

>> Fiscal Policy

A BRIDGE TO PROSPERITY?

In 1998 the Japanese government completed the longest suspension bridge in the world. The 6,500-foot span linking Awaji Island to the city of Kobe cost \$7.3 billion to build. Yet as skeptics had predicted, it currently carries very little traffic—about 4,000 cars a day. By comparison, America’s longest suspension bridge, the Verrazano Bridge that links New York City’s Staten Island to the borough of Brooklyn, carries more than 300,000 cars each day.

In Japan, stories like this are common. During the 1990s the Japanese government spent around \$1.4 trillion on infrastructure that included many construction projects of questionable usefulness. But the main purpose of construction spending in Japan wasn’t to provide useful infrastructure. It was to prop up aggregate demand.

During the 1990s, the Japanese government built bridges, roads, dams, breakwaters, and even parking garages in an effort to combat persistent shortfalls in aggregate demand. Japan’s use of government construction spending to stimulate its economy is an example of *discretionary fiscal policy*—the use of government spending or tax policy to manage aggregate demand. The U.S. government has also tried to spend its way out of economic slumps,

though on a smaller scale. Indeed, many countries attempt to manage aggregate demand by using discretionary fiscal policy. Governments also adjust taxes in an attempt to manage aggregate demand. They may reduce taxes to try to stimulate the economy or raise taxes when they believe that aggregate demand is too high.

In this chapter, we will learn how discretionary fiscal policy fits into the model of short-run fluctuations we developed in Chapter 10. We’ll see how deliberate changes in government spending and tax policy affect real GDP. We’ll also see how



The Akashi Kaikyo Bridge was built by the Japanese government in the 1990s to prop up aggregate demand.

the tax revenue caused by short-run fluctuations in GDP—an automatic response that occurs without deliberate changes in policy—helps stabilize the economy. Finally, we’ll examine long-run consequences of government debt and budget deficits.

What you will learn in this chapter:

- ▶ What **fiscal policy** is and why it is an important tool in managing economic fluctuations
- ▶ Which policies constitute an **expansionary fiscal policy** and which constitute a **contractionary fiscal policy**
- ▶ Why fiscal policy has a multiplier effect and how this effect is influenced by **automatic stabilizers**
- ▶ How to measure the government **budget balance** and how it is affected by economic fluctuations
- ▶ Why a large **public debt** may be a cause for concern
- ▶ Why **implicit liabilities** of the government are also a cause for concern

Fiscal Policy: The Basics

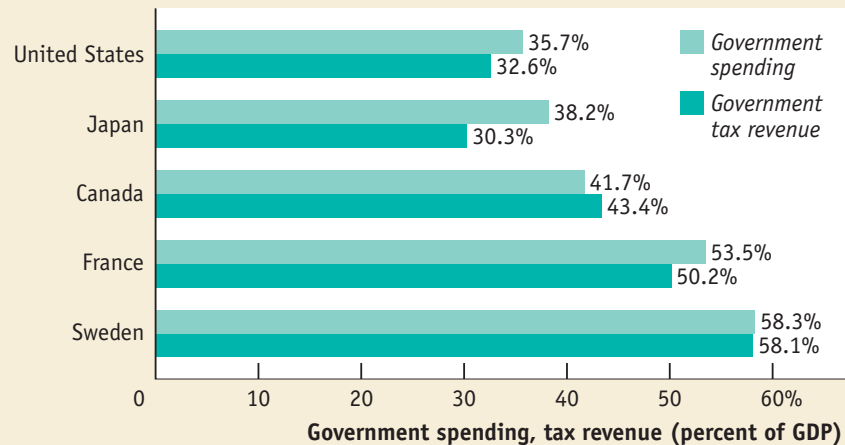
Let's begin with the obvious: modern governments spend a great deal of money and collect a lot in taxes. Figure 12-1 shows government spending and tax revenue as percentages of GDP for a selection of high-income countries. As you can see, the Swedish government sector is relatively large, representing nearly 60% of the Swedish economy.

Figure 12-1

Government Spending and Tax Revenue for Some High-Income Countries in 2003

Government spending and tax revenue are represented as a percentage of GDP. Sweden has a particularly large government sector, representing nearly 60% of its GDP. The U.S. government sector, although sizable, is smaller than those of Canada and most European countries.

Source: OECD.

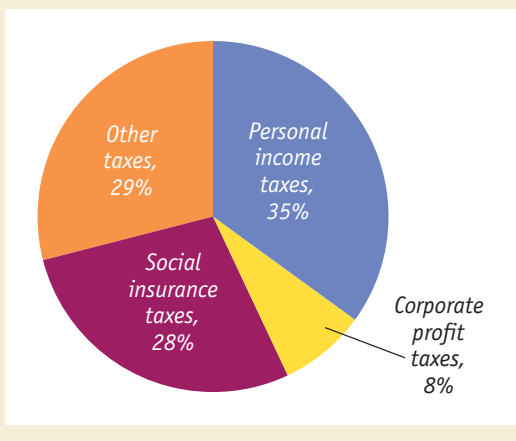


The government of the United States plays a smaller role in the economy than those of Canada or most European countries. But that role is still sizable, meaning that the government plays a major role in the U.S. economy. Changes in the federal budget—changes in government spending or in tax policy—can potentially have large effects on the American economy.

To analyze these effects, we begin by showing how taxes and government spending affect the economy's flow of income. Then we can see how changes in spending and tax policy affect aggregate demand.

Figure 12-2

Sources of Tax Revenue in the United States, 2004



Personal income taxes, taxes on corporate profits, and social insurance taxes account for most government tax revenue. The rest is a mix of property taxes, sales taxes, and other sources of revenue.

Source: Bureau of Economic Analysis.

Taxes, Purchases of Goods and Services, Government Transfers, and Borrowing

In Figure 7-1 we showed the circular flow of income and spending in the economy as a whole. One of the sectors represented in that figure was the government. Funds flow *into* the government in the form of taxes and government borrowing; they flow *out* in the form of government purchases of goods and services and government transfers to individuals.

