


CHAPTER 13

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Measuring the Economy's Performance

Why It's Important

Inflation, GDP, the consumer price index—what do the headlines mean? This chapter will explain what these terms indicate about the state of the economy.

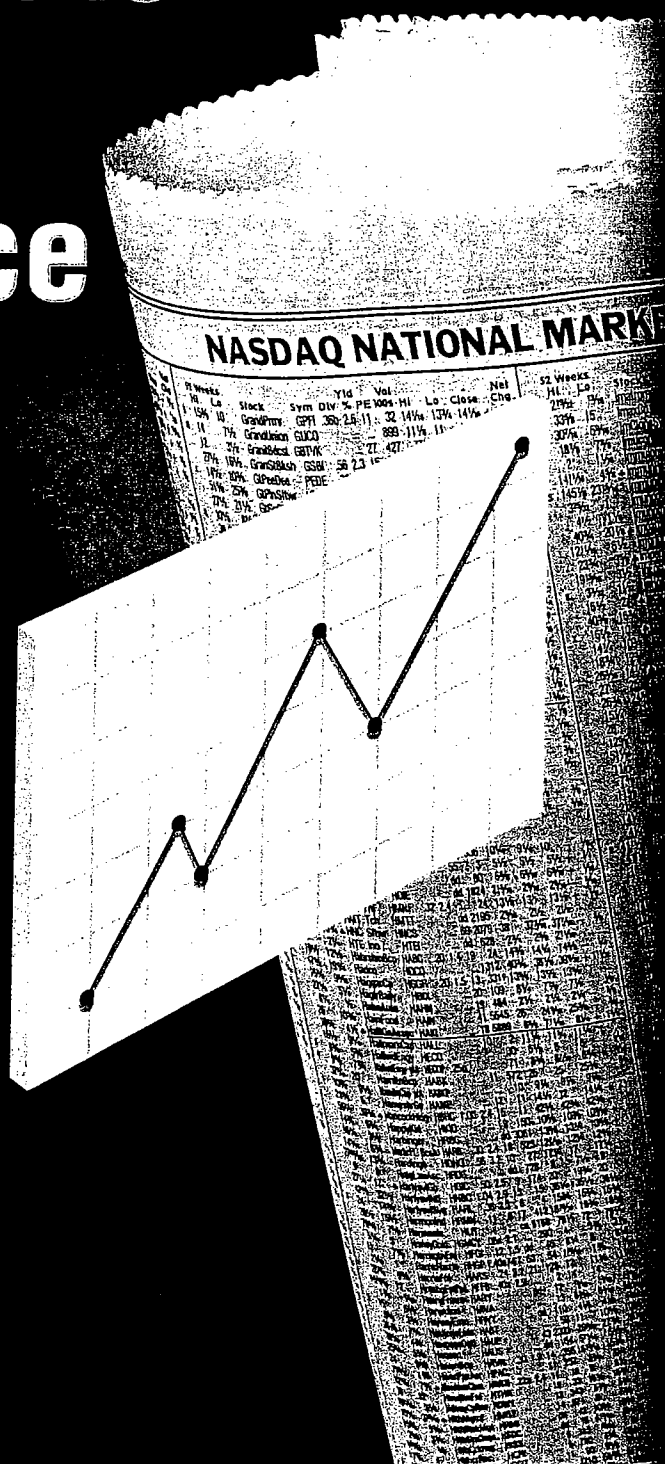
 To learn more about economic statistics, view the **Economics**

& You Chapter 20 video lesson:
Measuring the Economy's Performance

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Chapter Overview Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on **Chapter 13—Chapter Overviews** to preview chapter information.



SECTION 1

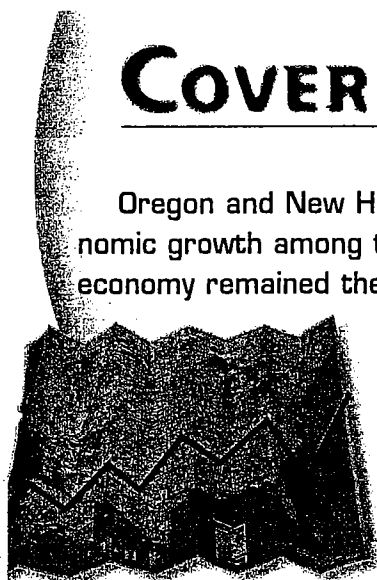
National Income Accounting

COVER STORY

THE COLUMBUS DISPATCH, JUNE 8, 1999

Oregon and New Hampshire enjoyed the fastest economic growth among the states in 1997, and California's economy remained the biggest, the government said. . . .

A Commerce Department report broke down the nation's gross domestic product, the total output of goods and services, to show the amount contributed by each state.



People can measure how successful they are economically by the amount of their incomes and by their standard of living, including how much their spendable income will buy. In this section, you'll learn that the success of the overall economy is measured in a similar way.

National Income Accounting

To determine how healthy the American economy is, economists constantly measure such factors as the amount of goods and services produced yearly by the nation and the amount of income people have to spend. The measurement of the national economy's performance is called **national income accounting**. This area of economics deals with the overall economy's output, or production, and its income.

READER'S GUIDE

Terms to Know

- national income accounting
- gross domestic product (GDP)
- net exports
- depreciation
- net domestic product (NDP)
- national income (NI)
- personal income (PI)
- transfer payments
- disposable personal income (DI)

Reading Objectives

1. What four categories of economic activity are used to measure GDP?
2. How do the three measurements of income—national, personal, and disposable—differ?

national income accounting: measurement of the national economy's performance, dealing with the overall economy's output and income

Five major statistics measure the national economy. These are gross domestic product, net domestic product, national income, personal income, and disposable personal income. Each will be examined separately, starting with the largest overall measurement—gross domestic product. **Figure 13.1** shows gross domestic product and the other four measurements in descending order of value.

Measuring GDP

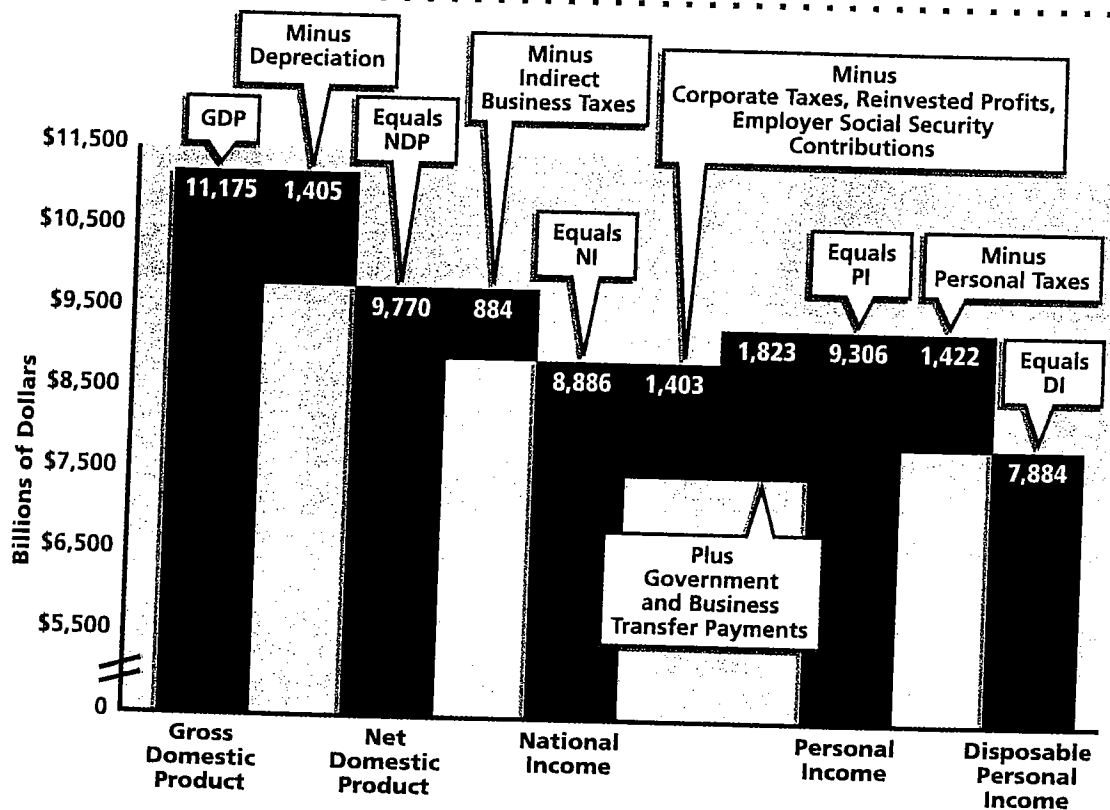
gross domestic product (GDP):
total dollar value of all final goods
and services produced in a nation
in a single year

The broadest measure of the economy's size is **gross domestic product (GDP)**. This is the total dollar value of all *final* goods and services produced in the nation during a single year. This

FIGURE 13.1

STANDARD
& POOR'S

GDP and Its Components Economists start with GDP and subtract various items until they reach the figure measuring disposable personal income—the amount of money people have left to spend after they pay taxes. *What is the difference in dollars between gross domestic product and disposable personal income?*



Source: Standard & Poor's

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figure tells the amount of goods and services produced within the country's borders and made available for purchase in that year.

