1. Provide a technical definition of recession and describe the history of the U.S. business cycle and the global business cycle.
   A. Dating Business-Cycle Turning Points
   B. U.S. Business-Cycle History
   C. Recent Cycles

2. Explain the influences on aggregate supply.
   A. Aggregate Supply Basics
      1. Why the AS Curve Slopes Upward
         a. Business Failure and Startup
         b. Temporary Shutdowns and Restarts
         c. Changes in Output Rate
      2. Production at a Pepsi Plant
   B. Changes in Aggregate Supply
      1. Changes in Potential GDP
      2. Changes in Money Wage Rate and Other Resource Prices

3. Explain the influences on aggregate demand.
   A. Aggregate Demand Basics
      1. The Buying Power of Money
      2. The Real Interest Rate
      3. The Real Prices of Exports and Imports
   B. Changes in Aggregate Demand
      1. Expectations
      2. Fiscal Policy and Monetary Policy
      3. The World Economy
   C. The Aggregate Demand Multiplier

4. Explain how fluctuations in aggregate demand and aggregate supply create the business cycle.
   A. Aggregate Demand Fluctuations
   B. Aggregate Supply Fluctuations
   C. Adjustment Toward Full Employment
CHAPTER ROADMAP

■ What’s New in this Edition?
Chapter 29 is now the first chapter in which the students encounter the AS-AD model. This chapter now uses some of the material from the second edition’s Chapter 23 introduction to AS-AD to explain the beginning about aggregate supply and aggregate demand. The connection between the AS-AD model and business cycle has been rewritten and made even more straightforward for the students.

■ Where We Are
In this chapter, we provide a definition of recession and describe the history of the U.S. business cycle over the past 150 years. In addition, we introduce and then explain the influences on both aggregate supply and aggregate demand. Lastly, we use aggregate demand and aggregate supply to explain how fluctuations in them create the business cycle.

■ Where We’ve Been
This chapter moves away from long-run economic growth, covered in Chapters 23 to 25, and the monetary economy, covered in Chapters 26 to 28 to focus on business cycles and the AS-AD model.

■ Where We’re Going
The next chapter looks at aggregate expenditure to develop more insight into aggregate demand. The AS-AD model is also used to help explain policy debates in Chapter 33.

IN THE CLASSROOM

■ Class Time Needed
Although it might be possible to cover the material in this chapter in two class sessions, it is sufficiently important and challenging that spending at least two and one half class periods is a good investment. Depending on the current state of the economy, you can spend upwards of three or more class periods on it!

An estimate of the time per checklist topic is:

- 29.1 Business-Cycle Definitions and Facts—20 to 25 minutes
- 29.2 Aggregate Supply—30 to 40 minutes
- 29.3 Aggregate Demand—30 to 40 minutes
- 29.4 Understanding the Business Cycle—40 to 50 minutes
CHAPTER LECTURE

29.1 Business-Cycle Definitions and Facts

- The business cycle consists of a peak, recession, trough, and expansions.
- A standard definition of a recession is a decrease in real GDP that lasts for at least two quarters (six months). The NBER (National Bureau of Economic Research) uses a broader definition of recession to date business-cycle turning points. It defines a recession as “a period of significant decline in total output, income, employment, and trade, usually lasting from six months to a year, and marked by widespread contractions in many sectors of the economy.”

U.S. Business-Cycle History

- The NBER has identified 33 complete cycles starting from a trough in December 1854.
- Since 1854, the average length of an expansion is 35 months and the average length of a recession is 18 months. During the years since World War II, the average recession shortened to 11 months and the average expansion lengthened to 59 months.
- After a recession that ran from July 1990 to March 1991, the U.S. economy entered a record-breaking expansion that lasted 120 months until March 2001 when the economy entered a recession. The trough was reached in the 3rd quarter of 2001, after which the economy has been in an expansion.

29.2 Aggregate Supply

Real GDP depends on labor, capital, technology, land, and entrepreneurial talent. In the short run, only the quantity of labor can vary, so fluctuations in employment lead to changes in real GDP. When the quantity of labor demanded equals the quantity of labor supplied, there is full employment in the labor market and real GDP equals potential GDP.

