Macroeconomics: The Study of Economic Growth and Business Cycles
Are jobs easy to find or few and hard to land? Are real wages and living standards growing rapidly, or is the economy stagnating or even depressed? Is the central bank raising interest rates to keep price increases in check, or loosening money to pull the economy out of a recession, or keeping a neutral stance of watchful waiting? How are the forces of globalization and foreign trade affecting domestic employment and output? These questions are central to macroeconomics, which is the subject of the following chapters.

Before we launch into our survey, recall that macroeconomics is the study of the behavior of the economy as a whole. It examines the forces that affect many firms, consumers, and workers at the same time. It contrasts with microeconomics, which studies individual prices, quantities, and markets.

Two central themes will run through our survey of macroeconomics: (1) the short-term fluctuations in output, employment, and prices that we call the business cycle and (2) the longer-term trends in output and living standards known as economic growth.

The development of macroeconomics has been one of the major breakthroughs of twentieth-century economics, leading to a much better understanding of how to combat periodic economic crises and how to stimulate long-term economic growth. In response to the Great Depression, John Maynard Keynes developed his revolutionary theory, which helped explain the forces producing economic fluctuations and suggested how governments can control the worst excesses of the business cycle. At the same time, economists have endeavored to understand the mechanics of long-term economic growth. Thanks to Keynes, his critics, and his modern successors, we know that in its choice of macroeconomic policies—those affecting the money supply, taxes, and government spending—a nation can speed or slow its economic growth, trim the excesses of price inflation or unemployment from business cycles, or take measures to deal with imbalances that arise in foreign trade or international finance.

Macroeconomic issues have dominated the U.S. political and economic agenda for much of the twentieth century. In the 1930s, when production, employment, and prices collapsed in the United States and across much of the industrial world, economists and political leaders wrestled with the calamity of the Great Depression. During World War II, and again during the Vietnam war in the 1960s, the problem was one of managing a sustained boom and containing high inflation. In the 1970s the burning issue was “stagflation,” a combination of slow growth and rising prices that left Americans feeling miserable.
The 1990s witnessed a period of rapid growth, falling unemployment, and stable prices—a period so unusual that it was called the “new era” economics.

Sometimes, macroeconomic failures raise life-and-death questions for countries and even for ideologies. The communist leaders of the former Soviet Union proclaimed that they would overtake the West economically. History proved that to be a hollow promise, as Russia, a country teeming with natural resources and military might, was unable to produce adequate butter for its citizens along with the guns for its imperial armies. Eventually, macroeconomic failures brought down the communist regimes of the Soviet Union and Eastern Europe and convinced people of the economic superiority of private markets as the best approach to encouraging rapid economic growth.

This chapter will serve as an introduction to macroeconomics. It presents the major concepts and shows how they apply to key historical and policy questions of recent years. But this introduction is only a first course to whet the appetite. Not until you have mastered all the chapters in Parts Five and Six can you fully enjoy the rich macroeconomic banquet that has been a source of both inspiration for economic policy and continued controversy among macroeconomists.

### A. KEY CONCEPTS OF MACROECONOMICS

#### THE BIRTH OF MACROECONOMICS

The 1930s marked the first stirrings of the science of macroeconomics, founded by John Maynard Keynes as he tried to understand the economic mechanism that produced the Great Depression. After World War II, reflecting both the increasing influence of Keynesian views and the fear of another depression, the U.S. Congress formally proclaimed federal responsibility for macroeconomic performance. It enacted the landmark Employment Act of 1946, which stated:

The Congress hereby declares that it is the continuing policy and responsibility of the federal government to use all practicable means consistent with its needs and obligations…to promote maximum employment, production, and purchasing power.

For the first time, Congress affirmed the government’s role in promoting output growth, fostering employment, and maintaining price stability.

Since the 1946 Employment Act, the nation’s priorities among these three goals have shifted; but in the United States, as in all market economies, these goals still frame the central macroeconomic questions:

1. **Why do output and employment sometimes fall, and how can unemployment be reduced?** All market economies show patterns of expansion and contraction known as *business cycles*. The last major business-cycle downturn in the United States came in 1990–1991, when production of goods and services fell and millions of people lost their jobs. For much of the postwar period, one key goal of macroeconomic policy has been to use monetary and fiscal policy to reduce the severity of business-cycle downturns and unemployment.

   From time to time countries experience high unemployment that persists for long periods, sometimes as long as a decade. Such a period occurred in the United States during the Great Depression, which began in 1929. In the next few years, unemployment rose to almost one-quarter of the workforce, while industrial production fell by one-half. European countries in the 1990s had a mild depression, with persistent unemployment of over 10 percent in many countries.

   Macroeconomics examines the sources of persistent unemployment. Having considered the possible diagnoses, macroeconomics also suggests possible remedies, such as increasing aggregate demand or reforming labor market institutions. The lives and fortunes of millions of people depend upon whether macroeconomists can find the right answers to these questions.

2. **What are the sources of price inflation, and how can it be kept under control?** A market economy uses prices as a yardstick to measure economic values and conduct business. During periods of rapidly rising prices, called *price inflation*, the price yardstick loses its value. People become confused, make mistakes, and spend much of their time worrying about inflation eating away at their incomes. Rapid price changes lead to economic inefficiency.
Macroeconomic policy has increasingly emphasized price stability as a key goal. In the United States the overall rate of inflation has fallen from more than 10 percent per year in the late 1970s to around 3 percent per year in the 1990s. Some countries today have not succeeded in containing inflation, however. Formerly socialist countries like Russia and many Latin American and developing countries experienced inflation rates of 50, 100, or 1000 percent per year in the 1980s and early 1990s. Why was the United States able to keep the inflationary tiger in the cage, while Russia failed to do so? Macroeconomics can suggest the proper role of monetary and fiscal policies, of exchange-rate systems, and of an independent central bank in containing inflation.

3. **How can a nation increase its rate of economic growth?**

   Above all, macroeconomics is concerned with economic growth, which refers to the growth in the productive potential of an economy. An economy’s productive potential is the central factor in determining the growth in its real wages and living standards. After World War II, rapid economic growth in Asian countries such as Japan, South Korea, and Taiwan produced dramatic gains in living standards for their peoples. A few countries, particularly those of sub-Saharan Africa, have suffered declining per capita output and living standards over the last two decades. Nations want to know the ingredients in a successful growth recipe. Among the key factors in rapid economic growth are the predominance of free markets, high rates of saving and investment, an outwardly oriented trade policy, and an honest government with strong property rights.

