Chapter 7

Consumers, Producers, and the Efficiency of Markets

Welfare economics

The study of how the allocation of resources affects economic well-being

- Benefits for buyers and sellers
- How society can make these benefits as large as possible
- In any market, the equilibrium of supply and demand maximizes the total benefits received by all buyers and sellers combined

Consumer Surplus

- Willingness to pay
  - Maximum amount that a buyer will pay for a good
  - How much that buyer values the good
- Consumer surplus
  - Amount a buyer is willing to pay for a good minus amount the buyer actually pays
  - Willingness to pay minus price paid

Consumer Surplus

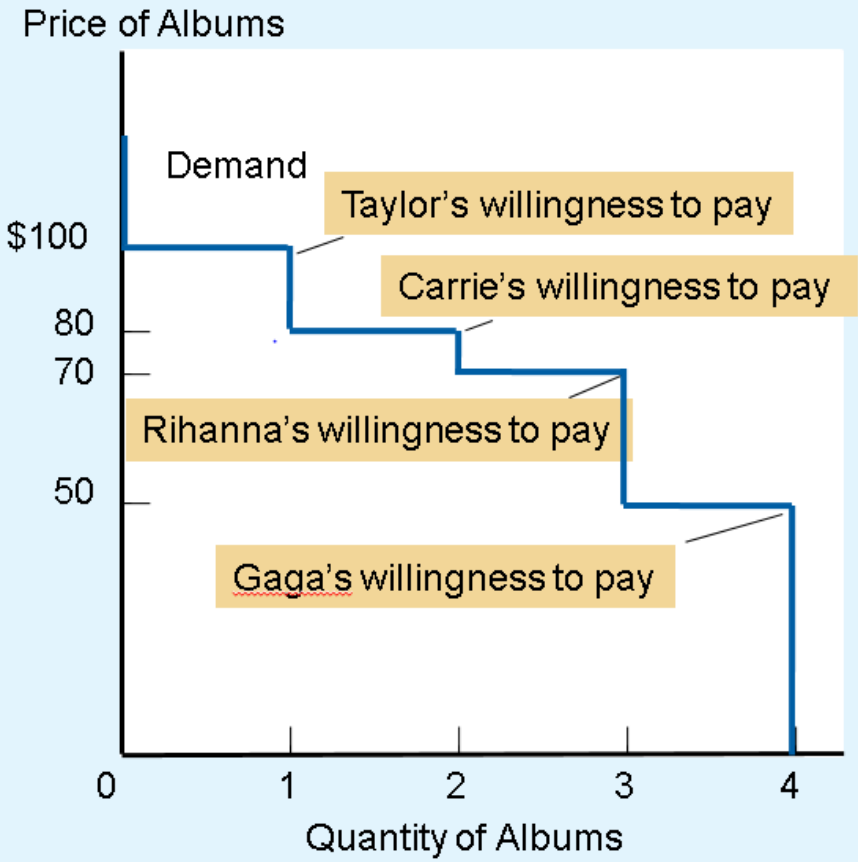
- Consumer surplus
  - Measures the benefit buyers receive from participating in a market
- Demand schedule
  - Derived from the willingness to pay of the possible buyers

Table 1 Four Possible Buyers' Willingness to Pay in the market of Elvis Presley's first album

Buyer	Willingness to Pay
Taylor	$100
Carrie	80
Rihanna	70
Gaga	50

Figure 1 The Demand Schedule and the Demand Curve

Price	Buyers	Quantity Demanded
More than $100	None	0
$80 to $100	Taylor	1
$70 to $80	Taylor, Carrie	2
$50 to $70	Taylor, Carrie, Rihanna	3
$50 or less	Taylor, Carrie, Rihanna, Gaga	4



