriers to entry

- Ownership of a key resource.
- The government gives a single firm the exclusive right to produce some good.
- Costs of production make a single producer more efficient than a large number of producers

## Common Entry Barriers

- Economies of scale
  - When long-run average cost declines over a wide range of output relative to demand for the product, there may not be room for another large producer to enter market
- Barriers created by government
  - Licenses, exclusive franchises

## Common Entry Barriers

- Input barriers
  - One firm controls a crucial input in the production process
- Brand loyalties
  - Strong customer allegiance to existing firms may keep new firms from finding enough buyers to make entry worthwhile

## Common Entry Barriers

- Consumer lock-in
  - Potential entrants can be deterred if they believe high switching costs will keep them from inducing many consumers to change brands

## Common Entry Barriers

- Network externalities
  - Occur when value of a product increases as more consumers buy & use it
  - Make it difficult for new firms to enter markets where firms have established a large network of buyers

## Types of Monopolies

- **Natural monopoly**: it is formed when the size of the market is so small that it can accommodate only one player.
- **Local/Regional monopoly**: a monopoly that exists in a limited geographic area.

## Types of Monopolies

- **Economic Monopoly:** Created whenever competition is eliminated due to economic efficiency of other players or due to superior efficiency of a particular player.
- **Monopolization:** an attempt by a firm to dominate a market or become a monopoly.

## Types of Monopolies

- **Legal/Regulated monopoly** : it is created when the government restricts entry of other players in particular market in order to keep total control in hand.
- a monopoly firm whose behavior is overseen by a government entity. – Public utility sector in India



## A Monopoly's Demand and Revenue

- The demand curve is downward sloping.
- The demand curve of monopolist is highly price inelastic.
- When a monopoly drops the price to sell one more unit, the revenue received from previously sold units also decreases.

## A Monopoly's Revenue

- **When a monopoly increases the amount it sells, it has two effects on total revenue ( $P \times Q$ ).**
  - The output effect—more output is sold, so  $Q$  is higher.
  - The price effect—price falls, so  $P$  is lower.

## A Monopoly's Demand and Revenue

- Average revenue curve denotes the demand curve for the firm and also determines the slope of marginal revenue curve.
- Since the demand curve is highly inelastic, AR curve would be downward sloping and MR curve would lie below AR curve.
- A monopolist's marginal revenue is always *less than* the price of its good.

## A Monopoly's Demand and Revenue

- The monopolist has to lower the price of all units of its product, if it wants to sell additional unit.
- The addition to total revenue resulting from selling additional unit would be less than the price of firm would receive for this unit.
- So MR is less than price and MR curve would lie below the AR curve.

## A Monopoly's Demand and Revenue

For a linear demand curve, the slope of MR is twice that of AR and the MR curve would lie halfway between the AR curve and price axis.

### **Graphical and algebraic Explanation**

## Profit Maximization

- A monopoly maximizes profit by producing the quantity at which marginal revenue equals marginal cost.
- It then uses the demand curve to find the price that will induce consumers to buy that quantity.

## Profit Maximization

- Set  $MR = MC$  to find  $Q$  that maximizes profits.
- Use the market demand curve to find the  $P$  that the  $Q$  brings
- Find  $ATC$  and  $AVC$  cost to determine profits, losses, or shutdown.

## A Monopoly's Profit

- Profit equals total revenue minus total costs.
  - Profit =  $TR - TC$
  - Profit =  $(TR/Q - TC/Q) \times Q$
  - Profit =  $(P - ATC) \times Q$
- The monopolist will receive economic profits as long as price is greater than average total cost.



## Price and output decision in the short run

- Case of super normal profit
- Case of Normal profit
- Case of loss/subnormal profit

## Possible reasons for Loss in the short run

- It is possible that in the early years a monopoly may not very efficient to attain low average cost of production.
- The size of the market in the early years may be small. Hence to sell the entire output, firm has to incur losses.

## Possible reasons for Loss in the short run

- Monopoly firms deliberately charge low price to keep competitors out of the market.
- In order to curb creation of monopoly, the government may impose tax on monopoly product which in turn increases the cost of production.

## Price and output Determination in the long run

- In the long run monopoly firm would either earn normal profit or supernormal profit, but would not incur loss in the long run.
- It would instead try to reduce cost of production by increasing control of raw materials etc.

## Price and output Determination in the long run

- Supernormal profit – high price- attract competition- high price will allow to survive the new entrant – competition
- To retain monopoly power- low price – only normal profit – entry barrier.
- Numerical

## Supply curve of a monopoly firm

- The intersection of a monopolist's marginal revenue and marginal cost curve identifies the profit maximizing quantity, but the price is found on the demand curve
- Thus, there is no curve that shows both price and quantity supplied → there is no *monopolist supply curve*

## Supply curve of a monopoly firm

- Supply of goods by the monopolist at a given price would be determined by both the market demand and MC curve.
- There is no definite supply curve for a monopolist.

## Price and output decision of Multi plant monopoly

- When the firm produces the homogeneous product in two different plants, the multi plant monopolist has to decide also how to allocate the profit maximizing output between two plants.



## Measures of Monopoly Power

- Monopoly power mean the amount of discretion which a seller enjoys in regard to the framing of price and output policy.
- It indicate the degree of control which seller yields over price and output of his product.

## Measures of Monopoly Power

- **Lerner's Index of Monopoly Power**
  - $L = (P - MC)/P$ 
    - The larger the value of  $L$  (between 0 and 1) the greater the monopoly power
  - $L$  is expressed in terms of  $E_d$ 
    - $L = (P - MC)/P = -1/E_d$
    - $E_d$  is elasticity of demand for a firm, not the market

## Measure of Monopoly Power: cross elasticity of Demand

Used by Prof Triffin

Value of elasticity is

- Zero for pure monopoly
- Infinity in case of perfect competition

If it is finite – neither it is pure competition nor pure monopoly

Lower the value of cross elasticity of Demand the greater will be the degree of monopoly power and vice versa.

## Measure of Monopoly Power: Herfindahl – Hirschman Index

HHI is used popularly to ascertain market concentration.

Calculated by squaring the share of entire market by each firm in the industry and then summing across all firms in the industry.

The value of index zero in case of competitive market to 1 as in monopoly.

## Measure of Monopoly Power: Herfindahl – Hirschman Index

A higher value of HHI would imply a greater market power possessed by large firms, while a decrease in the index is generally indicative of a loss of pricing power and an increase in competition.

## Measure of Monopoly Power: Rothschild's Index

This index shows how far a particular firm controls the market for a particular good.

**Rothchild's Index = slope of demand curve of firm/slope of demand curve of industry**

In case of pure monopoly – index is equal to unity

In case of perfect competition – index is equal to zero.

**Graphical presentation**

## DE BEERS: An unregulated monopoly

- Founded in 1880 in South Africa, control over 99% of world's diamond production until about 1900
- At present, the firm produces about 15% of world's diamond but still controls sales of 80% of the diamond market
- DE BEER controls price of the diamonds with the slogan “*take it all or leave it*”

## DE BEERS: An unregulated monopoly

- If the demand for diamond fails as it did in early 90's, De Beer stands ready to buy diamonds to support the price
- Besides limiting the quantity supply, De Beer also works hard and cleverly to push the demand for diamonds to the right
- A diamond is forever



## **Session References**

**Managerial Economics: Geetika, Ghosh and Choudhury**  
**Micro Economics :ICFAI University Press**