What kinds of taxes do Americans pay, and where does the money go? Figure 12-2 shows the composition of U.S. taxes in 2004. Taxes, of course, are required payments to the government. In the United States, taxes are collected at the national level by the federal government; at the state level by each state government; and at the local levels by counties, cities, and towns. At the federal level, the main taxes are income taxes on both personal income and corporate profits as well as *social insurance* taxes, which we'll explain shortly. At the state and local levels, the picture is more complex: these governments rely on a mix of sales taxes, property

taxes, income taxes, and fees of various kinds. Overall, taxes on personal income and corporate profits accounted for 43% of total government revenue in 2004; social insurance taxes accounted for 28%; and a variety of other taxes, collected mainly at the state and local level, accounted for the rest.

Figure 12-3 shows the composition of total government spending, which takes two forms. One form is purchases of goods and services. This includes everything from ammunition for the army to the salaries of public schoolteachers (who are treated in the national accounts as providers of a service—education). The big items here are national defense and education. The large category labeled “other goods and services” consists mainly of state and local spending on a variety of services, from police and firefighters to highway construction and maintenance.

The other form of government spending is government transfers, which are payments by the government to individuals for which no good or service is provided in return. In the modern United States, as well as in Canada and Europe, government transfers represent a very large proportion of the budget. Most government spending on transfer payments is accounted for by three big programs:

- Social Security, which provides guaranteed income to older Americans, disabled Americans, and the surviving spouses and dependent children of deceased beneficiaries
- Medicare, which covers much of the cost of medical care for Americans over 65
- Medicaid, which covers much of the cost of medical care for Americans with low incomes

The term **social insurance** is used to describe government programs that are intended to protect families against economic hardship. These include Social Security, Medicare, and Medicaid, as well as smaller programs such as unemployment insurance and food stamps. In the United States, social insurance programs are largely paid for with special, dedicated taxes on wages—the social insurance taxes we mentioned earlier.

But how do tax policy and government spending affect the economy? The answer is that taxing and government spending have a strong effect on total spending in the economy.

The Government Budget and Total Spending

Let’s recall the basic equation of national income accounting:

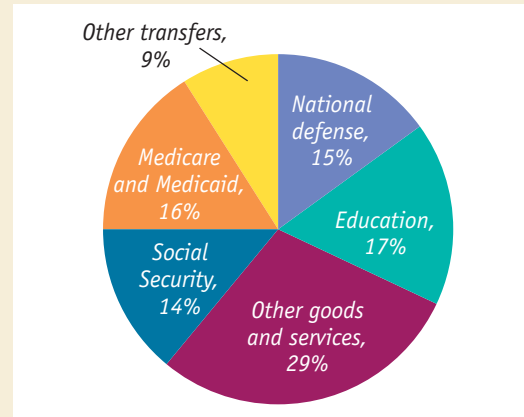
$$(12-1) \quad GDP = C + I + G + X - IM$$

The left-hand side of this equation is GDP, the value of all final goods and services produced in the economy. The right-hand side is total spending on final goods and services produced in the economy. It is the sum of consumer spending (*C*), investment spending (*I*), government purchases of goods and services (*G*), and the value of exports (*X*) minus the value of imports (*IM*). It includes all the sources of aggregate demand.

The government directly controls one of the variables on the right-hand side of Equation 12-1: government purchases of goods and services (*G*). But that’s not the only effect the government has on total spending in the economy. Through changes in taxes and transfers, it also influences consumer spending (*C*) and, in some cases, investment spending (*I*).

Figure 12-3

Government Spending in the United States, 2004



The two types of government spending are purchases of goods and services and government transfers. The big items in government purchases are national defense and education. The big items in government transfers are Social Security and health care programs.

Source: ?

Social insurance programs are government programs intended to protect families against economic hardship.

FOR INQUIRING MINDS

INVESTMENT TAX CREDITS

When we discuss changes in taxes in this chapter, we focus mainly on the effects of these changes on consumer spending. However, there is one tool of fiscal policy that is designed to affect investment spending—*investment tax credits*.

An investment tax credit is a tax break given to firms based on their investment spending. For example, a firm might be allowed to deduct \$1 from its tax bill for every \$10 it spends on investment goods. This obviously increases the incentive for investment spending.

One more thing about investment tax credits: they're often temporary, applying only to

investment spending within a specific period. For example, Congress introduced an investment tax credit in 2002 that only applied to investment spending over the next two years. Like department store sales that encourage shoppers to spend a lot while the sale is on, temporary investment tax credits tend to generate a lot of investment spending when they're in effect. Even if a firm doesn't think it will need a new server or lathe for another year or so, it may make sense to buy it, while the tax credit is available, rather than wait.

To see why the budget affects consumer spending, recall that *disposable income*, the total income households have available to spend, is equal to the total income they receive from wages, dividends, interest, and rent, *minus* taxes, *plus* government transfers. So either an increase in taxes or a decrease in government transfers *reduces* disposable income. And a fall in disposable income, other things equal, leads to a fall in consumer spending. Conversely, either a decrease in taxes or an increase in government transfers *increases* disposable income. And a rise in disposable income, other things equal, leads to a rise in consumption spending.

The government's ability to affect investment spending is a more complex story, which we won't discuss in detail (but see For Inquiring Minds). The important point is that the government taxes profits, and changes in the rules that determine how much a business owes can increase or reduce the incentive to engage in investment spending.

Because the government itself is one source of aggregate demand in the economy, and because taxes and transfers can affect spending by consumers and firms, the government can use changes in taxes or spending to *shift the aggregate demand curve*. And as we saw in Chapter 10, there are sometimes good reasons to shift the AD curve. For example, the Japanese government has spent trillions of dollars in an effort to increase aggregate demand. Japan's use of massive government construction spending to prop up its economy in the 1990s is a classic example of **fiscal policy**: the use of taxes, government transfers, or government purchases of goods and services to shift the aggregate demand curve.

Fiscal policy is the use of taxes, government transfers, or government purchases of goods and services to shift the aggregate demand curve.