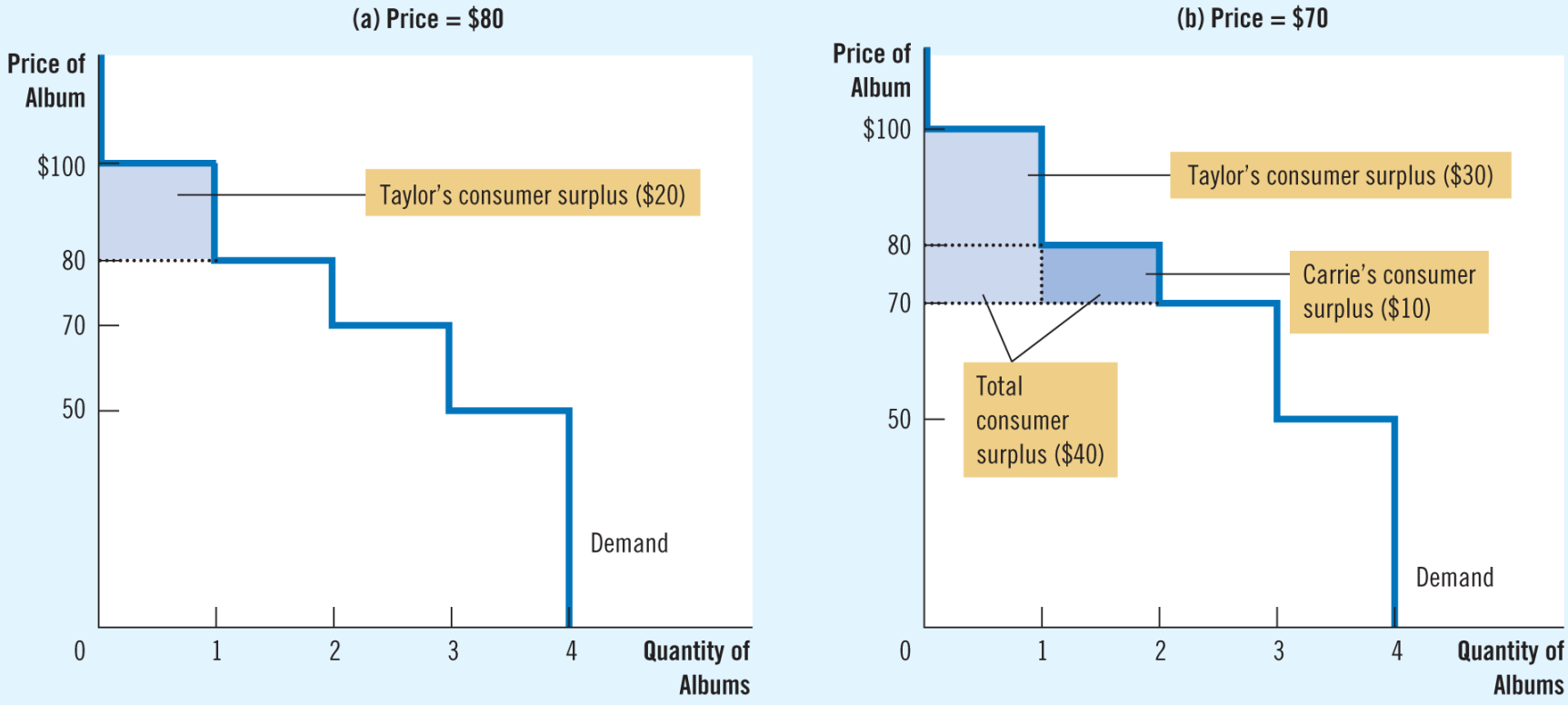
The table shows the demand schedule for the buyers (listed in Table 1) of the mint-condition copy of Elvis Presley's first album. The graph shows the corresponding demand curve. Note that the height of the demand curve reflects the buyers' willingness to pay.

Figure 2 Measuring Consumer Surplus with the Demand Curve

In panel (a), the price of the good is $80 and the consumer surplus is $20.
In panel (b), the price of the good is $70 and the consumer surplus is $40.

