Lecture 19: Imperfect Competition and Monopoly

Clicker Question
Perfect and Imperfect Competition

Perfect Competition

- One homogeneous product
- Many buyers and sellers
- Voluntary exchange
- Perfect information
- Rational self-interested agents

Competition is imperfect when one or more of these features are removed.

Various forms/degrees of imperfect competition can be defined as a) to e) are modified in different ways.

Imperfect competition from a small number of sellers or from product differences.

- Monopoly (one dominant firm)
  - De Beers diamonds (1980’s)

- Duopoly (two dominant firms)
  - Soft drinks: Coke and Pepsi
  - Credit Cards: Mastercard and Visa
Oligopoly (a few firms)
- Automobile market – a few firms:
  - Honda,
  - Toyota,
  - Chrysler,
  - Ford,
  - GM,
  - etc..

Monopolistic Competition
(many firms with differentiated products)
- restaurants
- hair stylists
- hardware stores

These firms can raise prices above the competitive equilibrium.
Imperfect Competition from Limited Information

- **Adverse Selection**: a large share of bad products that cannot be identified by the buyer (or a large share of bad buyers that cannot be identified by the seller).

- **Moral Hazard**: unsupervised customers buying too much or behaving badly when others are paying.

- **Example**: Used cars
  - Used cars often have *hidden* problems [*adverse selection*].
  - So worried buyers have low WTP.
  - Equilibrium market prices are low.
  - Owners won’t sell good cars.
  - Vicious circle—market works poorly.
Example: Health Insurance

- Buyers of health insurance tend to be less healthy than average. \textit{[adverse selection]}.
- Insured people may see the doctor too often and get too many medical tests \textit{[moral hazard]}.
- Insurance companies respond with high prices.
- Healthy people don’t want to buy insurance.

- Vicious circle—private market works poorly.

Imperfect competition in markets with less-than-voluntary exchange:

- college textbooks
- healthcare
Imperfect competition in markets with irrational consumers:

- wishful thinking
- temptation
- stupidity

These imperfections can lead to high prices or inefficiency or both.

Market Power

A firm has *market power* if it can raise its prices without losing *all* of its customers.

This happens when no other firm is producing the same (or very similar) product.
Differences in products (real or apparent) that create market power often come from:
- minor product characteristics
- location
- customer service
- marketing

Most real-world firms obtain some degree of market power through a deliberate strategy of product differentiation.
- Perdue Chicken

Firms with market power can raise prices and increase profits.
Monopoly

- A firm is a **monopoly** when it is the only firm producing a given product.
  - i.e. when no other firm produces a good substitute for its product.

- Monopolies have market power. *Why?*
- Because the monopoly is the only firm in the market,…
- …the monopoly faces the entire market demand curve.

- The monopoly can create an **artificial scarcity** and obtain **economic rents** by restricting production.

- Then, the monopoly can move up the demand curve and charge a higher price (*as we shall see*).

What factors allow monopolies to exist?

- **Patents and Copyrights**
  (Intellectual Property Rights)
  - **Product Patents**: New products
    —Post-it notes, medicines
  - **Process Patents**:
    Production processes that lower costs
    —e.g. Kevlar
  - **Copyrights**: Protects the expression of an idea
    —novels, works of art
Control over important inputs
- De Beers (1980’s)

Government Licenses and Franchises
- Yosemite Concession Services Corporation

Decreasing Costs (Natural Monopolies)
- Cost per unit keeps dropping as more output is produced up to the quantity demanded.
  - Electricity, Amtrak

Network economies
- Microsoft Windows Operating System
- Apple OS

Monopoly: Restricting Production
- The monopoly faces the market demand curve,

- and its MC curve is the market MC curve.

- Social surplus would be maximized by producing $Q^*$ and setting price $P^*$.

- But by restricting production,

- the monopoly can sell at a higher price,

- and obtain monopoly rents (taken from CS).

- The monopoly loses some PS because of reduced production,

- but at $P_M$ and $Q_M$, monopoly rents are larger than the lost PS.

- Consumers lose even more.
Monopoly and Social Surplus

- When monopolies raise price and restrict production,…
  - consumer surplus is transferred to the monopoly in the form of monopoly rents,…
  - but the output reduction decreases total social surplus.

- Monopoly behavior also affects surplus in other more important ways.

- These behaviors will be analyzed in the next lecture.
Marginal Revenue and Market Power

- *Total Revenue (TR)* is the money a firm obtains by selling its output.

- *Marginal revenue (MR)* is the additional revenue obtained from selling another unit of output.

In a perfectly competitive market,
- a firm’s output does not affect the price,…
- so a competitive firm obtains the same added revenue (the price) for each additional unit sold.
- Therefore, \( MR = P \).

But any firm with market power (including a monopoly), faces a downward-sloping demand curve.

Suppose the firm cannot price-discriminate *[charge different prices to different consumers]*.
- Then, if it lowers the price of an additional unit in order to sell it,
- it must lower its price for *ALL* units that it sells.
- To find the marginal revenue, you start with the *price* it receives for the additional unit…
- and then *subtract* the *revenue loss* on its other units caused by the price drop.
- Therefore, \( MR < P \).
Marginal Revenue

- Suppose a firm facing demand $D$ produces $q - 1$ units.
- If the firm produces one more unit...
- it cannot sell it for more than price $p$,...
- so revenue increases by $p \times 1 = p$.
- But the price on the other $q - 1$ units drops by $\Delta p$.
- so revenue drops back by $(q - 1) \Delta p$.
- Therefore, $MR = p - (q - 1) \Delta p$.

[For those who like calculus:]
If goods are perfectly divisible, increase production by $\Delta q$ and take the limit as $\Delta q$ goes to 0.

$$MR = p - q \frac{dp}{dq}$$

---

**Example: Monopoly Profit Maximization**
(The monopoly must produce whole units and charge everyone the same price.)

<table>
<thead>
<tr>
<th>Chairs</th>
<th>Price (P, WTP)</th>
<th>Quantity (Q)</th>
<th>Total Revenue (TR=PxQ)</th>
<th>Marginal Revenue (MR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
<td>1</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>90</td>
<td>90</td>
<td>2</td>
<td>180</td>
<td>80 \hspace{1em} MR = 90 - 1 \times 10</td>
</tr>
<tr>
<td>80</td>
<td>80</td>
<td>3</td>
<td>240</td>
<td>60 \hspace{1em} MR = 80 - 2 \times 10</td>
</tr>
<tr>
<td>70</td>
<td>70</td>
<td>4</td>
<td>280</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td>60</td>
<td>5</td>
<td>300</td>
<td>20 \hspace{1em} Q_M^*: MR &gt; MC</td>
</tr>
<tr>
<td>50</td>
<td>50</td>
<td>6</td>
<td>300</td>
<td>0 \hspace{1em} MR &lt; MC</td>
</tr>
<tr>
<td>40</td>
<td>40</td>
<td>7</td>
<td>280</td>
<td>-20</td>
</tr>
</tbody>
</table>

- How many chair would the firm want to sell if the cost (MC) of each additional unit is $15?\
- At what price?\
- Would chair #6 increase social surplus? #7?
Clicker Question