Expansionary and Contractionary Fiscal Policy

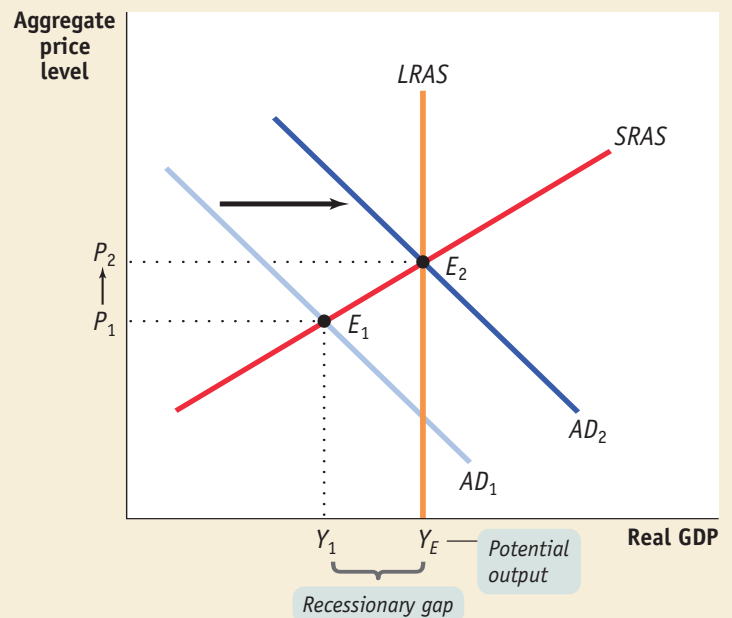
Why would the government want to shift the aggregate demand curve? Because it wants to close either a recessionary gap, created when aggregate output falls below potential output, or an inflationary gap, created when aggregate output exceeds potential output.

Figure 12-4 shows the case of an economy facing a recessionary gap. SRAS is the short-run aggregate supply curve, LRAS is the long-run aggregate supply curve, and AD_1 is the initial aggregate demand curve. At the initial equilibrium, E_1 , aggregate output is Y_1 , below potential output, Y_E . What the government would like to do is increase aggregate demand, shifting the aggregate demand curve rightward to AD_2 . This would increase aggregate output, making it equal to potential output. Fiscal policy

Figure 12-4

Expansionary Fiscal Policy Can Close a Recessionary Gap

At E_1 the economy is in short-run equilibrium where the aggregate demand curve AD_1 intersects the $SRAS$ curve. At E_1 , there is a recessionary gap of $Y_E - Y_1$. An expansionary fiscal policy—an increase in government purchases, a reduction in taxes, or an increase in government transfers—shifts the aggregate demand curve rightward. It can close the recessionary gap by shifting AD_1 to AD_2 , moving the economy to a new short-run equilibrium, E_2 , which is also a long-run equilibrium.



that increases aggregate demand, called **expansionary fiscal policy**, normally takes one of three forms:

- An increase in government purchases of goods and services, such as the Japanese government’s decision to launch a massive construction program
- A cut in taxes, such as the one the United States implemented in 2001
- An increase in government transfers, such as unemployment benefits

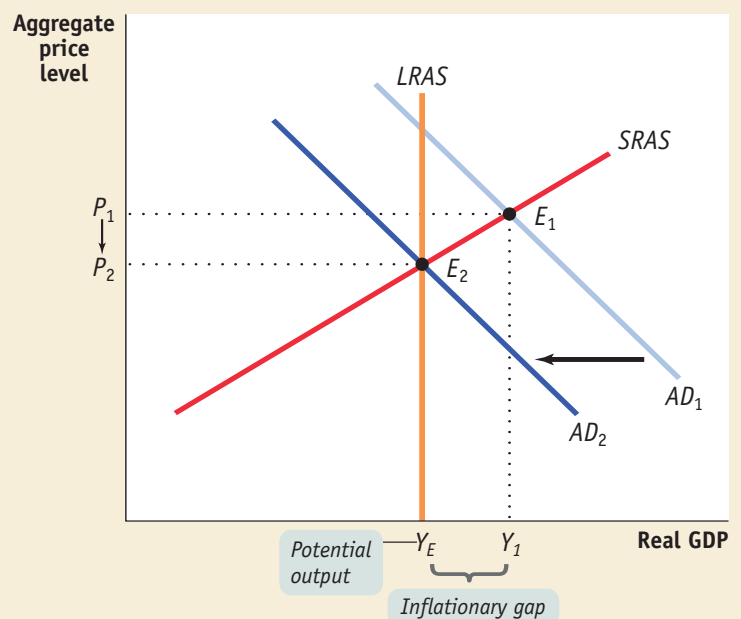
Expansionary fiscal policy increases aggregate demand.

Figure 12-5 shows the opposite case—an economy facing an inflationary gap. Again, $SRAS$ is the short-run aggregate supply curve, $LRAS$ is the long-run aggregate

Figure 12-5

Contractionary Fiscal Policy Can Eliminate an Inflationary Gap

At E_1 the economy is in short-run equilibrium where the aggregate demand curve AD_1 intersects the $SRAS$ curve. At E_1 , there is an inflationary gap of $Y_1 - Y_E$. A contractionary fiscal policy—reduced government purchases, an increase in taxes, or a reduction in government transfers—shifts the aggregate demand curve leftward. It can close the inflationary gap by shifting AD_1 to AD_2 , moving the economy to a new short-run equilibrium, E_2 , which is also a long-run equilibrium.



supply curve, and AD_1 is the initial aggregate demand curve. At the initial equilibrium, E_1 , aggregate output is Y_1 , above potential output, Y_E . As we'll explain in later chapters, policy makers often try to head off inflation by eliminating inflationary gaps. To eliminate the inflationary gap shown in Figure 12-5, policy must reduce aggregate demand, shifting the aggregate demand curve leftward to AD_2 . This would reduce aggregate output, making it equal to potential output. Fiscal policy that reduces aggregate demand, called **contractionary fiscal policy**, is the opposite of expansionary fiscal policy. It is implemented by reducing government purchases of goods and services, increasing taxes, or reducing government transfers. A classic example of contractionary fiscal policy occurred in 1968, when U.S. policy makers grew worried about rising inflation. President Lyndon Johnson imposed a temporary 10% surcharge on income taxes—everyone's income taxes were increased by 10%. He also tried to scale back government spending, which had risen dramatically because of the cost of the Vietnam War.

