In this chapter, look for the answers to these questions:

- What is consumer surplus? How is it related to the demand curve?
- What is producer surplus? How is it related to the supply curve?
- Do markets produce a desirable allocation of resources? Or could the market outcome be improved upon?

Consumers, Producers and the Efficiency of Markets

• Revisiting the Market Equilibrium
  – Do the equilibrium price and quantity maximize the total welfare of buyers and sellers?
  – Market equilibrium reflects the way markets allocate scarce resources.
  – Whether the market allocation is desirable can be addressed by welfare economics.

CONSUMER SURPLUS

• Willingness to pay is the maximum amount that a buyer will pay for a good.
• It measures how much the buyer values the good or service.
• Consumer surplus is the buyer’s willingness to pay for a good minus the amount the buyer actually pays for it.

Table 1: Four Possible Buyers’ Willingness to Pay

<table>
<thead>
<tr>
<th>Buyer</th>
<th>Willingness to Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>John</td>
<td>$100</td>
</tr>
<tr>
<td>Paul</td>
<td>80</td>
</tr>
<tr>
<td>George</td>
<td>70</td>
</tr>
<tr>
<td>Ringo</td>
<td>50</td>
</tr>
</tbody>
</table>
**WTP and the Demand Curve**

**Q:** If price of iPod is $200, who will buy an iPod, and what is quantity demanded?

<table>
<thead>
<tr>
<th>Name</th>
<th>WTP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anthony</td>
<td>$250</td>
</tr>
<tr>
<td>Chad</td>
<td>175</td>
</tr>
<tr>
<td>Flea</td>
<td>300</td>
</tr>
<tr>
<td>John</td>
<td>125</td>
</tr>
</tbody>
</table>

**A:** Anthony & Flea will buy an iPod, Chad & John will not. Hence, \( Q^d = 2 \) when \( P = $200 \).

**Using the Demand Curve to Measure Consumer Surplus**

- The market demand curve depicts the various quantities that buyers would be willing and able to purchase at different prices.

---

**The Demand Schedule and the Demand Curve**

<table>
<thead>
<tr>
<th>Price</th>
<th>Buyers</th>
<th>Quantity Demanded</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than $100</td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>$80 to $100</td>
<td>John</td>
<td>1</td>
</tr>
<tr>
<td>$70 to $80</td>
<td>John, Paul</td>
<td>2</td>
</tr>
<tr>
<td>$50 to $70</td>
<td>John, Paul, George</td>
<td>3</td>
</tr>
<tr>
<td>$50 or less</td>
<td>John, Paul, George, Ringo</td>
<td>4</td>
</tr>
</tbody>
</table>

---

**Figure 1 The Demand Schedule and the Demand Curve**

- Price of Album: $100, John’s willingness to pay
- Price of Album: $70, Paul’s willingness to pay
- Price of Album: $50, George’s willingness to pay
- Price of Album: $0, Ringo’s willingness to pay

**Figure 2 Measuring Consumer Surplus with the Demand Curve**

(a) Price $80
- John’s consumer surplus ($20)

(b) Price $70
- Paul’s consumer surplus ($10)
- Total consumer surplus ($30)
Using the Demand Curve to Measure Consumer Surplus

- The area below the demand curve and above the price measures the consumer surplus in the market.
- Consumer surplus is the amount the buyer is willing to pay minus the price the buyer actually pays.

What Does Consumer Surplus Measure?

- Consumer surplus, the amount that buyers are willing to pay for a good minus the amount they actually pay for it, measures the benefit that buyers receive from a good as the buyers themselves perceive it.

PRODUCER SURPLUS

- *Producer surplus* is the amount a seller is paid for a good minus the seller’s cost.
- It measures the benefit to sellers participating in a market.

Table 2: The Costs of Four Possible Sellers

<table>
<thead>
<tr>
<th>Seller</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary</td>
<td>$900</td>
</tr>
<tr>
<td>Frida</td>
<td>800</td>
</tr>
<tr>
<td>Georgia</td>
<td>600</td>
</tr>
<tr>
<td>Grandma</td>
<td>500</td>
</tr>
</tbody>
</table>
Using the Supply Curve to Measure Producer Surplus

- Just as consumer surplus is related to the demand curve, producer surplus is closely related to the supply curve.

Using the Supply Curve to Measure Producer Surplus

- The area below the price and above the supply curve measures the producer surplus in a market.
- The producer surplus is the actual price received by the seller minus the minimum price the seller is willing to accept.

<table>
<thead>
<tr>
<th>Price</th>
<th>Sellers</th>
<th>Quantity Supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>$900 or more</td>
<td>Mary, Frida, Georgia, Grandma</td>
<td>4</td>
</tr>
<tr>
<td>$800 to $900</td>
<td>Frida, Georgia, Grandma</td>
<td>3</td>
</tr>
<tr>
<td>$600 to $800</td>
<td>Georgia, Grandma</td>
<td>2</td>
</tr>
<tr>
<td>$500 to $600</td>
<td>Grandma</td>
<td>1</td>
</tr>
<tr>
<td>Less than $500</td>
<td>None</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 4 The Supply Schedule and the Supply Curve

Figure 5 Measuring Producer Surplus with the Supply Curve
MARKET EFFICIENCY

- Consumer surplus and producer surplus may be used to address the following question:
  - Is the allocation of resources determined by free markets in any way desirable?

The Benevolent Social Planner

- **Efficiency** is the property of a resource allocation of maximizing the total surplus received by all members of society.
- In addition to market efficiency, a social planner might also care about **equity** – the fairness of the distribution of well-being among the various buyers and sellers.

Efficiency

\[
\text{Total surplus} = (\text{value to buyers}) - (\text{cost to sellers})
\]

- Efficiency means making the pie as big as possible.
- In contrast, **equity** refers to whether the pie is divided fairly.
- What’s “fair” is subjective, harder to evaluate.
- Hence, we focus on efficiency as the goal, even though policymakers in the real world usually care about equity, too.
Evaluating the Market Equilibrium

- Three Insights Concerning Market Outcomes
  - Free markets allocate the supply of goods to the buyers who value them most highly, as measured by their willingness to pay.
  - Free markets allocate the demand for goods to the sellers who can produce them at least cost.
  - Free markets produce the quantity of goods that maximizes the sum of consumer and producer surplus.

Evaluating the Market Equilibrium

- Because the equilibrium outcome is an efficient allocation of resources, the social planner can leave the market outcome as he/she finds it.
- This policy of leaving well enough alone goes by the French expression *laissez faire* (French for “allow them to do”).

Why Non-Market Allocations Are Usually Bad

- Suppose the allocation of resources were instead determined by a central planner (e.g., the Communist leaders of the former Soviet Union.)
- To choose an efficient allocation, the planner would need to know every seller’s cost and every buyer’s WTP, for each of the thousands of goods produced in the economy.
- This is practically impossible, so centrally planned economies are never very efficient.

Evaluating the Market Equilibrium

- Market Power
  - If a market system is not perfectly competitive, market power may result.
    - Market power is the ability to influence prices.
    - Market power can cause markets to be inefficient because it keeps price and quantity from the equilibrium of supply and demand.
Evaluating the Market Equilibrium

- Externalities
  - created when a market outcome affects individuals other than buyers and sellers in that market.
  - cause welfare in a market to depend on more than just the value to the buyers and cost to the sellers.
  - When buyers and sellers do not take externalities into account when deciding how much to consume and produce, the equilibrium in the market can be inefficient.