Chapter 1 - Theory of Monopoly

**Syllabus**

- Concept of imperfect competition, Short run and long run price and output decisions of a monopoly firm, Concept of a supply curve under monopoly, comparison of perfect competition and monopoly, social cost of monopoly, price discrimination; remedies for monopoly: Antitrust Laws, Natural monopoly

**Concept of Imperfect Competition**

A market or industry in which individual firms have some control over the prices of their output is imperfectly competitive.

**Market power**

An imperfectly competitive firm’s ability to raise price without losing all of the quantity demanded for its product.

Imperfect competition does not mean that no competition exists in the market. In some imperfectly competitive markets competition occurs in more arenas than in perfectly competitive markets. Firms can differentiate their products, advertise, improve quality, market aggressively, cut prices and so forth.

Imperfect competition—-monopoly, monopolistic competition, oligopoly

**Pure monopoly**

An industry with a single firm that produces a product for which there are no close substitutes and in which significant barriers to entry prevent other firms from entering the industry to compete for profits.

**BARRIERS TO ENTRY**

Something that prevents new firms from entering and competing in imperfectly competitive industries.

1. **Government Franchises**-
   - A monopoly by virtue of government directive.
2. **Patents**-
   - A barrier to entry that grants exclusive use of the patented product or process to the inventor.
3. **Economies of Scale and Other Cost Advantages**
4. **Ownership of a Scarce Factor of Production**

**Short run and long run price and output decisions of a monopoly firm.**

**PRICE: THE FOURTH DECISION VARIABLE**

Price is a decision variable for imperfectly competitive firms. Firms with market power must decide not only (1) how much to produce, (2) how to produce it, and (3) how much to demand in each input market, but also (4) what price to charge for their output.

To analyze monopoly behavior, we make two assumptions:

(1) that entry to the market is blocked, and

(2) that firms act to maximize profits.
Equilibrium condition-

1. \( MR = MC \)
2. MC curve cuts MR curve from below

If a firm can reduce its losses by operating in the short run, it will do so.
Concept of a supply curve under monopoly

For competitive firms, the supply curve shows us the quantity that a firm will decide to supply at a certain price.

A monopolist cannot trace out a short run supply curve because for a given price there is not a unique quantity supplied.

In particular, the key obstacle to the positive price-quantity supply relation is market control and the negatively-sloped demand curve facing the monopoly. For a monopoly, the marginal revenue curve determines the quantity at which the firm will maximize profit. The shape of its marginal revenue curve depends on the shape of its demand curve.

As a matter of fact, any firm with market control, which includes all market structures EXCEPT perfect competition, has the same qualification about supply. And because perfect competition does not exist in the real world, all real world market structures have questionable supply curve relationships.

\[ \text{AR}_i = \text{Average Revenue in market } i \]
\[ \text{MR}_i = \text{Marginal Revenue in market } i \]
\[ \text{MC} = \text{marginal cost} \]

\( ^1 \text{This analysis is not meant to imply that monopoly DOES NOT produce a larger quantity in response to higher price. It only indicates that it MIGHT NOT produces a larger quantity in response to higher price. However, the phrase “MIGHT NOT” is extremely important to the law of supply. Economic science pursues universal laws and economic principles that ALWAYS hold} \)
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So it is clear from above diagram that monopolist will supply same quantity at different prices in different market. So the positive relationship between price and quantity supplied is not always true in case of monopoly.

Comparison of perfect competition and monopoly, social cost of monopoly,

Suppose a competitive industry is taken over by a monopolist:

Because the monopolist’s marginal revenue is below its price, price and quantity will not be the same. The monopolist’s equilibrium output is less than, and its price is higher than, for a firm in a competitive market.

Social cost of monopoly

We have seen that the monopolist charges a higher price than a perfectly competitive firm would charge. The monopolist also produces less than a perfectly competitive market. If you suspect that this is not good for consumers, you are right!

Inefficiency and Consumer Loss

Monopoly leads to an inefficient mix of output. The monopolist produces a quantity at which \( MR = MC \), but since \( MR \) is less than \( P \), at that level of output \( P > MC \). Since the price is greater than the marginal cost for the monopolist, demanders are willing to pay more for one more unit than the marginal cost of making one more unit. The monopolist will not sell them that unit, though. Therefore, the monopolist cannot be making the allocatively efficient quantity.
One of the ways that economists measure the cost of monopolies to society is by looking at the loss in consumer surplus from the monopolist producing less than the efficient quantity. Consumer surplus is the difference between what people are willing to pay (the demand curve) and the price for each unit. Consider the figure below.

Imagine that the monopolist produced one more unit than Qm. The consumer surplus from that unit would be the difference between the demand curve and the price for that unit. Now imagine that the monopolist produced all of the additional units it would take to make the efficient quantity. The area of the blue triangle represents the additional surplus that consumers would get if the market were efficient. In other words, the area of the triangle is the loss in consumer surplus that results from the monopolist’s under-production.

This under-production and the loss of consumer surplus associated with it are problems inherent with all of the imperfectly competitive markets.

**Rent Seeking Behaviour**

A monopolist may also try to protect its profits by spending resources on rent-seeking. Rent-seeking refers to a monopolist spending money and time lobbying Congress for protection from competitors or competing for the monopoly government franchise. It is conceivable that a firm
would be willing to spend up to the amount of expected monopoly profit to get the right to be a monopolist. Clearly, this is not an efficient use of the monopolist’s resources. 

