Chapter 11: Monopoly
Objectives

After studying this chapter, you will be able to:

- Explain how monopoly arises and distinguish between single-price monopoly and price-discriminating monopoly
- Explain how a single-price monopoly determines its output and price
- Compare the performance and efficiency of single-price monopoly and competition
- Explain how price discrimination increases profit
- Explain how monopoly regulation influences output, price, economic profit, and efficiency
eBay and Google are dominant players in the markets for Internet auction and search services. These firms are not price takers, they can set the prices of their service.

How do firms like eBay and Google decide the quantity to produce and the price to charge?

Students get lots of discounts—at the movies, hairdresser, and on public transport. Why?

How can it be profit maximising to offer lower prices to some customers?

In this chapter, we study markets in which the firm can influence the price.
Market Power

- Market power and competition are the two forces that operate in most markets.

- **Market power** is the ability to influence the market, and in particular the market price, by influencing the total quantity offered for sale.

- A **monopoly** is an industry that produces a good or service for which no close substitute exists and in which there is one supplier that is protected from competition by a barrier preventing the entry of new firms.
Market Power

- How Monopoly Arises
  - A monopoly has two key features:
    - No close substitutes
    - Barriers to entry
  - Legal or natural constraints that protect a firm from potential competitors are called **barriers to entry**.
Market Power

- Two types of barriers to entry: legal and natural.

- Legal barriers to entry create a **legal monopoly**, a market in which competition and entry are restricted by the granting of a:
  - Monopoly franchise (like Australia Post).
  - Government license (like a license to practice law or medicine)
  - Patent and copyright
Market Power

- Natural barriers to entry create a natural monopoly, which is an industry in which one firm can supply the entire market at a lower price than two or more firms can.
  - Example: Electric utility
Natural Monopoly

Figure 11.1

Price (cents per kilowatt-hour)

0 5 10 15

Quantity (millions of kilowatt-hours)

0 1 2 3 4

LRAC

D

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Market Power

- Monopoly Price-Setting Strategies.

- There are two types of monopoly price-setting strategies:
  - **Price discrimination** is the practice of selling different units of a good or service for different prices. Many firms price discriminate, but not all of them are monopoly firms.
  - A **single-price monopoly** is a firm that must sell each unit of its output for the same price to all its customers.
Price and Marginal Revenue

- A monopoly is a price setter, not a price taker like a firm in perfect competition.
- The demand curve for the monopoly’s output is the market demand curve.
- To sell a larger output, a monopoly must set a lower price. Marginal revenue is less than price.
### Demand and Marginal Revenue

Table 11.2

<table>
<thead>
<tr>
<th>Price (P) per haircut</th>
<th>Quantity demanded (Q) haircuts per hour</th>
<th>Total revenue (TR = P × Q) dollars</th>
<th>Marginal revenue (MR = ΔTR/ΔQ) dollars per haircut</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 20</td>
<td>0</td>
<td>0</td>
<td>................................................................18</td>
</tr>
<tr>
<td>B 18</td>
<td>1</td>
<td>18</td>
<td>................................................................14</td>
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<tr>
<td>C 16</td>
<td>2</td>
<td>32</td>
<td>................................................................10</td>
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<tr>
<td>D 14</td>
<td>3</td>
<td>42</td>
<td>................................................................6</td>
</tr>
<tr>
<td>E 12</td>
<td>4</td>
<td>48</td>
<td>................................................................2</td>
</tr>
<tr>
<td>F 10</td>
<td>5</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>
Demand and Marginal Revenue

Figure 11.2

Total revenue loss $4
Total revenue gain $14
Marginal revenue $10

Price & marginal revenue (dollars per haircut)

Quantity (haircuts per hour)
Marginal Revenue and Elasticity

- A single-price monopoly’s marginal revenue is related to the elasticity of demand for its good.
- A profit-maximising monopoly never produces an output in the inelastic range of its demand curve.
Marginal Revenue and Elasticity

Figure 11.3(a)

Demand and marginal revenue curves

- Elastic
- Unit elastic
- Inelastic

Price $ marginal revenue (dollars per haircut)

Quantity (haircuts per hour)

Maximum total revenue

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Figure 11.3(b)
A Single-Price Monopoly’s Output and Price Decision

- Price and Output Decisions
  - A monopoly sets its price and output at the levels that maximise economic profit that is where $MR = MC$.
  - A monopoly faces the same types of technology constraints as the competitive firm.
  - The monopoly sets its price at the highest level at which it can sell the profit-maximising quantity.
  - The monopoly may earn an economic profit, even in the long run, because of barriers to entry.
### Table 11.01

<table>
<thead>
<tr>
<th>Price (P) (dollars per haircut)</th>
<th>Quantity demanded (Q) (haircuts per hour)</th>
<th>Total revenue (TR = P x Q) (dollars)</th>
<th>Marginal revenue (MR = ΔTR/ΔQ) (dollars per haircut)</th>
<th>Total cost (TC) (dollars)</th>
<th>Marginal cost (MC = ΔTC/ΔQ) (dollars per haircut)</th>
<th>Economic profit (TR − TC) (dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>20</td>
<td>1</td>
<td>−20</td>
</tr>
<tr>
<td>18</td>
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<td>3</td>
<td>−3</td>
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<tr>
<td>16</td>
<td>2</td>
<td>32</td>
<td>10</td>
<td>24</td>
<td>6</td>
<td>+8</td>
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<tr>
<td>14</td>
<td>3</td>
<td>42</td>
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<td>2</td>
<td>55</td>
<td>15</td>
<td>−5</td>
</tr>
</tbody>
</table>

