4

THE MARKET FORCES OF SUPPLY AND DEMAND

Chapter Overview

CONTEXT AND PURPOSE

Chapter 4 is the first chapter in a three-chapter sequence that deals with supply and demand and how markets work. Chapter 4 shows how supply and demand for a good determines both the quantity produced and the price at which the good sells. Chapter 5 will add precision to our discussion of supply and demand by addressing the concept of elasticity—the sensitivity of the quantity supplied and quantity demanded to changes in economic variables. Chapter 6 will address the impact of government policies on prices and quantities in markets.

The purpose of Chapter 4 is to establish the model of supply and demand. The model of supply and demand is the foundation for our discussion for the remainder of this text. For this reason, time spent studying the concepts in this chapter will return benefits to you throughout your study of economics. Most instructors would argue that this chapter is the most important chapter in the text.

CHAPTER REVIEW

Introduction In a market economy, supply and demand determine both the quantity of each good produced and the price at which each good is sold. In this chapter, we develop the determinants of supply and demand. We also address how changes in supply and demand alter prices and change the allocation of the economy's resources.

Markets and Competition A market is a group of buyers and sellers of a particular good or service. It can be highly organized like a stock market or less organized like the market for ice cream. A competitive market is a market in which there are many buyers and sellers so that each has a negligible impact on the market price.

A *perfectly competitive* market has two main characteristics:

- the goods offered for sale are all the same
- the buyers and sellers are so numerous that no one buyer or seller can influence the price

If a market is perfectly competitive, both buyers and sellers are said to be *price takers* because they cannot influence the price. The assumption of perfect competition applies well to agricultural markets because the product is similar and no individual buyer or seller can influence the price.

There are other types of markets. If a market has only one seller, the market is known as a *monopoly*. If there are only a few sellers, the market is known as an

IN THIS CHAPTER YOU WILL

Learn what a competitive market is

Examine what determines the demand for a good in a competitive market

Examine what determines the supply of a good in a competitive market

See how supply and demand together set the price of a good and the quantity sold

Consider the key role of prices in allocating scarce resources in market economies

YOU SHOULD BE ABLE TO

List the two characteristics of a competitive market

List the determinants of the quantity demanded

List the determinants of the quantity supplied

Draw a graph of supply and demand in a market and find the equilibrium price and quantity

Shift supply and demand in response to an economic event and find the new equilibrium price and quantity

oligopoly. If there are many sellers but each product is slightly different so that each seller has some ability to set its own price, the market is called *monopolistically competitive*.

Demand The behavior of buyers is captured by the concept of demand. The quantity demanded is the amount of a good that buyers are willing and able to purchase. For an individual, the quantity demanded of a good is determined by:

- *Price:* An increase in the price of a good reduces the quantity demanded. This negative relationship between the price of a good and the quantity demanded of a good is known as the *law of demand*.
- *Income:* A *normal good* is a good for which an increase in income leads to an increase in the quantity demanded. An *inferior good* is a good for which an increase in income leads to a decrease in the quantity demanded.
- *Prices of Related Goods:* If two goods can be used in place of one another, they are known as *substitutes*. When two goods are substitutes, an increase in the price of one good leads to an increase in the demand for the other good. If two goods are used together, they are known as *complements*. When two goods are complements, an increase in the price of one good leads to a decrease in the demand for the other good.
- *Tastes:* If your preferences shift toward a good, it will lead to an increase in the demand for that good.
- *Expectations:* Expectations about future income or prices will affect the demand for a good today.

The *demand schedule* is a table that shows the relationship between the price of a good and the quantity demanded. The *demand curve* is a graph of this relationship with the price on the vertical axis and the quantity demanded on the horizontal axis. The demand curve is downward sloping due to the law of demand. The demand curve is drawn holding constant all determinants of the quantity demanded other than the price of the good. Economists use the term *ceteris paribus*, which means "other things being equal" to signify that all other variables other than the ones being studied are assumed to be held constant.

Market demand is the sum of the quantity demanded for each individual buyer at each price. Equivalently, the market demand curve is the horizontal sum of the individual demand curves. The quantity demanded in a market depends on all of the factors that determine the quantity demanded for the individual buyer and on the number of buyers in the market.

A demand curve is drawn with price on the vertical axis and quantity demanded on the horizontal axis while holding other things equal. Therefore, a change in the price of a good represents a movement along the demand curve while a change in income, prices of related goods, tastes, expectations, and the number of buyers causes a shift in the demand curve.

