Why It Matters

Just as a coin has two sides, so does a market. A coin has heads and tails; a market has a buying side and a selling side. The previous chapter discussed demand, which is the buying side of the market. This chapter discusses supply, the selling side.

In your life, you will be both buyer and seller. You will buy many goods, and you will also sell some goods. You will certainly end up selling a resource—your labor. In Chapter 4 we learned about you as a buyer. In this chapter, we will have the chance to learn about you as a seller.

These personally autographed guitars are being examined prior to an auction. Before reading this chapter, can you guess how the supply of these guitars will affect the price that people will pay for them in the auction?
The following events occurred one day in April.

**7:04 A.M.** Tara has young twin boys, Dave and Quentin. She has tried repeatedly to get both Dave and Quentin to behave better than they have been behaving. Yesterday she promised that she would take them to a movie if they behaved better. Dave ended up behaving a lot better, but Quentin behaved only slightly better. Right now she is asking Quentin why his behavior didn’t improve as much as his brother’s.

- **What does a concept like “elasticity of supply” have to do with the twins?**

**9:10 A.M.** Georgia and Tom are sitting on a train that is traveling from East Hampton, New York, into downtown Manhattan. Georgia is reading an article about taxes in the newspaper. It seems that the government wants to place a tax on the production of cigarettes. For every cigarette pack produced, the government wants cigarette manufacturers to pay a $2 tax. Georgia tells Tom about the article. “What do you think of that?” she asks. Tom responds, “I think that tax is going to end up reducing the supply of cigarettes.”

- **Will the tax reduce the supply of cigarettes?**

**11:03 A.M.** Angie owns a small oil company in Texas. She believes the price of a barrel of crude oil will be higher in three months than it is today. She is thinking about not selling her current oil supply until the oil price goes up. She knows she will lose the interest on the oil revenue she would have if she sold the oil now, but thinks that the higher price in three months might more than compensate for lost interest.

- **Would you advise Angie to wait until later to sell her oil?**

**2:38 P.M.** Frank and Pete are having coffee at their local Starbucks. Frank owns a construction company, and Pete is his business manager. Frank says, “I’m not sure how many more people will want to work for us if we pay a higher wage. No matter how much money we offer, people just don’t want to work in construction the way they once did.” Pete just says, “I don’t know. Money is a powerful motivator.”

- **Will more people want to work in the construction industry if Frank increases the wage rate (dollars per hour) he pays his employees?**
What Is Supply?

Like the word *demand*, the word *supply* has a specific meaning in economics. It refers to the willingness and ability of sellers to produce and offer to sell different quantities of a good at different prices during a specific time period. The supply of a good or service requires both a supplier’s *willingness* and *ability* to produce and sell. Willingness to produce and sell means that the person wants or desires to produce and sell the good. Ability to produce and sell means that the person is capable of producing and selling the good.

**Example:** Jackie is willing to build and sell wooden chairs, but unfortunately she doesn’t know how to build a chair. In other words, she has the willingness but not the ability. Outcome: Jackie will not supply chairs.

What Does the Law of Supply Say?

Suppose you are a supplier, or producer, of TV sets, and the price of a set rises from $300 to $400. Would you want to supply more or fewer TV sets at the higher price? Most people would say more. If you did, you instinctively understand the law of supply, which says that as the price of a good increases, the quantity supplied of the good increases, and as the price of a good decreases, the quantity supplied of the good decreases. In other words, price and quantity supplied move in the same direction. This direct relationship can be shown in symbols:

**Law of Supply**

If \( P \uparrow \) then \( Q_s \uparrow \)

If \( P \downarrow \) then \( Q_s \downarrow \)

(where \( P = \) price and \( Q_s = \) quantity supplied)

When economists use the word *supply*, they mean something different from what they mean when they use the words *quantity supplied*. Again, supply refers to the willingness and ability of sellers to produce and offer to sell different quantities of a good at different prices. For example, a supply of new houses in the housing market means that firms are currently willing and able to produce and offer to sell new houses.
Business firms supply cars, clothes, food, computers, and much more. The quantity of each good or service they supply depends on price. According to the law of supply, the higher the price, the greater the quantity supplied. In other words, the higher the price of notebook paper, the greater the quantity supplied of notebook paper.

