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PRINCIPLES OF
ECONOMICS
Eight Edition

CHAPTER 7

Consumers, Producers, and the Efficiency of Markets

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Consumer Surplus, Part 1

- Welfare economics
  - The study of how the allocation of resources affects economic well-being
    - Benefits that buyers and sellers receive from engaging in market transactions
    - 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, Part 2

- 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

Table 1 Four Possible Buyers' Willingness to Pay

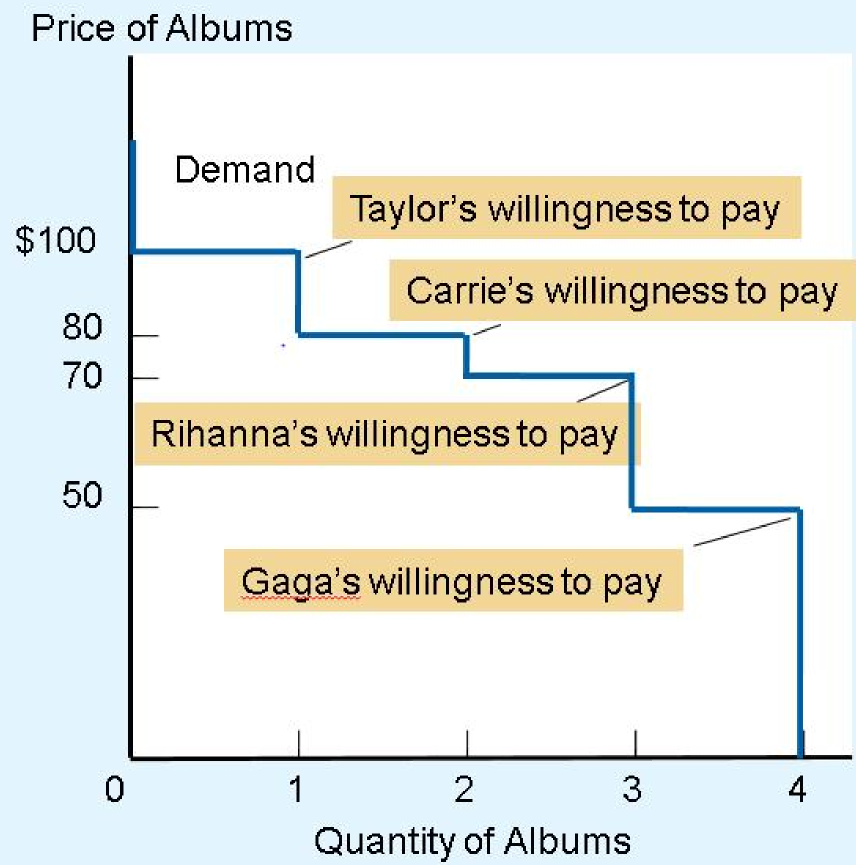
Buyer	Willingness to Pay
Taylor	$100
Carrie	80
Rihanna	70
Gaga	50

