**Key Concepts**

## The Business Cycle

The periodic but irregular up-and-down movement in production and jobs is the business cycle. Business cycles have phases:

- **Recession** — a significant decline in economic activity spread across the economy that lasts for more than a few months. A popular definition of a recession is when real GDP decreases for at least two consecutive quarters.
- **Trough** — the lower turning point, when a recession ends and an expansion begins.
- **Expansion** — when real GDP increases, and is the period of time between a trough and a peak.
- **Peak** — the upper turning point, when an expansion ends and a recession begins.

The National Bureau of Economic Research (NBER) has identified 16 recessions and expansions since 1920. The most severe was the Great Depression, from August 1929 to March 1933, during which real GDP shrank by 33 percent. March 2001 is the start of the most recent recession.

## Jobs and Wages

The U.S. Census Bureau divides the **working-age population** (those people 16 years old and older who are not in jail, hospital, or other institution) into categories:

- **Employed** — people working at a full-time or part-time job.
- **Unemployed** — people who are (1) without a job but have made efforts to find a job within the past four weeks; or, (2) waiting to be called back to work from a layoff; or, (3) waiting to start a new job within 30 days.
- **Not in the labor force** — people who are not employed and not looking for work, that is, are not unemployed.

The **labor force** equals the sum of employed plus unemployed workers. **Discouraged workers** are unemployed people who have stopped looking for work. Discouraged workers are not in the labor force.

- **Unemployment rate** — percentage of the labor force that is unemployed. The unemployment rate equals

\[
\text{Unemployment rate} = \frac{\text{Number of people unemployed}}{\text{Labor force}} \times 100
\]

From 1961 to 2001, the average unemployment rate has been about 6 percent. It rises during recessions.

- **Labor force participation rate** — percentage of the working-age population who are members of the labor force. This rate is

\[
\text{Labor force participation rate} = \frac{\text{Labor force}}{\text{Working-age population}} \times 100
\]

Since 1961, the labor force participation rate has increased to a bit more than 67 percent. It falls during recessions because of discouraged workers, who temporarily leave the labor force during the recession and then rejoin it during expansions.

- **Employment-to-population ratio** — the percentage of working age people who have jobs. This ratio has increased since 1961 and in 2001 is about 63 percent. The employment-to-population ratio falls during recessions.

Both the labor force participation rate and the employment-to-population ratio have increased because significantly more women are working at market jobs.

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* This is Chapter 20 in *Economics.*
Aggregate hours, the total number of hours worked by all the people employed, is a measure of labor input. Aggregate hours have maintained an upward trend, but have increased less rapidly than the number of people employed because the average hours per worker has become shorter. Aggregate hours fall during recessions.

The **real wage rate** is the quantity of goods and services an hour’s work can buy. It equals the money wage rate divided by the price level. Real wage rate growth slowed during the 1970s and early 1980s but grew rapidly in the late 1990s.

### Unemployment and Full Employment

Unemployed workers include:

- **Job losers**, workers who were laid off or fired;
- **Job leavers**, workers who voluntarily quit;
- Labor force **entrants** and **reentrants**, people who are entering the labor force for the first time or are returning to it after leaving.

Job losers are the largest source of unemployment; job leavers are the smallest. Unemployment ends when a person is hired, recalled, or leaves the labor force. The duration of unemployment increases during recessions.

Unemployment rates are highest for young workers and black workers.

Unemployment is classified as:

- **Frictional unemployment** — the result of normal labor market turnover, such as people entering the labor force and businesses expanding or contracting. Frictionally unemployed workers are searching for good job matches, and the length of their searches can be influenced by the level of unemployment compensation payments.

- **Structural unemployment** — the result of changes in technology or international competition that change the skills needed to perform jobs or change the location of jobs.

- **Cyclical unemployment** — the result of the business cycle. Cyclical unemployment increases during recessions and decreases during expansions.

**Full employment** occurs when there is no cyclical unemployment. The **natural rate of unemployment** is the unemployment rate when there is full employment. It equals the sum of the frictional and structural unemployment rates. The quantity of GDP at full employment is called **potential GDP**.