Do you think the law of supply might apply to personal, as well as business, situations? Do you think people might behave differently toward others depending on the reactions to their emotions and behavior? Let’s look at some examples of one “product” that people can supply to a greater or lesser degree: niceness.

Wouldn’t you say that people can supply different amounts of niceness? Think about your own behavior: You can be very nice to a person, moderately nice, a little nice, or not nice at all. What determines how much niceness you supply to people? (In other words, why are you nicer to some people than to others?)

One factor that may determine how nice you are to someone is how much someone “pays” you to be nice. It may be a stretch, but think of yourself as selling niceness, in much the same way you might think of yourself selling shoes, T-shirts, corn, or computers. The quantity of each item you supply depends on how much the buyer pays you.

If people want to buy niceness from you, what kind of payment will they offer? A person could come up to you and say, “I will pay you $100 if you will be nice to me,” but usually things don’t work that way. People buy, and therefore pay for, niceness not with the currency of dollars and cents but with the currency of niceness. In other words, the nicer they are to you, the more they are paying you to be nice to them.

Suppose a person can pay three prices of niceness: the very-nice price (high price), the moderately nice price, and the little-nice price (low price). Now consider two persons, Caprioli and Turen. Caprioli pays you the very-nice price, and Turen pays you the little-nice price. Will you be nicer to Caprioli, who pays you the higher price, or to Turen, who pays you the lower price?

If you answer that you will be nicer to Caprioli, you are admitting that you will supply a greater quantity of niceness to the person who pays you more to be nice. You have found the law of supply in your behavior. Again, you are nicer to those persons who pay you more (in the currency of niceness) to be nice.

Do you think that when it comes to the quantity supplied of niceness, most people behave in a manner consistent with the law of supply?
40. A numerical chart like this one that illustrates the law of supply is called a supply schedule.

We can also show the law of supply in picture form by plotting the data in the supply schedule, as in Exhibit 5-1(b). Point A is the first combination of price and quantity supplied from the supply schedule, with a price of $1 and a quantity supplied of 10. Point B represents a price of $2 and a quantity supplied of 20; Point C, a price of $3 and a quantity supplied of 30; and Point D, a price of $4 and a quantity supplied of 40. Connecting points A through D creates a
supply curve, a line that slopes upward (from left to right) and shows the amount of a good sellers are willing and able to sell at various prices. The upward-sloping supply curve in Exhibit 5-1(b) is the graphic representation of the law of supply.

A Vertical Supply Curve

The law of supply, which holds that as price rises, quantity supplied rises, does not hold true for all goods; nor does it hold true over all time periods. First, it does not hold for goods that cannot be produced any longer, such as Stradivarius violins. These violins were made by Antonio Stradivari more than 250 years ago. It is impossible for an additional Stradivarius violin to be produced today, because Stradivari died in 1737. No matter how high the price goes, the quantity supplied cannot increase to more than the total number of Stradivarius violins that currently exist. Thus, the supply curve of Stradivarius violins is not upward sloping but vertical, as shown in Exhibit 5-2(a).

In another example, a theater in St. Louis is sold out for tonight’s play. Increasing ticket prices from $40 to $50 would not create additional seats tonight, because time does not allow enlarging the theater to add more seats. For tonight’s performance, the supply curve of theater seats is vertical, as illustrated in Exhibit 5-2(b).

A Firm’s Supply Curve and a Market Supply Curve

Most of the goods supplied in the United States are supplied by business firms. For example, computers are supplied by Dell, Hewlett-Packard, and so on. A firm’s supply curve is different from a market supply curve. A firm’s supply curve is what it sounds like: it is the supply curve for a particular firm. A market supply curve is the sum of all firms’ supply curves.
Suppose that only three suppliers of fans exist in the whole world: firm A, firm B, and firm C. At a price of $50 a fan, quantity supplied is 100 for firm A, 150 for firm B, and 200 for firm C. As a result, the market supply curve would have a point representing a price of $50 per fan and a market quantity supplied of 450 fans (100 + 150 + 200).

**EXAMPLE:**

Suppose that only three suppliers of fans exist in the whole world: firm A, firm B, and firm C. At a price of $50 a fan, quantity supplied is 100 for firm A, 150 for firm B, and 200 for firm C. As a result, the market supply curve would have a point representing a price of $50 per fan and a market quantity supplied of 450 fans (100 + 150 + 200).

