“Productivity is what makes us rich. Specialization is what makes us productive.”

—Charles Wheelan
Why It Matters

To understand the life you are living, it is important to understand the institutions that play a big role in our society. One of those institutions is business. Almost every day of your life you come into contact with some kind of business—when you stop for lunch at a fast-food restaurant, buy new shoes at the local mall, or purchase your favorite group’s new CD at the electronics store. If you have a part-time job, you are probably working for some kind of local business. This chapter begins to examine business—the institution we all deal with so often.

The owner of this fruit and vegetable market in Bombay, India, appears pleased with his efforts to maximize profits, the goal of all business owners.
8:45 A.M. Jackie started her own business a year ago. Last year she earned $50,032 in profit. This year she hopes to do better. At this moment she is sitting in her office trying to decide whether to hire two more employees. On the one hand, she thinks her business will soon be expanding and she will need two more employees. But on the other hand, she is not sure she can afford to pay the wages of two additional employees.

- What should Jackie consider when deciding whether to hire additional employees?

11:09 A.M. Carl and Vernon are retired. They meet each Wednesday morning at a local restaurant to have breakfast and talk. Carl says, “I’m not sure what is happening to this country. It looks to me like American firms are just shipping jobs overseas.” Vernon nods in agreement and then says, “I guess it is a lot cheaper to hire people in other countries than it is to hire people here. You know, when you can hire someone in another country for $2 an hour, why in the world would you pay $14 an hour here?” Carl says, “I guess it’s just good economics to go where your labor cost is low.” “I guess,” says Vernon.

- Do U.S. companies always hire workers in countries where the wages are low?

12:44 P.M. Bob is eating his lunch at a small restaurant near his workplace. He gets a full hour for lunch each day. He looks at his watch, then he calls the server over to order a small dessert. (Bob is trying to lose weight, but now is not the time.) The server comes over and asks, “So are you going to have some dessert today?” Bob says, “I’ll have a slice of chocolate cake with vanilla ice cream.” “Not in a rush to get back to work?” the server asks. “No,” says Bob, “I don’t have to punch in.”

- Would Bob be less likely to order dessert if he did have to “punch in” (using a time clock)?

1:07 P.M. Uri has a hot dog stand in Manhattan. Each day he sells between 300 and 400 hot dogs for $3 each. He just sold a hot dog to one of his regular customers, Sam. As Sam was paying for his hot dog and drink, he says, “You know, Uri, I bet you’d sell a lot more hot dogs if you charged $2.50.” Uri just looks at Sam and says, “It’s not about selling more hot dogs.”

- If it’s not about selling more hot dogs, then what is it about?
About Business Firms

Why Do Business Firms Exist?

Business firms are organizations that use resources to produce goods and services that are sold to consumers, other businesses, or the government. Businesses typically are formed when someone has an idea about how he or she can earn profits by producing and selling a good or service. While many new businesses begin with just one person, most businesses exist because people working together can produce more than the sum of what individuals working alone can produce.

Suppose 10 individuals each fish for a living. Each day each person catches 100 fish. The daily sum of fish caught by these 10 individuals is therefore 1,000 fish. One day one individual says to the others, “Instead of fishing alone, why don’t we form a team and fish together? We can specialize in doing different things. One person will make the nets, another person will navigate the boat, some people will cast the nets, and so on. I think that if we work together—if we form a team, so to speak—we will be able to catch 2,000 fish a day.”

Let’s suppose this person is correct. Ten people working together can catch more fish (2,000) than the sum of these 10 people working alone (1,000 fish). This would be reason enough for the people to form a team. Another name for this team is a business firm. A business firm of people working together can be more effective than a group of people all working individually.

Why Are Bosses Necessary?

Business firms need bosses and employees: people who give the orders and people who carry out the orders. Why are businesses structured this way? Why doesn’t everyone have an equal say in what happens in the firm? To answer this question, let’s return to our team of fishers.

Suppose that our 10 fishers agree to form a firm and fish together each day. They also agree to split their catch evenly among the 10 of them. If they catch 2,000 fish a day, for example, each person will get 200 fish to sell. Each fish sells for $1, so each person’s income will be $200 a day, double the amount they were earning individually.
**Shirking**

Things go smoothly for a while. Each day the 10 fishers work together catching fish, and each day they catch 2,000 fish. Then one day one of the 10 individuals, Jake, feels lazy. He comes to work late, takes long breaks, and generally doesn’t work as hard as he should. We say he is **shirking**, or putting forth less than the agreed-to effort. Because of Jake’s shirking, the fish catch falls to 1,800. Divided 10 ways, each person receives 180 fish, or an income of $180, that day.

Notice that one person, Jake, shirked, but all 10 people had to pay for his shirking. Everyone’s income fell by $20 because Jake shirked. When he shirked, Jake received the full benefits of shirking (longer breaks, less work), but he paid only one-tenth of the costs of shirking. Nine-tenths of the shirking costs were paid by the remaining nine persons in the fishing firm, none of whom shirked.

How do you think you would have responded if you were one of the other nine fishers and Jake continued to shirk? Do you think you might have begun shirking? When a person receives the full benefits of his shirking but pays only a fraction of the costs, shirking is likely to increase. No doubt there will be more people shirking than only Jake, and this shirking will further reduce the fish catch. In other words, instead of 1,800 fish a day, the catch will fall to 1,600 as more people shirk, then to 1,400 as even more people shirk, and so on. The increased fish catch (2,000 instead of 1,000), however, was the reason the 10 individuals came together to form a team in the first place. Without added fish, the reason for the firm to exist is gone.

**Monitors**

How can the 10 members stop the shirking and continue to enjoy the benefits of the added fish catch? One way is to choose one among them to be the monitor—the person in the firm who coordinates team production and seeks to reduce shirking (the boss, in other words). To be effective, this boss must have the ability to fire and hire people. (Can you see the reason for having a boss now?) If Jake is shirking, the boss must be able to fire him and replace him with someone who will not shirk. The threat of dismissal is what reduces shirking in a firm.

How can the monitor, or boss, be kept from shirking? One possibility is to give the monitor an incentive not to shirk by making him or her a **residual claimant** of the firm. A residual claimant receives the excess of revenues over costs (profits) as income. If the monitor shirks, then profits are likely to be lower (or even negative); therefore, the monitor will receive less income.

**QUESTION:** You say, “Once a firm is formed, people in the firm will shirk.” You say it as though you know it will happen. How can you be so sure?

**ANSWER:** We can’t say that “everybody” will shirk if he or she gets a chance, but it is likely that most people will shirk under the right circumstances. Why is that? Because people value leisure, and what you are doing when you shirk is essentially consuming some leisure. Also, once some people shirk, others naturally begin to feel that they should shirk too, or they end up doing more than their share and getting paid for less of their share. Ask yourself whether you are more likely to shirk in some settings than others. What you will find is that you are more likely to shirk when the costs of shirking (to you) are low and that you are less likely to shirk when the costs of shirking (to you) are high.
For example, in the classroom environment, some students say they end up doing less work and taking things a little easier in class when a substitute teacher is in the class. Why is this? Often the students think that the substitute teacher is here today and gone tomorrow, so they can pretty much do what they want today and get away with it. In anticipation of this behavior, the regular teacher will ask the substitute teacher to give a (graded) quiz to the students. This quiz is supposed to get the students to take the substitute teacher more seriously.

Three Types of Firms

Business firms commonly fall into one of three legal categories: sole proprietorships, partnerships, and corporations. Let’s look at the similarities and differences of these three types of ownership.

Sole Proprietorships

A sole proprietorship is a business that is owned by one individual, who makes all the business decisions, receives all the profits or incurs all the losses of the firm, and is legally responsible for the debts of the firm. Many family farms are sole proprietorships, as are many other businesses such as barbershops, restaurants, and carpet-cleaning services. About 18.3 million proprietorships operate in the United States.

Advantages of Sole Proprietorships

Certain advantages come with organizing a business as a sole proprietorship.

