Chapter 15

Unemployment

Chapter Outline

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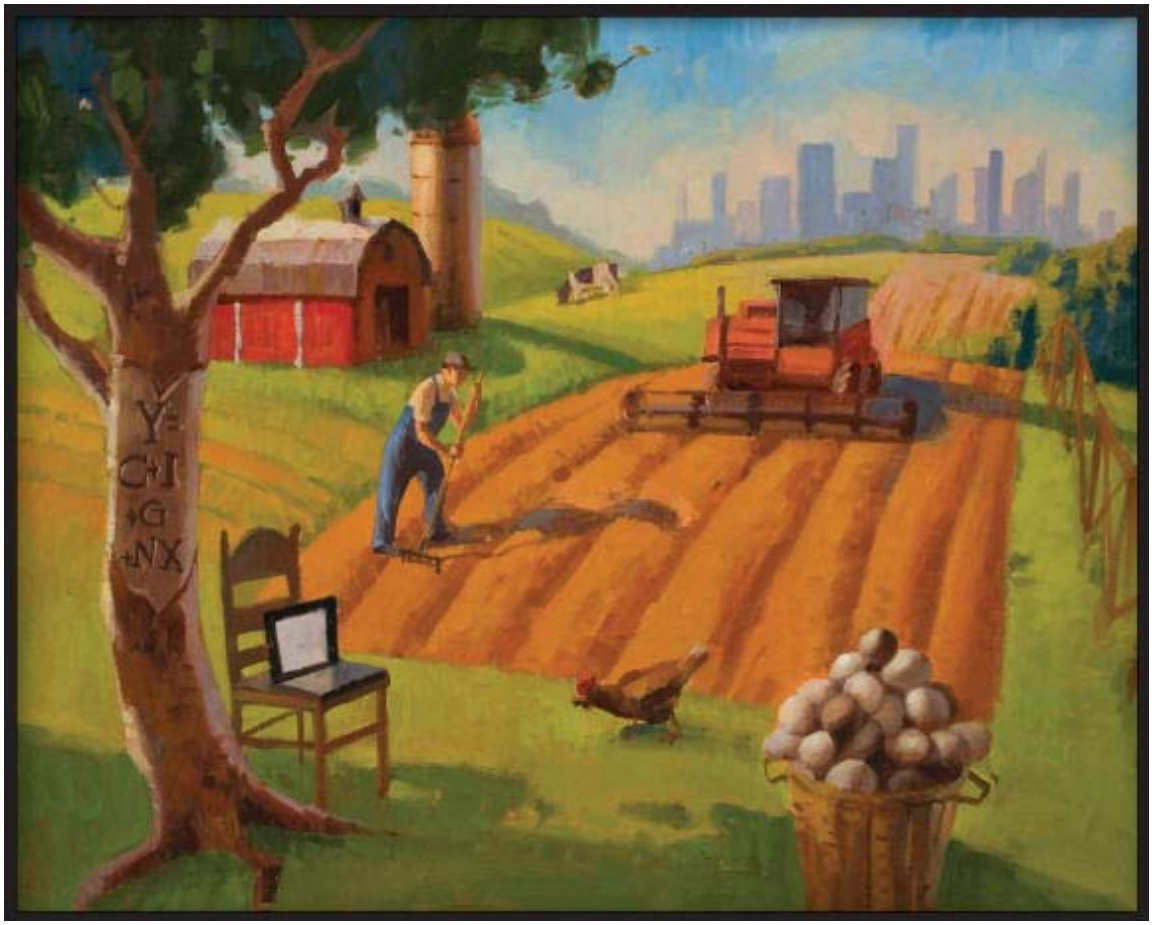
Chapter Introduction



Losing a job can be the most distressing economic event in a person's life. Most people rely on their labor earnings to maintain their standard of living, and many people also get a sense of personal accomplishment from working. A job loss means a lower living standard in the present, anxiety about the future, and reduced self-esteem. It is not surprising, therefore, that politicians campaigning for office often speak about how their proposed policies will help create jobs.

In previous chapters, we have seen some of the forces that determine the level and growth of a country's standard of living. A country that saves and invests a high fraction of its income, for instance, enjoys more rapid growth in its capital stock and GDP than a similar country that saves and invests less. An even more obvious determinant of a country's standard of living is the amount of unemployment it typically experiences. People who would like to work but cannot find a job are not contributing to the economy's production of goods and services. Although some degree of unemployment is inevitable in a complex economy with thousands of firms and millions of workers, the amount of unemployment varies substantially over time and across countries. When a country keeps its workers as fully employed as possible, it achieves a higher level of GDP than it would if it left many of its workers standing idle.

This chapter begins our study of unemployment. The problem of unemployment is usefully divided into two categories: the long-run problem and the short-run problem. The economy's *natural rate of unemployment* refers to the amount of unemployment that the economy normally experiences. *Cyclical unemployment* refers to the year-to-year fluctuations in unemployment around its natural rate, and it is closely associated with the short-run ups and downs of economic activity. Cyclical unemployment has its own explanation, which we defer until we study short-run economic fluctuations later in this book. In this chapter, we discuss the determinants of an economy's natural rate of unemployment. As we will see, the designation *natural* does not imply that this rate of unemployment is desirable. Nor does it imply that it is constant over time or impervious to economic policy. It merely means that this unemployment does not go away on its own even in the long run.

We begin the chapter by looking at some of the relevant facts that describe unemployment. In particular, we examine three questions: How does the government measure the economy's rate of unemployment? What problems arise in interpreting the unemployment data? How long are the unemployed typically without work?

We then turn to the reasons economies always experience some unemployment and the ways in which policymakers can help the unemployed. We discuss four explanations for the economy's natural rate of unemployment: job search, minimum-wage laws, unions, and efficiency wages. As we will see, long-run unemployment does not arise from a single problem that has a single solution. Instead, it reflects a variety of related problems. As a result, there is no easy way for policymakers to reduce the economy's natural rate of unemployment and, at the same time, to alleviate the hardships experienced by the unemployed.

15-1 Identifying Unemployment

Let's start by examining more precisely what the term *unemployment* means.

15-1a How Is Unemployment Measured?

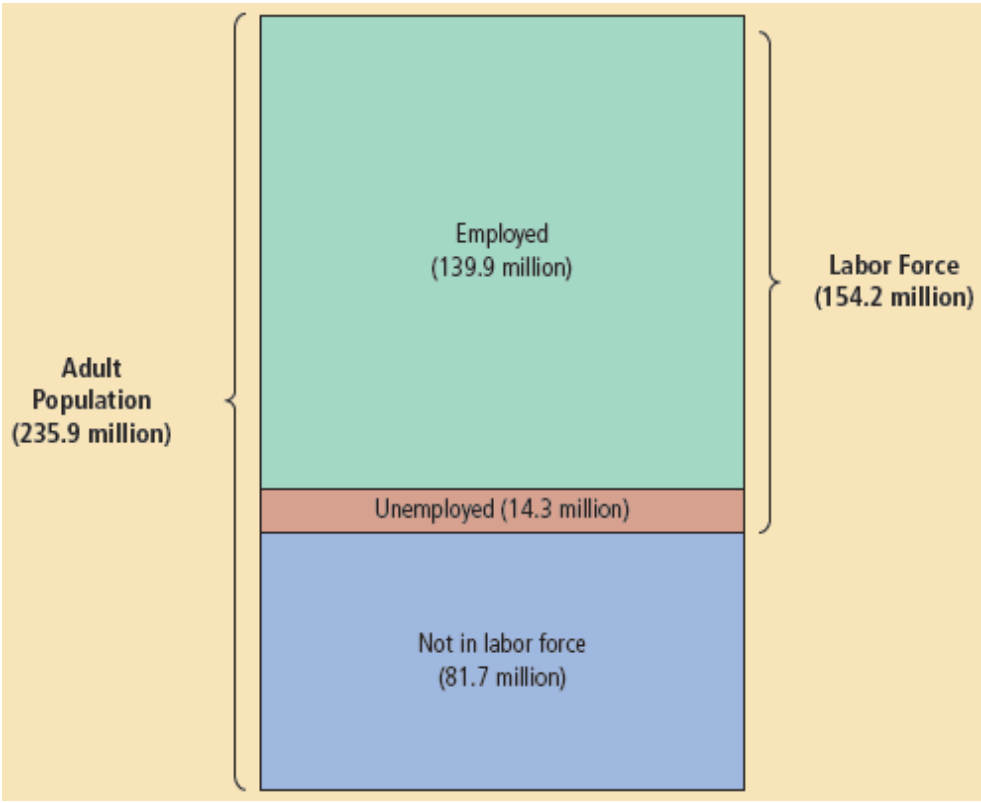
Measuring unemployment is the job of the Bureau of Labor Statistics (BLS), which is part of the Department of Labor. Every month, the BLS produces data on unemployment and on other aspects of the labor market, including types of employment, length of the average workweek, and the duration of unemployment. These data come from a regular survey of about 60,000 households, called the Current Population Survey.

