Lecture 20: Price Discrimination, Monopoly Rents and Social Surplus

Session DDEE
### Example: Monopoly Profit Maximization

(The monopoly must produce whole units and charge everyone the same price.)

<table>
<thead>
<tr>
<th>Chairs</th>
<th>Total Revenue (TR=P\times Q)</th>
<th>Marginal Revenue (MR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price (P, WTP)</td>
<td>Quantity (Q)</td>
<td>Revenue</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
<td>100</td>
</tr>
<tr>
<td>90 2</td>
<td>180</td>
<td>80</td>
</tr>
<tr>
<td>80 3</td>
<td>240</td>
<td>60</td>
</tr>
<tr>
<td>70 4</td>
<td>280</td>
<td>40</td>
</tr>
<tr>
<td>60 5</td>
<td>300</td>
<td>20</td>
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<tr>
<td>50 6</td>
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<td>0</td>
</tr>
<tr>
<td>40 7</td>
<td>280</td>
<td>-20</td>
</tr>
</tbody>
</table>

**Note:** This slide replaces a similar slide at the end of the previous lecture.

- **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?**

### Monopoly and Social Surplus

(Tons of Sugar: The monopoly can produce parts of a ton. It must charge everyone the same price.)

- Monopoly earns profits (MR - MC) on every unit up to 5 tons...
- but she would lose profits on units between 5 tons and 10 tons.
- So she will sell 5 tons.
- But society would have benefited from the next 5 tons, because WTP > MC.
- The next 5 tons, not produced, represent unexploited gains of trade (DWL).
In our example,
- the monopolist sells 5 tons for $600 each.
- Note: the price is on the demand curve, NOT on the MR or MC curve.
- Cost of each ton of sugar \( (MC = ATC) \) is $200.

Monopoly profits are \( 5(600 - 200) = $2000 \).

Deadweight loss = $1000. Why?

In this example, we have so far assumed that the monopolist cannot price-discriminate [sell to different consumers at different prices].

What if she could?

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**Price Discrimination**

**Example:** A lobster shop in Maine

- Visitors must take a road along a hillside, down to the lobster shop near the beach.
- The lobster-seller can see each car coming down the hillside long before it gets to his shop.
- If the car is expensive, he writes a high price on the chalk-board in his shop 😊,…
- but if the car is junk, he writes a low price on the board 😞.
Perfect Price-Discrimination

- Suppose De Beers had an instrument that could measure every customer’s *WTP* for diamonds.

- Then De Beers could set a “special” price for each customer, equal to the customer’s *WTP*. How much consumer surplus will the customers get?

- If the firm wanted to sell an additional diamond, it could charge the new customer his own *WTP*,...

- without having to lower prices charged to other customers.
If a consumer doesn’t agree to be measured by the instrument,…

De Beers would say ________.

We show: If De Beers follows such policies,…

…the firm will maximize profits by producing the same quantity that would be produced in a perfectly-competitive equilibrium.

Why?

Clicker Question
Perfect Price-Discrimination

- Suppose that a perfectly discriminating firm facing demand $D$ produces $q - 1$ units.
- If the firm sells one more unit, revenue increases by $p$.
- Because the firm can charge different prices to different buyers, it doesn't have to reduce prices to other buyers.
- Therefore, $MR$ is always the same as $p$ and $WTP$.
- So profits on that unit are $P - MC$.
- The firm will continue to increase sales as long as $p > MC$.
- Therefore, $q_M = q^*$ and will stop only when $p = MC$.
- Social surplus is maximized, but the monopoly gets all of the surplus as producer surplus, and consumers get ________.

Price discrimination is difficult when goods can be resold with low transaction costs.

In the case of De Beers, people with low WTP could buy diamonds and resell them to those with high WTP.

Price discrimination is more effective in the case of services.

Example: Student discounts for …
Other forms of Price Discrimination

- Firms cannot perfectly identify an individual’s *WTP*, but they can test people and make estimates.
  - Age-based discounts on movies, airline tickets
  - Airfares with Saturday-night stay-over
  - “Local resident” discounts in coffee shops
  - Use of obstacles: coupons in newspapers, mail-in rebates

Price Discrimination Based on Quality

- To make sure that customers with high WTP don’t end up paying less,…
- firms often create minor differences in quality…
- and reap major gains in surplus.
- **Example:** Hardback vs. paperback books
Should Price Discrimination be legal?

- **Example:** Medication for AIDS.

- Price discrimination allows **AIDS** medication to be more expensive in rich countries than in poor ones.

- Price discrimination increases social surplus, because
  - pharmaceutical companies will produce more medicines, and
  - consumers in poor countries will be able to buy them.

- But with price discrimination,
  - pharmaceutical companies can make huge profits in rich countries…
  - at the expense of rich-country consumers.