1. Sole proprietorships are easy to form and to dissolve. To start a sole proprietorship, you need only meet certain broadly defined governmental regulations. Some firms must meet health and zoning regulations; for example, if you are starting a restaurant, you must be sure that the restaurant is clean (a health regulation) and that it is located in an area where restaurants are permitted (a zoning regulation). Also, you need to register the name of the business with local governmental officials. To dissolve a sole proprietorship, you need only to stop doing business.

2. All decision-making power resides with the sole proprietor. If you are the owner of a sole proprietorship, you alone can make all the business decisions, decide whether to expand your business, buy more supplies, advertise on the radio, and so on. Decisions can be made quickly and easily, since only one person counts—the sole proprietor.

3. The profit of the firm is taxed only once. Among the different types of taxes in the United States are sales taxes, property taxes, corporate income taxes, and personal income taxes. If you are the owner of a sole proprietorship, the profit you earn is counted as your income, and only personal income taxes (taxes paid on your income) apply. Proprietorships do not pay corporate income taxes (taxes paid on a corporation’s profits). As you will see, neither do partnerships. Only corporations pay corporate income taxes.
It is the fastest growing sport in America. It is the second most watched sport on television, trailing only pro football. What sport is it? It’s NASCAR—National Association of Stock Car Auto Racing.*

What explains the popularity and rapid growth of NASCAR? Some have suggested that it’s the danger and drama associated with cars reaching speeds of 190 miles per hour, and life-and-death, win-or-lose decisions being made in milliseconds.

Or maybe—just maybe—it is the economics of competition and cooperation that is visibly noticeable on the racetracks. The same qualities that a driver needs to win stock car races are the qualities one needs to win in the business world. Let’s see if we can identify these similar qualities.

At the longer stock car tracks, such as Daytona and Talladega, the way to out-compete your opponents is to out-cooperate them. Specifically, the way to win is to enter into a "draft partnership" with other drivers.

In the 1960s, drivers learned that if one stock car closely followed another, both cars increased their speed. Two cars traveling together in what is called a draft line go faster than a single car traveling alone. Drafting explains why you will sometimes see as many as 10 cars, one right behind the other, racing around the track for long periods of time.

When drivers are “drafting,” they are cooperating with each other. At a certain point in the race one car in a draft line will form a partnership with another car to pass the front car. The formation of this partnership will often allow a car to pass what was the front car. What we see in these instances is one partnership breaking up and others being formed.

And near the end of the race it is inevitable that cooperation will give way to competition. The second car in a draft line will try to pass the car in front. This is a very technical maneuver, but it is made harder by the first car trying to prevent his former partner from passing.

Lesson learned from stock car racing: Stock car racing is not just a matter of powerful engines, agile handling, expert driving, and fast pit stops. It is a second-by-second knowledge of knowing when to cooperate and when to compete.

The same lesson presents itself in the business world. In the early days of the computer business, Microsoft and Cisco formed partnerships with potential competitors such as Intel, Compaq, and Dell, and did better than Apple, which did not form partnerships. Were Microsoft, Cisco, and others simply forming a “draft line”?

Moving up the corporate ladder also has characteristics of a “draft line.” Often an executive climbs the corporate ladder with selected staff. Often one corporate “draft line” replaces another.

Cooperation and competition are two important processes in economics. People cooperate when they trade with each other, and they compete when they pursue the same customer’s dollars. Perhaps this does explain the rise in popularity of NASCAR. People realize that watching and studying stock car races might teach them lessons that lead to success in the business world.

Are there any “draft lines” in your life? Has it ever been necessary for you to form new partnerships to achieve your goals? Which do you think is most important in achieving success—cooperation or competition?

Chris Feaver and Larry Little were the founding partners of Excite, an Internet company. Although they have since sold their company, what advantages would Chris and Larry have enjoyed operating their company as a partnership? What would have been the disadvantages?

Disadvantages of Sole Proprietorships Sole proprietorships have disadvantages, too:

1. The sole proprietor faces unlimited liability. Liability is a legal term that has to do with the responsibility to pay debts. Saying that sole proprietors have unlimited liability means that their personal assets may be used to pay off the debts of the firm. For example, suppose Arzlan opens her own cookie shop in the shopping mall. A year passes, and she is taking a loss on the business. She is also in debt to her suppliers—the person from whom she buys flour, the person from whom she rents the shop, and so on. Because Arzlan has unlimited liability, her personal assets—such as her car and her house—may have to be sold to pay off her business debts.

2. Sole proprietors have limited ability to raise funds for business expansion. Sole proprietors do not find borrowing funds easy, because lenders are not eager to lend funds to business firms whose success depends on one person. The sole proprietor’s sources of money are often limited to personal funds and the funds of close friends and family members.

Partnerships

A partnership is a business that is owned by two or more co-owners, called partners, who share profits and are legally responsible for debts.

Advantages of Partnerships The advantages of partnerships include the following:

1. In a partnership, the benefits of specialization can be realized. If, for example, one partner in an advertising agency is better at public relations and another is better at artwork, each can work at the tasks for which he or she is best suited. The ad agency then has a better chance of succeeding than if only one person ran it.

2. The profit of the partnership is the income of the partners, and only personal income taxes apply to it. The owners of a partnership, like the owner of a sole proprietorship, pay only personal income taxes. Corporate income taxes do not apply.

Disadvantages of Partnerships Partnerships also have some disadvantages, which include the following:

1. There are two types of partners, general partners and limited partners. General partners are partners who are responsible for the management of the firm. They face unlimited liability, just as sole
proprietors do. However, unlimited liability is even more of a disadvantage in a partnership than it is in a sole proprietorship. In a sole proprietorship, the proprietor incurs his or her own debts and is solely responsible for them. In a partnership, one general partner might incur the debts, but all general partners are responsible for them. For example, suppose partner Matson incurs a debt by buying an expensive piece of medical equipment without the permission of partners Bradbury and Chan. This is too bad for partners Bradbury and Chan. They are still legally responsible for the debts incurred by Matson.

Although a general partner has unlimited liability, a limited partner does not. The liability of a limited partner is restricted to the amount he or she has invested in the firm. Limited partners usually do not participate in the management of the firm or enter into contracts on behalf of the firm.

2. Decision making in a partnership can be complicated and frustrating. Suppose that Smithies, a partner in a law firm, wants to move the partnership in one direction, to specialize in corporate law. Yankelovich wants to move it in another direction, to specialize in family law. Who makes the decision in this tug-of-war? Possibly no one will make the decision, and things will stay as they are, which may not be a good thing for the growth of the partnership.

Corporations

A corporation is a legal entity that (1) can conduct business in its own name in the same way that an individual does and (2) is owned by its stockholders. Stockholders are people who buy shares of stock in a corporation. A share of stock represents a claim on the assets of the corporation. (Assets are anything of value to which the firm has legal claim.) A share of stock gives the purchaser a share of the ownership of the corporation. About 5.1 million corporations operate in the United States and account for about 83 percent of all business receipts.

What does it mean when we say that a corporation is a legal entity that can conduct business in its own name? For purposes of the law, a corporation is a living, breathing entity (like an individual), even though in reality a corporation is not a living thing. Let’s say that a thousand people want to form a corporation and call it XYZ Corporation. The law treats XYZ Corporation as if it were a person. We can see what this treatment means through an example. Suppose XYZ Corporation has a debt of $3 million and it has only $1 million with which to pay the debt. Legally, the remainder of the debt ($2 million) cannot be obtained from the owners (stockholders) of the corporation. It is the corporation that owes the money, not the owners of the corporation. The owners of the corporation have limited liability.

Advantages of Corporations The advantages of corporations include the following:

1. The owners of the corporation (the stockholders) are not personally liable for the debts of the corporation; they have limited liability. To say that the stockholders have limited liability means that they cannot be sued for the corporation’s failure to pay its debts. They are not personally responsible for these debts. For example, if Turner is a stockholder in corporation X, and corporation X cannot pay off its creditors, Turner does not have to sell her personal assets (her house, car, and so on) to pay the debts of the corporation. She can
lose only her investment and nothing more. For example, if she bought fifty shares of stock in the corporation at a price of $10 each, her investment is $500. She may never see this $500 again, but she will lose no more.