Aggregate Supply Basics

- The aggregate supply curve is the relationship between the quantity of real GDP supplied and the price level when all other influences on production plans (the money wage rate, the prices of other resources, and potential GDP) remain constant.
- As illustrated in the figure, the AS curve is upward sloping. This slope reflects that a higher price level combined with a fixed money wage rate, lowers the real wage rate, thereby increasing the quantity of labor employed and hence increasing real GDP.
Why the AS Curve Slopes Upward

- When the price level changes, three reactions create the positive relationship between the price level and quantity of real GDP supplied:
  - Business Failure and Startup: Real GDP changes when the number of firms in business changes. If the price level rises relative to costs, profits increase, the number of firms in business increases, and the quantity of real GDP supplied increases.
  - Temporary Shutdowns and Restarts: The price level relative to costs is an influence on temporary shutdown decisions. If the price level rises relative to costs, fewer firms will decide to shut down, so more firms operate and the quantity of real GDP supplied increases.
  - Changes in Output Rate: When the price level rises and the money wage rate doesn’t change, the quantity of labor demanded increases and production increases.

Changes in Aggregate Supply

- When the price level changes and the money wage rate and other resource prices remain constant, real GDP departs from potential GDP and there is a movement along the AS curve. The AS curve, however, does not shift.
- When potential GDP increases, aggregate supply increases and AS curve shifts rightward. The potential GDP line also shifts rightward.
- Short-run aggregate supply changes and the AS curve shifts when there is a change in the money wage rate or other resource prices. A rise in the money wage rate or other resource prices decreases short-run aggregate supply and shifts the AS curve leftward. In this case, the potential GDP line does not shift.

29.3 Aggregate Demand

The quantity of real GDP demanded is the sum of consumption expenditure ($C$), investment ($I$), government expenditures ($G$), and net exports ($X - M$), or $Y = C + I + G + (X - M)$.

Aggregate Demand Basics

- The relationship between the quantity of real GDP demanded and the price level is called aggregate demand. Other things remaining the same, the higher the price level, the smaller is the quantity of real GDP demanded.
- As the figure shows, the $AD$ curve is downward sloping. Moving along the aggregate demand curve the only thing that changes is the price level.
**Why the AD Curve Slopes Downward**

- The negative relationship between the price level and the quantity of real GDP demanded reflects three factors:
  - *Buying Power of Money:* When the price level rises, the buying of money decreases and so people decrease consumption expenditure.
  - *Real Interest Rate:* When the price level rises, the demand for money increases, which raises the nominal interest rate. Because the inflation rate does not immediately change, the real interest rate also rises so that people decrease their consumption expenditure and firms decrease their investment.
  - *Real Price of Exports and Imports:* When the price level rises, domestic goods become more expensive relative to foreign goods so people decrease the quantity of domestic goods demanded.

**Changes in Aggregate Demand**

- Any factor that influences expenditure plans other than the price level changes aggregate demand and shifts the aggregate demand curve. Factors that change aggregate demand are:
  - *Expectations:* Expectations of higher future income, expectations of higher future inflation, and expectations of higher future profits increase aggregate demand and shift the AD curve rightward.
  - *Fiscal policy and monetary policy:* The government influences the economy by setting and changing taxes, making transfer payments, and purchasing goods and services, which is called fiscal policy. Tax cuts, increased transfer payments, or increased government purchases increase aggregate demand. Monetary policy consists of changes in interest rates and in the quantity of money in the economy. An increase in the quantity of money and lower interest rates increase aggregate demand.
  - *The world economy:* Exchange rates and foreign income affect net exports \((X - M)\) and, therefore, aggregate demand. A decrease in the exchange rate or a an increase in foreign income increases aggregate demand.

**Aggregate Demand Multiplier**

- An initial change in expenditure is magnified by the aggregate demand multiplier so that aggregate demand changes by a multiple of the initial change.