A Cautionary Note: Lags in Fiscal Policy

Looking at Figures 12-4 and 12-5, it may seem obvious that the government should actively use fiscal policy—always adopting an expansionary fiscal policy when the economy faces a recessionary gap and always adopting a contractionary fiscal policy when the economy faces an inflationary gap. But many economists caution against an extremely active stabilization policy, arguing that a government that tries too hard to stabilize the economy—through either fiscal policy or monetary policy—can end up making the economy less stable.

We'll leave discussion of the warnings associated with monetary policy to Chapter 14. In the case of fiscal policy, the reason for caution is that there are important *lags* in its use. To understand the nature of these lags, think about what has to happen before the government increases spending on goods and services to fight a recessionary gap. First, the government has to realize that the recessionary gap exists: economic data take time to collect and analyze, and recessions are often recognized only months after they have begun. Second, the government has to develop a spending plan, which can itself take months, particularly if politicians spend time debating how the money should be spent and passing legislation. Finally, it takes time to spend money. For example, a road construction project begins with activities such as surveying that don't involve spending large sums. It may be quite some time before the big spending begins.

Because of these lags, an attempt to increase spending to fight a recessionary gap may take so long to get going that the recessionary gap may have turned into an inflationary gap by the time the fiscal policy takes effect. In that case, the fiscal policy will make things worse instead of better.

This doesn't mean that fiscal policy should never be actively used. After all, lags didn't pose a problem for Japanese fiscal policy in the 1990s, which was attempting to fight a recessionary gap that lasted for many years. But the problem of lags makes the actual use of both fiscal and monetary policy harder than you might think from a simple analysis like the one we have just given.

economics in action

Expansionary Fiscal Policy in Japan

"In what may be the biggest public works bonanza since the pharaohs, Japan has spent something like \$1.4 trillion trying to pave and build its way back to economic health" began one newspaper report on Japan's efforts to prop up its economy with fiscal policy.

Japan turned to expansionary fiscal policy in the early 1990s. In the 1980s the country’s economy boomed, driven in part by soaring prices of stocks and real estate, which boosted consumer spending through the wealth effect and also encouraged investment spending. Japanese economists now refer to this as the “bubble economy,” because the rise in stock and land prices could not be justified in terms of rational calculations. At the end of the 1980s the bubble burst—stock and land prices plunged, and the economy slid into recession as consumer and investment spending fell. Since the early 1990s Japan has relied on large-scale government spending on goods and services, mainly in the form of construction spending on infrastructure, to prop up aggregate demand. This spending has been scaled back in recent years, but at its peak it was truly impressive. In 1996 Japan spent about \$300 billion on infrastructure, compared with only \$180 billion spent in the United States, even though Japan has less than half America’s population and considerably less than half its GDP. Superb roads run through sparsely populated regions, ferries to small islands have been replaced by bridges, and many of the country’s riverbeds have been paved, so that they resemble concrete aqueducts.

Has this policy been a success? Yes and no. Many economists believe that without all that government spending the Japanese economy would have slid into a 1930s-type depression after the bubble in stock and land prices burst. Instead, the economy suffered a slowdown but not a severe slump: growth has been sluggish and unemployment has risen, but there has been no depression.

Furthermore, alternative policies weren’t readily available. The alternative to using fiscal policy to prop up a slumping economy is using *monetary policy*, in which the central bank expands the money supply and drives down interest rates. Japan has done that, too; since 1998 short-term interest rates have been approximately zero! Since interest rates can’t go below zero, there was no room for further interest rate cuts, yet the economy remained sluggish. So expansionary fiscal policy was the only obvious way to increase aggregate demand.

However, expansionary fiscal policy has not yet produced a full recovery in Japan. And the years of deficit spending have led to a rising government debt–GDP ratio that worries many financial experts. ■



>>CHECK YOUR UNDERSTANDING 12-1

1. In each of the following cases, determine whether the policy is an expansionary or contractionary fiscal policy.
 - a. Several military bases around the country, which together employ tens of thousands of people, are closed.
 - b. The length of unemployment benefits is increased.
 - c. A federal tax on gasoline is increased.
2. Exports to the United States account for a large percentage of Canadian GDP. Explain why very high aggregate demand in the U.S. economy might lead to an inflationary gap in Canada.

Solutions appear at back of book.

>> QUICK REVIEW

- *Fiscal policy* affects aggregate demand directly through government purchases of goods and services and indirectly through taxes and government transfers that affect disposable income and investment spending.
- Increased government purchases of goods and services, tax cuts, and increases in government transfers are the three principal forms of *expansionary fiscal policy*. Reduced government purchases of goods and services, tax increases, and reductions in government transfers are the three principal forms of *contractionary fiscal policy*.
- Because of inevitable time lags in the formulation and implementation of fiscal policy, an active fiscal policy may destabilize the economy.

Fiscal Policy and the Multiplier

An expansionary fiscal policy, like Japan’s program of public works, pushes the aggregate demand curve to the right. A contractionary fiscal policy, like Lyndon Johnson’s tax surcharge, pushes the aggregate demand curve to the left. For policy makers, however, knowing the direction of the shift isn’t enough: they need estimates of *how much* the aggregate demand curve is shifted by a given policy. To get these estimates, they use the concept of the multiplier, which we introduced in Chapter 10.

