CHAPTER 8 INTRODUCTION TO UNEMPLOYMENT

Figure 8.1a Borders was one of the many companies unable to recover from the 2008-2009 economic recession. Borders – Out of business (https://www.flickr.com/photos/maguisso/6102108771/in/photolist-aidUkV) by Luis Villa del Campo is licensed under CC BY 2.0. Modifications made by Steven A. Greenlaw, David Shapiro include cropping and licensed under CC BY 4.0.

Bring It Home

Unemployment and the Great Recession

Nearly eight million U.S. jobs were lost as a consequence of the Great Recession, which lasted from December 2007 to June 2009. At the outset of the recession, the unemployment rate was 5.0%. The rate began rising several months after the recession began, and it peaked at 10.0% in October 2009, several months after the recession ended, according to the Bureau of Labor Statistics (BLS). The job loss represented a huge number of positions gone. Subsequently, the recovery was tepid. Companies added some positions, but as of summer 2013, four years after the end of the recession, unemployment was about 7.5%, well above the pre-recession rate. Employment began increasing at

the outset of 2010, and reached its pre-recession level in mid-2014. However, because of population and labour force growth, the unemployment rate at that point was still slightly above 6%. The economy only returned to an unemployment rate of 5.0% in September 2015, and it has remained at or slightly below that level since then, up through January 2017.

This brief overview of unemployment during and after the Great Recession highlights a few important points. First, unemployment is a lagging indicator of business activity. It didn't begin to increase until a few months after the onset of the recession, and it didn't begin to decline until several months after the recovery. Second, the decline in the unemployment rate was quite slow, with the pre-recession unemployment rate only reaching a higher level than six years after the recession ended. This reflects a combination of slow increase in the number of jobs and ongoing increases in the size of the population and the labour force.

It turns out that recent recessions, going back to the early 1990s, have been characterized by longer periods of recovery than their predecessors. We will return to this point at the end of the chapter. However, first we need to examine unemployment. What constitutes it, and how do we measure it?

Unemployment can be a terrible and wrenching life experience—like a serious automobile accident or a messy divorce—whose consequences only someone who has gone through it can fully understand. For unemployed individuals and their families, there is the day-to-day financial stress of not knowing from where the next paycheck is coming. There are painful adjustments, like watching your savings account dwindle, selling a car and buying a cheaper one, or moving to a less expensive place to live. Even when the unemployed person finds a new job, it may pay less than the previous one. For many people, their job is an important part of their self worth. When unemployment separates people from the workforce, it can affect family relationships as well as mental and physical health.

The human costs of unemployment alone would justify making a low level of unemployment an important public policy priority. However, unemployment also includes economic costs to the broader society. When millions of unemployed but willing workers cannot find jobs, economic resource are unused. An economy with high unemployment is like a company operating with a functional but unused factory. The opportunity cost of unemployment is the output that the unemployed workers could have produced.

This chapter will discuss how economists define and compute the unemployment rate. It will examine the patterns of unemployment over time, for the U.S. economy as a whole, for different demographic groups in the U.S. economy, and for other countries. It will then consider an economic explanation for unemployment, and how it explains the patterns of unemployment and suggests public policies for reducing it.

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8.1 - INTRODUCTION TO UNEMPLOYMENT

Learning Objectives

- Classify the different measures and types of unemployment
- Define full employment
- Discuss structural unemployment, frictional unemployment, and the natural unemployment rate

Defining Unemployment

Unemployment, also referred to as joblessness, occurs when people are without work and are actively seeking employment. During periods of recession, an economy usually experiences high unemployment rates. There are many proposed causes, consequences, and solutions for unemployment.

Types of Unemployment

- **Classical:** occurs when real wages for jobs are set above the market-clearing level. It causes the number of job seekers to be higher than the number of vacancies.
- **Cyclical:** occurs when there is not enough aggregate demand in the economy to provide jobs for everyone who wants to work. Demand for goods and services decreases, less production is needed, and fewer workers are needed.
- **Structural:** occurs when the labour market is not able to provide jobs for everyone who wants to work. There is a mismatch between the skills of the unemployed workers and the skills needed for available jobs. It differs from **frictional unemployment** because it lasts longer.
- **Frictional:** the time period in between jobs when a worker is searching for work or transitioning from one job to another.

- **Hidden:** the unemployment of potential workers that is not taken into account in official unemployment statistics because of how the data is collected. For example, workers are only considered unemployed if they are looking for work so those without jobs who have stopped looking are no longer considered unemployed.
- **Long-term:** usually defined as unemployment lasting longer than one year.

Measuring Unemployment

Unemployment is calculated as a percentage by dividing the number of unemployed individuals by the number of all individuals currently employed in the workforce. The final measurement is called the rate of unemployment.
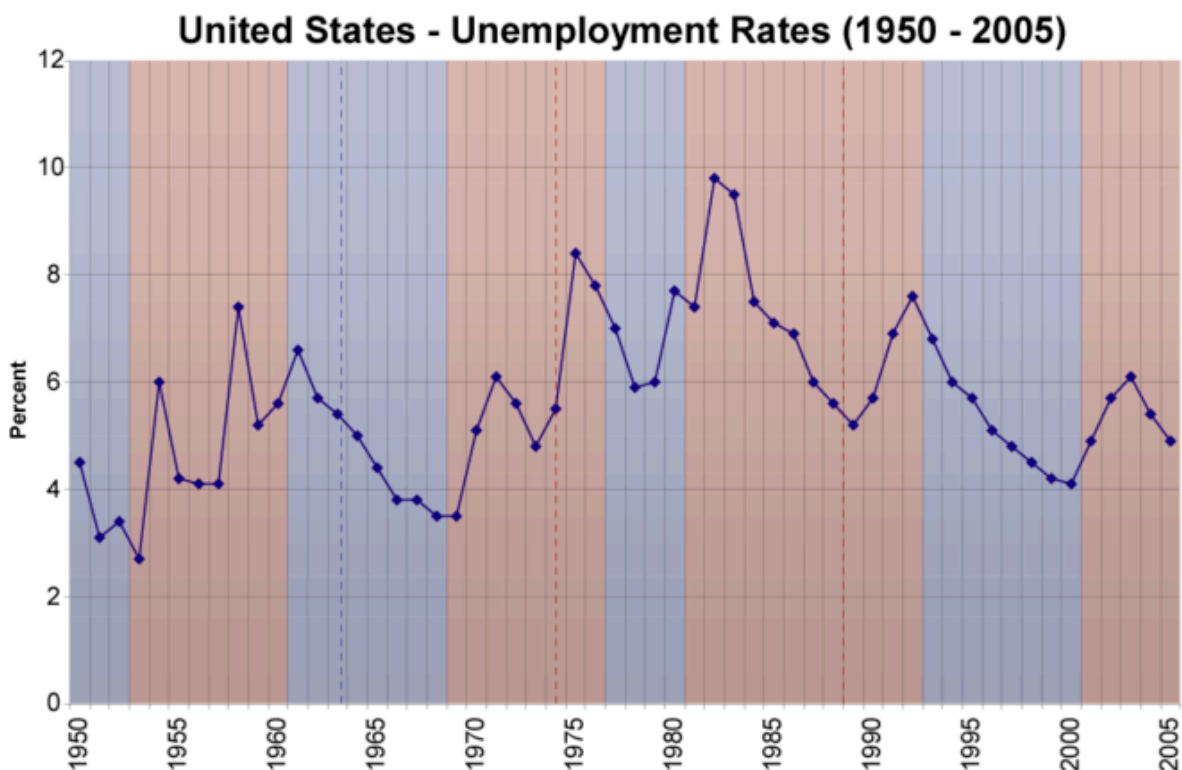
Figure 8.1a Unemployment Rate: Unemployment is calculated as a percentage by dividing the number of unemployed individuals by the number of individual employed in the labour force.Unemployment rates in the United States (1950 – 2005) (https://commons.wikimedia.org/wiki/File:Us_unemployment_rates_1950_2005.png) by Aude, licensed under CC BY-SA.

Effects of Unemployment

When unemployment rates are high and steady, there are negative impacts on the long-run economic growth. Unemployment wastes resources, generates redistributive pressures and distortions, increases poverty, limits

labour mobility, and promotes social unrest and conflict. The effects of unemployment can be broken down into three types:

- **Individual:** people who are unemployed cannot earn money to meet their financial obligations. Unemployment can lead to homelessness, illness, and mental stress. It can also cause underemployment where workers take on jobs that are below their skill level.
- **Social:** an economy that has high unemployment is not using all of its resources efficiently, specifically labour. When individuals accept employment below their skill level the economies efficiency is reduced further. Workers lose skills which causes a loss of human capital.
- **Socio-political:** high unemployment rates can cause civil unrest in a country.

Reducing Unemployment

There are numerous solutions that can help reduce the amount of unemployment:

- **Demand side solutions:** many countries aid unemployed workers through social welfare programs. Individuals receive unemployment benefits including insurance, compensation, welfare, and subsidies to aid in retraining. An example of a demand side solution is government funded employment of the able-bodied poor.
- **Supply side solutions:** the labour market is not 100% efficient. Supply side solutions remove the minimum wage and reduce the power of unions. The policies are designed to make the market more flexible in an attempt to increase long-run economic growth. Examples of supply side solutions include cutting taxes on businesses, reducing regulation, and increasing education.

Defining Full Employment

Full employment is defined as an acceptable level of unemployment somewhere above 0%; there is no cyclical or deficient-demand unemployment.

Full Employment

In macroeconomics, **full employment** is the level of employment rates where there is no cyclical or deficient-demand unemployment. Mainstream economists define full employment as an acceptable level of unemployment somewhere above 0%. Full employment represents a range of possible unemployment rates based on the country, time period, and political biases.
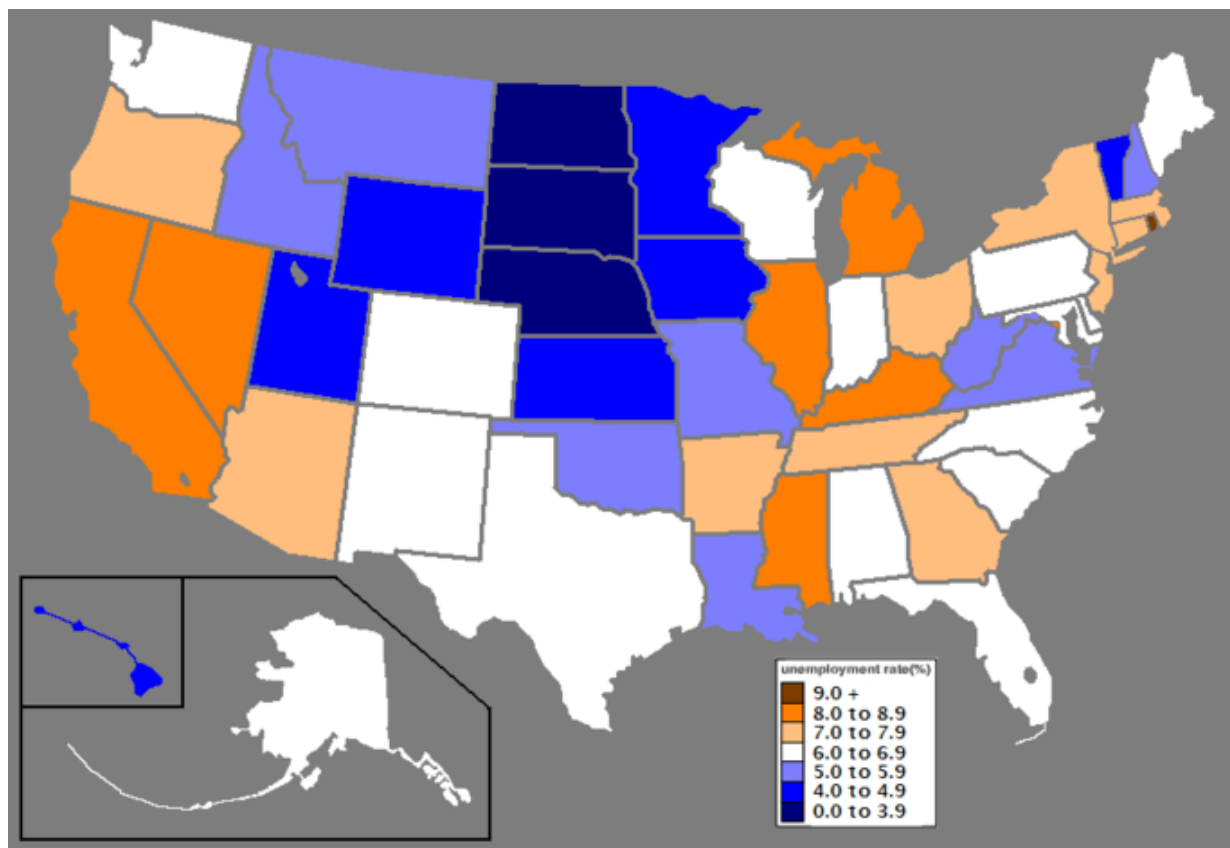
Figure 8.1b. U.S. Unemployment: The graph shows the unemployment rates in the United States. Full employment is defined as "ideal" unemployment. It is important because it keeps inflation under control. Map of U.S. states by unemployment rate (https://en.wikipedia.org/w/index.php?title=File:Map_of_U.S._states_by_unemployment_rate.png&offset=&limit=500#file) by Bullshark44, licensed under CC BY-SA. Colours modified January 2014 by Armouredduck, licensed under CC BY-SA.

Ideal Unemployment

Full employment is often seen as an "ideal" unemployment rate. Ideal unemployment excludes types of unemployment where labour-market inefficiency is reflected. Only some frictional and voluntary unemployment exists, where workers are temporarily searching for new jobs. This classifies the unemployed individuals as being without a job voluntarily. Ideal unemployment promotes the efficiency of the economy.

Lord William Beveridge defined "full employment" as the situation where the number of unemployed workers equaled the number of job vacancies available. He preferred that the economy be kept above the full employment level to allow for maximum economic production.

Non-Accelerating Inflation Rate of Unemployment (NAIRU)

The full employment unemployment rate is also referred to as "natural" unemployment. In an effort to avoid this normative connotation, James Tobin introduced the term "Non-Accelerating Inflation Rate of Unemployment" also known as the NAIRU. It corresponds to the level of unemployment when real GDP equals potential output. The NAIRU has been called the "inflation threshold. " The NAIRU states the inflation does not rise or fall when unemployment equals the natural rate.

As an example, the United States is committed to full employment. The "Full Employment Act" was passed in 1946 and revised in 1978. It states that full employment in the United States is no more than 3% unemployment for persons 20 and older, and 4% for persons aged 16 and over.

Types of Unemployment: Frictional, Structural, Cyclical

In economics, unemployment is occurs when people are without work while actively searching for employment.

Unemployment

In economics, unemployment occurs when people are without work while actively searching for employment. The unemployment rate is a percentage, and calculated by dividing the number of unemployed individuals by the number of all currently employed individuals in the labour force. The causes, consequences, and solutions vary based on the specific type of unemployment that is present within a country.
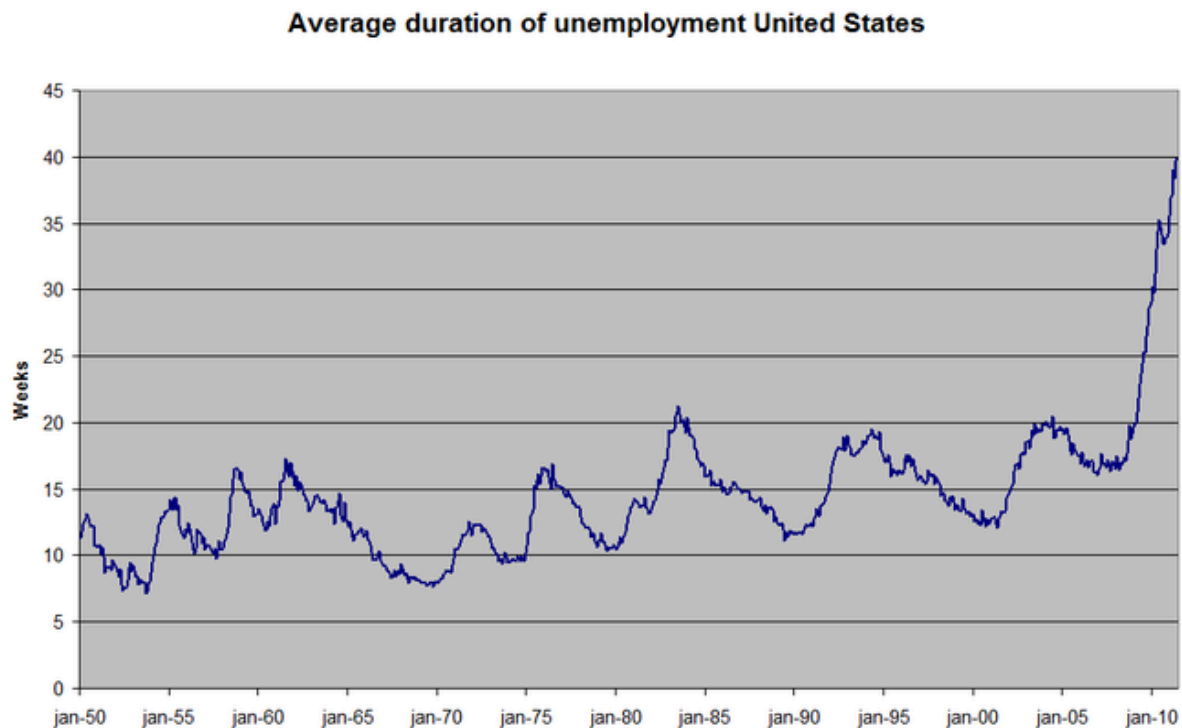
Average duration of unemployment United States

Figure 8.1c U.S. Unemployment: This graph shows the average duration of unemployment in the United States from 1950-2010. Unemployment occurs when there are more individuals seeking jobs than there are vacancies.US average duration of unemployment (https://commons.wikimedia.org/wiki/File:US_average_duration_of_unemployment.png) by MartinD, licensed under CC BY-SA.