2. Corporations continue to exist even if one or more owners sell their shares or die. The corporation itself is a legal entity. Its existence does not depend on the existence of its owners.

3. Corporations are usually able to raise large sums of money by selling stock. Because of limited liability, people are more willing to invest in a corporation than in other business forms. The price of a share of stock may be small, so many more people can afford an investment. Furthermore, they can invest as much or as little as they want; for example, a person may buy either 10 or 1,000 shares of stock in a corporation. In addition, because corporations can sell bonds and issue stock, they have ways of raising money that do not exist for proprietorships or partnerships. (We look at bonds and stocks in more detail later in the chapter.)

### Disadvantages of Corporations

The disadvantages of corporations include the following:

1. Corporations are subject to double taxation. Suppose XYZ Corporation earns $3 million profit this year. This profit is subject to the corporate income tax. If the corporate income tax rate is 25 percent, then $750,000 is paid in taxes, and $2.25 million remains for dividends and other uses. Dividends are shares of the corporation’s profits distributed to stockholders.

   Suppose that half of the $2.25 million profit after taxes is distributed to stockholders as dividends. This distribution is considered income for the stockholders and is taxed at personal income tax rates. In short, the $3 million profit was subject to both the corporate income tax and the personal income tax—two taxes, or double taxation. Contrast this situation with the profit earned by a proprietorship, which is subject to only one tax, the personal income tax. Exhibit 7-1 shows after-tax profits per dollar of sales for corporations (that manufacture goods).

#### Exhibit 7-1

**U.S. Manufacturers’ After-Tax Profits per Dollar of Sales**

<table>
<thead>
<tr>
<th>Year</th>
<th>1st qtr</th>
<th>2nd qtr</th>
<th>3rd qtr</th>
<th>4th qtr</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>1.4</td>
<td>1.2</td>
<td>1.7</td>
<td>2.0</td>
</tr>
<tr>
<td>2002</td>
<td>2.6</td>
<td>3.6</td>
<td>4.0</td>
<td>5.2</td>
</tr>
<tr>
<td>2003</td>
<td>4.0</td>
<td>5.0</td>
<td>5.6</td>
<td>7.1</td>
</tr>
<tr>
<td>2004</td>
<td>5.6</td>
<td>5.6</td>
<td>7.1</td>
<td>7.2</td>
</tr>
<tr>
<td>2005</td>
<td>7.1</td>
<td>7.1</td>
<td>7.2</td>
<td>7.1</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau

**What was the change in manufacturers’ after-tax profits from the first quarter of 2002 to the first quarter of 2005?**

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2. Corporations are complicated to set up. Corporations are more difficult to organize than sole proprietorships and partnerships, as we discuss next.

Exhibit 7-2 summarizes the advantages and disadvantages of corporations and compares them with the advantages and disadvantages of proprietorships and partnerships.

**The Corporate Structure** As a group, the stockholders are the most important persons in a corporation. They are its owners, and they elect the members of the board of directors. Voting for the board of directors is usually an annual event, with each stockholder having the right to cast as many votes as he or she has shares of stock. For example, a person with one share of stock has one vote, whereas a person with 10,000 shares of stock has 10,000 votes.

The **board of directors** is an important decision-making body in a corporation that determines corporate policies and goals. It decides what products the corporation will produce and sell, what percentage of the profits of the firm will go to stockholders (as stock dividends), and what percentage will go for modernization and expansion. Also, the board of directors chooses the corporation’s top officers, including the president, one or more vice presidents, the secretary, and the treasurer. These officers carry out the day-to-day operations of the corporation. To do so, they often appoint other vice presidents, as well as department heads, who supervise all other employees in their departments. Exhibit 7-3 on the next page shows this structure.

**Financing Corporate Activity** All firms, whether proprietorships, partnerships, or corporations, can raise money by borrowing from banks and other lending institutions. Only corporations, however, have two other avenues. They can sell bonds (sometimes

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**EXHIBIT 7-2 Advantages and Disadvantages of Different Types of Business Firms**

<table>
<thead>
<tr>
<th>Type of business firm</th>
<th>Examples</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sole proprietorship</td>
<td>Local barbershop, Many restaurants, Family farm, Carpet-cleaning service</td>
<td>Easy to form and to dissolve. All decision-making power resides with the sole proprietor. Profit is taxed only once.</td>
<td>Proprietor faces unlimited liability. Limited ability to raise funds for business expansion. Usually ends with retirement or death of proprietor.</td>
</tr>
<tr>
<td>Partnership</td>
<td>Some medical offices, Some law offices, Some advertising agencies</td>
<td>Benefits of specialization can be realized. Profit is taxed only once.</td>
<td>Partners face unlimited liability (one partner can incur a debt and all partners are legally responsible for payment of the debt). Decision making can be complex and frustrating.</td>
</tr>
<tr>
<td>Corporation</td>
<td>Hewlett-Packard, Intel, Walt Disney</td>
<td>Owners (stockholders) have limited liability. Corporation continues if owners sell their shares of stock or die. Usually able to raise large sums of money.</td>
<td>Double taxation. Corporations are complicated to set up.</td>
</tr>
</tbody>
</table>

▲ A summary of the advantages and disadvantages of the three types of business firms.
referred to as *issuing debt*), and they can issue (or sell) additional shares of stock.

Think of a *bond* as a statement of debt issued by a corporation—an IOU, or piece of paper on which is written a promise to pay. For example, when AT&T issues a bond, it is promising to pay a certain amount of money at a certain time. Here is the process at work:

1. Quentin buys a bond issued by AT&T in the year 2006 for $10,000. The $10,000 is now in the possession of AT&T (the corporation might use the money to help buy new equipment), and the bond (a piece of paper) is in the possession of Quentin.

2. The bond that Quentin has in his hands has a few things written on it. For one thing, it has a dollar figure written on it, called the *face value* (or *par value*) of the bond. We’ll say it is $10,000. The percentage written on the bond is called the *coupon rate* of the bond. The coupon rate is the percentage of the face value of a bond that is paid out regularly to the bondholders. For Quentin’s bond, we’ll say the coupon rate is 8 percent. Finally, a maturity date written on the bond is the date the bond matures, or is paid off by AT&T. We’ll say this date is 2016.

3. The bond is a legal promise that AT&T makes to Quentin. The promise has two parts. First, AT&T promises to pay the face value of the bond at the maturity date. Second, it promises to pay the coupon rate, times the face value of the bond, each year until the maturity date. The coupon rate is 8 percent, and the face value of the bond is $10,000; 8 percent of $10,000 is $800, so Quentin receives $800 in the year 2006 and in each year through 2016. (This $800 is called the annual coupon payment.) In 2016, Quentin receives not only $800 but also the face value of the bond, $10,000, because 2016 is the maturity date of the bond.

Instead of selling bonds, AT&T could issue stock to raise money. Remember that a share of stock is a claim on the assets of the corporation that gives the purchaser a share of the ownership of the corporation. Whereas the buyer of a corporate bond is lending funds to the corporation, the buyer of a share of stock is acquiring an ownership right in the corporation. So, if you buy a bond from a corporation, you are a lender, not an owner. If you buy shares of stock in a corporation, you are an owner, not a lender.

The key difference between bondholders and stockholders is that the corporation is under no legal obligation to pay stockholders. Bond purchasers have lent money to the corporation, so the corporation must repay these loans, along with extra payments (such as the $800 Quentin received each year), to the bond purchasers for the use of their money. Stockholders do not lend funds to the corporation; instead, they buy a part of it. If the corporation does well, the value of its stock will rise, and they will be able to sell it at a price higher than the price they paid for it. However, if the corporation does not do well, the value of their stock will fall, and they will most likely have to sell it for less than the purchase price.
QUESTION: I’d like to go back to the example of Quentin buying the bond. He buys the bond in 2006 and the bond matures in 2016—10 years later. Suppose Quentin wants to get the money out of the bond before the 10 years have passed. Can he do this?

