9 Markets for Labor

When you next look for a job—during the summer, perhaps during the school year, or after you graduate from college—what characteristics will you be seeking in your job? Some possibilities include: good pay, opportunities for advancement, opportunities for learning, doing a variety of interesting activities, a feeling that you are contributing something of value, and a comfortable and congenial work environment.

And what will you want to avoid? Studies of human happiness find that one of the leading causes of dissatisfaction in modern life is a long commute. Other things that are generally not preferred include work that is dangerous, dirty, or physically uncomfortable, mindlessly repetitive, or exhausting. Low pay is generally a disincentive, as is a lack of benefits such as health care and paid vacations.

Traditionally, economics has been most concerned with understanding the compensation attached to different jobs. We will see that some of the other characteristics of work just mentioned may have some impact on compensation—and are of importance in their own right as well.

1. Labor in the Traditional Neoclassical Model

"The labor market" is a familiar phrase, but markets for labor are different from other markets in many ways. For a start, consider what is sold in a labor market. It is not human beings; slavery, one of the worst practices in human history, is illegal everywhere in the world (although it still exists, even in developed countries). Rather, what is sold in labor markets is what is sometimes called "labor power"—that is, what a given person is able and willing to do in a given amount of time. An employer who hires a certain amount of labor power (X number of people working for Y hours) expects that it will produce a certain level of output. But it is not the actual output that is being purchased in this market—it is the contribution that employees make toward the production of output. This makes labor markets somewhat more abstract than markets for the things that labor can directly produce, such as sweaters, jet planes, or a sales pitch over the telephone.

We examine some unique characteristics of labor markets and some of the factors that determine the level of earnings for different kinds of jobs. However, we start with a familiar supply-and-demand picture as a point of reference. The very simple neoclassical model that we discussed in Chapter 7, for the most part, treats the demand for and supply of labor very much like other things that are bought and sold on markets. Labor, in this model, is demanded by profit-maximizing firms and is supplied by utility-maximizing households. The stylized utility-maximizing consumers who were described in Chapter 8 are now simply dressed in overalls or suits and sent into the workplace, with the single goal of earning the money that will allow them to be consumers.

On the side of the demander—the firm—this model assumes a number of characteristics that are not usually found in the real world: for example, that all firms are powerless entities

forced by competition to maximize profits and minimize costs; that productivity can be easily measured; and that historical and social contexts can be ignored. (Markets with powerless firms are described in Chapter 16; more realistic markets in are described in Chapter 17.)

The traditional model, which we quickly survey, describes how these sets of actors make decisions about *how much* labor will be supplied and purchased, and at *what price (wage).*

1.1 LABOR DEMAND

On the demand side of the labor market, consider a firm seeking to hire a specific type of labor. What should guide the firm's decisions about how much labor to hire? From the viewpoint of a profit-maximizing firm, an additional person-hour of labor will be desirable if it increases profits, but not otherwise. Hiring an additional person-hour does two contradictory things to the firm's profit position:

- Costs are raised by the amount of the additional wages paid.
- Revenue is increased by the value of the increase in output produced by the additional hour of work.

Clearly, as long as the firm gets *more* additional revenue than it has to pay out in additional wages, it should keep hiring workers. But if it is getting *less* in additional revenue than it is paying out in additional wages, it should reduce the number of workers that it hires. The profit-maximizing decision rule for the firm can thus be expressed as:

$$MRP_L = MFC_L$$

marginal revenue product of labor (MRP_L): the amount that a unit of additional labor contributes to the revenues of the firm

marginal factor cost of labor (MFC_L): the amount that a unit of additional labor adds to the firm's wage costs

where MRP_L is the **marginal revenue product of labor,** or the amount that an additional unit of labor contributes to revenues, and MFC_L is the **marginal factor cost of labor,** or the amount that the additional unit of labor adds to the firm's wage costs.*

In other words, the firm should hire additional units of labor until the marginal benefits just equal the marginal costs. We will see very similar reasoning in Chapter 16, concerning a firm's decision about how much to produce—for exactly the same reasons. A formal derivation of this rule is described in the appendix to this chapter.

If the firm buys labor services in a competitive market, MFC_L will simply be the competitively determined market wage, and the rule will simplify to:

$$MRP_L = Wage$$

The traditional neoclassical model offers an elegant solution for this simplified case. It gives a formalized statement of the intuitive sense that workers should be rewarded in relation to their contribution to the organization. However, actual measurement of productivity is difficult. Moreover, the market valuation of a production process—its direct outputs and its side effects—can differ from social valuations because of externalities and distributional issues. Hence, you must be careful about inferring that, in the real world, any observed wage accurately represents the worker's contribution to society's well-being.

1.2 LABOR SUPPLY

The traditional model of consumer behavior presented in Chapter 8, in which consumers seek to maximize their utility, can be extended to decisions about labor supply. Specifically, we can consider how much time an individual is willing to work, given different wage levels.

*Note that hiring an additional unit of labor may increase other costs, such as energy and supplies. These costs would be subtracted from the MRP_L to determine the net increase in revenues associated with an additional unit of labor.

In this model, the potential labor market participant is assumed to have perfect information and to be free to vary his or her hours of paid work. However, the labor market model differs from the model of consumer choice in that here the "budget line" is defined according to the number of *hours* that the individual has available to "spend" on activities, rather than according to the amount of money that he or she has to spend on goods.

The model imagines essentially three kinds of activities:

- paid work
- unpaid work
- leisure

Hours "spent" on paid labor result in wages, which in turn give opportunities for consumption. Hours spent on other activities yield utility either directly (as in the case of leisure) or indirectly through unpaid production. (In this model, paid work is generally assumed to yield no direct utility.) According to the model, the potential labor market participant will choose the level of labor market participation that maximizes his or her utility.

Two forces govern the supply of factors of production: the total quantity available at any point in time and the willingness of their owners to actually supply them. Labor is fundamentally "owned" by the individual, who may be thought of as renting out his or her services when working for pay. In many cases, actual decisions about supplying paid labor are made not by individuals but jointly with other household members, as part of a general plan for family support and investments for the future. Continuing with the simple model, however, for now we discuss paid labor supply as though an individual person is making the decision. Also, because this chapter discuses labor *markets,* we focus on labor that is performed in exchange for a wage or salary.

The Opportunity Cost of Paid Employment

In general, the willingness of an individual to supply work may be analyzed in terms of the wages and other benefits that he or she can get, compared to the benefits to him or her of not supplying it or supplying it elsewhere. An individual weighing these decisions is assessing the opportunity cost of labor supply. This idea may be applied broadly; the "costs" and the "benefits" of supplying labor may be seen in terms of money but also reflect any other gains or losses that are valued by the individual.

Most of the alternatives facing an able-bodied adult who is considering going out to work for a wage or salary fall under the following headings:

- *Household production:* A paid job may reduce the time that can be spent in productive but unpaid work at home—raising children, caring for elderly or sick relatives, cooking, keeping house, gardening, and the like.
- *Education:* As an alternative to seeking paid work immediately, individuals may decide to stay in school or return to school—either to prepare for better-paid future employment or simply to enjoy the process of education or the life of a student.
- *Self-employment:* People can work for themselves in household enterprises, making crafts, providing personal services (such as day care or yard work), writing, painting, or starting another home-based business. (The income of self-employed proprietors tends to be a mix of returns to labor, returns to capital, and profits. In this chapter, we do not discuss the nature of their labor compensation because we are focusing only on people who work *for wages or salaries.*)
- *Leisure:* Work cuts into the time available for playing music, fishing, camping, reading novels, playing or watching sports, hanging out with friends, playing computer games, traveling, and other pleasurable activities.

To the extent that you value any of these pursuits and reduce the hours you devote to them when you take a paid job, that job has a "cost." The cost is the lost opportunity for other activities. In addition to the opportunity costs associated with your time, you may incur direct monetary costs when taking a paid job, such as the costs of work-related clothing and transportation. You may incur increased monetary expenditures for things that otherwise might have been home-produced (using your time resources), such as child care and meal preparation.

The Benefits of Paid Employment

At the same time, of course, paid jobs have many benefits. Most obvious is the fact that they are *paid.* In a contemporary industrialized economy, households need some money income to survive and to participate in society. Even if paid work is unpleasant, boring, stressful, or even demeaning, wages and salaries are strong extrinsic motivators that encourage individuals to supply their labor.

In addition, however, paid work itself has great intrinsic significance in most people's lives. Evidence from state lotteries in the past few decades, for example, illustrates this point. In a number of cases, winners of large lottery prizes have decided *not* to quit their jobs entirely, even when they could easily have done so. They usually cite their friendships on the job and the sense of identity that they have found in their work as reasons for continuing at least some of their usual work activities. For billions of people, the nature of the work experience is a decisive part of the quality of life: The work process determines whether a major part of life will be boring or interesting, lonely or companionable, comfortable or filled with bodily discomfort, tranquil or full of anxiety, stunts personal growth or offers opportunities to develop mental or physical capacities.

Household production and self-employment can also supply many of the same intrinsic rewards, though often with less companionship and social interaction. Sometimes, people who only work at unpaid household production activities feel marginalized due to a social perception that only work for wages or salaries is "real work." Again, we focus on paid work in this chapter, but we recognize that many people provide valuable contributions to society without being paid.

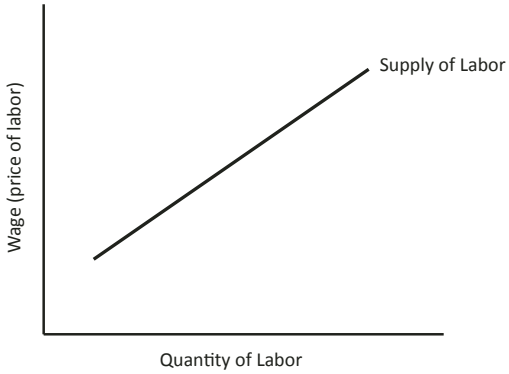
1.3 THE INDIVIDUAL PAID LABOR SUPPLY CURVE

We look at the decision of an individual to supply various amounts of hours over a week or year, assuming, for the moment, that the worker can find part-time, full-time, or overtime paid jobs that satisfy his or her desires. For now, we also abstract from a worker's choices among different kinds of paid jobs, focusing only on the decision about how much time to put into paid work. As in many other supply curve thought experiments, we abstract from all considerations *other than* the relationship between price and quantity. In this case, we look only at the effect of different wage levels on the individual's willingness to supply labor to the market.

In Figure 9.1 we show an upward-sloping supply curve like those presented for markets for coffee in Chapter 3. The "wage," which we use as a shorthand term for the price paid for an hour of labor, is on the vertical axis. In practice, many blue-collar and service jobs pay an hourly *wage,* whereas professional and managerial jobs tend to pay a weekly or monthly *salary* independent of how many hours they actually work. Jobs may also pay in the form of tips, bonuses, or stock options, and they may provide fringe benefits such as health insurance. For our simple supply-and-demand analysis, we include all these in the concept of a "wage." The quantity of labor, which might be thought of as the number of hours that the individual works in a week or a year, is on the horizontal axis.

Does this "usual" curve apply to labor? Following one line of reasoning, we can see that in many cases it does. From the perspective of an individual, the upward-sloping supply curve reflects the *substitution effect* of changes in prices: Individuals decide whether to substitute the benefits of paid work for the benefits of other activities. When offered a very low wage,

Figure 9.1 **Upward-Sloping Labor Supply Curve**



Like other supply curves we have discussed, the labor market supply curve may be expected to be upward-sloping.