Consumer Surplus, Part 3

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

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

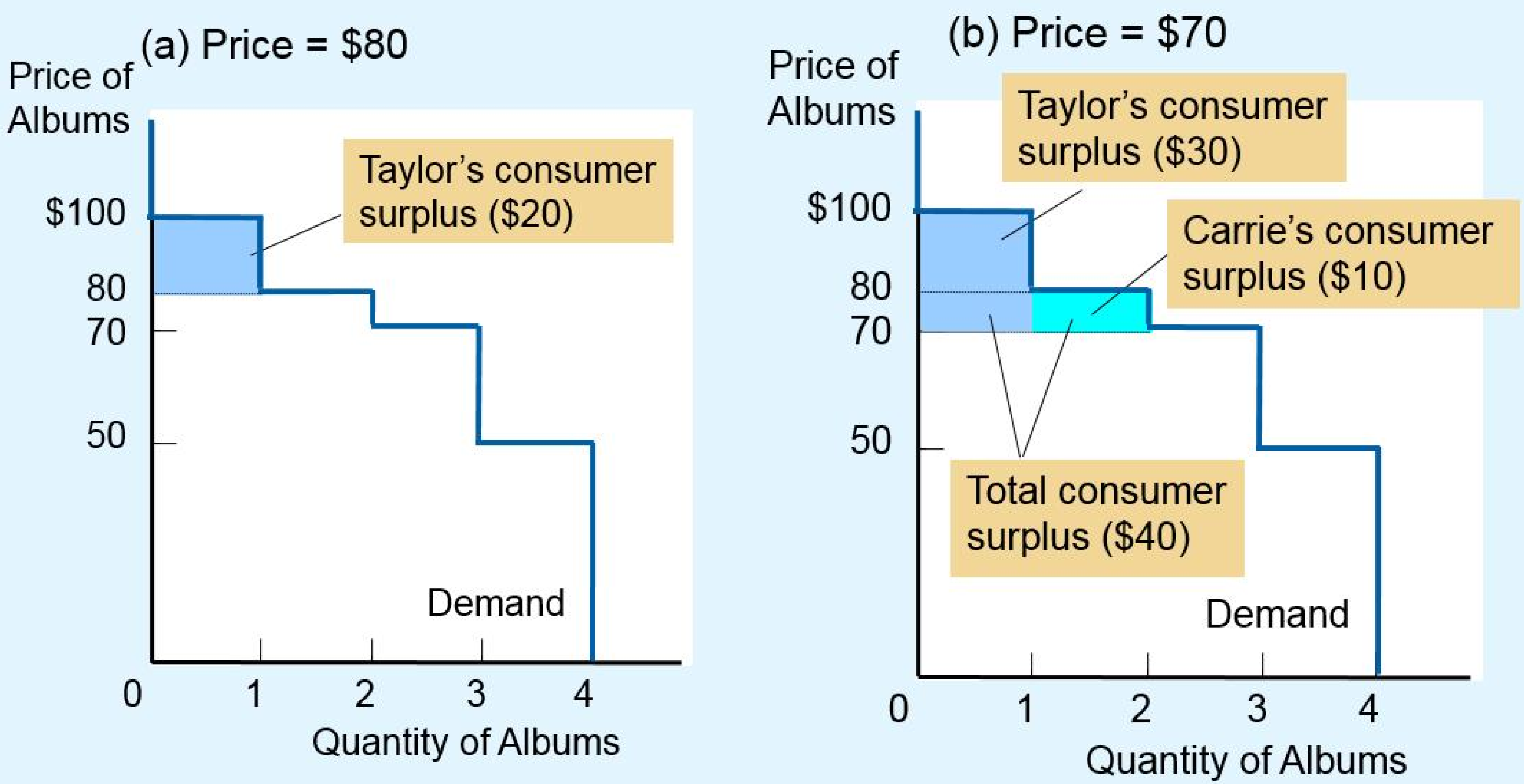


The table shows the demand schedule for the buyers (listed in Table 1) of the mint-condition copy of Elvis Presley's first album. The graph shows the corresponding demand curve. Note that the height of the demand curve reflects the buyers' willingness to pay.

Consumer Surplus, Part 4

- At any quantity, the price given by the demand curve
  - Shows the willingness to pay of the *marginal buyer*
    - The buyer who would leave the market first if the price were any higher
- Consumer surplus in a market
  - Area below the demand curve and above the price