ANSWER: Yes, he can sell the bond (to anyone willing to buy it) at any time after he purchased it. He does not have to wait for the full 10 years before cashing in the bond. Nothing guarantees, though, that Quentin will sell his bond for the price he paid for it or for more. He might have to sell the bond for less than the purchase price. Why? Because new bonds might have a higher coupon rate than the coupon rate on the (old) bond that Quentin purchased. So he will have to sell his bond for less to compete with the new bonds that are offering a higher coupon rate.

The Franchise

The franchise is a form of business organization that has become more common in the last 25 years. A franchise is a contract by which a firm (usually a corporation) lets a person or group use its name and sell its goods or services. In return, the person or group must make certain payments and meet certain requirements. For example, McDonald’s Corporation offers franchises. Individuals can buy the right to use McDonald’s name and to sell its products, as long as they meet certain requirements. The corporation, or parent company, is called the franchiser; it is the entity that offers the franchise. The person or group that buys the franchise is called the franchisee. A few well-known franchises are McDonald’s, Burger King, Wendy’s, Pizza Hut, Domino’s Pizza, and Taco Bell.

How It Works

The franchise agreement works this way: (1) The franchisee pays an initial fee. (In
2005 the initial fee for a McDonald’s franchise was $45,000.) (2) The franchisee often pays a royalty, or percentage of the profits, to the franchiser for a number of years. At McDonald’s in 2005, the royalty rate was 12.5 percent. (3) The franchisee usually agrees to meet certain quality standards decided on by the franchiser. (For example, all McDonald’s franchises cook Big Macs for the same length of time.) In return, the franchisee receives from the franchiser the right to use the parent company name, the right to sell a certain product, financial assistance, assistance in training employees and personnel, and national advertising.

Advantages and Disadvantages

Franchises offer several advantages to franchisees. For many franchisees, national advertising is especially important. Consider how many hours of national TV advertising McDonald’s buys annually. This advertising benefits its franchisees from Maine to California. Furthermore, with a well-established company such as McDonald’s or Burger King, the franchisee buys a business that has been proved successful. Consider the risk of starting your own restaurant compared with the risk of opening a McDonald’s or a Burger King. The U.S. Department of Commerce reports that the failure rate is about 12 times higher for independently owned businesses than for franchises.

Of course, franchise business arrangements are not always smooth sailing. Sometimes the franchiser fails to provide the financial and training support the franchisee expects, and occasionally the franchisee does not provide the quality of service and product that the franchiser expects.

QUESTION: Is the $45,000 fee the only money one needs to open up a McDonald’s?

ANSWER: No. A person also needs money to buy goods from the suppliers, to pay a certain amount for the building, and so on. A person needs at least $170,000 (that is not borrowed) to open up a McDonald’s. In total a person needs anywhere from $506,000 to $1.6 million to open a McDonald’s.
What Is the Ethical and Social Responsibility of Business?

Do businesses have an ethical and social responsibility, and if so, what is it? Here are some different views.

The Nader View

Ralph Nader, the consumer advocate, thinks that businesses do have ethical and social responsibilities. For example, Nader believes that businesses have the responsibility to provide their customers with full information about the products they sell. Ethical companies, says Nader, will often also encourage their customers to “shop around” to make sure they are getting exactly what they want.

According to Nader, businesses should also treat their employees well. For example, businesses should take employee grievances seriously and offer their employees a safe place to work. In addition, when possible, businesses should consider “quality of life” issues (such as employee flex-time, and so on). Nader is also in favor of businesses donating funds to meet social needs in the community.

The Friedman View

According to Milton Friedman, the winner of the 1976 Nobel Prize in economics, “There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud.” According to Friedman, if a company tried to use government to stifle its competition, that company would not be engaging in open and free competition and therefore would be acting unethically. If a company lied to the buying public about its product, saying the product could provide certain benefits that it actually could not provide, it would be acting unethically.

After a business meets these ethical standards, says Friedman, its job is simple: it should earn as much profit as possible by selling the public something it wants to buy. A business should forget about giving money to the Red Cross, the homeless, or the children’s wing of a hospital. All of these organizations are outside its social responsibility.

“Drive thy business or it will drive thee.”
—Benjamin Franklin
Asymmetric Information

Asymmetric information exists when one party has information that another party to a transaction does not have. For example, let’s suppose you are planning to buy a used car from Jack. If Jack has some information about the car that he doesn’t pass on to you (the potential buyer), then asymmetric information occurs. The information Jack has but doesn’t pass on to you could affect your decision to buy the car. For example, suppose the car has been in an accident, and you don’t want to buy a car that has been damaged. Without Jack giving you this piece of information, you might end up buying a car you don’t really want to buy.

Asymmetric information can exist in employer-employee situations too. For example, suppose you are being interviewed for a job by a company. The person interviewing you for a job doesn’t tell you that a few employees have gotten sick working at the company because of certain pollutants in the air. Here then is an issue of asymmetric information—the employer has some information about the job that he or she isn’t passing along to you. Suppose also you wouldn’t take this job if you had this information, but without it, you do. The general consensus nowadays is that businesses do have the ethical responsibility to tell their customers and employees everything relevant to either buying a product or taking a job, respectively.

Where Will Firms Locate?

Economists often want to know what factors firms consider when deciding where to locate. For example, suppose you wanted to go into the farming business—where would you locate? Obviously you might want to locate where farmland is plentiful and the climate is conducive to growing what you want to grow (wheat, corn, etc.). Or suppose you wanted to open up a car dealership. Where would you locate?

At First, Far Apart

To better understand how firms make location decisions, let’s look at a hypothetical situation, as shown in Exhibit 7-4(a). In the exhibit, the letters A through Z represent customers and their locations (say, along a road). You will notice that customers A–Z are evenly distributed along this road. The numbers 1 and 2 represent competing firms, which sell the same goods. They are currently located at extreme ends of the road. If a customer wants to buy a good that either firm 1 or 2 sells, the customer will go to the firm located
closer to him or her. This means that customers A–M will buy from firm 1 and customers N–Z will buy from firm 2. If you count the number of customers that each firm sells to, you will find the number is 13.

One Firm Moves, Then the Other

Now suppose that one day firm 1 moves to a different location, as shown in part (b). Ask yourself how this move serves firm 1’s best interest. The answer is that firm 1 takes away customers from firm 2. Now customers A–O are closer to firm 1 than firm 2, so these customers buy from firm 1. Customers Q–Z buy from firm 2 (P isn’t counted; he’s the same distance from 1 and 2). In short, firm 1’s move put the firm closer to 15 customers instead of 13 customers, leaving 10 customers for firm 2.

Do you think firm 2 will try to counter firm 1’s move? It is likely; after all, the firms are competing for customers. Firm 2 moves to a new location, as shown in part (c). Now customers L–Z go to firm 2, leaving customers A–K to go to firm 1. Firm 1 now has only 11 customers and firm 2 has 15.

A Pattern Develops

If you look at what has been happening in parts (a) through (c) of the exhibit, you will notice a pattern. The two firms located on the opposite ends of the road initially, but then the competition for customers moved them closer toward each other. The competition for customers continues. In the end, it is likely that the two firms will be located next to each other, as shown in part (d). At this point, firm 1 will have customers A–M (13 customers) and firm 2 will have customers N–Z (13 customers)—exactly the number of customers each firm started out with in part (a).

What is our conclusion? Simply that similar firms have an incentive to locate near each other. What drives them to this position? The competition for customers.

In the Real World?

Does our theory hold up in the real world? Often, you will notice gas stations located near each other (perhaps, four at an intersection). In many towns, car dealerships are located in the same vicinity, often next to each other. Also, in many towns you will find a certain area of town where many restaurants locate, right next to each other. If you look at major financial firms, you will notice that many of them are headquartered in New York City. In fact, not only are they in the same city, but in the same neighborhood of the same city (near the lower end of Manhattan).

Defining Terms

1. Define:
   a. sole proprietorship
   b. asset
   c. corporation
   d. partnership

Reviewing Facts and Concepts

2. Under what condition will individuals form a firm?
3. The owners of which types of business organizations face unlimited liability?
4. Which type of business organization accounts for the largest share of total business revenue?
5. Why would a company make a boss (monitor) a residual claimant of the firm?
6. Do you think the initial fee for all franchises (McDonald’s, Burger King, Play It Again Sports, and so on) is the same? Why or why not?
7. Do you agree or disagree with Milton Friedman’s position on the ethical and social responsibility of business? Explain your answer.