## 29.4 Understanding the Business Cycle

**Macroeconomic Equilibrium**

- *Macroeconomic equilibrium* occurs when the quantity of real GDP demanded equals the quantity of real GDP supplied.
  - If the quantity of real GDP supplied exceeds the quantity demanded, inventories pile up so that firms will cut production and prices.
  - If the quantity of real demanded exceeds the quantity supplied, inventories are depleted so that firms will increase production and prices.
  - Macroeconomic equilibrium is determined where the AD and AS curves intersect.
- A **full employment equilibrium** occurs when equilibrium real GDP equals potential GDP.
- An **above full-employment equilibrium** occurs when real GDP exceeds potential GDP. The amount by which real GDP exceeds potential GDP is called an **inflationary gap**. An inflationary gap occurs when the AS curve and the AD curve intersect to the right of the potential GDP line, as illustrated in the figure to the left, above. In this case real wages have fallen and workers eventually demand higher wages. The tight labor market allows the money wage rate to increase. Aggregate supply decreases and the AS curve shifts leftward. Eventually real GDP decreases enough so that it equals potential GDP. As this adjustment takes place, the price level rises so that inflation occurs.
- A **below full-employment equilibrium** occurs when real GDP is less than potential GDP. The amount by which potential GDP exceeds real GDP is called a **recessionary gap**. An recessionary gap occurs when the AS curve and the AD curve intersect to the left of the potential GDP line, as illustrated in the figure to the right, above. In this case real wages have risen and there is a surplus of labor. The surplus decreases the money wage rate. Aggregate supply increases so that the AS curve shifts rightward. Eventually real GDP increases enough so that it equals potential GDP. As this adjustment takes place, the price level falls so that deflation occurs.

**Aggregate Demand Fluctuations**

- Fluctuations in aggregate demand are one of the sources of the business cycle. Ignoring changes in potential GDP, when aggregate demand increases, the equilibrium moves rightward along the AS curve so that real GDP increases and the economy is in an expansion. When aggregate demand decreases, the equilibrium moves leftward along the AS curve so that real GDP decreases and the economy is in a recession.
Point out to the students that to simplify analysis of the business cycle, economists typically abstract from growth in potential GDP. So, by fixing potential GDP when considering business cycle fluctuations, economists are looking at short-term movements around a slower moving long-run potential GDP level of output. Explain to the students that one reason to abstract from these long-term growth movements is simply that the figures get very complicated if all the curves shift rather than just the immediately relevant ones. A second reason is the standard view that short-term movements around potential GDP are driven by different economic forces than those that lead to growth in potential GDP. So abstracting from growth in potential GDP in order to focus on business cycle fluctuations simplifies matters without any loss of relevant details.

Fluctuations in Aggregate Supply

- Some business cycle fluctuations are driven by shifts in short-run aggregate supply. An increase in energy prices decreases the short-run aggregate supply and shifts the SAS curve leftward. The price level increases and real GDP decreases. The combination of recession and higher inflation is called **stagflation** and occurred in the United States in the 1970s as a result of the oil price shocks.
Lecture Launchers

1. Economists as a group are ambivalent about the aggregate supply-aggregate demand (AS-AD) model. Real business cycle theorists, who like to build their models from the base of production functions and preferences, don’t use the model because the AS and AD curves are not independent. Technological change shifts both the AS and AD curves simultaneously and in complicated ways. New Keynesian economists have dropped the model in favor of a dynamic variant that places the inflation rate on the $y$-axis and the output gap (real GDP minus potential GDP as a percentage of potential GDP) on the $x$-axis.

Despite attacks on the model from both sides of the doctrinal spectrum, those of us who spend a good part of our professional lives teaching the principles course recognize the AS-AD model as the key macroeconomic model. For us, the model plays a similar role in the organization of the macroeconomics to that played by the demand and supply model in microeconomics. That is the view taken in this textbook.

The AS-AD model is the best model currently available for introducing students to macroeconomics. It enables them to gain insights into the way the economy works, to organize their study of the subject, and to understand the debates surrounding the effects of policies designed to improve macroeconomic performance.

2. It’s difficult to start using the AS-AD model until you are convinced that students have bought into the notion that the aggregate supply curve is upward sloping and the reasons behind it. The AS curve that is used in this chapter is a short-run aggregate supply curve because it assumes that product prices and resources prices do not move in lock step with one another. That is to say that wages, materials prices, energy prices and the like move with a lag behind product prices. To launch your lecture, walk through this thought experiment with your students. Ask your class if firms are likely to be motivated to step up production in the face of rising product prices. They will have no trouble responding in the affirmative.

Now tell your students that the higher price is actually the result of an increase in the general price level. Ask them how quickly workers are likely to respond by asking for wage increases. The answer is that it will take time for workers to see that the general price level has risen and that their real wages are now lower. Eventually they will demand higher wages. Firms will grant the wage increase in the face of higher profits. But until workers realize that their real wage has fallen, firms are in the position of receiving higher prices with no change in money wages so they increase their production. And with this result, you have demonstrated the upward-sloping aggregate supply curve!
3. Some of the same issues regarding change in demand and change in quantity demanded not only apply in the microeconomic model but also apply to the aggregate supply and aggregate demand curves as well. Remind your students that a change in the price level does not shift the aggregate supply curve or aggregate demand curve. A change in the price level results in movements along the curves.