Figure 2 Measuring Consumer Surplus with the Demand Curve

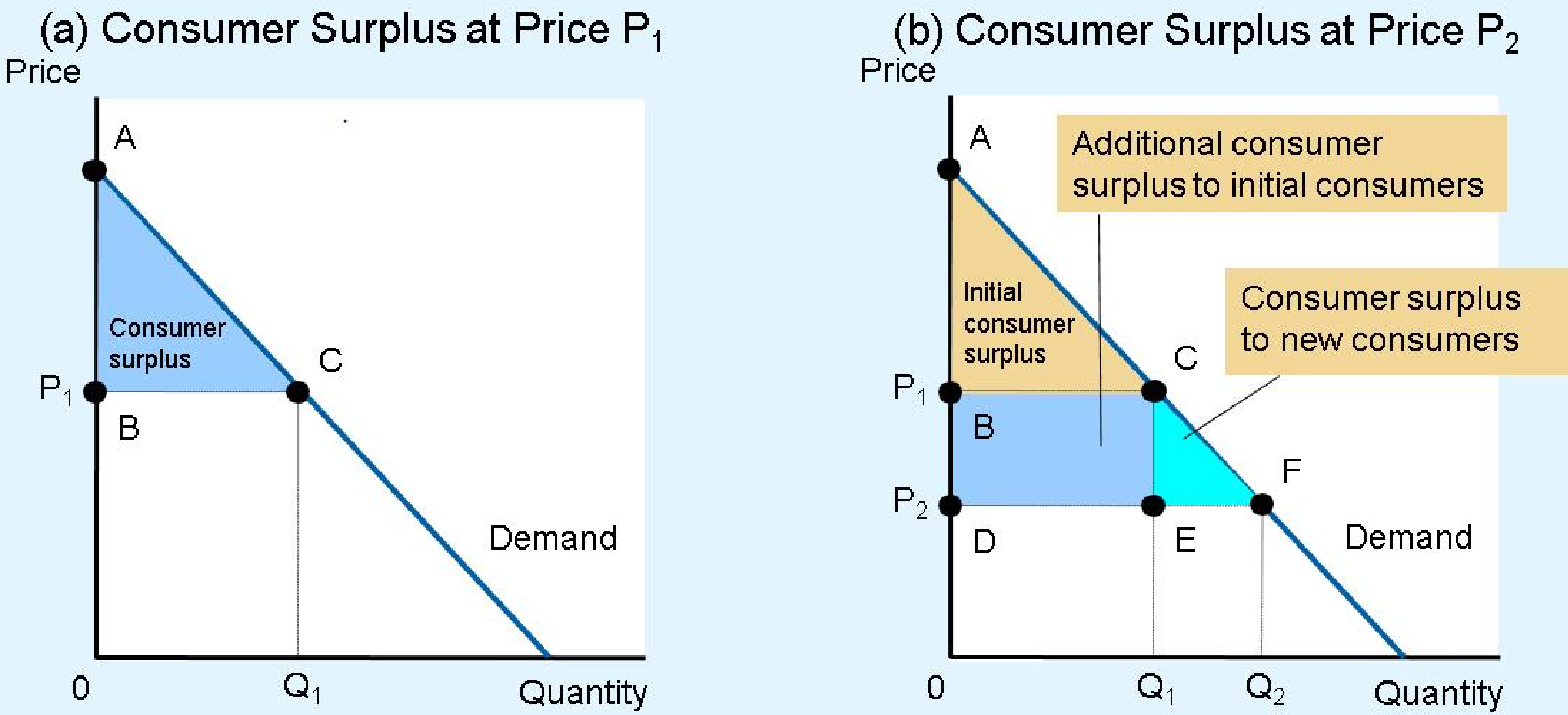


In panel (a), the price of the good is $80 and the consumer surplus is $20.
In panel (b), the price of the good is $70 and the consumer surplus is $40.

Consumer Surplus, Part 5

- 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



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).

Consumer Surplus, Part 6

- Consumer surplus
  - Benefit that buyers receive from a good
    - As the buyers themselves perceive it
  - Good measure of economic well-being
  - Exception: illegal drugs
    - Drug addicts are willing to pay a high price for heroin
    - Society’s standpoint: drug addicts don’t get a large benefit from being able to buy heroin at a low price

Producer Surplus, Part 1

- Cost
  - Value of everything a seller must give up to produce a good
  - Measure of willingness to sell
- Producer surplus
  - Amount a seller is paid for a good minus the seller’s cost of providing it
  - Price received minus willingness to sell