Applying Economic Concepts

8. If the face value of a bond is $10,000 and the coupon rate is 5 percent, what is the annual payment to the bondholder?
Fixed and Variable Costs

All businesses have costs, but not all costs are the same. For example, suppose Maria Torres owns a business that produces a certain kind of toy. In her business, Torres needs a plant, or factory, in which the toy can be produced. She also needs insurance, employees, machines, certain materials for producing the toy (such as plastic and rubber), paper, pens, computers, electricity, and much more. Consider one of the many things Torres needs—a plant. Currently, she rents a plant from Terry Adams. The rental contract specifies that Torres agrees to pay Adams $2,000 rent each month for 12 months.

What if Torres does not want to rent the plant after she has paid only three months’ rent? Must she pay rent for the remaining nine months? Given the contract that Torres and Adams entered into, the answer is yes. In other words, no matter whether Torres produces 1 toy, 1,000 toys, 10,000 toys, or even zero toys in the plant each month, she still has the legal obligation to pay rent of $2,000 a month for 12 months.

Costs, or expenses, that are the same no matter how many units of a good are produced are called fixed costs. The $2,000 rent is a fixed cost for Torres for a period of 12 months.

**Example:** Bobby pays a business tax of $1,000 a year no matter how many paper boxes he produces and sells. The business tax is a fixed cost. Taryn pays $1,500 in insurance for her small store each year, no matter how much she sells. The $1,500 insurance payment is a fixed cost.

Now suppose Torres employs 10 workers and pays each $50 a day. Her labor cost per day is $500. One day, she gets a special order for many hundreds of toys. To meet the order, she hires five additional workers at $50 per day. As a result, her weekly labor costs increase by $250, to a total of $750. Notice that the increase in labor cost goes along with an increase in the number of toys being produced. Costs, or expenses, that vary, or change, with the number of units of a good produced are called variable costs.

If we add fixed costs to variable costs, we have total costs.
Total costs = Fixed costs + Variable costs

Suppose we want to compute total costs for a month. If fixed costs are $2,000 for the month and variable costs are $750, then total costs are $2,750 for the month.

**Example:** Jimmy pays $2,000 rent a month on the factory and $1,800 a month for each of the 20 employees he hired. His fixed costs are $2,000 a month, and his variable costs are $36,000 a month. It follows, then, that his total costs are $38,000 a month.

**Average Total Cost**

Suppose a teacher gives a test to five students. The grades are as follows: 80, 90, 100, 60, and 75. The total number of points—the sum of the individual grades—is 405. To find the average grade, we divide the total, 405, by the number of students, 5. The average grade on the test is 81.

Similarly, to compute the **average total cost** (ATC), or per-unit cost, simply divide total cost (TC) by the quantity of output (Q):

\[ \text{Average total cost (ATC) = } \frac{TC}{Q} \]

For example, if total cost is $6,000 and 1,000 units of a good are produced, then average total cost is $6 per unit ($6,000/1,000 = $6).

**Marginal Cost: An Important Cost Concept**

Marginal cost is an important cost concept in economics. As you will see later, it is one of the two factors a business must know about when deciding how much of a good it is best to produce. For now, though, to illustrate what marginal cost is, suppose Torres currently produces 1,000 units of a toy, and total cost is $6,000. She then decides to produce an additional unit of the toy; in other words, she produces one more toy. As a result, total cost rises from $6,000 to $6,008. What is the change in total cost that results from this change in output?

Well, if total cost was $6,000 and then it rose to $6,008, the change in total cost (from $6,000 to $6,008) must be $8. In other words, total cost has changed by (increased by) $8. This change in total cost that results from producing an additional unit of output is called **marginal cost**. (Every time you read the word marginal in economics you should think “additional.”) In other words, marginal cost is the additional cost of producing an additional unit of a good. In our example, the marginal cost is $8. When you think about marginal cost, focus on the word change. Marginal cost describes a change in one thing (total cost) caused by a change in something else (quantity of output).

In economics, the triangle symbol (∆) means “change in.” Thus, when we write

\[ \text{Marginal cost (MC)} = \frac{\Delta TC}{\Delta Q} \]

we mean “marginal cost equals the change in total cost divided by the change in quantity of output.” We can place the numbers from our example in this equation. ∆TC, the change in total cost, is $8 ($6,008 − $6,000 = $8). ∆Q, the change in quantity produced, is 1 (1,001 − 1,000 = 1):

\[ \text{Marginal cost (MC)} = \frac{\$8}{1} = \$8 \]

The marginal cost is $8. Exhibit 7-5 reviews the five cost concepts discussed in this section.
Some people want to lose weight for health reasons, but they often find this hard to do. Why? Part of the answer has to do with the marginal cost of eating that additional hamburger, or slice of pie, or ice cream cone.

Suppose Larry weighs 200 pounds, and he wants to get down to a weight of 185 pounds for health reasons. When eating, Larry makes incremental (one in a series of many) decisions as opposed to all-or-nothing decisions. An all-or-nothing decision would be deciding whether to eat or not. This decision isn’t the one Larry has to make. He knows he is going to eat.

The decision he must make is how much to eat, which is an incremental decision. Does he eat two strips of bacon or just one? Does he have a big piece of cake or a small piece of cake? Does he have three sodas a day or only two?

Suppose the decision in front of Larry is whether to have half of a tuna sandwich or a whole tuna sandwich. Larry knows that he will eat at least half a tuna sandwich, so the real decision is whether to eat the extra half sandwich. When the increments are small (such as a half sandwich), eating it isn’t likely to add much weight. So, for Larry, the marginal cost (in extra weight) of eating the additional half sandwich is likely to be small. Maybe he will be two ounces heavier than he would have been had he not eaten the additional half sandwich.

What happens now is that because all of Larry’s decisions about eating are really small incremental decisions (a little larger slice of pie, one more potato chip, one more cookie), it is likely that the marginal cost of each extra unit of food is going to be small. And so Larry will think to himself, What is a slightly larger slice of pie going to do? Very little.

Of course, a slightly larger slice of pie will do very little if things stop there. In fact, Larry has a series of incremental decisions to make—one more sip of soda, one more bit of mashed potatoes, one more cookie, and so on. It is only when we add together all the individually tiny incremental decisions that Larry makes do we learn that he has probably eaten more than he wanted to.

Larry’s type of thinking is similar to what happens when people litter. They ask themselves, What will one tiny piece of paper really matter? What will a toothpick thrown on the ground matter? Well, if only one tiny piece of paper, or one tiny toothpick, was thrown on the ground, it wouldn’t matter much. If, however, the same thing happens time after time, the litter is going to build up and then we’ll have a lot of trash thrown on the ground.

In summary, a series of tiny incremental decisions decided in a certain way, whether they have to do with eating or littering, can end up producing an aggregate outcome no one really intends. That’s why Larry sometimes asks why it is just so hard for him to lose weight when, he says to himself, he wants to lose weight so badly.

1. What are some dieting rules that Larry could make for himself that would greatly increase the costs of breaking the rules?
2. Do you ever litter? If so, what have been the costs to you in the situations where you have littered? Could those costs have been increased? If so, how?
**EXAMPLE:** Harry produced 10 chairs and the total cost is $1,000. Harry goes on to produce one more chair (the 11th chair) and his total cost rises to $1,088. The marginal cost of chairs is $88—the additional cost of producing the additional (which in this case was the 11th chair).

