In this chapter, look for the answers to these questions:

- Why do monopolies arise?
- Why is $MR < P$ for a monopolist?
- How do monopolies choose their $P$ and $Q$?
- How do monopolies affect society’s well-being?
- What can the government do about monopolies?
- What is price discrimination?

Monopoly

- While a competitive firm is a *price taker*, a monopoly firm is a *price maker*.
- A firm is considered a *monopoly* if . . .
  - it is the sole seller of its product.
  - its product does not have close substitutes.
- In this chapter, we study monopoly and contrast it with perfect competition.
- The key difference:
  A monopoly firm has *market power*, the ability to influence the market price of the product it sells. A competitive firm has no market power.

**WHY MONOPOLIES ARISE**

- The fundamental cause of monopoly is *barriers to entry*.
- Barriers to entry have three sources:
  - 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.

**Monopoly Resources**

- Although exclusive ownership of a key resource is a potential source of monopoly, in practice monopolies rarely arise for this reason. Example: DeBeers owns most of the world’s diamond mines

**Government-Created Monopolies**

- Governments may restrict entry by giving a single firm the exclusive right to sell a particular good in certain markets.
- Patent and copyright laws are two important examples of how government creates a monopoly to serve the public interest.
**Natural Monopolies**

- An industry is a *natural monopoly* when a single firm can supply a good or service to an entire market at a smaller cost than could two or more firms.
- A natural monopoly arises when there are economies of scale over the relevant range of output.
- Example: 1000 homes need electricity.
- *ATC* is lower if one firm services all 1000 homes than if two firms each service 500 homes.

**How Monopolies Make Production and Pricing Decisions**

- **Monopoly versus Competition**
  - Monopoly
    - Is the sole producer
    - Faces a downward-sloping demand curve
    - Is a price maker
    - Reduces price to increase sales
  - Competitive Firm
    - Is one of many producers
    - Faces a horizontal demand curve
    - Is a price taker
    - Sells as much or as little at same price

- **A Monopoly’s Revenue**
  - Total Revenue
    - \( P \times Q = TR \)
  - Average Revenue
    - \( TR/Q = AR = P \)
  - Marginal Revenue
    - \( \Delta TR/\Delta Q = MR \)
A Monopoly’s Revenue

- A Monopoly’s Marginal Revenue
  - A monopolist’s marginal revenue is always less than the price of its good.
    - The demand curve is downward sloping.
    - When a monopoly drops the price to sell one more unit, the revenue received from previously sold units also decreases.
    - 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.

Profit Maximization

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

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.
A Monopoly Does Not Have an S Curve

A competitive firm
- takes $P$ as given
- has a supply curve that shows how its $Q$ depends on $P$

A monopoly firm
- is a ‘price-maker,’ not a ‘price-taker’
- $Q$ does not depend on $P$; rather, $Q$ and $P$ are jointly determined by $MC$, $MR$, and the demand curve.

So there is no supply curve for monopoly.

THE WELFARE COST OF MONOPOLY

• In contrast to a competitive firm, the monopoly charges a price above the marginal cost.
• From the standpoint of consumers, this high price makes monopoly undesirable.
• However, from the standpoint of the owners of the firm, the high price makes monopoly very desirable.

The Deadweight Loss

• Because a monopoly sets its price above marginal cost, it places a wedge between the consumer’s willingness to pay and the producer’s cost.
• This wedge causes the quantity sold to fall short of the social optimum.
Figure 8 The Inefficiency of Monopoly

The Deadweight Loss

• The Inefficiency of Monopoly
  • The monopolist produces less than the socially efficient quantity of output.
  • The deadweight loss caused by a monopoly is similar to the deadweight loss caused by a tax.
  • The difference between the two cases is that the government gets the revenue from a tax, whereas a private firm gets the monopoly profit.

PUBLIC POLICY TOWARD MONOPOLIES

• Government responds to the problem of monopoly in one of four ways.
  – Making monopolized industries more competitive.
  – Regulating the behavior of monopolies.
  – Turning some private monopolies into public enterprises.
  – Doing nothing at all.

Increasing Competition with Antitrust Laws

• Two Important Antitrust Laws
  • Sherman Antitrust Act (1890)
    • Reduced the market power of the large and powerful “trusts” of that time period.
  • Clayton Antitrust Act (1914)
    • Strengthened the government’s powers and authorized private lawsuits.