Table 2 The Costs of Four Possible Sellers

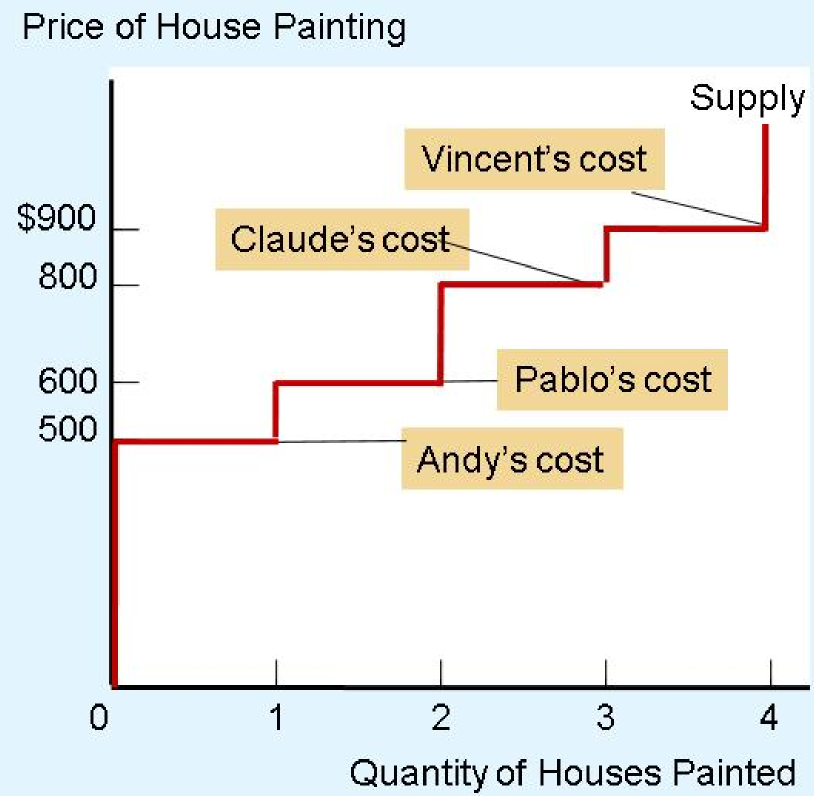
Seller	Cost
Vincent	$900
Claude	800
Pablo	600
Andy	500

Producer Surplus, Part 2

- Producer surplus
  - Closely related to the supply curve
- 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*
    - Seller who would leave the market first if the price were any lower