Based on the answers to survey questions, the BLS places each adult (age 16 and older) of each surveyed household into one of three categories:

- *Employed:* This category includes those who worked as paid employees, worked in their own business, or worked as unpaid workers in a family member's business. Both full-time and part-time workers are counted. This category also includes those who were not working but who had jobs from which they were temporarily absent because of, for example, vacation, illness, or bad weather.
- *Unemployed:* This category includes those who were not employed, were available for work, and had tried to find employment during the previous four weeks. It also includes those waiting to be recalled to a job from which they had been laid off.
- *Not in the labor force:* This category includes those who fit neither of the first two categories, such as a full-time student, homemaker, or retiree.

Figure 1 shows the breakdown into these categories for 2009.

Figure 1. The Breakdown of the Population in 2009
The Bureau of Labor Statistics divides the adult population into three categories: employed, unemployed, and not in the labor force.



Once the BLS has placed all the individuals covered by the survey in a category, it computes various statistics to summarize the state of the labor market. The BLS defines the **labor force** as the sum of the employed and the unemployed:

$$\text{Labor force} = \text{Number of employed} + \text{Number of unemployed}.$$

The BLS defines the **unemployment rate** as the percentage of the labor force that is unemployed:

$$\text{Unemployment rate} = \frac{\text{Number of unemployed}}{\text{Labor force}} \times 100.$$

The BLS computes unemployment rates for the entire adult population and for more narrowly defined groups such as blacks, whites, men, women, and so on.

The BLS uses the same survey to produce data on labor-force participation. The **labor-force participation rate** measures the percentage of the total adult population of the United States that is in the labor force:

$$\text{Labor-force participation rate} = \frac{\text{Labor force}}{\text{Adult population}} \times 100.$$

This statistic tells us the fraction of the population that has chosen to participate in the labor market. The labor-force participation rate, like the unemployment rate, is computed for both the entire adult population and more specific groups.

To see how these data are computed, consider the figures for 2009. In that year, 139.9 million people were employed, and 14.3 million people were unemployed. The labor force was

$$\text{Labor force} = 139.9 + 14.3 = 154.2 \text{ million}.$$

The unemployment rate was

$$\text{Unemployment rate} = (14.3 / 154.2) \times 100 = 9.3 \text{ percent}.$$

Because the adult population was 235.9 million, the labor-force participation rate was

$$\text{Labor-force participation rate} = (154.2 / 235.9) \times 100 = 65.4 \text{ percent}.$$

Hence, in 2009, almost two-thirds of the U.S. adult population were participating in the labor market, and 9.3 percent of those labor-market participants were without work.

Table 1 shows the statistics on unemployment and labor-force participation for various groups within the U.S. population. Three comparisons are most apparent. First, women ages 20 and older have lower rates of labor-force participation than men, but once in the labor force, women have somewhat lower rates of unemployment. Second, blacks ages 20 and older have similar rates of labor-force participation as whites, but they have much higher rates of unemployment. Third, teenagers have lower rates of labor-force participation and much higher rates of unemployment than older workers. More generally, these data show that labor-market experiences vary widely among groups within the economy.

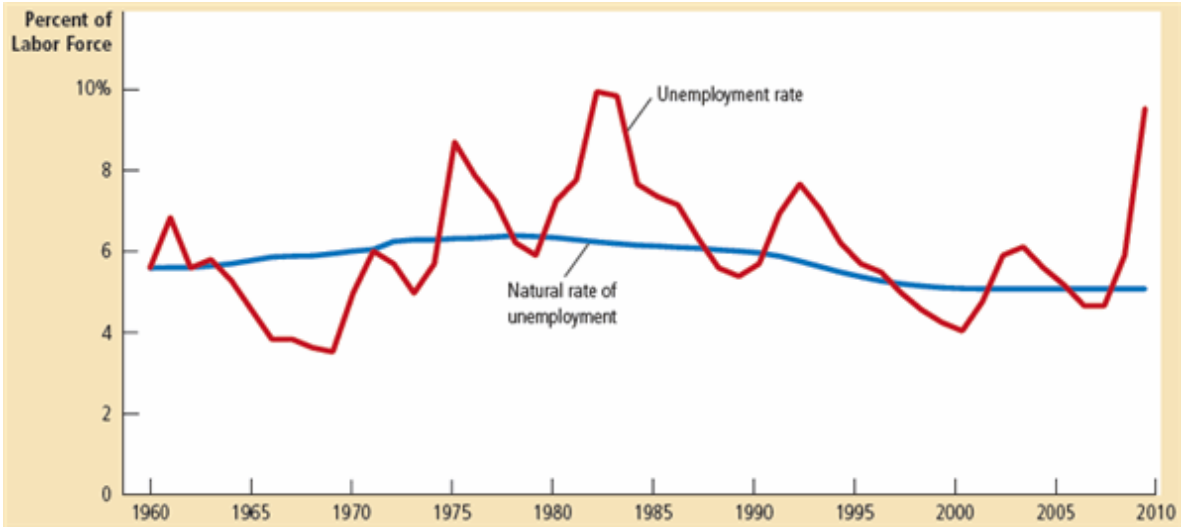
Table 1. The Labor-Market Experiences of Various Demographic Groups
This table shows the unemployment rate and the labor-force participation rate of various groups in the U.S. population for 2009.

Demographic Group	Unemployment Rate	Labor-Force Participation Rate
Adults (ages 20 and older)		
White, male	8.8%	75.3%
White, female	6.8	60.4
Black, male	16.3	69.6
Black, female	11.5	63.4
Teenagers (ages 16–19)		
White, male	25.2	40.3
White, female	18.4	40.9
Black, male	46.0	26.4
Black, female	33.4	27.9

The BLS data on the labor market also allow economists and policymakers to monitor changes in the economy over time. Figure 2 shows the unemployment rate in the United States since 1960. The figure shows that the economy always has some unemployment and that the amount changes from year to year. The normal rate of unemployment around which the unemployment rate fluctuates is called the **natural rate of unemployment**, and the deviation of unemployment from its natural rate is called **cyclical unemployment**. The natural rate of unemployment shown in the figure is a series estimated by economists at the Congressional Budget Office. For 2009, they estimated a natural rate of 5.0 percent, far below the actual unemployment rate of 9.3 percent. Later in this book, we discuss short-run economic fluctuations, including the year-to-year fluctuations in unemployment around its natural rate. In the rest of this chapter, however, we ignore the short-run fluctuations and examine why there is always some unemployment in market economies.

Figure 2. Unemployment Rate since 1960

This graph uses annual data on the U.S. unemployment rate to show the percentage of the labor force without a job. The natural rate of unemployment is the normal level of unemployment around which the unemployment rate fluctuates.