**EXAMPLE:** Flight 23 is almost ready to depart for Miami. Currently 98 out of the 100 seats are occupied. Jones walks up to the ticket agent and asks to get on the plane. The ticket agent says that the ticket price is $400. Jones says, “That is an outrageous price to pay to get on a plane that is headed to Miami whether I get on it or not. In fact, the additional cost (marginal cost) for me to travel on the plane is probably near zero. The airline doesn’t have to pay any more for gas, it doesn’t have to pay the flight attendant any more, and so on. The only thing it has to do is give me a ‘free coke’ if I ask for it, and to tell you the truth I don’t mind paying for the coke myself. Here’s $1.50.” Is Jones right? Is the marginal cost of his traveling on the airplane close to zero for the airlines? Yes, he’s right. Still, the ticket agent isn’t going to be too happy about the $1.50.

**EXHIBIT 7-5  Five Cost Concepts**

<table>
<thead>
<tr>
<th>Type of cost</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed cost (FC)</td>
<td>Cost, or expense, that does not change as output changes</td>
<td>A firm’s monthly rent is a fixed cost.</td>
</tr>
<tr>
<td>Variable cost (VC)</td>
<td>Cost, or expense, that changes as output changes</td>
<td>The amount a firm spends on employees’ wages is usually a variable cost.</td>
</tr>
<tr>
<td>Total cost (TC)</td>
<td>Fixed costs plus variable costs (FC + VC)</td>
<td>If fixed costs equal $2,000, and variable costs equal $4,000, then total cost equals $6,000.</td>
</tr>
<tr>
<td>Average total cost (ATC)</td>
<td>Total cost divided by quantity of output (TC/Q)</td>
<td>If total cost equals $6,000, and quantity equals 1,000 units, then average total cost equals $6.</td>
</tr>
<tr>
<td>Marginal cost (MC)</td>
<td>Change in total cost divided by change in quantity of output (ΔTC/ΔQ)</td>
<td>If total cost equals $6,000 when quantity equals 1,000 units, and total cost equals $6,008 when quantity equals 1,001 units, then marginal cost equals $8.</td>
</tr>
</tbody>
</table>

What is the lesson to learn from this example? The price you pay to travel on an airplane is not necessarily equal to the marginal cost of traveling on the airplane.

**Defining Terms**

1. Define:
   a. fixed costs
   b. variable costs
   c. marginal cost

**Reviewing Facts and Concepts**

2. Give an example of a fixed cost and a variable cost.
3. A firm produces 125 units of a good. Its variable costs are $400, and its total costs are $700. Answer the following questions:
   a. What do the firm’s fixed costs equal?
   b. What is the average total cost equal to?
   c. If variable costs were $385 when 124 units were produced, then what was the total cost equal to at 124 units?

**Critical Thinking**

4. This section discussed both average total cost and marginal cost. What is the key difference between the two cost concepts?

**Applying Economic Concepts**

5. An airline has 100 seats to sell on a plane traveling from New York to Los Angeles. It sells its tickets for $450 each. At this price, 97 tickets are sold. Just as the plane is about to take off, a person without a ticket says he is willing to pay $150, but not one penny more, to buy a ticket on the plane. The additional cost of the additional passenger (to the airline)—that is, the marginal cost to the airline—is $100. Is it in the best interest of the airline to sell the person a ticket for $150? Explain your answer.
Total Revenue and Marginal Revenue

In Chapter 3, total revenue was defined as the price of a good times the quantity sold. For example, if the price of a book is $15 and 100 are sold, then total revenue is $1,500. Consider the following: (1) Harris sells toys for a price of $10 each. (2) Harris currently sells 1,000 toys. (3) This means that Harris’s total revenue is $10,000. If Harris sells one more toy for $10, what is the change in total revenue that results from the change in output sold?

To answer this question, we first calculate what the total revenue is when Harris sells 1,001 instead of 1,000 toys; it is $10,010. We conclude that the total revenue changes from $10,000 to $10,010 when an additional toy is sold. In other words, a change in total revenue that results from the change in output sold is $10.

The change in total revenue (TR) that results from selling an additional unit of output is marginal revenue (MR). In other words, marginal revenue is the additional revenue from selling an additional unit of a good. In the example, $10 is the marginal revenue. We can write it this way:

$$\text{Marginal revenue (MR)} = \frac{\Delta TR}{\Delta Q}$$

Marginal revenue equals the change in total revenue divided by the change in the quantity of output sold.

Firms Have to Answer Questions

If you start up a business, you’re going to have to answer certain questions. For example, suppose you start a business producing and selling T-shirts. Someone comes up to you and asks: How many T-shirts are you going to produce each month? What is your answer going to be? Will you say 100, 1,000, or 10,000? How will you go about deciding how many T-shirts you’re going to produce? Are you going to put different numbers in a hat and simply draw one out? Whatever number you draw, will that be how many T-shirts you produce? Of course not! So, what are you going to do? How are you...
going to decide how many T-shirts to produce? This is one question that every business firm has to answer:

How much should we produce?

Suppose you decide to produce 1,000 T-shirts a month. Now someone comes up to you and asks: What price will you charge for each T-shirt? What are you going to say? Are you going to say $10, or $10.50, or $15? How will you decide how much to charge for each T-shirt? Here then is a second question every firm has to answer:

What price should we charge?

In this section we will talk more about these two questions.

How Much Will a Firm Produce?

Suppose again that you produce T-shirts. You have to decide how many to produce. What two pieces of information do you need before you can decide how many T-shirts to produce? If you think about it, the answer is fairly simple. You need to know the marginal cost and the marginal revenue for your T-shirts. For example, suppose you are presented with the following data (which is representative of many real-world businesses):

<table>
<thead>
<tr>
<th>T-shirts</th>
<th>MR</th>
<th>MC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>$10</td>
<td>$4</td>
</tr>
<tr>
<td>2nd</td>
<td>$10</td>
<td>$6</td>
</tr>
<tr>
<td>3rd</td>
<td>$10</td>
<td>$8</td>
</tr>
<tr>
<td>4th</td>
<td>$10</td>
<td>$9.99</td>
</tr>
<tr>
<td>5th</td>
<td>$10</td>
<td>$11</td>
</tr>
</tbody>
</table>

Having looked at the data, someone asks you: What is the right number of T-shirts for you to produce? What would your answer be? The correct answer is four T-shirts. In other words, you should keep producing T-shirts as long as marginal revenue (additional revenue of producing the additional T-shirt) is greater than the marginal cost (additional cost of producing the additional T-shirt). As long as what comes in through the “revenue door” is greater than what leaves through the “cost door,” you ought to keep producing T-shirts. Look at it this way:

MR > MC \rightarrow \text{Produce}  \\
MC > MR \rightarrow \text{Do not produce}

Now if you want to produce as long as MR > MC, and you don’t want to produce if MC > MR, then ask yourself when you should stop producing. For example, you’ve already produced, say, 10,000 hats. Should you go ahead and produce one more? The answer is yes as long as marginal revenue is greater than marginal cost—even if the difference between marginal cost and marginal revenue is one penny (as was the case for the fourth T-shirt in the example).

Now suppose the difference is even less than one penny. Suppose it is half a penny. Should you still produce the good? Again the answer is yes. What about one-fourth of a penny? Yes, produce it. You can perhaps see where we are leading. Economists essentially say that it is beneficial to produce as long as marginal revenue is greater than
marginal cost, even if the difference between the two is extremely small. For all practical purposes, then, economists are saying that a business firm should continue to produce additional units of its good until the marginal revenue (MR) is equal to the marginal cost (MC).

In the T-shirt example, we didn’t find any unit of T-shirt at which MR = MC, but we did find one where there was only a penny difference. We stopped producing after we had produced the fourth T-shirt because it was as close to MR = MC as we could get.

**QUESTION:** I have known some people who owned businesses and, to tell you the truth, I don’t think any one of them even knew what marginal revenue and marginal cost are. You can’t expect me to believe that these business owners were producing the quantity of output for which MR = MC if they didn’t even know what MR and MC are. Please comment.