Structural Unemployment

Structural unemployment is one of the main types of unemployment within an economic system. It focuses on the structural problems within an economy and inefficiencies in labour markets. Structural unemployment occurs when a labour market is not able to provide jobs for everyone who is seeking employment. There is a mismatch between the skills of the unemployed workers and the skills needed for the jobs that are available. It is often impacted by persistent cyclical unemployment. For example, when an economy experiences long-term unemployment individuals become frustrated and their skills become obsolete. As a result, when the economy recovers they may not fit the requirements of new jobs due to their inactivity.

Figure 8.1d Retraining: When there is structural unemployment, workers may seek to learn different skills so that they can apply to new types of jobs. Stone Hall Adult Education Centre, Warwick Road, Acocks Green – sign (https://www.flickr.com/photos/ell-r-brown/4325684057) by Elliott Brown, licensed under CC BY.

Frictional Unemployment

Frictional unemployment is another type of unemployment within an economy. It is the time period between jobs when a worker is searching for or transitioning from one job to another. Frictional unemployment is always present to some degree in an economy. It occurs when there is a mismatch between the workers and jobs. The mismatch can be related to skills, payment, work time, location, seasonal industries, attitude, taste, and other factors. Frictional unemployment is influenced by voluntary decisions to work based on each individual's valuation of their own work and how that compares to current wage rates as well as the time and effort required to find a job.

Cyclical Unemployment

Cyclical unemployment is a type of unemployment that occurs when there is not enough aggregate demand in the economy to provide jobs for everyone who wants to work. In an economy, demand for most goods falls, less production is needed, and less workers are needed. With cyclical unemployment the number of unemployed workers is greater that the number of job vacancies.

The Natural Unemployment Rate

The natural unemployment rate, sometimes called the structural unemployment rate, was developed by Friedman and Phelps in the 1960s. It represents the hypothetical unemployment rate that is consistent with aggregate production being at a long-run level. The natural rate of unemployment is a combination of structural and frictional unemployment. It is present in an efficient and expanding economy when labour and resource markets are at equilibrium. The natural unemployment rate occurs within an economy when disturbances are not present.

Key Takeaways

- Types of unemployment determine what the causes, consequences, and solutions. The types of unemployment include: classical, cyclical, structural, frictional, hidden, and long-term.
- Unemployment is calculated as a percentage by dividing the number of unemployed individuals by the number of all the individuals currently employed in the work force.
- When unemployment rates are high and steady, there are negative impacts on the long-run economic growth.
- Demand side and supply side solutions are used to reduce unemployment rates.
- Full employment represents a range of possible unemployment rates based on the country, time period, and political biases.
- Full employment is often seen as an "ideal" unemployment rate. Ideal unemployment excludes types of unemployment where labour-market inefficiency is reflected.
- The full employment unemployment rate is also referred to as "natural" unemployment.
- The Non-Accelerating Inflation Rate of Unemployment (NAIRU) corresponds to the unemployment rate when real GDP equals potential output.
- Structural unemployment focuses on the structural problems within an economy and inefficiencies in labour markets.
- Frictional unemployment is the time period between jobs when a worker is searching for or transitioning from one job to another.
- Cyclical unemployment is a type of unemployment that occurs when there is not enough aggregate demand in the economy to provide jobs for everyone who wants to work.
- Classical unemployment occurs when real wages for a jobs are set above the marketing

clearing level.
- The natural unemployment rate represents the hypothetical unemployment rate that is consistent with aggregate production being at a long-run level.

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8.2 - HOW ECONOMISTS DEFINE AND COMPUTE UNEMPLOYMENT RATE

Learning Objectives

- Calculate the labour force participation rate and the unemployment rate
- Explain hidden unemployment and what it means to be in or out of the labour force
- Evaluate the collection and interpretation of unemployment data

Newspaper or television reports typically describe unemployment as a percentage or a rate. A recent report might have said, for example, *from August 2009 to November 2009, the U.S. unemployment rate rose from 9.7% to 10.0%, but by June 2010, it had fallen to 9.5%*. At a glance, the changes between the percentages may seem small. However, remember that the U.S. economy has about 160 million adults (as of the beginning of 2017) who either have jobs or are looking for them. A rise or fall of just 0.1% in the unemployment rate of 160 million potential workers translates into 160,000 people, which is roughly the total population of a city like Syracuse, New York, Brownsville, Texas, or Pasadena, California. Large rises in the unemployment rate mean large numbers of job losses. In November 2009, at the peak of the recession, about 15 million people were out of work. Even with the unemployment rate now at 4.8% as of January 2017, about 7.6 million people who would like to have jobs are out of work.

Link It Up

The Bureau of Labor Statistics [New Tab] (http://openstax.org/l/BLS1) tracks and reports all data related to unemployment.

Who's In or Out of the Labour Force?

Should we count everyone without a job as unemployed? Of course not. For example, we should not count children as unemployed. Surely, we should not count the retired as unemployed. Many full-time college students have only a part-time job, or no job at all, but it seems inappropriate to count them as suffering the pains of unemployment. Some people are not working because they are rearing children, ill, on vacation, or on parental leave.

The point is that we do not just divide the adult population into employed and unemployed. A third group exists: people who do not have a job, and for some reason—retirement, looking after children, taking a voluntary break before a new job—are not interested in having a job, either. It also includes those who do want a job but have quit looking, often due to discouragement due to their inability to find suitable employment. Economists refer to this third group of those who are not working and not looking for work as **out of the labour force** or not in the labour force.

The U.S. unemployment rate, which is based on a monthly survey carried out by the U.S. Bureau of the Census, asks a series of questions to divide the adult population into employed, unemployed, or not in the labour force. To be classified as unemployed, a person must be without a job, currently available to work, and actively looking for work in the previous four weeks. Thus, a person who does not have a job but who is not currently available to work or has not actively looked for work in the last four weeks is counted as out of the labour force.

Employed: currently working for pay

Unemployed: Out of work and actively looking for a job

Out of the labour force: Out of paid work and not actively looking for a job

Labour force: the number of employed plus the unemployed

Calculating the Unemployment Rate

Figure 8.2a shows the three-way division of the 16-and-over population. In January 2017, about 62.9% of the adult population was "in the labour force"; that is, people are either employed or without a job but looking for work. We can divide those in the labour force into the employed and the unemployed. Table 8.2a shows those values. The unemployment rate is not the percentage of the total adult population without jobs, but rather the percentage of adults who are in the labour force but who do not have jobs:

$$\text{Unemployment rate} = \frac{\text{Unemployment rate}}{\text{Total labour force}} \times 100$$
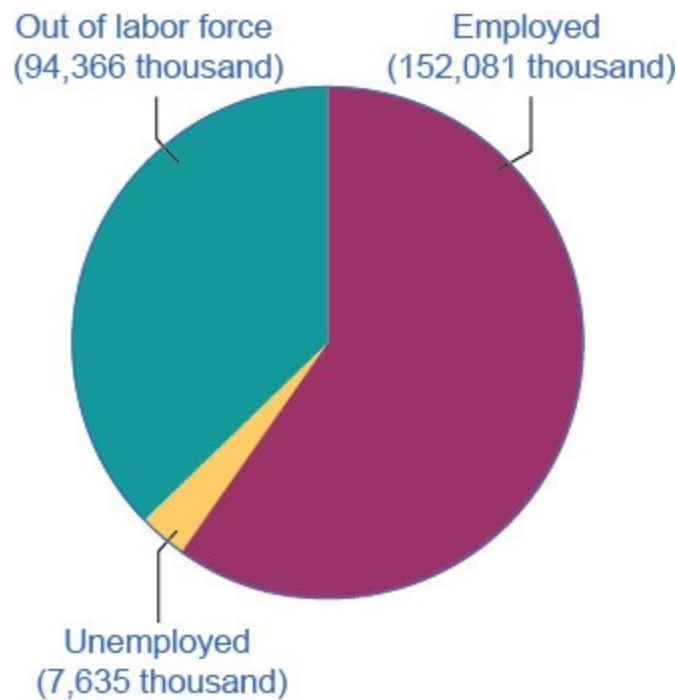

Figure 8.2a Employed, Unemployed, and Out of the Labour Force Distribution of Adult Population (age 16 and older), January 2017.
Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0.

Figure 8.2a Employed, Unemployed, and Out of the Labor Force Distribution of Adult Population (age 16 and older), January 2017 The total adult, working-age population in January 2017 was 254.1 million. Out of this total population, 152.1 were classified as employed, and 7.6 million were classified as unemployed. The remaining 94.4 were classified as out of the labour force. As you will learn, however, this seemingly simple chart does not tell the whole story.

Table 8.2a U.S. Employment and Unemployment, January 2017 (Source: https://data.bls.gov)

Total adult population over the age of 16	254.082 million
In the labour force	159.716 million (62.9%)
Employed	152.081 million
Unemployed	7.635 million
Out of the labour force	94.366 million (37.1%)

In this example, we can calculate the unemployment rate as 7.635 million unemployed people divided by 159.716 million people in the labour force, which works out to a 4.8% rate of unemployment. The following Work It Out feature will walk you through the steps of this calculation.

Work It Out

Calculating Labour Force Percentages

How do economists arrive at the percentages in and out of the labour force and the unemployment rate? We will use the values in Table 21.1 to illustrate the steps.

To determine the percentage in the labour force:

Step 1. Divide the number of people in the labour force (159.716 million) by the total adult (working-age) population (254.082 million).

Step 2. Multiply by 100 to obtain the percentage.

$$\text{Percentage in the labour force} = \frac{159.716}{254.082}$$
$$= 0.6286$$
$$= 62\%$$

To determine the percentage out of the labour force:

Step 1. Divide the number of people out the labour force (94.366 million) by the total adult (working-age) population (254.082 million).

Step 2. Multiply by 100 to obtain the percentage.

$$\text{Percentage in the labour force} = \frac{94.366}{254.082}$$
$$= 0.3714$$
$$= 37.1\%$$

To determine the unemployment rate:

Step 1. Divide the number of unemployed people (7.635 million) by the total labour force (157 million).

Step 2. Multiply by 100 to obtain the rate.

$$\text{Unemployment rate} = \frac{7.635}{159.716}$$
$$= 0.0478$$
$$= 4.8\%$$

Hidden Unemployment

Even with the "out of the labour force" category, there are still some people who are mislabeled in the categorization of employed, unemployed, or out of the labour force. There are some people who have only part time or temporary jobs, and they are looking for full time and permanent employment that are counted as employed, although they are not employed in the way they would like or need to be. Additionally, there are individuals who are **underemployed**. This includes those who are trained or skilled for one type or level of work but are working in a lower paying job or one that does not utilize their skills. For example, we would consider an individual with a college degree in finance who is working as a sales clerk underemployed. They are, however, also counted in the employed group. All of these individuals fall under the umbrella of the term "hidden unemployment." Discouraged workers, those who have stopped looking for employment and, hence, are no longer counted in the unemployed also fall into this group

Labour Force Participation Rate

Another important statistic is the labour force participation rate. This is the percentage of adults in an economy who are either employed or who are unemployed and looking for a job. Using the data in Figure 8.2a and Table 8.2a, those included in this calculation would be the 159.716 million individuals in the labour force. We calculate the rate by taking the number of people in the labour force, that is, the number employed and the number unemployed, divided by the total adult population and multiplying by 100 to get the percentage. For the data from January 2017, the labour force participation rate is 62.9%. Historically, the civilian labour force participation rate in the United States climbed beginning in the 1960s as women increasingly entered the workforce, and it peaked at just over 67% in late 1999 to early 2000. Since then, the labour force participation rate has steadily declined, slowly to about 66% in 2008, early in the Great Recession, and then more rapidly during and after that recession, reaching its present level, where it has remained stable, near the end of 2013.

The Establishment Payroll Survey

When the unemployment report comes out each month, the Bureau of Labor Statistics (BLS) also reports on the number of jobs created—which comes from the establishment payroll survey. The payroll survey is based on a survey of about 147,000 businesses and government agencies throughout the United States. It generates payroll employment estimates by the following criteria: all employees, average weekly hours worked, and average hourly, weekly, and overtime earnings. One of the criticisms of this survey is that it does not count the self-employed. It also does not make a distinction between new, minimum wage, part time or temporary jobs and full time jobs with "decent" pay.

How Does the U.S. Bureau of Labor Statistics Collect the U.S. Unemployment Data?

The unemployment rate announced by the U.S. Bureau of Labor Statistics on the first Friday of each month for the previous month is based on the Current Population Survey (CPS), which the Bureau has carried out every month since 1940. The Bureau takes great care to make this survey representative of the country as a whole. The country is first divided into 3,137 areas. The U.S. Bureau of the Census then selects 729 of these areas to survey. It divides the 729 areas into districts of about 300 households each, and divides each district into clusters of about four dwelling units. Every month, Census Bureau employees call about 15,000 of the four-household clusters, for a total of 60,000 households. Employees interview households for four consecutive months, then rotate them out of the survey for eight months, and then interview them again for the same four months the following year, before leaving the sample permanently.

Based on this survey, state, industry, urban and rural areas, gender, age, race or ethnicity, and level of education statistics comprise components that contribute to unemployment rates. A wide variety of other information is available, too. For example, how long have people been unemployed? Did they become unemployed because they quit, or were laid off, or their employer went out of business? Is the unemployed person the only wage earner in the family? The Current Population Survey is a treasure trove of information about employment and unemployment. If you are wondering what the difference is between the CPS and EPS, read the following Clear it Up feature.

Clear It Up

What is the difference between CPS and EPS?

The United States Census Bureau conducts the Current Population Survey (CPS), which measures the percentage of the labour force that is unemployed. The Bureau of Labor Statistics' establishment payroll survey (EPS) is a payroll survey that measures the net change in jobs created for the month.

Criticisms of Measuring Unemployment

There are always complications in measuring the number of unemployed. For example, what about people who do not have jobs and would be available to work, but are discouraged by the lack of available jobs in their area and stopped looking? Such people, and their families, may be suffering the pains of unemployment. However, the survey counts them as out of the labour force because they are not actively looking for work.

Other people may tell the Census Bureau that they are ready to work and looking for a job but, truly, they are not that eager to work and are not looking very hard at all. They are counted as unemployed, although they might more accurately be classified as out of the labour force. Still other people may have a job, perhaps doing something like yard work, child care, or cleaning houses, but are not reporting the income earned to the tax authorities. They may report being unemployed, when they actually are working.

Although the unemployment rate gets most of the public and media attention, economic researchers at the Bureau of Labor Statistics publish a wide array of surveys and reports that try to measure these kinds of issues and to develop a more nuanced and complete view of the labour market. It is not exactly a hot news flash that economic statistics are imperfect. Even imperfect measures like the unemployment rate, however, can still be quite informative, when interpreted knowledgeably and sensibly.

Link It Up

To learn more about the CPS and to read frequently asked questions about employment and labour take a look at Labour Force Statistics from the Current Population Survey [New Tab]. (https://www.bls.gov/cps/)

Key Concepts and Summary

Unemployment imposes high costs. Unemployed individuals suffer from loss of income and from stress. An economy with high unemployment suffers an opportunity cost of unused resources. We can divide the adult population into those in the labour force and those out of the labour force. In turn, we divide those in the labour force into employed and unemployed. A person without a job must be willing and able to work and actively looking for work to be counted as unemployed; otherwise, a person without a job is counted as out of the labour force. Economists define the unemployment rate as the number of unemployed persons divided by the number of persons in the labour force (not the overall adult population). The Current Population Survey (CPS) conducted by the United States Census Bureau measures the percentage of the labour force that is unemployed.

The establishment payroll survey by the Bureau of Labor Statistics measures the net change in jobs created for the month.

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8.3 - PATTERNS OF UNEMPLOYMENT

Learning Objectives

- Explain historical patterns of unemployment in the U.S.
- Identify trends of unemployment based on demographics
- Evaluate global unemployment rates

Let's look at how unemployment rates have changed over time and how various groups of people are affected by unemployment differently.