Case Study: Labor-Force Participation of Men and Women in the U.S. Economy

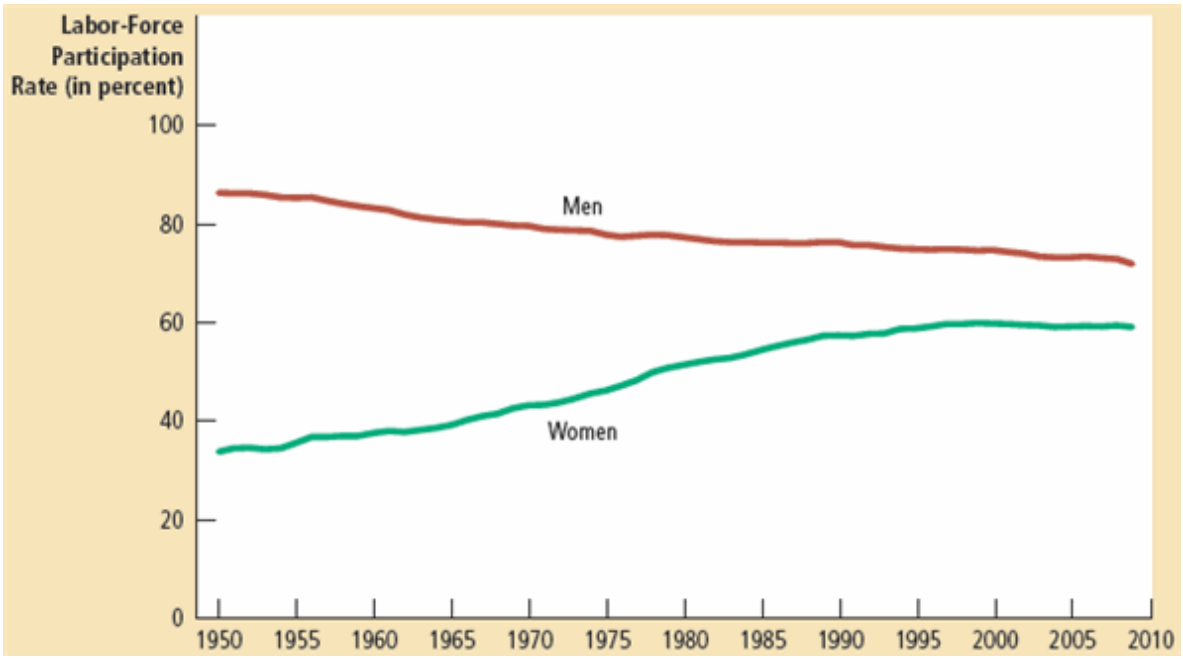
Women's role in American society has changed dramatically over the past century. Social commentators have pointed to many causes for this change. In part, it is attributable to new technologies, such as the washing machine, clothes dryer, refrigerator, freezer, and dishwasher, which have reduced the amount of time required to complete routine household tasks. In part, it is attributable to improved birth control,

which has reduced the number of children born to the typical family. This change in women's role is also partly attributable to changing political and social attitudes, which in turn may have been facilitated by the advances in technology and birth control. Together these developments have had a profound impact on society in general and on the economy in particular.

Nowhere is that impact more obvious than in data on labor-force participation. Figure 3 shows the labor-force participation rates of men and women in the United States since 1950. Just after World War II, men and women had very different roles in society. Only 33 percent of women were working or looking for work, in contrast to 87 percent of men. Over the past several decades, the difference between the participation rates of men and women has gradually diminished, as growing numbers of women have entered the labor force and some men have left it. Data for 2009 show that 59 percent of women were in the labor force, in contrast to 72 percent of men. As measured by labor-force participation, men and women are now playing a more equal role in the economy.

Figure 3. Labor-Force Participation Rates for Men and Women since 1950

This figure shows the percentage of adult men and women who are members of the labor force. It shows that over the past several decades, women have entered the labor force, and men have left it.



The increase in women's labor-force participation is easy to understand, but the fall in men's may seem puzzling. There are several reasons for this decline. First, young men now stay in school longer than their fathers and grandfathers did. Second, older men now retire earlier and live longer. Third, with more women employed, more fathers now stay at home to raise their children. Fulltime students, retirees, and stay-at-home dads are all counted as being out of the labor force.

15-1b Does the Unemployment Rate Measure What We Want It To?

Measuring the amount of unemployment in the economy might seem a straightforward task, but it is not. While it is easy to distinguish between a person with a fulltime job and a person who is not working at all, it is much harder to distinguish between a person who is unemployed and a person who is not in the labor force.

Movements into and out of the labor force are, in fact, common. More than one-third of the unemployed are recent entrants into the labor force. These entrants include young workers looking for their first jobs. They also include, in greater numbers, older workers who had previously left the labor force but have now returned to look for work. Moreover, not all unemployment ends with the job seeker finding a job. Almost half of all spells of unemployment end when the unemployed person leaves the labor force.

Because people move into and out of the labor force so often, statistics on unemployment are difficult to interpret. On the one hand, some of those who report being unemployed may not, in fact, be trying hard to find a job. They may be calling themselves unemployed because they want to qualify for a government program that financially assists the unemployed or because they are actually working but paid "under the

table" to avoid taxes on their earnings. It may be more realistic to view these individuals as out of the labor force or, in some cases, employed. On the other hand, some of those who report being out of the labor force may want to work. These individuals may have tried to find a job and may have given up after an unsuccessful search. Such individuals, called **discouraged workers**, do not show up in unemployment statistics, even though they are truly workers without jobs.

Because of these and other problems, the BLS calculates several other measures of labor underutilization, in addition to the official unemployment rate. These alternative measures are presented in Table 2. In the end, it is best to view the official unemployment rate as a useful but imperfect measure of joblessness.

Table 2. Alternative Measures of Labor Underutilization
The table shows various measures of joblessness for the U.S. economy. The data are for April 2010.

Measure	Description	Rate
U-1	Persons unemployed fifteen weeks or longer, as a percent of the civilian labor force (includes only very long-term unemployed)	5.8%
U-2	Job losers and persons who have completed temporary jobs, as a percent of the civilian labor force (excludes job leavers)	6.0
U-3	Total unemployed, as a percent of the civilian labor force (official unemployment rate)	9.9
U-4	Total unemployed, plus discouraged workers, as a percent of the civilian labor force plus discouraged workers	10.6
U-5	Total unemployed plus all marginally attached workers, as a percent of the civilian labor force plus all marginally attached workers	11.3
U-6	Total unemployed, plus all marginally attached workers, plus total employed part-time for economic reasons, as a percent of the civilian labor force plus all marginally attached workers	17.1

Note: The Bureau of Labor Statistics defines terms as follows:

- *Marginally attached workers* are persons who currently are neither working nor looking for work but indicate that they want and are available for a job and have looked for work sometime in the recent past.
- *Discouraged workers* are marginally attached workers who have given a job-market-related reason for not currently looking for a job.
- *Persons employed part-time for economic reasons* are those who want and are available for full-time work but have had to settle for a part-time schedule.

15-1c How Long Are the Unemployed without Work?

In judging how serious the problem of unemployment is, one question to consider is whether unemployment is typically a short-term or long-term condition. If unemployment is short term, one might conclude that it is not a big problem. Workers may require a few weeks between jobs to find the openings that best suit their tastes and skills. Yet if unemployment is long term, one might conclude that it is a serious problem. Workers unemployed for many months are more likely to suffer economic and psychological hardship.

Because the duration of unemployment can affect our view about how big a problem unemployment is, economists have devoted much energy to studying data on the duration of unemployment spells. In this work, they have uncovered a result that is important, subtle, and seemingly contradictory: *Most spells of unemployment are short, and most unemployment observed at any given time is long-term.*

To see how this statement can be true, consider an example. Suppose that you visited the government's unemployment office every week for a year to survey the unemployed. Each week you find that there are four unemployed workers. Three of these workers are the same individuals for the whole year, while the fourth person changes every week. Based on this experience, would you say that unemployment is typically short-term or long-term?

Some simple calculations help answer this question. In this example, you meet a total of 55 unemployed people over the course of a year; 52 of them are unemployed for one week, and 3 are unemployed for the full year. This means that 52/55, or 95 percent, of unemployment spells end in one week. Yet whenever you walk into the unemployment office, three of the four people you meet will be unemployed for the entire year. So, even though 95 percent of unemployment spells end in one week, 75 percent of the unemployment observed at any moment is attributable to those individuals who are unemployed for a full year. In this example, as in the world, most spells of unemployment are short, and most unemployment observed at any given time is long-term.

This subtle conclusion implies that economists and policymakers must be careful when interpreting data on unemployment and when designing policies to help the unemployed. Most people who become unemployed will soon find jobs. Yet most of the economy's unemployment problem is attributable to the relatively few workers who are jobless for long periods of time.

15-1d Why Are There Always Some People Unemployed?

We have discussed how the government measures the amount of unemployment, the problems that arise in interpreting unemployment statistics, and the findings of labor economists on the duration of unemployment. You should now have a good idea about what unemployment is.

This discussion, however, has not explained why economies experience unemployment. In most markets in the economy, prices adjust to bring quantity supplied and quantity demanded into balance. In an ideal labor market, wages would adjust to balance the quantity of labor supplied and the quantity of labor demanded. This adjustment of wages would ensure that all workers are always fully employed.

Of course, reality does not resemble this ideal. There are always some workers without jobs, even when the overall economy is doing well. In other words, the unemployment rate never falls to zero; instead, it fluctuates around the natural rate of unemployment. To understand this natural rate, the remaining sections of this chapter examine the reasons actual labor markets depart from the ideal of full employment.

In the News: The Rise of Long-Term Unemployment

During the economic downturn of 2008 and 2009, the number of long-term unemployed reached historic highs.

Chronic Joblessness Bites Deep

By Sara Murray

Richard Moran, sitting in his garage in Ortonville, Mich., Tuesday, has been unemployed for two-and-a-half years after losing his job with Chrysler.