FIGURE 2

Measuring Consumer Surplus with the Demand Curve



Consumer Surplus

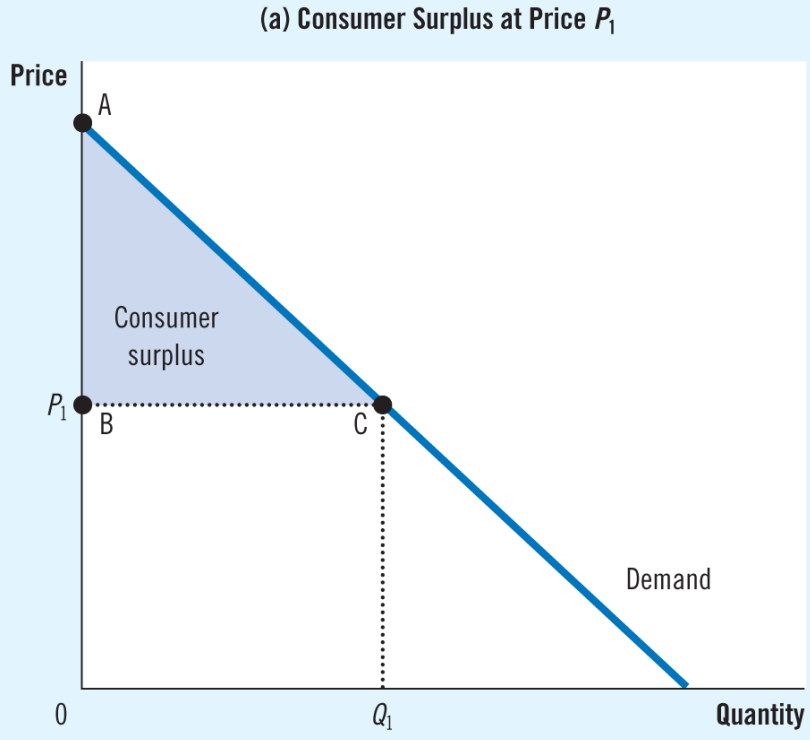
- A lower price raises consumer surplus
  1. Existing buyers: increase in consumer surplus
     - Buyers who were already buying the good at the higher price are **better off** because they now pay less
  2. New buyers enter the market: increase in consumer surplus
     - Willing to buy the good at the lower price

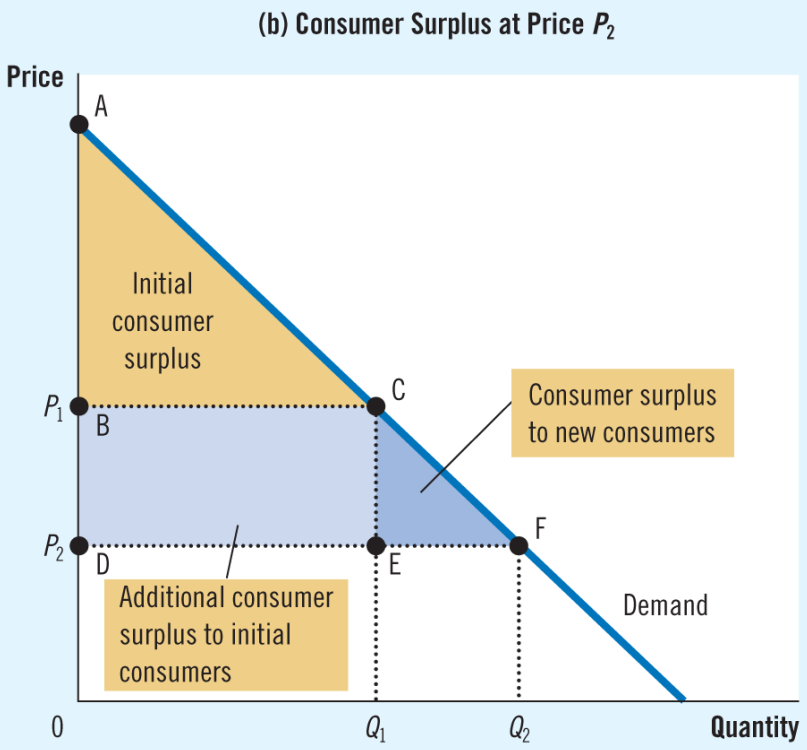
Figure 3 How Price Affects Consumer Surplus

FIGURE 3

How Price Affects Consumer Surplus

In panel (a), the price is P_1, the quantity demanded is Q_1, and consumer surplus equals the area of the triangle ABC. When the price falls from P_1 to P_2, as in panel (b), the quantity demanded rises from Q_1 to Q_2 and the consumer surplus rises to the area of the triangle ADF. The increase in consumer surplus (area BCFD) occurs in part because existing consumers now pay less (area BCED) and in part because new consumers enter the market at the lower price (area CEF).