   All economies face inevitable trade-offs among these goals. Increasing the rate of growth of output over the long run may require greater investment in education and capital, but higher investment requires lower current consumption of items like food, clothing, and recreation. Additionally, policymakers are sometimes forced to rein in the economy through macroeconomic policies when it grows too fast, or when unemployment falls too low, in order to prevent rising inflation.

   There are no simple formulas for resolving these dilemmas, and macroeconomists often differ on the proper approach to take when confronted with high inflation, rising unemployment, or slow growth. But with sound macroeconomic understanding, the inevitable pain that comes from choosing the best route can be minimized.
OBJECTIVES AND INSTRUMENTS OF MACROECONOMICS

Having surveyed the principal issues of macroeconomics, we now turn to a discussion of the major goals and instruments of macroeconomic policy. How do economists evaluate the success of an economy’s overall performance? What are the tools that governments can use to pursue their economic goals? Table 4-1 lists the major objectives and instruments of macroeconomic policy.

Measuring Economic Success

The major macroeconomic goals are a high level and rapid growth of output, low unemployment, and stable prices. We will use this section both to define the major macroeconomic terms and to discuss their importance. A more detailed treatment of the data of macroeconomics is postponed to the next chapter. Some key data are provided in the appendix to this chapter.

Output. The ultimate objective of economic activity is to provide the goods and services that the population desires. What could be more important for an economy than to produce ample shelter, food, education, and recreation for its people?

The most comprehensive measure of the total output in an economy is the gross domestic product (GDP). GDP is the measure of the market value of all final goods and services—beer, cars, rock concerts, donkey rides, health care, and so on—produced in a country during a year. There are two ways to measure GDP. Nominal GDP is measured in actual market prices. Real GDP is calculated in constant or invariant prices (where we measure the number of cars times the prices of cars in a given year such as 1996).

Real GDP is the most closely watched measure of output; it serves as the carefully monitored pulse of a nation’s economy. Figure 4-1 shows the history of real GDP in the United States since 1929. Note the economic decline during the Great Depression of the 1930s, the boom during World War II, the recessions in 1975 and 1982, and the steady growth in the long expansion from 1992 to 2000.

Despite the short-term fluctuations seen in business cycles, advanced economies generally exhibit a steady long-term growth in real GDP and an improvement in living standards; this process is known as economic growth. The American economy has proved itself a powerful engine of progress over a period of more than a century, as shown by the growth in potential output.

Potential GDP represents the maximum amount the economy can produce while maintaining price stability. Potential output is also sometimes called the high-employment level of output. When an economy is operating at its potential, unemployment is low and production is high.

Potential output is determined by the economy’s productive capacity, which depends upon the inputs available (capital, labor, land, etc.) and the economy’s technological efficiency. Potential GDP tends to grow slowly and steadily because inputs like labor

<table>
<thead>
<tr>
<th>Objectives</th>
<th>Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output: High level and rapid growth of output</td>
<td>Monetary policy:</td>
</tr>
<tr>
<td>Employment: High level of employment with low</td>
<td>Controlling the money supply</td>
</tr>
<tr>
<td>involuntary unemployment</td>
<td>to determine interest rates</td>
</tr>
<tr>
<td>Price-level stability</td>
<td>Fiscal policy:</td>
</tr>
<tr>
<td></td>
<td>Government expenditure</td>
</tr>
<tr>
<td></td>
<td>Taxation</td>
</tr>
</tbody>
</table>

TABLE 4-1. Goals and Instruments of Macroeconomic Policy

The left-hand column displays the major goals of macroeconomic policy. The right-hand column contains the major instruments or policy measures available to modern economies. These are the ways that policymakers can affect the pace and direction of economic activity.
and capital and the level of technology change quite slowly over time. By contrast, actual GDP is subject to large business-cycle swings if spending patterns change sharply. Economic policies (like monetary and fiscal policy) can affect actual output quickly, but the impact of policies on potential output trends operates slowly over a number of years.

During business downturns, actual GDP is below its potential and unemployment rises. In 1982, for example, the U.S. economy produced more than $400 billion less than potential output. This represented $6000 lost per family during a single year. Economic downturns are called recessions when real output declines for a year or two. A severe and protracted downturn is called a depression. Output can be temporarily above potential output during booms and wartime as capacity limits are strained, but the high utilization rates bring rising inflation and are usually brought to an end by monetary or fiscal policy.

Figure 4-2 shows the estimated potential and actual output for the period 1930–1999. Note how large the gap between actual and potential output was during the Great Depression of the 1930s.

**High Employment, Low Unemployment.** Of all the macroeconomic indicators, employment and unemployment are most directly felt by individuals. People want to be able to get high-paying jobs without searching or waiting too long, and they want to have job security and good benefits. In macroeconomic terms, these are the objectives of high employment, which is the counterpart of low unemployment. Figure 4-3 shows trends in unemployment over the last six decades. The unemployment rate on the vertical axis is the percentage of the labor force that is unemployed. The labor force includes all employed persons and those unemployed individuals who are seeking jobs. It excludes those without work who are not looking for jobs.
The rate of inflation denotes the rate of growth or decline of the price level from one year to the next. Figure 4-4 on page 74 illustrates the rate of inflation for the CPI from 1930 to 1999. Over this entire period, inflation averaged 3.3 percent per year. Note the large gap between actual and potential output during the Great Depression of the 1930s. (Source: U.S. Department of Commerce and authors’ estimates. Note that actual GDP is directly estimated from underlying data while potential output is an analytical concept derived from actual GDP and unemployment data.)

The unemployment rate tends to reflect the state of the business cycle: when output is falling, the demand for labor falls and the unemployment rate rises. Unemployment reached epidemic proportions in the Great Depression of the 1930s, when as much as one-quarter of the workforce was idled. Since World War II, unemployment in the United States has fluctuated but has avoided the high rates associated with depressions and the low levels that would trigger great inflations.

Stable Prices. The third macroeconomic objective is to maintain stable prices. What exactly do economists look at when they talk about “the overall price level?” The most common price measure is the consumer price index, known as the CPI. The CPI measures the cost of a basket of goods (including items such as food, shelter, clothing, and medical care) bought by the average urban consumer. The overall price level is often denoted by the letter $P$.

The rate of inflation denotes the rate of growth or decline of the price level from one year to the next. Figure 4-4 on page 74 illustrates the rate of inflation for the CPI from 1930 to 1999. Over this entire period, inflation averaged 3.3 percent per year. Note that price changes fluctuated greatly over the years, varying from minus 10 percent in 1932 to 14 percent in 1947.