The Historical U.S. Unemployment Rate

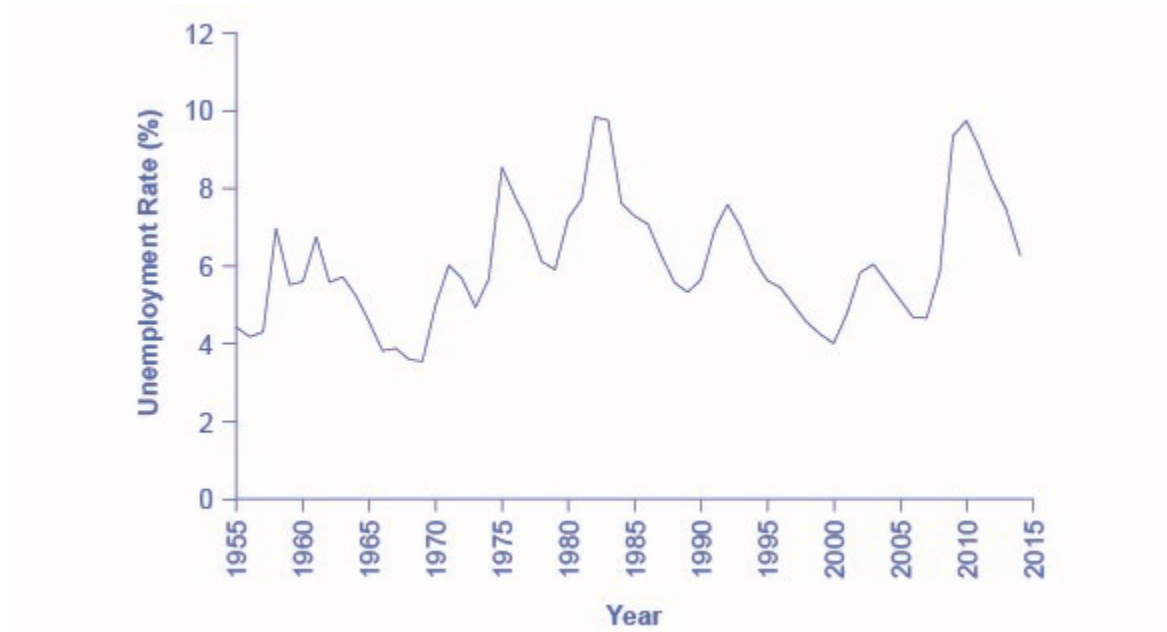Figure 8.3a shows the historical pattern of U.S. unemployment since 1955.

Figure 8.3a The U.S. Unemployment Rate, 1955–2015. The U.S. unemployment rate moves up and down as the economy moves in and out of recessions. However, over time, the unemployment rate seems to return to a range of 4% to 6%. There does not seem to be a long-term trend toward the rate moving generally higher or generally lower. (Source: Federal Reserve Economic Data (FRED) https://research.stlouisfed.org/fred2/series/LRUN64TTUSA156S0) Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0.

As we look at this data, several patterns stand out:

1. Unemployment rates do fluctuate over time. During the deep recessions of the early 1980s and of 2007–2009, unemployment reached roughly 10%. For comparison, during the 1930s Great Depression, the unemployment rate reached almost 25% of the labour force.
2. Unemployment rates in the late 1990s and into the mid-2000s were rather low by historical standards. The unemployment rate was below 5% from 1997 to 2000, and near 5% during almost all of 2006–2007, and 5% or slightly less from September 2015 through January 2017 (the latest date for which data are available as of this writing). The previous time unemployment had been less than 5% for three consecutive years was three decades earlier, from 1968 to 1970.
3. The unemployment rate never falls all the way to zero. It almost never seems to get below 3%—and it stays that low only for very short periods. (We discuss reasons why this is the case later in this chapter.)
4. The timing of rises and falls in unemployment matches fairly well with the timing of upswings and downswings in the overall economy, except that unemployment tends to lag changes in economic activity, and especially so during upswings of the economy following a recession. During periods of recession and depression, unemployment is high. During periods of economic growth, unemployment tends to be lower.

5. No significant upward or downward trend in unemployment rates is apparent. This point is especially worth noting because the U.S. population more than quadrupled from 76 million in 1900 to over 324 million by 2017. Moreover, a higher proportion of U.S. adults are now in the paid workforce, because women have entered the paid labour force in significant numbers in recent decades. Women comprised 18% of the paid workforce in 1900 and nearly half of the paid workforce in 2017. However, despite the increased number of workers, as well as other economic events like globalization and the continuous invention of new technologies, the economy has provided jobs without causing any long-term upward or downward trend in unemployment rates.

Link it Up

FRED graph on the Unemployment Rate from 1948 to present [New Tab] shows the rate moves up and down as the economy moves in and out of recessions.

Unemployment Rates by Group

Unemployment is not distributed evenly across the U.S. population. Figure 8.3b shows unemployment rates broken down in various ways: by gender, age, and race/ethnicity.
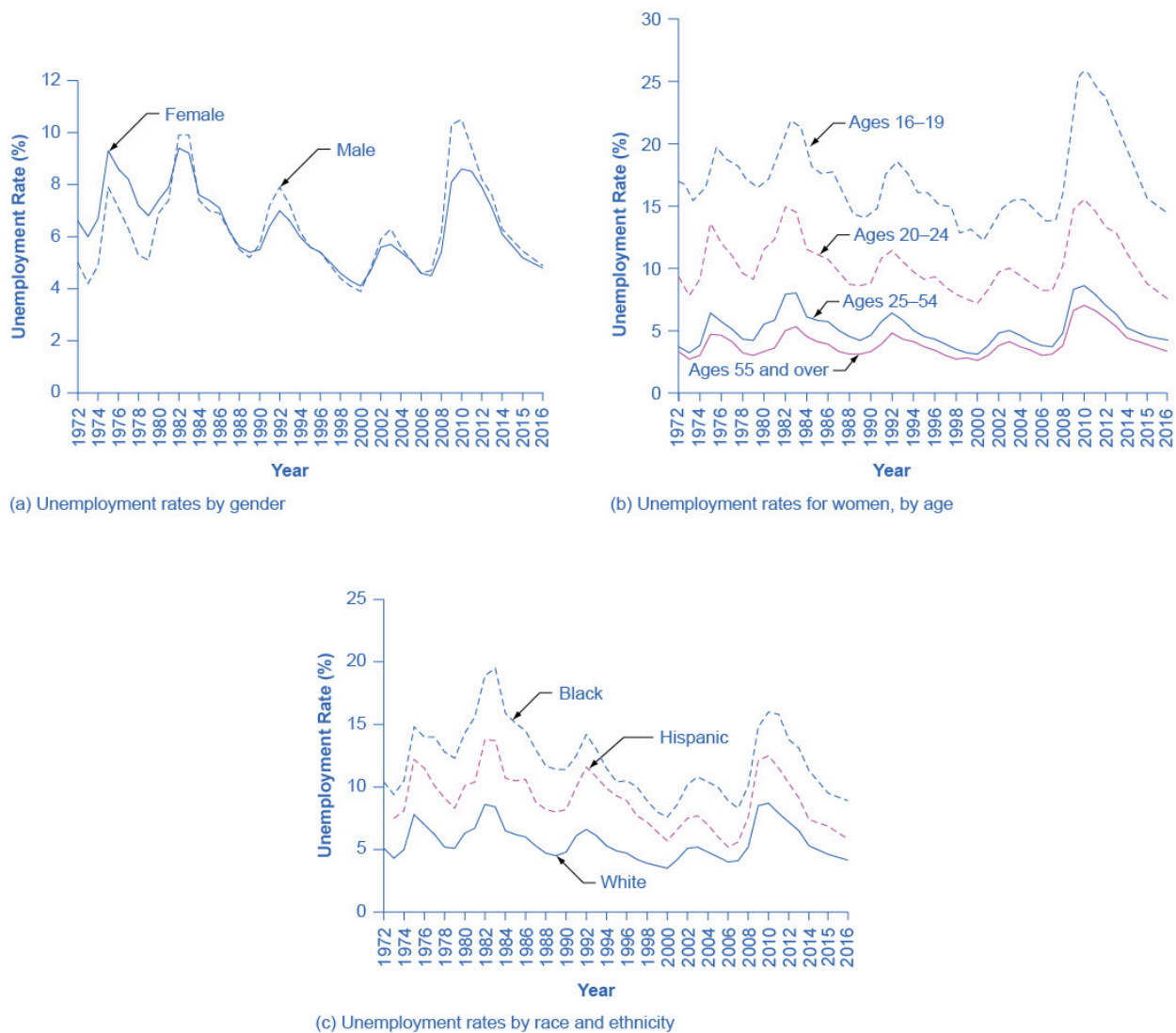
(a) Unemployment rates by gender

(b) Unemployment rates for women, by age

(c) Unemployment rates by race and ethnicity

Figure 8.3b Unemployment Rate by Demographic Group. Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0.

Figure 8.3b Unemployment Rate by Demographic Group (Text Version)

Graph a shows the trends in unemployment rates by gender for the year 1972 to 2014. In 1972 the graph starts out at 6.6% for females. It jumps to 9.3% in 1975 for females, gradually goes back down until 2009, when it rises to 8.1%. It gradually lowers to 6.1% in 2014 for females. For males, it starts out at around 5% in 1972, goes up and down periodically, and ends at 6.3% in 2014. Graph b shows the trends in unemployment rates for women, by age for the year 1972 to 2014. In 1972, the graph starts out around 9% for women aged 20–24, goes up to 13.6% in 1975, and ends at 11.2% in 2014. In 1972, the graph starts out at 3.7% for women aged 25–54, jumps to 6.4% in 1975, and ends at around 5% in 2014. In 1972, the graph starts out around 3% for women aged 55 and over. It remains between 3–5% until 2010, when it jumps to 7%. In 2014, it drops down to 4.4%. Graph c shows the trends in unemployment rates by race and ethnicity for the year 1972 to

2014. In 1972, the graph starts out at 10.4% for Blacks, rises to nearly 15% in 1975, rises even more in 1983 to 19.5%, and ends up around 11% in 2014. In 1972, the graph starts out around 7% for Hispanics, rises to around 12% in 1975, and ends at 7.4% in 2014. In 1972, the graph starts out around 5% for Whites, jumps to nearly 8% in 1975, jumps again to nearly 8.5% in 1982, and ends up at around 5% in 2014.

Figure 8.3b Unemployment Rate by Demographic Group (a) By gender, 1972–2016. Unemployment rates for men used to be lower than unemployment rates for women, but in recent decades, the two rates have been very close, often– and especially during and soon after the Great Recession – with the unemployment rate for men somewhat higher. (b) By age, 1972–2016. Unemployment rates are highest for the very young and become lower with age. (c) By race and ethnicity, 1972–2016. Although unemployment rates for all groups tend to rise and fall together, the unemployment rate for Blacks is typically about twice as high as that for Whites, while the unemployment rate for Hispanics is in between. (Source: www.bls.gov).

The unemployment rate for women had historically tended to be higher than the unemployment rate for men, perhaps reflecting the historical pattern that women were seen as "secondary" earners. By about 1980, however, the unemployment rate for women was essentially the same as that for men, as Figure 8.3b (a) shows. During the 2008-2009 recession and in the immediate aftermath, the unemployment rate for men exceeded the unemployment rate for women. Subsequently, however, the gap has narrowed.

Link It Up

BLS Spotlight on Statistics: The Recession of 2007–2009 [New Tab] (https://www.bls.gov/spotlight/2012/recession/audio.htm) contains detailed information on the 2008–2009 recession and some very useful information on the statistics of unemployment.

Younger workers tend to have higher unemployment, while middle-aged workers tend to have lower unemployment, probably because the middle-aged workers feel the responsibility of needing to have a job more heavily. Younger workers move in and out of jobs more than middle-aged workers, as part of the process of matching of workers and jobs, and this contributes to their higher unemployment rates. In addition, middle-aged workers are more likely to feel the responsibility of needing to have a job more heavily. Elderly workers have extremely low rates of unemployment, because those who do not have jobs often exit the labour force by retiring, and thus are not counted in the unemployment statistics. Figure 8.3b (b) shows unemployment rates for women divided by age. The pattern for men is similar.

The unemployment rate for African-Americans is substantially higher than the rate for other racial or ethnic groups, a fact that surely reflects, to some extent, a pattern of discrimination that has constrained Blacks' labour market opportunities. However, the gaps between unemployment rates for Whites and for Blacks and

Hispanics diminished in the 1990s, as Figure 8.3b (c) shows. In fact, unemployment rates for Blacks and Hispanics were at the lowest levels for several decades in the mid-2000s before rising during the recent Great Recession.

Finally, those with less education typically suffer higher unemployment. In January 2017, for example, the unemployment rate for those with a college degree was 2.5%; for those with some college but not a four year degree, the unemployment rate was 3.8%; for high school graduates with no additional degree, the unemployment rate was 5.3%; and for those without a high school diploma, the unemployment rate was 7.7%. This pattern arises because additional education typically offers better connections to the labour market and higher demand. With less attractive labour market opportunities for low-skilled workers compared to the opportunities for the more highly-skilled, including lower pay, low-skilled workers may be less motivated to find jobs.

Breaking Down Unemployment in Other Ways

The Bureau of Labor Statistics also gives information about the reasons for unemployment, as well as the length of time individuals have been unemployed. Table 8.3a, for example, shows the four reasons for unemployment and the percentages of the currently unemployed that fall into each category. Table 8.3b shows the length of unemployment. For both of these, the data is from January 2017.(bls.gov)

Table 8.3a Reasons for Unemployment, January 2017

Reason	Percentage
New Entrants	10.8%
Re-entrants	28.7%
Job Leavers	11.4%
Job Losers: Temporary	14.0%
Job Losers: Non Temporary	35.1%

Table 8.3b Length of Unemployment, January 2017

Length of Time	Percentage
Under 5 weeks	32.5%
5 to 14 weeks	27.5%
15 to 26 weeks	15.7%
Over 27 weeks	27.4%

Link It Up

Listen to the Ted Talk Are droids taking our jobs? [New Tab] (https://www.ted.com/talks/andrew_mcafee_are_droids_taking_our_jobs) to learn about the impact of droids on the labour market.

International Unemployment Comparisons

From an international perspective, the U.S. unemployment rate typically has looked a little better than average. Table 8.3c compares unemployment rates for 1991, 1996, 2001, 2006 (just before the recession), and 2012 (somewhat after the recession) from several other high-income countries.

Table 8.3c International Comparisons of Unemployment Rates

Country	1991	1996	2001	2006	2012
United States	6.8%	5.4%	4.8%	4.4%	8.1%
Canada	9.8%	8.8%	6.4%	6.2%	6.3%
Japan	2.1%	3.4%	5.1%	4.5%	3.9%
France	9.5%	12.5%	8.7%	10.1%	10.0%
Germany	5.6%	9.0%	8.9%	9.8%	5.5%
Italy	6.9%	11.7%	9.6%	7.8%	10.8%
Sweden	3.1%	9.9%	5.0%	5.2%	7.9%
United Kingdom	8.8%	8.1%	5.1%	5.5%	8.0%

However, we need to treat cross-country comparisons of unemployment rates with care, because each country has slightly different definitions of unemployment, survey tools for measuring unemployment, and also different labour markets. For example, Japan's unemployment rates appear quite low, but Japan's economy has been mired in slow growth and recession since the late 1980s, and Japan's unemployment rate probably paints too rosy a picture of its labour market. In Japan, workers who lose their jobs are often quick to exit the labour force and not look for a new job, in which case they are not counted as unemployed. In addition, Japanese firms are often quite reluctant to fire workers, and so firms have substantial numbers of workers who are on reduced hours or officially employed, but doing very little. We can view this Japanese pattern as an unusual method for society to provide support for the unemployed, rather than a sign of a healthy economy.

Link It Up

We hear about the Chinese economy in the news all the time. The value of the Chinese yuan in comparison to the U.S. dollar is likely to be part of the nightly business report, so why is the Chinese economy not included in this discussion of international unemployment? The lack of reliable statistics is the reason. Divining (https://www.bloomberg.com/news/articles/2013-07-26/divining-unemployment-in-china#xj4y7vzkg)Unemployment in China [New Tab] explains China's unemployment figures.

Comparing unemployment rates in the United States and other high-income economies with unemployment rates in Latin America, Africa, Eastern Europe, and Asia is very difficult. One reason is that the statistical agencies in many poorer countries lack the resources and technical capabilities of the U.S. Bureau of the Census. However, a more difficult problem with international comparisons is that in many low-income countries, most workers are not involved in the labour market through an employer who pays them regularly. Instead, workers in these countries are engaged in short-term work, subsistence activities, and barter. Moreover, the effect of unemployment is very different in high-income and low-income countries. Unemployed workers in the developed economies have access to various government programs like unemployment insurance, welfare, and food stamps. Such programs may barely exist in poorer countries. Although unemployment is a serious problem in many low-income countries, it manifests itself in a different way than in high-income countries.