Producer Surplus

- Measure of willingness to sell
- Amount a **seller is paid** for a good **minus** the seller's **cost** of providing it
- Price received minus willingness to sell

Producer Surplus

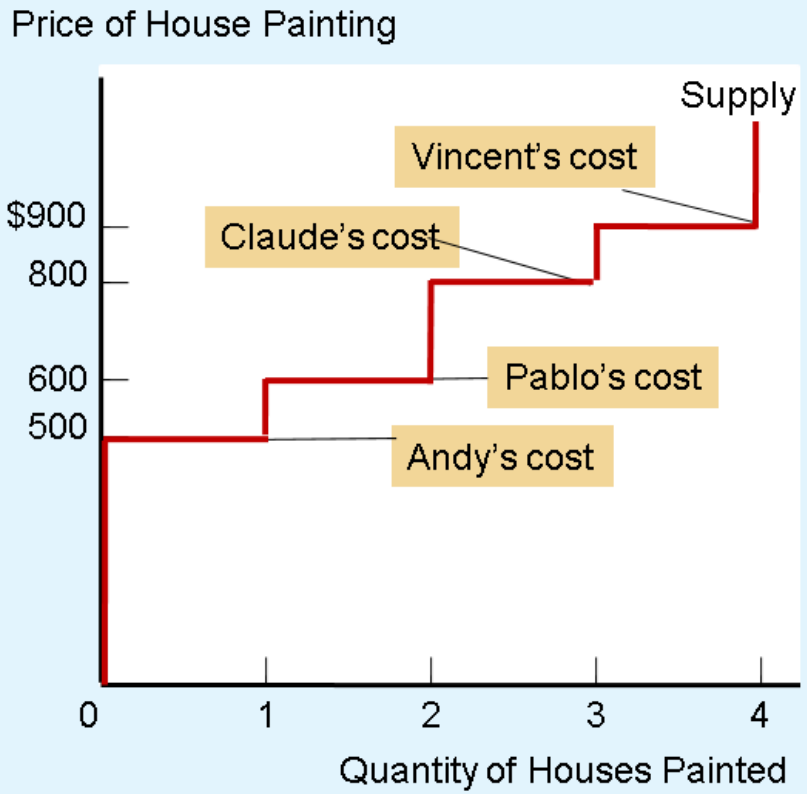
- Supply schedule
  - Derived from the costs of the suppliers
- At any quantity
  - Price given by the supply curve shows the cost of the *marginal seller*