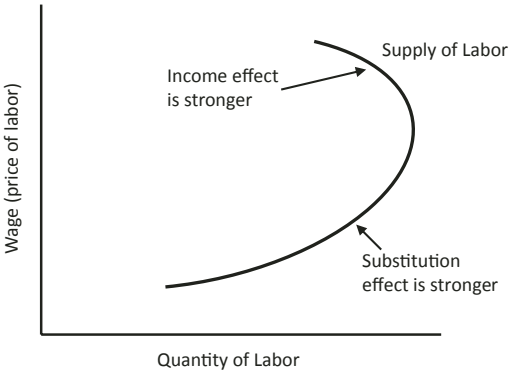
an individual may be reluctant to join the labor market, or to supply many hours of work, because he or she may get more benefits from self-employment or other activities. The higher the market wage rate, the more attractive it is to engage in additional paid labor instead of unpaid household work, education, self-employment, or leisure.*

However, one of the important reasons that an individual works is to earn an income, which in turn is used to buy goods and services that he or she can then enjoy. As the wage gets higher and higher, will the person *always* want to work more and more? Probably not. Economists explain this in terms of the fact that leisure (and perhaps other unpaid activities) are usually "normal goods," in the sense explained in Chapter 4. As people earn higher incomes, they may also want more time to enjoy the fruits of their labor. The rising wage also has an *income effect:* The higher the market wage, the more leisure (and other unpaid activities) that people might want to "buy." Because "buying" leisure means reducing work hours, the paid labor supply curve will be *downward*-sloping if the income effect is dominant.

backward-bending individual paid labor supply curve: a pattern that arises because, beyond some level of wages, income effects may outweigh substitution effects in determining individuals' decisions about how much to work.

People may have a target level of income in mind, beyond which they have less need for additional money. As we saw in Chapter 8, workers early in the industrial era often had such income targets. Increases in wages above the traditional level led individuals to take longer weekends and offer fewer hours of work the next week. Today such extreme cases of income "targeting" are rare, but there still is a tendency for some people to reduce their hours of work as their income rises. In such a case, the substitution effect may dominate at low wage levels, but the income effect dominates at high wage levels. The result is a **backward-bending individual paid labor supply curve,** as shown in Figure 9.2.

Figure 9.2 **Backward-Bending Individual Labor Supply Curve**



If beyond some level of income people would rather do other things than work more, the individual labor supply curve will bend backward.

*We are assuming that the potential worker can enjoy at least a minimal standard of living from activities other than market work when the wage is too low to make market work attractive. In situations of dire poverty, however, this may not be the case, and people may need to work two or three jobs at very low wages just to get by.

The presence of the income effect makes individual paid labor supply different from the usual supply curves of businesses or other economic actors. As businesses or nonprofits rarely have a target level of revenues, they will display no income effect. Usually, even if high revenues allow some employees to enjoy more leisure (e.g., the founder might cut back on his or her work hours), the organization as a whole will expand its operations, perhaps by hiring more people.

1.3 How the Standard Model Explains Variations in Wages

Among the things that economists are especially eager to understand about labor markets are the reasons for differences in wages. Why do star basketball players make so much more than aerospace engineers, who earn so much more than preschool teachers? In addition, within the same job definition it is possible to find workers who receive very different compensation, even though they seem to have equivalent qualifications. Are such patterns of wage differentials determined solely by the logic of markets? If not, what other forces affect them?

Some economists stress productivity differences as nearly the sole source of wage variation over the long run. This emphasis requires a number of assumptions: that people behave in a rational, purely self-interested way, that market forces are strong, and that markets are fully competitive. A high wage, in this view, is merely a sign that an individual is making a highly valued contribution.

The demand for labor—the employers' willingness to pay for different types of labor services—is related to just *how productive* workers are. Employers generally are not willing to pay their workers more than the value that each one contributes to what the employer finally sells—what we have called marginal product of labor. Employers who can get away with paying workers less than their MRP_L are motivated to do so in order to minimize costs and therefore to maximize profits. Theoretically, this should not be possible, if the labor market is truly competitive. In that case, workers who do not receive a "fair" wage in one place (a wage equal to their MRP_L) can find another employer who will offer the wage that actually represents the worker's contribution to the value of output.

Human Capital

In the standard model, the main reason for variations in labor productivity and, hence, in wages is human capital. This consists of people's knowledge and skills. It is affected by:

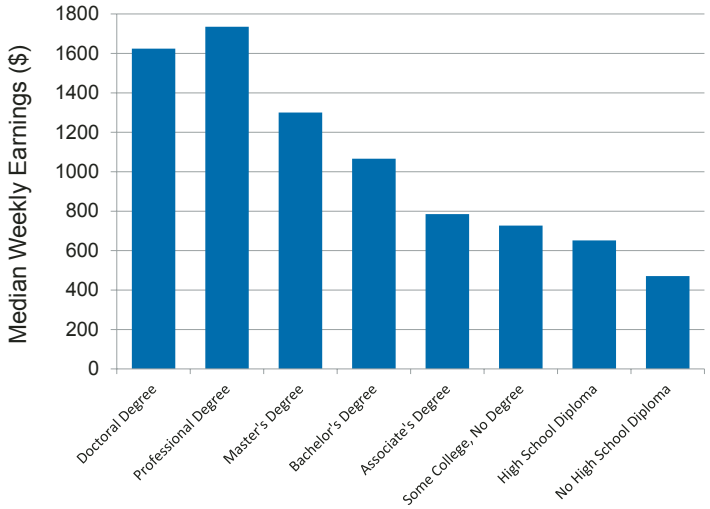
- formal education and job-related training
- informal education and job-related experience
- innate talents
- the physical and mental health of the worker*

Obviously, different kinds of jobs require different kinds of human capital. Different levels of human capital often result from different levels of investment, in terms of education and training. The wages for skilled occupations, such as aerospace engineers (e.g., compared to farm manual laborers), reflect in part the fact that aerospace engineers have normally engaged in formal training to acquire skills and credentials, whereas farm laborers largely use more common skills that, it is assumed, most people possess.

We can see the impact of education levels in Figure 9.3, which shows median earnings by education level in the United States. Those with a master's degree earn about 22 percent more than those with just a bachelor's degree, and those with a bachelor's degree earn 63 percent more than those with just a high school diploma.

*The last determinant of human capital is sometimes overlooked; however, malnourishment and mental or physical ill-health can seriously affect a worker's energy, motivation, and general capacity to use her or her knowledge and skills.

Figure 9.3 **Median Weekly Earnings of U.S. Workers, by Educational Attainment, 2012**



Median earnings tend to rise with higher levels of educational attainment.

Source: U.S. Bureau of Labor Statistics, "Employment Projections," http://www.bls.gov/emp/ep_chart_001.htm, May 22, 2013.

The income benefits associated with education have increased in recent decades. For example, between 1975 and 1999 the ratio of average earnings of those with advanced degrees to those with a high school diploma increased from 1.8 to 2.6. According to analysis by the U.S. Census Bureau, the increase in the economic benefits of education

> may be explained by both the supply of labor and the demand for skilled workers. In the 1970s, the premiums paid to college graduates dropped because of an increase in their numbers, which kept the relative earnings range among the educational attainment levels rather narrow. Recently, however, technological changes favoring more skilled (and educated) workers have tended to increase earnings among working adults with higher educational attainment, while, simultaneously, the decline of labor unions and a decline in the minimum wage in constant dollars have contributed to a relative drop in the wages of less educated workers.[1]

general human capital: knowledge and skills that workers can take with them as they move from one employer to another.

employer-specific human capital: knowledge and skills that have been gained on a particular job and are useful only as long as a worker remains with the same employer

screening methods: approaches used by employers to limit their job search to specific candidates

In addition to formal education, human capital may also be accumulated through on-the-job training. For example, a more experienced farm laborer can do some of the work faster, or to a higher standard, and might therefore be paid more than a new hire. Human capital acquired on the job may be either general or employer-specific. **General human capital** consists of the knowledge and skills that workers can take with them if they leave one organization and go to work for another. **Employer-specific human capital** consists of knowledge and skills that are valued only by a particular employer. For example, many farming and engineering skills may be general, but knowledge about a specific piece of land or crop, or a specific engineering project, may be useless away from a particular employer.

How do employers judge the human capital embodied in a prospective worker? Ideally, before offering a wage, they should be able to assess which skills the worker possesses and how much these skills will contribute to productivity. Because this assessment is often difficult to make, employers may use credentials, such as educational degrees or training certificates, as proxies for observed skills. A firm that is seeking to employ an aerospace engineer would look for someone with the appropriate degree. A college degree is a common **screening method** that employers use to limit their job search to specific candidates. Other screening methods used by employers include requirements that applicants have a minimum number of years of work experience, or certification that they have been trained to do specific tasks.

In a subtler, but also common, example, firms may require credentials such as a college degree, or even a graduate degree, not because they are convinced that the undergraduate or graduate education has directly provided essential knowledge or skills but because the possession of the degree *signals* that the person is a certain kind of worker. Educational credentials such as these are used by employers as reassurance that the applicant possesses desirable characteristics such as self-discipline, patience, and the ability to work under pressure. The **signaling theory** of the value of education suggests that the value of a college education may be not so much in the way it creates human capital as in how it solves information problems for employers, revealing, or signaling, what type of worker a person already was before starting college (or became during college).

signaling theory: a theory of the value of an education that suggests that an educational credential *signals* to an employer that a potential worker has desired character traits and work habits

Other Factors Affecting Productivity

A worker's productivity may also depend on several factors that are at least somewhat under the control of the employer. These include:

- *The level of effort with which workers work:* The workers' level of effort on a job includes the pace at which they work, as well as how careful they are to do the job right. The level of work effort depends on employer management practices, such as rewards and punishments, but it may also depend on historical, cultural, personal, or other circumstances beyond the manager's control.
- *The efficiency with which workers apply their skills:* Management is also an important contributor to worker efficiency; a good manager can put each worker in the job that best suits his or her abilities, can see to it that work groups are organized in more rather than less efficient ways, and can try to organize an optimal interaction of workers with the technology available to them.
- *The quantity and characteristics of the resources available to each worker:* In the simplest terms, those who work with more, newer, and better technology and equipment, energy resources and materials, are more productive. A lack of the appropriate quantity or quality of resources can make even the most skilled and motivated worker unproductive.

Discussion Questions

1. Think of a job that you have held. Describe how your productivity on the job was affected by:
   a. your skills
   b. the organization of the workplace (whether it encouraged efficiency)
   c. your level of effort (and what it was about the job that encouraged this specific level of effort)
   d. the resources you had available to work with
2. In any production process, when one factor limits what can be produced and other factors are in abundant supply, that one factor is called the *limiting factor.* Continue to reflect on the job that you considered in Question 1. Which contributor to productivity would you identify as the "limiting factor" in that case? What change would have been most effective in bringing about increased productivity?

2. LABOR SUPPLY AND DEMAND AT THE MARKET LEVEL

In order to think about labor markets in terms of supply and demand, we need to consider how labor supply at the individual level translates into labor supply at the market level. We start with a bit of history.

Since the early twentieth century, industrialized countries have shown a striking trend toward an increase in the (paid) **labor force participation rate** (defined as the percentage of the adult, noninstitutionalized population that is either working at a paid job or seeking

labor force participation rate: the percentage of the adult, noninstitutionalized population that is either working at a paid job or seeking paid work

paid work). In most countries, this increase has been accounted for entirely by the increasing labor force participation of women. The increase in women's participation in the labor force has been partially offset by a small decline in men's participation; most of the change for men has resulted from decisions to stay in school longer or to retire earlier.