Supply The behavior of sellers is captured by the concept of supply. The quantity supplied is the amount of a good that sellers are willing and able to sell. For an individual, the quantity supplied of a good is determined by:

- *Price:* An increase in the price makes production more profitable and increases the quantity supplied. This positive relationship between the price of a good and the quantity supplied is known as the *law of supply*.
- *Input Prices:* A decrease in the price of an input makes production more profitable and increases the quantity supplied.

- *Technology:* An improvement in technology reduces costs, makes production more profitable, and increases the quantity supplied.

- *Expectations:* Expectations about the future will affect the supply of a good today.

The *supply schedule* is a table that shows the relationship between the price of a good and the quantity supplied. The *supply curve* is a graph of this relationship with the price on the vertical axis and the quantity supplied on the horizontal axis. The supply curve is upward sloping due to the law of supply. The supply curve is drawn holding constant all determinants of the quantity supplied other than the price of the good, or *ceteris paribus*.

Market supply is the sum of the quantity supplied for each individual seller at each price. Equivalently, the market supply curve is the horizontal sum of the individual supply curves. The quantity supplied in a market depends on all of the factors that determine the quantity supplied for the individual seller and on the number of sellers in the market.

A supply curve is drawn with price on the vertical axis and quantity supplied on the horizontal axis while holding other things equal. Therefore, a change in the price of a good represents a movement along the supply curve while a change in input prices, technology, expectations and the number of sellers causes a shift in the supply curve.

Supply and Demand Together When placed on the same graph, the intersection of supply and demand is called the market's *equilibrium*. Equilibrium is where supply and demand have been brought into balance. The *equilibrium price,* or the market-clearing price, is the price that balances supply and demand because at that price the quantity demanded equals the quantity supplied. When the quantity supplied equals the quantity demanded, we have determined the *equilibrium quantity*.

The market naturally moves toward its equilibrium. If the price is above the equilibrium price, the quantity supplied exceeds the quantity demanded and there is a *surplus* of the good. A surplus causes the price to fall until it reaches equilibrium. If the price is below the equilibrium price, the quantity demanded exceeds the quantity supplied and there is a *shortage* of the good. A shortage causes the price to rise until it reaches equilibrium. This natural adjustment of the price to bring supply and demand into balance is known as the *law of supply and demand*.

When an economic event shifts the supply or the demand curve, the equilibrium in the market changes. The analysis of this change is known as *comparative statics* because we are comparing the old equilibrium to the new equilibrium. When analyzing the impact of some event on a market equilibrium, employ the following three steps:

- Decide whether the event shifts the supply curve or demand curve or both

- Decide which direction the curve shifts

- Use the supply-and-demand diagram to see how the shift changes the equilibrium

A shift in the demand curve is called a "change in demand." It is caused by a change in a variable that affects the quantity demanded of a good other than the price of the good. A change in the price of a good is a movement along a given demand curve and is called a "change in the quantity demanded." Likewise, a shift in the supply curve is called a "change in supply." It is caused by a change in a variable that affects the quantity supplied of a good other than the price of

the good. A change in the price of a good is a movement along a supply curve and is called a "change in the quantity supplied."

For example, a frost that destroys much of the orange crop causes a decrease in the supply of oranges (supply of oranges shifts to the left). This increases the price of oranges and decreases the quantity demanded of oranges. In other words, a decrease in the supply of oranges increases the price of oranges and decreases the quantity of oranges purchased.

If both supply and demand shift at the same time, there may be more than one possible outcome for the changes in the equilibrium price and quantity. For example, if demand were to increase (shift right) while supply were to decrease (shift left), the price will certainly rise but the impact on the equilibrium quantity is ambiguous. In this case, the change in the equilibrium quantity depends on the magnitudes of the shifts in supply and demand.

Conclusion: How Prices Allocate Resources Markets generate equilibrium prices. These prices are the signals that guide the allocation of scarce resources. Prices of products rise to the level necessary to allocate the products to those that are willing to pay for them. Prices of inputs (say labor) rise to the level necessary to induce people to do the jobs that need to get done. In this way, no jobs go undone, and there is no shortage of goods and services for those willing and able to pay for them.

HELPFUL HINTS

1. Equilibrium in a market is a static state. That is, once a market is in equilibrium, there are no further forces for change. That is why economists use the term *comparative statics* to describe the analysis of comparing an old static equilibrium to a new static equilibrium.