Table 2 The Costs of Four Possible Sellers in the market of house painting

Seller	Cost
Vincent	$900
Claude	800
Pablo	600
Andy	500

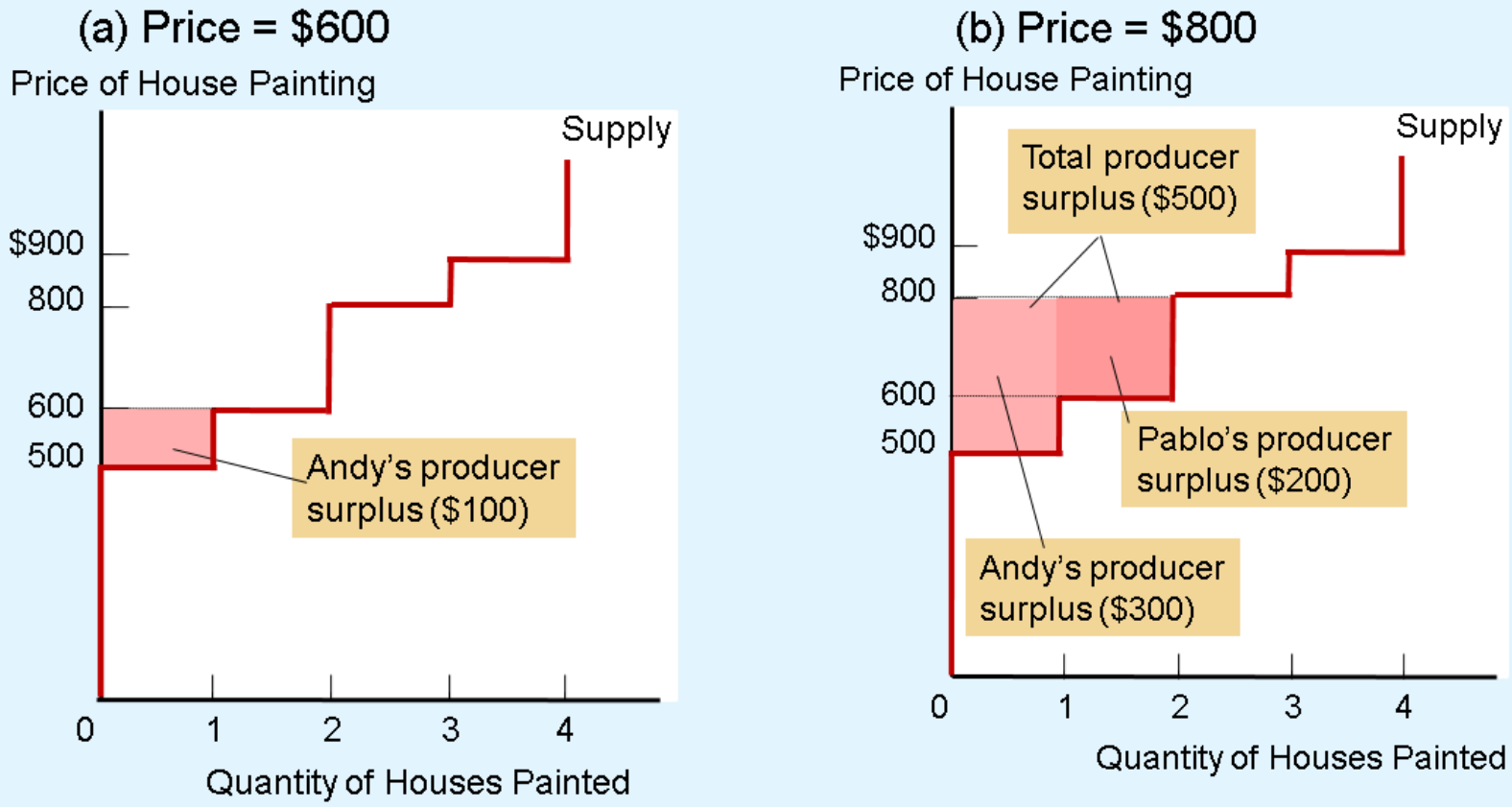
Figure 4 The Supply Schedule and Supply Curve

Price	Sellers	Quantity Demanded
$900 or more	Vincent, Claude, Pablo, Andy	4
$800 to $900	Claude, Pablo, Andy	3
$600 to $800	Pablo, Andy	2
$500 to $600	Andy	1
Less than $500	None	0



The table shows the supply schedule for the sellers (listed in Table 2) of painting services. The graph shows the corresponding supply curve. Note that the height of the supply curve reflects the sellers' costs.

Figure 5 Measuring Producer Surplus with the Supply Curve



In panel (a), the price of the good is $600 and the producer surplus is $100.
In panel (b), the price of the good is $800 and the producer surplus is $500.