**ANSWER:** You don’t always have to understand how to do something in order to do it. For example, not many people understand how their legs move to make them walk, or how their lungs behave to make them breathe, but still they walk and breathe. Our guess is that a bird doesn’t really understand aerodynamics (which is the study of forces and the resulting motion of objects through the air), but still birds can fly. A business owner may not know what marginal revenue and marginal cost are, but here is what a business owner does know: whether more money is “coming in” than is “going out.” And, of course, this is what marginal revenue and marginal cost really are. The additional money coming in is marginal revenue and the additional money going out is marginal cost. As long as a business owner can count, he or she will naturally end up producing the level of output at which MR = MC. Having said all this, let us add that sometimes taking a course in economics or in business formalizes all these “business practices” more effectively. For example, a person who has studied economics would be less likely to make a mistake when determining what quantity of a good to produce than a person who has not studied economics.

**What Every Firm Wants: To Maximize Profit**

In Chapter 3 we stated that profit is the difference between total revenue and total cost. For example, if total revenue is $400,000 and total cost is $320,000, then profit is $80,000. The firm wants profit to be as large as possible. An economist states it this way: The business firm wants to maximize profit.
Of course if the firm wants to maximize profit, this is just another way of saying that it wants the biggest difference possible between its total revenue and its total cost. For example, given a choice of a total revenue of $1 million or $2 million, a business firm would prefer a total revenue of $2 million (all other things being equal). Or given a choice of a total cost of $250,000 or $500,000, a business firm would prefer a total cost of $250,000 (all other things being equal).

So, maximizing profit is consistent with a firm getting the largest possible difference between its total revenue and its total cost.

Now here is something to think about: Is getting the largest possible difference between total revenue and total cost the same thing as producing the quantity of output at which MR = MC? The answer is that “getting the largest possible difference between total revenue and total cost” is the same thing as producing the quantity of output at which MR = MC. To prove it, again suppose that a business firm’s total revenue is $400,000, total cost is $320,000, and profit is $80,000. Now suppose it produces and sells an additional unit of a good. The additional revenue from selling this unit of the good (the marginal revenue) is $40, and the additional cost of producing this unit of the good (the marginal cost) is $10. Total revenue will rise to $400,040 ($400,000 + $40 = $400,040), and total cost will rise to $320,010 ($320,000 + $10 = $320,010). What will happen to profit? It will increase to $80,030 ($400,040 − $320,010 = $80,030). Thus, whenever the firm produces and sells an additional unit of a good and marginal revenue is greater than marginal cost, it is adding more to its total revenue than to its total cost, and therefore it is maximizing profit.

### How to Compute Profit and Loss

When a firm computes its profit or loss, it determines total cost and total revenue and then finds the difference:

1. **To compute total cost (TC), add fixed cost (FC) to variable cost (VC).**
   
   \[ TC = FC + VC \]

2. **To compute total revenue (TR), multiply the price of the good (P) times the quantity of units (Q) of the good sold.**
   
   \[ P \times Q = TR \]

3. **To compute profit (or loss), subtract total cost (TC) from total revenue (TR).**
   
   \[ \text{Profit (or loss)} = TR - TC \]

**Example:** Suppose variable cost is $100 and fixed cost is $400. It follows that total cost is $500. Now suppose that 100 units of a good are sold at $7 each; total revenue is then $700. If we subtract total cost ($500) from total revenue ($700), we are left with a profit of $200.
How Many Workers Should the Firm Hire?

Wal-Mart has more than 1 million employees. In fact, it has somewhere closer to 1.2 million employees. How does Wal-Mart know how many employees to hire? Did the president of the company simply say one day, “1,199,278 employees sounds like the right number of employees to me, so let’s go with it”? We doubt it.

The fact is, every business has to decide how many employees it will hire (just as we learned that every business has to decide how much it will produce). Let’s begin the story of how a firm decides how many employees to hire by first discussing the law of diminishing marginal returns.

The name of this “economic law” sounds worse than it is. (If you understood the law of diminishing marginal utility back in Chapter 4, you shouldn’t have too much trouble understanding the law of diminishing marginal returns.) It states that if we add additional units of one resource (such as labor) to another resource (such as capital) that is in fixed supply, eventually the additional output produced (as a result of hiring an additional worker) will decrease.

The best way to illustrate the law is with numbers. Take a look at Exhibit 7-6. Reading across the first row, we see that with zero workers, no output occurs. Now when one worker is added, the quantity of output (shown in the second column) is 5 units. The third column shows the additional output produced as a result of hiring an additional worker. If output is zero with no workers and 5 units with one worker, we conclude that hiring an additional (the first) worker increased output by 5 units.

When a second worker is added, the quantity of output (shown in column 2) increases to 11 units. How much did output increase as a result of an additional (the second) worker? The answer is 6 units, as shown in column 3. If a third worker is added, output rises to 18 units, and the additional output produced as a result of the hiring of an additional (the third) worker is 7 units, as shown in column 3.

Before we go on, notice what has been happening in column 3: the numbers have been increasing, from 0 to 5, then 6, then 7. Notice that when a fourth worker is added, output increases to 23 units; the additional output produced is 5 units, which is less than the output produced as a result of adding the third worker.

What we are observing here is the law of diminishing marginal returns, which states that eventually the additional output produced (as a result of hiring an additional worker) will decrease. We added another worker (the fourth worker) here, and the additional output produced (shown in column 3) decreased from 7 to 5 units. In short, diminishing marginal returns set in with the addition of the fourth worker.

What does the law of diminishing marginal returns have to do with hiring employees? The answer is everything, once we turn the factors into dollars. To understand this concept, ask yourself whether you would hire the fourth worker if you owned a business.

To really be able to answer this question, you would first have to ask yourself two questions:
1. What do I sell each unit of output for?
2. What do I have to pay to hire the fourth worker?

Suppose you sell each unit of output for $30 and you will have to pay the fourth worker a wage of $70. Would you hire the fourth worker? One way to figure out the answer is to calculate how much “comes in” the door with the fourth worker compared to how much “goes out” the door with the fourth worker. The worker produces 5 more units of output, and you can sell each unit for $30, so the worker really “comes in” the door with $150. You have to pay the fourth worker $70, so the worker “goes out” the door with this amount. Would you be willing to pay someone $70 to get $150 in return? Sure you would, so you should hire the fourth worker.

What is the general rule now for hiring employees? As long as the additional output produced by the additional worker multiplied by the price of the good is greater than the wage you have to pay the worker, then hire the worker. If the additional output produced by the additional worker multiplied by the price of the good is less than the wage you have to pay the worker, then don’t hire the worker.

\[ \text{(Additional output produced)} \times \text{(Price of the good)} > \text{(Wage)} \]

\[ \text{(Additional output produced)} \times \text{(Price of the good)} < \text{(Wage)} \]

\[ \text{Workers} \quad \text{Quantity of output produced each day} \quad \text{Additional output produced (each day) as a result of hiring an additional worker} \]

<table>
<thead>
<tr>
<th>(1) Workers</th>
<th>(2) Quantity of output produced each day</th>
<th>(3) Additional output produced (each day) as a result of hiring an additional worker</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 units</td>
<td>0 units</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>5 ( (5 - 0) = 5 )</td>
</tr>
<tr>
<td>2</td>
<td>11</td>
<td>6 ( (11 - 5) = 6 )</td>
</tr>
<tr>
<td>3</td>
<td>18</td>
<td>7 ( (18 - 11) = 7 )</td>
</tr>
<tr>
<td>4</td>
<td>23</td>
<td>5 ( (23 - 18) = 5 )</td>
</tr>
<tr>
<td>5</td>
<td>26</td>
<td>3 ( (26 - 23) = 3 )</td>
</tr>
</tbody>
</table>

\[ \text{Diminishing returns set in with the addition of the fourth worker.} \]

**Example:** If Bob hires Marianne, output will rise by 7 units a day. Bob can sell each unit of output for $50. To hire Marianne, Bob will have to pay her $200 a day. Should Bob hire Marianne? Sure he should. Output increases by 7 units a day and Bob sells each unit for $50, so Marianne brings $350 a day to Bob. Bob has to pay Marianne only $200 a day. Who wouldn’t spend $200 to get $350?

As more workers are added (column 1), the quantity of output produced each day rises (column 2). It isn’t until the fourth worker that diminishing marginal returns are said to set in.

