What Factors Affect Supply?

**OBJECTIVES**

In Section 3, you will
- explain the difference between change in quantity supplied and change in supply
- understand how to determine a change in supply
- identify the factors that can cause a change in supply

**KEY TERMS**

change in quantity supplied, p. 146
change in supply, p. 148
input costs, p. 148
labor productivity, p. 149
technology, p. 149
excise tax, p. 149
regulation, p. 150

**TAking notes**

As you read Section 3, complete a chart like this one showing each factor that causes change in supply. Use the Graphic Organizer at Interactive Review @ ClassZone.com

<table>
<thead>
<tr>
<th>Factor That Changes Supply</th>
<th>Reason Why Supply Changes</th>
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**Changes in Quantity Supplied**

**KEY CONCEPTS**

The supply schedules and supply curves that you studied in Section 1 were created using the assumption that all other economic factors except the price of tomatoes would remain the same. If all other factors remain the same, then the only thing that influences how many tomatoes producers will offer for sale is the price of those tomatoes. The supply curve shows that pattern.

In Chapter 4, you learned the difference between change in demand and change in quantity demanded. Change in quantity demanded is shown by the points along an existing demand curve, while change in demand actually shifts the demand curve itself. Similarly, the different points on a supply curve show change in quantity supplied. Change in quantity supplied is an increase or decrease in the amount of a good or service that producers are willing to sell because of a change in price.

**QUICK REFERENCE**

Change in quantity supplied is a rise or fall in the amount producers offer for sale because of a change in price.

A change in the price of bicycles... causes a change in the quantity supplied.
EXAMPLE Changes Along a Supply Curve

Each new point on the supply curve shows a change in quantity supplied. A change in quantity supplied does not shift the supply curve itself. Let’s look again at the Smiths’ supply curve for tomatoes (Figure 5.10). Note the quantities supplied at each price. Notice that as quantity supplied changes, the change is shown by the direction of movement, right or left, along the supply curve. A movement to the right indicates an increase in both price and quantity supplied. A movement to the left shows a decrease in both price and quantity supplied.

A change in quantity supplied doesn’t shift the supply curve. The change refers to movement along the curve itself. Each point on the curve represents a new quantity supplied.

As you move to the right along the curve, the quantity supplied increases.

As you move to the left along the curve, the quantity supplied decreases.

Just as Figure 5.10 shows change in quantity supplied by one individual, a market supply curve shows similar information for an entire market. However, market supply curves have larger quantities supplied, and therefore larger changes to quantity supplied, because they combine the data from all the individual supply curves in the market. For example, when the price increases from $0.75 to $1.75 on the market supply curve (Figure 5.5), the quantity supplied increases from 100 pounds to 300. Compare this with the change in quantity supplied at those prices in Figure 5.10.

APPLICATION Applying Economic Concepts

A. Changes in quantity supplied do not shift the position of the supply curve. Why?
Changes in Supply

KEY CONCEPTS

Consider what might happen if the workers at an automobile factory negotiate a large wage increase so that it’s more expensive to produce each automobile. As the firm’s costs increase, it is less willing and able to offer as many automobiles for sale. Any action such as this, which changes the costs of production, will change supply. Change in supply occurs when something prompts producers to offer different amounts for sale at every price. When production costs increase, supply decreases; when production costs decrease, supply increases.

Just like change in demand, change in supply actually shifts the supply curve. Six factors cause a change in supply: input costs, labor productivity, technology, government actions, producer expectations, and number of producers.

FACTOR 1 Input Costs

Input costs are a major factor that affects production costs and, therefore, supply. Input costs are the price of the resources used to produce a good or service. For example, Anna makes nutrition bars that contain peanuts. If the price of peanuts increases, Anna’s costs increase. She cannot afford to produce as many nutrition bars, and her supply curve shifts to the left (Figure 5.11). When the price of peanuts decreases, her costs decrease. She is willing and able to increase the quantity she can supply at every price, and the curve shifts to the right (Figure 5.12).

FIGURES 5.11 AND 5.12 SHIFTS IN SUPPLY

When a change in supply occurs, the supply curve shifts.

a As Figure 5.11 shows, a shift to the left (S2) indicates a decrease in supply.

b As Figure 5.12 shows, a shift to the right (S3) indicates an increase in supply.