Producer Surplus

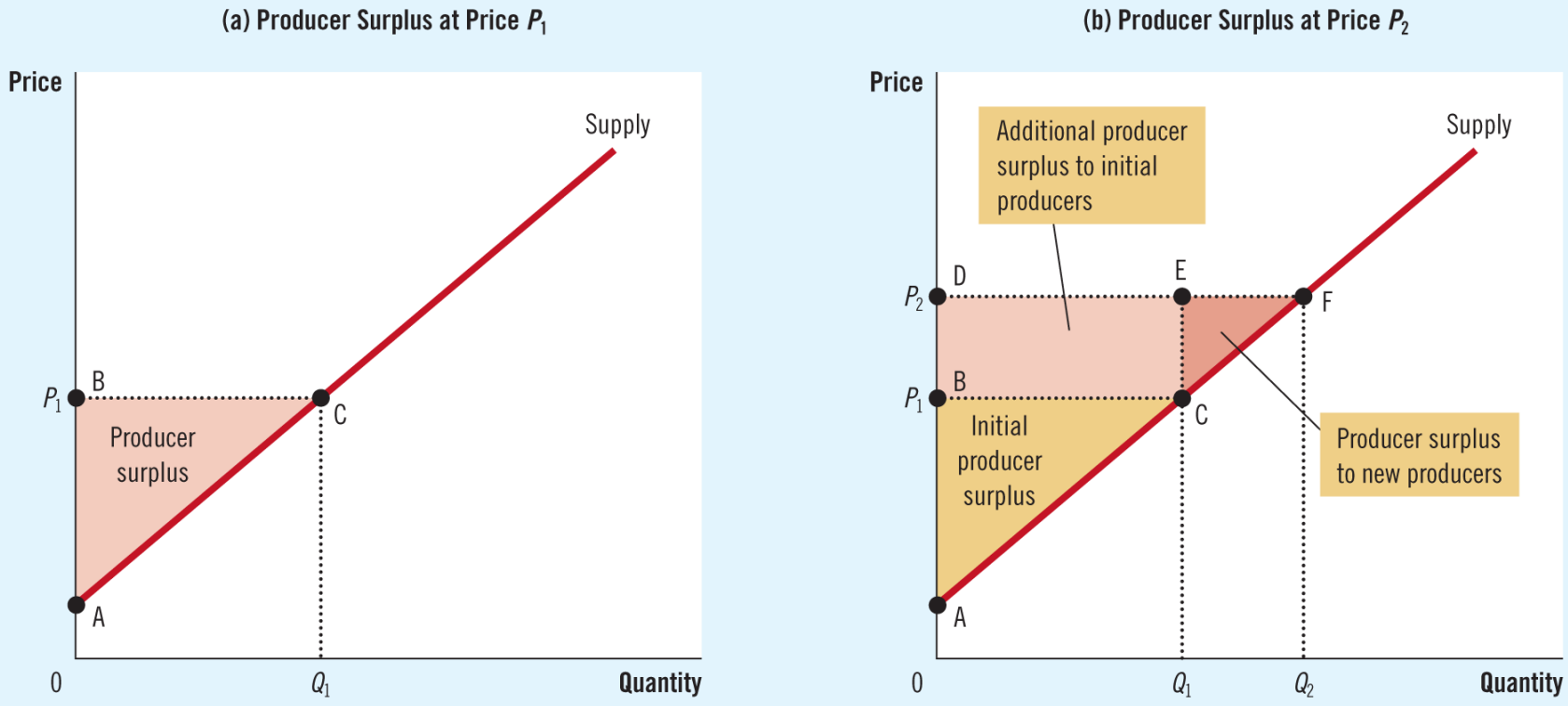
- A **higher price** raises producer surplus
  1. Existing sellers: increase in producer surplus
     - Sellers who were already selling the good at the lower price are better off because they now get more for what they sell
  2. New sellers enter the market: increase in producer surplus
     - Willing to produce the good at the higher price

Figure 6 How Price Affects Producer Surplus

FIGURE 6

How Price Affects Producer Surplus

In panel (a), the price is P_1, the quantity supplied is Q_1, and producer surplus equals the area of the triangle ABC. When the price rises from P_1 to P_2, as in panel (b), the quantity supplied rises from Q_1 to Q_2 and the producer surplus rises to the area of the triangle ADF. The increase in producer surplus (area BCFD) occurs in part because existing producers now receive more (area BCED) and in part because new producers enter the market at the higher price (area CEF).