- Over the business cycle, unemployment fluctuates around the natural rate and real GDP fluctuates around potential GDP. When the unemployment rate is higher than the natural rate, real GDP is less than potential GDP and when the unemployment rate is lower than the natural rate, real GDP exceeds potential GDP.

### The Consumer Price Index

The Consumer Price Index (CPI) is a measure of the average of the prices paid by urban consumers for a fixed “basket” of consumer goods and services. The CPI is defined to equal 100 for a period called the **reference base period**.

- The CPI basket contains the goods and services purchased by urban consumers. Each month the cost of the market basket is determined by a monthly price survey.

The **inflation rate** is the percentage change in the price level from one year to the next. In terms of a formula, the inflation rate is:

\[
\frac{(CPI \text{ this year}) - (CPI \text{ last year})}{(CPI \text{ last year})} \times 100.
\]

The CPI overstates the actual inflation rate:

- New goods bias — when new, higher priced goods replace older goods.

- Quality change bias — failing to take account of quality improvements that raise prices.

- Commodity substitution bias — when consumers shift their purchases away from goods whose relative prices rise toward lower priced goods.

- Outlet substitution bias — with higher prices, people switch to low-cost discount stores.

The CPI is estimated to overstate inflation by 1.1 percentage points per year.

### Helpful Hints

1. **FULL EMPLOYMENT**: Remember that full employment does not mean that everyone has a job. Rather, it means that the only unemployment is frictional and structural in nature so that there is
no cyclical unemployment. When there is no cyclical unemployment, the unemployment rate is the natural rate of unemployment. The actual rate of unemployment can be less than the natural rate of unemployment, so that the employment can exceed full employment. In these situations, people are spending too little time searching for jobs, and therefore less productive job matches are being made. Conversely, the actual rate of unemployment can exceed the natural rate, so that employment is less than full employment. In this case, too many workers are searching for jobs and so the economy is able to produce fewer goods and services.

Questions

True/False and Explain

The Business Cycle
1. The trough is the lower turning point of the business cycle.
2. Since 1920, there have been two business cycle in the United States.

Jobs and Wages
3. Full-time students not looking for work are counted as unemployed.
4. The unemployment rate equals the total number of unemployed workers divided by the total working-age population.
5. Lesline lost her job and looked for a new job for eight months. She stopped looking for work because she believes she cannot find a job. Lesline is counted as unemployed.
6. The labor force participation rate has been rising over the past several decades because more women are working in the marketplace.
7. The aggregate hours worked in the United States have not grown as quickly as the number of people employed.
8. The real wage rate is the wage rate including all fringes, that is, the wage rate that workers “really” receive.

Unemployment and Full Employment
10. More unemployed workers have quit their previous jobs than were fired or laid off.
11. In a recession, the duration of unemployment generally increases.
12. Bill has just graduated from high school and is looking for his first job. Bill is frictionally unemployed.
13. The natural rate of unemployment equals the sum of frictional and structural unemployment.
14. At full employment, there is no unemployment.
15. Real GDP can never be greater than potential GDP.

The Consumer Price Index
16. The market basket used in calculating the CPI changes each year.
17. Consumers shift their purchases away from goods whose relative prices increase and thereby cause the CPI to overstate the actual inflation rate.

Multiple Choice

The Business Cycle
1. Which is the proper order for the business cycle?
   a. Peak, recession, trough, expansion
   b. Peak, trough, expansion, recession
   c. Peak, expansion, trough, recession
   d. Peak, recession, expansion, trough

2. Suppose that real GDP rises in all four quarters of 2005; thus 2005 would definitely be a year
   a. of expansion.
   b. with a business cycle peak.
   c. of recession.
   d. with a business cycle trough.

Jobs and Wages
3. In a country with a working-age population of 200 million, 130 million workers are employed and 10 million are unemployed. The labor force equals
   a. 200 million.
   b. 140 million.
   c. 130 million.
   d. 10 million.
4. In a country with a working-age population of 200 million, 130 million workers are employed and 10 million are unemployed. The unemployment rate is
   a. 5.0 percent.
   b. 7.1 percent.
   c. 7.7 percent.
   d. 65.0 percent.