Key Concepts and Summary

The U.S. unemployment rate rises during periods of recession and depression, but falls back to the range of 4% to 6% when the economy is strong. The unemployment rate never falls to zero. Despite enormous growth in the size of the U.S. population and labour force in the twentieth century, along with other major trends like globalization and new technology, the unemployment rate shows no long-term rising trend.

Unemployment rates differ by group: higher for African-Americans and Hispanics than for Whites; higher for less educated than more educated; higher for the young than the middle-aged. Women's

unemployment rates used to be higher than men's, but in recent years men's and women's unemployment rates have been very similar. In recent years, unemployment rates in the United States have compared favorably with unemployment rates in most other high-income economies.

Attribution

Except where otherwise noted, this chapter is adapted from "Patterns of Unemployment (https://openstax.org/books/principles-economics-2e/pages/21-2-patterns-of-unemployment)" and "Key Concepts an Summary" In *Principles of Economics 2e (https://openstax.org/books/principles-economics-2e/pages/1-introduction)*. (OpenStax) by Steven A. Greenlaw, David Shapiro, licensed under CC BY 4.0. Adaptations include addition of chapter key concepts and summary.
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Media Attributions

8.4 - WHAT CAUSES CHANGES IN UNEMPLOYMENT OVER THE SHORT RUN

Learning Objectives

- Analyze cyclical unemployment
- Explain the relationship between sticky wages and employment using various economic arguments
- Apply supply and demand models to unemployment and wages

We have seen that unemployment varies across times and places. What causes changes in unemployment? There are different answers in the short run and in the long run. Let's look at the short run first.

Cyclical Unemployment

Let's make the plausible assumption that in the short run, from a few months to a few years, the quantity of hours that the average person is willing to work for a given wage does not change much, so the labour supply curve does not shift much. In addition, make the standard *ceteris paribus* assumption that there is no substantial short-term change in the age structure of the labour force, institutions and laws affecting the labour market, or other possibly relevant factors.

One primary determinant of the demand for labour from firms is how they perceive the state of the macro economy. If firms believe that business is expanding, then at any given wage they will desire to hire a greater quantity of labour, and the labour demand curve shifts to the right. Conversely, if firms perceive that the economy is slowing down or entering a recession, then they will wish to hire a lower quantity of labour at any given wage, and the labour demand curve will shift to the left. Economists call the variation in unemployment

that the economy causes moving from expansion to recession or from recession to expansion (i.e. the business cycle) cyclical unemployment.

From the standpoint of the supply-and-demand model of competitive and flexible labour markets, unemployment represents something of a puzzle. In a supply-and-demand model of a labour market, as Figure 8.4a illustrates, the labour market should move toward an equilibrium wage and quantity. At the equilibrium wage (We), the equilibrium quantity (Qe) of labour supplied by workers should be equal to the quantity of labour demanded by employers.
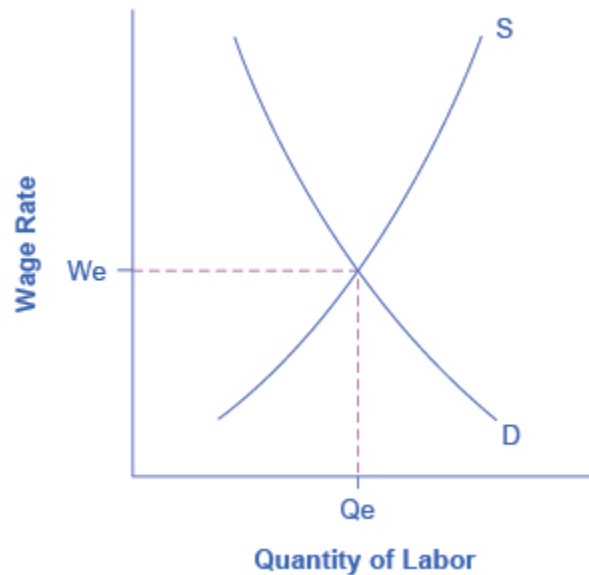

Figure 8.4a The Unemployment and Equilibrium in the Labour Market. In a labour market with flexible wages, the equilibrium will occur at wage We and quantity Qe, where the number of people who want jobs (shown by S) equals the number of jobs available (shown by D). Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0.

The graph reveals the complexity of unemployment in that, presumably, the number of jobs available should equal the number of individuals pursuing employment. Probably a few people are unemployed because of unrealistic expectations about wages, but they do not represent the majority of the unemployed. Instead, unemployed people often have friends or acquaintances of similar skill levels who are employed, and the unemployed would be willing to work at the jobs and wages similar to what those people are receiving. However, the employers of their friends and acquaintances do not seem to be hiring. In other words, these people are involuntarily unemployed. What causes involuntary unemployment?

Why Wages Might Be Sticky Downward

If a labour market model with flexible wages does not describe unemployment very well—because it predicts that anyone willing to work at the going wage can always find a job—then it may prove useful to consider economic models in which wages are not flexible or adjust only very slowly. In particular, even though wage increases may occur with relative ease, wage decreases are few and far between.

One set of reasons why wages may be "sticky downward," as economists put it, involves economic laws and institutions. For low-skilled workers receiving minimum wage, it is illegal to reduce their wages. For union workers operating under a multiyear contract with a company, wage cuts might violate the contract and create a labour dispute or a strike. However, minimum wages and union contracts are not a sufficient reason why wages would be sticky downward for the U.S. economy as a whole. After all, out of the 150 million or so employed workers in the U.S. economy, only about 2.6 million—less than 2% of the total—do not receive compensation above the minimum wage. Similarly, labour unions represent only about 11% of American wage and salary workers. In other high-income countries, more workers may have their wages determined by unions or the minimum wage may be set at a level that applies to a larger share of workers. However, for the United States, these two factors combined affect only about 15% or less of the labour force.

Economists looking for reasons why wages might be sticky downwards have focused on factors that may characterize most labour relationships in the economy, not just a few. Many have proposed a number of different theories, but they share a common tone.

One argument is that even employees who are not union members often work under an **implicit contract,** which is that the employer will try to keep wages from falling when the economy is weak or the business is having trouble, and the employee will not expect huge salary increases when the economy or the business is strong. This wage-setting behavior acts like a form of insurance: the employee has some protection against wage declines in bad times, but pays for that protection with lower wages in good times. Clearly, this sort of implicit contract means that firms will be hesitant to cut wages, lest workers feel betrayed and work less hard or even leave the firm.

Efficiency wage theory argues that workers' productivity depends on their pay, and so employers will often find it worthwhile to pay their employees somewhat more than market conditions might dictate. One reason is that employees who receive better pay than others will be more productive because they recognize that if they were to lose their current jobs, they would suffer a decline in salary. As a result, they are motivated to work harder and to stay with the current employer. In addition, employers know that it is costly and time-consuming to hire and train new employees, so they would prefer to pay workers a little extra now rather than to lose them and have to hire and train new workers. Thus, by avoiding wage cuts, the employer minimizes costs of training and hiring new workers, and reaps the benefits of well-motivated employees.

The **adverse selection of wage cuts argument** points out that if an employer reacts to poor business conditions by reducing wages for all workers, then the best workers, those with the best employment alternatives at other firms, are the most likely to leave. The least attractive workers, with fewer employment alternatives, are more likely to stay. Consequently, firms are more likely to choose which workers should depart, through layoffs and firings, rather than trimming wages across the board. Sometimes companies that are experiencing difficult times can persuade workers to take a pay cut for the short term, and still retain most of the firm's workers. However, it is far more typical for companies to lay off some workers, rather than to cut wages for everyone.

The **insider-outsider model** of the labour force, in simple terms, argues that those already working for firms are "insiders," while new employees, at least for a time, are "outsiders." A firm depends on its insiders to keep the organization running smoothly, to be familiar with routine procedures, and to train new employees. However, cutting wages will alienate the insiders and damage the firm's productivity and prospects.

Finally, the **relative wage coordination argument** points out that even if most workers were hypothetically willing to see a decline in their own wages in bad economic times as long as everyone else also experiences such a decline, there is no obvious way for a decentralized economy to implement such a plan. Instead, workers confronted with the possibility of a wage cut will worry that other workers will not have such a wage cut, and so a wage cut means being worse off both in absolute terms and relative to others. As a result, workers fight hard against wage cuts.

These theories of why wages tend not to move downward differ in their logic and their implications, and figuring out the strengths and weaknesses of each theory is an ongoing subject of research and controversy among economists. All tend to imply that wages will decline only very slowly, if at all, even when the economy or a business is having tough times. When wages are inflexible and unlikely to fall, then either short-run or long-run unemployment can result. Figure 8.4b illustrates this.
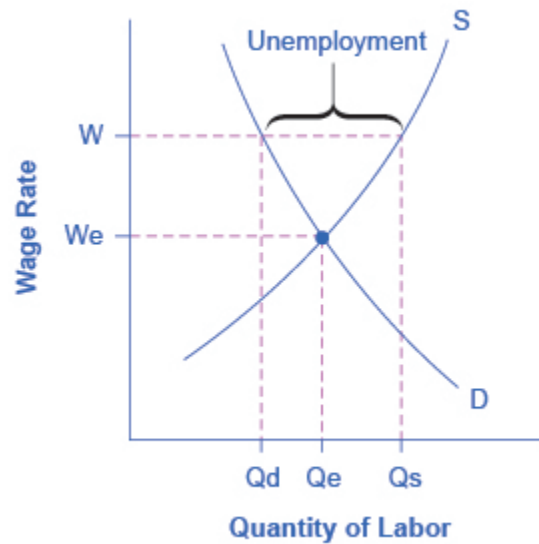
Figure 8.4b Sticky Wages in the Labour Market. Because the wage rate is stuck at W, above the equilibrium, the number of those who want jobs (Qs) is greater than the number of job openings (Qd). The result is unemployment, shown by the bracket in the figure. Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0,

Figure 8.4b Sticky Wages in the Labour Market (Text Version)

The graph provides a visual of how sticky wages impact the unemployment rate. The vertical axis is Wage Rate and the horizontal axis is Quantity of Labour. The supply curve (S) slopes upward from left to right and the demand curve (D) slope downward from left to right. The equilibrium occurs where S and D intersect, at point We and Qe. The wage rate, point W, is stuck above the equilibrium; as a result the number of those who want jobs (Qs) is greater than the number of job openings (Qd). Qs is greater then Qe and Qd is lesser then Qe. Unemployment, shown by the bracket in the figure, spans between Qd and Qs at W.

Figure 8.4c shows the interaction between shifts in labour demand and wages that are sticky downward. Figure 8.4c (a) illustrates the situation in which the demand for labour shifts to the right from D_0 to D_1. In this case, the equilibrium wage rises from W_0 to W_1 and the equilibrium quantity of labour hired increases from Q_0 to Q_1. It does not hurt employee morale at all for wages to rise.

Figure 8.4c (b) shows the situation in which the demand for labour shifts to the left, from D_0 to D_1, as it would tend to do in a recession. Because wages are sticky downward, they do not adjust toward what would have been the new equilibrium wage (W_1), at least not in the short run. Instead, after the shift in the labour demand curve, the same quantity of workers is willing to work at that wage as before; however, the quantity

of workers demanded at that wage has declined from the original equilibrium (Q_0) to Q_2. The gap between the original equilibrium quantity (Q_0) and the new quantity demanded of labour (Q_2) represents workers who would be willing to work at the going wage but cannot find jobs. The gap represents the economic meaning of unemployment.
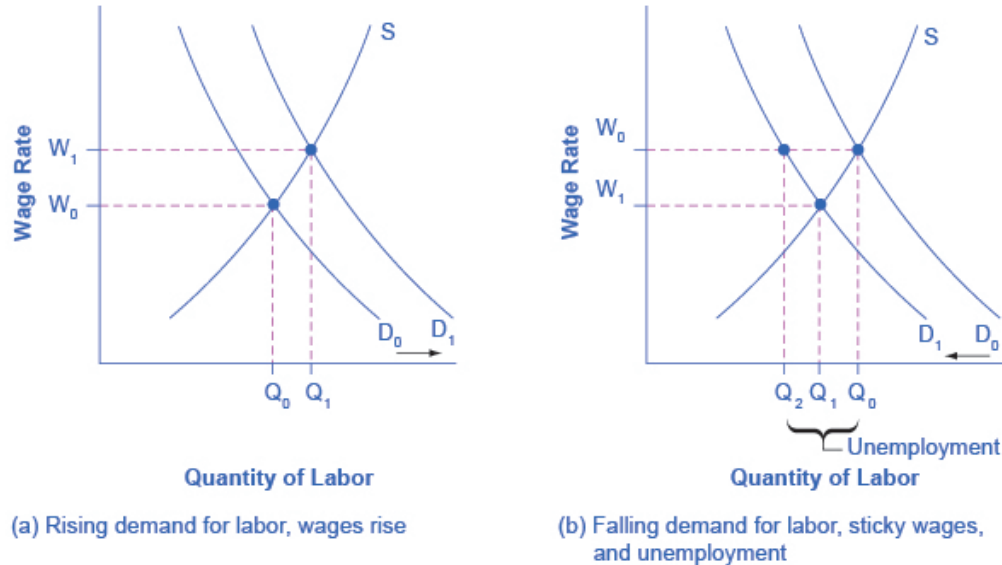

(a) Rising demand for labor, wages rise

(b) Falling demand for labor, sticky wages, and unemployment

Figure 8.4c Rising Wage and Low Unemployment: Where Is the Unemployment in Supply and Demand? (a) In a labour market where wages are able to rise, an increase in the demand for labour from D_0 to D_1 leads to an increase in equilibrium quantity of labour hired from Q_0 to Q_1 and a rise in the equilibrium wage from W_0 to W_1. (b) In a labour market where wages do not decline, a fall in the demand for labour from D_0 to D_1 leads to a decline in the quantity of labour demanded at the original wage (W_0) from Q_0 to Q_2. These workers will want to work at the prevailing wage (W_0), but will not be able to find jobs. Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licesned under CC BY 4.0.

Figure 8.4c Rising Wage and Low Unemployment: Where Is the Unemployment in Supply and Demand? (Text Version)

There are two graphs that show how supply and demand influence unemployment. Both graphs have a vertical axis is Wage Rate and the horizontal axis is Quantity of Labour.

Graph A – Rising demand for labour, wages rise: In a labour market where wages are able to rise the supply curve (S) slopes upward from left to right and the original demand curve (D) slopes downward from left to right. The equilibrium occurs where the S and D intersect, at point W_0 and Q_0. An increase in the demand for labour shifts the original demand curve (D_0) to the right to D_1, resulting in equilibrium quantity of labour hired shifting to the right from Q_0 to Q_1 and a rise in the equilibrium wage from W_0 to W_1. The new equilibrium occurs where S and D_1 intersect at W_1 and Q_1 .

Graph B – Falling demand for labour, sticky wages, and unemployment: In a labour market where

wages do not decline, a fall in the demand for labour occurs. The supply curve (S) slopes upward from left to right and the original demand curve (D) slopes downward from left to right. The equilibrium occurs where the S and D intersect, at point W_0 and Q_0. The original demand curve (D_0) shifts to the left to D1 resulting in a decline in the quantity of labour demanded at the original wage (W_0) shift to the left from Q_0 to Q_2. These workers will want to work at the prevailing wage (W_0), but will not be able to find jobs. The new equilibrium occurs where S and D_1 intersect at W_1 and Q_1. Q_1 occurs between Q_2 and Q_0. The span between Q_2 and Q_0 is unemployment.

This analysis helps to explain the connection that we noted earlier: that unemployment tends to rise in recessions and to decline during expansions. The overall state of the economy shifts the labour demand curve and, combined with wages that are sticky downwards, unemployment changes. The rise in unemployment that occurs because of a recession is **cyclical unemployment**.

Link It Up

The St. Louis Federal Reserve Bank is the best resource for macroeconomic time series data, known as the Federal Reserve Economic Data (FRED). FRED [New Tab] (https://fred.stlouisfed.org/categories/12) provides complete data sets on various measures of the unemployment rate as well as the monthly Bureau of Labor Statistics report on the results of the household and employment surveys.

Key Concepts and Summary

Cyclical unemployment rises and falls with the business cycle. In a labour market with flexible wages, wages will adjust in such a market so that quantity demanded of labour always equals the quantity supplied of labour at the equilibrium wage. Economists have proposed many theories for why wages might not be flexible, but instead may adjust only in a "sticky" way, especially when it comes to downward adjustments: implicit contracts, efficiency wage theory, adverse selection of wage cuts, insider-outsider model, and relative wage coordination.

Attribution

Except where otherwise noted, this chapter is adapted from "What Causes Changes in Unemployment over the Short Run (https://openstax.org/books/principles-economics-2e/pages/21-3-what-causes-changes-in-unemployment-over-the-short-run)" and "Key Concepts and Summary" In *Principles of Economics 2e (https://openstax.org/books/principles-economics-2e/pages/1-introduction)*. (OpenStax) by Steven A. Greenlaw, David Shapiro, licensed under CC BY 4.0./Adaptations include addition of chapter key concepts and summary.