2. By far, the greatest difficulty students have when studying supply and demand is distinguishing between a "change in demand" and a "change in the quantity demanded" and between a "change in supply" and a "change in the quantity supplied." It helps to remember that "demand" is the entire relationship between price and quantity demanded. That is, demand is the entire demand curve, not a point on a demand curve. Therefore, a change in demand is a shift in the entire demand curve which can only be caused by a change in a determinant of demand other than the price of the good. A change in the quantity demanded is a movement along the demand curve and is caused by a change in the price of the good. Likewise, "supply" refers to the entire supply curve, not a point on the supply curve. Therefore, a change in supply is a shift in the entire supply curve which can only be caused by a change in a determinant of supply other than the price of the good. A change in the quantity supplied is a movement along the supply curve and is caused by a change in the price of the good.

3. If both supply and demand shift at the same time and we do not know the magnitude of each shift, then the change in either the price or the quantity must be ambiguous. For example, if there is an increase in supply (supply shifts right) and an increase in demand (demand shifts right), the equilibrium quantity must certainly rise, but the change in the equilibrium price is ambiguous. Do this for all four possible combinations of changes in supply and demand. You will find that if you know the impact on the equilibrium price with certainty, then the impact on the equilibrium quantity must be ambiguous. If you know the impact on the equilibrium quantity with certainty, then the impact on the equilibrium price must be ambiguous.

TERMS AND DEFINITIONS

Choose a definition for each key term.

Key terms:

_____ Market
_____ Competitive market
_____ Monopoly
_____ Oligopoly
_____ Monopolistically competitive
_____ Quantity demanded
_____ Law of demand
_____ Normal good
_____ Inferior good
_____ Substitutes
_____ Complements
_____ Demand schedule
_____ Demand curve
_____ *Ceteris paribus*
_____ Quantity supplied
_____ Law of supply
_____ Supply schedule
_____ Supply curve
_____ Equilibrium
_____ Equilibrium price
_____ Equilibrium quantity
_____ Surplus
_____ Shortage
_____ The law of supply and demand

Definitions:

1. The quantity supplied and the quantity demanded when the price has adjusted to balance supply and demand
2. A table that shows the relationship between the price of a good and the quantity demanded
3. A table that shows the relationship between the price of a good and the quantity supplied
4. Market with sellers offering slightly different products
5. A group of buyers and sellers of a particular good or service
6. Market with only one seller
7. A good for which, *ceteris paribus*, an increase in income leads to a decrease in quantity demanded
8. A situation in which quantity demanded is greater than quantity supplied
9. A situation in which quantity supplied is greater than quantity demanded
10. Other things being equal
11. A situation in which supply and demand have been brought into balance
12. A market in which there are many buyers and sellers so that each has a negligible impact on the market price
13. The claim that, *ceteris paribus*, the quantity demanded of a good falls when the price of the good rises
14. Market with only a few sellers
15. The price that balances supply and demand
16. The amount of a good that sellers are willing and able to sell
17. The claim that, *ceteris paribus*, the quantity supplied of a good rises when the price of the good rises
18. The claim that the price of any good adjusts to bring the supply and demand for that good into balance
19. Two goods for which an increase in the price of one leads to a decrease in the demand for the other
20. A good for which, *ceteris paribus*, an increase in income leads to an increase in quantity demanded
21. A graph of the relationship between the price of a good and the quantity supplied
22. Two goods for which an increase in the price of one leads to an increase in the demand for the other
23. A graph of the relationship between the price of a good and the quantity demanded
24. The amount of a good that buyers are willing and able to purchase