If we think about these social trends in "opportunity cost" terms, we can see that they involve changing perceptions of the costs and benefits of entering the paid labor market. The cost of this choice has declined as improved technologies for the home and the increased availability of substitute services (such as child care and prepared meals) have reduced the number of hours of household work strictly necessary to maintain a household. The benefits have risen in societies where activism and changes in social norms and laws have opened a greater variety of paid occupations to women. The perceived benefits have also risen to the extent that increased consumerism (discussed in Chapter 8) has encouraged people to focus more on making money at the expense of time for household production or leisure.

2.1 Market Labor Supply

The supply of labor to a particular market, such as the national market for aerospace engineers or the market for restaurant wait staff in Chicago, can be thought of as the horizontal sum of the supply curves of those individuals who could participate in the market. Although the supply curves of some individuals might bend backward, the supply curve for a particular market can generally be assumed to have the usual upward slope shown in Figure 9.1. This is because employers can obtain a larger quantity of labor in two ways. The first is by persuading workers already in the market to supply more hours, in which case income effects could become important. The second way, however, is to attract more workers to enter the particular market, either by drawing them away from other jobs or by drawing them into the paid labor force from other activities. For most of these workers, we can assume that this substitution effect dominates, and so the aggregate supply curve will slope upward.

Market labor supply is relatively wage elastic if a variation in the wage brings a large change in the quantity of labor supplied. This could occur if the (upward-sloping sections of) individual worker's supply curves are elastic. It also occurs when a rise in the wage readily draws more workers into the particular market. Markets for types of labor that use general or more easily acquired skills generally tend to have relatively elastic supply curves. If the wage for local restaurant wait staff rises, for example, people may leave jobs as salesclerks and delivery truck drivers in order to offer their services to restaurants. If the wages paid by restaurants fall, wait staff may fairly readily look for jobs as salesclerks and drivers.

Market labor supply is relatively wage inelastic, however, if a variation in the wage brings little change in the quantity of labor supplied. At the extreme, the supply of labor might be "fixed" for some occupations, at least in the short run. For example, there are only so many aerospace engineers in the United States at any point in time. (What slope would the supply curve have?) Raising the wage might draw a few engineers out of retirement or self-employment, but it cannot instantly produce a large quantity of new engineers, because obtaining the skills necessary for this job requires many years of education. A drop in the wage, similarly, might not much decrease the quantity of labor supplied in the short run, because the engineers' specialized skills are not valued nearly as much in other markets. Changes in the quantity supplied will occur only over the long run, as high wages attract more students to train for the job or low wages cause more engineers to become dissatisfied and retrain for something else. The United States has also used immigration policies to increase the quantity of labor supplied in certain high-skilled areas where there are labor shortages. (For a real-world example of a labor shortage, see Box 9.1.)

So far, we have discussed the responsiveness of quantity to price *along* a supply curve. Market labor supply curves can also *shift,* in response to nonprice factors, just like the shifts in other supply curves that we studied in Chapter 3. For the economy as a whole, for example,

BOX 9.1. A SHORTAGE OF DOCTORS

Nevada is experiencing a shortage of doctors. According to a 2013 study by John Packham, a health policy researcher at the University of Nevada, the state has one of the lowest numbers of primary care physicians per capita in the United States. Packham also notes a shortage of orthopedic and general surgeons, which will become more critical as the state's population ages. The impacts of the doctor shortage include longer wait times to get an appointment, higher costs, and lower-quality health care.

Many other regions of the United States are also experiencing a shortage of doctors, with this problem forecast to increase. According to the Association of American Medical Colleges, in 2015 the doctor shortage will reach 30,000. By the mid-2020s, the shortage will approach 70,000. One reason for this is that doctors have migrated to specialized, high-paying fields such as dermatology and cardiology, instead of primary care and general surgery. Also, the demand for health care has increased due to an ageing population. Expanded health-care coverage under the Affordable Care Act (i.e., Obamacare) will also increase the demand for doctors.

On the supply side, the number of doctors is relatively fixed in the short term. It commonly takes about 10 to 15 years from the time an undergraduate student decides to pursue a career as a doctor to the time he or she can actually start practicing. Thus the labor market for doctors is an example of a market that can persist in a condition of disequilibrium for many years.

In Nevada it is particularly difficult to attract doctors to rural areas, particularly those with high minority populations. Trudy Larson, director of community health sciences at the University of Nevada, Reno, says, "There are plenty of students who apply to medical school, but we need to diversify the physician workforce. We need to provide an outreach for people who are interested in health care [so they can] know the pathway."

Source: Editorial Board, "Nevada Must Get Creative Solutions for Doctor Shortage," *Reno Gazette-Journal,* August 3, 2013.

labor supply curves tend to shift outward over time because of population growth. Changes in laws and norms and in household technology caused the supply curve to shift outward in many areas when women joined men seeking employment in many high-skill markets such as law and medicine.

Changes in one labor market may also have repercussions in other markets. For example, a rise in the wages of salesclerks (a movement *along* the supply curve for salesclerks) might decrease the supply of wait staff (that is, *shift* the supply curve for wait staff back), as people exit the wait staff market in order to take advantage of the higher wages now being offered for salesclerks.

2.2 MARKET LABOR DEMAND

For the most part, the demanders of labor (i.e., potential employers) are organizations, including businesses, nonprofits, and governments. A very small fraction of employers are households or individuals, who may directly employ people for tasks such as in-home child care and domestic service.

The demand curve for paid labor—whether for an individual organization or for an entire market—can generally be thought of as downward sloping, like the demand curves we examined in previous chapters. The reason for the downward slope is as follows. When wages are high, employers have incentives to economize on the use of labor. They may cut back on their activities or try to substitute other inputs (e.g., another type of labor, machinery, or computerization) for the type of labor whose wage is high. But when wages are low, employers may be able to expand their productive activities or substitute relatively cheap labor for other inputs.

Labor demand will tend to be relatively wage elastic if there are good substitute inputs available and if the wage bill is a large proportion of total production costs (so that the employers are motivated to seek out substitutes). Labor demand will tend to be relatively inelastic if no good substitute inputs are available and the wage bill is a small proportion of total costs.

The labor demand curve may shift if there is a change in the demand for the good or service that it is used to produce, if technological developments alter the production process, if the number of employers changes, or if the price or availability of other inputs changes. For example, when an organization experiences a fall in demand for its products, its labor demand curve will shift back as well.

2.3 MARKET ADJUSTMENT

Still using the same simplifying assumptions as in Chapter 3 about how markets work, we can examine how market forces might influence wage rates and the quantity of labor employed.

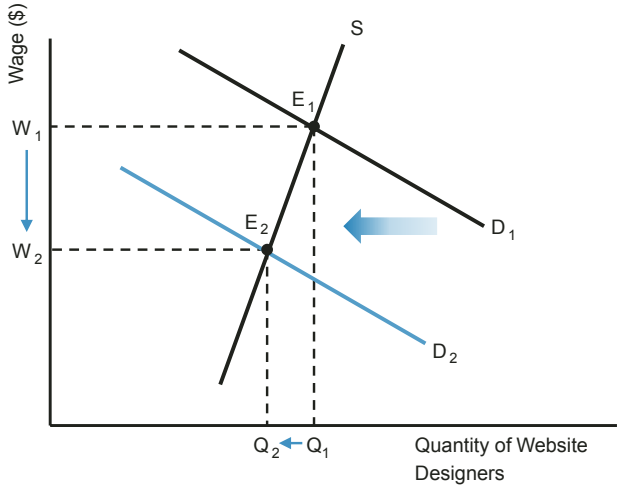
For example, let Figure 9.4 depict a stylized market for e-commerce Web site designers. In the late 1990s, e-commerce was booming, and demand for the services of such designers was high, as depicted by demand curve D_1. The short-run supply curve was fairly inelastic, because the job required a certain amount of specialized education and talent. Stories in the newspapers at the time touted the fat salaries being offered to talented, self-taught computer experts just out of high school and told of people being aggressively recruited by businesses, with large signing bonuses.

In 2000, however, many investors decided that e-commerce was not going to be the money maker that they had expected, and investment funds for e-commerce dried up considerably. Many firms went out of business, and others laid off many of their employees. The market for Web site designers went from boom to bust. We can think of this as the demand curve shifting to D_2.

Comparing equilibrium E_1 to equilibrium E_2, we can see that the model predicts that the number of Web site designers will fall and that the wage will fall as well. In fact, many Web site designers became unemployed and had to search for other types of jobs, while signing bonuses and premium wage offers became a thing of the past. Students who had been training to enter the field found that they had to make other plans.

Labor market adjustment takes time—the movement from E_1 to E_2 is not instantaneous. It takes time for workers to change their career plans and for employers to adjust wages and salaries, which may be set by labor contracts. Given that labor market conditions are constantly changing, it may be unclear whether a particular labor market is in equilibrium. Much of the recent labor economics research has focused on the persistence of "friction" in labor markets, which slows the transition of workers from one job to another. In particular, unemployed workers may spend considerable time searching for a job that meets their specific requirements.

Figure 9.4 **The Market for Website Designers**



A drop in the demand for website designers leads to lower employment and a fall in wages.

The existence of labor market friction means that a significant number of jobs are commonly available, even when unemployment is high. For example, in June 2013 unemployment was 7.6 percent, and 11.8 million people were unemployed, but there were also 3.9 million job openings. Discussion of labor conditions at a national level is an important topic in macroeconomics.

Discussion Questions

1. Suppose that your college or university substantially raises the wages that it offers to pay students who tend computer laboratories, monitoring the equipment and answering questions. What do you think would happen to the quantity of labor supplied? Why? Where would the extra labor hours come from? Do you think the supply of this kind of labor is elastic or inelastic? Why?
2. Opticians fit people who have poor eyesight with glasses or contact lenses, prescribed by an optometrist. Beginning in the 1990s, technological developments in laser eye surgery made surgery an increasingly popular way of correcting bad eyesight. What effect do you think this development had on the market for opticians? Draw a graph, carefully showing whether the shift is in demand or supply and showing the resulting predicted changes in the quantity of labor demanded and in the wage.

3. CHANGES IN JOBS AND IN THE LABOR FORCE

For the remainder of this chapter, we move away from the idealized world of perfect competition and equilibrium markets, to paint a more realistic portrait of paid work in the United States. We start with a reminder that what we see today is not exactly the way that things were in the past—and is not necessarily the way that things will be in the future, either. In 1933, when unemployment was widespread because of the Great Depression, the U.S. Senate voted overwhelmingly to establish a 30-hour workweek. The House of Representatives voted down this measure, but in 1938 the Fair Labor Standards Act became law, establishing the 40 hour workweek as the legal norm. By the 1960s U.S. workers were regarded with envy in much of the rest of the world, as having legal protection for relatively less time spent in paid work. This is no longer the case. What happened?

3.1 EMPLOYMENT FLEXIBILITY

For most of the twentieth century, Americans generally thought of "a job" (or at least a good job) as something that you typically did Monday through Friday, 40 hours a week, for a wage or salary and benefits (such as health insurance and pension plans). People often expected to stay in the same job for years or even decades. In recent years, however, it has become popular to talk about how employment is becoming more "flexible." But the term "flexibility" has two very different meanings, depending on whether it is considered from the point of view of the worker or the employer.