Measuring Value Note the word *value* in the definition. Simply adding up the *quantities* of different items produced would not mean much. Can we really measure the strength of the economy, for example, if we know that 3 billion safety pins and 2 space shuttles were produced?

What we need to know is the total *value* of the items, using some common measure. Economists use the dollar as this common measure of value. As a result, GDP is always expressed in dollar terms. For example, in 2002, GDP for the United States totaled more than \$11 trillion.

Measuring Final Goods and Services The word *final* in the definition of GDP is also important. Measuring the economy's performance accurately requires that economists add up only the value of final goods and services to avoid *double counting*. For example, GDP does not add the price of computers and memory chips and motherboards if those chips and motherboards are installed in computers for sale. The final price to the buyer already includes the price of the memory chips and motherboards.

Also, only new goods are counted in GDP. The sale price of a used car or a secondhand refrigerator is not counted as part of GDP. Such a sale is not due to the production of the nation, but only transfers an existing product from one owner to another. If a new battery is put in an old car, however, that new battery is counted as part of GDP. **See Figure 13.2.**

Computing GDP To total the amount of GDP, economists add the expenditures made in four categories of the economy. The first category is the *consumer sector* (C), or those goods and services bought by consumers for their direct use. The second category is the *investment sector* (I), or business purchases of tools, machines, buildings, and so on, used to produce other goods. This area also includes money spent on business inventories.



FIGURE 13.2

Avoiding Double Counting

When calculating GDP, economists count only the value of the final product. The intermediate products that go into making a loaf of wheat bread—wheat that was milled into wheat flour—are not counted in GDP. Only the price of the loaf of bread is counted.

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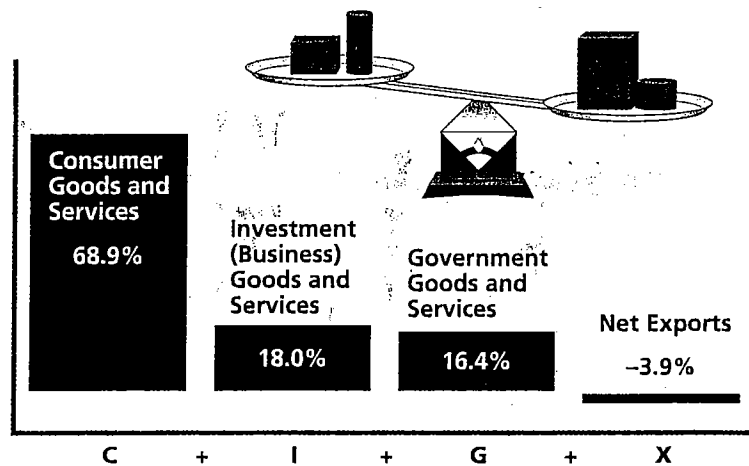


Student Web Activity Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on **Chapter 13—Student Web Activities** to learn about your gross state product.

FIGURE 13.3**Four Categories of GDP**

To compute GDP, economists add the total amount of expenditures from the consumer sector, the investment sector, the government sector, and net exports.

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Source: Economic Indicators, May 2002



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net exports: difference between what the nation sells to other countries and what it buys from other countries

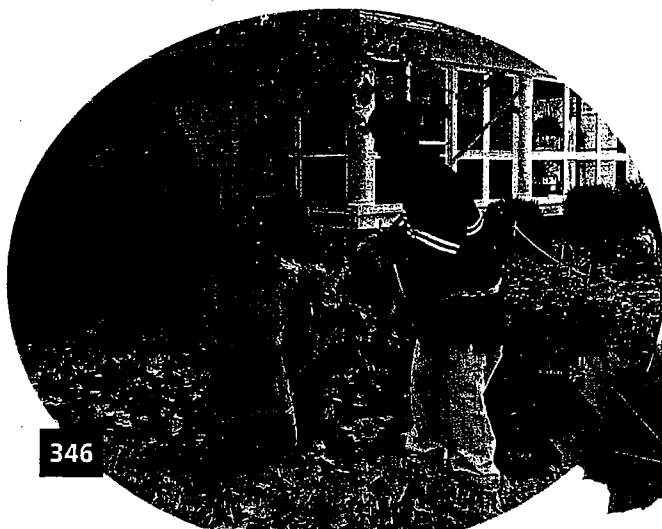
The *government sector (G)* makes up the third category added to GDP. The goods and services bought by federal, state, and local governments range from paper clips to jets. The final category is **net exports (X)**, or the difference between what the nation sells to other countries (exports) and what it buys from other countries (imports). This figure may be a plus or minus depending on whether the nation sells more or less to other nations than it buys from them. See **Figure 13.3.**

Weaknesses of GDP The statistics used in computing GDP are accurate only to a point. Statistics about easily measurable things, such as government purchases, are reliable. Some workers, however, are given food, fuel, or housing as part of their

FIGURE 13.4

Non-GDP Work Unpaid work is not counted as part of GDP, even though it adds to the nation's output. This category includes lawn mowing, maintenance work on a home, baby-sitting, and so on. The government cannot estimate the value of this work accurately.

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wages. GDP can include only an estimate of the value of such goods and services. Moreover, as **Figure 13.4** shows, GDP omits certain areas of economic activity such as unpaid work.

Net Domestic Product

The loss of value because of wear and tear to durable goods, such as automobiles and refrigerators, is called **depreciation**. The same concept applies to capital goods—machines and equipment. GDP disregards depreciation. It does not take into account that some production merely keeps machines and equipment in working order and replaces them when they wear out.

Net domestic product (NDP)—another way of measuring the economy—accounts for the fact that some production is only due to depreciation. NDP takes GDP and subtracts the total loss in value of capital goods caused by depreciation.

Measurements of Income

So far, you've learned about GDP and NDP—two major measurements of the nation's output. Three additional measurements look at income—national income, personal income, and disposable personal income.

National Income The total amount of income earned by everyone in the economy is called **national income (NI)**. NI includes those who use their own labor to earn an income as well as those who make money through the ownership of the other factors of production. NI is equal to the sum of all income resulting from five different areas of the economy. These include wages and salaries, income of self-employed individuals, rental income, corporate profits, and interest on savings and other investments.

If you look again at **Figure 13.1** on page 344, you'll see that national income is equal to NDP minus indirect business taxes, which includes such items as sales taxes and license fees.

depreciation: loss of value because of wear and tear to durable goods and capital goods

net domestic product (NDP): value of the nation's total output (GDP) minus the total value lost through depreciation on equipment

Global Economy

Per Capita GDP

One picture of a country's standard of living comes from computing its real GDP per capita—or GDP divided by the total population. This is a measure of the average GDP per resident of a country. Listed below are the 10 nations with the highest per capita GDP.

Luxembourg	\$42,922
Japan	\$37,546
Norway	\$36,021
United States	\$35,619
Switzerland	\$33,326
Denmark	\$30,489
Iceland	\$30,462
Sweden	\$25,818
United Kingdom	\$23,887
Finland	\$23,437 ■

national income (NI): total income earned by everyone in the economy



personal income (PI): total income that individuals receive before personal taxes are paid

transfer payments: welfare and other supplementary payments that a state or the federal government makes to individuals

disposable personal income (DI): income remaining for people to spend or save after all taxes have been paid

Personal Income The total income that individuals receive before personal taxes are paid is called **personal income (PI)**. PI can be derived from NI through a two-step process. First, several items are subtracted: corporate income taxes, profits that businesses reinvest in business to expand, and Social Security contributions employers make. These items are subtracted because they represent income that is not available for individuals to spend.

Then transfer payments are added to NI. **Transfer payments** are welfare payments and other assistance payments—unemployment compensation, Social Security, and Medicaid—that a state or the federal government makes to individuals. These transfer payments add to an individual's income even though they are not exchanged for any current productive activity.

Disposable Personal Income The income that people have left after taxes, including Social Security contributions, is called **disposable personal income (DI)**. DI equals PI minus personal taxes. DI is an important indicator of the economy's health because it measures the actual amount of money income people have available to save and spend.



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SECTION 1 Assessment

Understanding Key Terms

1. **Define** national income accounting, GDP, net exports, depreciation, NDP, NI, PI, transfer payments, DI.