The job market is improving, but one statistic presents a stark reminder of the challenges that remain: Nearly half of the unemployed —45.9%—have been out of work longer than six months, more than at any time since the Labor Department began keeping track in 1948.

Even in the worst months of the early 1980s, when the jobless rate topped 10% for months on end, only about one in four of the unemployed was out of work for more than six months.

Overall, seven million Americans have been looking for work for 27 weeks or more, and most of them—4.7 million—have been out of work for a year or more.

Long-term unemployment has reached nearly every segment of the population, but some have been particularly hard-hit. The typical long-term unemployed worker is a white man with a high-school education or less. Older unemployed workers also tend to be out of work longer. Those between ages 65 and 69 who still wish to work have typically been jobless for 49.8 weeks.

The effects of long-term unemployment are likely to linger when the overall jobless rate falls toward normal, threatening to create a pool of nearly permanently unemployed workers, a condition once more common in Europe than in the U.S.

"The consequences are worse for those who can't find a job quickly," said Till Marco von Wachter, a Columbia University economist. They extend from atrophying skills to a higher likelihood of unhappiness and anxiety. Workers out of work for a long time tend to find it more difficult to find a job, and "the longer people are unemployed the more likely they are to eventually give up searching and thereby drop out of the labor force," Mr. von Wachter said.

The Wall Street Journal, June 2, 2010.

To preview our conclusions, we will find that there are four ways to explain unemployment in the long run. The first explanation is that it takes time for workers to search for the jobs that are best suited for them. The unemployment that results from the process of matching workers and jobs is sometimes called **frictional unemployment**, and it is often thought to explain relatively short spells of unemployment.

The next three explanations for unemployment suggest that the number of jobs available in some labor markets may be insufficient to give a job to everyone who wants one. This occurs when the quantity of labor supplied exceeds the quantity demanded. Unemployment of this sort is sometimes called **structural unemployment**, and it is often thought to explain longer spells of unemployment. As we will see, this kind of unemployment results when wages are, for some reason, set above the level that brings supply and demand into equilibrium. We will examine three possible reasons for an above-equilibrium wage: minimum-wage laws, unions, and efficiency wages.

FYI: The Jobs Number

When the Bureau of Labor Statistics announces the unemployment rate at the beginning of every month, it also announces the number of jobs the economy has gained or lost. As an indicator of short-run economic trends, the jobs number gets as much attention as the unemployment rate.

Where does the jobs number come from? You might guess that it comes from the same survey of 60,000 households that yields the unemployment rate. And indeed the household survey does produce data on total employment. The jobs number that gets the most attention, however, comes from a separate survey of 160,000 business establishments, which have over 40 million workers on their payrolls. The results from the establishment survey are announced at the same time as the results from the household survey.

Both surveys yield information about total employment, but the results are not always the same. One reason is that the establishment survey has a larger sample, which makes it more reliable. Another reason is that the surveys are not measuring exactly the same thing. For example, a person who has two part-time jobs in different companies would be counted as one employed person in the household survey but as two jobs in the establishment survey. As another example, a person running his own small business would be counted as employed in the household survey but would not show up at all in the establishment survey, because the establishment survey counts only employees on a business payroll.

The establishment survey is closely watched for its data on jobs, but it says nothing about unemployment. To measure the number of unemployed, we need to know how many people without jobs are trying to find them. The household survey is the only source of that information.

QUICK QUIZ

How is the unemployment rate measured? • *How might the unemployment rate overstate the amount of joblessness? How might it understate the amount of joblessness?*

15-2 Job Search

One reason economies always experience some unemployment is job search. **Job search** is the process of matching workers with appropriate jobs. If all workers and all jobs were the same, so that all workers were equally well suited for all jobs, job search would not be a problem. Laid-off workers would quickly find new jobs that were well suited for them. But in fact, workers differ in their tastes and skills, jobs differ in their attributes, and information about job candidates and job vacancies is disseminated slowly among the many firms and households in the economy.

15-2a Why Some Frictional Unemployment Is Inevitable

Frictional unemployment is often the result of changes in the demand for labor among different firms. When consumers decide that they prefer Dell to Apple computers, Dell increases employment, and Apple lays off workers. The former Apple workers must now search for new jobs, and Dell must decide which new workers to hire for the various jobs that have opened up. The result of this transition is a period of unemployment.

Similarly, because different regions of the country produce different goods, employment can rise in one region while falling in another. Consider, for instance, what happens when the world price of oil falls. Oil-producing firms in Alaska respond to the lower price by cutting back on production and employment. At the same time, cheaper gasoline stimulates car sales, so auto-producing firms in Michigan raise production and employment. Just the opposite happens when the world price of oil rises. Changes in the composition of demand among industries or regions are called *sectoral shifts*. Because it takes time for workers to search for jobs in the new sectors, sectoral shifts temporarily cause unemployment.

Frictional unemployment is inevitable simply because the economy is always changing. A century ago, the four industries with the largest employment in the United States were cotton goods, woolen goods, men's clothing, and lumber. Today, the four largest industries are autos, aircraft, communications, and electrical components. As this transition took place, jobs were created in some firms and destroyed in others. The result of this process has been higher productivity and higher living standards. But along the way, workers in declining industries found themselves out of work and searching for new jobs.

Data show that at least 10 percent of U.S. manufacturing jobs are destroyed every year. In addition, more than 3 percent of workers leave their jobs in a typical month, sometimes because they realize that the jobs are not a good match for their tastes and skills. Many of these workers, especially younger ones, find new jobs at higher wages. This churning of the labor force is normal in a well-functioning and dynamic market economy, but the result is some amount of frictional unemployment.

15-2b Public Policy and Job Search

Even if some frictional unemployment is inevitable, the precise amount is not. The faster information spreads about job openings and worker availability, the more rapidly the economy can match workers and firms. The Internet, for instance, may help facilitate job search and reduce frictional unemployment. In addition, public policy may play a role. If policy can reduce the time it takes unemployed workers to find new jobs, it can reduce the economy's natural rate of unemployment.

Government programs try to facilitate job search in various ways. One way is through government-run employment agencies, which give out information about job vacancies. Another way is through public training programs, which aim to ease workers' transition from declining to growing industries and to help disadvantaged groups escape poverty. Advocates of these programs believe that they make the economy operate more efficiently by keeping the labor force more fully employed and that they reduce the inequities inherent in a constantly changing market economy.

Critics of these programs question whether the government should get involved with the process of job search. They argue that it is better to let the private market match workers and jobs. In fact, most job search in our economy takes place without intervention by the government. Newspaper ads, Internet job sites, college placement offices, headhunters, and word of mouth all help spread information about job openings and job candidates. Similarly, much worker education is done privately, either through schools or through on-the-job training. These critics contend that the government is no better—and most likely worse—at disseminating the right information to the right workers and deciding what kinds of worker training would be most valuable. They claim that these decisions are best made privately by workers and employers.

15-2c Unemployment Insurance

One government program that increases the amount of frictional unemployment, without intending to do so, is **unemployment insurance**. This program is designed to offer workers partial protection against job loss. The unemployed who quit their jobs, were fired for cause, or just entered the labor force are not eligible. Benefits are paid only to the unemployed who were laid off because their previous employers no longer needed their skills. The terms of the program vary over time and across states, but a typical worker covered by unemployment insurance in the United States receives 50 percent of his or her former wages for twenty-six weeks.

In the News: How Much Do the Unemployed Respond to Incentives?

During the economic downturn of 2008 and 2009, economists and policymakers wrestled with the question of how much the unemployment-insurance system was affecting the behavior of unemployed workers.

Long Recession Ignites Debate on Jobless Benefits

By Sara Murray

Management Recruiters of Sacramento, Calif., says it recently had a tough time filling six engineering positions at an Oregon manufacturer paying $60,000 a year—and suspects long-term jobless benefits were part of the hitch.

"We called several engineers that were unemployed," says Karl Dinse, a managing partner at the recruiting firm. "They said, nah, you know, if it were paying $80,000 I'd think about it." Some candidates suggested he call them back when their benefits were scheduled to run out, he says.

Rick Jewell has a different take on extended jobless benefits: He didn't want to be on the dole, but had no alternative. He has been out of work since he lost his $12-an-hour job driving a forklift for a cosmetics company in Greenwood, Ind., in December 2008. He collected $315 a week in benefits until early June—when Congress declined to renew the law that gave workers in Indiana and some other states up to 99 weeks of assistance.

"I am tired of sitting at home. I am tired of not being the breadwinner," says Mr. Jewell, who says he looks for work every day. He and his wife now rely on her $480 a week job as a distribution supervisor at the same cosmetics company.