One meaning of "flexible" work is that it is more suited to workers' varying needs. Some workers—especially professional and managerial workers—now enjoy "flextime" or the ability to set their daily starting and ending times. Job sharing and part-time work allow employment to be more easily combined with family care, studying, or leisure pursuits. However, many jobs remain inflexible and are not "family friendly." The United States is practically alone among industrialized countries in lacking a federal law that mandates paid parental leave for new parents. According to a 2013 book that studied nearly 200 countries, 180 of those mandated paid leave to new mothers, and 81 require paid leave to fathers.[2] In the United States, a two-parent family is entitled to 24 weeks of parental leave but without pay. In most other industrialized countries, families receive 52 or more weeks of parental leave (as much as 318 weeks in France!), with 22 weeks of that with full-time pay.[3] The effects of insufficient parental leave fall disproportionately on women:

> In the absence of paid parental leave policies, traditional gender roles that involve women as "caregivers" and men as "providers," and the typically lower earnings of mothers (relative to fathers) in the labor market, create strong incentives for women to reduce their employment and take on a large majority of child care responsibilities. The most obvious problems associated with such outcomes are that women bear a disproportionate burden of child care responsibilities and pay both a short- and a long-term penalty in the labor market.[4]

"Flexibility" can refer to people's ability to change jobs when they want to or retrain for new careers. However, the term "flexibility" has also been used to refer to policies that make things easier for employers—and often make life more difficult from a worker's perspective. Many employers would like to have complete discretion over setting their workers' hours and pay, to offer few or no benefits, and to be able to terminate employees quickly and without fuss. Increasingly, some firms have hired "independent contractors," "consultants," or part-time workers to avoid having to extend the benefits that they provide to their regular full-time employees. More people now work nonstandard workweeks, regardless of whether they want to, in an economy that is increasingly "24/7."

To some extent, "flexibility" from the employee's perspective is also in the interest of employers. Workers who are better rested and less stressed about their families, thanks to accommodating schedules and expectations, can be more productive. And to some extent, "flexibility" from the employer's perspective is also in the workers' interest. An overly rigid labor market, in which workers are too expensive and difficult to fire, could cause employers to try to minimize the number of workers that they hire, thus reducing the number of jobs. From a well-being perspective, the question is how to achieve a good balance in this aspect of work organization.

3.2 Work Hours

Another important labor issue is weekly work hours and the availability of paid time off for vacations and illness. Although some workers may wish to work long hours for financial or personal reasons, recent surveys suggest that one-third to half of American workers would prefer to work shorter hours with an equivalent reduction in pay.[5]

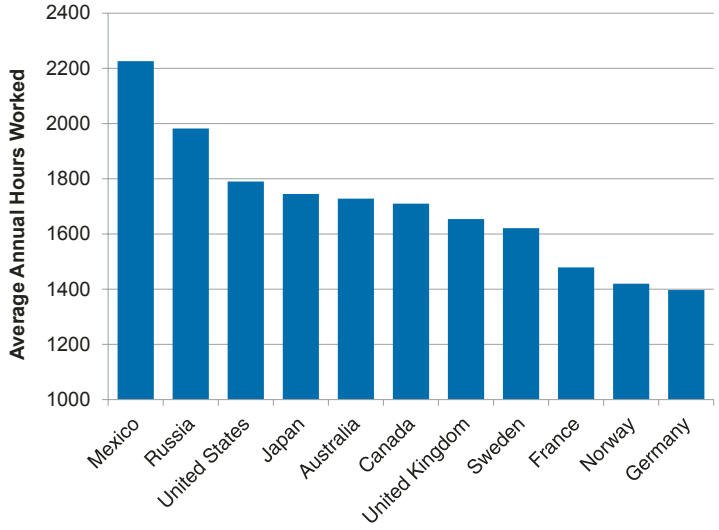
The average number of hours worked each week by employed Americans has stayed relatively constant since the mid-1970s, at around 39 hours. The percentage of workers working long hours (49 or more hours) generally increased from the 1970s to the 1990s, but has generally declined since then (to about 16 percent of workers in 2010).

International comparisons generally look at average annual work hours, instead of weekly work hours, to account for differences in vacation time. Average annual work hours among employed Americans have stayed relatively constant since the 1980s at around 1,800 hours.[6] This differs from the situation in most other industrialized countries, where average work hours have declined in recent decades. For example, over the period 1980 to 2006 average annual work hours declined by 18 percent in Germany, 15 percent in France, and 7 percent in the United Kingdom.

Figure 9.5 shows the average annual work hours in several OECD countries in 2012. The average work year in the United States was 1,790 hours, compared to 1,728 in Australia, 1,654 in the United Kingdom, and 1,479 in France. We used to think of hard-working Asian populations as suffering much longer work hours than Americans, and, of course, this is still true for the poorer countries in Asia. However as of 2000 Japan, a former leader in long hours, had reduced its annual work hours to below the U.S. level. The difference of 400 hours per year between American and German workers is the equivalent of having American workers put in an additional 10 full-time weeks per year!

Movements in Europe toward shorter standard working hours have often been motivated by stronger labor unions and by macroeconomic considerations, with the goal of reducing

Figure 9.5 **Average Annual Hours Worked, Select OECD Countries, 2012**



Average annual hours worked varies significantly across countries.

Source: OECD Employment Outlook 2013, Statistical Annex, Table K.

unemployment. Other goals are to encourage strong families and to reduce consumption for ecological reasons. Most European countries have legal limits on the number of hours per week an employee is allowed to work, and paid vacation time of at least one month per year is standard—even for workers who are just starting. European employers are also normally required to provide several holidays, with pay. The United States is the only industrialized country that does not require employers to provide any paid vacation days or holidays.[7]

3.3 IMMIGRATION AND LABOR MARKETS

One of the most controversial topics in discussions of labor markets and wages is the impact of immigration, particularly the immigration of workers seeking low-wage jobs. According to the traditional neoclassical labor model, an influx of unskilled workers willing to work for relatively low wages will clearly drive down equilibrium wages in markets for unskilled labor and displace some domestic workers. But as in any economic analysis, we must consider all the costs and benefits of immigration to determine its overall impact on society.

Economists generally agree that immigration, both legal and illegal, does decrease the wages of unskilled workers, mainly those without a high school diploma. But they disagree on the magnitude of this impact. According to one study, between 1980 and 2000 immigration to the United States reduced the wages of men without a high school diploma by 7 percent. However, another study found that the wage reduction was only about 1 percent, and decreased over time as education levels increased.[8]

Other research has estimated the impact of immigration to the United States differently, depending on whether workers were born in the United States .[9] The results indicate that due to immigration from 1994 to 2007 wages fell for foreign-born workers in the United States by about 5 percent but slightly *increased* for U.S.-born workers, by 0.4 percent. These findings suggest that new immigrants compete for jobs mostly with previous immigrants, rather than taking jobs away from U.S.-born workers. Meanwhile, U.S.-born workers may benefit as new immigrants increase the demand for goods and services.

Despite common media representations to the contrary, a National Research Council study found that U.S. immigrants collectively pay more in taxes than they consume in public services and benefits. According to economist Michael Clemens, the net effect on American society of immigration is "definitely positive." He notes that immigration

led to a massively more prosperous economy. Everyone across the board is way, way better off now. The whole economy is the richest and most powerful in the world, and of all time, and that's the effect that quadrupling our population, largely through immigration, had.[10]

Discussion Questions

1. What evidence have you seen—in your own family, or through the media—of increasing "flexibility" in labor markets? Do you think that these changes have been beneficial, harmful, or both?
2. Do you think that all employees should receive paid vacation? What are the advantages and disadvantages of mandated vacation time?

4. Alternative Explanations for Variations in Wages

The standard model of labor markets assumes that they operate in such a way that everyone is paid exactly the amount of his or her contribution to revenues. We saw that discussions of wages in this model focus on human capital, but with some allowance for the idea (emphasized especially in business schools) that the employer also has some responsibility for getting the best out of the workers. They may do so by providing appropriate management, a motivating and efficient work environment, and complementary factors of production that will maximize the workers' productivity.

The idea of the employer's responsibility complicates the simple story because it blurs the question of which factors should receive which part of the compensation. If a new manager can get increased productivity out of the same group of workers, should the increased revenue that results all be assigned to the manager? Should it be shared with the workers?

Consider another scenario, in which one group of workers is provided with new equipment that makes them more productive, while another group stays at a lower level of productivity, using the older equipment. What should be done with the increased revenue resulting from the more productive work group? Some of it, clearly, can be used to pay for the equipment (maybe repaying a loan that was taken out to purchase it), but after that cost has been covered, then should it go to the workers in that group? Or should it be shared among both groups, on the grounds that they are all putting in the same amount of time and effort? Or should it go to the manager who had the idea to introduce the new equipment? As we continue to look at variations in wages, we see that issues of fairness and justice frequently combine with the economic issues.

4.1 Compensating Wage Differentials

Early economic thinkers put forth the idea that extra pay is required to attract workers to take jobs that are especially unappealing, compared to other work that is available for people at the same skill level. Apart from the wage, what would make one job either less or more appealing than another? A short list would probably include:

- *Working conditions.* These include physical discomfort or danger, stress, whether the job is interesting, how the worker is treated, degree of autonomy, flexibility of hours.
- *Nonwage benefits.* Some firms provide nonwage benefits such as more vacation time, educational benefits for the worker's children, meals at company cafeterias, and subsidized housing.
- *Opportunities for advancement* either within the firm or by moving to a new firm.
- *Social contribution.* Many workers will ask not only whether the job is good for themselves but also whether it contributes to society and is consistent with their beliefs.
- *Job security.* Because there are costs to being unemployed or searching for work, the likelihood that a job will continue is an important characteristic.

compensating wage differentials: the theory that, all else being equal, workers will demand higher wages for jobs with unappealing characteristics, and be willing to accept lower wages for jobs with better characteristics

It is possible to find some real-world examples in which people demand, and get, a higher wage to take on jobs with less appealing characteristics. For example, because most people prefer to work days, night-shift work generally pays slightly more than day-shift work, even though the skills needed and the tasks accomplished are identical. In some cases, people accept a lower-than-necessary wage to perform an especially appealing job. The example that professors usually give is the job of being a professor: For those who like the intellectual life, it may be a very rewarding job, even though the pay is often below what professors believe that they could earn elsewhere. The idea that workers will demand higher wages for jobs with unappealing characteristics, and be willing to accept lower wages for jobs with better characteristics, is known as the theory of **compensating wage differentials**.

At the same time, you have probably noticed that many of the least attractive jobs in a society—such as garbage collection, agricultural work, and boring and repetitive work in clothing manufacture or meat processing—are found at the lowest end of the pay scale. This is partly because they require relatively little in the way of formal qualifications. To the extent that this is true, the low wages do not violate the theory of compensating wage differentials; this theory compares only jobs of equal skill. But even within the class of jobs that require few qualifications, some unpleasant jobs pay particularly badly, and one tends to find that the workers here belong to particular groups—usually minority or female, nonunionized, and often immigrants.

For the theory of compensating differentials to operate in reality, it is necessary for workers to have good information about job conditions and risks and to be able to move freely to alternative jobs for which they are qualified. It turns out that, especially when unemployment is high, the effect of compensating differentials within jobs in the same skill class can be swamped by other factors, such as bargaining power or discrimination.

4.2 SOCIAL NORMS, BARGAINING POWER, AND LABOR UNIONS

In any society it is usually possible to find a set of norms about how much most types of jobs *should* be paid. A norm is an expectation, usually based to some degree on experience, but sometimes lagging, as when, for example, employers find that they can get a certain type of work done more cheaply by machines than by people. According to the standard labor model, we would expect that the wage rate would fall to a level that allows people to be competitive with cheaper machines. In fact, employers are usually slow to offer lower wages, and people will resist taking the offers if made, because each side is aware that this would be contrary to existing norms.