Problems and Short-Answer Questions

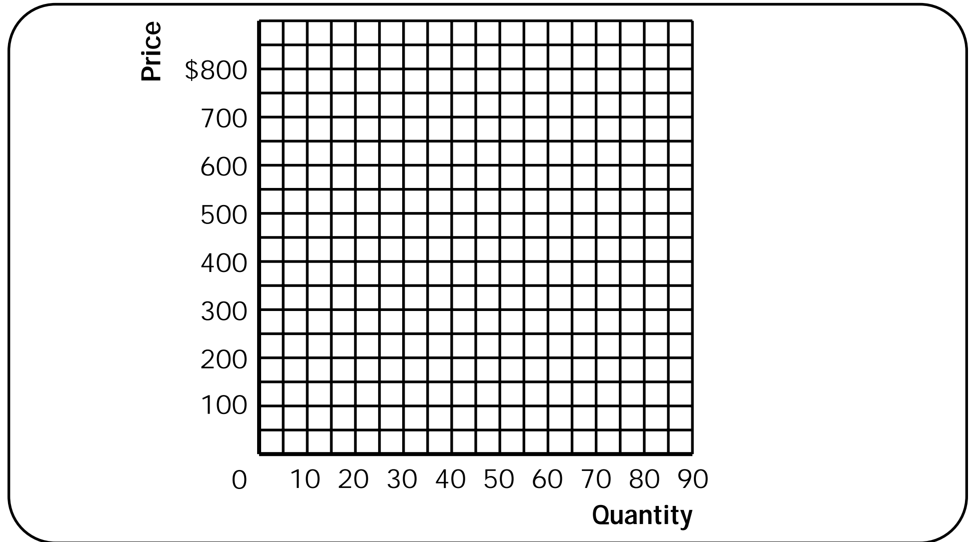
PRACTICE PROBLEMS

1. Suppose we have the following market supply and demand schedules for bicycles:

price	quantity demanded	quantity supplied
$100	70	30
$200	60	40
$300	50	50
$400	40	60
$500	30	70
$600	20	80

a. Plot the supply curve and the demand curve for bicycles in Exhibit 1.

Exhibit 1



b. What is the equilibrium price of bicycles?

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c. What is the equilibrium quantity of bicycles?

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d. If the price of bicycles were $100, is there a surplus or a shortage? How many units of surplus or shortage are there? Will this cause the price to rise or fall?

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e. If the price of bicycles were $400, is there a surplus or a shortage? How many units of surplus or shortage are there? Will this cause the price to rise or fall?

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f. Suppose that the bicycle maker's labor union bargains for an increase in its wages. Further, suppose this event raises the cost of production, makes bicycle manufacturing less profitable, and reduces the quantity supplied of bicycles by 20 units at each price of bicycles. Plot the new supply curve and the original supply and demand curves in Exhibit 2. What is the new equilibrium price and quantity in the market for bicycles?

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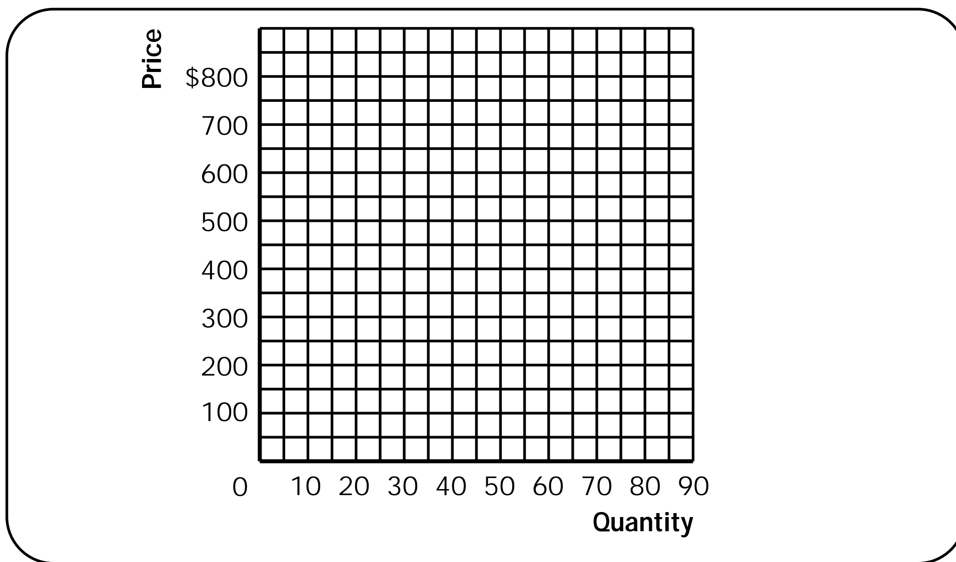

Exhibit 2

2. Each of the events listed below has an impact on the market for bicycles. For each event, which curve is affected (supply or demand for bicycles), what direction is it shifted, and what is the resulting impact on the equilibrium price and quantity of bicycles?

a. An increase in the price of automobiles

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b. A decrease in incomes of consumers if bicycles are a normal good

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c. An increase in the price of steel used to make bicycle frames

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d. An environmental movement shifts tastes toward bicycling

e. *Consumers* expect the price of bicycles to fall in the future

f. A technological advance in the manufacture of bicycles

g. A reduction in the price of bicycle helmets and shoes

h. A decrease in incomes of consumers if bicycles are an inferior good

3. The following questions address a market when both supply and demand shift.

   a. What would happen to the equilibrium price and quantity in the bicycle market if there is an increase in both the supply and the demand for bicycles?

   b. What would happen to the equilibrium price and quantity in the bicycle market if the demand for bicycles increases more than the increase in the supply of bicycles?