In the long recession and the lackluster recovery, the government expanded unemployment payments more than at any time since the benefits were rolled out in the 1930s. And workers have gone jobless for longer than any time since official tallies began in 1967.

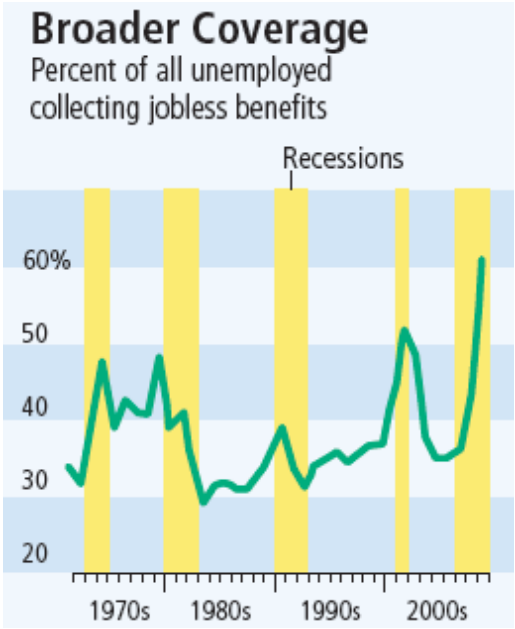
Politicians and economists are now in a fierce debate that could have big consequences for the jobless: Did more-generous unemployment benefits prompt jobless workers to be pickier in their searches? Or was the program a prudent response to the worst recession in generations? . . .

Economists have argued for years about the extent to which government benefits prolong unemployment—and possibly augment the overall jobless rate. Most believe that expanding benefits does discourage some unemployed people from looking for work or taking available jobs. But they disagree on how acute that effect is, particularly at a time when jobs are scarce.

"Given the current economic situation I doubt that effect is very large," says Harvard University economist Raj Chetty. "I think people will take whatever job they can get."

Economists on the right see a danger to prolonging benefits. "I don't think anybody's getting rich off of unemployment, and I'm not saying people are lazy," says Michael Tanner of the Cato Institute, a libertarian think tank in Washington, D.C. "The fact is, when you have a check coming in, even if it's a fairly low check, you're less motivated to either look for work or accept less optimal jobs."

The recent recession was unusual in almost every respect. Compared to other post-World War II recessions, it was deeper, longer and put more people out of work. A year after the economy began growing, unemployment is still a very high 9.5%. Nearly half the jobless—6.8 million total—have been out of work for more than six months, and 4.3 million of those have been without work for more than a year. The typical unemployed person has been out of the job market for a median of 25.5 weeks.



The government response was also unusual, and not just in the big bank bailout. In normal times, the unemployed are offered up to 26 weeks of benefits, largely financed by a tax on employers. In recessions, state and federal governments often jointly finance up to an additional 20 weeks in hard-hit states. In this recession, Congress added up to another 53 weeks of federally funded benefits; in the deep crisis of the 1980s, the maximum total never exceeded 55 weeks.

The unemployment compensation system, created in 1935, was designed to tide workers over during periods of temporary unemployment. Benefits are based on a worker's prior wages; the average is $310 a week. Only workers who have lost a job through no fault of their own are eligible. Those who quit or who are new to the work force don't qualify. They must reapply weekly or biweekly, depending on the state, and indicate that they are looking for work.

In the 1980s, only half of all unemployed received benefits. In the first quarter of 2010, 69% of the unemployed did. That's partly because the benefits lasted so much longer, economists say. It's also because Washington gave states incentives to extend benefits to workers looking for part-time jobs and those who enrolled in training programs.

A variety of studies suggest that adding another 53 weeks of benefits increases the time the average worker is jobless by between 4.2 and 10.6 weeks. The higher estimates are based on studies conducted decades ago when layoffs were often temporary; in this recession, many unemployed workers will never return to their old positions. . . . In a recession such as this one—with five unemployed workers for every job opening—it's not clear whether the old academic findings apply.

In his scholarly past, Lawrence Summers, now Mr. Obama's economic guru, wrote in 1993 that "government assistance programs contribute to long-term unemployment . . . by providing an incentive, and the means, not to work." When an April *Wall Street Journal* editorial described his position, Mr. Summers fired back in a letter to the editor: "In the wake of the worst economic crisis in eight decades . . . there can be no doubt that the overwhelming cause of unemployment is economic distress, not the existence of unemployment insurance."

The Wall Street Journal, July 7, 2010.

While unemployment insurance reduces the hardship of unemployment, it also increases the amount of unemployment. The explanation is based on one of the *Ten Principles of Economics* in Chapter 1: People respond to incentives. Because unemployment benefits stop when a worker takes a new job, the unemployed devote less effort to job search and are more likely to turn down unattractive job offers. In addition, because unemployment insurance makes unemployment less onerous, workers are less likely to seek guarantees of job security when they negotiate with employers over the terms of employment.

Many studies by labor economists have examined the incentive effects of unemployment insurance. One study examined an experiment run by

the state of Illinois in 1985. When unemployed workers applied to collect unemployment insurance benefits, the state randomly selected some of them and offered each a $500 bonus if they found new jobs within eleven weeks. This group was then compared to a control group not offered the incentive. The average spell of unemployment for the group offered the bonus was 7 percent shorter than the average spell for the control group. This experiment shows that the design of the unemployment insurance system influences the effort that the unemployed devote to job search.

Several other studies examined search effort by following a group of workers over time. Unemployment insurance benefits, rather than lasting forever, usually run out after six months or one year. These studies found that when the unemployed become ineligible for benefits, the probability of their finding a new job rises markedly. Thus, receiving unemployment insurance benefits does reduce the search effort of the unemployed.

Even though unemployment insurance reduces search effort and raises unemployment, we should not necessarily conclude that the policy is bad. The program does achieve its primary goal of reducing the income uncertainty that workers face. In addition, when workers turn down unattractive job offers, they have the opportunity to look for jobs that better suit their tastes and skills. Some economists argue that unemployment insurance improves the ability of the economy to match each worker with the most appropriate job.

The study of unemployment insurance shows that the unemployment rate is an imperfect measure of a nation's overall level of economic well-being. Most economists agree that eliminating unemployment insurance would reduce the amount of unemployment in the economy. Yet economists disagree on whether economic well-being would be enhanced or diminished by this change in policy.

QUICK QUIZ

How would an increase in the world price of oil affect the amount of frictional unemployment? Is this unemployment undesirable? What public policies might affect the amount of unemployment caused by this price change?

15-3 Minimum-Wage Laws

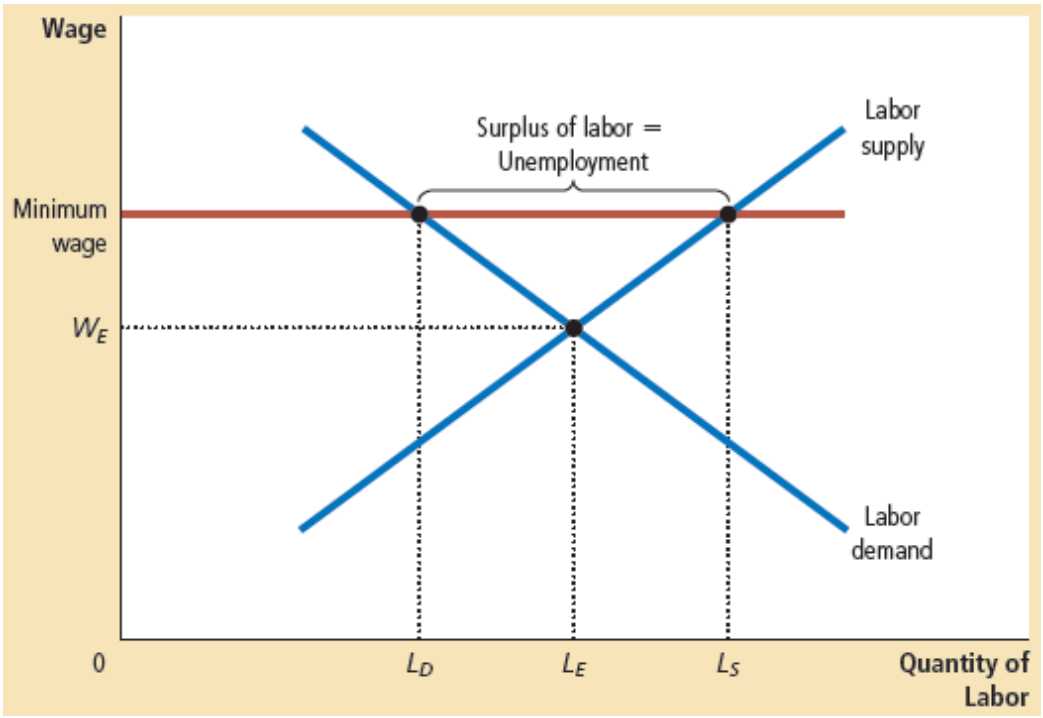
Having seen how frictional unemployment results from the process of matching workers and jobs, let's now examine how structural unemployment results when the number of jobs is insufficient for the number of workers.