5. In a country with a working-age population of 200 million, 130 million workers are employed and 10 million are unemployed. The labor force participation rate is
   a. 100 percent.
   b. 70 percent.
   c. 65 percent.
   d. 5 percent.

6. Over the past 30 years, the labor force participation rate for men has ____ and for women has ____. 
   a. increased; increased
   b. increased; decreased
   c. decreased; increased
   d. decreased; decreased

7. Suppose that the money wage rate is $5 per hour, and that the price level is 100. If the money wage rate rises to $10 per hour and the price level does not change, what happens to the real wage rate?
   a. The real wage rate doubles.
   b. The real wage rate rises, but does not double.
   c. The real wage rate does not change.
   d. The real wage rate falls.

8. Suppose that the money wage rate is $5 per hour and that the price level is 100. If the money wage rate rises to $10 per hour and simultaneously the price level rises to 200, what happens to the real wage rate?
   a. The real wage rate doubles.
   b. The real wage rate increases but does not double.
   c. The real wage rate does not change.
   d. The real wage rate falls.

9. During the last 40 years,
   a. the average hours of work per week has declined.
   b. the unemployment rate generally has increased.
   c. aggregate hours of work have declined.
   d. the real wage rate increased most rapidly in the 1970s and early 1980s.

Unemployment and Full Employment

10. Which of the following accounts for largest amount of unemployment?
   a. Job leavers
   b. Job losers
   c. New entrants to the labor force
   d. Reentrants to the labor force

11. For which of the following groups is the unemployment rate the lowest?
   a. Black teenagers
   b. White teenagers
   c. Blacks, 20 years old and older
   d. Whites, 20 years old and older

12. Unemployment resulting from a recession is called
   a. cyclical unemployment.
   b. frictional unemployment.
   c. structural unemployment.
   d. cycle unemployment.

13. Who of the following is a discouraged worker?
   a. Cara, who lost her job because of foreign competition and is unemployed until retrained.
   b. Omar, a fishery worker who is searching for a better job closer to home.
   c. Eugene, a steelworker who was laid off but has stopped looking for a new job because the economy is in a recession and he thinks he won’t be able to find a job.
   d. Amanda, an office worker who lost her job because of a slowdown in economic activity.

14. Who of the following is frictionally unemployed?
   a. Cara, who lost her job because of foreign competition and is unemployed until retrained.
   b. Omar, a fishery worker who is searching for a better job closer to home.
   c. Eugene, a steelworker who was laid off but has stopped looking for a new job because the economy is in a recession and he thinks he won’t be able to find a job.
   d. Amanda, an office worker who lost her job because of a slowdown in economic activity.
15. Who of the following is structurally unemployed?
   a. Cara, who lost her job because of foreign competition and is unemployed until retrained.
   b. Omar, a fishery worker who is searching for a better job closer to home.
   c. Eugene, a steelworker who was laid off but has stopped looking for a new job because the economy is in a recession and he thinks he won’t be able to find a job.
   d. Amanda, an office worker who lost her job because of a slowdown in economic activity.

16. Who of the following is cyclically unemployed?
   a. Cara, who lost her job because of foreign competition and is unemployed until retrained.
   b. Omar, a fishery worker who is searching for a better job closer to home.
   c. Eugene, a steelworker who was laid off but has stopped looking for a new job because the economy is in a recession and he thinks he won’t be able to find a job.
   d. Amanda, an office worker who lost her job because of a slowdown in economic activity.

17. At the natural rate of unemployment, there is no
   a. frictional unemployment.
   b. structural unemployment.
   c. cyclical unemployment.
   d. unemployment.

18. If the economy is at full employment,
   a. the entire population is employed.
   b. the entire labor force is employed.
   c. the only unemployment is frictional unemployment plus discouraged workers.
   d. real GDP equals potential GDP.

The Consumer Price Index

19. At the end of last year, the CPI equaled 120. At the end of this year, the CPI equals 132. What is the inflation rate over this year?
   a. 6 percent.
   b. 10 percent.
   c. 12 percent.
   d. None of the above answers are correct because more information is needed to calculate the inflation rate.