In addition to norms, an essential aspect of any labor market is the bargaining power on each side. One obvious situation that allows a firm to bargain down wages, below what is the norm in other places, is if it is the only employer to whom a certain group of workers can look for work. This is called a condition of **monopsony**—with only one buyer but many sellers. In the 1900s, for example, some manufacturing companies (including Hershey's for chocolate and Pullman for railway cars) set up "company towns" in which they were the sole major employer. Remote mining towns and logging camps are other examples. In such cases, employers have more discretion in setting wages than if workers could easily choose between working for them and working for other employers. The workers may have to accept the company's demands as the price of keeping their jobs—unless they have the ability and the determination to leave the area.

monopsony: a situation in which there is only one buyer but many sellers. This situation occurs in a labor market in which there are many potential workers but only one employer.

In other situations, workers have market power in the sale of their services. This can happen if they have unique talents. It can also happen if a strong union represents all the workers in a particular occupation or region, so employers have to bargain with one organization representing a number of sellers. Then employers may have to accept union demands as the price of remaining in business; the only limit is that if wages exceed a certain level, an employer may find it more profitable to close its local operation and reopen in a region where labor is cheaper.

These examples—a single employer, on the one hand, and a single "star" or union federation, on the other—represent the extremes of concentration of power in the labor market. If a single employer (buyer) faces a single seller, the case can be described as a **bilateral monopoly**. In this case, results will be determined by bargaining, rather than by any kind of auction procedure. The outcome depends on the strength, cleverness, and perhaps political power of the parties and on the skills of professional mediators and litigators.

bilateral monopoly: the situation in which there is only one buyer confronting only one seller

More common in labor markets are cases of **oligopsony**, in which there are a relatively small number of buyers. For example, in the U.S. music-recording industry, oligopsonistic record label *buyers* of music face uniquely talented but as yet unorganized *sellers* of musical work.

oligopsony: the case of a relatively small number of buyers

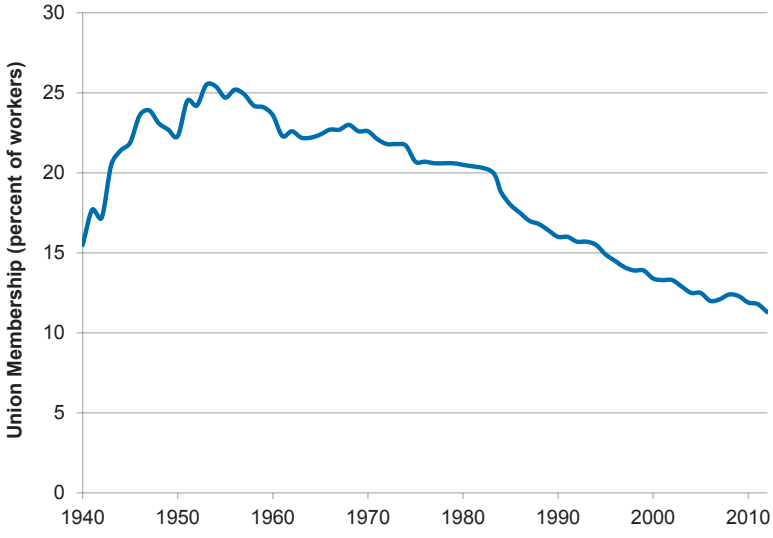
Labor unions are legally recognized organizations that collectively bargain for their members regarding wages, benefits, and working conditions. Unions first appeared in the mid-nineteenth century, but they were not legally recognized in the United States until 1935. As seen in Figure 9.6, membership in labor unions in the United States increased until the mid-1950s, when about one-quarter of the labor force was unionized. Since then, membership in unions has gradually but steadily declined. In 2012, only about 11 percent of workers in the United States belonged to a union. Labor union membership is much higher in the public sector than the private sector. About 36 percent of public sector employees belong to a union, but only 7 percent of private sector workers.

labor unions: legally recognized organizations that collectively bargain for their members (workers) regarding wages, benefits, and working conditions

One of the reasons for the decline in union membership in recent decades has been an anti-union regulatory environment. Perhaps most famously, in 1981 President Ronald Reagan responded to an illegal strike by air traffic controllers, who were federal employees, by giving them 48 hours to return to work or face termination. More recently, since 2011 states such as Wisconsin and Indiana have passed new laws limiting the power of labor unions. Another reason for the decline of labor unions has been a shift in employment from traditional unionized occupations such as manufacturing to service occupations in which it is more difficult to unionize, such as retail and restaurant workers.

Union membership rates are higher in most other industrialized countries. For example, union membership is 18 percent in Australia, 26 percent in the United Kingdom, 29 percent

Figure 9.6 **Union Membership in the United States, 1940-2012**



Union membership reached a peak of around 25 percent of the labor force in the 1950s, but has declined since then to only 11 percent in 2012.

Source: U.S. Bureau of Labor Statistics, Union Membership Data from the National Directory Series and Union Affiliation Data from the Current Population Survey.

in Canada, 55 percent in Norway, and 70 percent in Finland.[11] However, in most countries union membership rates have been declining in recent years.

Labor unions have generally been effective at providing good-paying jobs for its members. According to the U.S. Bureau of Labor Statistics, the average weekly earnings of unionized workers in 2012 were $943 per week, compared to average earnings of $742 for non-union workers. Union workers are also more likely to have employer-provided benefits such as health insurance and paid vacations.

Some economists see the decline in labor union membership as a positive development, arguing that unions had pushed wages to above-market levels.[12] This argument concludes that while unions were probably necessary to counter the excessive power of corporations in the first half of the twentieth century, they had become a source of market inefficiency by the end of the century.

Other economists see labor unions as a necessary way for workers to bargain on an equal footing with management. The decline of unions is widely considered to be a contributing factor in the rise of economic inequality in the United States, which we discuss in more detail in Chapter 10. Also, the benefits of unions may extend beyond those who actually belong to them.

> [Unions] affect nonunion pay and practices [by instituting] norms and practices that have become more widespread throughout the economy, thereby improving pay and working conditions for the entire workforce. . . . Many fringe benefits, such as pensions and health insurance, were first provided in the union sector and then became more commonplace. Union grievance procedures, which provide due process in the workplace, have been adapted to many nonunion workplaces. . . . [Unions] remain a source of innovation in work practices (e.g., training and worker participation) and in benefits (e.g., child care, work-time flexibility, and sick leave).[13]

4.3 EFFICIENCY WAGES AND EMPLOYEE MORALE

efficiency wage theory: the theory that an employer can motivate workers to put forth more effort by paying them somewhat more than they could get elsewhere

Economists have theorized that employers may sometimes pay wages somewhat above the market-determined level as a way of motivating and retaining workers. **Efficiency wage theory** proposes that workers will work harder and "smarter" when they know that their present employer is paying them more than they could receive elsewhere. Because these wages are above the market-clearing level, there is likely to be a queue of potential workers who would like to get the relatively high wages. This fact adds to employee motivation, because they understand that if they were to shirk and be fired there would be plenty of applicants for their position.

In a perfectly competitive labor market, the workers, knowing they could get a job elsewhere at the same wage, would be fairly indifferent about whether their current employer wants to keep them on. If an employer pays more than the going wage, however, the employee has an incentive to try to hold on to their particular job. He or she may be motivated by the fear of losing the current "good" job and having to take one that pays less. The extra effort may also be motivated by a sense of gratitude, or identification with the firm, because we tend to like people who treat us well. Thus it is theorized that efficiency wages can be profit maximizing: The cost to the firm of the extra wages may be more than made up for by the superior work effort and loyalty that they elicit. (See Box 9.2 for more on the potential benefits of efficiency wages.)

employee morale: the attitude of workers toward their work and their employer

Researchers have found that **employee morale**—the attitude of workers toward their work (and toward their employer)—can be very important in explaining productivity variations among workers who have the same skills and are using identical equipment. Morale is a subtle thing that can be analyzed in relation to many factors, including particular personalities, work organization and management, traditions within a firm or a culture, and relative pay.

Box 9.2 Good Jobs Are Good for Business

According to research by Zeynep Ton at MIT, providing employees with "good" jobs and paying efficiency wages can frequently be good for business, too. She notes that this idea runs counter to prevailing notions of cost minimization.

The conventional wisdom is that many companies have no choice but to offer "bad" jobs—especially retailers whose business models entail competition by offering low prices. If retailers invest more in employees, customers will have to pay more, so the assumption goes.

She studied several businesses that provide their employees with good jobs, including Trader Joe's and Costco. Trader Joe's starting salary of around $40,000 per year is about twice what many of its competitors offer. Costco's wages are about 40 percent higher than those of their main competitor, Walmart's Sam's Clubs. Both Trader Joe's and Costco also offer good opportunities for advancement. Turnover at these companies is low, and employee morale is relatively high. They are both also known for high-quality customer service.

Ton finds that, rather than hurting these firms' profits, they actually financially outperform their competitors. For example, annual revenues per square foot are $986 at Costco, but only $588 at Sam's Club. Sales rates at Trader Joe's are about three times that of a typical U.S. supermarket. She notes that companies offering well-paying jobs also institute policies that promote worker efficiency, including training workers for a variety of tasks and allowing them to make relatively small decisions on their own. Ton concludes:

> Today many retail managers believe that there is a tradeoff between investing in employees and offering the lowest prices. That is false. Retailers that persist in believing in it forgo the opportunity to improve their own performance and contribute the kind of jobs the U.S. economy urgently needs. When backed up with a specific set of operating practices, investing in employees can boost customer experience and decrease costs. Companies can compete successfully on the basis of low prices and simultaneously keep their customers and employees happy.

Source: Zeynep Ton, "Why Good Jobs Are Good for Retailers," *Harvard Business Review* (January–February 2012): 124-131.

In some cases, employers try to increase good feelings through direct means, such as by hosting parties, giving nonmonetary honors to let employees know that they are appreciated, or having "team-building" activities designed to increase cooperation among coworkers and identification with the organization.

A key factor in morale is perceived equity: whether the workers feel that they are being treated fairly by management, especially compared to expectations raised by history and by the wider culture. For example, people have expectations about the relative wages of different jobs. If the wage for one job goes up, there is strong psychological pressure for the wages of what are seen as related jobs (whether they are paid more, less, or the same) to rise enough to keep the wages in about the same relation.

4.4 Dual Labor Markets

dual labor markets: a situation in which *primary* workers enjoy high wages, opportunities for advancement, and job security, while *secondary* workers are hired with low wages, no opportunities for advancement, and no job security

The theory of **dual labor markets** also presents a different picture from the standard labor model, based on the idea that there can be different segments within a labor market. Although not all economists agree with the theory, it is useful for explaining some real-world labor outcomes.

The theory describes labor markets in which the "primary" portion of a workforce is motivated by high wages, opportunities for advancement, job security, and perhaps other favorable working conditions. Employment in the "secondary" workforce, by contrast, is more closely driven by market conditions. These workers receive generally lower wages, have minimal opportunities for advancement (even if they increase their human capital), and have low job security. Obviously, many workers in the secondary sector would prefer to work in primary sector jobs. Secondary sector workers could be assumed to be willing to accept something less than the normal wages in primary sector jobs; yet those employers do not jump on the chance to lower their wage bill.