To see this concept graphically, look at Exhibit 5-3 above. In parts (a) through (c) you see the supply curves for firms A, B, and C, respectively. (To keep things simple, we identify only one point on the supply curve for each firm.) Now look at part (d). Here you can see the market supply curve, which is the combination of all the individual market supply curves.

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**SECTION 1 ASSESSMENT**

**Defining Terms**

1. Define:
   a. supply
   b. law of supply
   c. direct relationship
   d. quantity supplied
   e. supply curve
   f. supply schedule

2. Use the term *quantity supplied* correctly in a sentence. Use the word *supply* correctly in a sentence.

**Reviewing Facts and Concepts**

3. a. State the law of supply.
   b. Explain the direct relationship between the price of a good and the quantity supplied.

4. Do all supply curves graphically represent the law of supply? Explain your answer.

5. Identify a good that has an upward-sloping supply curve. Identify a good that has a vertical supply curve.

**Critical Thinking**

6. Three months ago the price of a good was $4, and the quantity supplied was 200 units. Today the price is $6, and the quantity supplied is 400 units. Did the quantity supplied rise because the price increased, or did the price rise because the quantity supplied increased?

**Applying Economic Concepts**

7. Suppose three McDonald’s restaurants operate in your town, and each pays its employees $6 per hour. If McDonald’s started paying $9 per hour to its employees, would more, fewer, or the same number of people want to work for McDonald’s, according to the law of supply?
When Supply Changes, the Curve Shifts

Supply can go up, and it can go down. For example, the supply of computers can rise or fall. Every time the supply of a good changes, the supply curve for that good “shifts.” By shift we mean that it moves; it moves either to the right or to the left.

Change in supply → Shift in supply curve

For example, if the supply of computers increases, the computer supply curve shifts to the right. If the supply of computers decreases, the supply curve shifts to the left. We can understand shifts in supply curves better with the help of Exhibit 5-4.

Look at the curve labeled $S_1$ in Exhibit 5-4. Suppose this supply curve represents the original (and current) supply of computers. Notice that the quantity supplied at a price of $1,000 is 4,000 computers. Now suppose the supply of computers increases. For whatever reason, people want more computers. This increase in supply is shown by the demand curve $S_1$, shifting to the right and becoming $S_2$.

What does it mean for a supply curve to shift rightward? The answer is easy if you
again look at Exhibit 5-4 and focus on the horizontal axis and the numbers on it, along the bottom of the graph. What is the quantity supplied on curve $S_2$ at the price of $1,000? The answer is 6,000 computers. In other words, an increase in supply (or a shift rightward in the supply curve) is the same thing as saying, “Sellers want to sell more of a good at each and every price.” In our example, sellers want to sell more computers at $1,000.

How would we graphically represent a decrease in supply? In Exhibit 5-4, again let’s suppose that $S_1$ is our original (and current) supply curve. A decrease in supply is represented as a shift leftward in the supply curve from $S_1$ to $S_3$. This decrease in supply means that sellers want to sell less of the good at
each and every price. Specifically, if we look at the price $1,000, we see that sellers who once wanted to sell 4,000 computers now want to sell 2,000 computers.

Supply increases → Supply curve shifts rightward
Supply decreases → Supply curve shifts leftward

What Factors Cause Supply Curves to Shift?

Supply curves do not shift to the right or left without cause. They shift because of changes in several factors. These factors include a change in resource prices, technology, taxes, subsidies, quotas, number of sellers, future price, and weather.

Resource Prices

Chapter 1 identified four resources, or factors of production: land, labor, capital, and entrepreneurship. For now, concentrate on land, labor, and capital. These resources are used to produce goods and services.

When resource prices fall, sellers are willing and able to produce and offer to sell more of the good (the supply curve shifts to the right). The reason is that it is cheaper to produce the good. When resource prices rise, in contrast, sellers are willing and able to produce and offer to sell less of the good (the supply curve shifts to the left); it is more expensive to produce the good.

EXAMPLE: Suppose the cost of labor rises for employees working for a car manufacturer, while everything else remains the same. Wage rates rise from, say, $20 an hour to $22 an hour. As a result, the car manufacturer will produce and offer to sell fewer cars; the supply curve shifts leftward.

Technology

Technology is the skills and knowledge used in production. For example, the technology of farming today is much different from 200 years ago. Today, unlike 200 years ago, tractors, pesticides, and special fertilizers are used in farming.