Furthermore, this rent-seeking behavior might cause government officials to make a socially sub-optimal decision because it is in their personal best interest. An example of rent-seeking behavior might be a firm that contributes a large amount of money to a re-election campaign in the hope that the legislator will protect a firm’s monopoly. Analogous to market failure, when government fails to act in the socially optimal way, it is called government failure.

**Rent-seeking behavior** Actions taken by households or firms to preserve positive profits.

**Government failure** Occurs when the government becomes the tool of the rent seeker and the allocation of resources is made even less efficient by the intervention of government.

**Public choice theory** An economic theory that the public officials who set economic policies and regulate the players act in their own self-interest, just as firms do.

**Price discrimination**
Price discrimination is the practice of charging a different price for the same good or service. There are three types of price discrimination – first-degree, second-degree, and third-degree price discrimination.

**First degree**
First-degree discrimination, alternatively known as perfect price discrimination, occurs when a firm charges a different price for every unit consumed.

The firm is able to charge the maximum possible price for each unit which enables the firm to *capture* all available consumer surplus for itself. In practice, first-degree discrimination is rare.
Second degree

*Second-degree* price discrimination means charging a different price for different quantities, such as quantity discounts for bulk purchases.

Third degree

Third-degree price discrimination means charging a different price to different consumer groups. For example, rail and tube travellers can be subdivided into commuter and casual travellers, and cinema goers can be subdivide into adults and children. Splitting the market into peak and off peak use is very common and occurs with gas, electricity, and telephone supply, as well as gym membership and parking charges. Third-degree discrimination is the commonest type.

**Necessary conditions for successful discrimination**

Price discrimination can only occur if certain conditions are met.

1. The firm must be able to identify different market segments, such as domestic users and industrial users.
2. Different segments must have different price *elasticities* (PEDs).
3. Markets must be kept separate, either by time, physical distance and nature of use, such as Microsoft Office ‘Schools’ edition which is only available to educational institutions, at a lower price.
4. There must be no seepage between the two markets, which means that a consumer cannot purchase at the low price in the elastic sub-market, and then re-sell to other consumers in the inelastic sub-market, at a higher price.
5. The firm must have some degree of *monopoly* power.
Diagram for price discrimination

If we assume marginal cost (MC) is constant across all markets, whether or not the market is divided, it will equal average total cost (ATC). Profit maximisation will occur at the price and output where MC = MR. If the market can be separated, the price and output in the inelastic sub-market will be P and Q and P1 and Q1 in the elastic sub-market.

When the markets are separated, profits will be the area MC, P,X,Y + MC1,P1,X1,Y1. If the market cannot be separated, and the two submarkets are combined, profits will be the area MC2,P2,X2,Y2.
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If the profit from separating the sub-markets is greater than for combining the sub-markets, then the rational profit maximizing monopolist will price discriminate.

**Market separation and elasticity**

Discrimination is only worth undertaking if the profit from separating the markets is greater than from keeping the markets combined, and this will depend upon the elasticities of demand in the sub-markets. Consumers in the inelastic sub-market will be charged the higher price, and those in the elastic sub-market will be charged the lower price.

**Remedies for monopoly: Antitrust Laws**

Historically, governments in market economies have assumed two basic and seemingly contradictory roles with respect to imperfectly competitive industries: (1) they promote competition and restrict market power, primarily through antitrust laws, and (2) they restrict competition by regulating industries!

The Development of Antitrust Law: Historical Background

The period after the Civil War was one of rapid growth and change in the United States. Before then, most firms had been small and their markets local. But as the railroad system developed and new technologies exhibited economies of scale, large firms replaced these small firms. With size came power and with power came the hunger for more power.

One of the tools used by firms seeking power was the creation of a trust. A trust is a collection of firms, each of which gives up shares of its stock in exchange for a share in the trust's profits. The trust was essentially a cartel that had direct control over its firms. It is known that cartels produce and charge prices as if they were monopolists and monopolistic markets tend to charge relatively...
high prices, make positive profits, and also under-produce. Eventually, the public felt the effects of these monopolies and, through the legislature, demanded a remedy. They wanted antitrust legislation.

**Natural monopoly**

One of the primary tools of antitrust policy has been the regulation of natural monopolies. These are monopolies that have economies of scale for very large quantities of production; thus, the demand curve intersects the long run average cost (LRAC) curve in the downward-sloping portion. It therefore makes sense to have only one firm provide the good, because that one firm can produce a very large quantity, taking full advantage of the economies of scale. This is illustrated in the figure below:

Notice if there were five firms, each producing 100,000 units, the average cost would be $5.00. However, with one large firm producing 500,000 units, the average cost is only $1.00. This is the typical argument in favor of a natural monopoly.

**Do Natural Monopolies Still Exist?**

Over the years, public utility firms (such as electric and gas companies) have been considered to be examples of natural monopolies, largely due to the large fixed costs for delivering their products.
Until recently, state governments allowed such firms to exist as monopolies but regulated their ability to set price. Today, everything is changing. Competitors are now being allowed into these markets with the expectation that the result will be lower prices.

Although the trend is away from regulation and toward competition, regulatory commissions are still firmly in control of most state utility markets.