20. The commodity substitution bias is that
   a. consumers substitute high-quality goods for low-quality goods.
   b. government spending is a good substitute for investment expenditures.
   c. national saving and foreign borrowing are interchangeable.
   d. consumers decrease the quantity they buy of goods whose relative prices rise and increase the quantity of goods whose relative price falls.

### Short Answer Problems

#### Table 5.1

<table>
<thead>
<tr>
<th>Employed workers</th>
<th>Unemployed workers</th>
<th>Labor force</th>
<th>Unemployment rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>10</td>
<td>100</td>
<td>5.0%</td>
</tr>
<tr>
<td>80</td>
<td></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>200</td>
<td>5.0%</td>
</tr>
<tr>
<td>130</td>
<td>8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. Complete Table 5.1.
2. Can the unemployment rate increase while the total amount of employment also increases? Be sure to take account of the behavior of discouraged workers in your answer.
3. Describe the trends in the labor force participation rate and employment-to-population ratio since 1961. Is there any difference in these trends for men and women?
4. Describe the trends in aggregate hours and total employment since 1961. How do they behave during recessions?
5. For the following time periods, describe Igor’s labor market status. When Igor is unemployed, tell whether it is frictional, structural, or cyclical unemployment.
   a. From January 1 through June 30, 2002, Igor was a full-time student pursuing his bachelor’s degree.
   b. On July 1, Igor graduated with his degree in body building. He spent three months looking for work before Dr. Frankenstein hired him on October 1.
   c. From October 1 to January 1, 2003, Igor worked full-time on the night shift.
d. On January 1, because of generally worsening economic conditions, Igor was put on part-time on the night-shift even though he wanted to work full time.
e. On February 28, as economic conditions worsened, Dr. Frankenstein fired Igor. Igor looked for work until May 1.
f. On May 1, Igor became convinced that he couldn’t find a job, so until October 31 Igor tended house and dug in his garden but did not look for work.
g. On October 31, Count Dracula dropped by for a bite and offered Igor a job, which Igor accepted.

6. In 2002, consumers in Snowville consumed only rutabagas, parkas, and books. The prices and quantities for 2002 and 2003 are listed in Table 5.2. The reference base period for Snowville’s CPI is 2002.

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Price</td>
<td>Quantity</td>
</tr>
<tr>
<td>Rutabaga</td>
<td>$0.50</td>
<td>200</td>
</tr>
<tr>
<td>Parka</td>
<td>$50.00</td>
<td>2</td>
</tr>
<tr>
<td>Book</td>
<td>$40.00</td>
<td>5</td>
</tr>
</tbody>
</table>

6. In 2002, consumers in Snowville consumed only rutabagas, parkas, and books. The prices and quantities for 2002 and 2003 are listed in Table 5.2. The reference base period for Snowville’s CPI is 2002.

You’re the Teacher

1. “I really don’t understand why we bother with the ideas of ‘frictional,’ ‘structural,’ and ‘cyclical’ unemployment. I mean, unemployment is unemployment, so who really cares about these types?” Your friend is being unnecessarily negative; explain why understanding these different types of unemployment is useful.

2. “Okay, now I see that the book is right — we should divide unemployment into frictional, structural, and cyclical. But, I still can’t see why we should have any unemployment. I think that the government should reduce the unemployment rate to zero because that has to be best for the nation!” Your friend sees some of the lessons from the book, but your friend’s vision is far from 20/20. Help this student by explaining why a goal of zero unemployment is neither realistic nor desirable.
Answers

True/False Answers

The Business Cycle
1. T After the trough, the economy enters the expansion phase of the business cycle.
2. F There have been sixteen business cycle in the United States after 1920.