SHORT-ANSWER QUESTIONS

1. What are the two main characteristics of a perfectly competitive market?

2. Explain the law of demand.

3. What are the variables that should affect the demand for a good other than its price?

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4. What is the difference between a normal good and an inferior good?

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5. Explain the law of supply.

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6. What are the variables that should affect the supply of a good other than its price?

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7. Suppose *suppliers* of corn expect the price of corn to rise in the future. How would this affect the supply and demand for corn and the equilibrium price and quantity of corn?

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8. If there is a surplus of a good, is the price above or below the equilibrium price for that good?

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9. Suppose there is an increase in the incomes of consumers. In the market for automobiles (a normal good) does this event cause an increase in demand or an increase in quantity demanded? Does this cause an increase in supply or an increase in quantity supplied? Explain.

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10. Suppose there is an increase in the technology employed to produce automobiles. In the market for automobiles, does this event cause an increase in supply or an increase in the quantity supplied? Does this cause an increase in demand or an increase in the quantity demanded? Explain.

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Self-Test

TRUE/FALSE QUESTIONS

_____1. A perfectly competitive market consists of products that are all slightly different from one another.

_____2. An oligopolistic market has only a few sellers.

_____3. The law of demand states that an increase in the price of a good decreases the demand for that good.

_____4. If apples and oranges are substitutes, an increase in the price of apples will decrease the demand for oranges.

_____5. If golf clubs and golf balls are complements, an increase in the price of golf clubs will decrease the demand for golf balls.

_____6. If consumers expect the price of shoes to rise, there will be an increase in the demand for shoes today.

_____7. The law of supply states that an increase in the price of a good increases the quantity supplied of that good.

_____8. An increase in the price of steel will shift the supply of automobiles to the right.

_____9. When the price of a good is below the equilibrium price, it causes a surplus.

_____10. The market supply curve is the horizontal summation of the individual supply curves.

_____11. If there is a shortage of a good, then the price of that good tends to fall.

_____12. If pencils and paper are complements, an increase in the price of pencils causes the demand for paper to decrease or shift to the left.

_____13. If Coke and Pepsi are substitutes, an increase in the price of Coke will cause an increase in the equilibrium price and quantity in the market for Pepsi.

_____14. An advance in the technology employed to manufacture roller blades will result in a decrease in the equilibrium price and an increase in the equilibrium quantity in the market for roller blades.

_____15. If there is an increase in supply accompanied by a decrease in demand for coffee, then there will be a decrease in both the equilibrium price and quantity in the market for coffee.

MULTIPLE-CHOICE QUESTIONS

1. A perfectly competitive market has
   a. only one seller.
   b. at least a few sellers.
   c. many buyers and sellers.
   d. firms that set their own prices.
   e. none of the above.

2. If an increase in the price of blue jeans leads to an increase in the demand for tennis shoes, then blue jeans and tennis shoes are
   a. substitutes.
   b. complements.
   c. normal goods.
   d. inferior goods.
   e. none of the above.

3. The *law of demand* states that an increase in the price of a good
   a. decreases the demand for that good.
   b. decreases the quantity demanded for that good.
   c. increases the supply of that good.
   d. increases the quantity supplied of that good.
   e. none of the above.

4. The *law of supply* states that an increase in the price of a good
   a. decreases the demand for that good.
   b. decreases the quantity demanded for that good.
   c. increases the supply of that good.
   d. increases the quantity supplied of that good.
   e. none of the above.

5. If an increase in consumer incomes leads to a decrease in the demand for camping equipment, then camping equipment is
   a. a complementary good.
   b. a substitute good.
   c. a normal good.
   d. an inferior good.
   e. none of the above.

6. *Ceteris paribus* means
   a. before this, therefore because of this.
   b. whatever will be, will be.
   c. other things being equal.
   d. cents per exchange.
   e. none of the above.

7. Which of the following shifts the demand for watches to the right?
   a. a decrease in the price of watches
   b. a decrease in consumer incomes if watches are a normal good
   c. a decrease in the price of watch batteries if watch batteries and watches are complements
   d. an increase in the price of watches
   e. none of the above

8. All of the following shift the supply of watches to the right except
   a. an increase in the price of watches.
   b. an advance in the technology used to manufacture watches.
   c. a decrease in the wage of workers employed to manufacture watches.
   d. manufactures' expectation of lower watch prices in the future.
   e. All of the above cause an increase in the supply of watches.