An advancement in technology is the ability to produce more output with a fixed amount of resources. Again, consider farming. With the use of fertilizers and pesticides, farmers today can produce much more output on an acre of land than they could many years ago. This advancement in technology, in turn, lowers the per-unit cost, or average cost, of production for farmers. Farmers respond to lower per-unit costs by being willing and able to produce and offer to sell more output. In other words, the supply curve shifts to the right.

Taxes

Some taxes increase the per-unit costs. Suppose a shoe manufacturer must pay a $2 tax for each pair of shoes it produces. This “extra cost” of doing business causes the manufacturer to supply less output. (It is similar to the price of a resource rising and thus making it more expensive and less profitable for the producer to manufacture the good. As a result, the producer produces less output.) The supply curve shifts to the left. If the tax is eliminated, the supply curve will shift rightward to its original position.

<table>
<thead>
<tr>
<th>Good/service</th>
<th>1961 price</th>
<th>2005 equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dinner</td>
<td>15</td>
<td>96.22</td>
</tr>
<tr>
<td>Book</td>
<td>4</td>
<td>25.66</td>
</tr>
<tr>
<td>Haircut</td>
<td>3</td>
<td>19.24</td>
</tr>
<tr>
<td>Car</td>
<td>3,000</td>
<td>19,244.15</td>
</tr>
<tr>
<td>Furniture</td>
<td>500</td>
<td>3,207.36</td>
</tr>
<tr>
<td>Hammer</td>
<td>2</td>
<td>12.83</td>
</tr>
<tr>
<td>Attorney services</td>
<td>200</td>
<td>1,282.94</td>
</tr>
</tbody>
</table>

In 1921, a seller sold something to a buyer for $100. In 2005, a seller sold something to a buyer for $100. Were the two sales, in 1921 and 2005, equivalent? Not at all, because a dollar was worth more in 1921 than in 2005. In fact, a $100 purchase in 1921 was the equivalent of a $1,079.89 purchase in 2005. In other words, buying something for $100 in 1921 was the same as buying something for $1,079.89 in 2005. To find out what any dollar purchase in the past is equivalent to today, go to the Bureau of Labor Statistics inflation calculator at www.emcp.net/inflation. Here we list the 2005 dollar equivalent of several purchases made in 1961. For example, a person who paid $15 for dinner when going out to eat in 1961 would pay $96.22 for an equivalent dinner in 2005.

“What is wrong with our world is that love is in short supply.”
—Anonymous

Example of how technology affects supply:

Technology

The body of skills and knowledge concerning the use of resources in production.

Advancement in technology

The ability to produce more output with a fixed amount of resources.

Per-unit cost

The average cost of a good. For example, if $400,000 is spent to produce 100 cars, the average, or per-unit, cost is $4,000.
Subsidies

Subsidies have the opposite effect of taxes. A subsidy is a financial payment made by government for certain actions. Suppose the government subsidizes the production of corn by paying corn farmers $2 for every bushel of corn they produce. Farmers will then want to produce more corn at every price, which means the supply curve of corn shifts rightward. Removal of the subsidy causes the supply curve to shift to the left, back to its position prior to the subsidy.

Quotas

Quotas are restrictions on the number of units of a foreign-produced good (import) that can enter a country. For example, suppose Japanese producers are currently sending, and want to continue to send, 100,000 cars to the United States each year. Now suppose the U.S. government imposes a quota on Japanese cars at 80,000 a year. This quota means that no more than 80,000 Japanese cars can be imported into the United States. A quota decreases supply, so the supply curve shifts to the left. The elimination of a quota causes the supply curve to shift rightward to its original position.

Number of Sellers

If more sellers begin producing a particular good, perhaps because of high profits, supply increases and the supply curve shifts to the right. If some sellers stop producing a particular good, perhaps because of losses, the supply curve shifts to the left.

Future Price

Sellers who expect the price of a good to be higher in the future may hold back the good now and supply the good to the market in the future. Sellers who expect the price of a good to be lower in the future may want to supply the good now instead of later.

EXAMPLE: Ricky is thinking of selling his house. He just heard that the price of houses is expected to rise three months from today. Instead of offering to sell his house today, he waits until three months later. Why did he wait? Ricky believed the future price of a house would be higher than the current price of a house. Notice that we are talking about a nonperishable good here (houses). In other words, waiting a few months, or even a year, to sell a house doesn’t lead to a change in the quality of a house.