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

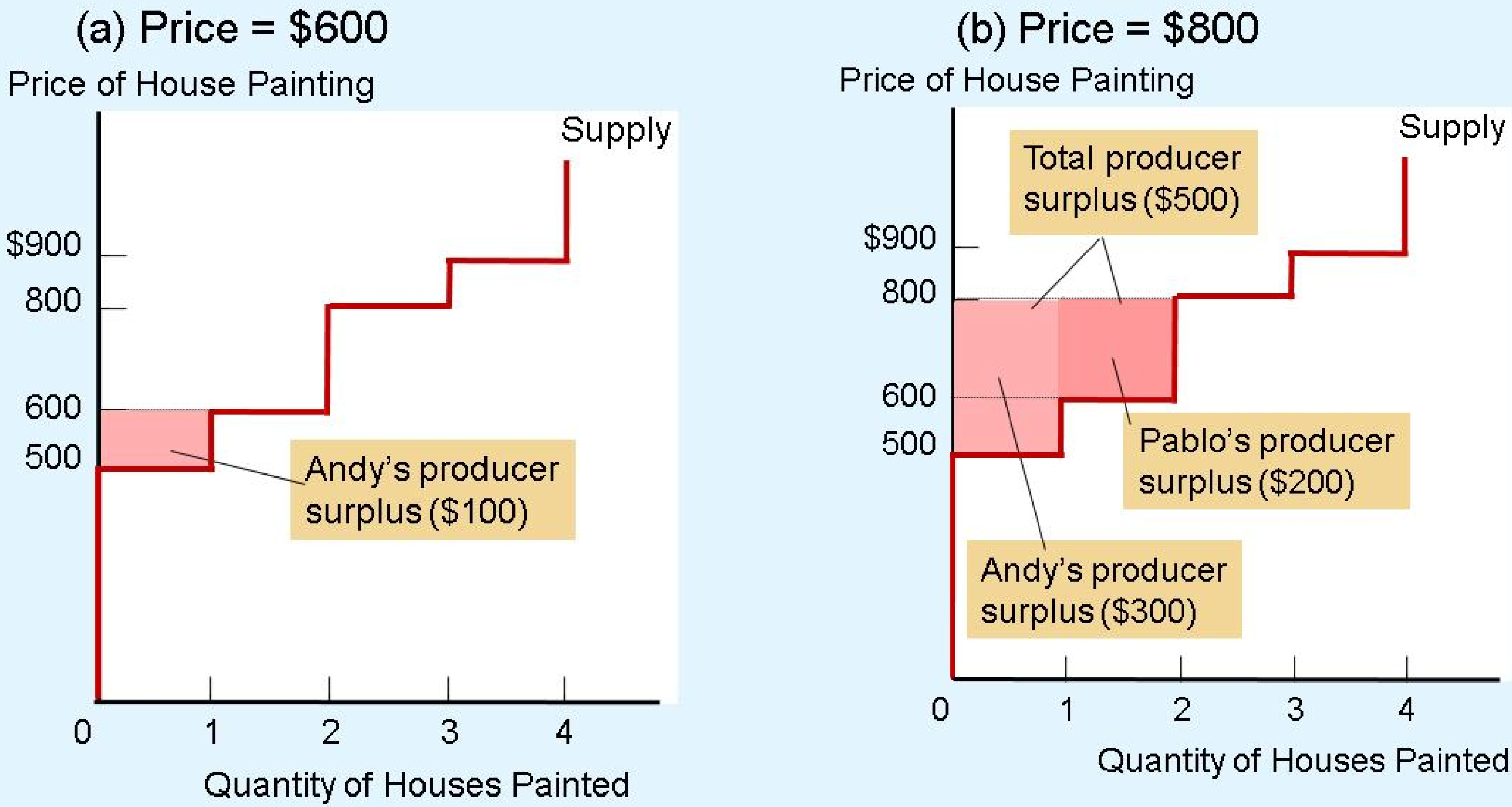


The table shows the supply schedule for the sellers (listed in Table 2) of painting services. The graph shows the corresponding supply curve. Note that the height of the supply curve reflects the sellers' costs.

Producer Surplus, Part 3

- Supply curve
  - Reflects sellers’ costs
  - Used to measure producer surplus
- Producer surplus in a market
  - Area below the price and above the supply curve