A deflation occurs when prices decline (which means that the rate of inflation is negative). At the

\[
\text{Rate of inflation, } 1999 = \frac{\text{CPI (this year) } - \text{CPI (last year)}}{\text{CPI (last year)}} \times 100
\]

For example, if $P$ in 1998 was 200 while $P$ in 1999 was 206, the rate of inflation in 1999 would be calculated as

\[
\text{Rate of inflation, } 1999 = \frac{206 - 200}{200} \times 100 = 3\%
\]
other extreme is a hyperinflation, a rise in the price level of a thousand or a million percent a year. In such situations, as in Weimar Germany in the 1920s, Brazil in the 1980s, or Russia in the 1990s, prices are virtually meaningless and the price system breaks down.

Price stability is important because a smoothly functioning market system requires that prices accurately and easily convey information about relative scarcities. History has shown that high inflation imposes many costs—some visible and some hidden—on an economy. With high inflation, taxes become highly variable, the real values of people’s pensions are eroded, and people spend real resources to avoid depressing rubles or pesos. But declining prices or deflation is also costly. Hence, most nations seek the golden mean of stable or slowly rising prices as the best way of encouraging the price system to function efficiently.

To summarize:

The goals of macroeconomic policy are:
1. A high and growing level of national output
2. High employment with low unemployment
3. A stable or gently rising price level

The Tools of Macroeconomic Policy
Put yourself in the shoes of the chief economist advising the government. Unemployment is rising and GDP is falling. Or perhaps productivity growth has declined, and you wish to increase potential output growth. Or your country has a balance-of-payments crisis, with a large trade deficit and an attack on the currency. What policies will help reduce inflation or unemployment, speed economic growth, or correct a trade imbalance?
Governments have certain instruments that they can use to affect macroeconomic activity. A policy instrument is an economic variable under the control of government that can affect one or more of the macroeconomic goals. By changing monetary, fiscal, and other policies, governments can avoid the worst excesses of the business cycle or increase the growth rate of potential output. The two major instruments of macroeconomic policy are listed on the right side of Table 4-1.

**Fiscal Policy.** Fiscal policy denotes the use of taxes and government expenditures. Government expenditures come in two distinct forms. First there are government purchases. These comprise spending on goods and services—purchases of tanks, construction of roads, salaries for judges, and so forth. In addition, there are government transfer payments, which boost the incomes of targeted groups such as the elderly or the unemployed. Government spending determines the relative size of the public and private sectors, that is, how much of our GDP is consumed collectively rather than privately. From a macroeconomic perspective, government expenditures also affect the overall level of spending in the economy and thereby influence the level of GDP.

The other part of fiscal policy, taxation, affects the overall economy in two ways. To begin with, taxes affect people’s incomes. By leaving households with more or less disposable or spendable income, taxes tend to affect the amount people spend on goods and services as well as the amount of private saving. Private consumption and saving have important effects on investment and output in the short and long run.

The rate of inflation measures the rate of change of prices from one year to the next; here we see the rate of inflation as measured by the consumer price index (CPI). Since World War II, prices have mainly moved upward, particularly after the oil shocks of 1973 and 1979. Since 1984, the United States has enjoyed low inflation. (Source: U.S. Department of Labor.)
In addition, taxes affect the prices of goods and factors of production and thereby affect incentives and behavior. For example, from 1962 until 1986, the United States employed an investment tax credit, which was a rebate to businesses that bought capital goods, as a way of stimulating investment and boosting economic growth. Many provisions of the tax code have an important impact on economic activity through their effect on the incentives to work and to save.

Monetary Policy. The second major instrument of macroeconomic policy is monetary policy, which the government conducts through managing the nation’s money, credit, and banking system. You may have read how our central bank, the Federal Reserve System, operates to regulate the money supply. But what exactly is the money supply? Money consists of the means of exchange or method of payment. Today, people use currency and checking accounts to pay their bills. By engaging in central-bank operations, the Federal Reserve can regulate the amount of money available to the economy.

How does such a minor thing as the money supply have such a large impact on macroeconomic activity? By changing the money supply, the Federal Reserve can influence many financial and economic variables, such as interest rates, stock prices, housing prices, and foreign exchange rates. Restricting the money supply leads to higher interest rates and reduced investment, which, in turn, causes a decline in GDP and lower inflation. If the central bank is faced with a business downturn, it can increase the money supply and lower interest rates to stimulate economic activity.

The exact nature of monetary policy is one of the most important areas of macroeconomics. A policy of “tight money” in the United States raised interest rates, slowed economic growth, and raised unemployment in the period 1979–1982. Then, from 1982 until 2000, careful monetary management by the Federal Reserve supported the longest economic expansion in American history. Over the last decade, monetary policy has become the major weapon used by the U.S. government to fight the business cycle. Exactly how a central bank can control economic activity will be thoroughly analyzed in the chapters on monetary policy.

A nation has a wide variety of policy instruments that can be used to pursue its macroeconomic goals. The major ones are these:

1. Fiscal policy consists of government expenditure and taxation. Government expenditure influences the relative size of collective as opposed to private consumption. Taxation subtracts from incomes, reduces private spending, and affects private saving. In addition, it affects investment and potential output. Fiscal policy is primarily employed today to affect long-term economic
As economies become more closely linked, policymakers devote increasing attention to international economic policy. International trade is not an end in itself. Rather, nations are properly concerned about international trade because trade serves the ultimate goal of improving living standards. The major areas of concern are trade policies and international financial management.

Trade policies consist of tariffs, quotas, and other regulations that restrict or encourage imports and exports. Most trade policies have little effect on macroeconomic performance, but from time to time, as was the case in the 1930s, restrictions on international trade are so severe that they cause major economic dislocations, inflations, or recessions.

A second set of policies is international financial management. A country’s international trade is influenced by its foreign exchange rate, which represents the price of its own currency in terms of the currencies of other nations. As part of their monetary policies, nations adopt different systems to regulate their foreign exchange markets. Particularly in small open economies, managing the exchange rate is the single most important macroeconomic policy.

The international economy is an intricate web of trading and financial connections among countries. When the international economic system runs smoothly, it contributes to rapid economic growth; when trading systems break down, production and incomes suffer throughout the world. Countries therefore consider the impacts of trade policies and international financial policies on their domestic objectives of output, employment, and price stability.

