I. OVERVIEW

II. THE BASICS OF MONOPOLY
   A. What is a monopoly?
      1. Definition
      2. The demand curve facing a monopolist
   B. The key feature of a monopolist: declining marginal revenue
      1. Firm demand curve and marginal revenue under competition
      2. Marginal revenue for a monopolist

III. SHORT-RUN PROFIT MAXIMIZATION FOR A MONOPOLIST
   A. MR = MC
   B. Implications

IV. WELFARE ANALYSIS OF MONOPOLY
   A. Allocative inefficiency
   B. Distributional effects

V. LONG-RUN PROFIT MAXIMIZATION FOR A MONOPOLIST
   A. Positive, negative, or zero economic profits
   B. The possibility of persistent positive profits and long-run inefficiency
   C. Example: An increase in demand

VI. BARRIERS TO ENTRY

VII. GOVERNMENT RESPONSES TO MONOPOLY
Lecture 11
Monopoly

February 23, 2016
I. OVERVIEW
II. THE BASICS OF MONOPOLY
Monopoly

- There is only one supplier of a good.
Total Revenue for a Competitive Firm

\[ P \]

\[ P_1 \]

\[ q_i \]

\[ D_i \]
Marginal revenue from 0 to 1: $a - 0 = a = P_1$.
MR from $q_a$ to $q_a + 1$: $(a+b+c) - (a+b) = c = P_1$.
MR from $q_b$ to $q_b + 1$: $(a+b+c+d+e) - (a+b+c+d) = e = P_1$. 
Total Revenue for a Monopolist

The diagram illustrates the concept of total revenue for a monopolist. The demand curve (D) is downward sloping, indicating that as the quantity (Q) increases, the price (P) decreases. The shaded area represents the total revenue, which is the product of price and quantity, up to the quantity Q₁. The price at Q₁ is P₁.
Marginal Revenue for a Monopolist

Marginal revenue from 0 to 1: $a - 0 = a = P_1$. 
Marginal Revenue for a Monopolist

Marginal revenue from $Q_a$ to $Q_a + 1$: $(c+d) - (c+b)$

$= d - b < P_3$. 
Marginal Revenue for a Monopolist

Marginal revenue from $Q_b$ to $Q_b+1$: $(f+g) - (f+e) = g - e << P_5$. 
The Marginal Revenue Curve of a Monopolist
A Little Bit of Calculus  
(Only for Those Who Are Interested!)

• Suppose the demand curve is:
  \[ P = a - bQ \]

• Then total revenue as a function of \( Q \) is:
  \[
  TR = P \cdot Q \\
  = (a - bQ) \cdot Q \\
  = aQ - bQ^2
  \]

• Thus, marginal revenue is:
  \[
  MR = \frac{dTR}{dQ} \\
  = a - 2bQ
  \]
III. SHORT-RUN PROFIT MAXIMIZATION FOR A MONOPOLIST
Profit Maximization for a Monopolist

Profit Maximization: \( MR = MC \)
Implications of Monopoly

- A monopolist is constrained by the demand curve.
- A monopolist doesn’t take price as given.
  - One corollary: A monopolist doesn’t have a supply curve.
- A monopolist doesn’t produce where MC = P.
  - One corollary: A monopolist doesn’t produce where MC = MB.
IV. WELFARE ANALYSIS OF MONOPOLY
Comparison with Perfect Competition

\[ D,MB \]

\[ P, Q \]

\[ P_1, P_c \]

\[ Q_1, Q_c \]

\[ MC \]

\[ D,MB \]
Welfare Comparison with Perfect Competition

<table>
<thead>
<tr>
<th></th>
<th>Competition ($Q_c$)</th>
<th>Monopoly ($Q_1$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Surplus</td>
<td>$a+b+c+d+e$</td>
<td>$a+b$</td>
</tr>
<tr>
<td>Producer Surplus</td>
<td>$f+g+h$</td>
<td>$c+d+f+g$</td>
</tr>
<tr>
<td>Total Surplus</td>
<td>$a+b+c+d+e+f+g+h$</td>
<td>$a+b+c+d+f+g+h$</td>
</tr>
<tr>
<td>Deadweight Loss</td>
<td>$e+h$</td>
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</tbody>
</table>

Graph showing the comparison between competitive and monopoly market outcomes.
Area that is consumer surplus in both cases: a+b
Area that is producer surplus in both cases: f+g
Area that is cons. surplus under comp., prod. surplus under monopoly: c+d
(Deadweight loss under monopoly: e+h)
V. LONG-RUN PROFIT MAXIMIZATION FOR A MONOPOLIST
Example: Increase in Demand

Graph showing the relationship between price (P) and quantity (Q) with demand curves (D1, D2), marginal revenue curves (MR1, MR2), and marginal cost curve (MC1). The increase in demand is indicated by the shift from D1 to D2, resulting in a higher price from P1 to P2 and an increased quantity from Q1 to Q2.
VI. SOURCES OF MONOPOLY POWER:
    BARRIERS TO ENTRY
Barriers to Entry

• A barrier to entry is any force that prevents firms from entering a market.

• Main types of barriers to entry:
  • Patents and other legal protections.
  • High fixed costs.
  • Network effects.
  • Anti-competitive practices.
VII. GOVERNMENT RESPONSES TO MONOPOLY
Policies to Deal with Monopoly

• Antitrust laws – laws designed to promote competition and prevent monopolization.

• Regulation.

• Limits on patents and other legal protections.