**Chapter 7**

*Consumers, Producers, and the Efficiency of Markets*

**Review Questions**

What is consumer surplus, and how is it measured?
**Answer:** Consumer surplus measures the benefit to buyers of participating in a market. It is measured as the amount a buyer is willing to pay for a good minus the amount a buyer actually pays for it. For an individual purchase, consumer surplus is the difference between the willingness to pay, as shown on the demand curve, and the market price. For the market, total consumer surplus is the area under the demand curve and above the price, from the origin to the quantity purchased.

What is the relationship between the demand curve and the willingness to pay?
**Answer:** Because the demand curve shows the maximum amount buyers are willing to pay for a given market quantity, the price given by the demand curve represents the willingness to pay of the marginal buyer.

Megan loves donuts. The table shown reflects the value Megan places on each donut she eats:

<table>
<thead>
<tr>
<th>Value of first donut</th>
<th>$.60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of second donut</td>
<td>$.50</td>
</tr>
<tr>
<td>Value of third donut</td>
<td>$.40</td>
</tr>
<tr>
<td>Value of fourth donut</td>
<td>$.30</td>
</tr>
<tr>
<td>Value of fifth donut</td>
<td>$.20</td>
</tr>
<tr>
<td>Value of sixth donut</td>
<td>$.10</td>
</tr>
</tbody>
</table>

a. Use this information to construct Megan’s demand curve for donuts.
b. If the price of donuts is $.20, how many donuts will Megan buy?
c. Show Megan’s consumer surplus on your graph. How much consumer surplus would she have at a price of $.20?
d. If the price of donuts rose to $.40, how many donuts would she purchase now? What would happen to Megan’s consumer surplus? Show this change on your graph.

**Answer:**

b. At a price of $.20, Megan would buy 5 donuts.
c. Figure 7-1b shows Megan’s consumer surplus. At a price of $0.20, Megan’s consumer surplus would be $1.00.

![Graph of consumer surplus](image)

d. If the price of donuts rose to $0.40, Megan’s consumer surplus would fall to $0.30 and she would purchase only 3 donuts.

![Graph of demand curve](image)

Other things equal, what happens to consumer surplus if the price of a good falls? Why? Illustrate using a demand curve.

**ANSWER:**

![Graph of demand curve with price reduction](image)
When the price of a good falls, consumer surplus increases for two reasons. First, those buyers who were already buying the good receive an increase in consumer surplus because they are paying less (area B). Second, some new buyers enter the market because the price of the good is now lower than their willingness to pay (area C); hence, there is additional consumer surplus generated from their purchases. The graph should show that as price falls from P2 to P1, consumer surplus increases from area A to area A + B + C, the difference is B + C.

What is producer surplus, and how is it measured?
ANSWER: Producer surplus measures the benefit to sellers of participating in a market. It is measured as the amount a seller is paid minus the cost of production. For an individual sale, producer surplus is measured as the difference between the market price and the cost of production, as shown on the supply curve. For the market, total producer surplus is measured as the area above the supply curve and below the market price, between the origin and the quantity sold.

What is the relationship between the willingness to sell and the supply curve?
ANSWER: Because the supply curve shows the minimum amount sellers are willing to accept for a given quantity, the supply curve represents the willingness to sell, or cost, of the marginal seller.

Other things equal, what happens to producer surplus when the price of a good rises? Illustrate your answer on a supply curve.

ANSWER:

When the price of a good rises, producer surplus increases for two reasons. First, those sellers who were already selling the good have an increase in producer surplus because the price they receive is higher (area A). Second, new sellers will enter the market because the price of the good is now higher than their willingness to sell (area B); hence, there is additional producer surplus generated from their sales. The graph should show that as price rises from P1 to P2, producer surplus increases from area C to area A + B + C. Again, the difference is B + C.

What is the total surplus in a market, and why might it be a good measure of economic well-being? Using a demand-supply diagram, show the areas representing total surplus.
Total surplus is the sum of consumer surplus and producer surplus. It is measured as the area between the demand curve and the supply curve, from the origin to the quantity sold. It might be a good measure of economic well-being because it measures the total benefit to buyers and sellers from participating in a market. On the graph, consumer surplus would be represented by triangle PCB. Producer surplus would be represented by triangle APB. Therefore, total surplus in the market would be represented by triangle ABC.

In what way or ways are free market outcomes, where supply equals demand, beneficial to society?

ANSWER: The market outcome is beneficial in three ways:

(1) Free markets allocate the supply of goods to the buyers who value them most highly, as measured by their willingness to pay.

(2) Free markets allocate the demand for goods and services to the sellers who can produce them at least cost.

(3) Free markets produce the quantity of goods that maximizes the sum of consumer and producer surplus.

Explain why the graph shown verifies the fact that the market equilibrium (quantity) maximizes the sum of producer and consumer surplus.

ANSWER: At quantities less than the equilibrium quantity, the value to buyers exceeds the cost to sellers. Increasing the quantity in this region raises total surplus until equilibrium quantity is reached. At quantities greater than the equilibrium quantity, the cost to sellers exceeds the value to buyers and total surplus falls.