B. AGGREGATE SUPPLY AND DEMAND

The economic history of nations can be seen in their macroeconomic performance. Economists have developed aggregate supply-and-demand analysis to help explain the major trends in output and prices. We begin by explaining this important tool of macroeconomics and then use it to understand some important historical events.
INSIDE THE MACROECONOMY: AGGREGATE SUPPLY AND DEMAND

Definitions of Aggregate Supply and Demand

How do different forces interact to determine overall economic activity? Figure 4-5 shows the relationships among the different variables inside the macroeconomy. It separates variables into two categories: those affecting aggregate supply and those affecting aggregate demand. Dividing variables into these two categories helps us understand what determines the levels of output, prices, and unemployment.

The lower part of Figure 4-5 shows the forces affecting aggregate supply. Aggregate supply refers to the total quantity of goods and services that the nation’s businesses willingly produce and sell in a given period. Aggregate supply (often written AS) depends

FIGURE 4-5. Aggregate Supply and Demand Determine the Major Macroeconomic Variables

This key diagram shows the major factors affecting overall economic activity. On the left are the major variables determining aggregate supply and demand; these include policy variables, like monetary and fiscal policies, along with stocks of capital and labor. In the center, aggregate supply and demand interact as the level of demand beats upon the available resources. The chief outcomes are shown on the right in hexagons: output, employment, the price level, and international trade.
can also help us understand how monetary policy or technological change acts through aggregate supply and demand to determine national output and the price level.

Figure 4-6 shows the aggregate supply and demand schedules for the output of an entire economy. On the horizontal, or quantity, axis is the total output (real GDP) of the economy. On the vertical axis is the overall price level (say, as measured by the consumer price index). We use the symbol \( Q \) for real output and \( P \) for the price level.

The downward-sloping curve is the aggregate demand schedule, or \( AD \) curve. It represents what everyone in the economy—consumers, businesses, foreigners, and governments—would buy at different aggregate price levels (with other factors affecting aggregate demand held constant). From the curve, we see that at an overall price level of 150, total spending would be $3000 billion (per year). If the

CHAPTER 4  * OVERVIEW OF MACROECONOMICS

upon the price level, the productive capacity of the economy, and the level of costs.

In general, businesses would like to sell everything they can produce at high prices. Under some circumstances, prices and spending levels may be depressed, so businesses might find they have excess capacity. Under other conditions, such as during a wartime boom, factories may be operating at capacity as businesses scramble to produce enough to meet all their orders.

We see, then, that aggregate supply depends on the price level that businesses can charge as well as on the economy’s capacity or potential output. Potential output in turn is determined by the availability of productive inputs (labor and capital being the most important) and the managerial and technical efficiency with which those inputs are combined.

National output and the overall price level are determined by the twin blades of the scissors of aggregate supply and demand. The second blade is aggregate demand, which refers to the total amount that different sectors in the economy willingly spend in a given period. Aggregate demand (often written \( AD \)) is the sum of spending by consumers, businesses, and governments, and it depends on the level of prices, as well as on monetary policy, fiscal policy, and other factors.

The components of aggregate demand include the cars, food, and other consumption goods bought by consumers; the factories and equipment bought by businesses; the missiles and computers bought by government; and net exports. The total purchases are affected by the prices at which the goods are offered, by exogenous forces like wars and weather, and by government policies.

Using both blades of the scissors of aggregate supply and demand, we achieve the resulting equilibrium, as is shown in the right-hand circle of Figure 4-5. National output and the price level settle at that level where demanders willingly buy what businesses willingly sell. The resulting output and price level determine employment, unemployment, and international trade.

**Aggregate Supply and Demand Curves**

Aggregate supply and demand curves are often used to help analyze macroeconomic conditions. Recall that in Chapter 3 we used market supply and demand curves to analyze the prices and quantities of individual products. An analogous graphical apparatus can also help us understand how monetary policy or technological change acts through aggregate supply and demand to determine national output and the price level.

The \( AD \) curve represents the quantity of total spending at different price levels, with other factors held constant. The \( AS \) curve shows what firms will produce and sell at different price levels, other things equal.

National output and the overall price level are determined at the intersection of the aggregate demand and supply curves, at point \( E \). This equilibrium occurs at an overall price level where firms willingly produce and sell what consumers and other demanders willingly buy.
How does the economy reach its equilibrium? Indeed, what do we mean by equilibrium? A macroeconomic equilibrium is a combination of overall price and quantity at which all buyers and sellers are satisfied with their purchases, sales, and prices. Figure 4-6 illustrates the concept. If the price level were higher than equilibrium, say, at \( P = 200 \), businesses would want to sell more than purchasers would want to buy; businesses would desire to sell quantity \( C \), while buyers would want to purchase only amount \( B \). Goods would pile up on the shelves as firms produced more than consumers bought. Eventually, firms would cut production and begin to shave their prices. As the price level declined from its original too high level of 200, the gap between desired spending and desired sales would narrow until the equilibrium at \( P = 150 \) and \( Q = 3000 \) was reached. Once the equilibrium is reached, neither buyers nor sellers wish to change their quantities demanded or supplied, and there is no pressure on the price level to change.

MACROECONOMIC HISTORY: 1900–1999

We can use the aggregate supply-and-demand apparatus to analyze some of the major macroeconomic events of twentieth-century American history. We focus on the economic expansion during the Vietnam war, the stagflation caused by the supply shocks of the 1970s, the deep recession caused by the monetary contraction of the early 1980s, and the phenomenal record of economic growth for that century. For recent data on major macroeconomic variables, see this chapter’s appendix.

Wartime Boom. The American economy entered the 1960s having experienced numerous recessions. John Kennedy took over the presidency hoping to resuscitate the economy. This was the era when the “New Economics,” as the Keynesian approach was called, came to Washington. Economic advisers to Presidents Kennedy and Johnson recommended expansionary policies, and Congress enacted measures to stimulate the economy, including sharp cuts in personal and corporate taxes in 1963 and 1964. GDP grew 4 percent annually during the early 1960s, unemployment declined,
and prices were stable. By 1965, the economy was at its potential output.

Unfortunately, the government underestimated the magnitude of the buildup for the Vietnam war; defense spending grew by 55 percent from 1965 to 1968. Even when it became clear that a major inflationary boom was under way, President Johnson postponed painful fiscal steps to slow the economy. Tax increases and civilian expenditure cuts came only in 1968, which was too late to prevent inflationary pressures from overheating the economy. The Federal Reserve accommodated the expansion with rapid money growth and low interest rates. As a result, the economy grew very rapidly over the period 1966–1970. Under the pressure of low unemployment and high factory utilization, inflation began to rise, inaugurating the “age of inflation” that lasted from 1966 through 1981.