You can also involve your students in the material by asking them a few hypothetical questions. Ask your class what will happen to the aggregate demand curve in each of the following cases:

a. A cut in taxes.
b. An increase in expected future profit.
c. A cut in government spending.
d. An increase in foreign income.
e. A rise in the price level abroad.

Each of these examples gives students practice shifting the aggregate demand curve rightward and leftward as well as understanding why it shifts in the direction that it does. In fact, it is best to perform this exercise without drawing the aggregate supply curve at all.

4. You might spend some time talking about the latest business cycle movements and the impact on real GDP, unemployment, and inflation. This is a good place to remind students of the three main economic aggregates on which we focus and how they fluctuate through time. You might visit the webpage of the NBER for any updates from the Business Cycle Dating Committee (http://www.nber.org/cycles/main.html). Show students that this is where the news media are likely to get their information regarding recessions and expansions in the economy.

**Land Mines**

1. Students are often left with the impression that the simplicity of the AS-AD model begets simple policy solutions to macroeconomic problems. You should point out that the AS-AD model that is built in this chapter is a simplified version of reality. Like all models, it abstracts from many complications. Some of the difficulties that face policymakers are covered in Chapter 33. But for now, be sure to tell your students that although the AS-AD model is a powerful tool for understanding the factors that influence the macroeconomy, using it for policy making is problematic at best.

2. Reinforce the movement toward long-run equilibrium with a curve-shifting exercise. Take the case where the AD curve shifts rightward. The fact that the initial equilibrium occurs where the new AD curve intersects the AS curve is not difficult. But the notion that the AS curve shifts leftward as time passes is difficult for many students. The trick to making this idea
clear is to spend enough time when initially discussing the AS curve so that the students realize that wages and other input prices remain constant along an AS curve. Once the students see this point, they can understand that, as input prices increase in response to the higher level of prices, the AS curve shifts leftward.

Avoid confusing students by using ‘up’ to correspond to a decrease in aggregate supply. But do point out that that when the AS curve shifts leftward it is moving vertically upward, as input prices rise to become consistent with potential GDP and the new long-run equilibrium price level. Most students find it easier to see why the AS curve shifts leftward once they see that rising input prices shift the curve vertically upward.

3. Don’t neglect the predictions of the model. This is the payoff for the student. With this simple model, we can now say quite a lot about growth, inflation, and the business cycle. However, when you do so, be aware that the AS-AD model predicts a fall in the price level when either aggregate demand decreases or aggregate supply increases. And the model predicts that real GDP decreases when either aggregate supply or aggregate demand decreases. But, some students object by pointing out that GDP rarely decreases and the price level rarely falls. These students are bothered by this apparent mismatch between the predictions of the model and the observed economy. The best way to handle this issue is to emphasize that in our actual economy, aggregate supply and aggregate demand almost always are increasing. When we use the model to simulate the effects of a decrease in either aggregate supply and aggregate demand, we’re studying what happens relative to the trends in real GDP and the price level. A fall in the price level in the model translates into a lower price level than would otherwise have occurred and a slowing of inflation. The story is similar for real GDP.

You can Use the AS-AD model to apply the theory students are learning to current events in the economy. For example, oil prices have increased recently due to Asian demand (especially demand in China). Concerns about oil prices have also made the front page news following Hurricanes Katrina and Rita (August/September 2005) and ongoing conflict in Iraq. Encourage students to think about the impact of these factors in the AS-AD model. How will higher oil prices affect the nation’s GDP and price level? If you have time and want to engage is more general discussion, you can talk about some of the new sources of supply that the government might allow to be explored, particularly as the Senate has voted to open up Alaska’s Arctic National Wildlife Refuge to drilling. You can also talk about other pressures on auto makers in developing vehicles that rely less on gasoline, that is, less on oil.
ANSWERS TO CHECKPOINT EXERCISES

■ CHECKPOINT 29.1 Business Cycle Definitions and Facts

1a. Mexico was at a business cycle peak in the third quarter of 1994, the third quarter of 1995, and the second quarter of 1996.
1b. Mexico was at a business cycle trough in the second quarter of 1995.
1d. Mexico was probably experiencing an expansion between the first and third quarters of 1994. Mexico was definitely experiencing an expansion after the second quarter of 1995.