Such labor market segmentation may take place across firms. A primary sector of large, established firms (or entrenched government agencies), which use some of their surplus revenues to pay high wages, may exist side by side with a secondary sector of smaller organizations that are more subject to competitive pressures.

Dual labor markets may also exist within a single organization. For example, a firm may employ regular workers with health and retirement benefits and, alongside them, hire temporary workers on short contracts with no benefits. In many colleges and universities, tenured faculty constitute the "primary" workforce. Then lecturers, adjuncts, and research associates, who constitute a secondary workforce, are hired as the need arises—and let go when the need falls. Such a structure allows an employer to keep a loyal core of employees *and* to avoid making new long-term commitments in times of temporary high demand. But for an individual worker, moving from the secondary to the primary labor force may be difficult indeed. Workers in the secondary sector have fewer opportunities to build up human capital and may quickly develop an "unstable"-looking work history.

An extreme type of dual labor market is what some economists call a "winner-take-all" market, such as the ones for star athletes, famous actors, and top managers. In such markets, the rewards for being in first place are vastly greater than the rewards for being a step down, even if the actual difference in talents and skills between the top tier and the next is negligible. Welfare analysis applied to such markets would find significant inefficiency. Very few people can actually get into the top tier in, for example, Olympic sports or an acting career; yet the rewards for winning are so appealing that many individuals devote huge amounts of time and effort to trying to "reach for the gold." Except in cases in which the effort to "be the best" is rewarding in itself, those who unsuccessfully devote their lives to the effort would probably have happier, more productive lives working toward different goals.

4.5 DISCRIMINATION

labor market discrimination: a condition that exists when, among similarly qualified people, some are treated disadvantageously in employment on the basis of race, gender, age, sexual preference, physical appearance, or disability

Not all social norms and customs that influence the labor market can be considered benign. **Labor market discrimination** exists when, among similarly qualified people, some are treated disadvantageously in employment on the basis of race, gender, age, sexual preference, physical appearance, or disability. Workers who belong to disfavored groups may be paid less for the same work, may be denied promotions, or may simply be excluded from higher-paying and higher-status occupations.

Historically, much labor market discrimination, particularly against African Americans and other minorities, was based on racist beliefs that certain groups were innately inferior. Some discrimination against women was similarly based on sexist notions of inferiority. However, sexual discrimination was also historically rooted in social norms that reserved better-paying jobs for men (who were assumed to be supporting families), while making women (who were assumed to have husbands to rely on) solely responsible for providing unpaid household labor and family care.

Discriminatory attitudes may be held by employers, who discriminate on the basis of their own biases, expectations, and beliefs. They may also be held by customers or coworkers. This case poses a dilemma for employers, even if they themselves are not prejudiced. For example, suppose that a law firm hires a skilled minority lawyer, but clients feel more confident being represented by European-American lawyers. The firm may find that the new lawyer attracts little business to the firm. A construction firm that hires a female forklift driver or a preschool that hires a male teacher may find that the morale of its other workers sinks, as the workers react badly to seeing someone of the "wrong" sex in "their" jobs. More insidiously, discriminatory attitudes can become self-fulfilling prophecies: Even though the minority lawyer, the female construction worker, and the male preschool teacher are all fully qualified in a technical sense, their contribution to the firm can be low, and perhaps even negative, if social norms create an environment in which their skills go unused or work group cooperation

is jeopardized. Employers concerned with immediate productivity may therefore fail to hire disfavored groups, even if they themselves do not harbor discriminatory beliefs about racial differences or gender roles. Such discrimination can be eliminated only by socially coordinated—and even courageous—action.

In Figure 9.7 we compare median weekly earnings in the United States of full-time, year-round workers in various groups, using government data from 2013. *Median* earnings are at a level where half the people in the group make more and half less. We see that median earnings vary significantly by both race and gender. The median earnings of black male workers were about 77 percent of the earnings of their white male counterparts, and the median earnings of Hispanic male workers were only 67 percent of white male earnings. Disparities among female workers of different races also exist, although the differences are somewhat less pronounced. White female workers only earn 82 percent of the earnings of their white male counterparts. Sexual disparities are also evident among male and female workers of other races.

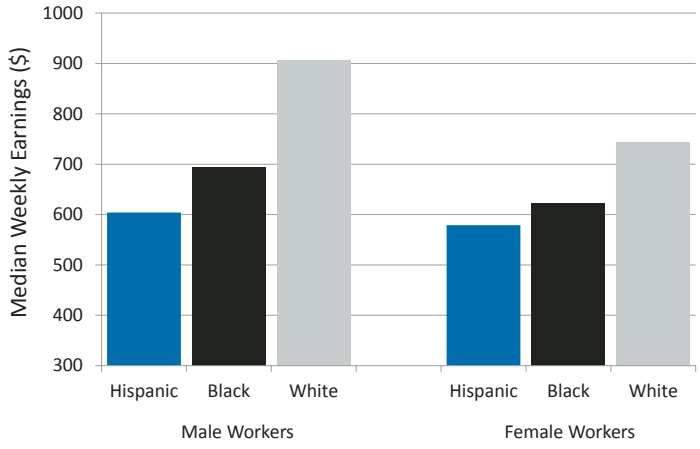
We must realize that the data in Figure 9.7 are not necessarily evidence of wage discrimination. Some variations in wages may be due to other factors such as differences in experience, education, and occupational choice (although some of these differences may also be a result of discrimination). For example, we saw earlier in the chapter that educational attainment can have a significant impact on earnings. Education levels vary by race. About 30 percent of white individuals have a bachelor's degree or higher, but only 20 percent of black and 14 percent of Hispanic individuals have at least a bachelor's degree.[14] So differences in education levels may explain the variation in wages by race, rather than discrimination. But again, differences in educational attainment may be a result of past, and current, discrimination.

Educational attainment does not vary significantly by gender in the United States. So the differences in earnings between male and female workers in Figure 9.7 cannot be attributed to differences in education. Part of the explanation for women's lower earnings is that women have traditionally had less work experience than men, on average. Men as a group have tended to work more continuously at their jobs, whereas, given social norms and, sometimes, individual preferences or requirements concerning family responsibilities, many mothers participate in the labor market less than full time when their children are young. To the extent that time on the job can contribute to productivity, this could explain some of the difference.

occupational segregation: the tendency of men and women to be employed in different occupations

Another important factor in explaining earnings differences by gender is **occupational segregation**—the tendency of men and women to be found in different kinds of jobs. For example, in the United States, jobs like bookkeeper, dental hygienist, child-care worker,

Figure 9.7 **Median Weekly Earnings, Select Groups of U.S. Workers Age 25-54, 2013**



Median earnings vary based on race and gender.

Source: U.S. Bureau of Labor Statistics, "Usual Weekly Earnings of Wage and Salary Workers," Economic News Release, July 18, 2013.

registered nurse, and teacher of young children are held overwhelmingly by women. Meanwhile, men notably dominate in occupations such as construction, metal working, truck driving, and engineering. Occupational segregation could be a result of differences in preferences, or it could also reflect discrimination. For example, existing stereotypes may lead more women to become nurses while doctors are more likely to be men.

Statistical studies suggest that about a third of the differences between men's and women's pay in the United States can be associated with differences in occupational choice. Various reasons have been offered to explain why the sorts of jobs women tend to work at pay less on average. One explanation is that, because women were historically "crowded" into a narrow range of occupations, the supply curve in these job markets was artificially shifted outward, thus lowering the wage. Some have suggested that the average difficulty level of the job or the skill required might be less for "female" jobs. Others argue that differences in preferences between male and female workers could lead women to trade high wages for other beneficial job characteristics (such as flexibility in working hours). And still others argue that entrenched wage norms systematically devalue certain kinds of work (e.g., work involving emotional empathy or work with children).

Even after accounting for differences in education, experience, *and* type of job, however, over a third of the difference between men's and women's earnings in the United States remains unexplained. That is, even comparing men and women with equal qualifications who hold the same jobs, differences in pay remain. In the United States, discrimination by sex and race in hiring and wages was made illegal by Title VII of the Civil Rights Act of 1964. (This act also covered discrimination by "color," religion, and national origin. Later acts have addressed discrimination according to age and disability, and various states and localities have passed laws concerning employment treatment on the basis of sexual preference.) Enforcement, however, has proved difficult. Evidence suggests that bias, both blatant and subtle, still plays a significant role. (See Box 9.3 for more on labor discrimination.)

BOX 9.3 LABOR DISCRIMINATION BY FEDEX

In March 2012 the delivery company FedEx reached a settlement with the U.S. Department of Labor over allegations that the company discriminated against more than 20,000 job seekers. As part of the settlement, FedEx agreed to pay $3 million in back wages and offer jobs to about 2,000 rejected applicants as new openings become available. The company also agreed to revise its hiring practices to avoid future discrimination.

The allegations were brought against FedEx by the Labor Department's Office of Federal Contract Compliance Programs. The office said it found evidence of discrimination in hiring on the basis of sex, race, and national origin based on a regular audit of hiring practices. Such audits are conducted for all companies that contract with the federal government for services and goods.

Of the rejected applicants, 61 percent were female and 52 percent African American—percentages that were disproportionate to the number of applicants. As one example of discrimination, it was found that women were automatically excluded from certain positions that required the lifting of heavy objects. Hiring rates for Hispanics and Native Americans were also significantly lower than hiring rates for whites.

Labor Secretary Hilda L. Solis commented on the settlement: "When you do business with the government, we expect you to do the right thing. That includes giving all Americans an equal shot at a good job. It's about more than just the law—diversity is smart for business."

Source: Steven Greenhouse, "FedEx Agrees to Pay $3 Million to Settle Bias Case," *New York Times,* March 21, 2012.

Discussion Questions

1. "Economists assume that people just want to make as much money as possible." Is this statement correct or incorrect? Of the nonwage working conditions listed in the text, which ones are most important to you as you think about your future career?

2. Think about your current job or the last job that you held. Would you say that it is in a "primary" or "secondary" labor market? To what extent do you think that the factors discussed above—human capital, market power, compensating wage differentials, or discrimination—explain the wage and working conditions you experience(d)?

5. WAGES AND ECONOMIC POWER

In Section 4, we considered various explanations for why wages vary among different groups of employees. In this final section, we look at changes in overall wages over time, based on data for the United States. In order to understand how wages have changed over time, it is necessary to address the topic of economic power. In particular, how much of total revenues must firms pay its workers versus how much do they allocate in other ways, including to profits and taxes?

5.1 WAGE TRENDS

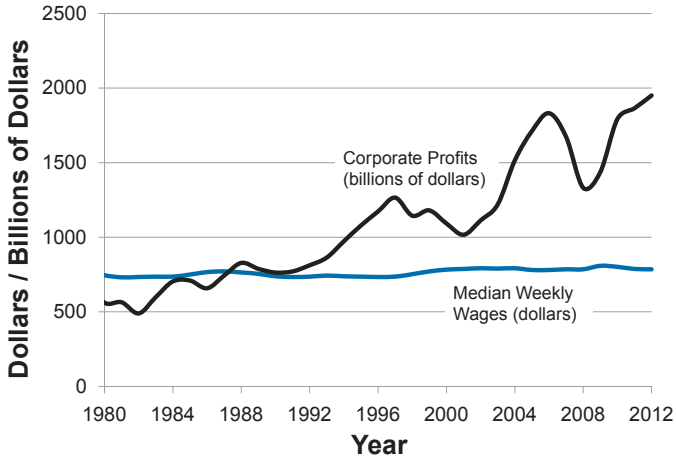
Figure 9.8 repeats a graph that we presented in Chapter 0, showing the time trend for real (inflation-adjusted) median weekly wages and corporate profits in the United States from 1980 to 2012. After adjusting for inflation, median weekly wages in 2012 were nearly the same level they were in 1980. Meanwhile, corporate profits, also adjusted for inflation, nearly tripled.