Jobs and Wages
3. F These students are not in the labor force.
4. F The unemployment rate equals the total number of unemployed workers divided by the labor force, not the total working-age population.
5. F Lesline is a discouraged worker because she stopped looking for a job and discouraged workers are not counted as unemployed.
6. T The labor force participation rate for men has been falling, but it has been rising for women. The increase in the female labor force participation rate has been enough to cause the overall participation rate to increase.
7. T The average hours per worker has gotten shorter, so the growth in total employment has been greater than the growth in aggregate hours of work.
8. F The real wage is the purchasing power of the wage, so the real wage rate shows the quantity of goods and services that can be purchased with an hour's work.

Unemployment and Full Employment
10. F The greatest number of unemployed workers were fired or laid off.
11. T The duration of unemployment refers to length of time workers are unemployed, and the duration increases during a recession.
12. T Bill is part of the normal turnover in the labor market and thus is frictionally unemployed.
13. T The natural rate of unemployment is defined as the sum of frictional and structural unemployment.

14. F At full employment, the unemployment rate equals the natural rate, comprising frictional and structural unemployment.
15. F When the unemployment rate is less than the natural rate of unemployment, real GDP is greater than potential GDP.

The Consumer Price Index
16. F The market basket stays the same, that is, the quantities used in the basket do not change. However, the prices used change.
17. T The CPI is based on a fixed market basket and thereby assumes that people continue to buy the same quantities of goods and services whose relative prices have increased.

Multiple Choice Answers

The Business Cycle
1. a Keep in mind that the business cycle is not a “smooth” cycle; some expansions last longer than others, some troughs are deeper than others, and so on.
2. a By definition, an expansion is a period of time during which real GDP increases.

Jobs and Wages
3. b The labor force equals the sum of employed workers (130 million) and unemployed workers (10 million), or 140 million.
4. b The unemployment rate equals the number of unemployed workers divided by the labor force, multiplied by 100.
5. b The labor force participation rate equals the percentage of the working-age population in the labor force, that is, the total labor force (140 million) divided by the total working-age population (200 million), times 100.
6. c The increase for women has been larger than the decrease for men, so the overall labor force participation rate has increased.
7. a The real wage rate equals the money wage rate divided by the price level, so when the money wage rate doubles and the price level does not change, the real wage rate doubles.
8. c As in question 7, the real wage rate equals the money wage rate divided by the price level. Thus when both the money wage rate and
price level double, the real wage rate does not change.

9. **a** The average work week has declined in length primarily because the number of part-time jobs has increased.

**Unemployment and Full Employment**

10. **b** Job losers include workers who have been fired or laid off, and these workers account for the majority of unemployment.

11. **d** The unemployment rate for whites, 20 years old or older is the lowest and for teenage blacks is the highest.

12. **a** Cyclical unemployment is positive when the economy is in a recession and negative when it is an expansion.

13. **c** Eugene has stopped looking for work, so he is no longer considered an unemployed worker.

14. **b** Omar is part of the normal turnover in the labor force, so he is frictionally unemployed.

15. **a** Cara lost her job because of structural change (more foreign competition) in the economy, so she is structurally unemployed.

16. **d** Amanda’s job was lost because of a recession, so Amanda is cyclically unemployed.

17. **c** The natural rate consists of only frictional and structural unemployment.

18. **d** At full employment, the amount of real GDP that is produced is potential GDP.

**The Consumer Price Index**

19. **b** The inflation rate is the percentage change in the price index, \( \frac{132 - 120}{120} \times 100 \), or 10 percent.

20. **d** In part because of the commodity substitution bias, the CPI overstates the true increase in the cost of living.

**Answers to Short Answer Problems**

1. The answers are in Table 5.3. To calculate them, recall that the labor force equals the sum of employed and unemployed workers. Hence in the first line the total labor force equals 100 + 10 or 110. In the second line, the number of unemployed workers equals the labor force, 100, minus the total number of employed workers, 80. So unemployed workers number 20. The unemployment rate equals the total number of unemployed workers divided by the labor force, multiplied by 100. So in the first row the unemployment rate equals \( \frac{10}{110} \times 100 = 9.1\% \). In the third row, rearranging the definition of the unemployment rate shows that the total number of unemployed workers equals the unemployment rate multiplied by the labor force. Hence in the third row the total number of unemployed workers is \( (5.0\%) \times (200) \) so that unemployment is 10. The number of employed workers in that row therefore is 190.