ANALYZE GRAPHS

1. In Figure 5.11, how has the supply of nutrition bars changed at every price?
2. In Figure 5.12, how has the supply of nutrition bars changed at every price?

Use an interactive version of shifting supply curves at ClassZone.com
FACTOR 2 Labor Productivity

Labor productivity is the amount of goods and services that a person can produce in a given time. Increasing productivity decreases the costs of production and therefore increases supply. For example, a specialized division of labor can allow a producer to make more goods at a lower cost, as was the case at Janine’s factory in Section 2. Her marginal costs decreased when there were six workers, each of whom had a separate job to do.

Better-trained and more-skilled workers can usually produce more goods in less time, and therefore at lower costs, than less-educated or less-skilled workers. For example, a business that provides word-processing services can produce more documents if its employees type quickly and have a lot of experience working with word-processing software.

FACTOR 3 Technology

One way that businesses improve their productivity and increase supply is through the use of technology. Technology entails the application of scientific methods and discoveries to the production process, resulting in new products or new manufacturing techniques. Influenced by the profit motive, manufacturers have, throughout history, used technology to make goods more efficiently. Increased automation, including the use of industrial robots, has led to increased supplies of automobiles, computers, and many other products. (See the Case Study on pages 158–159.)

Improved technology helps farmers produce more food per acre. It also allows oil refiners to get more gasoline out of every barrel of crude oil and helps to get that gasoline to gas stations more quickly and more safely. In addition, technological innovations, such as the personal computer, enable workers to be more productive. This, in turn, helps businesses to increase the supply of their services, such as processing insurance claims or selling airline tickets.

FACTOR 4 Government Action

Government actions can also affect the costs of production, both positively and negatively. An excise tax is a tax on the production or sale of a specific good or service. Excise taxes are often placed on items such as alcohol and tobacco—things whose consumption the government is interested in discouraging. The taxes increase producers’ costs and, therefore, decrease the supply of these items.

Taxes tend to decrease supply; subsidies have the opposite effect. You learned in Chapter 3 that a subsidy is a government payment that partially covers the cost of an economic activity. The subsidy’s purpose is to encourage or protect that activity. Most forms of energy production in the United States receive some form of subsidy. For example, subsidies helped to double the supply of ethanol, a gasoline substitute made from corn, between 2000 and 2004.
Government regulation, the act of controlling business behavior through a set of rules or laws, can also affect supply. Banning a certain pesticide might decrease the supply of the crops that depend on the pesticide. Worker safety regulations might decrease supply by increasing a business’s production costs or increase supply by reducing the amount of labor lost to on-the-job injuries.

**FACTOR 5 Producer Expectations**

If producers expect the price of their product to rise or fall in the future, it may affect how much of that product they are willing and able to supply in the present. Different kinds of producers may react to future price changes differently. For example, if a farmer expects the price of corn to be higher in the future, he or she may store some of the current crop, thereby decreasing supply. A manufacturer who believes the price of his or her product will rise may run the factory for an extra shift or invest in more equipment to increase supply.

**FACTOR 6 Number of Producers**

When one company develops a successful new idea, whether it’s designer wedding gowns, the latest generation of cell phones, or fast-food sushi, other producers soon enter the market and increase the supply of the good or service. When this happens, the supply curve shifts to the right, as you can see in Figure 5.13.

An increase in the number of producers means increased competition, which may eventually drive less-efficient producers out of the market, decreasing supply. (You’ll learn more about competition in Chapter 7.) Competition has a major impact on supply, as producers enter and leave the market constantly.
Figure 5.13 shows what happens to the supply of ice cream cones in a neighborhood as more producers enter the market. When Casey opened his ice cream store it was the only one in the area. It was an instant success. Within six months, three competing stores had opened in the neighborhood, and the supply of ice cream cones increased at all price levels. A year later, though, this intense competition forced one of the producers to leave the market.

**APPLICATION Applying Economic Concepts**

B. Choose an item of food or clothing that you buy regularly. List as many input costs as you can that might affect the supply of that product. Compare your list with a classmate’s and see if you can add to each other’s lists.
In this section, you’ve learned about the factors that influence supply. You’ve also seen some examples of how these factors work. The story of media entrepreneur Robert Johnson provides a real-world example of how the entrance of a new supplier can affect a market.