A different type of a good is a perishable good, such as eggs. If the egg seller believes that the future price will be higher than the current price of eggs, he may want to hold his eggs off the market today and sell them later. He can’t really do that, though, because eggs spoil if kept too long.

Weather (in Some Cases)

Weather can affect the supply of a good. Bad weather reduces the supply of many agricultural goods, such as corn, wheat, and barley. Unusually good weather can increase the supply. Weather can also impact the supply of non-agricultural products, as happens when hurricanes damage fishing boats, shipping docks, and coastal oil refineries.
What Factor Causes a Change in Quantity Supplied?

We identified the factors (resource prices, technology, etc.) that can cause supply to change. As we stated earlier, a change in supply is represented as a shift in the supply curve. The curve moves either right or left. See Exhibit 5-5(a).

But what factor(s) can cause a change in quantity supplied? Only one: price. For example, the only thing that can cause sellers to change their quantity supplied of computers is a change in the price of computers. A change in quantity supplied is shown as a movement along a given supply curve. See Exhibit 5-5(b).

Many people are, at first, confused about what leads to a change in quantity supplied and what leads to a change in supply. To many, it seems as if changes in quantity supplied and supply are the same thing.

To make sure you understand the difference, let’s look back at a couple of examples in this chapter. Turn back to Exhibit 5-1 on page 115 and look at point A. There you see a price of $1 and a quantity supplied of 10. Now ask yourself what must happen before you can move from quantity supplied of 10 to 20, or from point A to B. Stated differently, what has to change before a move from A to B will happen? The answer is that the price (on the vertical axis) must increase from $1 to $2. In other words, the only factor that will change the quantity supplied of a good is a change in price: the factor that is on the vertical axis.

(a) A change in supply refers to a shift in the supply curve. A change in supply can be brought about by a number of factors. (b) A change in quantity supplied refers to a movement along a given supply curve. A change in quantity supplied is brought about only by a change in a good’s price.
Now let's move over to Exhibit 5-4 on page 117. Take a look at S1. Ask yourself what has to happen before S1 shifts to its right and becomes S2. Does price (on the vertical axis) have to change? No, as you can see in the exhibit, we never change price from $1,000. So, then, you know that a change in a good's actual price isn't what will shift a supply curve. What then does shift a supply curve? The answer is a change in resource prices, technology, taxes, and so on.

**Elasticity of Supply**

Chapter 4 discussed elasticity of demand, which deals with the relationship between price and quantity demanded. **Elasticity of supply** is the relationship between the per-

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**Will You Live to Be 100?**

Usually, when we talk about supply, we mean the supply of goods and services. But can an advancement in technology increase the supply of people? One way to increase the supply of people in the world is to increase the length of life. For example, if people start living an average of 100 years instead of 70 years, it means more people in the world.

Michael Rose, a biologist who studies the aging process, found a way to increase the average life span of a fruit fly. The average fruit fly lives for about 70 days, but Rose's fruit flies live for 140 days. If Rose and other like-minded scientists can do for human beings what they have done for fruit flies, then people in the future may live longer lives. According to some scientists working in the area of aging, ages of 100 or 150 years are not unreasonable.

Now let's move to Exhibit 5-4 on page 117. Take a look at S1. Ask yourself what has to happen before S1 shifts to its right and becomes S2. Does price (on the vertical axis) have to change? No, as you can see in the exhibit, we never change price from $1,000. So, then, you know that a change in a good's actual price isn't what will shift a supply curve. What then does shift a supply curve? The answer is a change in resource prices, technology, taxes, and so on.

**Elasticity of Supply**

Chapter 4 discussed elasticity of demand, which deals with the relationship between price and quantity demanded. **Elasticity of supply** is the relationship between the per-
percent change in quantity supplied and the percentage change in price. We can look at it as an equation:

\[
\text{Elasticity of supply} = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}
\]

Notice that the equation has a numerator (percentage change in quantity supplied) and a denominator (percentage change in price). **Elastic supply** exists when the quantity supplied changes by a greater percentage than price—that is, when the numerator changes by more than the denominator. For example, suppose the price of lightbulbs increases by 10 percent, and the quantity supplied of lightbulbs increases by 20 percent. The numerator (20%) changes by more than the denominator (10%), so the supply of lightbulbs is elastic.