Multiplier Effects of an Increase in Government Purchases of Goods and Services

Suppose that a government decides to spend \$50 billion building bridges and roads. The government's purchases of goods and services will directly increase total spending on final goods and services by \$50 billion. But as we learned in Chapter 10, there will also be an indirect effect because the government's purchases will start a chain reaction throughout the economy. The firms producing the goods and services purchased by the government will earn income that flows to households in the form of wages, dividends, interest, and rent. This increase in disposable income will lead to a rise in consumer spending. The rise in consumer spending, in turn, will induce firms to increase output, leading to a further rise in disposable income, which will lead to another round of consumer spending increases, and so on.

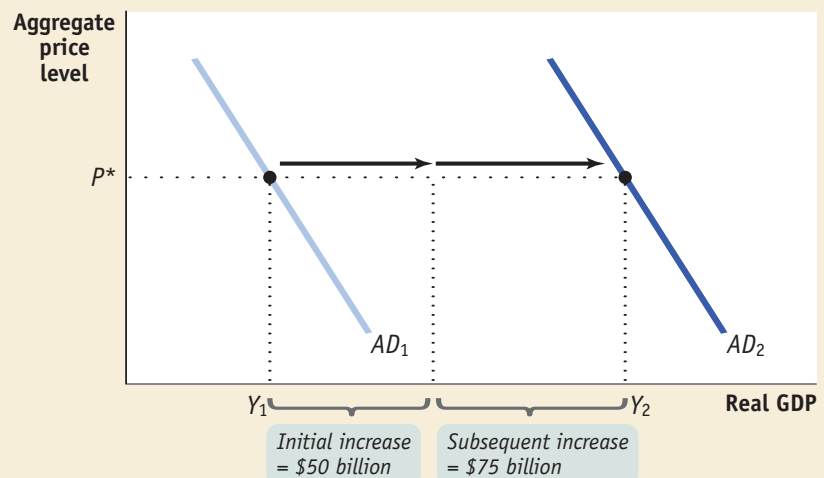
In Chapter 10 we introduced the concept of the *multiplier*: the ratio of the change in GDP caused by an *autonomous change in aggregate spending* to the size of that autonomous change: $\text{multiplier} = \text{change in GDP} / \text{autonomous change in aggregate spending}$. We saw there that in the simplest case (where there are no taxes, so that any change in GDP accrues entirely to households) the multiplier is $1/(1 - \text{MPC})$. Recall that *MPC* is the *marginal propensity to consume*, the fraction of an additional dollar in disposable income that is spent. For example, if the marginal propensity to consume is 0.6, the multiplier is $1/(1 - 0.6) = 1/0.4 = 2.5$.

An increase in government purchases of goods and services is an example of an autonomous increase in aggregate spending. Its effect is illustrated in Figure 12-6. Given a multiplier of 2.5, a \$50 billion increase in government purchases of goods and services will shift the *AD* curve rightward from AD_1 to AD_2 , a distance representing an increase in real GDP of \$125 billion at a given aggregate price level. Of that \$125 billion, \$50 billion is the initial effect from the increase in *G*, and the remaining \$75 billion is the subsequent effect arising from the increase in consumer spending.

Figure 12-6

The Multiplier Effect of an Increase in Government Purchases of Goods and Services

A \$50 billion increase in government purchases of goods and services has the direct effect of shifting the aggregate demand curve to the right by \$50 billion. However, this is not the end of the story. The rise in GDP causes a rise in disposable income, which leads to an increase in consumer spending, which leads to a further rise in GDP, which leads to a further rise in consumer spending, and so on. The eventual shift, from AD_1 to AD_2 , is a *multiple* of the rise in GDP.



What happens if government purchases of goods and services are instead reduced? The math is exactly the same, except that there's a minus sign in front: if government purchases fall by \$50 billion and the marginal propensity to consume is 0.6, the *AD* curve shifts leftward by \$125 billion.

Multiplier Effects of Changes in Taxes and Government Transfers

Expansionary or contractionary fiscal policy need not take the form of changes in government purchases of goods and services. Governments can also change taxes or transfer payments. In general, however, a change in taxes or government transfers shifts the aggregate demand curve by less than an equal-sized change in government purchases.

To see why, imagine that instead of spending \$50 billion on building bridges, the government simply hands out \$50 billion in the form of tax cuts. In this case, there is no direct effect on aggregate demand by government purchases of goods and services; GDP goes up only because households spend some of that \$50 billion. How much will they spend? Because the \$50 billion tax cut increases households' disposable income, they will engage in a first-round increase in consumer spending of $MPC \times \$50$ billion. For example, if $MPC = 0.6$, the first-round increase in consumer spending will be \$30 billion ($0.6 \times \$50 \text{ billion} = \30 billion). Like an increase in government purchases, this initial rise in consumer spending will lead to a series of subsequent rounds in which real GDP, disposable income, and consumer spending rise further. But because the initial impact of the tax cut was smaller than that of an equal-sized increase in government purchases, the overall effect on GDP will also be smaller. In general, \$1 of tax cuts will increase GDP by $\$MPC/(1 - MPC)$, less than the multiplier on increases in government purchases, which is $1/(1 - MPC)$. For example, if the marginal propensity to consume is 0.6, each dollar increase in government purchases of goods and services raises GDP by $\$1/(1 - 0.6) = \2.50 , but each dollar of tax cuts raises GDP by only $\$0.6/(1 - 0.6) = \1.50 .

An increase in government transfers works just like a tax cut. It increases disposable income, leading to a series of increases in consumer spending, but with an overall effect smaller than that of an equal-sized increase in government purchases.

In practice, economists often argue that it matters *who* among the population gets tax cuts or increases in government transfers. For example, compare the effects of an increase in unemployment benefits with a cut in taxes on profits paid to shareholders as dividends. Consumer surveys indicate that the average unemployed worker will spend a higher share of any increase in his or her disposable income than would the average recipient of dividend income. That is, people who are unemployed tend to have a higher MPC than people who own a lot of stocks because the latter tend to be wealthier and to save more of any increase in disposable income. If that's true, a dollar spent on unemployment benefits increases aggregate demand more than a dollar's worth of dividend tax cuts. As the Economics in Action that follows this section explains, such arguments played an important role in recent policy debates.

