Perfect and Imperfect Competition

- Perfect Competition
  
a) One homogeneous product
b) Many buyers and sellers
c) Voluntary exchange
d) Perfect information
e) Rational self-interested agents

- Competition is imperfect when one or more of these features is 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: GM, Ford, Honda, Toyota, Fiat-Chrysler, etc..
Monopolistic Competition
(many firms with differentiated products)

- restaurants

- hair stylists

- hardware stores

These firms can raise prices above the competitive equilibrium.

Clicker Question
Which of the following does NOT describe a market with a small number of firms?

a. monopoly
b. duopoly
c. monopolistic competition
d. oligopoly
**Adverse Selection**: caused by **bad sellers or products** that cannot be identified by the buyer, or by **bad buyers** that cannot be identified by the seller.

**Moral Hazard**: customers able to buy too much or to behave badly when other people 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.
- WPT falls further—vicious circle—market failure.

**Example**: Health Insurance

- Buyers of health insurance tend to be less healthy than average. *[adverse selection]*.
- Insured people may see the doctor too often and get too many medical tests *[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
- stupidity
- temptation

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.
Clicker Question
Which of the following firms is least likely to have market power.

a. a toothpaste company
b. a paper manufacturer
c. a firm that designs computer games
d. a designer-clothing company

Monopoly

A firm is a monopoly when it is the only firm producing its product.

- i.e. when no other firm produces a good substitute for its product.

Monopolies have market power. Why?

The monopoly is the only firm in the market producing its product, so 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 market demand curve and charge a higher price (as we shall see).
What factors allow monopolies to exist?

- Patents, copyrights, trademarks: create excludability (Intellectual Property Rights)
  - Product Patents: New products, e.g., Post-it notes, medicines
  - Process Patents: Production processes that lower costs, e.g., Kevlar
  - Copyrights: The expression of an idea, e.g., books, articles, works of art
  - Trademarks: The name of a product, e.g., Kleenex

- Control over important inputs
  - De Beers (1980’s)

- Switching costs
  - Bank Accounts

- Decreasing Costs (Natural Monopolies)
  - Cost per unit keeps dropping as more output is produced up to the quantity demanded. Though it would rise for large enough quantities.
    - Electricity, Amtrak

- Network economies (The more consumers who use a product, the more it’s worth to each consumer.)
  - Microsoft Windows
  - Android cell-phone operating system
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 **consumer surplus**.
  - 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.
  - (If the monopoly restricts production and raises price too much, the loss of business can decrease profits.)
- Monopoly behavior also affects surplus in other more important ways.
- These behaviors will be analyzed in the next lecture.
**Clicker Question**

A monopoly price increase leads to an increase in monopoly profits whenever

a. price exceeds marginal cost.

b. marginal willingness to pay is greater than the price.

c. the gain from those who buy at a higher price is greater than the loss from those who stop buying.

d. consumer demand is perfectly elastic.

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**Marginal Revenue**

- *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.

  - Marginal revenue is an important tool for analyzing market power (the ability of a firm to raise its price without losing its customers).

- In a perfectly competitive market, firms are price takers that have no market power.

  - Each firm faces a perfectly elastic (flat) demand curve.

  - 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: \( MR = P \).
But any firm with market power faces a downward-sloping demand curve (quantity demanded remains positive if the firm raises its price).

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 \( D \) sells \( q - 1 \) units at price \( p' \).

If the firm wants to sell one more unit…

- it must lower its price by \( \Delta p \) to price \( p \).
- Revenue increases by \( p \cdot 1 = p \).
- But the price of 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.

\[
MR = p - q \left( \frac{dp}{dq} \right)
\]
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>
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</table>

How many chairs 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
Which of the following is NOT likely to create monopoly rents?

a. increasing production beyond the competitive equilibrium
b. contributions to campaigns of US Congressmen, Senators, and the President
c. Advertising on Facebook
d. patents and copyrights
End of Lecture 19