This table gives the information needed to find the profit-maximising output and price. Total revenue (TR) equals price, multiplied by the quantity sold. Profit equals total revenue minus total cost (TC). Profit is maximised when 3 haircuts an hour are sold at $14 a haircut. Total revenue is $42, total cost is $30, and economic profit is $12 ($42 − $30).
A Monopoly’s Output and Price

Economic Profit = $12

Figure 11.4(a) Total revenue and total cost curves
A Monopoly’s Output and Price

Profit = $12
($4 \times 3 \text{ units})

Figure 11.4(b)
Demand and marginal revenue and cost curves

Economic Profit $12
Equilibrium output for a monopoly, $Q_M$, occurs where marginal revenue equals marginal cost, $MR = MC$.

Compared to perfect competition, monopoly restricts output and charges a higher price.
Single Price Monopoly and Competition Compared

Figure 11.5

Single price monopoly: Higher price and smaller output

Perfect competition

Price

S = MC

PM

PC

Q_M

Q_C

Quantity

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Inefficiency of Monopoly

Figure 11.6(a)

- Consumer surplus
- Producer surplus
- Efficient quantity

D = MSB
S = MSC

Price and cost

Quantity
Inefficiency of Monopoly

Figure 11.6(b)

Price

Monopoly

MC

Deadweight loss

Producer surplus

Consumer surplus

Monopoly’s gain

MC

D

Quantity

P_A

P_M

P_C

Q_M

Q_C

0
Redistribution of Surpluses

- Monopoly redistributes a portion of consumer surplus by changing it to producer surplus.
Rent Seeking

Rent seeking, which is any attempt to capture consumer surplus, producer surplus, or economic profit.

There are two forms of rent seeking activity to pursue by a monopoly:

- Buy a monopoly—transfers rent to creator of monopoly.
- Create a monopoly—uses resources in political activity.
Rent-Seeking Equilibrium

- The resources used in rent seeking can exhaust the monopoly’s economic profit and leave the monopoly owner with only normal profit.
Rent Seeking Equilibrium

Figure 11.7

- Price
- Consumer surplus
- Rent seeking costs exhaust producer surplus
- Deadweight loss
- MC
- ATC
- D
- 0
- Q_M
- Quantity

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Price Discrimination

- Price Discrimination
  - Price discrimination is the practice of selling different units of a good or service for different prices.
  - To be able to price discriminate, a monopoly must:
    - Identify and separate different buyer types
    - Sell a product that cannot be resold
Price Discrimination

- Price Discrimination and Consumer Surplus
  - Price discrimination converts consumer surplus into economic profit.
  - A monopoly can discriminate in two broad ways:
    - Among units of a good. (Example: quantity discounts)
    - Among groups of buyers. (Example: business travellers and holiday travellers)
Price Discrimination

- Profiting by Price Discriminating
  - Figure 11.8 shows a single-price monopolist.
  - This firm maximises profit by producing 8 units, where $MR = MC$ and selling them for $1,200 each.
A Single Price of Air Travel

Figure 11.8

Price (dollars per trip)

$48 million

Consumer surplus

Economic profit

MC

ATC

MR

D

Passengers (thousands per year)
Profit by Price Discriminating

- Figure 11.9 shows the same market with price discrimination.

- By price discriminating, the firm can increase its profit.

- In doing so, it converts consumer surplus into economic profit.
Price Discrimination

Increased economic profit from price discrimination

Figure 11.9
Perfect Price Discrimination

- When a firm practices **perfect price discrimination** it extracts the entire consumer surplus.
  - Global must develop different fares which appeal to small segments of the market.
  - Global extracts the entire consumer surplus.
Perfect Price Discrimination

Increase in economic profit from perfect price discrimination

Increase in output

Figure 11.10
Price Discrimination

- Efficiency and Rent Seeking with Price Discrimination
  - The more perfectly a monopoly can price discriminate, the closer its output gets to the competitive output ($P = MC$) and the more efficient is the outcome.
  - This outcome differs from the outcome of perfect competition in two ways:
    - The monopoly captures the entire consumer surplus.
    - The increase in economic profit attracts even more rent-seeking activity that leads to an inefficient use of resources.
Monopoly Policy Issues

- Gains from Monopoly:
  - Product innovation
    - Patents and copyrights provide protection from competition and let the monopoly enjoy the profits stemming from innovation for a longer period of time.
  - Economies of scale and scope
    - Where economies of scale or scope exist, a monopoly can produce at a lower average total cost than what a large number of competitive firms could achieve.
Regulating Natural Monopoly

When demand and cost conditions create natural monopoly, government regulates the price of monopoly.

By regulation, some of the worst aspects of monopoly can be avoided.
Regulating a Natural Monopoly

- Profit maximisation

- The Efficient Regulation
  - Marginal cost pricing rule sets price equal to marginal cost

- Average Cost Pricing
  - Average cost pricing rule sets price equal to average total cost
Regulating a Natural Monopoly

Figure 11.11

Price and cost (cents per cubic foot)

Quantity (millions of cubic feet per day)

Profit maximising

Average cost pricing

Marginal cost pricing

MC

ATC

MR
END

CHAPTER 11