9. If the price of a good is above the equilibrium price,
   a. there is a surplus and the price will rise.
   b. there is a surplus and the price will fall.
   c. there is a shortage and the price will rise.
   d. there is a shortage and the price will fall.
   e. the quantity demanded is equal to the quantity supplied and the price remains unchanged.

10. If the price of a good is below the equilibrium price
    a. there is a surplus and the price will rise.
    b. there is a surplus and the price will fall.
    c. there is a shortage and the price will rise.
    d. there is a shortage and the price will fall.
    e. the quantity demanded is equal to the quantity supplied and the price remains unchanged.

11. If the price of a good is equal to the equilibrium price
    a. there is a surplus and the price will rise.
    b. there is a surplus and the price will fall.
    c. there is a shortage and the price will rise.
    d. there is a shortage and the price will fall.
    e. the quantity demanded is equal to the quantity supplied and the price remains unchanged.

12. An increase (rightward shift) in the demand for a good, *ceteris paribus*, will tend to cause
    a. an increase in the equilibrium price and quantity.
    b. a decrease in the equilibrium price and quantity.
    c. an increase in the equilibrium price and a decrease in the equilibrium quantity.
    d. a decrease in the equilibrium price and an increase in the equilibrium quantity.
    e. none of the above.

13. A decrease (leftward shift) in the supply for a good, *ceteris paribus*, will tend to cause
    a. an increase in the equilibrium price and quantity.
    b. a decrease in the equilibrium price and quantity.
    c. an increase in the equilibrium price and a decrease in the equilibrium quantity.
    d. a decrease in the equilibrium price and an increase in the equilibrium quantity.
    e. none of the above.

14. Suppose there is an increase in both the supply and demand for personal computers. In the market for personal computers, we would expect
    a. the equilibrium quantity to rise and the equilibrium price to rise.
    b. the equilibrium quantity to rise and the equilibrium price to fall.
    c. the equilibrium quantity to rise and the equilibrium price to remain constant.
    d. the equilibrium quantity to rise and the change in the equilibrium price to be ambiguous.
    e. the change in the equilibrium quantity to be ambiguous and the equilibrium price to rise.

15. Suppose there is an increase in both the supply and demand for personal computers. Further, suppose the supply of personal computers increases more than demand for personal computers. In the market for personal computers, we would expect
    a. the equilibrium quantity to rise and the equilibrium price to rise.
    b. the equilibrium quantity to rise and the equilibrium price to fall.
    c. the equilibrium quantity to rise and the equilibrium price to remain constant.
    d. the equilibrium quantity to rise and the change in the equilibrium price to be ambiguous.
    e. the change in the equilibrium quantity to be ambiguous and the equilibrium price to fall.

16. Which of the following statements is true about the impact of an increase in the price of lettuce?
    a. The demand for lettuce will decrease.
    b. The supply of lettuce will decrease.
    c. The equilibrium price and quantity of salad dressing will rise.
    d. The equilibrium price and quantity of salad dressing will fall.
    e. Both (a) and (d).

17. Suppose a frost destroys much of the Florida orange crop. At the same time, suppose consumer tastes shift toward orange juice. What would we expect to happen to the equilibrium price and quantity in the market for orange juice?
    a. price will increase, quantity is ambiguous
    b. price will increase, quantity will increase
    c. price will increase, quantity will decrease
    d. price will decrease, quantity is ambiguous
    e. the impact on both price and quantity is ambiguous

18. Suppose consumer tastes shift toward the consumption of apples. Which of the following statements is an accurate description of the impact of this event on the market for apples? There is
    a. an increase in the demand for apples and an increase in the quantity supplied of apples.
    b. an increase in the demand and supply of apples.
    c. an increase in the quantity demanded of apples and in the supply for apples.
    d. an increase in the demand for apples and a decrease in the supply of apples.
    e. a decrease in the quantity demanded of apples and an increase in the supply for apples.

19. Suppose both buyers and sellers of wheat expect the price of wheat to rise in the near future. What would we expect to happen to the equilibrium price and quantity in the market for wheat today?
    a. the impact on both price and quantity is ambiguous
    b. price will increase, quantity is ambiguous
    c. price will increase, quantity will increase
    d. price will increase, quantity will decrease
    e. price will decrease, quantity is ambiguous

20. An inferior good is one for which an increase in income causes
    a. an increase in supply.
    b. a decrease in supply.
    c. an increase in demand.
    d. a decrease in demand.