■ CHECKPOINT 29.2 Aggregate Supply

1a. Establishing more branches of businesses within South Africa increases the number of business and increases aggregate supply.
1b. A more highly educated workforce increases the nation’s human capital and increases aggregate supply.
1c. Ending of trade sanctions means more raw material can be imported into South Africa, which increases aggregate supply.
1d. As unemployment decreases and employment increases, production increases and aggregate supply increases.
1e. As tourism increases and new hotels are built, the quantity of tourist services supplied increases and the quantity of real GDP supplied at the current price level increases. Aggregate supply increases.
1f. The spread of AIDS decreases the quantity of labor. As a result, aggregate supply decreases.

■ CHECKPOINT 29.3 Aggregate Demand

1a. The increase in the Japanese price level makes Japanese-made goods more expensive. Japan’s exports decrease and Japan’s imports increase, and there is a movement up along Japan’s AD curve.
1b. As the rest of Asia goes into recession, the demand for Japanese exports decreases. Japan’s aggregate demand decreases and the AD curve shifts leftward.
1c. As Asian economies experience very strong growth, their demand for Japanese products increases. As a result, Japanese exports increase, which increases aggregate demand and shifts the AD curve rightward.
1d. A stronger yen makes Japan’s exports more expensive and imports from the United States cheaper to residents of Japan. Japanese exports decrease and imports increase, which decreases Japanese aggregate demand and shifts the AD curve leftward.
1e. An expansionary fiscal policy and tax cuts increase aggregate demand and the $AD$ curve shifts rightward.

**CHECKPOINT 29.4 Understanding the Business Cycle**

1a. A strong expansion in the world economy increases Canada’s aggregate demand because it increases Canadian exports. A fall in the world oil price increases Canada’s aggregate supply. A rise in expected future profits increases Canada’s aggregate demand.

1b. The strong expansion in the world economy increases aggregate demand, so the price level and real GDP both increase. The decrease in world oil prices increases aggregate supply. As a result, the price level falls and real GDP increases. The increase in expected future profits increases aggregate demand, so the price level and real GDP both increase.

1c. All three events increase Canada’s real GDP, so Canada’s real GDP rises. But the price level might rise, fall, or remain unchanged. The strong expansion and the increase in expected future profits each increase the price level while the decrease in world oil prices lowers the price level. The net effect depends on the relative strengths of the changes.
1a. Germany was at a business cycle peak in the first quarter of 1992.

1b. Germany was at a business cycle trough in the first quarter of 1993.

1c. Germany experienced a recession between the first quarter of 1992 and the first quarter of 1993.

1d. Germany had an expansion from the first quarter of 1991 to the first quarter of 1992 and from the first quarter of 1993 to the end of the data.

2a. In both of the last two business cycles, when GDP reached its peak, the unemployment rate was close to its lowest level. In the 2000 recession, unemployment continued to fall slightly after real GDP had started to decrease.

2b. In both the recessions of 1991 and 2000, real GDP reached its trough before unemployment reached its peak. In both instances, unemployment continued to rise after GDP had reached its trough and was starting to increase.

2c. While it was close in 1991, it was not so close in 2000 and in both, real GDP signaled a recession first.

2d. Unambiguously, real GDP signals an expansion first.

3a. In 1991, real GDP reached its peak a bit before the inflation rate reached its peak. In 2000, real GDP reached its peak before the inflation rate reached its peak.


3c. Real GDP signals recession first.

3d. Real GDP definitely signals expansion first.

4a. Aggregate supply decreases and the AS curve shifts leftward because the money wage rate increased.

4b. The rise in the price level increases the quantity of real GDP supplied and results in a movement up along the AS curve.

4c. An increase in potential GDP increases aggregate supply and shifts the AS curve rightward. So if potential GDP grows over time, aggregate supply increases over time and the AS curve shifts rightward over time.

5a. A decrease in the quantity of money decreases aggregate demand and shifts the AD curve leftward.

5b. The tax cut increases aggregate demand and shifts the AD curve rightward.