To understand structural unemployment, we begin by reviewing how minimum-wage laws can cause unemployment. Although minimum wages are not the pre-dominant reason for unemployment in our economy, they have an important effect on certain groups with particularly high unemployment rates. Moreover, the analysis of minimum wages is a natural place to start because, as we will see, it can be used to understand some of the other reasons for structural unemployment.

Figure 4 reviews the basic economics of a minimum wage. When a minimum-wage law forces the wage to remain above the level that balances supply and demand, it raises the quantity of labor supplied and reduces the quantity of labor demanded compared to the equilibrium level. There is a surplus of labor. Because there are more workers willing to work than there are jobs, some workers are unemployed.

Figure 4. Unemployment from a Wage above the Equilibrium Level

In this labor market, the wage at which supply and demand balance is W_E. At this equilibrium wage, the quantity of labor supplied and the quantity of labor demanded both equal L_E. By contrast, if the wage is forced to remain above the equilibrium level, perhaps because of a minimum-wage law, the quantity of labor supplied rises to L_S, and the quantity of labor demanded falls to L_D. The resulting surplus of labor, $L_S - L_D$, represents unemployment.



While minimum-wage laws are one reason unemployment exists in the U.S. economy, they do not affect everyone. The vast majority of workers have wages well above the legal minimum, so the law does not prevent most wages from adjusting to balance supply and demand. Minimum-wage laws matter most for the least skilled and least experienced members of the labor force, such as teenagers. Their equilibrium wages tend to be low and, therefore, are more likely to fall below the legal minimum. It is only among these workers that minimum-wage laws explain the existence of unemployment.

Figure 4 is drawn to show the effects of a minimum-wage law, but it also illustrates a more general lesson: *If the wage is kept above the equilibrium level for any reason, the result is unemployment*. Minimum-wage laws are just one reason wages may be "too high." In the remaining two sections of this chapter, we consider two other reasons wages may be kept above the equilibrium level: unions and efficiency wages. The basic economics of unemployment in these cases is the same as that shown in Figure 4, but these explanations of unemployment can apply to many more of the economy's workers.

At this point, however, we should stop and notice that the structural unemployment that arises from an above-equilibrium wage is, in an important sense, different from the frictional unemployment that arises from the process of job search. The need for job search is not due to the failure of wages to balance labor supply and labor demand. When job search is the explanation for unemployment, workers are searching

for the jobs that best suit their tastes and skills. By contrast, when the wage is above the equilibrium level, the quantity of labor supplied exceeds the quantity of labor demanded, and workers are unemployed because they are waiting for jobs to open up.

FYI: Who Earns the Minimum Wage?

In 2010, the Department of Labor released a study of which workers reported earnings at or below the minimum wage in 2009, when, in July, the minimum wage was raised from $6.55 to $7.25 per hour. (A reported wage below the minimum is possible because some workers are exempt from the statute, because enforcement is imperfect, and because some workers round down when reporting their wages on surveys.) Here is a summary of the findings:

- Of those workers paid an hourly rate, about 4 percent of men and 6 percent of women reported wages at or below the prevailing federal minimum.
- Minimum-wage workers tend to be young. About half of all hourly paid workers earning the minimum wage or less were under age 25, and about one-fourth were age 16–19. Among employed teenagers, 19 percent earned the minimum wage or less, compared with 3 percent of workers age 25 and older.
- Minimum-wage workers tend to be less educated. Among hourly paid workers age 16 and older, about 10 percent of those without a high school diploma earned the minimum wage or less, compared with about 4 percent of those who earned a high school diploma (but did not attend college) and about 3 percent for those who had obtained a college degree.
- Minimum-wage workers are more likely to be working part time. Among part-time workers (those who usually work less than 35 hours per week), 11 percent were paid the minimum wage or less, compared to 2 percent of full-time workers.
- The industry with the highest proportion of workers with reported hourly wages at or below the minimum wage was leisure and hospitality (21 percent). About one-half of all workers paid at or below the minimum wage were employed in this industry, primarily in food services and drinking establishments. For many of these workers, tips supplement the hourly wages received.
- The proportion of hourly paid workers earning the prevailing federal minimum wage or less has trended downward since 1979, when data collection first began on a regular basis.

QUICK QUIZ

Draw the supply curve and the demand curve for a labor market in which the wage is fixed above the equilibrium level. Show the quantity of labor supplied, the quantity demanded, and the amount of unemployment.

15-4 Unions and Collective Bargaining

A **union** is a worker association that bargains with employers over wages, benefits, and working conditions. Only 12 percent of U.S. workers now belong to unions, but unions played a much larger role in the U.S. labor market in the past. In the 1940s and 1950s, when union membership was at its peak, about a third of the U.S. labor force was unionized.

Moreover, for a variety of historical reasons, unions continue to play a large role in many European countries. In Belgium, Norway, and Sweden, for instance, more than half of workers belong to unions. In France and Germany, a majority of workers have wages set by collective bargaining by law, even though only some of these workers are themselves union members. In these cases, wages are not determined by the equilibrium of supply and demand in competitive labor markets.

15-4a The Economics of Unions

BBC Video: GM Workers/UAW

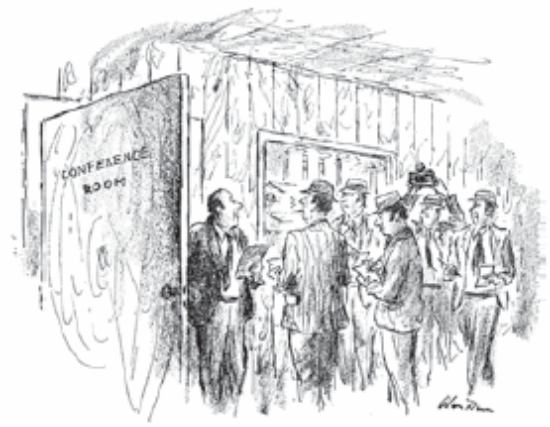
A union is a type of cartel. Like any cartel, a union is a group of sellers acting together in the hope of exerting their joint market power. Most workers in the U.S. economy discuss their wages, benefits, and working conditions with their employers as individuals. By contrast, workers in a union do so as a group. The process by which unions and firms agree on the terms of employment is called **collective bargaining**.

When a union bargains with a firm, it asks for higher wages, better benefits, and better working conditions than the firm would offer in the absence of a union. If the union and the firm do not reach agreement, the union can organize a withdrawal of labor from the firm, called a **strike**. Because a strike reduces production, sales, and profit, a firm facing a strike threat is likely to agree to pay higher wages than it otherwise would. Economists who study the effects of unions typically find that union workers earn about 10 to 20 percent more than similar workers who do not belong to unions.

When a union raises the wage above the equilibrium level, it raises the quantity of labor supplied and reduces the quantity of labor demanded, resulting in unemployment. Workers who remain employed at the higher wage are better off, but those who were previously employed and are now unemployed are worse off. Indeed, unions are often thought to cause conflict between different groups of workers—between the *insiders* who benefit from high union wages and the *outsiders* who do not get the union jobs.

The outsiders can respond to their status in one of two ways. Some of them remain unemployed and wait for the chance to become insiders and earn the high union wage. Others take jobs in firms that are not unionized. Thus, when unions raise wages in one part of the economy, the supply of labor increases in other parts of the economy. This increase in labor supply, in turn, reduces wages in industries that are not unionized. In other words, workers in unions reap the benefit of collective bargaining, while workers not in unions bear some of the cost.

The role of unions in the economy depends in part on the laws that govern union organization and collective bargaining. Normally, explicit agreements among members of a cartel are illegal. When firms selling similar products agree to set high prices, the agreement is considered a "conspiracy in restraint of trade," and the government prosecutes the firms in civil and criminal court for violating the antitrust laws. By contrast, unions are exempt from these laws. The policymakers who wrote the antitrust laws believed that workers needed greater market power as they bargained with employers. Indeed, various laws are designed to encourage the formation of unions. In particular, the Wagner Act of 1935 prevents employers from interfering when workers try to organize unions and requires employers to bargain with unions in good faith. The National Labor Relations Board (NLRB) is the government agency that enforces workers' right to unionize.