How Taxes Affect the Multiplier

When we introduced the analysis of the multiplier in Chapter 10, we simplified matters by assuming that a \$1 increase in GDP raises disposable income by \$1. In fact, however, the government taxes away part of any increase in GDP, so that a \$1 increase in GDP normally raises disposable income by considerably less than \$1.

The increase in government tax revenue when GDP rises isn't the result of a deliberate decision or action by the government. It's a consequence of the way the tax laws are written, which causes most sources of government revenue to increase *automatically* when GDP goes up. For example, income tax receipts increase when GDP rises because the amount each individual owes in taxes depends positively on his or her income, and households' disposable income rises when GDP rises. Sales tax receipts increase when GDP rises because people with more disposable income spend more on goods and services. And corporate profit tax receipts increase when GDP rises because profits increase when the economy expands.

The effect of these automatic increases in tax revenue is to reduce the size of the multiplier. Remember, the multiplier is the result of a chain reaction in which higher GDP leads to higher disposable income, which leads to higher consumer spending, which leads to further increases in GDP. The fact that the government siphons off some of any increase in GDP means that at each stage of this process the increase in consumer spending is smaller than it would be if taxes weren't part of the picture. The result is to reduce the multiplier. The appendix to this chapter shows how to derive the multiplier when taxes are taken into account.

Many macroeconomists believe it's a good thing that taxes reduce the multiplier. In Chapter 10 we argued that most, though not all, recessions are the result of negative *demand shocks*. The same mechanism that causes tax revenue to increase when the economy expands causes it to decrease when the economy contracts. Since tax receipts decrease when GDP falls, the effects of these negative demand shocks are smaller than they would be if there were no taxes. The decrease in tax revenue reduces the adverse effect of the initial fall in aggregate demand. By cutting the amount of taxes households pay, the automatic decrease in government tax revenue generated by a fall in GDP acts like an automatic expansionary fiscal policy implemented in the face of a recession. Similarly, when the economy expands, the government finds itself automatically pursuing a contractionary fiscal policy—a tax increase. Government spending and taxation rules that cause fiscal policy to be expansionary when the economy contracts and contractionary when the economy expands, without requiring any deliberate action by policy makers, are called **automatic stabilizers**.

The rules that govern tax collection aren't the only automatic stabilizers, although they are the most important ones. Some types of government transfers also play a stabilizing role. For example, more people receive unemployment insurance when the economy is depressed than when it is booming. The same is true of Medicaid and food stamps. So transfer payments tend to rise when the economy is contracting and fall when the economy is expanding. Like changes in tax revenue, these changes in transfers tend to reduce the size of the multiplier because the total change in disposable income that results from a given rise or fall in GDP is smaller.

As in the case of government tax revenue, many macroeconomists believe that it's a good thing that government transfers reduce the multiplier. More generally, expansionary and contractionary fiscal policies that are the result of automatic stabilizers are widely considered helpful to macroeconomic stabilization. But what about fiscal policy that *isn't* the result of automatic stabilizers? **Discretionary fiscal policy** is fiscal policy that is the direct result of deliberate actions by policy makers rather than automatic adjustment. For example, during a recession, the government may pass legislation that cuts taxes and purposely increases government spending in order to stimulate the economy. The use of discretionary fiscal policy to fight recessions and rein in expansions is much more controversial than the role of automatic stabilizers. We'll explain why, and describe the debates among macroeconomists on the appropriate role of fiscal policy, in Chapter 17.

Automatic stabilizers are government spending and taxation rules that cause fiscal policy to be expansionary when the economy contracts and contractionary when the economy expands.

Discretionary fiscal policy is fiscal policy that is the result of deliberate actions by policy makers rather than rules.



AP Photo

The Works Progress Administration (WPA) was a relief measure established by the Roosevelt administration during the Great Depression aimed at getting the multitudes of unemployed workers into public jobs building bridges, roads, buildings, and parks. It is an example of discretionary fiscal policy in action.

economics in action

How Much Bang for the Buck?

In 2001 the U.S. economy experienced a recession, followed by a 2002–2003 “jobless recovery” in which real GDP grew but overall employment didn't. There was widespread agreement among economists that the country needed an expansionary fiscal

policy to stimulate aggregate demand. And the government did, in fact, pursue an expansionary fiscal policy: tax cuts combined with increased spending undoubtedly helped increase aggregate demand and output.

But was the expansionary fiscal policy carried out in the right way? Critics argued that a different mix of policies would have yielded “more bang for the buck”—they would have done more to increase aggregate demand, but lead to a smaller rise in the budget deficit.

A particularly clear (and nonpartisan) example of this criticism was an analysis by Mark Zandi, the chief economist of economy.com, a consulting firm. Zandi estimated the multiplier effects of a number of alternative fiscal policies, shown in Table 12-1. He argued that many of the tax cuts enacted between 2001 and 2003 had smaller effects on aggregate demand because they went to people who probably wouldn’t spend much of their increase in their additional disposable income. He was particularly critical of tax cuts on dividend income and on the value of inherited estates, arguing that they did very little to raise consumer spending. According to his analysis, an alternative set of fiscal policies that put more disposable income into the hands of unemployed workers, lower-income taxpayers, and cash-strapped state and local governments would have created a larger increase in spending. This would have led to both lower deficits and a larger increase in GDP—and so to lower unemployment. This view was shared by many economists, though certainly not by all.