Advanced Critical Thinking

You are watching a national news broadcast. It is reported that a typhoon is heading for the Washington coast and that it will likely destroy much of this year's apple crop. Your roommate says, "If there are going to be fewer apples available, I'll bet that apple prices will rise. We should buy enormous quantities of apples now and put them in storage. Later we will sell them and make a killing."

1. If this information about the storm is publicly available so that all buyers and sellers in the apple market expect the price of apples to rise in the future, what will happen immediately to the supply and demand for apples and the equilibrium price and quantity of apples?

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2. Can you "beat the market" with public information? That is, can you use publicly available information to help you buy something cheap and quickly sell it at a higher price? Why or why not?

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3. Suppose a friend of yours works for the United States Weather Bureau. She calls you and provides you with inside information about the approaching storm—information not available to the public. Can you "beat the market" with inside information? Why?

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Solutions

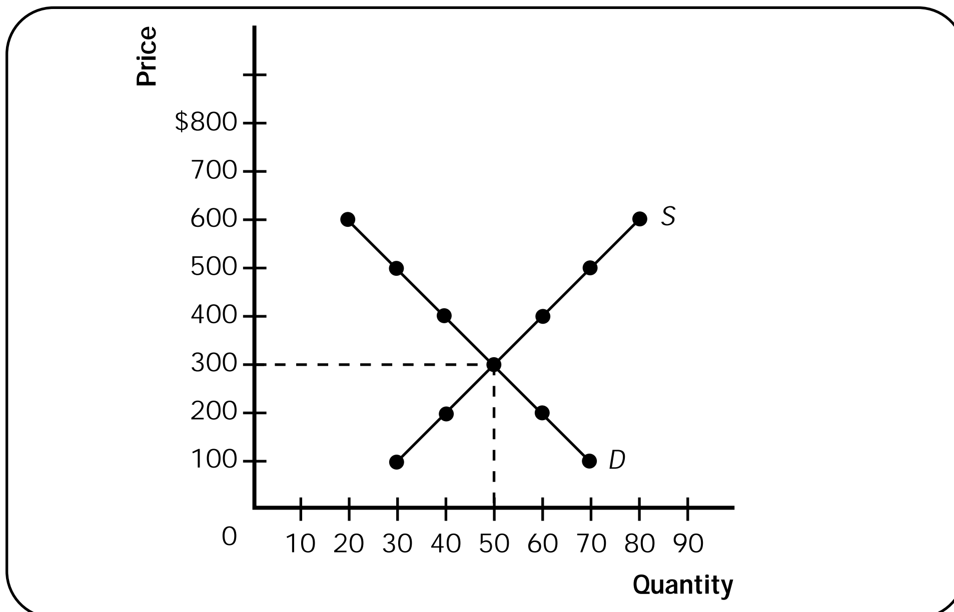
TERMS AND DEFINITIONS

5 Market
12 Competitive market
6 Monopoly
14 Oligopoly
4 Monopolistically competitive
24 Quantity demanded
13 Law of demand
20 Normal good
7 Inferior good
22 Substitutes
19 Complements
2 Demand schedule
23 Demand curve
10 *Ceteris paribus*
16 Quantity supplied
17 Law of supply
3 Supply schedule
21 Supply curve
11 Equilibrium
15 Equilibrium price
1 Equilibrium quantity
9 Surplus
8 Shortage
18 The law of supply and demand

PRACTICE PROBLEMS

1. a. See Exhibit 3.