Figure 4-7 illustrates the events of this period. The tax cuts and defense expenditures increased aggregate demand, shifting the aggregate demand curve to the right from \( AD \) to \( AD' \), with the equilibrium shifting from \( E \) to \( E' \). Output and employment rose sharply, and prices began to accelerate as output exceeded capacity limits. Economists learned that it was easier to stimulate the economy than to persuade policymakers to raise taxes to slow the economy when inflation threatened. This lesson led many to question the wisdom of using fiscal policies to stabilize the economy.

**Supply Shocks and Stagflation.** During the 1970s, the industrial world was struck by a new macroeconomic malady, supply shocks. A supply shock is a sudden change in input costs or productivity which shifts aggregate supply sharply. Supply shocks occurred with particular virulence in 1973. Called the “year of the seven plagues,” 1973 was marked by crop failures, shifting ocean currents, massive speculation on world commodity markets, turmoil in foreign exchange markets, and a Mideast war that led to quadrupling of the world price of crude oil.

This jolt to crude-material and fuel supplies raised wholesale prices dramatically. The prices of crude materials and fuels rose more from 1972 to 1973 than they had in the entire period from the end of World War II to 1972. Shortly after the supply shock, inflation mounted sharply, and real output fell as the United States experienced a period of stagflation.

How can we understand the combination of falling output and rising prices? This large, unexpected rise in the cost of raw materials constituted a supply shock, which we portray as an upward shift in the aggregate supply curve. An upward shift in \( AS \) indicates that businesses will supply the same level of output only at substantially higher prices. Figure 4-8 illustrates such a supply shift.

Supply shocks produce higher prices, followed by a decline in output and an increase in unemployment. Supply shocks thus lead to a deterioration of all the major goals of macroeconomic policy.

**Tight Money, 1979–1982.** By 1979 the economy had recovered from the 1973 supply shock. Output had returned to its potential. But unrest in the Middle East led to another oil shock as the Iranian revolution produced a jump in oil prices from $14 per barrel in early 1978 to $34 per barrel in 1979. Inflation increased dramatically—averaging 12 percent per year from 1978 to 1980.

Double-digit inflation was unacceptable. In response, the Federal Reserve, under the leadership of
economist Paul Volcker, prescribed the strong medicine of tight money to slow the inflation. Interest rates rose sharply in 1979 and 1980, the stock market fell, and credit was hard to find. The Fed’s tight-money policy slowed spending by consumers and businesses. Particularly hard-hit were interest-sensitive components of aggregate demand. After 1979, housing construction, automobile purchases, business investment, and net exports declined sharply.

We can picture how tight money raised interest rates and reduced aggregate demand in Figure 4-7 simply by reversing the arrow. That is, tight monetary policy reduced spending and produced a leftward and downward shift of the aggregate demand curve—exactly the opposite of the effect of the defense buildup during the 1960s. The decrease in aggregate demand reduced output almost 10 percent below its potential by the end of 1982, and the unemployment rate rose from below 6 percent in 1979 to more than 10 percent at the end of 1982.

The reward for these austere measures was a dramatic decline in inflation, from an average of 12 percent per year in the 1978–1980 period to 4 percent during the period from 1983 to 1988. Tight monetary policies succeeded in bringing to an end the age of inflation, but the nation paid for this achievement through higher unemployment and lower output during the period of tight money.

The tough monetary policies of the 1980s set the stage for the long economic expansion from 1982 through 2000. This period, marked by a single mild recession in 1990–1991, proved to be the period of the greatest macroeconomic stability in American history. Real GDP grew at an average rate of 3 percent annually, with price inflation averaging slightly above 3½ percent. By the late 1990s, many of those in the workforce had never experienced a severe business cycle or inflationary episode, and some were proclaiming naively that the business cycle was abolished in this “new era” economy.

**The Growth Century.** The final act in our macroeconomic drama concerns the growth of output and prices over the entire period since 1900. Output has grown by a factor of almost 20 since the turn of the century. How can we explain this phenomenal increase?

A careful look at American economic growth reveals that the growth rate during this century has averaged 3½ percent per year. Part of this growth was due to growth in the scale of production as inputs of capital, labor, and even land grew sharply over this period. Just as important were improvements in efficiency due to new products (such as automobiles) and new processes (such as electronic computing). Other, less visible factors also contributed to economic growth, such as improved management techniques and improved services (including such innovations as the assembly line and overnight delivery). Many economists believe that the measured growth understates true growth because our official statistics tend to miss the contribution to living standards from new products and improvements in product quality. For example, with the introduction of the indoor toilet, millions of people no longer had to struggle through the winter snows to relieve themselves in outhouses, yet this increased comfort never showed up in measured gross domestic product.

How can we picture the tremendous rise in output in our AS - AD apparatus? Figure 4-9 shows the
CHAPTER 4  * OVERVIEW OF MACROECONOMICS

FIGURE 4-9. Growth in Potential Output Determines Long-Run Economic Performance

Over this century, increases in labor, capital, and efficiency have led to a vast increase in the economy’s productive potential, shifting aggregate supply far to the right. In the long run, aggregate supply is the primary determinant of output growth.

The increase in inputs and improvements in efficiency led to a massive rightward shift of the AS curve from $AS_{1900}$ to $AS_{1999}$. There was also a sharp increase in the cost of production, as average hourly earnings rose from $0.10$ per hour to $13.20$ per hour, so the $AS$ curve also shifted upward. The overall effect, then, was the increase in both output and prices shown in Figure 4-9.

The Role of Economic Policy

How does macroeconomic policy fit into the picture? Even though the economic environment in the United States was favorable in the 1990s, there were still heated debates about macroeconomic policies. A major debate in the United States surrounded the large projected budget surplus. Democrats wanted to devote the funds to social security and health care, in effect keeping the funds for federal programs. Republicans favored cutting taxes and expenditures and reducing the size of the federal government.

How can macroeconomics contribute to resolving this debate? Economists can provide no scientific answer on the correct use of the budget surplus because it involves normative issues of social and political values. But macroeconomists can analyze positive questions of macroeconomic impacts. Macroeconomists estimate the impact of cutting tax rates on tax revenues and the budget deficit; they attempt to determine the extent to which setting aside funds for future retirement programs will affect national saving and investment; and they help weigh the relative advantages of investing in people versus building new factories. While answers to these macroeconomic questions cannot resolve all the issues, the study of macroeconomics arms us for the great debate.