Despite the criticisms, there was widespread agreement that the tax cuts of 2001–2003 helped generate an economic expansion. As Richard Berner, an economist

TABLE 12-1

Differences in the Effect of Expansionary Fiscal Policies

Policy	Estimated effect on GDP per dollar of fiscal policy	Explanation of policy
Extend emergency federal unemployment insurance benefits	1.73	Extends the period for unemployment benefits, increasing transfers to the unemployed
10% personal income tax bracket	1.34	Reduces tax rate on some income from 15% to 10%, mainly benefiting middle-income families.
State government aid	1.24	Provides financial aid to state governments during recessions so states do not have to raise taxes or cut spending
Child tax credit rebate	1.04	Increases the income tax reduction for each child, mainly benefiting middle- and lower-income families
Marriage tax penalty	0.74	Tries to reduce the “marriage penalty,” an increase in combined taxes that can occur when two working people marry
	0.67	
Alternative minimum tax adjustments	0.59	Revises the alternative tax, designed to prevent wealthy people with many deductions from paying too little, to exclude those not considered sufficiently wealthy
	0.24	
Personal marginal tax rate reductions	0.09	Reduces tax rates for people in higher income brackets
Business investment writeoff	0.00	Temporarily allows companies to deduct some investment spending from taxable profits
Dividend–capital gain tax reduction		Reduces taxes on dividends and capital gains
Estate tax reduction		Reduces the tax paid on the value of assets left behind after taxpayers die

Source: economy.com.

they use the budget balance as a “quick-and-dirty” way to assess whether current fiscal policy is expansionary or contractionary. But they always keep in mind two reasons this quick-and-dirty approach is sometimes misleading:

- Two different changes in fiscal policy that have equal effects on the budget balance may have quite unequal effects on aggregate demand. As we have already seen, changes in government purchases have a larger effect on aggregate demand than equal changes in taxes and government transfers.
- Often, changes in the budget balance are themselves the result, not the cause, of fluctuations in the economy.

To understand the second point, we need to examine the effects of the business cycle on the budget.

The Business Cycle and the Cyclically Adjusted Budget Balance

Historically there has been a strong relationship between the federal government's budget balance and the business cycle. The budget tends to move into deficit when the economy experiences a recession, but deficits tend to get smaller or even turn into surpluses when the economy is expanding. Figure 12-7 shows the federal budget deficit as a percentage of GDP since 1970. Shaded areas indicate recessions; unshaded areas indicate expansions. As you can see, the federal budget deficit increased around the time of each recession and usually declined during expansions. In fact, in the late stages of the long expansion from 1991 to 2000 the deficit actually became negative—the budget deficit became a budget surplus.

The relationship between the business cycle and the budget balance is even clearer if we compare the budget deficit as a percentage of GDP with the unemployment rate, as we do in Figure 12-8 on page 306. The budget deficit almost always rises when the unemployment rate rises and falls when the unemployment rate falls.

Is this relationship between the business cycle and the budget balance evidence that policy makers engage in discretionary fiscal policy, using expansionary fiscal policy during recessions and contractionary fiscal policy during expansions? Not

Figure 12-7

The U.S. Federal Budget Deficit and the Business Cycle

The budget deficit as a percentage of GDP tends to rise during recessions (indicated by shaded areas) and fall during expansions.

Source: Congressional Budget Office, National Bureau of Economic Research.

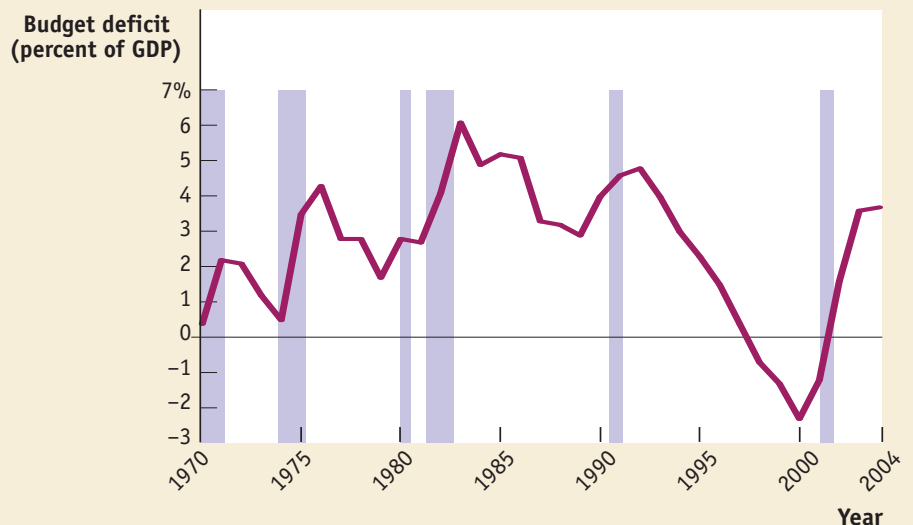
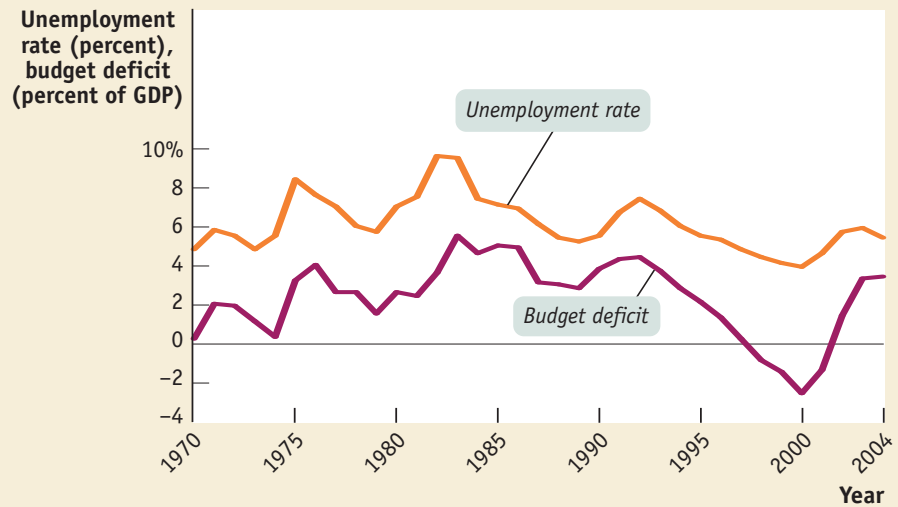


Figure 12-8

The U.S. Federal Budget Deficit and the Unemployment Rate

There is a close relationship between the budget balance and the business cycle: A recession moves the budget balance toward deficit, but an expansion moves it toward surplus. Here, the unemployment rate serves as an indicator of the budget cycle, and we should expect to see a higher unemployment rate associated with a higher budget deficit. This is confirmed by the figure: The budget deficit as a percentage of GDP moves closely in tandem with the unemployment rate.