**EXAMPLE Expanding the Number of Producers**

In the late 1970s, Robert Johnson was working as a Washington lobbyist for the National Cable Television Association. He recognized that current suppliers in the cable TV industry were ignoring a substantial market—African Americans. To fill this void, Johnson conceived the idea for Black Entertainment Television (BET), the first cable channel owned by and focused on African Americans.

To launch his dream, Johnson took out a $15,000 bank loan. He also persuaded a major investor to put up $500,000. Next, he secured space on a cable TV satellite for his new channel. BET’s first program appeared on January 8, 1980. The company grew from offering two hours of programming a week to round-the-clock programming on five separate channels. Cable operators in the United States, Canada, and the Caribbean saw the value of this kind of targeted programming, and began to buy BET’s shows.

At first, BET targeted young viewers with programs similar to those on MTV. As the cable TV industry grew and became more profitable, Johnson invested in more diverse programming. Of this transition he explained, “Now we’re a music video channel with a public affairs footprint. . . .” BET could “play music, but also . . . cover issues that are of concern to African Americans.” BET.com, the number one Internet portal for African Americans, soon followed.

In 2001, Johnson sold BET to the giant media company Viacom International Inc. for $3 billion and became the nation’s first black billionaire. After the sale, Johnson stayed on at BET and continued to run the company for five more years. His success demonstrated that there was a strong market for African-American entertainment. As a result, many suppliers—some with no traditional ties to the African-American community—now offer the kind of programming Johnson pioneered.

**APPLICATION Making Inferences**

C. What effects might BET’s success have on the supply of African-American programming?
SECTION 3  Assessment

REVIEWING KEY CONCEPTS

1. Explain the differences between the terms in each of these pairs:
   a. change in quantity supplied  change in supply
   b. input costs  technology
   c. excise tax  regulation

2. What else besides raw materials would be included in input costs?

3. Why might an increase in oil prices lead to a decrease in the supply of fruits and vegetables in your local supermarket?

4. Why do excise taxes and subsidies affect supply differently?

5. Does expectation of a change in price affect supply? Illustrate your answer with examples.

6. Using Your Notes  How does a change in number of producers affect supply? Refer to your completed chart. Use the Graphic Organizer at Interactive Review @ ClassZone.com

CRITICAL THINKING

7. Applying Economic Concepts  How do each of these examples of government actions affect the supply of gasoline?
   a. In 2005, the government continued support for ethanol, a gasoline substitute.
   b. The state of California requires a special blend of gasoline that meets stricter environmental standards than other regions in the country.
   c. Many states use gasoline taxes to help fund highway construction and maintenance.

8. Making Inferences  Why do you think governments want to influence the supply of alcohol and tobacco products by imposing excise taxes?

9. Analyzing Effects  Take out the market supply curve for skis that you created on page 137. Add new curves showing how supply would be changed in each of the following cases. Share your graph with a classmate and explain your reasoning.
   a. The price of titanium, used in skis, declines dramatically.
   b. A large manufacturer decides to stop producing skis.

10. Challenge  How does an increased number of producers affect the prices of goods in a market? What is the reason for this effect? Think about what you know about demand and supply and review Figure 5.12 as you formulate your answer.

Explaining Changes in Supply

Suppose that you are a manufacturer of personal digital music players (PDMPs). What factors affect supply for PDMPs? The chart below lists examples of a change in supply in the market for PDMPs. For each example, identify which factor that affects supply is involved and state whether supply increases or decreases.

<table>
<thead>
<tr>
<th>Example of Change That Affects Supply</th>
<th>Factor and How It Affected Supply</th>
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<tbody>
<tr>
<td>You give each worker in your factory a specialized job.</td>
<td></td>
</tr>
<tr>
<td>Price of computer chips used in PDMPs rises.</td>
<td></td>
</tr>
<tr>
<td>New machinery speeds up the manufacturing process.</td>
<td></td>
</tr>
<tr>
<td>Your success prompts three new companies to start producing PDMPs.</td>
<td></td>
</tr>
<tr>
<td>A new law requires producers to recycle the wastewater from their factories.</td>
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</tbody>
</table>

Challenge  Identify which of the six factors that affect supply does not appear on this chart. What would be an example of how that factor might affect the market for PDMPs?