Market Efficiency

- The benevolent social planner
  - Wants to maximize the economic well-being of everyone in society
- Economic well-being of a society
  - Total surplus
  - Sum of consumer and producer surplus

Market Efficiency

- Total surplus = Consumer surplus + Producer surplus
  - Consumer surplus = Value to buyers – Amount paid by buyers
  - Producer surplus = Amount received by sellers – Cost to sellers

- Total surplus = Value to buyers – Cost to sellers

Market Efficiency

- Efficiency
  - Maximizing the total surplus received by all members of society
- Equality
  - Property of distributing economic prosperity uniformly among the members of society

Market Efficiency

- Gains from trade in a market
  - Like **a pie to be shared** among the market participants
- The question of **efficiency**
  - Whether the pie is as **big as possible**
- The question of **equality**
  - How the **portions are distributed** among members of society

Market Efficiency

- Market outcomes
  1. **Free markets** allocate the supply of goods to the buyers who value them most highly
     - Measured by their **willingness to pay**
  2. **Free markets** allocate the **demand for goods to the sellers who can produce them at the least cost**

Figure 7 Consumer and Producer Surplus in the Market Equilibrium

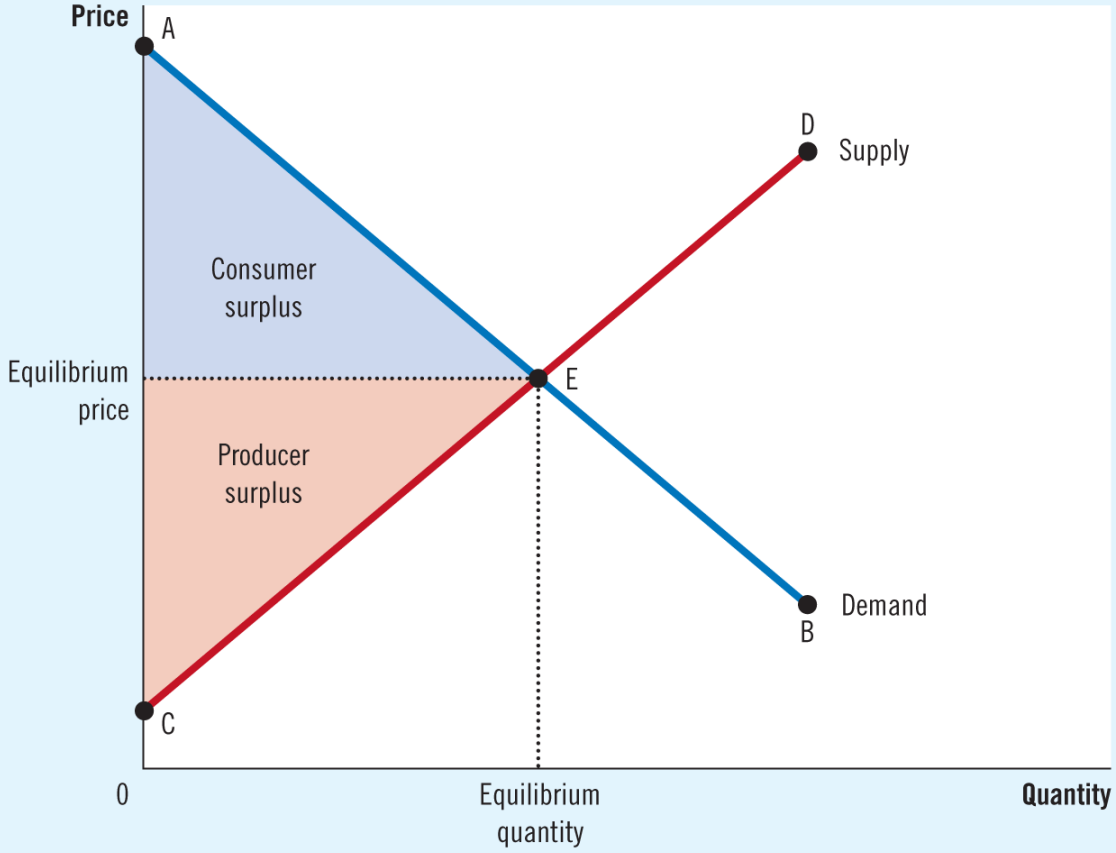


FIGURE 7

Consumer and Producer Surplus in the Market Equilibrium

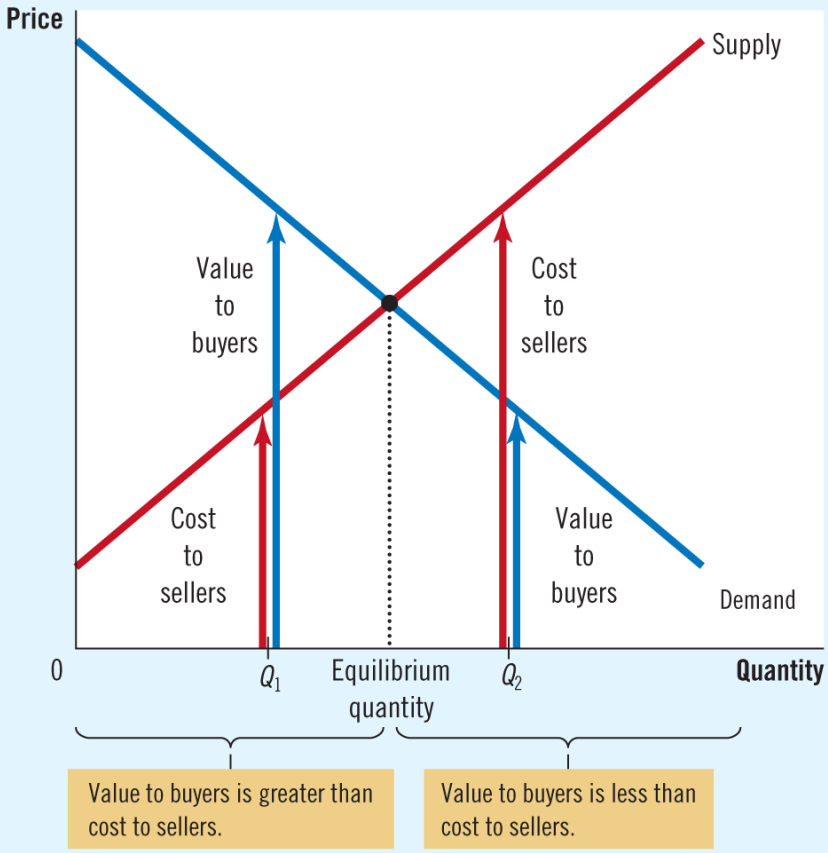
Total surplus—the sum of consumer and producer surplus—is the area between the supply and demand curves up to the equilibrium quantity.