2. Although uncommon, both the number of employed workers and the unemployment rate can increase at the same time. This situation occurs most often just after the trough of the business cycle when the economy moves into an expansion. In these months, the economy is growing, and real GDP is expanding, so the total amount of employment rises. In addition, previously discouraged workers begin to perceive that they may now be able to find a job. A large number of discouraged workers may rejoin the labor force, start searching for jobs, and add significantly to the number of unemployed workers. (Recall that as discouraged workers, they were not counted as unemployed; rather they were not in the labor force.) Hence the unemployment rate may increase even though the total number of employed workers increases.

3. Both the labor force participation rate and the employment-to-population ratio have increased since 1961. The primary reason is more women in the labor force. The female labor force participation rate and the female employment-to-population ratio each have increased substantially since 1961. In contrast, the male labor force par-

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**Table 5.3**

<table>
<thead>
<tr>
<th>Employed workers</th>
<th>Unemployed workers</th>
<th>Labor force</th>
<th>Unemployment rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>10</td>
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<td>9.1%</td>
</tr>
<tr>
<td>80</td>
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<td>20.0%</td>
</tr>
<tr>
<td>190</td>
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</tr>
<tr>
<td>130</td>
<td>8</td>
<td>138</td>
<td>5.8%</td>
</tr>
</tbody>
</table>
participation rate and the male employment-to-population ratio both have decreased slightly.

4. Both aggregate hours and total employment have increased since 1961. However, the changes have not been steady; during recessions, they have increased at a slower rate or have even decreased, but in total both have increased significantly over the past three decades. The growth in employment has exceeded the growth in total hours because the average work week has shortened.

5. a. As a full-time student, Igor was not in the labor force.
b. While Igor searched for his first job, he was frictionally unemployed.
c. When working full-time for Dr. Frankenstein, Igor was an employed worker.
d. Even though Igor wanted full-time work, he nonetheless was still counted as (fully) employed when he was on the part-time night shift.
e. From February 28 to May 1, Igor was cyclically unemployed because his unemployment was the result of a downturn in the economy.
f. From May 1 to October 31, Igor was not in the labor force because he was not looking for work. Igor was a discouraged worker.
g. Igor is employed after October 31.

### Table 5.4

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rutabaga</td>
<td>$0.50</td>
<td>$0.70</td>
</tr>
<tr>
<td>Parka</td>
<td>$50.00</td>
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</tr>
<tr>
<td>Book</td>
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<td>$30.00</td>
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<tr>
<td>Quantity</td>
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<td></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

6. a. The CPI in 2002 is 100. This answer may be calculated in two ways. First, the CPI in any reference base period equals 100. Alternatively, the CPI can be calculated directly.

   From Table 4.4, in 2002, the market basket cost $(0.50 \text{ per rutabaga}) \times (200 \text{ rutabagas}) + (50.00 \text{ per parka}) \times (2 \text{ parkas}) + (40.00 \text{ per book}) \times (5 \text{ books}) = 400$. The CPI is defined as 100 times the ratio of the cost of the basket in the current year divided by the cost of the basket in the reference base period. So, the CPI equals \( \frac{400}{400} \times 100 = 100 \).

b. As the first step in calculating the CPI for 2003, calculate the cost using 2003 prices of the 2002 market basket: \( (0.70 \text{ per rutabaga}) \times (200 \text{ rutabagas}) + (75.00 \text{ per parka}) \times (2 \text{ parkas}) + (30.00 \text{ per book}) \times (5 \text{ books}) = 440 \). The CPI equals 100 times the ratio of the cost of the basket in the current year divided by the cost of the basket in the reference base period, or \( \frac{440}{400} \times 100 = 110 \).

c. The inflation rate between 1999 and 2000 equals \( \frac{110 - 100}{100}, \) or 10 percent.

### You’re the Teacher

1. “You’re right, it probably doesn’t make any difference to the unemployed worker whether he or she is frictionally, structurally, or cyclically unemployed. And determining which classification a particular unemployed worker falls into is difficult — perhaps impossible. But, this division can be very useful for us, as students, because it makes clear some of the causes of unemployment. And, once we know the causes, we can get insight into what we can do.