5c. As the world economy goes into recession, U.S. exports decrease. As a result, U.S. aggregate demand decreases and the U.S. AD curve shifts leftward.
5d. With the U.S. price level rising faster than the rest of the world, the competitiveness of U.S.-made products and services is reduced because foreign-made goods are comparatively less expensive. The quantity of U.S. GDP demanded decreases and there will be a movement up along the U.S. AD curve.

6a. The unemployment rate is higher than Japan's natural unemployment.
6b. Japan's real GDP is less than its potential GDP.
6c. Japan could adopt several strategies to restore full employment. Japan could lower taxes, increase government spending, increase the quantity of money and lower the interest rate. All of these increase aggregate demand.
6d. All of the policies suggested in part (c) raise the price level so all of them create inflation for a period of time. Only a sustained increase in the quantity of money will create an ongoing inflation.

7a. The aggregate demand curve is plotted in Figure 29.1.
7b. The aggregate supply curve is plotted in Figure 29.1.
7c. Macroeconomic equilibrium occurs at the price level of 110 and real GDP of $800 billion.
7d. If potential GDP is $800 billion, then the macroeconomic equilibrium is a full-employment equilibrium, with real GDP equal to potential GDP.
8a. A rise in the world price of oil decreases aggregate supply. As shown in Figure 29.2, the \( AS \) curve shifts leftward from \( AS_0 \) to \( AS_1 \).
8b. The new short-run equilibrium occurs where the \( AS_1 \) curve intersects the \( AD \) curve. In Figure 29.2, the new short-run equilibrium occurs at the price level of 120 and real GDP of $750 billion.
8c. Full employment is restored as the money wage rate falls. Aggregate supply increases and the \( AS \) curve shifts rightward. This adjustment likely would be slow because workers resist falls in their money wage rate.

9a. An increase in the quantity of money increases aggregate demand. As shown in Figure 29.3, the \( AD \) curve shifts rightward from \( AD_0 \) to \( AD_1 \).
9b. The new short-run equilibrium occurs where the \( AS \) curve intersects the \( AD_1 \) curve. In Figure 29.3, the new short-run equilibrium occurs at the price level of 120 and real GDP of $900 billion.
9c. Full employment is restored as the money wage rate rises. Aggregate supply decreases and the \( AS \) curve shifts leftward. This adjustment likely would be slow because firms resist raising the money wage rate.
10a. A global recession decreases exports and so decreases aggregate demand. As shown in Figure 29.4, the AD curve shifts leftward from $AD_0$ to $AD_1$.

10b. The new short-run equilibrium occurs where the AS curve intersects the $AD_1$ curve. In Figure 29.4, the new short-run equilibrium occurs at the price level of 100 and real GDP of $700$ billion.

10c. Full employment is restored as the money wage rate falls. Aggregate supply increases and the AS curve shifts rightward. This adjustment likely would be slow because workers resist falls in their money wage rate.

11a. In Exercise 8, the unemployment rate rises and the real wage rate falls. In Exercise 9, the unemployment rate falls and the real wage rate falls. In exercise 10, the unemployment rate rises and the real wage rate rises.

11b. In the adjustment to the new long-run equilibrium, in Exercise 8 the unemployment rate falls and the real wage rate falls. In Exercise 9, the unemployment rate rises and the real wage rate rises. In Exercise 10, the unemployment rate falls and the real wage rate falls.
Critical Thinking

12a. Most likely the committee got the date correct. Initially some analysts suggested that the economy actually was not in a recession, but as economic activity continued slow, eventually consensus was reached that the U.S. economy did enter a recession in 2001. While industrial production had turned down well before March 2001, employment only started a slow decline in March 2001. So, March 2001 seems the correct date.

12b. In November, 2002, the committee was being cautious in hesitating to declare that the recession was over. The committee realized that sectors of the economy were still weak. For instance, the committee noted in January 2003 that real personal income had generally been growing over the past year but while employment fell significantly in both November and December 2002. Given the disparity in the data, caution was likely the best course of action.

12c. Your students’ answers will vary depending on their opinions. The major argument against having the government determine the dates of expansions and recessions is the concern that the dating process would become a political issue. The party in power would never want to declare a recession while the party out of power would be announcing a recession every other week! The only argument in opposition is that other economic data collected by the government (such as GDP and the CPI) haven’t become too politicized, but this argument seems weak because the dating of recessions and expansions is such a politically sensitive issue.