"Gentlemen, nothing stands in the way of a final accord except that management wants profit maximization and the union wants more moola."

Legislation affecting the market power of unions is a perennial topic of political debate. State lawmakers sometimes debate *right-to-work laws*, which give workers in a unionized firm the right to choose whether to join the union. In the absence of such laws, unions can insist during collective bargaining that firms make union membership a requirement for employment. At times, lawmakers in Washington have debated a proposed law that would prevent firms from hiring permanent replacements for workers who are on strike. This law would make strikes more costly for firms, thereby increasing the market power of unions. These and similar policy decisions will help determine the future of the union movement.

15-4b Are Unions Good or Bad for the Economy?

Economists disagree about whether unions are good or bad for the economy as a whole. Let's consider both sides of the debate.

Critics argue that unions are merely a type of cartel. When unions raise wages above the level that would prevail in competitive markets, they reduce the quantity of labor demanded, cause some workers to be unemployed, and reduce the wages in the rest of the economy. The resulting allocation of labor is, critics argue, both inefficient and inequitable. It is inefficient because high union wages reduce employment in unionized firms below the efficient, competitive level. It is inequitable because some workers benefit at the expense of other workers.

Advocates contend that unions are a necessary antidote to the market power of the firms that hire workers. The extreme case of this market power is the "company town," where a single firm does most of the hiring in a geographical region. In a company town, if workers do not accept the wages and working conditions that the firm offers, they have little choice but to move or stop working. In the absence of a union, therefore, the firm could use its market power to pay lower wages and offer worse working conditions than would prevail if it had to compete with other firms for the same workers. In this case, a union may balance the firm's market power and protect the workers from being at the mercy of the firm's owners.

Advocates of unions also claim that unions are important for helping firms respond efficiently to workers' concerns. Whenever a worker takes a job, the worker and the firm must agree on many attributes of the job in addition to the wage: hours of work, overtime, vacations, sick leave, health benefits, promotion schedules, job security, and so on. By representing workers' views on these issues, unions allow firms to provide the right mix of job attributes. Even if unions have the adverse effect of pushing wages above the equilibrium level and causing unemployment, they have the benefit of helping firms keep a happy and productive workforce.

In the end, there is no consensus among economists about whether unions are good or bad for the economy. Like many institutions, their influence is probably beneficial in some circumstances and adverse in others.

QUICK QUIZ

How does a union in the auto industry affect wages and employment at General Motors and Ford? How does it affect wages and employment in other industries?

15-5 The Theory of Efficiency Wages

A fourth reason economies always experience some unemployment—in addition to job search, minimum-wage laws, and unions—is suggested by the theory of **efficiency wages**. According to this theory, firms operate more efficiently if wages are above the equilibrium level. Therefore, it may be profitable for firms to keep wages high even in the presence of a surplus of labor.

In some ways, the unemployment that arises from efficiency wages is similar to the unemployment that arises from minimum-wage laws and unions. In all three cases, unemployment is the result of wages above the level that balances the quantity of labor supplied and the quantity of labor demanded. Yet there is also an important difference. Minimum-wage laws and unions prevent firms from lowering wages in the presence of a surplus of workers. Efficiency-wage theory states that such a constraint on firms is unnecessary in many cases because firms may be better off keeping wages above the equilibrium level.

Why should firms want to keep wages high? This decision may seem odd at first, for wages are a large part of firms' costs. Normally, we expect profit-maximizing firms to want to keep costs—and therefore wages—as low as possible. The novel insight of efficiency-wage theory is that paying high wages might be profitable because they might raise the efficiency of a firm's workers.

There are several types of efficiency-wage theory. Each type suggests a different explanation for why firms may want to pay high wages. Let's now consider four of these types.

15-5a Worker Health

The first and simplest type of efficiency-wage theory emphasizes the link between wages and worker health. Better paid workers eat a more nutritious diet, and workers who eat a better diet are healthier and more productive. A firm may find it more profitable to pay high wages and have healthy, productive workers than to pay lower wages and have less healthy, less productive workers.

This type of efficiency-wage theory can be relevant for explaining unemployment in less developed countries where inadequate nutrition can be a problem. In these countries, firms may fear that cutting wages would, in fact, adversely influence their workers' health and productivity. In other words, nutrition concerns may explain why firms may maintain above-equilibrium wages despite a surplus of labor. Worker health concerns are far less relevant for firms in rich countries such as the United States, where the equilibrium wages for most workers are well above the level needed for an adequate diet.

15-5b Worker Turnover

A second type of efficiency-wage theory emphasizes the link between wages and worker turnover. Workers quit jobs for many reasons: to take jobs in other firms, to move to other parts of the country, to leave the labor force, and so on. The frequency with which they quit depends on the entire set of incentives they face, including the benefits of leaving and the benefits of staying. The more a firm pays its workers, the less often its workers will choose to leave. Thus, a firm can reduce turnover among its workers by paying them a high wage.

Why do firms care about turnover? The reason is that it is costly for firms to hire and train new workers. Moreover, even after they are trained, newly hired workers are not as productive as experienced workers. Firms with higher turnover, therefore, will tend to have higher production costs. Firms may find it profitable to pay wages above the equilibrium level to reduce worker turnover.

15-5c Worker Quality

A third type of efficiency-wage theory emphasizes the link between wages and worker quality. All firms want workers who are talented, and they try to pick the best applicants to fill job openings. But because firms cannot perfectly gauge the quality of applicants, hiring has a degree of randomness to it. When a firm pays a high wage, it attracts a better pool of workers to apply for its jobs and thereby increases the quality of its workforce. If the firm responded to a surplus of labor by reducing the wage, the most competent applicants—who are more likely to have better alternative opportunities than less competent applicants—may choose not to apply. If this influence of the wage on worker quality is strong enough, it may be profitable for the firm to pay a wage above the level that balances supply and demand.

15-5d Worker Effort

A fourth and final type of efficiency-wage theory emphasizes the link between wages and worker effort. In many jobs, workers have some discretion over how hard to work. As a result, firms monitor the efforts of their workers, and workers caught shirking their responsibilities are fired. But not all shirkers are caught immediately because monitoring workers is costly and imperfect. A firm in such a circumstance is always looking for ways to deter shirking.

One solution is paying wages above the equilibrium level. High wages make workers more eager to keep their jobs and, thereby, give workers an incentive to put forward their best effort. If the wage were at the level that balanced supply and demand, workers would have less reason to work hard because if they were fired, they could quickly find new jobs at the same wage. Therefore, firms raise wages above the equilibrium level, providing an incentive for workers not to shirk their responsibilities.

Case Study: Henry Ford and the Very Generous $5-a-Day Wage

Henry Ford was an industrial visionary. As founder of the Ford Motor Company, he was responsible for introducing modern techniques of production. Rather than building cars with small teams of skilled craftsmen, Ford built cars on assembly lines in which unskilled workers were taught to perform the same simple tasks over and over again. The output of this assembly process was the Model T Ford, one of the most famous early automobiles.

In 1914, Ford introduced another innovation: the $5 workday. This might not seem like much today, but back then $5 was about twice the going wage. It was also far above the wage that balanced supply and demand. When the new $5-a-day wage was announced, long lines of job seekers formed outside the Ford factories. The number of workers willing to work at this wage far exceeded the number of workers Ford needed.

Ford's high-wage policy had many of the effects predicted by efficiency-wage theory. Turnover fell, absenteeism fell, and productivity rose. Workers were so much more efficient that Ford's production costs were lower despite higher wages. Thus, paying a wage above the equilibrium level was profitable for the firm. An historian of the early Ford Motor Company wrote, "Ford and his associates freely declared on many occasions that the high-wage policy turned out to be good business. By this they meant that it had improved the discipline of the workers, given them a more loyal interest in the institution, and raised their personal efficiency." Henry Ford himself called the $5-a-day wage "one of the finest cost-cutting moves we ever made."

Why did it take Henry Ford to introduce this efficiency wage? Why were other firms not already taking advantage of this seemingly profitable business strategy? According to some analysts, Ford's decision was closely linked to his use of the assembly line. Workers organized in an assembly line are highly interdependent. If one worker is absent or works slowly, other workers are less able to complete their own tasks. Thus, while assembly lines made production more efficient, they also raised the importance of low worker turnover, high worker effort, and high worker quality. As a result, paying efficiency wages may have been a better strategy for the Ford Motor Company than for other businesses at the time.