Hundreds of job seekers apply for positions prior to the opening of a new hotel. What economic principle might the hotel managers use in deciding how many of the applicants they will hire?
A business firm can produce anywhere from one to millions of units of a good. What is the right amount? As the chapter explains, it is the amount of the good at which marginal revenue equals marginal cost.

To determine the right amount of something, an economist would say we need to consider marginal costs and marginal benefits. For example, studying, sleeping, eating, working, and vacationing all involve costs and benefits.

A quick look at Exhibit 7-7 says that the right amount of time to study is two hours. If you study less than two hours (say, one hour), you will forfeit all the net benefits (marginal benefits greater than marginal costs) you could have reaped by studying an additional hour. If you study more than two hours, you are entering into the region where marginal costs (of studying) are greater than marginal benefits. The rule is this: do something as long as marginal benefits are greater than marginal costs, and stop when they are equal.

Think about it
Suppose Exhibit 7-7 represents your marginal benefits and marginal costs of studying. In other words, the right amount of time for you to study is two hours. Then one day, your economics teacher talks about the benefits of learning economics. Afterward, you realize that there are more benefits to learning economics than you had thought. Will this change the amount of time you study economics? Explain your answer in terms of Exhibit 7-7.

How Much Time Should You Study?

How much of any activity is too little, how much is too much, and how much is the right amount? The answer is simple, says the economist: the right amount of anything is the amount at which the marginal benefits equal the marginal costs.

Suppose the marginal (additional) benefits of studying start out high and decrease with time, as illustrated in Exhibit 7-7 with a downward-sloping marginal benefit curve (for studying). This curve says that you benefit more from the first minute of studying than the second minute, more from the second minute than the third, and so on.

Assume that the marginal costs of studying are constant over time. In other words, you are giving up as much by studying the first minute as the second minute, and so on. In the exhibit, the marginal cost curve (of studying) is horizontal to illustrate this point.

How many hours should you study? Study as long as the marginal benefits of studying are greater than the marginal costs, and quit when the marginal benefits equal the marginal costs. In the diagram, this time comes at two hours of studying.
Each year Fortune magazine ranks the top 500 corporations in the United States according to revenue. In recent years, a few of the largest revenue-earning corporations in the United States include Wal-Mart, Exxon, General Motors, and Ford Motor Company. If you want to find the most recent list of the Fortune 500, go to www.emcp.net/fortune. If you would like to learn what some of America’s highest-paid business executives earn, go to www.emcp.net/forbes and do a site search for “Top Paid CEOs.”

Reread the previous example from Marianne’s point of view. Do you think that Bob is cheating Marianne by paying her only $200 a day? After all, she brings in $350 a day to Bob. Shouldn’t Marianne get more than $200 a day if she makes Bob $350 better off a day?

You need to keep in mind that things are a little more complicated than we have made them out to be. Marianne could very well be working with other employees and with certain machines. Not all of what Marianne “produces” for Bob is the result of Marianne’s work, and her work alone. She brings “$350 a day to Bob,” that is true. But it is really her working with other employees and with certain machinery or tools that ends up producing $350 a day more for Bob.

To illustrate, let’s suppose someone goes to work on a farm. We might say that 100 more bushels of wheat were harvested on a given day. Is it that new worker who harvests those 100 additional bushels or is it the new worker using a tractor (which is a capital good) that harvests those 100 additional bushels of wheat? The answer is that it is the new worker using the tractor. The same type of story can be told for Marianne. People don’t usually work in isolation from other people or without certain capital goods.
Chapter Summary

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

Section 1
- A business is an organization that uses resources to produce goods and services to sell to customers.
- A business needs a boss to efficiently coordinate and direct the activities of others in the organization.
- A sole proprietorship is a business owned by one person who makes the decisions, receives the profits earned, and is liable for the debts of the business.
- A partnership is a business owned by two or more partners who share in the profits and are responsible for any liabilities of the business.
- A corporation is a legal entity formed to conduct business and is owned by individuals who buy shares of the organization.

Section 2
- Fixed costs are expenses that are the same no matter how many units of a good are produced.
- Variable costs are expenses that vary according to the number of units produced.
- Total costs = Fixed costs + Variable costs
- Marginal cost is the additional cost of producing an additional unit of a good.

Section 3
- Firms must answer two essential questions: How much should we produce? and What price should we charge?
- Marginal revenue is the change in total revenue that results from selling an additional unit of output.
- A firm’s goal is to maximize profit, which means producing a quantity of output at which marginal revenue equals marginal cost.

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. In a sole proprietorship and partnership, owners have ______ liability, whereas in a corporation, owners have ______ liability.
2. The stockholders of the firm choose the ______.
3. Total cost equals ______ plus variable cost.
4. The additional cost of producing an additional unit of a good is called ______.
5. The ______ states that if additional units of a resource are added to a resource that is fixed in supply, eventually the additional output produced will decrease.
6. Another term for average total cost is ______.
7. The entity that offers a franchise is called the ______.
8. Ten percent of the face value of a bond is paid out regularly, so 10 percent is the ______ of the bond.
9. A(n) ______ for a firm is anything to which the firm has a legal claim.
10. The tax that a person pays on his or her income is called the ______ tax.

Understanding the Main Ideas

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

1. List and explain two major differences between a corporation and a partnership.
2. To what taxes are we referring when we say that corporations are taxed twice?
3. Suppose a bond has a $10,000 face value and a coupon rate of 8 percent. What is the dollar amount of each annual coupon payment?
4. Specify the condition under which a firm will be formed.
5. In setting 1, Mayang works for herself. She gets to keep or sell everything she produces. In setting 2, Mayang works with five individuals. Here, she gets to keep one-fifth of everything she produces and of everything that everyone
else produces. In which setting is Mayang more likely to shirk? Explain your answer.

6. What is the relationship between a bondholder and the firm that issued the bond? What is the relationship between a stockholder and the firm that issued the stock?

7. In general, what is the difference between fixed and variable costs?

8. Explain why a firm continues to produce those units of a good for which marginal revenue is greater than marginal cost.

9. A firm will produce and sell units of a good if marginal revenue is greater than marginal cost. Does this strategy have anything to do with the firm's objective to maximize profit? Explain.

10. How does a firm compute its profit or loss?

**Doing the Math**

Do the calculations necessary to solve the following problems.

1. Calculate the marginal cost for the additional unit in each of the following cases. (TC = total cost, and Q = quantity of output.)
   - a. Q = 100, TC = $4,322; Q = 101, TC = $4,376
   - b. Q = 210, TC = $5,687; Q = 211, TC = $5,699
   - c. Q = 547, TC = $10,009; Q = 548, TC = $10,123

2. Calculate the average total cost in each of the following cases. (TC = total cost, and Q = quantity of output.)
   - a. Q = 120, TC = $3,400
   - b. Q = 200, TC = $4,560
   - c. Q = 150, TC = $1,500

3. The marginal benefit of playing chess (in money terms) is $10 for the first game of chess, $8 for the second, $6 for the third, $4 for the fourth, $2 for the fifth, and $0 for the sixth. The marginal cost of playing chess (in money terms) is always $5. What is the right number of games of chess to play? Explain your answer.

4. Look at Exhibit 7-6. Suppose it costs a firm $45 a day to hire the fifth worker. What does the price of the good the firm produces have to be before it is worth hiring the fifth worker?

**Working with Graphs**

In Exhibit 7-8, Q = quantity of the good, MC = marginal cost, and MR = marginal revenue. Which part or parts (a–c) illustrate the following?

1. Jim pays more to produce the second unit of the good than the first, more for the third than the second, and so on.
2. The additional “benefits” of producing the fourth unit of the good are the same as the additional benefits of producing the fifth.
3. Marginal revenue is constant over a specific quantity of the good produced.
4. Marginal revenue declines as the firm sells additional units of the good.

**Solving Economic Problems**

1. **Application.** When Dairy Queen first began, it did not require franchisees to handle all Dairy Queen products. In contrast, McDonald’s requires its franchisees to handle all of its products. If you were a franchiser, what kind of agreement would you want, and why?

Go to www.emcp.net/economics and choose Economics: New Ways of Thinking, Chapter 7, if you need more help in preparing for the chapter test.