Exhibit 3



b. $300

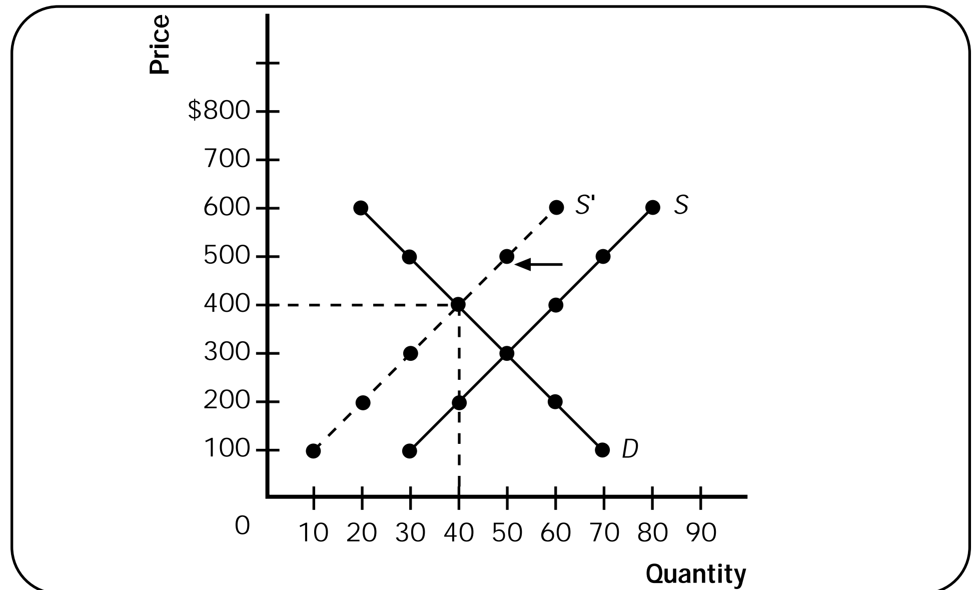
c. 50 bicycles

d. Shortage, 70 – 30 = 40 units, the price will rise

e. Surplus, 60 – 40 = 20 units, the price will fall

f. See Exhibit 4. equilibrium price = $400, equilibrium quantity = 40 bicycles

Exhibit 4



2. a. demand, shifts right, equilibrium price and quantity rise

   b. demand, shifts left, equilibrium price and quantity fall

   c. supply, shifts left, equilibrium price rises, equilibrium quantity falls

   d. demand, shifts right, equilibrium price and quantity rise

   e. demand, shifts left, equilibrium price and quantity fall

   f. supply, shifts right, equilibrium price falls, equilibrium quantity rises

   g. demand, shifts right, equilibrium price and quantity rise

   h. demand, shifts right, equilibrium price and quantity rise

3. a. equilibrium quantity will rise, equilibrium price is ambiguous

   b. equilibrium price and quantity will rise

SHORT-ANSWER QUESTIONS

1. The goods offered for sale are all the same and the buyers and sellers are so numerous that no one buyer or seller can influence the price.

2. *Ceteris paribus*, price and quantity demanded in a market are negatively related.

3. Income, prices of related goods, tastes, and expectations.

4. When income rises, demand for a normal good increases or shifts right. When income rises, demand for an inferior good decreases or shifts left.

5. *Ceteris paribus*, price and quantity supplied in a market are positively related.

6. Input prices, technology, and expectations.

7. The supply of corn in today's market would decrease (shift left) as sellers hold back their offerings in anticipation of greater profits if the price rises in the future. If only suppliers expect higher prices, demand would be unaffected. The equilibrium price would rise and the equilibrium quantity would fall.

8. The price must be above the equilibrium price.

9. There would be an *increase in the demand* for automobiles which means that the entire demand curve shifts to the right. This implies a movement along the fixed supply curve as the price rises. The increase in price causes an *increase in the quantity supplied* of automobiles but there is no increase in the supply of automobiles.

10. There would be an *increase in the supply* of automobiles which means that the entire supply curve shifts to the right. This implies a movement along the fixed demand curve as the price falls. The decrease in price causes an *increase in the quantity demanded* of automobiles but there is no increase in the demand for automobiles.

TRUE/FALSE QUESTIONS

1. F; a perfectly competitive market consists of goods offered for sale that are all the same.

2. T

3. F; the law of demand states that an increase in the price of a good decreases the *quantity demanded* of that good (a movement along the demand curve).

4. F; it will increase the demand for oranges.

5. T

6. T

7. T

8. F; an increase in the price of an input shifts the supply curve for the output to the left.

9. F; it causes an excess demand.

10. T

11. F: an excess demand causes the price to rise.

12. T

13. T

14. T

15. F; there will be a decrease in the equilibrium price, but the impact on the equilibrium quantity is ambiguous.

MULTIPLE-CHOICE QUESTIONS

1. c	5. d	9. b	13. c	17. a
2. a	6. c	10. c	14. d	18. a
3. b	7. c	11. e	15. b	19. b
4. d	8. a	12. a	16. d	20. d

ADVANCED CRITICAL THINKING

1. Sellers reduce supply (supply shifts left) in the hope of selling apples later at a higher price and buyers increase demand (demand shift right) in the hope of buying apples now before the price goes up. The price will immediately rise and the quantity exchanged is ambiguous.

2. No. Usually the market immediately adjusts so that the price has already moved to its new equilibrium value before the amateur speculator can make his or her purchase.

3. Yes. In this case, you can make your purchase before the market responds to the information about the storm.