Historical data indicate that American workers fared much better earlier in the twentieth century. According to the U.S. Census Bureau, real average annual earnings increased by a factor of about four between 1900 and 1970.[15] During the 1970s real earnings essentially stopped increasing. *Household* income continued to increase slightly beyond the 1970s, only because more people per household entered the labor force.

Figure 9.8 suggests that corporations have effectively been able to dramatically increase their profits in the past few decades without having to pay their workers higher wages and salaries. Meanwhile, the incomes of management executives, particularly those at the very top, have soared. As we also discuss in Chapter 10, the pay of chief executive officers (CEOs) of large U.S. corporations in 1965 was 20 times the pay of an average worker. But in 2012, CEO pay stood at 273 times the pay of an average worker!

Are CEOs really worth so much more today than they were 50 years ago? It would require the use of very questionable assumptions to make the case that either the supply of CEOs has greatly diminished or the demand for them has greatly increased, relative to the supply and demand for

Figure 9.8 **Real Median Weekly Wages Versus Real Corporate Profits, United States, 1980-2012**



While median wages, adjusted for inflation, have stayed virtually constant since 1980, corporate profits have tripled.

Sources: U.S. Bureau of Economic Analysis, National Income and Product Accounts Tables; U.S. Bureau of Labor Statistics, Weekly and Hourly Earnings Data from the Current Population Survey

workers. However, American culture has evolved along with the rise in executive pay so that the lack of protest has suggested that people accepted these relative valuations for different kinds of work, at least until the emergence of the Occupy Wall Street movement in 2011.

These trends indicate a shift in economic power, away from workers and toward corporate profits and executive compensation. American workers have lost economic power as a result of various factors, including globalization, technological change, and the decline of labor unions (which we also discuss further in Chapter 10). (For a real-world illustration of the relative fortunes of workers, CEOs, and corporations, see Box 9.4.)

BOX 9.4 WAGE CUTS AND RECORD PROFITS

Caterpillar, maker of bulldozers, backhoes, and other construction machinery, is widely seen as one of the most aggressive companies in seeking steep concessions from employees during labor negotiations. In 2012 the company pressed its long-term workers to accept a six-year wage freeze, while also instituting a two-tier wage system, so that new hires are put on a significantly lower wage scale than those who had been there longer. Wages for those employed at Caterpillar for at least seven years average $26 per hour. However, new employees are typically given an initial wage of only $13 per hour.

The company has stated that such concessions are necessary so that they can remain competitive. Rusty L. Dunn, a Caterpillar spokesman, said the company's stance is that wages should reflect market conditions, and that such adjustments would help Caterpillar "keep competitive when times are bad." But Caterpillar reported profits in 2012 of $5.7 billion. If Caterpillar's 2012 profits had been divided among all employee salaries, each worker would have earned an *additional* $45,000. If even a third of the profit had gone to additional employee salaries, they could each have received an additional $15,000 that year.

Meanwhile the compensation of Caterpillar's CEO, Douglas Oberhelman, increased by 113 percent between 2010 and 2012; his total compensation in 2012 was $22.4 million. Only $6 million of this was in direct salary, with the rest in stock options and other incentives. (A large part of the compensation of top management in large modern corporations comes in the form of gifts of stock and/or stock options. The latter are often, in effect, permissions to buy the company's stock at a relatively low price, and sell it at a higher price.)

Timothy O'Brien, president of an Illinois union that represents Caterpillar workers, notes, "A company that earned [record profits in 2011 and 2012] should be willing to help the workers who made those profits for them. Caterpillar believes in helping the very rich, but what they're doing would help eliminate the middle class."

Sources: Steven. Greenhouse, "At Caterpillar, A Test Case for U.S. Unions; Despite a Record Profit, Heavy Machinery Giant Is in Cost-Cutting Vanguard," *International Herald Tribune,* July 24, 2012; "Compensation for Cat's Oberhelman Jumps 60%," *Chicago Tribune,* April 11, 2012; Executive Profile, Caterpillar, Inc., Bloomberg Businessweek, 2013.

5.2 AN ALTERNATIVE FRAMEWORK: WORKER COOPERATIVES

Much of the discussion in this chapter has assumed a working arrangement in which the goals of the "employee" do not necessarily align with those of the "employer." For example, we discussed how the relative bargaining power of employees and employers can influence wages and how "flexibility" can mean very different things to employees and employers. A typical for-profit corporation is owned by those who hold shares of the company's stock, in proportion to the amount of stock that they own. Top executives answer directly to shareholders and manage subordinate workers with the goal of maximizing profits. From the perspective of shareholders and top executives, maintaining (or increasing) worker productivity while lowering wage costs is desirable, as it leads to higher profits. From the perspective of workers, however, increases in wages are seen as desirable, and workers may have little concern for the profitability of the company.

worker cooperatives: a labor arrangement in which the owners of an enterprise are the workers themselves

Worker cooperatives, an alternative labor framework, seeks to reduce or eliminate the potential for labor conflicts by specifying that the owners of the enterprise are the workers themselves. Worker cooperatives are sometimes viewed as a "third way" of labor organization, in contrast to standard for-profit companies and government-run enterprises. The organizational structure of worker cooperatives can vary, but in a typical cooperative

every worker is also an owner. Worker cooperatives normally do seek to make a profit, and any profits are distributed among the worker-owners (in addition to receiving wages or a salary). Some workers may hold more ownership shares than others and thus receive a greater share of profits, say perhaps because of seniority, but in many cooperatives all workers have equal ownership shares. Important decisions are generally voted upon by all worker-owners, including decisions about wages, working hours, and benefits. Despite any differences in ownership shares, decisions are typically made on a "one person, one vote" basis.

Worker cooperatives arose as an alternative labor framework during the Industrial Revolution. Cooperatives are found throughout the world, the most famous being the Mondragón Cooperative Corporation in the Basque region of Spain, founded in 1956. Mondragón, which , consists of more than 250 separate cooperatives with a total of about 85,000 worker-owners,is the seventh-largest company in Spain. Some of the differences between Mondragón and a typical capitalist company were describes as follows.

> One of the co-operatively and democratically adopted rules governing [Mondragón] limits top-paid worker-members to earning *6.5 times* the lowest-paid workers. Nothing more dramatically demonstrates the differences distinguishing this from the capitalist alternative organization of enterprises. . . . [I]ts pay equity rules can and do contribute to a larger society with far greater income and wealth equality than is typical in societies that have chosen capitalist organizations of enterprises. Over 43 percent of members are women, whose equal powers with male members likewise influence gender relations in society different from capitalist enterprises.[16]

Italy has about 8,000 worker cooperatives, and France has nearly 2,000. In India, the India Coffee House is a cooperative restaurant chain with nearly 400 locations. In the United States, the U.S. Federation of Worker Cooperatives, whose membership comprises more than 100 cooperatives, works to promote cooperative formation, advocacy, and development. One example of a successful worker cooperative in the United States is Evergreen Cooperatives in Cleveland, OH, based in a low-income neighborhood and providing living wage jobs. The cooperative's main business is an environmentally conscious laundry facility that provides service to local hospitals.

Based solely on economic performance, such as worker productivity, the scientific evidence suggests that worker cooperatives can perform at least as well as traditional capitalist companies.[17] According to a 2011 paper that studied Mondragón, cooperative member-owners tend to be better paid than their peers in comparable firms, with greater opportunities for involvement and training. Although the cooperative labor framework is a "viable and possibly even superior alternative" to the traditional capitalist firm, it is not a "universal panacea" either. For example, job satisfaction was lower in cooperatives than traditional firms, perhaps a reflection of higher worker expectations. Obviously, estimating the overall impact of worker cooperatives on well-being requires a multifaceted analysis in which all factors cannot be easily quantified.

5.3 How Are Revenues Allocated?

Workers are one group that lays a claim on the revenues of firms, while their executives are another claimant. We now briefly consider other groups that also expect to share in the revenues of corporations and how allocations among these groups affect wages.

Government

The claims that governments make on businesses most often come in the form of taxes, though they may also at times levy fines on firms that are found to be disobeying a law. This money allows governments to supply much of the institutional and physical infrastructure necessary to operate businesses and to try to keep their activities somewhat in line with the social good. Businesses

generally dislike paying taxes and complying with regulations and reporting requirements. However, without tax revenue governments cannot maintain services on which businesses depend, such as emergency call centers, firefighters, and police. Businesses as well as citizens depend on these services, as well as on roads, communications infrastructure, and the legal and other infrastructure that supports commerce. Moreover, all of society depends on government to monitor and regulate businesses to ensure safety in food, pharmaceuticals, and other products as well as a degree of honesty in claims made about the goods and services that they provide.

Suppliers of Physical Capital

Suppliers of physical capital include individuals or firms that supply both natural resources and manufactured capital. The price at which natural resources are sold depends to some extent on the cost of extraction, but also on economic power. For example, owners of oil wells have sometimes colluded to hold the selling price of this valuable commodity well above the cost of extraction and transportation. Owners of mines that produce gems or precious metals similarly have a long tradition of "fixing" prices, in part by strictly controlling the amount that is produced in a given time frame.

In other cases, scarcity is a critical factor in the price of the resource, as may be seen in the case of renewable resources such as some wood species or nonrenewable ones such as bauxite, oil, or copper. Some analysts predict that increasing scarcity of certain important natural resources will drive up the cost of production of many goods. This prediction, if true, is especially important in relation to wages; the same wage will be able to purchase less of the products that have become more expensive. On the other hand, "technological optimists" predict that human ingenuity will stay ahead of this trend, so that the prices of most natural resources will not affect the relative prices of wages and goods.

Prices of manufactured capital are more likely to be set according to our familiar supply-and-demand models. Their supply curve reflects the costs of producing the equipment (including what the producers had to pay for the natural resources used in their intermediate products). This interacts with the quantities demanded and the prices offered in the market.

Suppliers of Financial Capital

From the point of view of the firm, these can be divided into those whose claim can be considered part of "the necessary cost of doing business" and those that are the "residual claimants." When a firm takes out a loan, the payments of interest and principal are considered part of the necessary cost of doing business. They are taken out of revenues, along with taxes and the cost of purchasing inputs (including labor services), *before* anything remains that can be called a profit.

Investors, as distinct from lenders, are generally considered residual claimants; their return comes out of profits—what is left over after the firm has covered all necessary costs to sustain its activity. There is no clear law that states who else is a residual claimant, but top management often receive part of the profits, in one form or another.

A Useful Image

To summarize, the necessary costs of doing business include payments to factors of production (labor, financial capital, and material inputs) as well as taxes. The commonest uses for corporate profits include paying dividends to shareholders, investing in buildings and equipment, purchasing other companies, and buying stock shares from shareholders, to be held by the company. (The last of these actions increases the company's power when it is confronted by proposals from outside shareholders, on subjects such as environmental protection, employee rights, or obligations of the board of directors.)

One image that you can take away from this discussion is of a very fancy kind of sprinkler hose, which is filled by the revenues generated by the sale of a firm's products. As you look along the

hose, you can see places where it sprinkles out appropriate payments for the necessary inputs to production—wages, salaries, payments for physical inputs, and taxes or fees. Finally, you come to the end of the hose; what is left—whether it be a trickle or a fountain—is considered profit.