Reviewing Objectives

2. What four categories of economic activity are used to measure GDP?
3. **Graphic Organizer** Create a diagram like the one below to show what must be subtracted from and added to national income to determine personal income.



Applying Economic Concepts

4. **Gross Domestic Product** List five items you have recently purchased. Explain why they should or should not be counted in GDP. Use the terms *value*, *final*, and *double counting* in your explanations.

Critical Thinking Activity

5. **Synthesizing Information** Reconstruct **Figure 13.1** on page 344 in the form of a spreadsheet. Start with the dollar figure for GDP, then subtract the dollar figure of depreciation to get NDP. Continue until you have tabulated DI.



Study & Writing Skills

Taking Notes

Effective note taking involves more than just writing facts in short phrases. It involves breaking up much of the information into meaningful parts so that it can be understood and remembered.

- When taking notes on material presented in class, write the key points and important facts and figures in a notebook.
- Writing quickly and neatly, use abbreviations and phrases.
- Copy words, statements, or diagrams drawn on the chalkboard.
- Ask the teacher to repeat important points you have missed or do not understand.
- When studying textbook material, organize your notes into an outline (see page 406 for hints on outlining).
- For a research report, take notes on cards. Note cards should include the title, author, and page number of sources.

Learning the Skill

To learn how to take good notes, follow the steps listed on the left.

Practicing the Skill

Suppose you are writing a research report on the United States GDP. First, identify main-idea questions about this topic, such as “What does GDP measure?” “What components make up GDP?” and “What are the weaknesses of using GDP to measure the economy?” Then find material about each main-idea question.

Using this textbook as a source, read the material in Section 1 and prepare notes like this:

Main Idea: What does GDP measure?

1. GDP is prt of nat'l inc. acct.
2. NIC measrs amt of gds & serv prduced yrlly
3. GDP = tot \$ vlu of final gds & srvs prdcd in U.S. in 1 yr.

Main Idea: What components make up GDP?

- 1.
- 2.
- 3.

Application Activity

Scan a local newspaper for a short editorial or article about the nation's GDP. Take notes by writing the main idea and supporting facts. Summarize the article using only your notes.



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SECTION 2

Correcting Statistics for Inflation

READER'S GUIDE

Terms to Know

- inflation
- purchasing power
- deflation
- consumer price index (CPI)
- market basket
- base year
- producer price index (PPI)
- GDP price deflator
- real GDP

Reading Objectives

1. What is the relationship between the purchasing power of money and the rate of inflation?
2. How do the consumer price index and the producer price index differ in what they measure?

inflation: prolonged rise in the general price level of goods and services

COVER STORY

BUSINESS WEEK, MAY 31, 1999

In Wall Street's galaxy, the Phantom Menace is inflation. It's the Dark Side of the economy's Force. The financial markets know that [nonexistent] inflation is the single most important factor supporting the economy's amazing performance of recent years. . . .

That's why the May 14 news of an unexpected 0.7% jump in the April consumer price index, the largest monthly rise in more than nine years, looked as scary as Darth Maul wielding his light saber.

INFLATION

In Section 1, you learned how GDP statistics measure the economy. You also learned that GDP figures can be unreliable because they do not measure unpaid work or depreciation. Another factor that skews GDP figures is **inflation**, or a prolonged rise in the general price level of goods and services. As mentioned in the *Cover Story* above, the presence of inflation can pose a threat to the economy. In this section, you'll learn how inflation affects the current dollar value of GDP as well as your ability to purchase goods and services.

The Purchasing Power of Money

When is a dollar not a dollar? When inflation occurs, the prices of goods and services rise. Therefore, the **purchasing power** of the dollar goes down. A dollar's purchasing power is the real goods and services that it can buy. In other words, a dollar cannot buy the same amount as it did before inflation.

How does a drop in the dollar's purchasing power skew GDP? The higher GDP figures that result from inflation do not represent any increase in output. For example, last year an ice-cream cone may have cost \$1.00. This year it may cost \$1.95. The physical output—in this case, one ice-cream cone—has not changed; only its money value has. To get a true measure of the nation's output in a given year, inflation must be taken into account.

Deflation, a prolonged *decline* in the general price level, also affects the dollar value of GDP, but deflation rarely happens.

purchasing power: the real goods and services that money can buy; determines the value of money

deflation: prolonged decline in the general price level of goods and services

Measures of Inflation

The government measures inflation in several ways. The three most commonly used measurements are the consumer price index, the producer price index, and the implicit GDP price deflator.

Consumer Price Index (CPI) Every month, the government measures the change in price of a specific group of goods and services that the average household uses. This measurement is the **consumer price index (CPI)**. The group of items that are

consumer price index (CPI): measure of the change in price over time of a specific group of goods and services used by the average household

Economic Connection to... **MATH**

Compiling the CPI

When compiling the CPI, the Bureau of Labor Statistics (BLS) does not record every price of every product bought by everyone in the United States. The BLS instead tries to get a *representative* picture of the prices paid by consumers for all products. A national sample of some 29,000 families provides the BLS with information on

their spending habits. This enables the BLS to put together the market basket and to "weight" items according to consumer spending. For example, housing items are given more weight, or importance, than recreation items because most consumers spend more on housing than on recreation. ■

FIGURE 13.5

Selected Consumer Prices Price indexes allow you to compare price levels from year to year. When the CPI rises, there is inflation.

A Consumer Price Index of Selected Categories			
	1999	2000	2001
Food	164.1	167.8	173.6
Clothing	131.3	129.6	127.3
Housing	163.9	169.6	200.6
Medical	250.6	260.8	272.8

Source: Standard & Poor's

B The CPI	
1991	
1992	136.2
1993	140.3
1994	144.5
1995	148.2
1996	152.4
1997	156.9
1998	160.5
1999	163.0
2000	166.6
2001	172.2
	177.1

Source: Standard & Poor's

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market basket: representative group of goods and services used to compile the consumer price index

base year: year used as a point of comparison for other years in a series of statistics

priced, called a **market basket**, includes about 80,000 specific goods and services under general categories such as food, housing, transportation, apparel, education, recreation, medical care, and personal care. About every 10 years, the market basket is updated to include new products and services and to reflect more current spending patterns. *Part A* of **Figure 13.5** has broken down the CPI into several major categories, whereas *Part B* shows the overall CPI for several years.

Employees at the federal Bureau of Labor Statistics (BLS) compile the CPI monthly. They start with prices from a **base year** so that they have a point of comparison for current-day prices. For example, if you paid \$1.00 for an ice-cream cone in 2001, and the price of the cone increased to \$1.95 in 2003, the cost of an ice-cream cone has risen 95 cents (and in this case, 95 percent) since 2001 ($\$1.95 - \$1.00 = .95$).

In compiling the CPI, the BLS's base year is really the average of prices that existed for the three years 1982 to 1984. This base is given a value of 100. CPI numbers for later years indicate the percentage that the market basket price has risen since the base year.

For example, the 2001 CPI of 177.1 means that the average price of goods and services in the market basket has risen 77.1 percent since the period 1982–1984 ($177.1 - 100 = 77.1$). The price level, therefore, rose 77.1 percent since 1982–1984. The CPI can also be used to calculate inflation for any period, as shown in **Figure 13.6**.

Producer Price Index Another important measure of inflation is the **producer price index (PPI)**. The PPI is actually a group of indexes that measures the average change in prices that United States producers charge their customers—whether these customers are other producers buying crude materials for further processing or wholesalers who will sell the products to retailers or directly to consumers. Most of the producer prices included in the PPIs are in mining, manufacturing, and agriculture.

The PPIs usually increase before the CPI. Apple producers, for example, may experience a weak harvest. Because of the shortage of apples, the price of apples rises. A bakery that buys apples will eventually increase the price of its apple pies to cover the higher price of apples. Eventually the CPI will increase because consumers will have to pay more for the final products—in this case, apple pies. Therefore, changes in the PPIs often are watched as a hint that inflation and the CPI are going to increase.

GDP Price Deflator Government economists account for inflation by issuing another measure of price changes in GDP, called the **GDP price deflator**. This index removes the effects of inflation from GDP so that the overall economy in one year can be compared to another year. When the price deflator is applied to GDP in any year, the new figure is called **real GDP**.

