Lecture #13:

I. Features of the long-run competitive equilibrium.

II. Efficiency and size.
   A. An efficient firm and an inefficient firm.

III. Monopoly.
   A. Barriers to entry.
   B. Marginal Revenue.
      1. MR and AR.
   C. Profit maximization.
      1. Monopoly price.
      2. Monopoly profit.

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I. Features of the long-run competitive equilibrium.

Long run competitive equilibrium

![Diagram of long-run competitive equilibrium]

The long-run equilibrium in a perfectly competitive market

1. Firms earn zero economic profit.  Price efficiency.
2. Firms produce at the minimum of their average total cost (ATC) curve.  Production efficiency.  There is no deadweight loss. All units that are valued more than they cost are produced. No units that are valued less than they cost are sold.
3. Firms produce where P = MC
II. Efficiency and size.

A. An efficient firm and an inefficient firm.

Firm #2 is more efficient than Firm #1 and so Firm 2’s average total cost (ATC) curve is lower. As a result, Firm #2 will produce more output and earn more profit.

Therefore, the observation that large firms tend to be more profitable does not necessarily mean that large firms have market power. It might simply be a result of efficiency.
III. Monopoly.

A. Barriers to entry.

2. Control of a scarce input.
3. Economies of scale. Leads to “natural monopoly.”

B. Marginal Revenue.

1. MR and AR.

Because the monopolist is the only firm in the market, it faces the market demand curve.

A “single price” monopoly must charge the same price for every unit it sells. In that case, the demand curve shows the most the monopolist can charge to sell a given number of units.

For a single price monopolist, the demand curve is its average revenue (AR) curve.

The monopolist’s marginal revenue curve must be below the demand curve because if the average revenue (AR) is falling, then the marginal revenue (MR) must be below the average revenue (AR).
Example:

<table>
<thead>
<tr>
<th>Demand</th>
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<tbody>
<tr>
<td>Q</td>
</tr>
<tr>
<td>0</td>
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<tr>
<td>1</td>
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<tr>
<td>2</td>
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<td>3</td>
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<td>4</td>
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<td>5</td>
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<td>6</td>
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</tbody>
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Except for the first unit, the marginal revenue is less than the price.

For example, the 3\textsuperscript{rd} unit sold for $60. However, in order to sell the third unit, the firm had to lower the price on all previous units. When the firm sells 2 units it can charge $70 a piece. To sell the 3\textsuperscript{rd} unit, the firm must lower the price it charges for all units (including the 1\textsuperscript{st} and 2\textsuperscript{nd}).

C. Profit maximization.

The objective of profit maximization is to maximize:

\[ \pi = TR - TC \]

The three rules of profit maximization:

1. Find the quantity where MR = MC.
   
   (a) Find the most consumers are willing to pay for that quantity from the demand curve. That price is the monopolist’s price.

2. Pick the quantity where MC is rising.

3. Is P > AVC? If not then shut down in the short run.
Example:

\[ \begin{align*}
Q^* \text{ and } p^* \text{ satisfy the three rules of profit maximization.} \\
1. \textbf{Monopoly price.} \\
\text{The only difference in the 3 rules of profit maximization for a monopolist and a perfectly competitive firm is that the monopolist must find the price it will charge by drawing a line up to the demand curve from where } MR = MC. \\
2. \textbf{Monopoly profit.} \\
\text{The monopolist calculates its profit the same way as a perfectly competitive firm.}
\end{align*} \]