13a. Raising the tax decreases aggregate demand and lowering it increases aggregate demand.

13b. The tax does not change aggregate supply. The tax changes the quantity of real GDP supplied.

13c. If it is possible to set the tax accurately and immediately, then the tax will serve to keep the economy at potential GDP. But, when the price of oil rises, the aggregate supply curve shifts leftward, the lower tax shifts the aggregate demand curve rightward, and the result is an increase in the price level. Continual increases in the price of oil and responses in the tax rate will lead to inflation in the U.S. economy.

14a. The major change in the average length of recessions and expansions occurred after World War II. The change started, however, after World War I.

14b. Recessions have been getting shorter and expansions longer because better economic theory enables the government to conduct successful policy actions designed to shorten recessions and lengthen expansions. Another reason for the difference might be that the economy is becoming more technologically advanced and so better able to match the demand for
goods and services with the supply. Or the change might have occurred because the economy has moved to producing more services and less manufactured goods since manufactured goods are subject to more severe business cycle fluctuations than are services. Also, though the students likely won’t realize it, the data in recent years is much better than the earlier data and the earlier data might simply err in the length of recessions and expansions.

14c. Your students’ opinions will vary. In favor of the view that policy actions are the force behind the shortening of recessions and lengthening of expansions is the simple point that these changes have occurred in a period of time when the government has conducted these policies.Offsetting this position is the fact that the most severe recession in history, the Great Depression, also occurred in the period of time when the government was trying to shorten recessions and lengthen expansions.
Web Exercises

15a. The NBER committee looked at four main factors: employment in the entire economy; personal income less transfer payments, in real terms; the volume of sales of the manufacturing and trade sectors stated in real terms; and industrial production.

15b. The committee does not look at real GDP. To quote from the web site: “The committee gives relatively little weight to real GDP because it is only measured quarterly and it is subject to continuing, large revisions.”

15c. The committee had a difficult time because of one of the series they considered, payroll employment. The output measures the committee uses strongly suggested that the trough was in November, 2001. However, according to the July, 2003 announcement, “The fluctuations in (payroll employment) are quite different from those in the broader, output-based measures. Employment reached a peak in February 2001 and declined through July 2002. It rose slightly through November, took a sharp downturn in December, rose again in January 2003, but since then has declined through June 2003, the most recent reported month. It is now 394,000 below the start of the year, and 2.6 million below the February 2001 peak. The fact that employment has continued to decline while output-based measures have risen reflects the fact that productivity has risen substantially since late 2001. The divergent behavior of output and employment was a key reason why the committee waited a long time before identifying the trough.”

15d. Your students’ answers will depend when you assign this exercise.

16a. Your students’ answers will vary and depend on the countries each student selects. Note that the students will need to register, though registration is free. Once registered, they can click on “Select ECRI research papers” which will take them to a page from which they should click on “International Cycle Dates” (a link in a list on the left side of the page). This link will take them to a page where they can click to access data on “The Business Cycle Chronologies” and/or “The Growth Rate Cycle Chronologies.”

16b. Your students’ answers will vary and depend on the countries each student selects.

16c. Although your students’ answers will vary and depend on the countries each student selects, in general the students should conclude that aggregate demand fluctuates the most in the country with the severest recessions. The severity of the recessions is best measured by comparing a business cycle recession versus a growth rate cycle recession. A growth rate cycle recession is significantly milder than a business cycle recession. So nations with more business cycle recessions have more severe recessions.
16d. A “growth rate cycle” occurs when economic growth slows. So a nation can experience a growth rate recession without a business cycle recession because GDP might not actually decrease during a growth rate recession. Growth rate cycle recessions occur much more frequently than the conventional business cycle recession.
ADDITIONAL EXERCISES FOR ASSIGNMENT

Questions

CHECKPOINT 29.4 Understanding the Business Cycle

1. What effect does each of the following combinations have on real GDP and the price level?

1a. Increase in aggregate demand and a decrease in aggregate supply.
1b. Increase in aggregate demand and an increase in aggregate supply.
1c. Decrease in aggregate demand and a decrease in aggregate supply.