The federal government uses 1995 as its base year to measure real GDP. Each year the price deflator is used to change current, or nominal, GDP into real GDP. For example, GDP in current dollars for 2002 was \$10,446.2 billion. To find real GDP for 2002, the government divides 2002 GDP by the 2002 price deflator (110.66) and multiplies the result by 100:

$$\$10,446.2 \div 110.66 \times 100 = \$9,439.9$$

Real GDP for 2002 was \$9,439.9 billion. This figure may now be compared to 1996 nominal GDP of \$7,813.2 billion. This is a more meaningful comparison than comparing 2002 GDP in nominal dollars to 1996 GDP. **Figure 13.7** on page 354 shows both current GDP and real GDP over time.

producer price index (PPI): measure of the change in price over time that United States producers charge for their goods and services

GDP price deflator: price index that removes the effect of inflation from GDP so that the overall economy in one year can be compared to another year

real GDP: GDP that has been adjusted for inflation by applying the price deflator

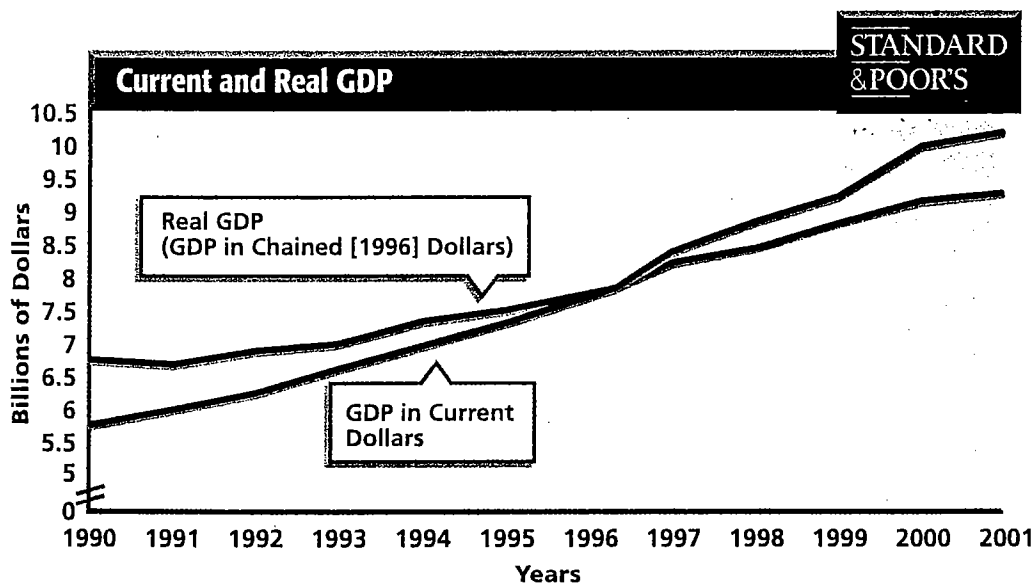
FIGURE 13.6

Calculating Inflation At the end of 1991, the CPI was 136.2. In May 2001 it was 177.7, which is a difference of 41.5 ($177.7 - 136.2 = 41.5$). If we now use 1991 as the base year, we can find out by what percentage consumer prices on average rose from 1991 to 2001. We do this by dividing 41.5 by 136.2, which gives us 0.3047 ($41.5 \div 136.2$). When we multiply by 100 to give the result as a percent, we get 30.47 percent.



FIGURE 13.7

GDP in Current and Chained (1996) Dollars Real GDP has been adjusted for inflation using 1996 as a base year.



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SECTION 2 Assessment

Understanding Key Terms

1. **Define** inflation, purchasing power, deflation, consumer price index, market basket, base year, producer price index, GDP price deflator, real GDP.

Reviewing Objectives

2. What is the relationship between the purchasing power of money and the rate of inflation?
3. **Graphic Organizer** Use a chart like the one in the next column to show the difference between what the CPI and the PPI measure.

Index	What It Measures

Applying Economic Concepts

4. **Market Basket** If you were to construct a market basket of goods and services that students typically consume, what would you select?

Critical Thinking Activity

5. **Making Predictions** If the PPIs measuring crude oil, agricultural products, and lumber decrease for three months in a row, what prediction could you make about the CPI?

SPOTLIGHT ON THE ECONOMY

Unveiling the Secrets of the CPI

Check It Out! In this chapter you learned about the consumer price index (CPI). In this article, read to learn about several weaknesses of the CPI and how the Bureau of Labor Statistics (BLS) tries to overcome these weaknesses.

The government tracks inflation in various forms. For instance, the producer price index (PPI) captures changes in prices charged by U.S. goods producers. . . . For the best inflation reading, however, markets look to the CPI. It is the most comprehensive indicator because it covers all goods and services purchased by households. It's the timeliest because the report is released . . . about two weeks after the end of each month. The CPI does include sales and excise taxes.

The CPI is not perfect. The elderly complain that the CPI, although used for adjusting Social Security checks, misses price hikes on drugs. Increases in property taxes show up only indirectly when the BLS calculates rents. And if your employer increases your health-insurance premium, the CPI won't reflect it.

The BLS counters that the consumer price index's aim is to measure prices for a specific basket of goods and services that the average household buys, according to surveys done from 1993 to 1995. This set basket leads to the biggest rap on the CPI: It

does not allow for substitution. Say, a drought in Washington means a price jump for Red Delicious apples.

Consumers might buy cheaper Granny Smiths. But the CPI would still give more weight to the price of Red Delicious apples.

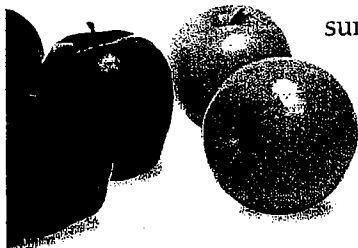
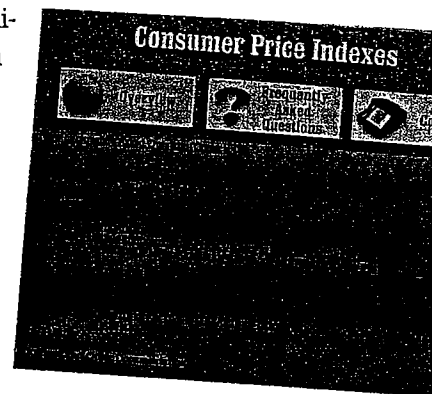
In the mid-1990s, economists criticized the CPI for overestimating inflation. . . . For one thing, said economists, the BLS took too long to include new products, and thus the CPI failed to capture the price reductions that take place in the first years of a product's lifetime. Cell phones, for instance, were costly to use when they were introduced in the 1980s. But competition brought the connection fees down rapidly. However, the BLS did not include cellular phones in the CPI until 1998.

Quality adjustment is another problem. How does the BLS account for air bags in cars, which add costs but save lives?

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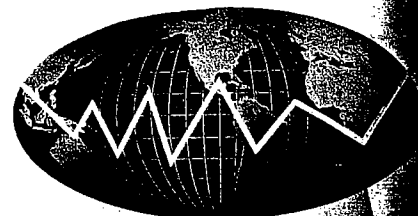
Think About It

1. What does the CPI measure?
2. What are three criticisms of the CPI?



SECTION 3

Aggregate Demand and Supply



READER'S GUIDE

Terms to Know

- aggregates
- aggregate demand
- aggregate demand curve
- aggregate supply
- aggregate supply curve

Reading Objectives

1. Why is there an inverse relationship between aggregate quantity demanded and the price level?
2. What causes the aggregate supply curve to slope upward?
3. How do you use aggregate demand and supply analysis to determine the equilibrium price level?

aggregates: summation of all the individual parts in the economy

aggregate demand: total quantity of goods and services in the entire economy that all citizens will demand at any single time

COVER STORY

AKRON BEACON JOURNAL, AUGUST 12, 2003

[M]onths after the official end of the recession in November 2001, the number of jobs in the United States continues to decline.

Economists call it a "growth recession," in which the economy grows so slowly that it doesn't add jobs.

Economists are focusing on two fundamental economic changes . . . the use of technology to produce more goods and services . . . and the movement of a greater variety of jobs overseas.



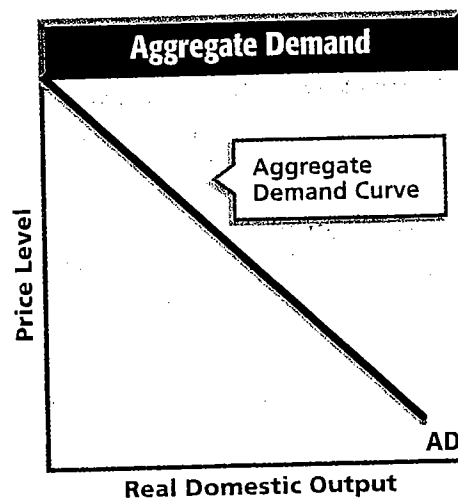
As alluded to in the *Cover Story* above, the laws of supply and demand can be applied to the economy as a whole, as well as to individual consumer decisions. Economists are interested in the demand by all consumers for all goods and services, and the supply by all producers of all goods and services. When we look at the economy as a whole in this way, we are looking at **aggregates**—the summing up of all the individual parts in the economy. As you'll learn in this section, we call these sums aggregate demand and aggregate supply.