Figure 5 Measuring Producer Surplus with the Supply Curve

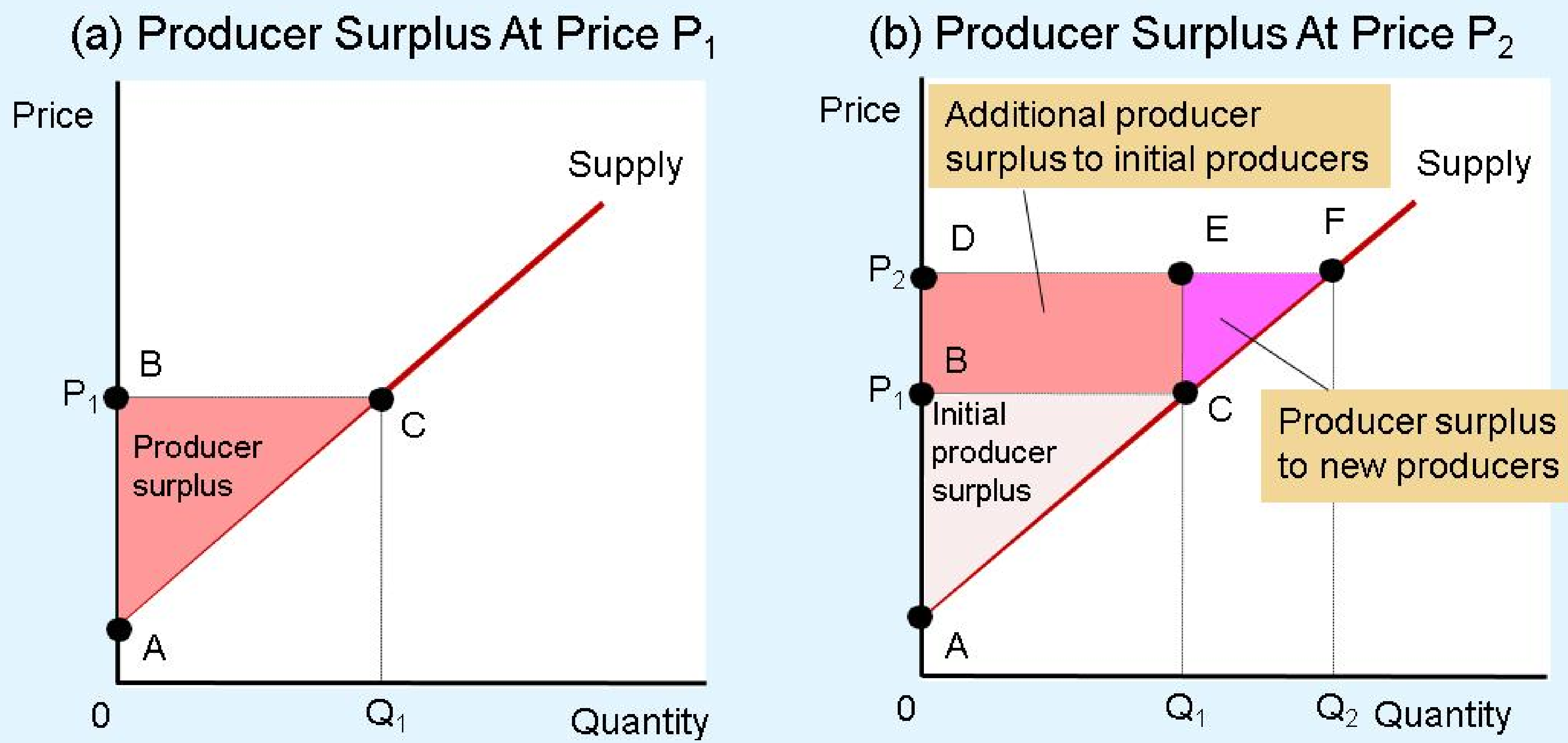


In panel (a), the price of the good is $600 and the producer surplus is $100.
In panel (b), the price of the good is $800 and the producer surplus is $500.

Producer Surplus, Part 4

- 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



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, Part 1

- The benevolent social planner
  - All-knowing, all-powerful, well-intentioned dictator
  - 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, Part 2