SUMMARY

A. Key Concepts of Macroeconomics

1. Macroeconomics is the study of the behavior of the entire economy; it analyzes long-run growth as well as the cyclical movements in total output, unemployment and inflation, the money supply and the budget deficit, and international trade and finance. This contrasts with microeconomics, which studies the behavior of individual markets, prices, and outputs.

2. The United States proclaimed its macroeconomic goals in the Employment Act of 1946, which declared that federal policy was “to promote maximum employment, production, and purchasing power.” Since then, the nation’s priorities among these three goals have shifted. But all market economies still face three central macroeconomic questions: (a) Why do output and employment sometimes fall, and how can unemployment be reduced? (b) What are the sources of price inflation, and how can it be kept under control? (c) How can a nation increase its rate of economic growth?

3. In addition to these perplexing questions is the hard fact that there are inevitable conflicts or trade-offs among these goals: rapid growth in future living standards may mean reducing consumption today, and curbing inflation may involve a temporary period of high unemployment.

4. Economists evaluate the success of an economy’s overall performance by how well it attains these objectives: (a) high levels and rapid growth of output and con-
suumption [output is usually measured by the gross domestic product (GDP), which is the total value of all final goods and services produced in a given year; also, GDP should be close to potential GDP, the maximum sustainable or high-employment level of output]; (b) low unemployment rate and high employment, with an ample supply of good jobs; (c) price-level stability (or low inflation).

5. Before the science of macroeconomics was developed, countries tended to drift around in the shifting macroeconomic currents without a rudder. Today, there are numerous instruments with which governments can steer the economy: (a) Fiscal policy (government spending and taxation) helps determine the allocation of resources between private and collective goods, affects people's incomes and consumption, and provides incentives for investment and other economic decisions. (b) Monetary policy (particularly central-bank regulation of the money supply to influence interest rates and credit conditions) affects sectors in the economy that are interest-sensitive. The most affected sectors are housing, business investment, and net exports.

6. The nation is but a small part of an increasingly integrated global economy in which countries are linked together through trade of goods and services and through financial flows. A smoothly running international economic system contributes to rapid economic growth, but the international economy can throw sand in the engine of growth when trade flows are interrupted or the international financial mechanism breaks down. Dealing with international trade and finance is high on the agenda of all countries.

B. Aggregate Supply and Demand

7. The central concepts for understanding the determination of national output and the price level are aggregate supply (AS) and aggregate demand (AD). Aggregate demand consists of the total spending in an economy by households, businesses, governments, and foreigners. It represents the total output that would be willingly bought at each price level, given the monetary and fiscal policies and other factors affecting demand. Aggregate supply describes how much output businesses would willingly produce and sell given prices, costs, and market conditions.

8. AS and AD curves have the same shapes as the familiar supply and demand curves analyzed in microeconomics. The downward-sloping AD curve shows the amount that consumers, firms, and other purchasers would buy at each level of prices, with other factors held constant. The AS curve depicts the amount that businesses would willingly produce and sell at each price level, other things held constant. (But beware of potential confusions of microeconomic and aggregate supply and demand.)

9. The overall macroeconomic equilibrium, determining both aggregate price and output, comes where the AS and AD curves intersect. At the equilibrium price level, purchasers willingly buy what businesses willingly sell. Equilibrium output can depart from full employment or potential output.

10. Recent American history shows an irregular cycle of aggregate demand and supply shocks and policy reactions. In the mid-1960s, war-bloated deficits plus easy money led to a rapid increase in aggregate demand. The result was a sharp upturn in prices and inflation. In 1973 and again in 1979, adverse supply shocks led to an upward shift in aggregate supply. This led to stagflation, with a simultaneous rise in unemployment and inflation. At the end of the 1970s, economic policymakers reacted to the rising inflation by tightening monetary policy and raising interest rates. The result lowered spending on interest-sensitive demands such as housing, investment, and net exports. The period of austerity in the early 1980s ushered in a long period of macroeconomic stability.

11. Over the long run of the twentieth century, the growth of potential output has increased aggregate supply enormously and led to continual growth in output and living standards.

**CONCEPTS FOR REVIEW**

### Major Macroeconomic Concepts
- macroeconomics vs. microeconomics
- gross domestic product (GDP), actual and potential employment, unemployment, unemployment rate
- inflation, deflation
- consumer price index (CPI)
- net exports
- fiscal policy (government expenditures, taxation)
- money, monetary policy

### Aggregate Supply and Demand
- aggregate supply, aggregate demand
- AS curve, AD curve
- equilibrium of AS and AD
- sources of long-run economic growth
- three macroeconomic shocks
Further Reading

The great classic of macroeconomics is John Maynard Keynes, *The General Theory of Employment, Interest, and Money* (Harcourt, New York, first published in 1935). Keynes was one of the most graceful writers among economists.


Websites

Macroeconomic issues are a central theme of analysis in *Economic Report of the President* at w3.access.gpo.gov/eop.

Questions for Discussion

1. What are the major objectives of macroeconomics? Write a brief definition of each of these objectives. Explain carefully why each objective is important.
2. Using the data from the appendix to this chapter, calculate the following:
   a. The inflation rate in 1981 and 1999
   b. The growth rate of real GDP in 1982 and 1984
   c. The average inflation rate from 1970 to 1980 and from 1990 to 1999
   d. The average growth rate of real GDP from 1970 to 1999
3. What would be the effect of each of the following on aggregate demand or on aggregate supply, as indicated (always holding other things constant)?
   a. A large oil-price increase (on AS)
   b. An arms-reduction agreement reducing defense spending (on AD)
   c. An increase in potential output (on AS)
   d. A monetary loosening that lowers interest rates (on AD)
4. For each of the events listed in question 3, use the AS–AD apparatus to show the effect on output and on the overall price level.
5. Put yourself in the shoes of an economic policymaker. The economy is in equilibrium with $P = 100$ and $Q = 3000 = \text{potential GDP}$. You refuse to “accommodate” inflation; that is, you want to keep prices absolutely stable at $P = 100$, no matter what happens to output. You can use monetary and fiscal policies to affect aggregate demand, but you cannot affect aggregate supply in the short run. How would you respond to:
   a. A surprise increase in investment spending
   b. A sharp food-price increase following catastrophic floods of the Mississippi River
   c. A productivity decline that reduces potential output
   d. A sharp decrease in net exports that followed a deep depression in East Asia
   a. Explain why this policy would tend to increase aggregate demand. Show the impact on output and prices assuming only an AD shift.
   b. The supply-side school holds that tax cuts would affect aggregate supply mainly by increasing potential output. Assuming that the Reagan fiscal measures affected AS as well as AD, show the impact on output and the price level. Explain why the impact of the Reagan fiscal policies on output is unambiguous while the impact on prices is unclear.
7. The Clinton economic package as passed by Congress in 1993 had the effect of tightening fiscal policy by raising taxes and lowering spending. Show the effect of this policy (a) assuming that there is no counteracting monetary policy and (b) assuming that monetary policy completely neutralized the impact on GDP and that the lower deficit leads to higher investment and higher growth of potential output.
8. The last major business downturn in the United States occurred in the early 1980s. Consider the data on real GDP and the price level in Table 4-2.

a. For the years 1981 to 1985, calculate the rate of growth of real GDP and the rate of inflation. Can you determine in which year there was a steep business downturn or recession?

b. In an AS-AD diagram like Figure 4-6 (page 78), draw a set of AS and AD curves that trace out the price and output equilibria shown in the table. How would you explain the recession that you have identified?