Aggregate Demand

Aggregate demand is the total quantity of all goods and services in the entire economy demanded by all people. How can we find out the aggregate quantity of goods and services that all

FIGURE 13.8

Aggregate Demand Curve Although the curve for aggregate demand resembles that for simple demand, it is for the entire economy, not just one good or service. Aggregate demand may increase (curve shifts to the right) if consumers collectively spend more and save less or if better economic conditions are forecast. Aggregate demand may decrease (curve shifts to the left) if higher taxes are imposed on the overall economy or if bleak economic conditions are forecast.



citizens will demand at any single point in time? To answer this question, we have to relate aggregate demand to something else. As you remember from Chapter 7, the basic law of demand relates the quantity demanded of a specific product to its price. When discussing aggregates, however, we are talking about *all* products. Because there are millions of different prices for all products, aggregate demand cannot be related to prices.

Instead, aggregate demand is related to the *price level*—the average of all prices as measured by a price index. If we use the implicit GDP price deflator as our index, our measure of aggregate demand will be based on real (adjusted for inflation) domestic output. You can see this relationship in **Figure 13.8**. It is called the **aggregate demand curve**.

Notice the similarity between the aggregate demand curve labeled AD in **Figure 13.8** and the individual demand curve you studied in Chapter 7 (page 179). Both of these curves slope downward, showing an inverse relationship. As the price level in the nation's economy goes down, a larger quantity of real domestic output is demanded per year. This change in quantity demanded is shown as a movement *along* the AD curve.

There are two main reasons for this inverse relationship. One involves the real purchasing power of your cash, and the other concerns the relative price of goods and services sold to other countries.

Consider the first reason. Inflation causes the purchasing power of your cash to go down. Deflation causes your purchasing power to go up. Therefore, when the price level goes down, the purchasing power of any cash that you hold will go up. You and everyone else will feel slightly richer because you are able to buy more goods and services.

aggregate demand curve:
a graphed line showing the relationship between the aggregate quantity demanded and the average of all prices as measured by the implicit GDP price deflator

As for the second reason, when the price level goes down in the United States, our goods become relatively better deals for foreigners who want to buy them. Foreigners then demand more of our goods as exports.

Aggregate Supply

Aggregate demand is only one side of the picture. Let us look at aggregate supply. As the price of a specific product goes up, and if all other prices stay the same, producers of that product find it profitable to produce more. The same is true for all producers in the economy over a short period of time. If the price level goes up and wages do not, overall profits will rise. Producers will want to supply more to the marketplace—they offer more real domestic output as the price level increases. The reverse is true as the price level falls. This is called **aggregate supply**. You can see this positive relationship in **Figure 13.9**—the **aggregate supply curve**.

aggregate supply: real domestic output of producers based on the rise and fall of the price level

aggregate supply curve: a graphed line showing the relationship between the aggregate quantity supplied and the average of all prices as measured by the implicit GDP price deflator

Putting Aggregate Demand and Aggregate Supply Together

Just as we are able to compare demand and supply for a given product to find an equilibrium price and quantity, we can

FIGURE 13.9

Aggregate Supply Curve Similar to the individual supply curve, the aggregate supply curve shows the amount of real GDP that could be produced at various price levels. Aggregate supply increases (curve shifts to the right) when all firms experience lower costs of production due to lower taxes or interest rates or lower prices for foreign oil, for example. Aggregate supply decreases (curve shifts to the left) for the opposite reasons: higher taxes, higher interest rates, higher prices for foreign oil.

▼ Producers

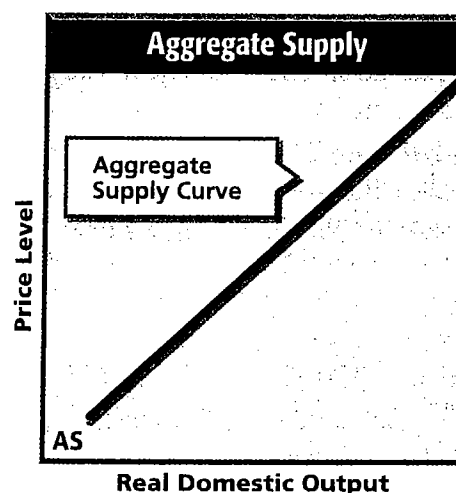
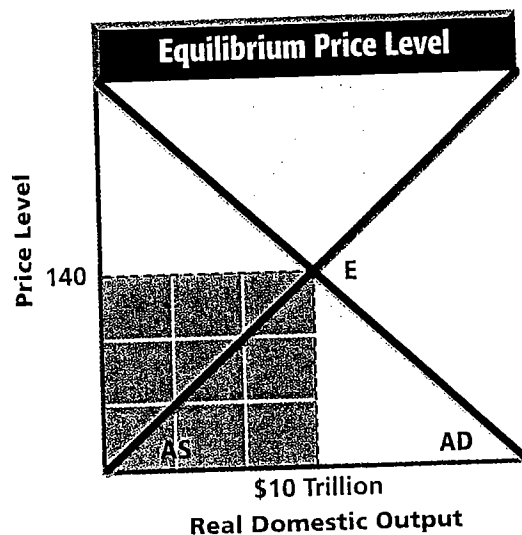


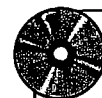
FIGURE 13.10

National Output and the Price Level The intersection of aggregate demand and aggregate supply gives the equilibrium price level and national output (real domestic output).



compare aggregate demand and aggregate supply. We do this in **Figure 13.10**.

The equilibrium price level in our example is determined where the aggregate demand curve crosses the aggregate supply curve, or at a GDP price deflator of 140. The equilibrium quantity of real GDP demanded and supplied is \$10 trillion. As long as nothing changes in this situation, the economy will produce \$10 trillion of real domestic output, and the price level will remain at 140—there will be neither inflation nor deflation.



Practice and assess
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*Skillbuilder Interactive
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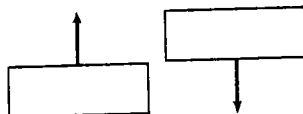
SECTION 3 Assessment

Understanding Key Terms

1. **Define** aggregates, aggregate demand, aggregate demand curve, aggregate supply, aggregate supply curve.

Reviewing Objectives

2. **Graphic Organizer** Create a diagram like the one below to show why there is an inverse relationship between aggregate quantity demanded and the price level.



3. What causes the aggregate supply curve to slope upward?
4. How do you use aggregate demand and supply analysis to determine the equilibrium price level?

Applying Economic Concepts

5. **Aggregate Demand** What would happen to the aggregate demand curve if there was a massive tax cut?

Critical Thinking Activity

6. **Synthesizing Information** Draw a graph showing both an aggregate demand curve and an aggregate supply curve. Now assume that the price level increases. What happens to aggregate demand and aggregate supply?

SECTION 4

Business Fluctuations

READER'S GUIDE

Terms to Know

- business fluctuations
- business cycle
- peak
- boom
- contraction
- recession
- depression
- trough
- expansion
- recovery

Reading Objectives

1. What are the phases of a typical business cycle?
2. What have been the three most severe downturns in the United States economy since the 1920s?

business fluctuations: ups and downs in an economy

business cycle: irregular changes in the level of total output measured by real GDP

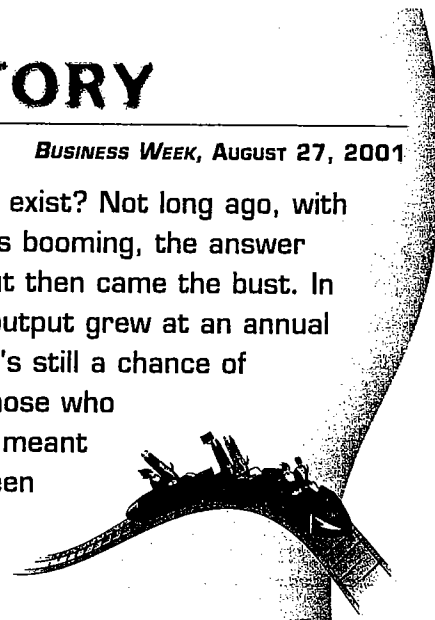
peak/boom: period of prosperity in a business cycle in which economic activity is at its highest point

contraction: part of the business cycle during which economic activity is slowing down

COVER STORY

BUSINESS WEEK, AUGUST 27, 2001

Does the New Economy exist? Not long ago, with growth strong and markets booming, the answer seemed an obvious yes. But then came the bust. In the first half of this year, output grew at an annual rate of just 1%—and there's still a chance of an outright recession.... Those who thought the New Economy meant good times forever have been mugged by reality.



Some years inflation is high; other years it is not. The same holds true for unemployment, world trade, and taxes. We have fluctuations in virtually all aspects of our economy. The ups and downs in an economy are called **business fluctuations**. Some people associate these ups and downs in business activity with what has been called the **business cycle**—irregular changes in the level of total output measured by real GDP.