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8.5 - WHAT CAUSES CHANGES IN UNEMPLOYMENT OVER THE LONG RUN

Learning Objectives

- Explain frictional and structural unemployment
- Assess relationships between the natural rate of employment and potential real GDP, productivity, and public policy
- Identify recent patterns in the natural rate of employment
- Propose ways to combat unemployment

Cyclical unemployment explains why unemployment rises during a recession and falls during an economic expansion, but what explains the remaining level of unemployment even in good economic times? Why is the unemployment rate never zero? Even when the U.S. economy is growing strongly, the unemployment rate only rarely dips as low as 4%. Moreover, the discussion earlier in this chapter pointed out that unemployment rates in many European countries like Italy, France, and Germany have often been remarkably high at various times in the last few decades. Why does some level of unemployment persist even when economies are growing strongly? Why are unemployment rates continually higher in certain economies, through good economic years and bad? Economists have a term to describe the remaining level of unemployment that occurs even when the economy is healthy: they call it the **natural rate of unemployment**.

The Long Run: The Natural Rate of Unemployment

The natural rate of unemployment is not "natural" in the sense that water freezes at 32 degrees Fahrenheit or boils at 212 degrees Fahrenheit. It is not a physical and unchanging law of nature. Instead, it is only the "natural" rate because it is the unemployment rate that would result from the combination of economic, social, and political factors that exist at a time—assuming the economy was neither booming nor in recession.

These forces include the usual pattern of companies expanding and contracting their workforces in a dynamic economy, social and economic forces that affect the labour market, or public policies that affect either the eagerness of people to work or the willingness of businesses to hire. Let's discuss these factors in more detail.

Frictional Unemployment

In a market economy, some companies are always going broke for a variety of reasons: old technology; poor management; good management that happened to make bad decisions; shifts in tastes of consumers so that less of the firm's product is desired; a large customer who went broke; or tough domestic or foreign competitors. Conversely, other companies will be doing very well for just the opposite reasons and looking to hire more employees. In a perfect world, all of those who lost jobs would immediately find new ones. However, in the real world, even if the number of job seekers is equal to the number of job vacancies, it takes time to find out about new jobs, to interview and figure out if the new job is a good match, or perhaps to sell a house and buy another in proximity to a new job. Economists call the unemployment that occurs in the meantime, as workers move between jobs, frictional unemployment. Frictional unemployment is not inherently a bad thing. It takes time on part of both the employer and the individual to match those looking for employment with the correct job openings. For individuals and companies to be successful and productive, you want people to find the job for which they are best suited, not just the first job offered.

In the mid-2000s, before the 2008–2009 recession, it was true that about 7% of U.S. workers saw their jobs disappear in any three-month period. However, in periods of economic growth, these destroyed jobs are counterbalanced for the economy as a whole by a larger number of jobs created. In 2005, for example, there were typically about 7.5 million unemployed people at any given time in the U.S. economy. Even though about two-thirds of those unemployed people found a job in 14 weeks or fewer, the unemployment rate did not change much during the year, because those who found new jobs were largely offset by others who lost jobs.

Of course, it would be preferable if people who were losing jobs could immediately and easily move into newly created jobs, but in the real world, that is not possible. Someone who is laid off by a textile mill in South Carolina cannot turn around and immediately start working for a textile mill in California. Instead, the adjustment process happens in ripples. Some people find new jobs near their old ones, while others find that they must move to new locations. Some people can do a very similar job with a different company, while others must start new career paths. Some people may be near retirement and decide to look only for part-time work, while others want an employer that offers a long-term career path. The frictional unemployment that results from people moving between jobs in a dynamic economy may account for one to two percentage points of total unemployment.

The level of frictional unemployment will depend on how easy it is for workers to learn about alternative jobs,

which may reflect the ease of communications about job prospects in the economy. The extent of frictional unemployment will also depend to some extent on how willing people are to move to new areas to find jobs—which in turn may depend on history and culture.

Frictional unemployment and the natural rate of unemployment also seem to depend on the age distribution of the population. Figure 8.3a (b) showed that unemployment rates are typically lower for people between 25–54 years of age or aged 55 and over than they are for those who are younger. "Prime-age workers," as those in the 25–54 age bracket are sometimes called, are typically at a place in their lives when they want to have a job and income arriving at all times. In addition, older workers who lose jobs may prefer to opt for retirement. By contrast, it is likely that a relatively high proportion of those who are under 25 will be trying out jobs and life options, and this leads to greater job mobility and hence higher frictional unemployment. Thus, a society with a relatively high proportion of young workers, like the U.S. beginning in the mid-1960s when Baby Boomers began entering the labour market, will tend to have a higher unemployment rate than a society with a higher proportion of its workers in older ages.

Structural Unemployment

Another factor that influences the natural rate of unemployment is the amount of **structural unemployment**. The structurally unemployed are individuals who have no jobs because they lack skills valued by the labour market, either because demand has shifted away from the skills they do have, or because they never learned any skills. An example of the former would be the unemployment among aerospace engineers after the U.S. space program downsized in the 1970s. An example of the latter would be high school dropouts.

Some people worry that technology causes structural unemployment. In the past, new technologies have put lower skilled employees out of work, but at the same time they create demand for higher skilled workers to use the new technologies. Education seems to be the key in minimizing the amount of structural unemployment. Individuals who have degrees can be retrained if they become structurally unemployed. For people with no skills and little education, that option is more limited.

Natural Unemployment and Potential Real GDP

The natural unemployment rate is related to two other important concepts: full employment and potential real GDP. Economists consider the economy to be at full employment when the actual unemployment rate is equal to the natural unemployment rate. When the economy is at full employment, real GDP is equal to potential real GDP. By contrast, when the economy is below full employment, the unemployment rate is greater than the natural unemployment rate and real GDP is less than potential. Finally, when the economy is

above full employment, then the unemployment rate is less than the natural unemployment rate and real GDP is greater than potential. Operating above potential is only possible for a short while, since it is analogous to all workers working overtime.

Productivity Shifts and the Natural Rate of Unemployment

Unexpected shifts in productivity can have a powerful effect on the natural rate of unemployment. Over time, workers' productivity determines the level of wages in an economy. After all, if a business paid workers more than could be justified by their productivity, the business will ultimately lose money and go bankrupt. Conversely, if a business tries to pay workers less than their productivity then, in a competitive labour market, other businesses will find it worthwhile to hire away those workers and pay them more.

However, adjustments of wages to productivity levels will not happen quickly or smoothly. Employers typically review wages only once or twice a year. In many modern jobs, it is difficult to measure productivity at the individual level. For example, how precisely would one measure the quantity produced by an accountant who is one of many people working in the tax department of a large corporation? Because productivity is difficult to observe, employers often determine wage increases based on recent experience with productivity. If productivity has been rising at, say, 2% per year, then wages rise at that level as well. However, when productivity changes unexpectedly, it can affect the natural rate of unemployment for a time.

The U.S. economy in the 1970s and 1990s provides two vivid examples of this process. In the 1970s, productivity growth slowed down unexpectedly (as we discussed in Economic Growth). For example, output per hour of U.S. workers in the business sector increased at an annual rate of 3.3% per year from 1960 to 1973, but only 0.8% from 1973 to 1982. Figure 8.5a (a) illustrates the situation where the demand for labour—that is, the quantity of labour that business is willing to hire at any given wage—has been shifting out a little each year because of rising productivity, from D_0 to D_1 to D_2. As a result, equilibrium wages have been rising each year from W_0 to W_1 to W_2. However, when productivity unexpectedly slows down, the pattern of wage increases does not adjust right away. Wages keep rising each year from W_2 to W_3 to W_4, but the demand for labour is no longer shifting up. A gap opens where the quantity of labour supplied at wage level W_4 is greater than the quantity demanded. The natural rate of unemployment rises. In the aftermath of this unexpectedly low productivity in the 1970s, the national unemployment rate did not fall below 7% from May, 1980 until 1986. Over time, the rise in wages will adjust to match the slower gains in productivity, and the unemployment rate will ease back down, but this process may take years.
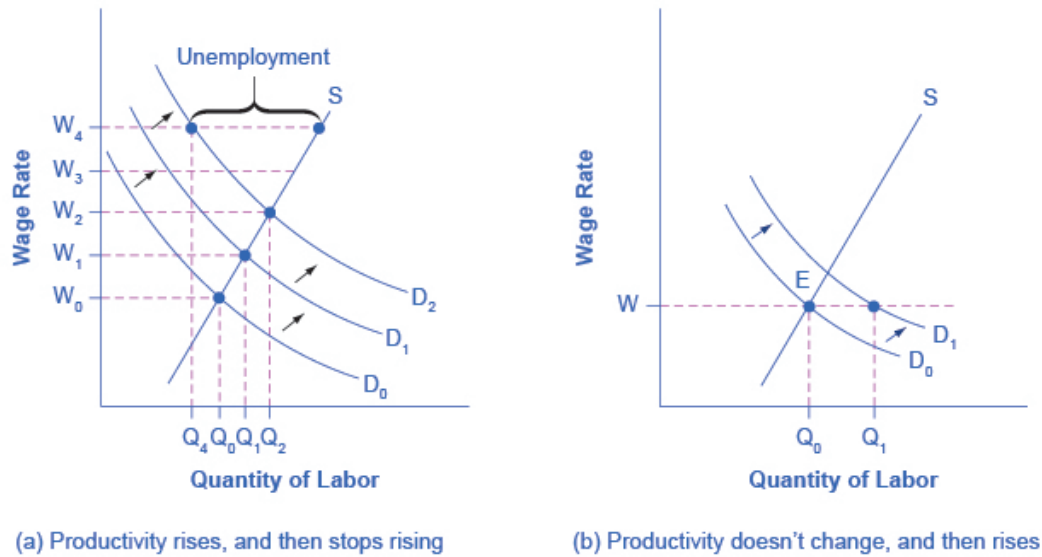
Figure 8.5a Unexpected Productivity Changes and Unemployment. (a) Productivity is rising, increasing the demand for labour. Employers and workers become used to the pattern of wage increases. Then productivity suddenly stops increasing. However, the expectations of employers and workers for wage increases do not shift immediately, so wages keep rising as before. However, the demand for labour has not increased, so at wage W_4, unemployment exists where the quantity supplied of labour exceeds the quantity demanded. (b) The rate of productivity increase has been zero for a time, so employers and workers have come to accept the equilibrium wage level (W). Then productivity increases unexpectedly, shifting demand for labour from D_0 to D_1. At the wage (W), this means that the quantity demanded of labour exceeds the quantity supplied, and with job offers plentiful, the unemployment rate will be low. Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0.

The late 1990s provide an opposite example: instead of the surprise decline in productivity that occurred in the 1970s, productivity unexpectedly rose in the mid-1990s. The annual growth rate of real output per hour of labour increased from 1.7% from 1980–1995, to an annual rate of 2.6% from 1995–2001. Let's simplify the situation a bit, so that the economic lesson of the story is easier to see graphically, and say that productivity had not been increasing at all in earlier years, so the intersection of the labour market was at point E in Figure 8.5a (b), where the demand curve for labour (D_0) intersects the supply curve for labour. As a result, real wages were not increasing. Now, productivity jumps upward, which shifts the demand for labour out to the right, from D_0 to D_1. At least for a time, however, wages are still set according to the earlier expectations of no productivity growth, so wages do not rise. The result is that at the prevailing wage level (W), the quantity of labour demanded (Qd) will for a time exceed the quantity of labour supplied (Qs), and unemployment will be very low—actually below the natural level of unemployment for a time. This pattern of unexpectedly high productivity helps to explain why the unemployment rate stayed below 4.5%—quite a low level by historical standards—from 1998 until after the U.S. economy had entered a recession in 2001.

Levels of unemployment will tend to be somewhat higher on average when productivity is unexpectedly low,

and conversely, will tend to be somewhat lower on average when productivity is unexpectedly high. However, over time, wages do eventually adjust to reflect productivity levels.

Public Policy and the Natural Rate of Unemployment

Public policy can also have a powerful effect on the natural rate of unemployment. On the supply side of the labour market, public policies to assist the unemployed can affect how eager people are to find work. For example, if a worker who loses a job is guaranteed a generous package of unemployment insurance, welfare benefits, food stamps, and government medical benefits, then the opportunity cost of unemployment is lower and that worker will be less eager to seek a new job.

What seems to matter most is not just the amount of these benefits, but how long they last. A society that provides generous help for the unemployed that cuts off after, say, six months, may provide less of an incentive for unemployment than a society that provides less generous help that lasts for several years. Conversely, government assistance for job search or retraining can in some cases encourage people back to work sooner. See the Clear it Up to learn how the U.S. handles unemployment insurance.

Link It Up

For an explanation of exactly who is eligible for unemployment benefits take a look at The Impacts of Unemployment Benefits on Job Match Quality and Labour Market Functioning [New Tab]. (https://voxeu.org/article/unemployment-benefits-job-match-quality-and-labour-market-functioning)

On the demand side of the labour market, government rules, social institutions, and the presence of unions can affect the willingness of firms to hire. For example, if a government makes it hard for businesses to start up or to expand, by wrapping new businesses in bureaucratic red tape, then businesses will become more discouraged about hiring. Government regulations can make it harder to start a business by requiring that a new business obtain many permits and pay many fees, or by restricting the types and quality of products that a company can sell. Other government regulations, like zoning laws, may limit where companies can conduct business, or whether businesses are allowed to be open during evenings or on Sunday.

Whatever defenses may be offered for such laws in terms of social value—like the value some Christians place on not working on Sunday, or Orthodox Jews or highly observant Muslims on Saturday—these kinds of restrictions impose a barrier between some willing workers and other willing employers, and thus contribute to a higher natural rate of unemployment. Similarly, if government makes it difficult to fire or lay off workers, businesses may react by trying not to hire more workers than strictly necessary—since laying these workers off

would be costly and difficult. High minimum wages may discourage businesses from hiring low-skill workers. Government rules may encourage and support powerful unions, which can then push up wages for union workers, but at a cost of discouraging businesses from hiring those workers.

The Natural Rate of Unemployment in Recent Years

The underlying economic, social, and political factors that determine the natural rate of unemployment can change over time, which means that the natural rate of unemployment can change over time, too.

Estimates by economists of the natural rate of unemployment in the U.S. economy in the early 2000s run at about 4.5 to 5.5%. This is a lower estimate than earlier. We outline three of the common reasons that economists propose for this change below.

1. The internet has provided a remarkable new tool through which job seekers can find out about jobs at different companies and can make contact with relative ease. An internet search is far easier than trying to find a list of local employers and then hunting up phone numbers for all of their human resources departments, and requesting a list of jobs and application forms. Social networking sites such as LinkedIn have changed how people find work as well.
2. The growth of the temporary worker industry has probably helped to reduce the natural rate of unemployment. In the early 1980s, only about 0.5% of all workers held jobs through temp agencies. By the early 2000s, the figure had risen above 2%. Temp agencies can provide jobs for workers while they are looking for permanent work. They can also serve as a clearinghouse, helping workers find out about jobs with certain employers and getting a tryout with the employer. For many workers, a temp job is a stepping-stone to a permanent job that they might not have heard about or obtained any other way, so the growth of temp jobs will also tend to reduce frictional unemployment.
3. The aging of the "baby boom generation"—the especially large generation of Americans born between 1946 and 1964—meant that the proportion of young workers in the economy was relatively high in the 1970s, as the boomers entered the labour market, but is relatively low today. As we noted earlier, middle-aged and older workers are far more likely to experience low unemployment than younger workers, a factor that tends to reduce the natural rate of unemployment as the baby boomers age.

The combined result of these factors is that the natural rate of unemployment was on average lower in the 1990s and the early 2000s than in the 1980s. The 2008–2009 Great Recession pushed monthly unemployment rates up to 10% in late 2009. However, even at that time, the Congressional Budget Office was forecasting that by 2015, unemployment rates would fall back to about 5%. During the last four months of 2015 the unemployment rate held steady at 5.0%. Throughout 2016 and up through January 2017, the unemployment rate has remained at or slightly below 5%. As of the first quarter of 2017, the Congressional

Budget Office estimates the natural rate to be 4.74%, and the measured unemployment rate for January 2017 is 4.8%.

The Natural Rate of Unemployment in Europe

By the standards of other high-income economies, the natural rate of unemployment in the U.S. economy appears relatively low. Through good economic years and bad, many European economies have had unemployment rates hovering near 10%, or even higher, since the 1970s. European rates of unemployment have been higher not because recessions in Europe have been deeper, but rather because the conditions underlying supply and demand for labour have been different in Europe, in a way that has created a much higher natural rate of unemployment.