Answers

CHECKPOINT 29.4 Understanding the Business Cycle

1a. An increase in aggregate demand raises the price level and increases real GDP. A decrease in aggregate supply raises the price level and decreases real GDP. Combined, the price level definitely rises. But the effect on real GDP is ambiguous. If the aggregate demand effect is larger than the aggregate supply effect, real GDP increases, while if the aggregate supply effect is larger, real GDP decreases. If the two are the same magnitude, real GDP will not change.

1b. An increase in aggregate demand raises the price level and increases real GDP. An increase in aggregate supply lowers the price level and increases real GDP. When both occur simultaneously, definitely real GDP increases. The effect on the price level is uncertain. If the aggregate demand effect is larger, the price level rises and if the aggregate supply effect is larger, the price level falls. And if the two effects are the same magnitude, the price level does not change.

1c. A decrease in aggregate demand lowers the price level and decreases real GDP. A decrease in aggregate supply raises the price level and decreases real GDP. When both occur, real GDP definitely decreases. However, the effect on the price level is uncertain. If the aggregate demand effect dominates, the price level falls but if the aggregate supply effect dominates, the price level rises. And if the two effects are the same size, the price level does not change.
USING EYE ON THE U.S. ECONOMY

The National Bureau Calls a Recession

Almost all your students read or hear about a recession when one occurs. But very few, if any, know who declares the start and finish to a recession. Most likely assume that the government does so. Point out to your students that the NBER is not a government agency. Instead it is a group of loosely associated research economists who come together in an ad hoc fashion when it is necessary to declare the start or finish of a recession. This article also allows you to point out that the NBER does not consider the behavior of real GDP when determining the start or finish of a recession. Mention to your students that even though all business analysts focus on GDP, the NBER cannot use it because the GDP data are reported only once a quarter and are subject to large revisions even after they are reported.

USING EYE ON THE GLOBAL ECONOMY

The Global Business Cycle

U.S. students, as well as almost all U.S. financial reporters, concentrate almost exclusively on economic conditions within the United States. In a way, such concentration is reasonable because U.S. students and reporters live within the United States and so economic conditions here have an immediate impact on their lives. But this “Eye” gives you chance to go beyond this insular view to look at how the United States and the business cycle within the United States stacks up against those within Europe and Japan. One point you can easily make is the fact that since 1985, the U.S. business cycle and the European business cycle seem correlated. You can ask your students whether they think this correlation reveals that the U.S. and European economies are closely linked or do they think the correlation is fluke, born of a relatively short sample period. Regardless of their answer to this first question, you can show your students that Japanese business cycles have been quite different from those in the United States and Europe. Those students who answered that the correlation of U.S. and European business cycles indicates integration of the economies must think that the Japanese economy as not tightly integrated. Those students who answered that the initial correlation was fluke might well point to the independence of the U.S. and Japanese business cycles as evidence that their view is correct.
USING EYE ON THE PAST

Oil Price Cycles in the U.S. and Global Economies

This “Eye on the Past” represents the perfect opportunity to distinguish between shocks that affect aggregate supply and shocks that affect aggregate demand. In addition, it will help provide greater insight into why many observers were worried in 2005 about higher oil prices. First, draw the standard AS-AD model and identify the equilibrium price level and real GDP. Now ask your students which curve is affected by the oil price shock. Students must respond that the oil price hike has a negative effect on aggregate supply. As a result, the AS curve shifts leftward. Draw this shift and point out the results: A higher price level and lower real GDP. Point out to your students that precisely this outcome is what worried policymakers and economists in 2005. Indeed, if high oil prices remain an issue when you teach the course, you can use your diagram to strongly reinforce the relevance of what your students are learning!

USING EYE ON THE U.S. ECONOMY

Real GDP Growth, Inflation, and the Business Cycle

If you have young students in your class, most of them will have little or no knowledge of how our economy has evolved since the 1970s. This knowledge is vital because our experiences with economic growth, inflation, and the business cycle help shape policymakers’ decisions about what policies to pursue today. For instance, for those who lived through them, the last part of the 1970s and early 1980s with their high inflation rates are times that bring bad memories. So, policymakers today take actions to help avoid the roaring inflation that the U.S. economy experienced then. Indeed, some observers credit the Fed’s decisions in 2005 to continue raising interest rates in the face of oil price hikes as an attempt to avoid reliving the late 1970s/early 1980s when the Fed eased in the face of oil price hikes and inflation skyrocketed. Use this Eye to help your students gain a more balanced, historical perspective because this view might will help them understand policymakers’ decisions today!