   “Take the idea of structural unemployment, for instance. Helping workers who are structurally unemployed has to take a different tack than helping those who are cyclically unemployed. A worker who is cyclically unemployed doesn’t necessarily need a lot of retraining. But one who is structurally unemployed may well benefit from this type of training. So, by recognizing that structural reasons are one cause of unemployment, we can see that offering retraining may be a good idea if we want to reduce the unemployment rate.

   “Now, if we hadn’t divided unemployment into different types, we may very well have thought that all unemployment was cyclical in nature. And in this case, we would probably have completely overlooked retraining. So dividing unemployment into three categories is helpful because
it helps us think more deeply about unemployment.

2. “Look, here’s another case where the division of unemployment into frictional, structural, and cyclical unemployment can help you avoid these outlandish statements. Think about frictional unemployment: What would it take to reduce this type of unemployment to zero? I mean, the laws and regulations would be awful! For instance, you’d need a law that says you couldn’t graduate from college until you already had a job lined up because if you had to look for a job after graduation, you’d be frictionally unemployed. And once you had a job, you couldn’t leave it until you had another job lined up. I don’t know about you, but even though I like college, I don’t want to spend the rest of my life as a student and, if I get stuck in a job I hate, I want to be able to quit to look for a better one.

“You can see that reducing frictional unemployment to zero would be way too costly. The laws it would take are too strict and would really hurt our economy! It would probably be equally impossible to reduce structural unemployment to zero. But cyclical unemployment is a different issue. The more we can tame the business cycle, the more we can reduce cyclical unemployment. So, possibly what we want to aim for is to reduce cyclical unemployment to zero. In other words, forget the idea of eliminating all unemployment; let’s concentrate instead on eliminating cyclical unemployment.”
Chapter Quiz

1. The unemployment rate
   a. rises during an expansion and falls during a recession.
   b. measures the percentage of the working-age population who can’t find a job.
   c. includes workers who have quit looking for work because they think they cannot find a job, that is, the unemployment rate includes discouraged workers.
   d. equals the percentage of the labor force that is without a job.

2. Over the last four decades, the labor force participation rate _____ and the employment-to-population ratio _____.
   a. increased; increased
   b. increased; decreased
   c. decreased; increased
   d. decreased; decreased

3. In a country with a working-age population of 200 million, 90 million workers are employed and 10 million are unemployed. What is the unemployment rate?
   a. 45.0 percent
   b. 11.1 percent
   c. 10.0 percent
   d. 5.0 percent

4. If money wages rise by a greater percentage than the price level, real wages
   a. increase.
   b. do not change.
   c. decrease.
   d. probably change, but without knowledge of the labor demand and labor supply, it is impossible to tell the direction.

5. Most unemployed people are
   a. job leavers.
   b. job losers.
   c. discouraged workers.
   d. new entrants into the labor force.

6. Unemployment that is associated with changing jobs in a normally changing economy is best characterized as
   a. cyclical unemployment.
   b. structural unemployment.
   c. frictional unemployment.
   d. long-term unemployment.

7. When thirty workers are laid off because the economy has entered a recession, _____ unemployment has increased.
   a. cyclical
   b. structural
   c. frictional
   d. discouraged worker

8. When thirty workers enter the labor force after graduation from school, _____ unemployment has increased.
   a. cyclical
   b. structural
   c. frictional
   d. discouraged worker

9. When thirty workers are laid off and cannot find new jobs because they lack the necessary skills, _____ unemployment has increased.
   a. cyclical
   b. structural
   c. frictional
   d. discouraged worker

10. Which of the following is correct?
    a. Aggregate hours have increased more rapidly than employment so the average work week has lengthened.
    b. Aggregate hours have increased more rapidly than employment so the average work week has shortened.
    c. Aggregate hours have increased less rapidly than employment so the average work week has lengthened.
    d. Aggregate hours have increased less rapidly than employment so the average work week has shortened.

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