The salient word in the preceding paragraph is "appropriate"—what is the appropriate amount of revenue to allocate to each factor of production? The analysis in the first half of this chapter gives us the simple, neoclassical answer: Every factor should be compensated according to its marginal revenue product—the amount contributed to the market value of the product by the last unit of that factor. And the assumption of perfect competition (which we discuss in more detail in Chapter 16) further insists that firms must set wages exactly equal to MRP_L, just as the returns to capital must be set exactly equal to the marginal revenue product of capital.

Box 9.4 suggests that diverting all or part of the company's profits could have prevented the wage freeze at Caterpillar, or even significantly increased worker compensation. Is this realistic? It is, in principle, possible. For comparison, consider for a moment another factor of production: raw materials. Supposing that the cost of some critical raw material were to rise, so that at least in the short run, before it could find any alternative, Caterpillar would be forced to pay a great deal more for these materials. This would be expected to cut immediately into profits. For a comparable thought-experiment, imagine that a very strong union is formed, and it is joined by all of the types of workers that Caterpillar requires. Imagine, additionally, that this union is able to make a credible threat of a strike, unless Caterpillar raises workers' salaries by an amount that cuts its profits by a third. Again, in the short run, the necessary cost of doing business would rise. Unless the firm decided to simply shut down, it would have a smaller profit left over at the end of its metaphorical sprinkler hose.

The second of these imaginary scenarios is not about to happen for at least two reasons: Unions have greatly dwindled in the United States, to the point that it is hardly imaginable that they would have this kind of power; and globalization allows even a maker of heavy, expensive-to-transport machinery to threaten to move to another country where labor is cheaper. The world has shifted in such a way that it is hard for workers to make credible threats and relatively easy for employers to do so. The relative loss of worker power is one of the explanations for the growing inequality that we discuss in Chapter 10.

Discussion Questions

1. Do you think that the relative wages of average workers and top executives reflect their respective marginal revenue product? Do you think that the relative wages of average workers and top executives should be regulated by the government? What, if any, specific regulations do you propose?
2. Do you believe that worker cooperatives can become a widespread alternative to traditional firms? Do you know of any worker cooperatives in your area?

REVIEW QUESTIONS

1. In the traditional neoclassical model, how does a firm decide on the quantity of labor to hire?
2. What are some of the opportunity costs of paid employment?
3. Why might the individual labor supply curve bend backward?
4. How is human capital important in explaining wage variations?
5. What is signaling theory in relation to labor markets?
6. In what types of labor markets might labor supply be relatively wage elastic? In what types of markets might labor supply be relatively wage inelastic?
7. In what types of labor markets might labor demand be relatively wage elastic? In what types of markets might labor demand be relatively wage inelastic?
8. How can we use a supply-and-demand graph to illustrate the operation of a labor market?
9. What is employment flexibility from the perspective of workers? From the perspective of employers?
10. How have annual work hours changed in recent decades in the United States and other industrialized countries?
11. What are compensating wage differentials?

12. What is monopsony?
13. What is oligopsony?
14. What is efficiency wage theory?
15. What are dual labor markets?
16. How can we identify labor discrimination?
17. What is occupational segregation?
18. What has been the trend in median wages in the United States in the past few decades? How does this compare with the trend in corporate profits?
19. What are worker cooperatives, and how do they differ from traditional firms in terms of labor organization?
20. In addition to workers and management executives, who are some other claimants on business revenues?

EXERCISES

1. Reviewing Chapters 3 and 4 if necessary, illustrate on a labor market graph the following examples that were described in the text.
   a. A relatively elastic supply curve for wait staff.
   b. A virtually "fixed" supply of aerospace engineers, in the short run.
   c. The effect on the supply of lawyers of the reduction of barriers to women's participation in the practice of the law.
   d. The effect on the market for wait staff of a rise in the wage of salesclerks
2. Draw labor market graphs illustrating the following examples that were mentioned in the text.
   a. A labor demand curve, when very good substitutes for labor in the production process exist.
   b. The effect of a drop in demand for the organization's product.
   c. The effect of a rise in the price of other inputs that have been used as substitutes for labor
3. Suppose that you observe that the wages for accountants in your town have gone up and that the number of accountants employed has also gone up. Which one of the following conditions could explain this? Illustrate your answer with a graph and explain in a brief paragraph.
   a. Businesses are failing, reducing the need for accountants.
   b. Many accountants are leaving the field in order to train to become financial analysts instead.
   c. A rash of business scandals has increased the demand for auditing services performed by accountants.
   d. The local university has just graduated an unusually large group of accountants.
4. The U.S. Bureau of Labor Statistics keeps track of the average wages and number of workers involved in various occupations over time and also makes projections about what jobs may show the most growth in the future. Using data available at the bureau's Web site, www.bls.gov, try to look up information on an occupation that interests you. How does it pay, compared to other jobs? Is demand projected to rise in the future?
5. Match each concept in Column A with an example in Column B.

Column A	Column B
a. an alternative to wage employment	1. "insurance adjustor" jobs are traditionally given to men while "insurance representative" jobs go to women
b. the income effect on individual labor supply	2. Isabella cuts back her hours at her job after she gets a raise
c. a cause of a shift in the demand for professors	3. Many professors reach retirement age
d. a cause of a shift in the supply of professors	4. Acme Corp. hires only college graduates for sales jobs, but doesn't care about their majors
e. using education as a "signal"	5. Acme Corp. pays above prevailing market wages to motivate and retain its employees
f. labor market monopoly	6. Westinghouse is the major employer in the county
g. labor market monopsony	7. Marshall is the only person who knows how to run his company's antiquated database
h. compensating wage differential	8. household production
i. occupational segregation	9. resident assistants get a rent-free apartment but little pay
j. efficiency wages	10. a rising college-student-age population

NOTES

1. Jennifer Cheeseman Day and Eric C. Newburger, "The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings," U.S. Census Bureau, Current Population Reports, P23–210, 2002.
2. Jody Heymann, *Children's Chances: How Countries Can Move from Surviving to Thriving* (Cambridge: Harvard University Press, 2013).
3. Rebecca Ray, Janet C. Gornick, and John Schmitt, "Parental Leave Policies in 21 Countries," Center for Economic and Policy Research, Washington, DC, 2009.
4. Ibid., pp. 1–2.
5. Lonnie Golden and Tesfayi Gebreselassie, "Overemployment Mismatches: The Preference for Fewer Work Hours," *BLS Monthly Labor Review* (April 2007): 18–27.
6. Susan E. Fleck, "International Comparisons of Hours Worked: An Assessment of the Statistics," *BLS Monthly Labor Review* (May 2009): 3–31.
7. Rebecca Ray, Milla Sanes, and John Schmitt, "No-Vacation Nation Revisited," Center for Economic and Policy Research, Washington, DC, 2013.
8. Nell Henderson, "Effect of Immigration on Jobs, Wages Is Difficult for Economists to Nail Down," *Washington Post,* April 15, 2006.
9. Heidi Shierholz, "Immigration and Wages: Methodological Advancements Confirm Modest Gains for Native Workers," Economic Policy Institute, EPI Briefing Paper 255, Washington, DC, 2010.
10. Dylan Matthews,"Immigration's Effect on Wages: 'Definitely Positive, Without Any Doubt Whatsoever,'" *Washington Post,* April 17, 2013.
11. OECD Employment Database, "Trends in Union Density, 1960–2011." http://stats.oecd.org/Index.aspx?DataSetCode=UN_DEN.
12. See, for example, Michael Watchner, "The Rise and Decline of Unions," *Washington Post,* July 18, 2007.
13. Lawrence Mishel, "Unions, Inequality, and Faltering Middle-Class Wages," Economic Policy Institute, Policy Brief 342. Washington, DC, 2012.
14. Educational attainment data from the *Statistical Abstract of the United States 2012,* table 231.
15. U.S. Census Bureau, *Bicentennial Edition: Historical Statistics of the United States, Colonial Times to 1970,* Series D 722–727, 1976; U.S. Census Bureau, *Statistical Abstract of the United States 1982–1983*, table 667, 1982.
16. Richard Wolff, "Yes, There Is an Alternative to Capitalism: Mondragon Shows the Way," *The Guardian,* June 24, 2012.
17. Chris Doucouliagos, "Worker Participation and Productivity in Labor-Managed and Participatory Capitalist Firms: A Meta-Analysis," *Industrial and Labor Relations Review* 49(1) (1995): 58–77.

APPENDIX: A FORMAL MODEL OF A FIRM'S HIRING DECISION

marginal physical product of labor (MPP$_L$): the amount that a unit of additional labor contributes to the physical product of a firm

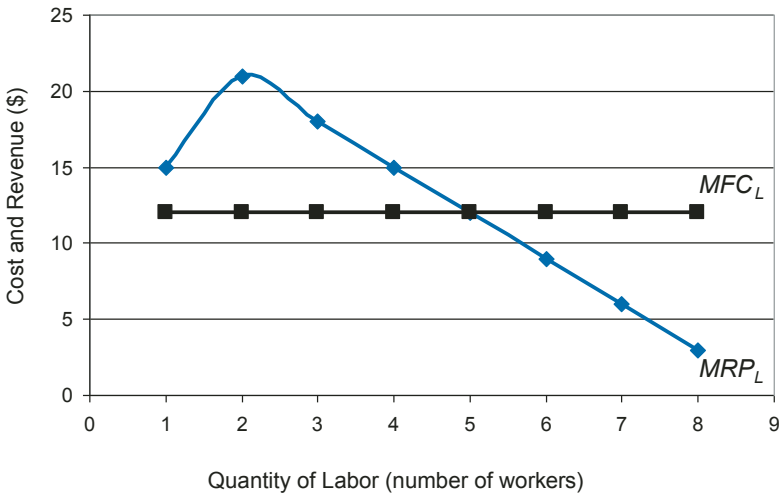
Suppose that a firm produces disposable razors. Holding all other inputs fixed, the relationship between the number of workers (the "quantity of labor") hired and the number of razors that can be produced in a day is given in the first two columns of the table on the following page. From these first two columns, the **marginal physical product (of labor)** (MPP_L) can be computed. For example, one worker can produce 5 razors, but adding an additional worker makes possible the production of 12 razors, so the *marginal* physical product of the second worker is 7 razors. Note that the marginal physical product of labor first rises and then falls.

We further assume that the firm sells razors in a competitive market and that the price received per razor is constant at $3. Hence the marginal revenue product of labor (MRP_L), the monetary value of the additional physical production, is always just $\$3 \times MPP_L$. We assume that the firm buys labor in a perfectly competitive labor market, at a constant wage of $12. Hence the marginal factor cost of labor (MFC_L) is constant at $12.

Quantity of labor	Quantity of razors	MPP_L	MRP_L	MFC_L
1	5	5	15	12
2	12	7	21	12
3	18	6	18	12
4	23	5	15	12
5	27	4	12	12
6	30	3	9	12
7	32	2	6	12
8	33	1	3	12

The MRP_L and MFC_L curves are graphed in Figure 9A.1. The MRP_L curve has an initial hump, because the MPP_L initially increases and then declines. For all workers up to the fifth worker, hiring the additional worker adds more to revenues than to costs. The profit-maximizing firm should stop hiring workers when $MRP_L = MFC_L$, at an employment level of five workers.

Figure 9A.1 **Marginal Revenue Product of Labor and Marginal Factor Cost of Labor**



The optimal amount of labor for a firm to hire occurs where the marginal revenue product equals the marginal factor cost.