Many European countries have a combination of generous welfare and unemployment benefits, together with nests of rules that impose additional costs on businesses when they hire. In addition, many countries have laws that require firms to give workers months of notice before laying them off and to provide substantial severance or retraining packages after laying them off. The legally required notice before laying off a worker can be more than three months in Spain, Germany, Denmark, and Belgium, and the legally required severance package can be as high as a year's salary or more in Austria, Spain, Portugal, Italy, and Greece. Such laws will surely discourage laying off or firing current workers. However, when companies know that it will be difficult to fire or lay off workers, they also become hesitant about hiring in the first place.

We can attribute the typically higher levels of unemployment in many European countries in recent years, which have prevailed even when economies are growing at a solid pace, to the fact that the sorts of laws and regulations that lead to a high natural rate of unemployment are much more prevalent in Europe than in the United States.

A Preview of Policies to Fight Unemployment

The remedy for unemployment will depend on the diagnosis. Cyclical unemployment is a short-term problem, caused because the economy is in a recession. Thus, the preferred solution will be to avoid or minimize recessions. Governments can enact this policy by stimulating the overall buying power in the economy, so that firms perceive that sales and profits are possible, which makes them eager to hire.

Dealing with the natural rate of unemployment is trickier. In a market-oriented economy, firms will hire and fire workers. Governments cannot control this. Furthermore, the evolving age structure of the economy's population, or unexpected shifts in productivity are beyond a government's control and, will affect the natural rate of unemployment for a time. However, as the example of high ongoing unemployment rates for

many European countries illustrates, government policy clearly can affect the natural rate of unemployment that will persist even when GDP is growing.

When a government enacts policies that will affect workers or employers, it must examine how these policies will affect the information and incentives employees and employers have to find one another. For example, the government may have a role to play in helping some of the unemployed with job searches. Governments may need to rethink the design of their programs that offer assistance to unemployed workers and protections to employed workers so that they will not unduly discourage the supply of labour. Similarly, governments may need to reassess rules that make it difficult for businesses to begin or to expand so that they will not unduly discourage the demand for labour. The message is not that governments should repeal all laws affecting labour markets, but only that when they enact such laws, a society that cares about unemployment will need to consider the tradeoffs involved.

Bring It Home

Unemployment and the Great Recession

In the review of unemployment during and after the Great Recession at the outset of this chapter, we noted that unemployment tends to be a lagging indicator of business activity. This has historically been the case, and it is evident for all recessions that have taken place since the end of World War II. In brief, this results from the costs to employers of recruitment, hiring, and training workers. Those costs represent investments by firms in their work forces.

At the outset of a recession, when a firm realizes that demand for its product or service is not as strong as anticipated, it has an incentive to lay off workers. However, doing so runs the risk of losing those workers, and if the weak demand proves to be only temporary, the firm will be obliged to recruit, hire, and train new workers. Thus, firms tend to retain workers initially in a downturn. Similarly, as business begins to pick up when a recession is over, firms are not sure if the improvement will last. Rather than incur the costs of hiring and training new workers, they will wait, and perhaps resort to overtime work for existing workers, until they are confident that the recession is over.

Another point that we noted at the outset is that the duration of recoveries in employment following recessions has been longer following the last three recessions (going back to the early 1990s) than previously. Nir Jaimovich and Henry Siu have argued that these "jobless recoveries" are a consequence of job polarization – the disappearance of employment opportunities focused on "routine" tasks. Job polarization refers to the increasing concentration of employment in the highest- and lowest-wage occupations, as jobs in middle-skill occupations disappear. Job polarization is an outcome of technological progress in robotics, computing, and information and communication technology. The

result of this progress is a decline in demand for labour in occupations that perform "routine" tasks – tasks that are limited in scope and can be performed by following a well-defined set of procedures – and hence a decline in the share of total employment that is composed of routine occupations. Jaimovich and Siu have shown that job polarization characterizes the aftermath of the last three recessions, and this appears to be responsible for the jobless recoveries.

Key Concepts and Summary

The natural rate of unemployment is the rate of unemployment that the economic, social, and political forces in the economy would cause even when the economy is not in a recession. These factors include the frictional unemployment that occurs when people either choose to change jobs or are put out of work for a time by the shifts of a dynamic and changing economy. They also include any laws concerning conditions of hiring and firing that have the undesired side effect of discouraging job formation. They also include structural unemployment, which occurs when demand shifts permanently away from a certain type of job skill.

Attribution

Original Source Chapter References

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Media Attributions

8.6 - UNEMPLOYMENT

Learning Objectives

- Explain how unemployment is measured in Canada.
- Define three different types of unemployment.
- Define and illustrate graphically what is meant by the natural level of employment. Relate the natural level of employment to the natural rate of unemployment.

For an economy to produce all it can and achieve a solution on its production possibilities curve, the factors of production in the economy must be fully employed. Failure to fully employ these factors leads to a solution inside the production possibilities curve in which society is not achieving the output it is capable of producing.

In thinking about the employment of society's factors of production, we place special emphasis on labour. The loss of a job can wipe out a household's entire income; it is a more compelling human problem than, say, unemployed capital, such as a vacant apartment. In measuring unemployment, we thus focus on labour rather than on capital and natural resources.

Measuring Unemployment

Statistics Canada defines a person as unemployed if he or she is not working but is looking for and available for work. The labour force is the total number of people working or unemployed. The **unemployment rate** is the percentage of the labour force that is unemployed.

To estimate the unemployment rate, government uses the information they collect in surveys of various Canadian households. At each of these randomly selected households, the surveyor asks about the employment status of each adult (everyone age 15 or over) who lives there. Many households include more

than one adult; the survey gathers information on about roughly 100,000 adults. The surveyor asks if each adult is working. If the answer is yes, the person is counted as employed. If the answer is no, the surveyor asks if that person has looked for work at some time during the previous four weeks and is available for work at the time of the survey. If the answer to that question is yes, the person is counted as unemployed. If the answer is no, that person is not counted as a member of the labour force. Figure 8.6a "Computing the Unemployment Rate" shows the survey's results for the civilian (nonmilitary) population for November 2010. The unemployment rate is then computed as the number of people unemployed divided by the labour force—the sum of the number of people not working but available and looking for work plus the number of people working.
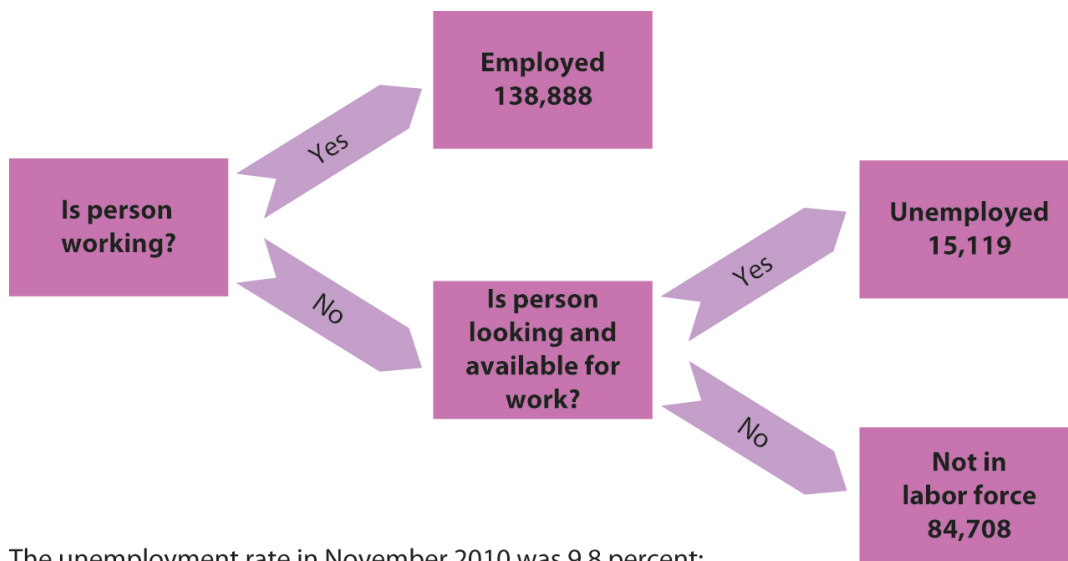
The unemployment rate in November 2010 was 9.8 percent:
Unemployment rate = 15,119/(15,119 + 138,888) = 0.098 = 9.8 percent

Figure 8.6a Computing the Unemployment Rate. Computing the Unemployment Rate by University of Minnesota, licensed under CC BY-SA.

Figure 8.6a Computing the Unemployment Rate

Illustrates the survey results for the civilian (nonmilitary) population for November 2010.

Starting with the question – Is the person working? If yes, Employed: 138, 888.

If no, then is the person looking and available for work? If yes, then Unemployed: 15, 119. If no, then Not in the labour force: 84,708.

The unemployment rate in November 10 2012 was 9.8 percent: Unemployment rate = 15, 119/(15,119 + 138, 888) = 0.0098 = 9.8 percent

A monthly survey of households divides the civilian adult population into three groups. Those who have jobs

are counted as employed; those who do not have jobs but are looking for them and are available for work are counted as unemployed; and those who are not working and are not looking for work are not counted as members of the labour force. The unemployment rate equals the number of people looking for work divided by the sum of the number of people looking for work and the number of people employed.

The problem of understating unemployment among women has been fixed, but others remain. A worker who has been cut back to part-time work still counts as employed, even if that worker would prefer to work full time. A person who is out of work, would like to work, has looked for work in the past year, and is available for work, but who has given up looking, is considered a discouraged worker. **Discouraged workers** are not counted as unemployed, but a tally is kept each month of the number of discouraged workers.

The official measures of employment and unemployment can yield unexpected results. For example, when firms expand output, they may be reluctant to hire additional workers until they can be sure the demand for increased output will be sustained. They may respond first by extending the hours of employees previously reduced to part-time work or by asking full-time personnel to work overtime. None of that will increase employment, because people are simply counted as "employed" if they are working, regardless of how much or how little they are working. In addition, an economic expansion may make discouraged workers more optimistic about job prospects, and they may resume their job searches. Engaging in a search makes them unemployed again—and increases unemployment. Thus, an economic expansion may have little effect initially on employment and may even increase unemployment.

Types of Unemployment

Workers may find themselves unemployed for different reasons. Each source of unemployment has quite different implications, not only for the workers it affects but also for public policy.

Figure 8.6b "The Natural Level of Employment" applies the demand and supply model to the labour market. The price of labour is taken as the real wage, which is the nominal wage divided by the price level; the symbol used to represent the real wage is the Greek letter omega, ω. The supply curve is drawn as upward sloping, though steep, to reflect studies showing that the quantity of labour supplied at any one time is nearly fixed. Thus, an increase in the real wage induces a relatively small increase in the quantity of labour supplied. The demand curve shows the quantity of labour demanded at each real wage. The lower the real wage, the greater the quantity of labour firms will demand. In the case shown here, the real wage, ω_e, equals the equilibrium solution defined by the intersection of the demand curve D_1 and the supply curve S_1. The quantity of labour demanded, L_e, equals the quantity supplied. The employment level at which the quantity of labour demanded equals the quantity supplied is called the natural level of employment. It is sometimes referred to as full employment.
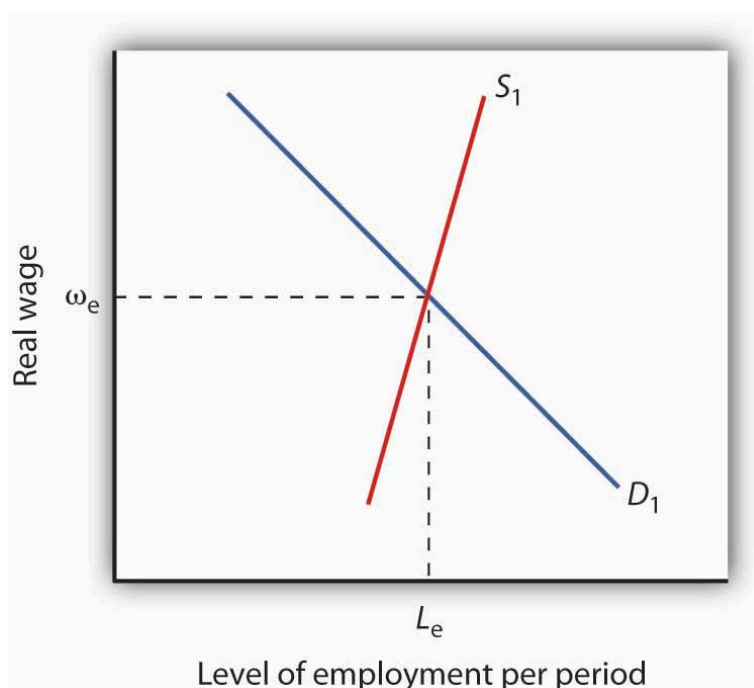
Figure 8.6b The Natural Level of Employment. The employment level at which the quantity of labour demanded equals the quantity supplied is called the natural level of employment. Here, the natural level of employment is L_e, which is achieved at a real wage ω_e. The Natural Level of Employment by University of Minnesota, licensed under CC BY-SA.

Figure 8.6b The Natural Level of Employment (Text Version)

The employment level at which the quantity of labour demanded equals the quantity supplied is called the natural level of employment. The vertical axis is Real wage (W) and horizontal axis is level of employment per period (L). The supply curve (S_1) slopes upward from left to right and the demand curve (D_1) slopes downward from left to right; S_1 and D_1 intersect at W_e and L_e. The natural level of employment is L_e, which is achieved at a real wage ωe.

Even if the economy is operating at its natural level of employment, there will still be some unemployment. The rate of unemployment consistent with the natural level of employment is called the natural rate of unemployment. Business cycles may generate additional unemployment. We discuss these various sources of unemployment below.

Frictional Unemployment

Even when the quantity of labour demanded equals the quantity of labour supplied, not all employers and

potential workers have found each other. Some workers are looking for jobs, and some employers are looking for workers. During the time it takes to match them up, the workers are unemployed. Unemployment that occurs because it takes time for employers and workers to find each other is called **frictional unemployment**.

The case of college graduates engaged in job searches is a good example of frictional unemployment. Those who did not land a job while still in school will seek work. Most of them will find jobs, but it will take time. During that time, these new graduates will be unemployed. If information about the labour market were costless, firms and potential workers would instantly know everything they needed to know about each other and there would be no need for searches on the part of workers and firms. There would be no frictional unemployment. But information is costly. Job searches are needed to produce this information, and frictional unemployment exists while the searches continue.

Structural Unemployment

Another reason there can be unemployment even if employment equals its natural level stems from potential mismatches between the skills employers seek and the skills potential workers offer. Every worker is different; every job has its special characteristics and requirements. The qualifications of job seekers may not match those that firms require. Even if the number of employees firms demand equals the number of workers available, people whose qualifications do not satisfy what firms are seeking will find themselves without work. Unemployment that results from a mismatch between worker qualifications and the characteristics employers require is called structural unemployment.

Structural unemployment emerges for several reasons. Technological change may make some skills obsolete or require new ones. The widespread introduction of personal computers since the 1980s, for example, has lowered demand for typists who lacked computer skills.

Structural unemployment can occur if too many or too few workers seek training or education that matches job requirements. Students cannot predict precisely how many jobs there will be in a particular category when they graduate, and they are not likely to know how many of their fellow students are training for these jobs. Structural unemployment can easily occur if students guess wrong about how many workers will be needed or how many will be supplied.

Structural unemployment can also result from geographical mismatches. Economic activity may be booming in one region and slumping in another. It will take time for unemployed workers to relocate and find new jobs. And poor or costly transportation may block some urban residents from obtaining jobs only a few miles away.

Public policy responses to structural unemployment generally focus on job training and education to equip

workers with the skills firms demand. The government publishes regional labour-market information, helping to inform unemployed workers of where jobs can be found. The North American Free Trade Agreement (NAFTA) which is now called USMCA, created a free trade region encompassing Mexico, the United States, and Canada, has created some structural unemployment in the three countries.

Although government programs may reduce frictional and structural unemployment, they cannot eliminate it. Information in the labour market will always have a cost, and that cost creates frictional unemployment. An economy with changing demands for goods and services, changing technology, and changing production costs will always have some sectors expanding and others contracting—structural unemployment is inevitable. An economy at its natural level of employment will therefore have frictional and structural unemployment.

Cyclical Unemployment

Of course, the economy may not be operating at its natural level of employment, so unemployment may be above or below its natural level. In a later chapter we will explore what happens when the economy generates employment greater or less than the natural level. Cyclical unemployment is unemployment in excess of the unemployment that exists at the natural level of employment.