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

Market Efficiency, Part 3

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

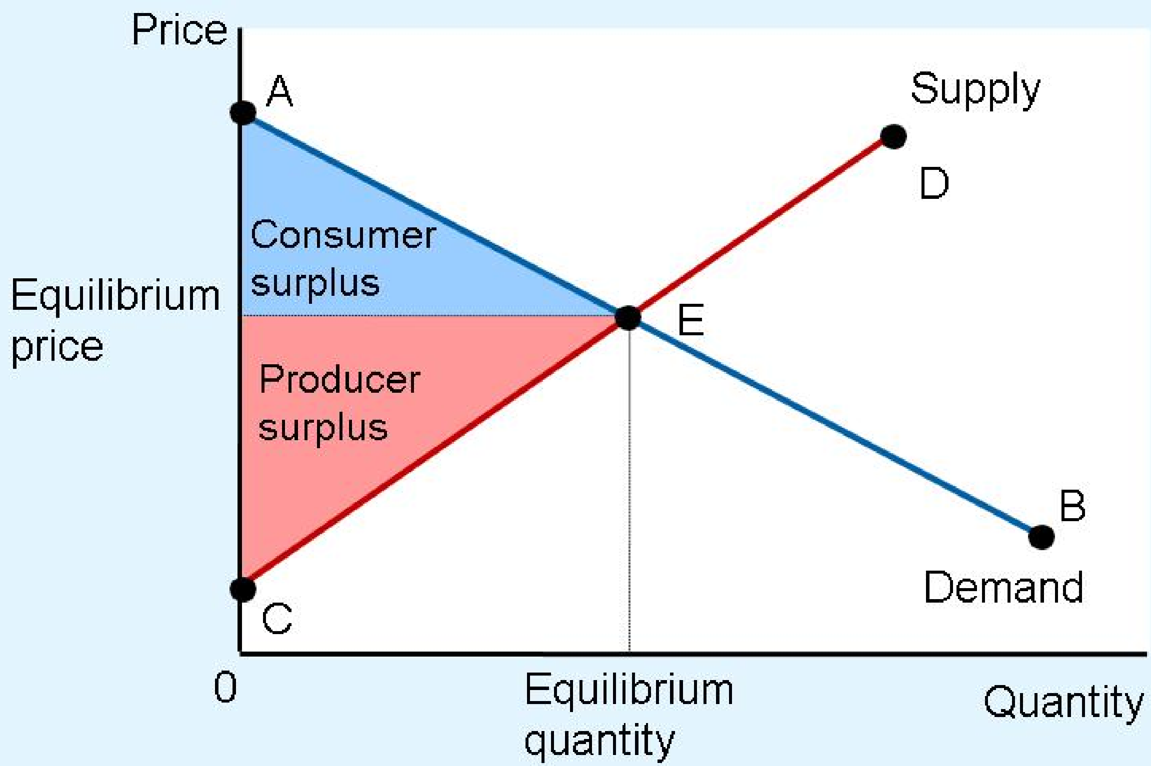
Market Efficiency, Part 4

- 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 pie is sliced
  - How the portions are distributed among members of society

Market Efficiency, Part 5

- 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



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

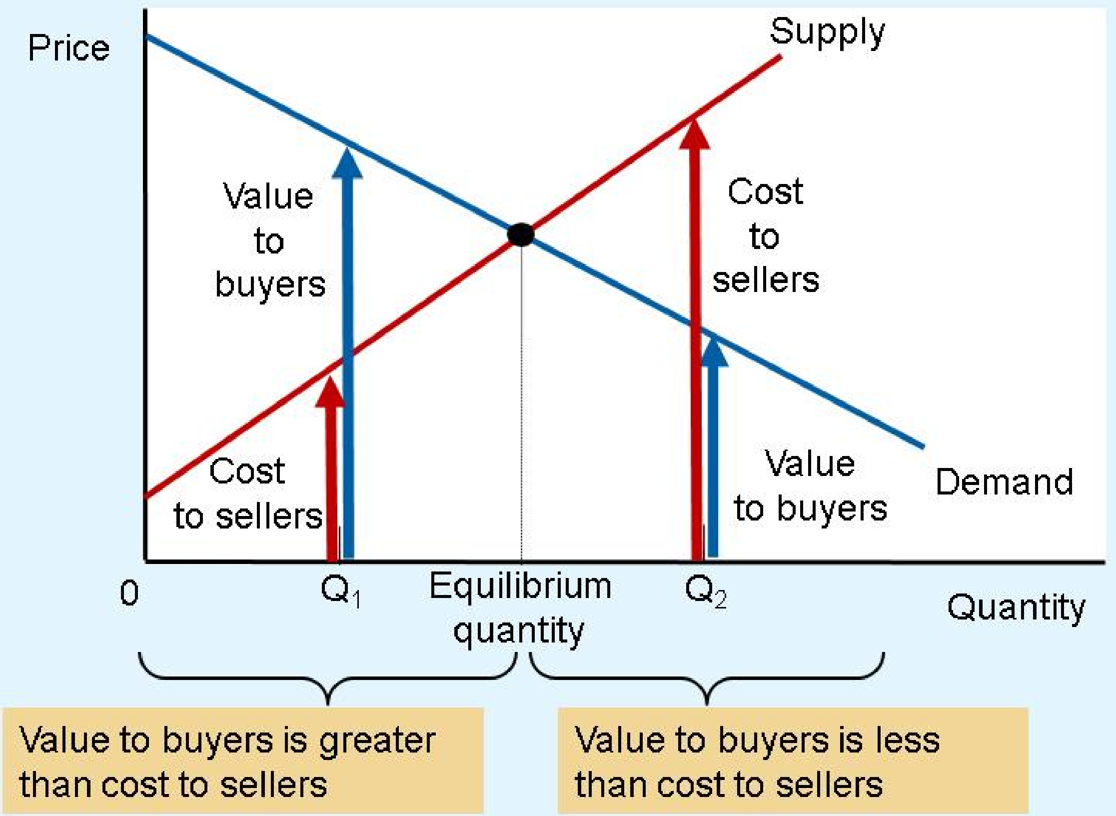
Market Efficiency, Part 6

- At market equilibrium, social planner
  - Cannot increase economic well-being by
    - Changing the allocation of consumption among buyers
    - Changing the allocation of production among sellers
  - Cannot rise total economic well-being by
    - Increasing or decreasing the quantity of the good

Market Efficiency, Part 7

- Market outcomes
  3. Free markets produce the quantity of goods that maximizes the sum of consumer and producer surplus
- Market equilibrium
  – Efficient allocation of resources
- The benevolent social planner
  – "Laissez faire" = "let people do as they will"

Figure 8 The Efficiency of the Equilibrium Quantity



At quantities less than the equilibrium quantity, such as Q1, the value to buyers exceeds the cost to sellers.
At quantities greater than the equilibrium quantity, such as Q2, the cost to sellers exceeds the value to buyers.
Therefore, the market equilibrium maximizes the sum of producer and consumer surplus.