Model of the Business Cycle

Figure 13.11 shows an idealized business cycle. According to this model, the phases of a business cycle begin with growth leading to an economic **peak** or **boom**—a period of prosperity. New businesses open, factories are producing at full capacity, and everyone who wants work can find a job.

Eventually, however, real GDP levels off and begins to decline. During this part of the cycle, a **contraction** of the economy

occurs. Business activity begins to slow down. If the contraction lasts long enough and is deep enough, the economy can continue downward until it slips into a recession.

A **recession** is any period of at least two quarters—six months—during which real GDP does not grow. In a recession, business activity starts to fall at a rapid rate economy-wide. Factories cut back on production and lay off workers. Consumers, with less income, cut back on purchases. Faced with a worsening economy, fewer new businesses open and some existing ones fail. If a recession becomes extremely bad, it deepens into a **depression**. Then millions of people are out of work, many businesses fail, and the economy operates far below capacity.

At some point, the downward direction of the economy levels off in a **trough**. A trough is the lowest point in the business cycle. It occurs when real GDP stops going down, levels off, and slowly begins to increase. The increase in total economic activity that follows is called an **expansion** or **recovery**. Consumer spending picks up, signaling factories to hire workers and increase production to meet demand. New businesses begin to open. The recovery continues until the economy hits another peak, and a new cycle begins.

recession: part of the business cycle in which the nation's output (real GDP) does not grow for at least six months

depression: major slowdown of economic activity

trough: lowest part of the business cycle in which the downward spiral of the economy levels off

expansion/recovery: part of the business cycle in which economic activity slowly increases

Ups and Downs of Business

In the real world, as you can see from **Figure 13.12** on page 362, the business cycles are not as regular as the model shows. The peaks and troughs are clear, however.

FIGURE 13.11

A Model of the Business Cycle

Business cycles fluctuate between peaks and troughs. *What does the word model indicate about the business cycle shown?*

.....

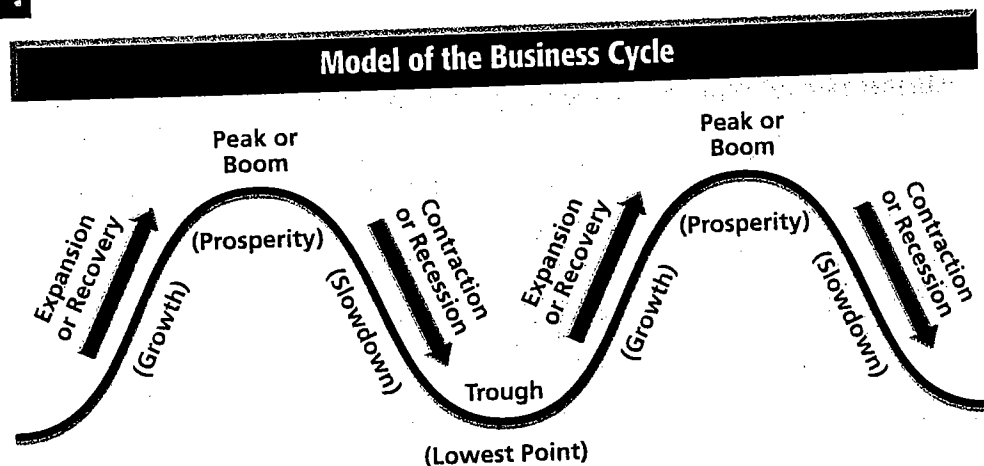
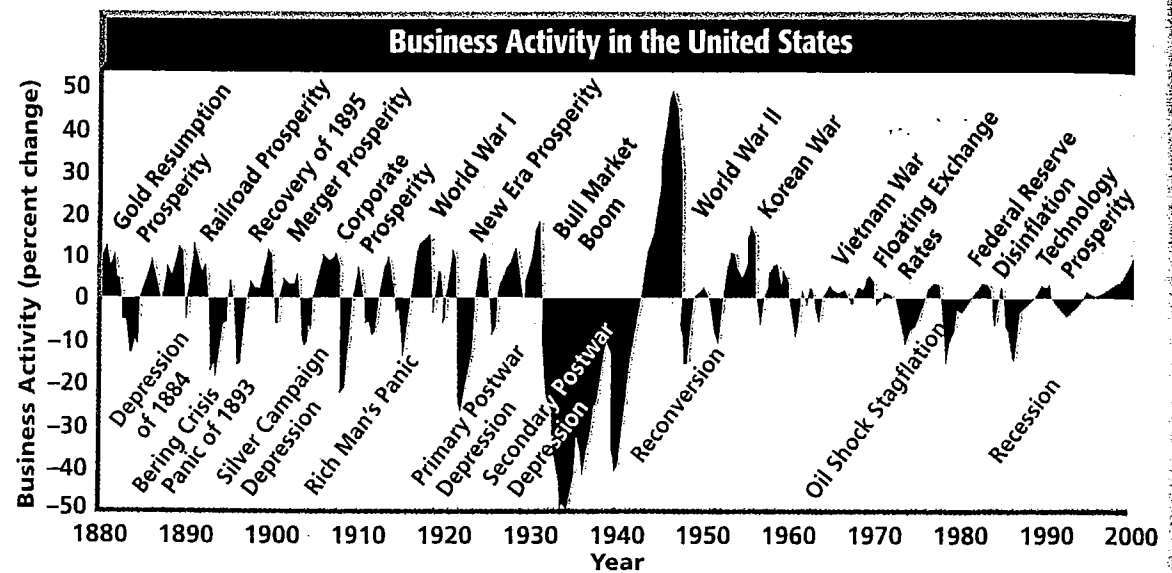


FIGURE 13.12

Business Activity American business activity declined about 50 percent during the Great Depression, yet bounced back to new highs after World War II.



The largest drop that eventually resulted in a depression followed the stock market crash in October 1929. The preceding years had been a time of widespread prosperity, as shown in Part A of **Figure 13.13**. By September 1929, heavy speculation had driven stock prices to an all-time peak. Then stock prices started to fall in early October and continued to fall. Suddenly, on October 29, there was a stampede to unload stocks. In one day the total value of all stocks fell by \$14 billion.

Not long after the stock market crash, the United States fell into a serious recession. Factories shut down, laying off millions of workers. Businesses and banks failed by the thousands. Real GDP fell sharply over the next few years, pushing the nation into the depths of the Great Depression. See Part B of **Figure 13.13**. A gradual upward rise climaxed in the boom period after World War II, as shown in Part C of **Figure 13.13**.

Until the 1980s, small ups and downs occurred. The 1980s started off with a small recession that developed into the most serious economic downturn by some measurements since World War II. This downturn ended in 1982 and was followed by relative prosperity, except for a severe stock market crash in October 1987. The economy boomed during the last half of the 1990s, but started to falter in 2001, after the disruption caused by terrorist attacks in September.

FIGURE 13.13

Prosperity, Depression, and Boom

Prosperity Before the Crash
The 1920s had been a decade in which Americans began buying increasing numbers of radios, stoves, and automobiles. During these years, prices remained stable, and the standard of living rose about 3 percent per year.



Depression Conditions
The Great Depression of the 1930s forced millions of Americans out of work. Used to the prosperity of the 1920s, Americans during the bust era of the Depression often relied on handouts.

War Boom

The United States economy grew rapidly during World War II. There were 17 million new jobs created, and farmers shared in the prosperity as crop prices doubled between 1940 and 1945.



Practice and assess key skills with *Skillbuilder Interactive Workbook, Level 2.*

SECTION

4

Assessment

Understanding Key Terms

1. **Define** business fluctuations, business cycle, peak or boom, contraction, recession, depression, trough, expansion or recovery.

Reviewing Objectives

2. What are the phases of a typical business cycle?
3. **Graphic Organizer** Create a time line like the one below to describe the three most severe downturns in the United States economy since the 1920s.



Applying Economic Concepts

4. **Business Fluctuations** Write three headlines that might have appeared in a newspaper during the years of the Great Depression. Then write three headlines that might have appeared during the expansion of the 1990s. Explain why you chose to write those particular headlines for those time periods.

Critical Thinking Activity

5. **Understanding Cause and Effect** What actions and reactions throughout the economy may cause a recession to deepen into a depression?

SECTION 5

Causes and Indicators of Business Fluctuations

READER'S GUIDE

Terms to Know


- innovations
- economic indicators
- leading indicators
- coincident indicators
- lagging indicators

Reading Objectives

1. What are some of the potential causes of business fluctuations?
2. What are the three broad categories of economic indicators?