Figure 8.6c "Unemployment Rate, 1960–2010" shows the unemployment rate in the United States for the period from 1960 through November 2010. We see that it has fluctuated considerably. How much of it corresponds to the natural rate of unemployment varies over time with changing circumstances. For example, in a country with a demographic "bulge" of new entrants into the labour force, frictional unemployment is likely to be high, because it takes the new entrants some time to find their first jobs. This factor alone would raise the natural rate of unemployment. A demographic shift toward more mature workers would lower the natural rate. During recessions, highlighted in Figure 8.6c "Unemployment Rate, 1960–2010", the part of unemployment that is cyclical unemployment grows. The analysis of fluctuations in the unemployment rate, and the government's responses to them, will occupy center stage in much of the remainder of this book.
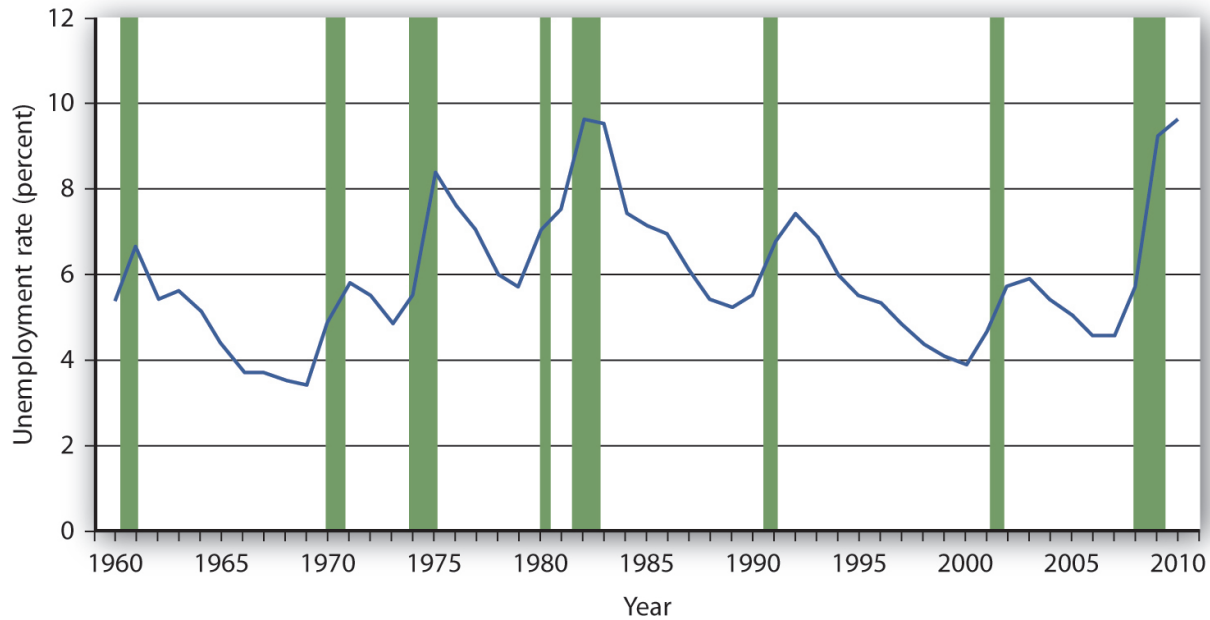
Figure 8.6c Unemployment Rate in the US, 1960–2010. Unemployment Rate, 1960–2010 by University of Minnesota, licensed under CC BY-SA. **Data Source**: U.S. Bureau of Labor Statistics. (2010, February). Table B-42: Civilian unemployment rate, 1962-2009 [Economic Report of the President]. https://www.govinfo.gov/content/pkg/ERP-2010/pdf/ERP-2010-table42.pdf

Unemployment Rates in Canada

To learn more about unemployment rates in Canada visit Trading Economics Canada's Unemployment Rate [New Tab] (https://tradingeconomics.com/canada/unemployment-rate) webpage.

Learn more about joblessness in Canada due to Covid19 by reading the CBC News article Canada lost nearly 2 million jobs in April amid COVID-19 crisis: Statistics Canada [New Tab] (https://www.cbc.ca/news/business/canada-jobs-april-1.5561001).

KEY TAKEAWAYS

- People who are not working but are looking and available for work at any one time are considered unemployed. The unemployment rate is the percentage of the labour force that is unemployed.
- When the labour market is in equilibrium, employment is at the natural level and the unemployment rate equals the natural rate of unemployment.
- Even if employment is at the natural level, the economy will experience frictional and structural unemployment. Cyclical unemployment is unemployment in excess of that associated with the natural level of employment.

Try It!

Given the data in the table, compute the unemployment rate in Year 1 and in Year 2. Explain why, in this example, both the number of people employed and the unemployment rate increased.

Table 8.6a Unemployment Rate in Year 1 and 2

Year	Number employed (in millions)	Number unemployed (in millions)
1	20	2
2	21	2.4

Check your answer[1]

Attribution

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1. In Year 1 the total labour force includes 22 million workers, and so the unemployment rate is $\scriptsize 2 \div 22 = 9.1\%$.In Year 2 the total labour force numbers 23.4 million workers; therefore the unemployment rate is $\scriptsize \; 2.4\div 23.4 = 10.3\%$.In this example, both the number of people employed and the unemployment rate rose, because more people ($\scriptsize \; 23.4 - 22 = 1.4 \text{million}$) entered the labour force, of whom 1 million found jobs and 0.4 million were still looking for jobs.

8.7 - MEASURING UNEMPLOYMENT

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Learning Objectives

</div>

- Classify the six measures of unemployment calculated by the Bureau of Labor Statistics (BLS)
- Describe the rates in the U.S. of those who are employed, unemployed, and not in the labour force
- Distinguish between short-term and long-term unemployment and the impact on people and economy

Measuring the Unemployment Rate

The **labour force** is the actual number of people available for work; economists use the labour force participation rate to determine the unemployment rate.

Unemployment Rate

Unemployment occurs when people are without work *and* are actively seeking employment. In an economy, the labour force is the actual number of people available for work. Economists use the **labour force participation rate** to determine the unemployment rate.

Unemployment can be broken down into three types of unemployment:

- Cyclical unemployment: occurs when there is not enough aggregate demand in the economy to provide jobs for everyone who wants to work.
- Structural unemployment: occurs when the labour market is unable to provide jobs for everyone who wants to work. There is a mismatch between the skills of the unemployed workers and the skills necessary for the jobs available.

- Frictional unemployment: the time period between jobs when a worker is looking for a job or transitioning from one job to another.

Measuring Unemployment

The U.S. Bureau of Labor Statistics measures employment and unemployment for individuals over the age of 16. The unemployment rate is measured using two different labour force surveys.

- The Current Population Survey (CPS): also known as the "household survey" the CPS is conducted based on a sample of 60,000 households. The survey measures the unemployment rate based on the ILO definition.
- The Current Employment Statistics Survey (CES): also known as the "payroll survey" the CES is conducted based on a sample of 160,000 businesses and government agencies that represent 400,000 individual employees.

The unemployment rate is also calculated using weekly claims reports for unemployed insurance. The government provides this data. The unemployment rate is updated on a monthly basis.

Six Measures of Unemployment

The U.S. Bureau of Labor Statistics uses six measurements when calculating the unemployment rate. The measures range from U1 to U6 and were reported from 1950 through 2010. They calculate different aspects of unemployment. These measures are depicted in the Unemployment Rate figure below.
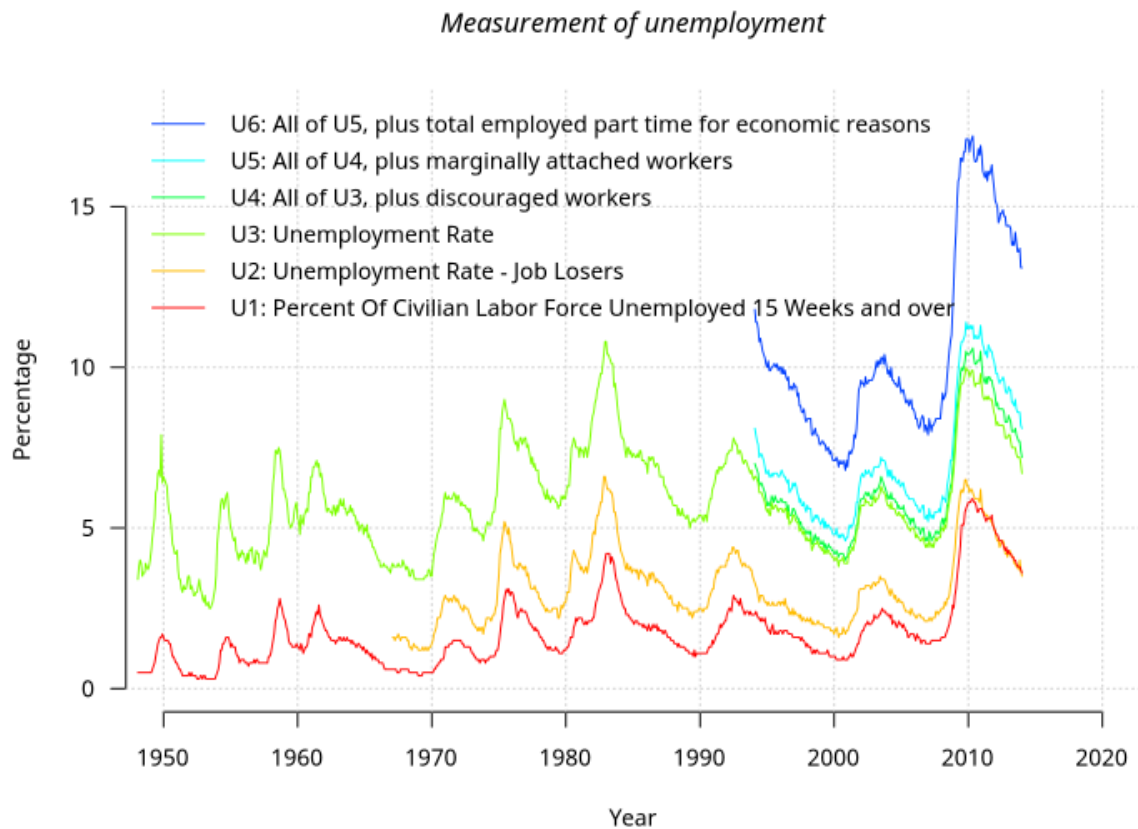
Figure 8.7a Unemployment Rate. The U.S. Bureau of Labor Statistics used the six employment measures to calculate the unemployment rate in the United States from 1950 to 2010. The vertical axis is percentage and the horizontal axis is years 1950 to 2010. US Unemployment measures (https://en.wikipedia.org/wiki/File:US_Unemployment_measures.svg) by Autopilot, licensed under CC BY-SA 3.0.

Figure 8.7a Unemployment Rate figure depicts these six employment measures ranging from lowest to highest:

- U1: the percentage of labour force unemployed for 15 weeks or longer. Signified by the lowest red line.
- U2: the percentage of labour force who lost jobs or completed temporary work. Signified by the next line (orange line).
- U3: the official unemployment rate that occurs when people are without jobs and they have actively looked for work within the past four weeks. Signified by the next highest line (neon green line).
- U4: the individuals described in U3 plus "discouraged workers," those who have stopped looking for work because current economic conditions make them think that no work is available for them. Signified by the next highest line (green line).
- U5: the individuals described in U4 plus other "marginally attached workers," "loosely attached workers," or those who "would like" and are able to work, but have not looked for work recently.

Signified by the next highest line (light blue line).

- U6: the individuals described in U5 plus part-time workers who want to work full-time, but cannot due to economic reasons, primarily underemployment. The highest line (dark blue).

Shortcomings of the Measurement

Unemployment is not an absolute calculation and it is prone to errors and biases related to data assembly and inconsistencies in reporting.

Unemployment

Unemployment, also called joblessness, occurs when people are without work and are actively seeking employment. Unemployment is measured in order to determine the unemployment rate. The rate is a percentage that is calculated by dividing the number of unemployed individuals by the number of individuals currently employed in the labour force.
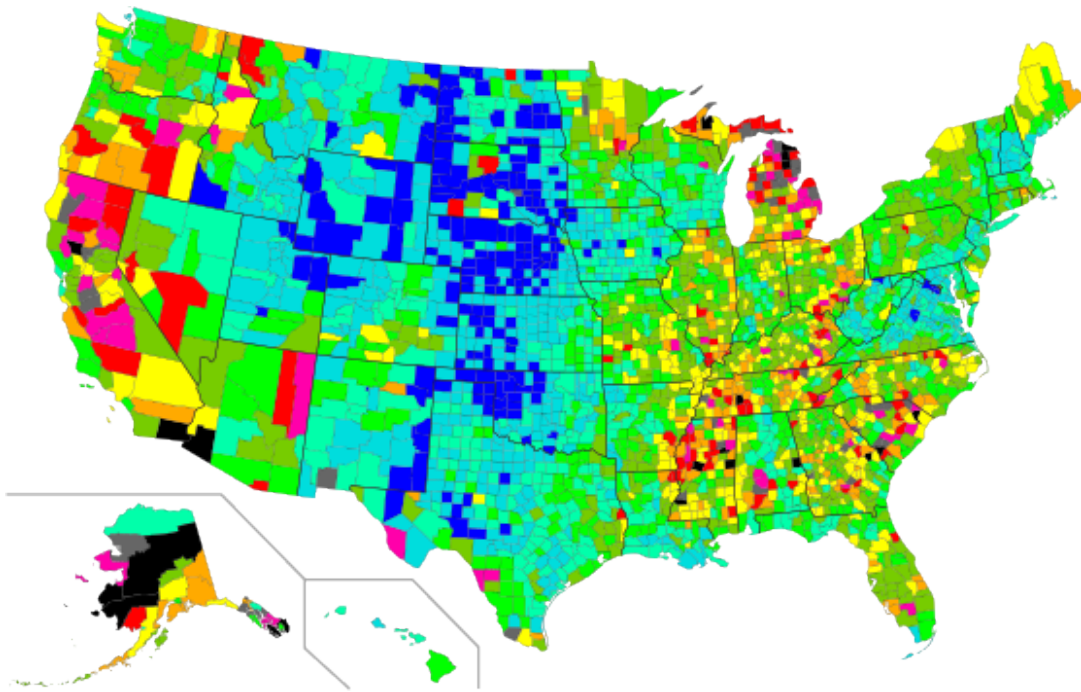
Figure 8.7b U.S. Unemployment Rate. Shows the unemployment rates by county throughout the United States in 2008. The unemployment rate is the percentage of unemployment calculated by dividing the number of unemployed individuals by the number of individuals currently employed in the labour force. USA 2008 unemployment by county (https://commons.wikimedia.org/wiki/File:USA_2008_unemployment_by_county.svg) by Mike Serfas, licensed under CC BY-SA, a derivative of USA counties FIPS text addressable, licensed under CC BY-SA.

Measurements

In order to find the rate of unemployment, four methods are used:

- **Labour Force Sample Surveys:** provide the most comprehensive results. Calculates unemployment by different categories such as race and gender. This method is the most internationally comparable.
- **Official Estimates:** combines information from the three other methods. The method is not the preferred method to use when calculating the rate of unemployment.
- **Social Insurance Statistics:** these statistics are calculated based on the number of individuals receiving unemployment benefits. The method is criticized because unemployment benefits can expire before an individual finds employment which makes the calculations inaccurate.
- **Employment Office Statistics:** only include a monthly total of unemployed individuals who enter unemployment offices. This method is the least effective for measuring unemployment.

Measurement Shortcomings

The measurement of unemployment is not an absolute calculation and is prone to errors. For example, the unemployment rate does not take into account individuals who are not actively seeking employment, such as individuals attending college or even individuals who are in U.S. prisons. Individuals who are self-employed, those who were forced to take early retirement, those with disability pensions who would like to work, and those who work part-time and seek full-time employment are not factored in to the unemployment rate. Some individuals also choose not to enter the labour force and these statistics are also not considered. By not including all **underemployed** or unemployed individuals in the measurement of the unemployment rate, the calculation does not provide an accurate assessment of how unemployment truly impacts society. Errors and biases are also present due to data assembly and reporting inconsistencies.

Typical Lengths of Unemployment

Short-term unemployment is any period of joblessness that lasts fewer than 27 weeks. Long-term unemployment lasts 27 or more weeks.

Unemployment

Unemployment, also referred to as joblessness, occurs when people are without work and actively seeking employment. Generally, unemployment is high during recessions. Individuals struggle to find work when there are more job-seekers than vacant positions.

There are three types of unemployment:

- **Cyclical:** occurs when there is not enough aggregate demand in the economy to provide jobs for everyone who wants to work. The demand for most goods and services declines, less production is needed, and fewer workers are needed. Wages are sticky and do not fall to meet the equilibrium level which results in mass unemployment.
- **Structural:** occurs when the labour market is not able to provide jobs for everyone who wants to work. There is a mismatch between the skills of the workers and the skills needed for the jobs that are available. Structural unemployment is similar to frictional unemployment, but it lasts longer.
- **Frictional:** when a worker is searching for a job or transitioning from one job to another. Frictional unemployment is always present in an economy.

Lengths of Unemployment

Short-term unemployment is considered any unemployment period that lasts less than 27 weeks. The unemployment period is temporary and often includes the time needed to switch from one job to another. Also, if an individual is searching for employment the search period is relatively short.