**Inelastic supply** exists when the quantity supplied changes by a smaller percentage than price—that is, when the numerator changes by less than the denominator. Finally, **unit-elastic supply** exists when the quantity supplied changes by the same percentage as price—that is, when the numerator changes by the same percentage as the denominator.

Exhibit 5-6 reviews the definitions of elastic, inelastic, and unit-elastic supply.

**Elasticity of Supply**

<table>
<thead>
<tr>
<th>If supply is...</th>
<th>That means...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elastic</td>
<td>Quantity supplied changes by a larger percentage than price. For example, if price rises by 10 percent, quantity supplied rises by, say, 15 percent.</td>
</tr>
<tr>
<td>Inelastic</td>
<td>Quantity supplied changes by a smaller percentage than price. For example, if price rises by 10 percent, quantity supplied rises by, say, 5 percent.</td>
</tr>
<tr>
<td>Unit-elastic</td>
<td>Quantity supplied changes by the same percentage as price. For example, if price rises by 10 percent, quantity supplied rises by 10 percent.</td>
</tr>
</tbody>
</table>

**Example:** Firm A currently produces 400 skateboards a day at $50 a skateboard. The price of skateboards increases to $55 a skateboard and the firm then starts producing 420 skateboards a day. Because the quantity supplied of skateboards goes up (5%) by a smaller percentage than the price of skateboards rises (10%), the supply of skateboards is inelastic.

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**Defining Terms**

1. Define:
   a. elastic supply
   b. inelastic supply
   c. per-unit cost
   d. subsidy
   e. quota
   f. technology

**Reviewing Facts and Concepts**

2. Identify what happens to a given supply curve as a result of each of the following:
   a. Resource prices fall.
   b. Technology advances.
   c. A quota is repealed.
   d. A tax on the production of a good is repealed.
   e. If supply increases, does the supply curve shift to the right or to the left?
   f. Identify whether a given supply curve will shift to the right or to the left as a result of each of the following:
      b. A quota is placed on a good.
   g. Give a numerical example that illustrates elastic supply.
   h. The previous section explained how a supply curve can be vertical. If a supply curve is vertical, does it follow that supply is (a) elastic, (b) inelastic, (c) unit-elastic, or (d) none of the above? Explain your answer.
   i. Graph the following:
      a. an increase in supply
      b. a decrease in supply
      c. an increase in the supply of good X that is greater than the increase in the supply of good Y

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**Section 2 The Supply Curve Shifts**
Investing in Yourself

When most people think of investing, they think of investing in such things as stocks, bonds, and real estate. Rarely do we think of investing in ourselves. Investing in yourself, however, is one of the most important things you can do.

Everyone wants a high return from their investments. What could you invest in today—as a high school student—that could provide you with a high return tomorrow? Before we tell you what it is, let’s look at how the average 15- to 17-year-old spends his or her time each week.

How You Spend Your Time

According to a University of Michigan study, the average 15- to 17-year-old (in 2002–2003) each week spent 32 hours in school, 4 hours and 47 minutes socializing or visiting with friends, 3 hours playing sports, 1 hour and 17 minutes reading, 2 hours and 45 minutes on the computer, 7 hours eating, 5 hours and 43 minutes doing household work, and 14 hours and 36 minutes watching television.

Let’s focus on the 14 hours and 36 minutes a week watching television. Could we reallocate some of the TV time toward something that might provide us with a higher return (than watching television provides us)?

For example, as a high school student, you might be thinking of attending college. Getting into a good college could be the stepping stone to a good-paying job in the future.

According to recent data, college graduates earn substantially more over their lifetimes than those with only a high school diploma (see Exhibit 5-7).

You Are Preparing for College, Aren’t You?

So, how do you get into a good college? First, you need to have good high school grades. Second, you need to have a reasonably high score on one of the two standardized tests that college-bound high school juniors and seniors take: the SAT and ACT.

Many high school students take these standardized tests without studying for them. They simply get a good night’s sleep the night before the test, and then take it.

Think of an alternative way to proceed. Suppose, beginning either at the end of your sophomore year or at the beginning of your junior year of high school, you were to watch 2 hours less of television a week and studied for the SAT or ACT instead.