COVER STORY

COMPTON'S ONLINE ENCYCLOPEDIA, "BUSINESS CYCLE"



Economists, politicians, and others have been puzzled by business cycles since at least the early 19th century. One of the more unusual explanations was proposed by English economist William Stanley Jevons in the 19th century. He believed the ups and downs of an economy were caused by sunspot cycles, which affected agriculture and caused cycles of bad and good harvests. This hypothesis is not taken seriously today.

■ ■ ■ ■ ■

For as long as booms and recessions have existed, economists have tried to explain why business fluctuations occur. If they could understand the causes, they reason, then the government could take actions to smooth out business fluctuations. No single theory, however, seems to explain past cycles or to serve as an adequate measure to predict future ones. The difficulty arises because at any given time, several factors are working together to create business fluctuations.

Causes of Business Fluctuations

For many years economists believed that business fluctuations occurred in regular cycles. Later, economists believed that business

fluctuations were related to changes in the rate of saving and investing. Today economists tend to link business fluctuations to four main forces: business investment, government activity, external factors, and psychological factors.

Business Investment Some economists believe that business decisions are the key to business fluctuations. Suppose a firm believes that prospects for future sales are good. Probably it will increase its capital investment: buy new machines, build new factories, expand old ones, and so on. This expansion will create new jobs and more income for consumer spending.

Innovations—inventions and new production techniques—can have a similar effect on the economy. When one firm begins to use an innovation, others must imitate the product or production method in order to become competitive again.

When businesses anticipate a downturn in the economy, they cut back on their capital investment and inventories. Producers, in turn, cut back on production to prevent a surplus. Enough inventory cutbacks could lead to a recession.

Government Activity A number of economists believe that the changing policies of the federal government are a major reason for business cycles. The government affects business activity in two ways: through its policies on taxing and spending, and through its control over the supply of money available in the economy. You'll learn more about these government actions in Chapters 15 and 16.

External Factors Factors outside a nation's economy also influence the business cycle. As you can see from **Figure 13.14**,

FIGURE 13.14

External Factors War, natural and environmental disasters, and crime waves are some external factors that affect business cycles.



CAREERS

Statistician

Job Description

- Design surveys and experiments, collect data, and interpret the results
- Use mathematical models to develop economic forecasts

Qualifications

- College degree in statistics
- Strong background in computer science recommended

Average Salary: \$51,990

Job Outlook: Favorable

—Occupational Outlook Handbook, 2002–03

innovations: inventions and new production techniques

**FIGURE 13.15**

Major Economic Indicators

Leading Indicators

1. Average weekly hours for production workers in manufacturing
2. Weekly initial claims for unemployment insurance
3. New orders for consumer goods
4. Speed with which companies make deliveries (the busier a company, the longer it will take to fill orders)
5. Number of contracts and orders for plants and equipment
6. Number of building permits issued for private housing units
7. Stock prices
8. Changes in money supply in circulation
9. Changes in interest rates
10. Changes in consumer expectations

Coincident Indicators

1. Number of nonagricultural workers who are employed
2. Personal income minus transfer payments
3. Rate of industrial production
4. Sales of manufacturers, wholesalers, and retailers

Lagging Indicators

1. Average length of unemployment
2. Size of manufacturing and trade inventories
3. Labor cost per unit of output in manufacturing
4. Average interest rate charged by banks to their best business customers
5. Number of commercial and industrial loans to be repaid
6. Ratio of consumer installment debt to personal income
7. Change in consumer price index for services

wars in particular have an important impact. This impact results from the increase in government spending during wartime.

Another external factor—the availability of raw materials such as oil—may also have an effect on the economy. New sources of raw materials may lower operating costs for certain industries. The sudden loss of raw materials and the resulting higher prices, however, can have the opposite effect.

Psychological Factors

Finally, it is possible that people's psychological reactions to events also cause business fluctuations. Consider one important example. The United States and much of the world were already entering into what seemed to be a mild recession in the fall of 2001. After the horrible terrorists' attacks on New York City and Washington, D.C., on September 11, 2001, consumers and businesses pulled back all over the world. Consumers spent less, and business managers reduced investment-spending plans.

Economic Indicators

Every day, business leaders are faced with the dilemma of trying to predict what will happen to the economy in the coming months and years. To aid decision makers, government and private economists study a number of economic indicators—listed in **Figure 13.15**—to learn about the current and possible future state

of the economy. **Economic indicators** are statistics that measure variables in the economy, such as stock prices or the dollar amount of loans to be repaid. Each month, the U.S. Department of Commerce compiles statistics for 78 economic indicators covering all aspects of the state of the U.S. economy.

economic indicators: statistics that measure variables in the economy

Leading Indicators Statistics that point to what will happen in the economy are called **leading indicators**. They seem to lead to a change in overall business activity—whether it is an upward or a downward trend. The Commerce Department keeps track of numerous leading indicators, but the ten listed in **Figure 13.15** are the ones that most concern American economists.

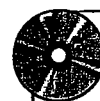
leading indicators: statistics that point to what will happen in the economy

Coincident Indicators Other economic indicators, which usually change at the same time as changes in overall business activity, also help economists. When these **coincident indicators** begin a downswing, they indicate that a contraction in the business cycle has begun. If they begin an upswing, they indicate that the economy is picking up and a recovery is underway.

coincident indicators: economic indicators that usually change at the same time as changes in overall business activity

Lagging Indicators A third set of indicators seems to lag behind changes in overall business activity. For example, it may be six months after the start of a downturn before businesses reduce their borrowing. The amount of change in these **lagging indicators**, whether up or down, gives economists clues as to the duration of the phases of the business cycle.

lagging indicators: indicators that seem to lag behind changes in overall business activity



Practice and assess key skills with **Skillbuilder Interactive Workbook, Level 2.**

SECTION 5 Assessment

Understanding Key Terms

1. **Define** innovations, economic indicators, leading indicators, coincident indicators, lagging indicators.

Reviewing Objectives

2. **Graphic Organizer** Create a diagram similar to the one here to explain four of the potential causes of business fluctuations.



3. What are the three broad categories of economic indicators?

Applying Economic Concepts

4. **Business Fluctuations** What innovation do you think has had the most influence on expanding the American economy? Why?

Critical Thinking Activity

5. **Making Predictions** Identify two events that would cause you to predict a contraction of the economy.

People & Perspectives



Janet Yellen

ECONOMIST (1946–)

- Chair of President Clinton's Council of Economic Advisers, 1997–99
- Member of Federal Reserve Board of Governors, 1994–97
- Member of Congressional Budget Office's Panel of Economic Advisers
- Professor at the University of California at Berkeley; also held teaching positions at Harvard University and the London School of Economics

During her career, Janet Yellen has investigated a wide variety of economic issues. She has paid special attention to wages, prices, and unemployment—issues that directly affect ordinary Americans. In her Senate confirmation hearings for the position of governor of the Federal Reserve Board, Yellen stated that she hoped to keep her eye on the people behind the numbers.

“I think stabilization policy is important—to avoid huge swings in unemployment. When you have the kind of recession we had in 1982 and 1983, for example, you can see the visible toll it takes on households. Perhaps because the causes and consequences of unemployment have been a focus of my research, I consider it easy to remain mindful of the people behind the numbers. In order to avoid high unemployment we must be careful not to push

the economy below the NAIRU [Non-Accelerating Inflation Rate of Unemployment—the minimum rate of unemployment consistent with stable inflation], allowing inflation to rise and to become embedded in expectations. Because when that happens, it takes a period of above normal unemployment to lower inflation. That’s the painful lesson of the ’70s. Even when it comes to inflation we have to remember that prices [in themselves] do not affect social welfare. Inflation matters because of its repercussions on a country’s economic performance, which in turn affects the welfare of individuals. Why are we in this business? It seems to me that it’s to promote the well-being of American households. That’s what it’s all about.”

Checking for Understanding

1. According to Yellen, why is stabilization policy important?
2. Why is it dangerous to let inflation get out of hand?

CHAPTER

13

Summary

ECONOMICS Online



Chapter Overview Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on **Chapter 13—Chapter Overviews** to review chapter information.

SECTION 1 National Income Accounting

- The measurement of the national economy's performance is called **national income accounting**—and includes five statistical measures.
- **Gross domestic product (GDP)** is the total dollar value of all final goods and services produced in the nation during a single year.
- When **depreciation** is subtracted from GDP, you get a statistic called **net domestic product**.
- Three additional measurements—**national income**, **personal income**, and **disposable personal income**—look at how much money is available to be spent by businesses and individuals.

SECTION 2 Correcting Statistics for Inflation

- When **inflation** occurs, the **purchasing power** of the dollar declines.
- Inflation skews GDP by making it appear that more output was produced, when in reality only the prices of goods and services have increased.
- To find **real GDP**, the government measures inflation's effect on current GDP.

- Three common measurements of inflation are the **consumer price index**, the **producer price index**, and the **GDP price deflator**.