Long-term unemployment is classified as unemployment that lasts for 27 weeks or longer. Being unemployed for a long period of time can have substantial impacts on individuals. Jobs skills, certifications, and qualifications lessen over time. When the job market finally increases many individuals will no longer match the requirements for the new positions. Long-term unemployment can also result in older workers taking early retirement.
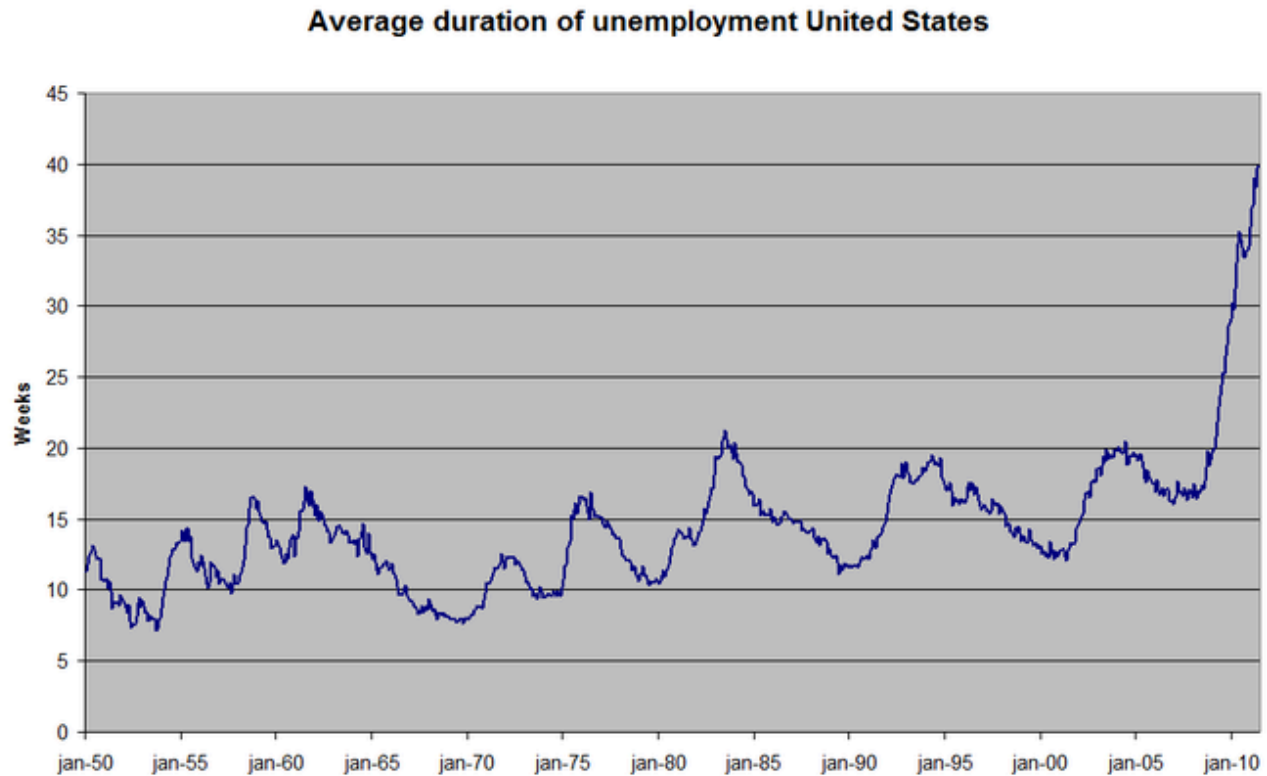
Average duration of unemployment United States

Figure 8.7c Average Length of Unemployment in the US. Shows the average length of unemployment in the United States from 1950-2010. The U.S. Bureau of Labor Statistics used the six employment measures to calculate the unemployment rate in the United States from 1950 to 2010. The vertical axis is percentage and the horizontal axis is years 1950 to 2010. US average duration of unemployment (https://en.wikipedia.org/wiki/File:US_average_duration_of_unemployment.png) by MartinD, licensed under CC BY-SA.

Social and Individual Impacts

Unemployment can have lasting impacts of individual people as well as the economy as a whole.

- **Social:** Within the economy, long-term unemployment increases the inequality present in the economy and impedes long-run economic growth. Unemployment wastes resources and generates redistributive pressures and distortions within the economy. When unemployment is high, the economy is not using all of the available resources, specifically labour. Unemployment can also reduce the efficiency of the economy because unemployed workers are willing to accept employment that is below their skill level.
- **Individual:** For individual people, unemployment increases **poverty**, creates poor labour mobility, and impacts self-esteem. When individuals are unemployed they are unable to meet their financial obligations. It is not uncommon for social unrest and conflict that get worse during times of mass unemployment.

Key Takeaways

- Unemployment occurs when people are without work and are actively seeking employment.
- There are three types of unemployment: cyclical, structural, and frictional.
- The CPS and CES are two surveys that the U.S. Bureau of Labor Statistics uses to determine the unemployment rate for households, businesses, and government agencies.
- The U.S. Bureau of Labor Statistics uses six measurements when calculating the unemployment rate. The measures range from U1 – U6 and were reported from 1950 through 2010. They calculate different aspects of unemployment.
- The rate of unemployment is a percentage that is calculated by dividing the number of unemployed individuals by the number of individuals currently employed in the work force.
- The rate of unemployment is calculated using four methods: the Labor Force Sample Surveys, Official Estimates, Social Insurance Statistics, and Employment Office Statistics.
- The measurement of unemployment does have some shortcomings based on who is and is not measured.
- By not including all under-employed or unemployed individuals in the measurement of the unemployment rate, the calculation does not provide an accurate assessment of how unemployment truly impacts society.
- Unemployment occurs when people are without work and are actively seeking employment.
- Unemployment impacts the economy and society by increasing inequality, impeding long-term economic growth, wasting resources, and reducing economic efficiency.
- Unemployment impacts individuals because they are not able to meet their financial obligations which can lead to poverty, poor labour mobility, and low self-esteem. Unemployment is also know to cause civil unrest and conflict.

Additional Key Terms

- **unemployment:** The state of being jobless and looking for work.
- **labour force:** The collective group of people who are available for employment, i.e. including both the employed and the unemployed.
- **poverty:** The quality or state of being poor or indigent; want or scarcity of means of subsistence; indigence; need.

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- USA 2008 unemployment by county. **Provided by**: Wikipedia. **Located at**: **en.Wikipedia.org/wiki/**

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8.8 - SELF-CHECK, CRITICAL THINKING & REVIEW QUESTIONS

Self-Check Questions

1. Suppose the adult population over the age of 16 is 237.8 million and the labour force is 153.9 million (of whom 139.1 million are employed). How many people are "not in the labour force?" What are the proportions of employed, unemployed and not in the labour force in the population? *Hint*: Proportions are percentages.
2. Using the above data, what is the unemployment rate? These data are U.S. statistics from 2010. How does it compare to the February 2015 unemployment rate computed earlier?
3. Over the long term, has the U.S. unemployment rate generally trended up, trended down, or remained at basically the same level?

    1. Whites or non-Whites?
    2. The young or the middle-aged?
    3. College graduates or high school graduates?

4. Beginning in the 1970s and continuing for three decades, women entered the U.S. labour force in a big way. If we assume that wages are sticky in a downward direction, but that around 1970 the demand for labour equaled the supply of labour at the current wage rate, what do you imagine happened to the wage rate, employment, and unemployment as a result of increased labour force participation?
5. Is the increase in labour force participation rates among women better thought of as causing an increase in cyclical unemployment or an increase in the natural rate of unemployment? Why?
6. Many college students graduate from college before they have found a job. When graduates begin to look for a job, they are counted as what category of unemployed?

Check your answers

1. The population is divided into those "in the labour force" and those "not in the labour force." Thus, the number of adults not in the labour force is $237.8 - 153.9 = 83.9 \text{ million}$.. Since the labour force is divided into employed persons and unemployed persons, the number of unemployed persons is $153.9 - 139.1 = 14.8 \text{ million}$. Thus, the adult population has the following proportions:

   - $139.1 \div 237.8 = 58.5\% \text{ employed persons}$
   - $14.8 \div 237.8 = 6.2\% \text{ unemployed persons}$
   - $83.9 \div 237.8 = 35.3\% \text{ persons out of the labour force}$

2. The unemployment rate is defined as the number of unemployed persons as a percentage of the labour force or $14.8 \div 153.9 = 9.6\%$. This is higher than the February 2015 unemployment rate, computed earlier, of 5.5%.

3. Over the long term, the U.S. unemployment rate has remained basically the same level.

   1. Non-Whites
   2. The young
   3. High school graduates

4. Because of the influx of women into the labour market, the supply of labour shifts to the right. Since wages are sticky downward, the increased supply of labour causes an increase in people looking for jobs (Qs), but no change in the number of jobs available (Qe). As a result, unemployment increases by the amount of the increase in the labour supply. This can be seen in the following figure. Over time, as labour demand grows, the unemployment will decline and eventually wages will begin to increase again. But this increase in labour demand goes beyond the scope of this problem.
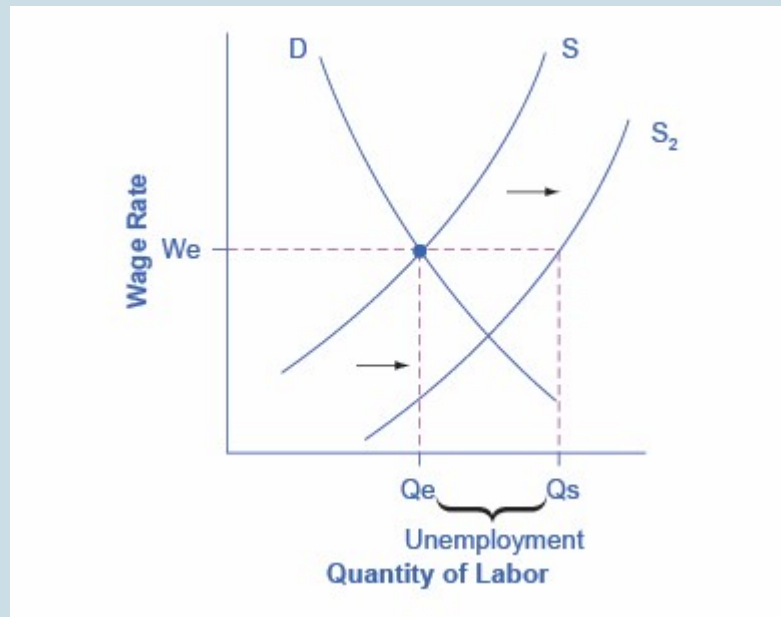
Figure 8.8a Figure by Steven A. Greenlaw & David Shapiro (OpenStax), licensed under CC BY 4.0.

Figure 8.8a (Text Version)

The vertical axis is Wage Rate and the horizontal axis is Quantity of Labour. The demand curve (D) slopes downward from left to right. The original supply curve (S) slopes upward from left to right. S and D intersects at We and Qe.

Because of the influx of women into the labour market, the original supply curve (S) shifts to the right and down to S2.

Since wages are sticky downward, the increased supply of labour causes an increase in people looking for jobs (Qs), which occurs at the same wage rate (We); however, there is no change in the number of jobs available (Qe).

As a result, unemployment increases by the amount of the increase in the labour supply. Unemployment is shown by the distance between Qe and Qs.

5. The increase in labour supply was a social demographic trend—it was not caused by the economy falling into a recession. Therefore, the influx of women into the work force increased the natural rate of unemployment.

6. New entrants to the labour force, whether from college or otherwise, are counted as frictionally unemployed until they find a job.

Critical Thinking Questions

1. Using the definition of the unemployment rate, is an increase in the unemployment rate necessarily a bad thing for a nation?

2. Is a decrease in the unemployment rate necessarily a good thing for a nation? Explain.

3. If many workers become discouraged from looking for jobs, explain how the number of jobs could decline but the unemployment rate could fall at the same time.

4. Would you expect hidden unemployment to be higher, lower, or about the same when the unemployment rate is high, say 10%, versus low, say 4%? Explain.

5. Is the higher unemployment rates for minority workers necessarily an indication of discrimination? What could be some other reasons for the higher unemployment rate?

6. While unemployment is highly negatively correlated with the level of economic activity, in the real world it responds with a lag. In other words, firms do not immediately lay off workers in response to a sales decline. They wait a while before responding. Similarly, firms do not immediately hire workers when sales pick up. What do you think accounts for the lag in response time?

7. Why do you think that unemployment rates are lower for individuals with more education?

8. Do you think it is rational for workers to prefer sticky wages to wage cuts, when the consequence of sticky wages is unemployment for some workers? Why or why not? How do the reasons for sticky wages explained in this section apply to your argument?

9. Under what condition would a decrease in unemployment be bad for the economy?

10. Under what condition would an increase in the unemployment rate be a positive sign?

11. As the baby boom generation retires, the ratio of retirees to workers will increase noticeably. How will this affect the Social Security program? How will this affect the standard of living of the average American?

12. Unemployment rates have been higher in many European countries in recent decades than in the United States. Is the main reason for this long-term difference in unemployment rates more likely to be cyclical unemployment or the natural rate of unemployment? Explain briefly.

13. Is it desirable to pursue a goal of zero unemployment? Why or why not?

14. Is it desirable to eliminate natural unemployment? Why or why not? *Hint*: Think about what our economy would look like today and what assumptions would have to be met to have a

zero rate of natural unemployment.

15. The U.S. unemployment rate increased from 4.6% in July 2001 to 5.9% by June 2002. Without studying the subject in any detail, would you expect that a change of this kind is more likely to be due to cyclical unemployment or a change in the natural rate of unemployment? Why?

Review Questions

1. What is the difference between being unemployed and being out of the labour force?
2. How do you calculate the unemployment rate? How do you calculate the labour force participation rate?
3. Are all adults who do not hold jobs counted as unemployed?
4. If you are out of school but working part time, are you considered employed or unemployed in U.S. labour statistics? If you are a full time student and working 12 hours a week at the college cafeteria are you considered employed or not in the labour force? If you are a senior citizen who is collecting social security and a pension and working as a greeter at Wal-Mart are you considered employed or not in the labour force?
5. What happens to the unemployment rate when unemployed workers are reclassified as discouraged workers?
6. What happens to the labour force participation rate when employed individuals are reclassified as unemployed? What happens when they are reclassified as discouraged workers?
7. What are some of the problems with using the unemployment rate as an accurate measure of overall joblessness?
8. What criteria do the BLS use to count someone as employed? As unemployed?
9. Assess whether the following would be counted as "unemployed" in the Current Employment Statistics survey.

   1. A husband willingly stays home with children while his wife works.
   2. A manufacturing worker whose factory just closed down.

3. A college student doing an unpaid summer internship.
4. A retiree.
5. Someone who has been out of work for two years but keeps looking for a job.
6. Someone who has been out of work for two months but isn't looking for a job.
7. Someone who hates her present job and is actively looking for another one.
8. Someone who decides to take a part time job because she could not find a full time position.

10. Are U.S. unemployment rates typically higher, lower, or about the same as unemployment rates in other high-income countries?
11. Are U.S. unemployment rates distributed evenly across the population?
12. When would you expect cyclical unemployment to be rising? Falling?
13. Why is there unemployment in a labour market with flexible wages?
14. Name and explain some of the reasons why wages are likely to be sticky, especially in downward adjustments.
15. What term describes the remaining level of unemployment that occurs even when the economy is healthy?
16. What forces create the natural rate of unemployment for an economy?
17. Would you expect the natural rate of unemployment to be roughly the same in different countries?
18. Would you expect the natural rate of unemployment to remain the same within one country over the long run of several decades?
19. What is frictional unemployment? Give examples of frictional unemployment.
20. What is structural unemployment? Give examples of structural unemployment.
21. After several years of economic growth, would you expect the unemployment in an economy to be mainly cyclical or mainly due to the natural rate of unemployment? Why?
22. What type of unemployment (cyclical, frictional, or structural) applies to each of the following:

1. landscapers laid off in response to a drop in new housing construction during a recession.
2. coal miners laid off due to EPA regulations that shut down coal fired power
3. a financial analyst who quits his/her job in Chicago and is pursing similar work in Arizona
4. printers laid off due to drop in demand for printed catalogues and flyers as firms go the

internet to promote an advertise their products.
5. factory workers in the U.S. laid off as the plants shut down and move to Mexico and Ireland.

Problems

1. A country with a population of eight million adults has five million employed, 500,000 unemployed, and the rest of the adult population is out of the labour force. What's the unemployment rate? What share of population is in the labour force? Sketch a pie chart that divides the adult population into these three groups.
2. A government passes a family-friendly law that no companies can have evening, nighttime, or weekend hours, so that everyone can be home with their families during these times. Analyze the effect of this law using a demand and supply diagram for the labour market: first assuming that wages are flexible, and then assuming that wages are sticky downward.
3. As the baby boomer generation retires, what should happen to wages and employment? Can you show this graphically?

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8.9 - READING LIST

1. Labour force characteristics by province, monthly, seasonally adjusted (statcan.gc.ca) [New Tab] (https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410028703)

Reading List compiled by Norm Smith.