Now ask yourself how many hours most juniors in high school spend studying for the SAT or ACT. Many say “no more than 5 hours.” Yet, the SAT and ACT are important factors considered by college admission offices. (If you have already taken the SAT and ACT, apply the following suggestions to college courses and tests you’ll take in the future. If you are a senior and haven’t taken them, it’s not too late to plan and prepare to take them.)

Are 100 Hours of Studying Too Many?

What if instead of spending only 5 hours studying for the SAT or ACT, a student spent 100 hours studying.

EXHIBIT 5-7 Average Annual Earnings by Level of Education

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Average Annual Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not a high school graduate</td>
<td>$18,826</td>
</tr>
<tr>
<td>High school graduate only</td>
<td>$27,280</td>
</tr>
<tr>
<td>Some college, no degree</td>
<td>$29,725</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>$34,177</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>$51,194</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>$60,445</td>
</tr>
<tr>
<td>Ph.D. degree</td>
<td>$89,724</td>
</tr>
</tbody>
</table>


It’s clear that if you invest more time, effort, and money in your education, your level of income will grow substantially.
These 100 hours are easily found if the average 15- to 17-year-old would simply cut back his or her TV viewing. If you are the average 15- to 17-year-old, and watch 14 hours and 36 minutes of television a week, consider cutting that down to 12 hours and 36 minutes. With the “freed up” 2 hours, you can now study for the SAT or ACT. In 50 weeks, you would have studied 100 hours. Studying diligently for 2 hours a week for 50 weeks for the SAT or ACT is likely to boost your overall score.

Will you “earn a high return” at the end of the 100 hours? We cannot guarantee how high the return will be (how much you will boost your score over not studying), but certainly it could be substantial. A substantial improvement in your score could pave the way to a good college in your future and everything else that may follow.

The Best Use of Your Time

So how should you proceed if you are now convinced that 2 hours of investing in yourself might bring a higher return than watching an additional 2 hours of television? With respect to either the SAT or ACT, you can go to the appropriate Web sites to see what the tests look like. Go to www.emcp.net/SAT for the SAT. For the ACT, go to www.emcp.net/ACT.

We also strongly urge you to purchase one or two of the test preparation books (on the SAT and ACT) that you can find at almost any bookstore. Most of these test prep books not only provide you with sample tests, but with plenty of study material.

The thing to do once you have purchased these books is to study slowly and carefully. Don’t just take the sample tests and put the books away. You will also find sections in these books on grammar, vocabulary words, critical reading, writing an essay, and more. Read each section carefully, and then read it again. Do all the exercises. Then do them again. Take the sample tests. Then make sure you know what you got wrong on each sample test. Then take more sample tests.

If you simply cut out 2 hours of television a week, and devote that time to studying for the SAT or ACT, you will be surprised how much you learn and how much you can boost your test score.

My Personal Economics Action Plan

Here are some points you may want to consider and some guidelines you might want to put into practice:

✔️ 1. The average 15- to 17-year-old spends 14 hours and 36 minutes each week watching television. If you do too, then you might want to consider cutting down your TV viewing by 2 hours a week.

I will reduce my television watching time by ___ hours/___ minutes per day.

✔️ 2. Spending 100 hours studying for the SAT or ACT can substantially increase your test score. A reasonably high SAT or ACT will increase the probability that you will be admitted to a good college. If you were to spend 2 hours a week for 50 weeks studying for the SAT or ACT, it would mean that you would be studying 100 hours for the test. This is only one-third of the time you put in to an average high school course (if we count in-class time plus homework time.)

I will devote ___ hours per week studying for ___.

✔️ 3. We can invest in things (stocks, bonds, gold, real estate), and we can invest in ourselves. Investing in your academic self during your high school years can end up paying a high return in the future. Buy YOU!

Beginning ______, I will ______ as an investment in myself.
Chapter Summary

Be sure you know and remember the following key points from the chapter sections.

Section 1

- The supply of a good or service requires both a supplier’s willingness and ability to produce and sell.
- The law of supply says that price and quantity supplied move in the same direction—as price increases, so does quantity supplied, and vice versa—called a direct relationship.
- Quantity supplied refers to the number of units of a good produced and offered for sale at a specific price.
- The supply curve is an upward-sloping line (from left to right) that shows the amount of a good sellers are willing and able to sell at various prices.
- A market supply curve represents the sum of all individual firms’ supply curves for a particular good.

