What you will learn in this chapter:

- How much benefit do producers and consumers receive from the existence of a market?
- How is the welfare of consumers and producers affected by changes in market prices?
- How are these concepts related to demand and supply curve?
  - Consumer Surplus
  - Producer Surplus
  - Cost
  - Market Failure
Consumer Surplus and the Demand Curve

**Individual consumer surplus** is the net gain to an individual buyer from the purchase of a good. It is equal to the difference between the buyer’s willingness to pay and the price paid.

**Total producer surplus** in a market is the sum of the individual producer surpluses of all the sellers of a good.
The Demand Curve for Used Textbooks

<table>
<thead>
<tr>
<th>Potential buyers</th>
<th>Willingness to pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aleisha</td>
<td>$59</td>
</tr>
<tr>
<td>Brad</td>
<td>45</td>
</tr>
<tr>
<td>Claudia</td>
<td>35</td>
</tr>
<tr>
<td>Darren</td>
<td>25</td>
</tr>
<tr>
<td>Edwina</td>
<td>10</td>
</tr>
</tbody>
</table>
Aleisha’s consumer surplus: $59 - $30 = $29
Brad’s consumer surplus: $45 - $30 = $15
Claudia’s consumer surplus: $35 - $30 = $5

Price of book = $30
The total consumer surplus generated by purchases of a good at a given price is equal to the area below the demand curve but above that price.
A Fall in the Price of Used Textbooks

- Increase in Aleisha’s consumer surplus
- Increase in Brad’s consumer surplus
- Increase in Claudia’s consumer surplus
- Original price = $30
- New price = $20
- Darren’s consumer surplus

Price of book

Aleisha

Brad

Claudia

Darren

Edwina

Quantity of books

0 1 2 3 4 5

$59

45

35

30

25

20

10
A Fall in the Market Price Increases Consumer Surplus

[Diagram showing a decrease in price with a shaded area representing the increase in consumer surplus for both original and new buyers.]
Producer Surplus and the Supply Curve

A potential seller’s **cost** is the lowest price at which he or she is willing to sell a good.

**Individual producer surplus** is the net gain to a seller from selling a good. It is equal to the difference between the price received and the seller’s cost.

**Total producer surplus** in a market is the sum of the individual producer surpluses of all the sellers of a good.
The Supply Curve for Used Textbooks

<table>
<thead>
<tr>
<th>Potential sellers</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrew</td>
<td>$5</td>
</tr>
<tr>
<td>Betty</td>
<td>15</td>
</tr>
<tr>
<td>Carlos</td>
<td>25</td>
</tr>
<tr>
<td>Donna</td>
<td>35</td>
</tr>
<tr>
<td>Engelbert</td>
<td>45</td>
</tr>
</tbody>
</table>

Price of book: $45, $35, $25, $15, $5

Quantity of books: 0, 1, 2, 3, 4, 5
Producer Surplus in the Used-Textbook Market

Price of book

$45

35

30

25

15

5

Price = $30

Quantity of books

0 1 2 3 4 5

Engelbert

Donna

Carlos

Betty

Andrew

Carlos’s producer surplus

Betty’s producer surplus

Andrew’s producer surplus
The total producer surplus from sales of a good at a given price is the area above the supply curve but below that price.
A Rise in Price Increases Producer Surplus

Price of wheat (per bushel)

- Increase in producer surplus to original sellers
- Producer surplus gained by new sellers

$7

5

0 1 million 1.5 million

Quantity of wheat (bushels)
Putting it together: Total Surplus

The **total surplus** generated in a market is the total net gain to consumers and producers from trading in the market. It is the sum of the producer and the consumer surplus.

The concepts of consumer surplus and producer surplus can help us understand why markets are an effective way to organize economic activity.
Total Surplus

![Diagram showing Total Surplus](image)

- **Price of book**: $30
- **Equilibrium price**: $30
- **Consumer surplus**: 
- **Producer surplus**: 
- **Quantity of books**: 1,000

The diagram illustrates the concept of total surplus in a market, highlighting the areas of consumer and producer surplus at the equilibrium price.
Consumer Surplus, Producer Surplus, Gains from Trade and Efficiency of Markets

Both consumers and producers are better off because there is a market in this good, i.e. there are gains from trade.

The maximum possible total surplus (highest possible gain to society) is achieved at market equilibrium.

In the market equilibrium there is no way to make some people better off without making others worse off $\Rightarrow$ markets are efficient.
Reallocating Consumption Lowers Consumer Surplus

Loss in consumer surplus if the book is taken from Mia and given to Bob
Reallocating Sales Lowers Producer Surplus

Loss in producer surplus if Yvonne is made to sell the book instead of Xavier.
Changing the Quantity Lowers Total Surplus

Loss in total surplus if fewer than 1,000 books transacted

Loss in total surplus if more than 1,000 books transacted
The market equilibrium maximizes total surplus because the market performs four important functions:

1. It allocates consumption of the good to the potential buyers who value it the most.

2. It allocates sales to the potential sellers who most value the right to sell the good.

3. It ensures that every consumer who makes a purchase values the good more than every seller who makes a sale.

4. It ensures that every potential buyer who doesn’t make a purchase values the good less than every potential seller who doesn’t make a sale.
A tax causes a *deadweight loss* to society, because less of the good is produced and consumed than in the absence of the tax. As a result, some mutually beneficial trades between producers and consumers do not take place.
A Tax Reduces Consumer and Producer Surplus

Price

\[ P_C \]
\[ P_E \]
\[ P_P \]

Fall in consumer surplus due to tax

Fall in producer surplus due to tax

Excise tax = T

Quantity

\[ Q_T \]
\[ Q_E \]
The Deadweight Loss of a Tax

Diagram showing the deadweight loss due to a tax. The diagram includes supply (S) and demand (D) curves, with equilibrium point E. The tax reduces the price paid by consumers (P_E) and increases the price received by producers (P_C), leading to a deadweight loss represented by the shaded triangle between Q_T and Q_E.
The general rule for economic policy is that other things equal, you want to choose the policy that produces the smallest deadweight loss. But how can we predict the size of the deadweight loss associated with a given policy?

For a tax imposed when demand or supply, or both, is inelastic will cause a relatively small decrease in quantity transacted and a small deadweight loss.
Deadweight loss is larger when demand is elastic.

Excise tax = \( T \)

Deadweight loss is smaller when demand is inelastic.
(c) Elastic Supply

Deadweight loss is larger when supply is elastic.

Excise tax = T

(d) Inelastic Supply

Deadweight loss is smaller when supply is inelastic.

Excise tax = T
The End of Chapter 6

coming attraction:

Chapter 7:
Making Decisions