### Table 4-2.

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP ($, billion, 1996 prices)</th>
<th>Price level* (1996 = 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>4,872</td>
<td>57.4</td>
</tr>
<tr>
<td>1981</td>
<td>4,994</td>
<td>62.7</td>
</tr>
<tr>
<td>1982</td>
<td>4,900</td>
<td>66.5</td>
</tr>
<tr>
<td>1983</td>
<td>5,106</td>
<td>69.2</td>
</tr>
<tr>
<td>1984</td>
<td>5,477</td>
<td>71.8</td>
</tr>
<tr>
<td>1985</td>
<td>5,690</td>
<td>74.0</td>
</tr>
</tbody>
</table>

*Note that the price index shown is the price index for GDP, which measures the price trend for all components of GDP. (Source: Economic Report of the President, 2000.)
Table 4A-1 contains some of the major macroeconomic data discussed in this chapter. Major data can be obtained through government websites at www.fedstats.gov or www.whitehouse.gov/fsbr/esbr.html.

### Appendix 4

#### MACROECONOMIC DATA

<table>
<thead>
<tr>
<th>Year</th>
<th>1996 prices ($, billion)</th>
<th>Current prices ($, billion)</th>
<th>Unemployment rate %</th>
<th>CPI 1982–84 = 100</th>
<th>Inflation rate (CPI) % per year</th>
<th>Federal surplus (+) or deficit (–) ($, billion)</th>
<th>Net exports ($, billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929</td>
<td>822.2</td>
<td>103.7</td>
<td>3.2</td>
<td>17.1</td>
<td>na</td>
<td>na</td>
<td>0.3</td>
</tr>
<tr>
<td>1933</td>
<td>603.3</td>
<td>56.4</td>
<td>24.9</td>
<td>12.9</td>
<td>–5.1</td>
<td>na</td>
<td>0.1</td>
</tr>
<tr>
<td>1939</td>
<td>903.5</td>
<td>92.0</td>
<td>17.2</td>
<td>13.9</td>
<td>–1.4</td>
<td>na</td>
<td>0.8</td>
</tr>
<tr>
<td>1945</td>
<td>1693.3</td>
<td>223.0</td>
<td>1.9</td>
<td>18.0</td>
<td>2.3</td>
<td>na</td>
<td>–0.8</td>
</tr>
<tr>
<td>1948</td>
<td>1560.0</td>
<td>269.6</td>
<td>3.8</td>
<td>24.0</td>
<td>7.8</td>
<td>4.3</td>
<td>5.4</td>
</tr>
<tr>
<td>1960</td>
<td>2376.7</td>
<td>527.4</td>
<td>5.5</td>
<td>29.6</td>
<td>1.5</td>
<td>7.4</td>
<td>2.5</td>
</tr>
<tr>
<td>1961</td>
<td>2432.0</td>
<td>545.7</td>
<td>6.7</td>
<td>29.9</td>
<td>1.1</td>
<td>2.9</td>
<td>3.3</td>
</tr>
<tr>
<td>1962</td>
<td>2578.9</td>
<td>586.5</td>
<td>5.6</td>
<td>30.3</td>
<td>1.2</td>
<td>2.8</td>
<td>2.4</td>
</tr>
<tr>
<td>1963</td>
<td>2690.4</td>
<td>618.7</td>
<td>5.6</td>
<td>30.6</td>
<td>1.3</td>
<td>5.4</td>
<td>3.3</td>
</tr>
<tr>
<td>1964</td>
<td>2846.5</td>
<td>664.4</td>
<td>5.2</td>
<td>31.0</td>
<td>1.3</td>
<td>0.9</td>
<td>5.5</td>
</tr>
<tr>
<td>1965</td>
<td>3028.5</td>
<td>720.1</td>
<td>4.5</td>
<td>31.5</td>
<td>1.6</td>
<td>3.4</td>
<td>3.9</td>
</tr>
<tr>
<td>1966</td>
<td>3227.5</td>
<td>789.3</td>
<td>3.8</td>
<td>32.5</td>
<td>3.0</td>
<td>–8.3</td>
<td>1.5</td>
</tr>
<tr>
<td>1967</td>
<td>3308.3</td>
<td>834.1</td>
<td>3.8</td>
<td>33.4</td>
<td>2.8</td>
<td>–2.8</td>
<td>–1.3</td>
</tr>
<tr>
<td>1968</td>
<td>3466.1</td>
<td>911.5</td>
<td>3.6</td>
<td>34.8</td>
<td>4.2</td>
<td>8.7</td>
<td>–1.2</td>
</tr>
<tr>
<td>1969</td>
<td>3571.4</td>
<td>985.3</td>
<td>3.5</td>
<td>36.7</td>
<td>5.4</td>
<td>–14.1</td>
<td>1.2</td>
</tr>
<tr>
<td>1970</td>
<td>3578.0</td>
<td>1039.7</td>
<td>5.0</td>
<td>38.8</td>
<td>5.9</td>
<td>–25.3</td>
<td>–3.0</td>
</tr>
<tr>
<td>1971</td>
<td>3697.7</td>
<td>1128.6</td>
<td>6.0</td>
<td>40.5</td>
<td>4.2</td>
<td>–20.6</td>
<td>–8.0</td>
</tr>
<tr>
<td>1972</td>
<td>3898.4</td>
<td>1240.4</td>
<td>5.6</td>
<td>41.8</td>
<td>3.3</td>
<td>–11.2</td>
<td>0.6</td>
</tr>
<tr>
<td>1973</td>
<td>4123.4</td>
<td>1385.5</td>
<td>4.9</td>
<td>44.4</td>
<td>6.3</td>
<td>–16.9</td>
<td>–5.2</td>
</tr>
<tr>
<td>1974</td>
<td>4099.0</td>
<td>1501.0</td>
<td>5.6</td>
<td>49.3</td>
<td>11.0</td>
<td>–73.9</td>
<td>13.6</td>
</tr>
<tr>
<td>1975</td>
<td>4084.4</td>
<td>1635.2</td>
<td>8.5</td>
<td>53.8</td>
<td>9.1</td>
<td>–57.2</td>
<td>–2.2</td>
</tr>
<tr>
<td>1976</td>
<td>4311.7</td>
<td>1823.9</td>
<td>7.7</td>
<td>56.9</td>
<td>5.8</td>
<td>–46.3</td>
<td>–23.6</td>
</tr>
<tr>
<td>1977</td>
<td>4511.8</td>
<td>2031.4</td>
<td>7.1</td>
<td>60.6</td>
<td>6.5</td>
<td>–31.7</td>
<td>–26.2</td>
</tr>
<tr>
<td>1978</td>
<td>4760.6</td>
<td>2295.9</td>
<td>6.1</td>
<td>65.2</td>
<td>7.6</td>
<td>–18.5</td>
<td>–24.0</td>
</tr>
<tr>
<td>1979</td>
<td>4912.1</td>
<td>2566.4</td>
<td>5.9</td>
<td>72.6</td>
<td>13.3</td>
<td>–61.0</td>
<td>–14.9</td>
</tr>
<tr>
<td>1980</td>
<td>4900.9</td>
<td>2795.6</td>
<td>7.2</td>
<td>82.4</td>
<td>13.5</td>
<td>–57.8</td>
<td>–15.0</td>
</tr>
<tr>
<td>1981</td>
<td>5021.0</td>
<td>3131.3</td>
<td>7.6</td>
<td>90.9</td>
<td>10.4</td>
<td>–134.7</td>
<td>–20.6</td>
</tr>
<tr>
<td>1982</td>
<td>4919.3</td>
<td>3259.2</td>
<td>9.7</td>
<td>96.5</td>
<td>6.2</td>
<td>–174.4</td>
<td>–51.6</td>
</tr>
<tr>
<td>1983</td>
<td>5132.3</td>
<td>3534.9</td>
<td>9.6</td>
<td>99.6</td>
<td>3.2</td>
<td>–156.0</td>
<td>–102.0</td>
</tr>
<tr>
<td>1984</td>
<td>5505.2</td>
<td>3932.7</td>
<td>7.5</td>
<td>103.9</td>
<td>4.4</td>
<td>–162.9</td>
<td>–114.2</td>
</tr>
<tr>
<td>1985</td>
<td>5717.1</td>
<td>4213.0</td>
<td>7.2</td>
<td>107.6</td>
<td>3.5</td>
<td>–177.5</td>
<td>–131.9</td>
</tr>
<tr>
<td>1986</td>
<td>5912.4</td>
<td>4452.9</td>
<td>7.0</td>
<td>109.7</td>
<td>1.9</td>
<td>–128.9</td>
<td>–142.3</td>
</tr>
<tr>
<td>1987</td>
<td>6113.3</td>
<td>4742.5</td>
<td>6.2</td>
<td>113.7</td>
<td>3.7</td>
<td>–121.3</td>
<td>–106.3</td>
</tr>
<tr>
<td>1988</td>
<td>6368.4</td>
<td>5108.3</td>
<td>5.5</td>
<td>118.4</td>
<td>4.1</td>
<td>–113.4</td>
<td>–80.7</td>
</tr>
<tr>
<td>1989</td>
<td>6591.8</td>
<td>5489.1</td>
<td>5.3</td>
<td>124.0</td>
<td>4.8</td>
<td>–113.4</td>
<td>–80.7</td>
</tr>
</tbody>
</table>
### TABLE 4A-1.