QUICK QUIZ

Give four explanations for why firms might find it profitable to pay wages above the level that balances quantity of labor supplied and quantity of labor demanded.

15-6 Conclusion

Ask the Author: Why is unemployment in Europe much higher than it is in the United States?

In this chapter, we discussed the measurement of unemployment and the reasons economies always experience some degree of unemployment. We have seen how job search, minimum-wage laws, unions, and efficiency wages can all help explain why some workers do not have jobs. Which of these four explanations for the natural rate of unemployment are the most important for the U.S. economy and other economies around the world? Unfortunately, there is no easy way to tell. Economists differ in which of these explanations of unemployment they consider most important.

The analysis of this chapter yields an important lesson: Although the economy will always have some unemployment, its natural rate does change over time. Many events and policies can alter the amount of unemployment the economy typically experiences. As the information revolution changes the process of job search, as Congress adjusts the minimum wage, as workers form or quit unions, and as firms change their reliance on efficiency wages, the natural rate of unemployment evolves. Unemployment is not a simple problem with a simple solution. But how we choose to organize our society can profoundly influence how prevalent a problem it is.

Chapter Recap: Summary

- The unemployment rate is the percentage of those who would like to work who do not have jobs. The Bureau of Labor Statistics calculates this statistic monthly based on a survey of thousands of households.
- The unemployment rate is an imperfect measure of joblessness. Some people who call themselves unemployed may actually not want to work, and some people who would like to work have left the labor force after an unsuccessful search and therefore are not counted as unemployed.
- In the U.S. economy, most people who become unemployed find work within a short period of time. Nonetheless, most unemployment observed at any given time is attributable to the few people who are unemployed for long periods of time.
- One reason for unemployment is the time it takes workers to search for jobs that best suit their tastes and skills. This frictional unemployment is increased as a result of unemployment insurance, a government policy designed to protect workers' incomes.
- A second reason our economy always has some unemployment is minimum-wage laws. By raising the wage of unskilled and inexperienced workers above the equilibrium level, minimumwage laws raise the quantity of labor supplied and reduce the quantity demanded. The resulting surplus of labor represents unemployment.
- A third reason for unemployment is the market power of unions. When unions push the wages in unionized industries above the equilibrium level, they create a surplus of labor.
- A fourth reason for unemployment is suggested by the theory of efficiency wages. According to this theory, firms find it profitable to pay wages above the equilibrium level. High wages can improve worker health, lower worker turnover, raise worker quality, and increase worker effort.

Ask the Instructor: What are the principal types of unemployment?

Ask the Instructor: Why was the unemployment rate higher during the 1970s than in the 1990s?

Chapter Recap: Questions for Review

1. What are the three categories into which the Bureau of Labor Statistics divides everyone? How does the BLS compute the labor force, the unemployment rate, and the labor-force participation rate?
2. Is unemployment typically short term or long term? Explain.
3. Why is frictional unemployment inevitable? How might the government reduce the amount of frictional unemployment?
4. Are minimum-wage laws a better explanation for structural unemployment among teenagers or among college graduates? Why?
5. How do unions affect the natural rate of unemployment?
6. What claims do advocates of unions make to argue that unions are good for the economy?
7. Explain four ways in which a firm might increase its profits by raising the wages it pays.

Chapter Recap: Problems and Applications

1. The Bureau of Labor Statistics announced that in April 2010, of all adult Americans, 139,455,000 were employed, 15,260,000 were unemployed, and 82,614,000 were not in the labor force. Use this information to calculate:
   a. the adult population
   b. the labor force
   c. the labor-force participation rate
   d. the unemployment rate

2. Go to the website of the Bureau of Labor Statistics (**http://www.bls.gov** **(http://www.bls.gov)**). What is the national unemployment rate right now? Find the unemployment rate for the demographic group that best fits a description of you (for example, based on age, sex, and race). Is it higher or lower than the national average? Why do you think this is so?

3. Between 2004 and 2007, total U.S. employment increased by 6.8 million workers, but the number of unemployed workers declined by only 1.1 million. How are these numbers consistent with each other? Why might one expect a reduction in the number of people counted as unemployed to be smaller than the increase in the number of people employed?

4. Economists use labor-market data to evaluate how well an economy is using its most valuable resource?its people. Two closely watched statistics are the unemployment rate and the employment-population ratio. Explain what happens to each of these in the following scenarios. In your opinion, which statistic is the more meaningful gauge of how well the economy is doing?
   a. An auto company goes bankrupt and lays off its workers, who immediately start looking for new jobs.
   b. After an unsuccessful search, some of the laid-off workers quit looking for new jobs.
   c. Numerous students graduate from college but cannot find work.
   d. Numerous students graduate from college and immediately begin new jobs.
   e. A stock market boom induces newly enriched 60-year-old workers to take early retirement.
   f. Advances in healthcare prolong the life of many retirees.

5. Are the following workers more likely to experience short-term or long-term unemployment? Explain.
   a. A construction worker laid off because of bad weather
   b. A manufacturing worker who loses her job at a plant in an isolated area
   c. A stagecoach-industry worker laid off because of competition from railroads
   d. A short-order cook who loses his job when a new restaurant opens across the street
   e. An expert welder with little formal education who loses her job when the company installs automatic welding machinery

6. Using a diagram of the labor market, show the effect of an increase in the minimum wage on the wage paid to workers, the number of workers supplied, the number of workers demanded, and the amount of unemployment.

7. Consider an economy with two labor markets—one for manufacturing workers and one for service workers. Suppose initially that neither is unionized.
   a. If manufacturing workers formed a union, what impact on the wages and employment in manufacturing would you predict?
   b. How would these changes in the manufacturing labor market affect the supply of labor in the market for service workers? What would happen to the equilibrium wage and employment in this labor market?

8. Structural unemployment is sometimes said to result from a mismatch between the job skills that employers want and the job skills that

workers have. To explore this idea, consider an economy with two industries: auto manufacturing and aircraft manufacturing.

a. If workers in these two industries require similar amounts of training, and if workers at the beginning of their careers could choose which industry to train for, what would you expect to happen to the wages in these two industries? How long would this process take? Explain.

b. Suppose that one day the economy opens itself to international trade and, as a result, starts importing autos and exporting aircraft. What would happen to demand for labor in these two industries?

c. Suppose that workers in one industry cannot be quickly retrained for the other. How would these shifts in demand affect equilibrium wages both in the short run and in the long run?

d. If for some reason wages fail to adjust to the new equilibrium levels, what would occur?

9. Suppose that Congress passes a law requiring employers to provide employees some benefit (such as healthcare) that raises the cost of an employee by $4 per hour.

a. What effect does this employer mandate have on the demand for labor? (In answering this and the following questions, be quantitative when you can.)

b. If employees place a value on this benefit exactly equal to its cost, what effect does this employer mandate have on the supply of labor?

c. If the wage is free to balance supply and demand, how does this law affect the wage and the level of employment? Are employers better or worse off? Are employees better or worse off?

d. Suppose that, before the mandate, the wage in this market was $3 above the minimum wage. In this case, how does the employer mandate affect the wage, the level of employment, and the level of unemployment?

e. Now suppose that workers do not value the mandated benefit at all. How does this alternative assumption change your answers to parts (b) and (c)?

For further information on topics in this chapter, additional problems, applications, examples, online quizzes, and more, please visit our website at **www.cengage.com/economics/mankiw** **(http://www.cengage.com/economics/mankiw).**

Chapter Recap: Key Terms

- collective bargaining

  the process by which unions and firms agree on the terms of employment

- cyclical unemployment

  the deviation of unemployment from its natural rate

- discouraged workers

  individuals who would like to work but have given up looking for a job

- efficiency wages

  above-equilibrium wages paid by firms to increase worker productivity

- frictional unemployment

  unemployment that results because it takes time for workers to search for the jobs that best suit their tastes and skills

- job search

  the process by which workers find appropriate jobs given their tastes and skills

- labor force

  the total number of workers, including both the employed and the unemployed

- labor-force participation rate

  the percentage of the adult population that is in the labor force

- natural rate of unemployment

  the normal rate of unemployment around which the unemployment rate fluctuates

- strike

  the organized withdrawal of labor from a firm by a union

- structural unemployment

  unemployment that results because the number of jobs available in some labor markets is insufficient to provide a job for everyone who wants one

- unemployment insurance

  a government program that partially protects workers' incomes when they become unemployed

- unemployment rate

  the percentage of the labor force that is unemployed

- union

  a worker association that bargains with employers over wages, benefits, and working conditions