Figure 8 The Efficiency of the Equilibrium Quantity

FIGURE 8

The Efficiency of the Equilibrium Quantity

At quantities less than the equilibrium quantity, such as Q_1, the value to buyers exceeds the cost to sellers. At quantities greater than the equilibrium quantity, such as Q_2, the cost to sellers exceeds the value to buyers. Therefore, the market equilibrium maximizes the sum of producer and consumer surplus.



Market Efficiency

- Adam Smith's invisible hand
  - Takes all the information about buyers and sellers into account
  - Guides everyone in the market to the best outcome
  - Economic efficiency
- Free markets
  - Best way to organize economic activity

Market Efficiency & Market Failure

- Forces of supply and demand
  - Allocate resources efficiently
- Several assumptions about how markets work
  1. Markets are perfectly competitive
  2. Outcome in a market matters only to the buyers and sellers in that market

Market Efficiency & Market Failure

- When these assumptions do not hold
  - "Market equilibrium is efficient" may no longer be true
- In the world, competition is far from perfect
  - Market power
    - A single buyer or seller (small group)
    - Control market prices
    - Markets are inefficient

Market Efficiency & Market Failure

- In the world
  - Decisions of buyers and sellers
    - Affect people who are not participants in the market at all
    - Externalities - cause welfare in a market to depend on more than just the value to the buyers and the cost to the sellers
    - Inefficient equilibrium - from the standpoint of society as a whole