SECTION 3 Aggregate Demand and Supply

- **Aggregate demand** and **aggregate supply** relate the total quantity of all goods and services in the entire economy to the price level.
- Equilibrium exists where the **aggregate demand curve** intersects the **aggregate supply curve**, thus resulting in neither inflation nor deflation.

SECTION 4 Business Fluctuations

- The economy experiences **business fluctuations**.
- A **business cycle** begins with a **peak** or **boom**, then continues with a **contraction** toward a **recession** (and perhaps even a **depression**). The downward spiral hits a **trough**, then increases again in an **expansion** or **recovery**.
- The Great Depression was the worst economic crisis in United States history.

SECTION 5 Causes and Indicators of Business Fluctuations

- Economists link business fluctuations to four main forces: business investment, government activity, external factors, and psychological factors.
- To help business and government leaders in making economic decisions for the future, economists create and update **economic indicators**.

CHAPTER 13

Assessment and Activities

ECONOMICS *Online*



Self-Check Quiz Visit the *Economics Today and Tomorrow* Web site at ett.glencoe.com and click on **Chapter 13—Self-Check Quizzes** to prepare for the Chapter Test.

Identifying Key Terms

Write the letter of the definition in Column B below that correctly defines each term in Column A.

Column A

1. base year
2. trough
3. economic indicators
4. expansion
5. real GDP
6. business cycle

Column B

- a. point when economic activity is at its lowest
- b. figures for the nation's total production that have been corrected for inflation
- c. measurement of specific aspects of the economy such as stock prices
- d. used as a point of comparison for other years in a series of statistics
- e. periodic ups and downs in the nation's economic activity
- f. business recovery period, when economic activity increases

Recalling Facts and Ideas

Section 1

1. Net exports and government goods are two components of GDP. What are the other two components?
2. What five categories of income make up national income?
3. If you were given the statistic on disposable personal income, what other information would you need to derive personal income?

Section 2

4. What are the most commonly used price indexes?
5. What is the difference between inflation and deflation?
6. How would you determine real GDP if you knew only GDP?

Section 3

7. Why does the aggregate demand curve slope downward and the aggregate supply curve slope upward?
8. What is determined at the intersection of the aggregate supply and aggregate demand curves?
9. What would cause the AD curve to shift to the right?

Section 4

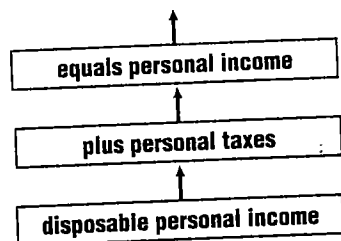
10. What are the four main phases of a business cycle?
11. When the economy enters a recession, what normally happens?
12. When was the most serious downturn in economic activity in the United States?

Section 5

13. How might psychological factors affect the business cycle?
14. What two aspects of government activity affect business cycles?

Thinking Critically

1. **Making Generalizations** How might knowledge of nationwide economic statistics help you?
2. **Summarizing Information** Create a diagram like the one below to summarize national income accounting. Start with the lowest statistic, disposable personal income, and work your way up to GDP—adding and subtracting the appropriate items.



Applying Economic Concepts

Business Cycles Try to analyze what you think occurs throughout the economy during a recession. Make a list of some of the things that business owners may do to react to a recession, such as reduce employees' overtime hours.

Cooperative Learning Project

To make comparisons between the prices of things in the past and those of today, you have to make the distinction between current prices (often called *nominal values*), and prices adjusted for inflation (*real values*). Working with a partner, use the following statistics and equation to find real 2000 GDP.

$$\begin{aligned} 2000 \text{ nominal GDP} &= \$10.223 \text{ trillion} \\ 2000 \text{ price deflator} &= 107.7 \\ \text{nominal GDP} \div \text{implicit price deflator} \times 100 &= \\ &\text{real GDP} \end{aligned}$$

Reviewing Skills

Taking Notes Research lagging indicators, coincident indicators, and leading indicators. Take notes on your research using the following guidelines:

- For each type of indicator, what are the various subgroups?
- How long has the indicator been reported in the United States?
- Can you find instances when the indicator was wildly inaccurate?

From your notes, write a paragraph describing how useful any of these indicators might be in accurately predicting changes in the nation's overall economic activity.

Technology Activity



Using the Internet Use the Internet to find the latest edition of the *Statistical Abstract of the United States*. Locate the tables in the "Prices" section that give price indexes for consumer goods for selected cities and metropolitan areas. Construct a line graph showing the rise in the index for "all items" over the last six years.

Analyzing the Global Economy

Use the Internet or a source in the library to find out the 10 countries with the highest real GDP. Then compare this list with the 10 countries with the highest real GDP per capita, found in the Global Economy feature on page 347.

Economics Lab

Constructing a Market Basket

From the classroom of Rochelle Tuchman, Shulamith High School, Brooklyn, New York

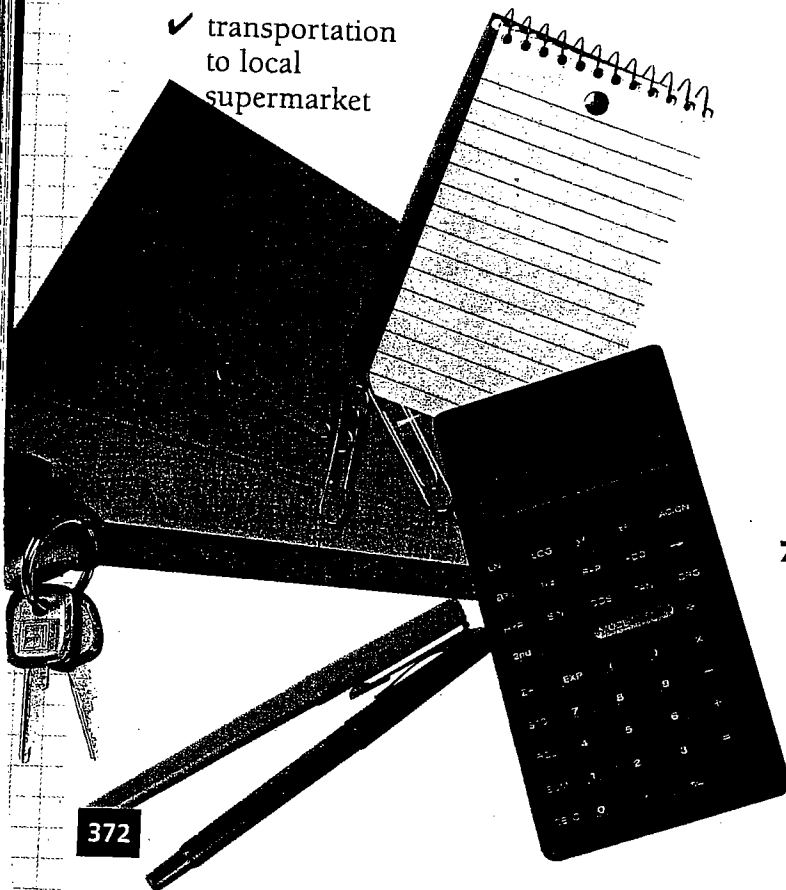
In Chapter 13 you learned how the consumer price index compares prices for a market basket of about 80,000 goods and services in order to adjust GDP for inflation. In this lab, you'll construct your own market basket and price index.

STEP A Tools Needed

- ✓ notebook
- ✓ pencil
- ✓ calculator
- ✓ transportation to local supermarket

STEP B Procedures to Follow

1. Survey students in your school to see what kinds of food their families eat the most.
2. Identify five categories of food that are purchased most often (and that are available in a supermarket): frozen pizza, pasta, soda, and so on.
3. Then identify three specific items in each category, including brand name and size (16 ounces, for example).
4. Also identify the locations of supermarkets in your community where the items can be purchased.
5. Now price your specific items on a per-week basis for one month. You must price the same product(s) in the same supermarket on the same day each week.
6. After the first visit to the supermarket, add up the total amount of the 15 items in your market basket. This number will signify your base year.
7. After each of the remaining three visits to the supermarket, add up the total amount of your market basket again, and compare the new totals to your base year.





STEP C Creating an Economic Model

Use your totals to construct a price index. It should begin with a listing of your market basket contents and quantities. Week 1, your base year, will have a value of 100. Index numbers for Weeks 2, 3, and 4 will show the percentage that the market basket price has risen since the "base year." Remember, to calculate the percentage of change, subtract 100 (base year value) from the new figure: [Week 2 figure] - 100 = percent change of market basket.

STEP D Lab Report Analysis

Study the price index you created in Step C, then answer the questions below.

1. What was the total amount of your market basket in your base year?
2. By how much did your price index change from your base year (Week 1) to Week 4?
3. Were you surprised by the results of your price index? Explain.