<table>
<thead>
<tr>
<th>Year</th>
<th>1996 prices ($, billion)</th>
<th>Current prices ($, billion)</th>
<th>Unemployment rate %</th>
<th>CPI 1982–84 = 100</th>
<th>Inflation rate (CPI) % per year</th>
<th>Federal surplus (+) or deficit (−) ($, billion)</th>
<th>Net exports ($, billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>6707.9</td>
<td>5803.2</td>
<td>5.6</td>
<td>130.8</td>
<td>5.4</td>
<td>−154.6</td>
<td>−71.4</td>
</tr>
<tr>
<td>1991</td>
<td>6676.4</td>
<td>5986.2</td>
<td>6.9</td>
<td>136.3</td>
<td>4.2</td>
<td>−196.0</td>
<td>−20.7</td>
</tr>
<tr>
<td>1992</td>
<td>6880.0</td>
<td>6318.9</td>
<td>7.5</td>
<td>140.4</td>
<td>3.0</td>
<td>−280.9</td>
<td>−27.8</td>
</tr>
<tr>
<td>1993</td>
<td>7062.6</td>
<td>6642.3</td>
<td>6.9</td>
<td>144.6</td>
<td>3.0</td>
<td>−250.7</td>
<td>−60.5</td>
</tr>
<tr>
<td>1994</td>
<td>7347.7</td>
<td>7054.3</td>
<td>6.1</td>
<td>148.3</td>
<td>2.6</td>
<td>−186.7</td>
<td>−87.0</td>
</tr>
<tr>
<td>1995</td>
<td>7543.8</td>
<td>7400.5</td>
<td>5.6</td>
<td>152.5</td>
<td>2.8</td>
<td>−174.4</td>
<td>−84.2</td>
</tr>
<tr>
<td>1996</td>
<td>7813.2</td>
<td>7813.2</td>
<td>5.4</td>
<td>157.0</td>
<td>2.9</td>
<td>−110.3</td>
<td>−88.9</td>
</tr>
<tr>
<td>1997</td>
<td>8144.8</td>
<td>8300.8</td>
<td>5.0</td>
<td>160.6</td>
<td>2.3</td>
<td>−21.0</td>
<td>−88.3</td>
</tr>
<tr>
<td>1998</td>
<td>8495.7</td>
<td>8759.9</td>
<td>4.5</td>
<td>163.0</td>
<td>1.5</td>
<td>65.7</td>
<td>−149.6</td>
</tr>
<tr>
<td>1999</td>
<td>8848.2</td>
<td>9256.1</td>
<td>4.2</td>
<td>166.6</td>
<td>2.2</td>
<td>145.0</td>
<td>−253.9</td>
</tr>
</tbody>
</table>

Source: U.S. Department of Commerce and Department of Labor.