- Suppose price-discrimination were outlawed.
  - Pharmaceutical companies might charge close to the rich-country price everywhere,…
  - and medicines could become less available in poor countries.
Regulating Monopolies

- Some monopolies are regulated by government agencies.
  - Utilities: electricity, gas, water, etc.
  - Local telephone service.
  - Long-distance telephone service (in the past).

- Regulators often apply **price ceilings**.
  - When used in competitive markets, price ceilings tend to reduce output and social surplus.
  - What effect does a price ceiling have on a monopolized market?

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Monopolies and Price Ceilings

- When a nondiscriminating monopoly faces demand $D$ and marginal cost $MC$,...
  - the competitive price is $p^*$.
  - But the monopoly will set the price to $p_M$ and restrict the quantity to $q_M$.

- But if a price ceiling $p_c$ is enacted at the competitive level $p^*$,...
  - then $MR$ becomes $p_c$,...
  - and the monopoly will increase output to $q^*$ (the competitive output level).

- Social surplus is maximized,...
  - the monopoly gets some producer surplus,
  - consumers get consumer surplus.
  - Problem: to set an efficient price ceiling, the regulator needs to know both $D$ and $MC$. 
Price-Discriminating Monopolists and Price Ceilings

- When monopolies cannot price-discriminate, price ceilings at the competitive level:
  - improve efficiency,
  - and redistribute the social surplus.

- Price-discriminating monopolists are already reasonably efficient,…

- so price ceilings at the competitive level do not raise efficiency very much, BUT…

- they do change the distribution of surplus in favor of the consumer.
Rent Seeking and Social Surplus

Example: The Bicycle Thief

What happens to social surplus if someone steals your bicycle?
- You lose an amount of surplus equal to your WTP for the bicycle.
- The thief gains surplus equal to his WTP.
- Net gain in total surplus?

Theft (stealing) is a form of rent seeking! Why?

What are the social costs of the bicycle-theft activity?
- Static costs
  - Thief’s time and effort.
  - Owner’s effort and expense in order to avoid theft (e.g. the cost of locks).
- Dynamic costs (over time)
  - The thief will have less incentive to work if he can steal.
  - The owner will have less incentive to work if the goods he buys are often stolen.
The rent-seeking costs of a bicycle theft are likely to be higher than the gain in surplus created by a thief who values the bicycle more than the owner does.

Besides, if the thief really values the bicycle more than the owner, he could buy it, right? Or maybe not. Why not?
Monopoly Rent-Seeking

Nondiscriminating monopolies create *artificial scarcities* and inefficiency by restricting output.

But perfectly discriminating monopolists do not create artificial scarcities.

However *all* monopolies tend to waste resources to protect their monopoly status.

The problem of protecting monopoly status may be especially difficult…

when monopoly status is not protected by a patent, copyright or government regulations.

The costly attempt to obtain or maintain monopoly status is a form of rent-seeking.

*Examples:*

- local mafias
- NCR
- De Beers

When monopoly status is conferred as a *legally enforceable intellectual property right* (patents and copyrights),…

rent-seeking behavior may be discouraged…

but certainly not eliminated.
Monopoly: Rent-Seeking Losses

- After restricting production, the monopoly can raise its price...
- and obtain monopoly rents.
- But this strategy can work only if the monopoly can prevent potential competitors...
- ...from entering the market at a lower price.
- To maintain its monopoly position, the monopolist must pay rent-seeking costs, ...
- ...which reduce its own surplus and social surplus.
- Potential competitors are also likely to pay rent-seeking costs, ...
- which reduce social surplus more.
- Price-discriminating monopolists have exactly the same problem.

Patents and copyrights create legally owned monopolies.
Yet, costly disputes over intellectual property rights are common.
- Example: Apple vs. Samsung mobile phones*
  - Apple and Samsung sued each other for patent infringement in the US, Korea, Japan, Germany and 6 other countries, ...
  - with more than 50 lawsuits worldwide.
  - On August 24, 2012, a US jury awarded Apple more than $1 billion in damages to be paid by Samsung.
  - In the Korean lawsuit, the verdict was mixed.
  - It seems likely that Apple and Samsung spent hundreds of millions of dollars on lawyers and expert witnesses.
  - These lawsuits are costly rent-seeking activities with little or no social value.

**Example:** Awards of mobile-phone radio spectrum create legally owned monopolies.

- In some countries (e.g. US, UK and Germany), spectrum for the use of mobile phones was allocated by auction.
- In other countries (e.g. France, Spain, Italy), spectrum was allocated by what economists call “beauty contests.”
- Auctions force companies to pay for the spectrum they want,…
- but beauty contests encourage rent seeking.
- Applicant firms spent $$$ on beauty contests, but the money spent created no social surplus.
End of File