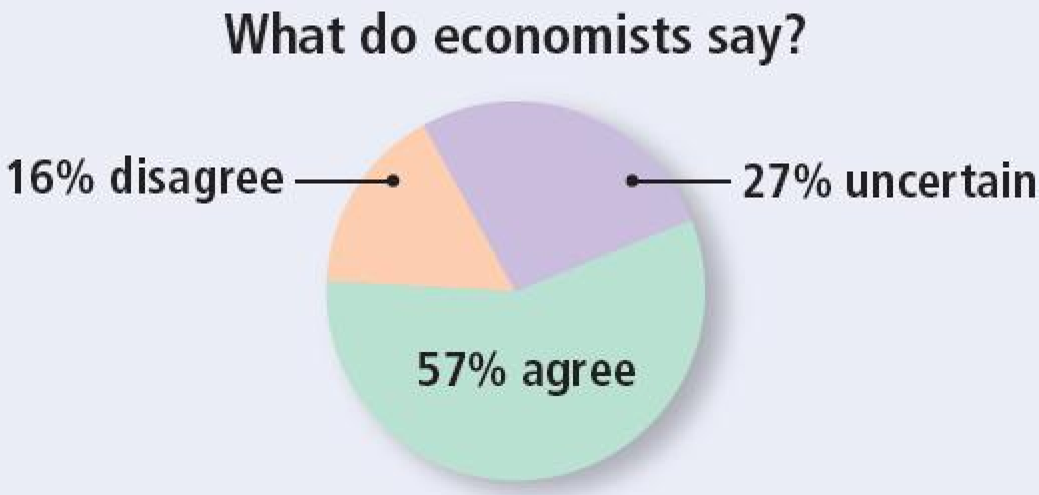
Market Efficiency, Part 8

- 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

ASK THE EXPERTS

Supplying Kidneys

“A market that allows payment for human kidneys should be established on a trial basis to help extend the lives of patients with kidney disease.”



CASE STUDY

Should there be a market for organs? Part 1

- “How a mother’s love helped save two lives”
  - Ms. Stevens - her son needed a kidney transplant
  - The mother’s kidney was not compatible
  - Donated one of her kidneys to a stranger
  - Her son was moved to the top of the kidney waiting list

CASE STUDY

Should there be a market for organs? Part 2

- Questions
  - Trade a kidney for a kidney?
  - Trade a kidney for an expensive, experimental cancer treatment?
  - Exchange her kidney for free tuition for her son?
  - Sell her kidney for cash?

CASE STUDY

Should there be a market for organs? Part 3

- Current public policy
  - Illegal for people to sell their organs
  - Government has imposed a price ceiling of zero: shortage
- Large benefits to allowing a free market in organs
  - People are born with two kidneys
    - Usually need only one
  - Few people – no working kidney

Should there be a market for organs? Part 4

- Current situation
  - Typical patient waits several years for a kidney transplant
  - Every year, thousands of people die because a kidney cannot be found

CASE STUDY

Should there be a market for organs? Part 5

- Allow for kidney market
  - Balance supply and demand
    - Sellers get extra cash in their pockets
    - Buyers get to live
    - No more shortage of kidneys
    - Efficient allocation of resources

Should there be a market for organs? Part 6

- Critics: worry about fairness
  - Benefit the rich at the expense of the poor
- Current system: is it fair?
  - Some people have an extra kidney they don’t really need
  - Others are dying to get one

Market Efficiency & Market Failure, Part 1

- 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, Part 2

- 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, Part 3

- 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

Market Efficiency & Market Failure, Part 4

- Market failure
  - E.g.: market power and externalities
  - The inability of some unregulated markets to allocate resources efficiently
  - Public policy
    - Can potentially remedy the problem and increase economic efficiency