Monopoly Profit Maximization

Chapter 15-3

A Model of Monopoly

- How much should the monopolistic firm choose to produce if it wants to maximize profit?

The Monopolist's Price and Output Numerically

- The first thing to remember is that marginal revenue is the change in total revenue that occurs as a firm changes its output.

\[ TR = P \times Q \]
\[ MR = \frac{\text{Change in Total Revenue}}{\text{change in output}} \]

Another way to say it is: “how much does your Total Revenue changes as you increase output”

The Monopolist's Price and Output Numerically

- When a monopolist increases output, it lowers the price on all previous units.
- As a result, a monopolist's marginal revenue is always below its price.

Profit Maximizing Level of Output

- The goal of the monopolistic firm is to maximize profits, the difference between total revenue and total cost.
- The monopoly maximizes profit when marginal revenue equals marginal cost.

**Marginal revenue (MR)** is the change in total revenue associated with a change in quantity.
- **Marginal cost (MC)** is the change in total cost associated with a change in quantity.
Profit Maximizing Level of Output

- The profit-maximizing condition of a monopolistic firm is: \( MR = MC \)
- For a monopolistic firm, \( MR < P \)
- A monopolistic firm maximizes total profit, not profit per unit

If \( MR > MC \),
- The monopoly can increase profit by increasing output

If \( MR < MC \),
- The monopoly can increase profit by decreasing its output

Profit Maximization for a Monopolist

<table>
<thead>
<tr>
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<th>Price</th>
<th>TR</th>
<th>MR</th>
<th>TC</th>
<th>MC</th>
<th>ATC</th>
<th>Profit</th>
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The Monopolist’s Price and Output Graphically

- The marginal revenue curve is a graphical measure of the change in revenue that occurs in response to a change in price.
- It tells us the additional revenue the firm will get by expanding output.

MR = MC Determines the Profit-Maximizing Output**

- If \( MR > MC \), the monopolist gains profit by increasing output.
- If \( MR < MC \), the monopolist gains profit by decreasing output.
- If \( MC = MR \), the monopolist is maximizing profit.

The Price a Monopolist Will Charge

- The \( MR = MC \) condition determines the quantity a monopolist produces.
- The monopolist will charge the maximum price consumers are willing to pay for that quantity.
- That price is found on the demand curve.

The Price a Monopolist Will Charge

- To determine the profit-maximizing price (where \( MC = MR \), first find the profit maximizing output.
Determining the Monopolist's Price and Output

Profits and Monopoly
- Draw the firm's marginal revenue curve.
- Determine the output the monopolist will produce by the intersection of the \(MC\) and \(MR\) curves.

Profits and Monopoly
- Determine the price the monopolist will charge for that output.
- Determine the average cost at that level of output.

Profits and Monopoly
- Determine the monopolist's profit (loss) by subtracting average total cost from average revenue \(P\) at that level of output and multiply by the chosen output.

Profits and Monopoly
- The monopolist will make a profit if price exceeds average total cost.
- The monopolist will make a normal return if price equal average total cost.
- The monopolist will incur a loss if price is less than average total cost.

A Monopolist Making a Profit
- A monopolist can make a profit.
A Monopolist Making a Profit

Price

Profit

A Monopolist Breaking Even

A monopolist can break even.

A Monopolist Making a Loss

A monopolist can make a loss.

Profit Maximization

- The monopoly firm will **not** set the price arbitrarily high, the profit-maximizing price still corresponds to the point where MR=MC.
- The monopoly firm’s **market power** will allow the firm to achieve above-normal profits.
Monopolistic Profit Maximization Table

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<th>Q</th>
<th>P ($)</th>
<th>TR ($)</th>
<th>MR ($)</th>
<th>TC ($)</th>
<th>MC ($)</th>
<th>ATC ($)</th>
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</tbody>
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The profit-maximizing condition is: MR = MC

If MC < MR, increase production

Profit maximizing quantity is where MC = MR

If MC > MR, decrease production

Profit Maximization

Monopoly Profit and Loss

- A monopolist will suspend operations in the short run if its price does not exceed the average variable cost at the quantity the firm produces.
- A monopolist will shut down permanently if revenue is not likely to equal or exceed all costs in the long run.
- In contrast, however, if a monopolist makes a profit, barriers to entry will keep other firms out of the industry.

Monopoly Myths

1. A monopolist can charge any price it wants and will reap unseemly profits by continually increasing the price.
2. A monopolist is not sensitive to customers.
3. A monopolist cannot make a loss.