Increasing Competition with Antitrust Laws

• Antitrust laws are a collection of statutes aimed at curbing monopoly power.
• Antitrust laws give government various ways to promote competition.
  • They allow government to prevent mergers.
  • They allow government to break up companies.
  • They prevent companies from performing activities that make markets less competitive.

Regulation

• Government may regulate the prices that the monopoly charges.
• The allocation of resources will be efficient if price is set to equal marginal cost.
Figure 9 Marginal-Cost Pricing for a Natural Monopoly

If regulators set \( P = MC \), the natural monopoly will lose money.

**Regulation**

- In practice, regulators will allow monopolists to keep some of the benefits from lower costs in the form of higher profit, a practice that requires some departure from marginal-cost pricing.

**Public Ownership**

- Rather than regulating a natural monopoly that is run by a private firm, the government can run the monopoly itself (e.g. in the United States, the government runs the Postal Service).

**Doing Nothing**

- Government can do nothing at all if the market failure is deemed small compared to the imperfections of public policies.

**PRICE DISCRIMINATION**

- **Price discrimination** is the business practice of selling the same good at different prices to different customers, even though the costs for producing for the two customers are the same.
- The characteristic used in price discrimination is willingness to pay (WTP):
  - A firm can increase profit by charging a higher price to buyers with higher WTP.

**The Analytics of Price Discrimination**

- Price discrimination is not possible when a good is sold in a competitive market since there are many firms all selling at the market price. In order to price discriminate, the firm must have some market power.
- **Perfect Price Discrimination**
  - Perfect price discrimination refers to the situation when the monopolist knows exactly the willingness to pay of each customer and can charge each customer a different price.
The Analytics of Price Discrimination

- Two important effects of price discrimination:
  - It can increase the monopolist’s profits.
  - It can reduce deadweight loss.

Examples of Price Discrimination

- Movie tickets
- Airline prices
- Discount coupons
- Financial aid
- Quantity discounts

Price Discrimination in the Real World

- In the real world, perfect price discrimination is not possible:
  - no firm knows every buyer’s WTP
  - buyers do not announce it to sellers
  - So, firms divide customers into groups based on some observable trait that is likely related to WTP, such as age.

Examples of Price Discrimination

Movie tickets
Discounts for seniors, students, and people who can attend during weekday afternoons. They are all more likely to have lower WTP than people who pay full price on Friday night.

Airline prices
Discounts for Saturday-night stayovers help distinguish business travelers, who usually have higher WTP, from more price-sensitive leisure travelers.
Examples of Price Discrimination

Discount coupons
People who have time to clip and organize coupons are more likely to have lower income and lower WTP than others.

Need-based financial aid
Low income families have lower WTP for their children’s college education. Schools price-discriminate by offering need-based aid to low income families.

Examples of Price Discrimination

Quantity discounts
A buyer’s WTP often declines with additional units, so firms charge less per unit for large quantities than small ones.
Example: A movie theater charges $4 for a small popcorn and $5 for a large one that’s twice as big.

CONCLUSION: THE PREVALENCE OF MONOPOLY

• How prevalent are the problems of monopolies?
  – Monopolies are common.
  – Most firms have some control over their prices because of differentiated products.
  – Firms with substantial monopoly power are rare.
  – Few goods are truly unique.

Table 2 Competition versus Monopoly: A Summary Comparison

<table>
<thead>
<tr>
<th>Similarities</th>
<th>Competition</th>
<th>Monopoly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal of firms</td>
<td>Maximize profits</td>
<td>Maximize profits</td>
</tr>
<tr>
<td>Rule for maximizing</td>
<td>MR = MC</td>
<td>MR = MC</td>
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<td>Can earn economic profits in the short run?</td>
<td>Yes</td>
<td>Yes</td>
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<table>
<thead>
<tr>
<th>Differences</th>
<th>Competition</th>
<th>Monopoly</th>
</tr>
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<tr>
<td>Number of firms</td>
<td>Many</td>
<td>One</td>
</tr>
<tr>
<td>Marginal revenue</td>
<td>MR = P</td>
<td>MR = P</td>
</tr>
<tr>
<td>Price</td>
<td>P = MC</td>
<td>P &gt; MC</td>
</tr>
<tr>
<td>Produces welfare-maximizing level of output?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Entry in long run?</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Can earn economic profits in long run?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Price discrimination possible?</td>
<td>No</td>
<td>Yes</td>
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