Section 2

- Resource prices, advances in technology, subsidies, quotas, the number of sellers, future price expectations, and weather are all factors that can cause a shift in the supply curve.
- The factor that causes a change in the quantity supplied is price.
- The elasticity of supply measures the relationship between the percentage change in price and the percentage change in quantity supplied.
- Supply is elastic when quantity supplied changes by a greater percentage than price.
- Supply is inelastic when quantity supplied changes by a smaller percentage than price.
- Unit-elastic supply exists when quantity supplied changes by the same percentage as price.

Economics Vocabulary

To reinforce your knowledge of the key terms in this chapter, fill in the following blanks on a separate piece of paper with the appropriate word or phrase.

1. A(n) ______ is the numerical representation of the law of supply.
2. A(n) ______ is the graphic representation of the law of supply.
3. According to the law of supply, as price increases, ______ rises.
4. Supply is ______ if the percentage change in quantity supplied is greater than the percentage change in price.
5. Supply is ______ if the percentage change in quantity supplied is less than the percentage change in price.
6. ______ refers to the number of units of a good produced and offered for sale at a specific price.

Understanding the Main Ideas

Write answers to the following questions to review the main ideas in this chapter.

1. Explain the term supply as it applies to economics. What is the difference between supply and quantity supplied?
2. Express the law of supply in (a) words, (b) symbols, and (c) graphic form.
3. Luisa is willing but not able to produce and offer to sell plastic cups. Is Luisa a supplier of plastic cups? Explain your answer.
4. Are all supply curves upward sloping? Why or why not?
5. Write out a supply schedule for four different combinations of price and quantity supplied.
6. Identify whether the supply curve for each of the following would be vertical or upward sloping.
   a. desks in your classroom at this moment
   b. seats at a football stadium at this moment
   c. television sets over time
   d. Hewlett-Packard computers over time
   e. Picasso paintings (Hint: Picasso is dead.)
7. What does it mean when a supply curve shifts to the right? To the left?
8. Between the price of $10 and $14, supply is inelastic. What does this statement mean?

9. Explain what happens to the supply curve of television sets as a consequence of each of the following.
   a. Resource prices fall.
   b. A technological advancement occurs in the television industry.
   c. A tax is placed on the production of television sets.

10. Identify the factors that can change supply. Identify the factor that can change quantity supplied.

11. In each of the following cases, identify whether the supply of the good is elastic, inelastic, or unit-elastic.
   a. The price of books increases 10 percent, and the quantity supplied of books increases 14 percent.
   b. The price of bread increases 2 percent, and the quantity supplied of bread increases 2 percent.
   c. The price of telephones decreases 6 percent, and the quantity supplied of telephones decreases 8 percent.

12. What factor causes movement along a supply curve?

**Doing the Math**

Do the calculations necessary to solve the following problems.

1. A house-building company spends $40 million to produce 400 houses. What is the average cost, or per-unit cost, of a house?

2. Firm A sold 400 stereos for a total of $200,000, and firm B sold 550 stereos for a total of $275,000. Which firm is charging more per unit? Graph the supply curve.

3. If the percentage change in price is 5 percent and the percentage change in quantity supplied is 10 percent, calculate the elasticity of supply.

4. Currently the price of a good is $10, and the quantity supplied is 300 units. For every $1 increase in price, quantity supplied rises by 5 units. What is the quantity supplied at a price of $22?

**Working with Graphs and Charts**

Use Exhibit 5-8 to answer the following questions. P = price, and Qs = quantity supplied.

1. What does Exhibit 5-8(a) represent?
2. Which part of Exhibit 5-8 represents a change in supply due to technological advancement?

3. What does Exhibit 5-8(c) represent?
4. Which part of Exhibit 5-8 represents a change in supply due to an increase in resource prices?

**Solving Economic Problems**

Use your thinking skills and the information you learned in this chapter to find solutions to the following problems.

1. **Application.** The law of supply pertains to many goods. For example, if the price of shoes rises, in time the quantity supplied of shoes will rise, too. Devise an experiment to test whether studying for an economics test is subject to the law of supply.

2. **Cause and Effect.** Explain the process by which a tax, applied to the production of a good, changes the supply of the good.

Go to www.emcp.net/economics and choose Economics: New Ways of Thinking, Chapter 5, if you need more help in preparing for the chapter test.