Source: Congressional Budget Office, Bureau of Labor Statistics



necessarily. To a large extent the relationship in Figure 12-8 reflects automatic stabilizers at work. As we learned in the discussion of automatic stabilizers, government tax revenue tends to rise and some government transfers, like unemployment compensation payments, tend to fall when the economy expands. Conversely, government tax revenue tends to fall and some government transfers tend to rise when the economy contracts. So the budget tends to move toward deficit during recessions and toward surplus during expansions even without any deliberate action on the part of policy makers.

In assessing budget policy, it's often useful to separate changes in the budget balance due to the business cycle from changes due to deliberate policy changes. The former are affected by automatic stabilizers and the latter, by changes in government purchases, government transfers, or tax rates. For one thing, business-cycle effects on the budget balance are temporary: both recessionary gaps (in which real GDP is below potential output) and inflationary gaps (in which real GDP is above potential output) tend to be eliminated in the long run. So taking out the effects of recessionary and inflationary gaps on the budget balance sheds light on whether the government's taxing and spending policies are sustainable in the long run. In other words, do the government's tax policies yield enough revenue to fund its spending in the long run? Also, it's useful to distinguish between "passive" changes in the budget balance that result from changes in the economy and changes that result from actions by policy makers.

To separate the effect of the business cycle from the effects of other factors, many governments produce an estimate of what the budget balance would be if there were neither a recessionary nor an inflationary gap. The **cyclically adjusted budget balance** is an estimate of what the budget balance would be if real GDP were exactly equal to potential output. It takes into account the extra tax revenue the government would collect and the transfers it would save if a recessionary gap were eliminated—or the revenue the government would lose and the extra transfers it would make if an inflationary gap were eliminated.

Figure 12-9 shows the actual budget deficit and the Congressional Budget Office estimate of the cyclically adjusted budget deficit, both as a percentage of GDP, since 1970. As you can see, the cyclically adjusted budget deficit doesn't fluctuate as much as the actual budget deficit. In particular, large actual deficits, such as those of 1975 and 1983, are usually caused in part by a depressed economy.

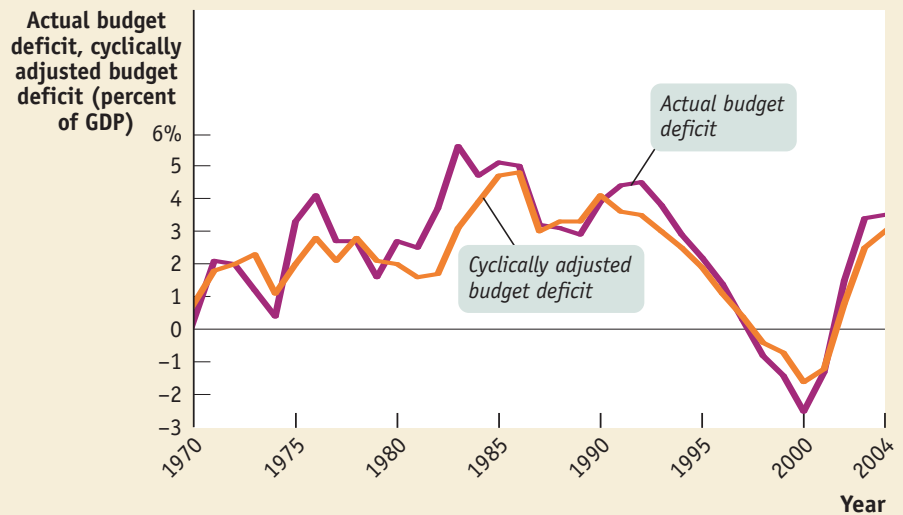
The **cyclically adjusted budget balance** is an estimate of what the budget balance would be if real GDP were exactly equal to potential output.

Figure 12-9

The Actual Budget Deficit Versus the Cyclically Adjusted Budget Deficit

The cyclically adjusted budget deficit is an estimate of what the budget deficit would be if the economy were at potential output. It fluctuates less than the actual budget deficit, because years of large budget deficit also tend to be years when the economy has a large recessionary gap.

Source: Congressional Budget Office.



Should the Budget Be Balanced?

As we'll see in the next section, persistent budget deficits can cause problems for both the government and the economy. Yet politicians are always tempted to run deficits because this allows them to cater to voters by cutting taxes without cutting spending or by increasing spending without increasing taxes. As a result, there are occasional attempts to force fiscal discipline by introducing legislation—even a constitutional amendment—prohibiting the government from running budget deficits. This is usually stated as a requirement that the budget be “balanced”—that revenues at least equal spending each fiscal year. Would it be a good idea to require a balanced budget annually?

Most economists don't think so. They believe that the government should only balance its budget on average—that it should be allowed to run deficits in bad years, offset by surpluses in good years. They don't believe the government should be forced to run a balanced budget *every year* because this would undermine the role of taxes and transfers as automatic stabilizers. As we learned earlier in this chapter, the tendency of tax revenue to fall and transfers to rise when the economy contracts helps to limit the size of recessions. But falling tax revenue and rising transfer payments push the budget toward deficit. If constrained by a balanced-budget rule, the government would have to respond to this deficit with contractionary fiscal policies that would tend to deepen the recession.

Yet policy makers concerned about excessive deficits sometimes feel that rigid rules prohibiting—or at least setting an upper limit on—deficits are necessary. As *Economics in Action* explains, Europe has had a lot of trouble reconciling rules to enforce fiscal responsibility with the problems of short-run fiscal policy.

economics in action

Stability Pact—or Stupidity Pact?

In 1999 a group of European nations took a momentous step when they adopted a common currency, the euro, to replace their national currencies, such as francs, marks, and lira. Along with the introduction of the euro came the creation of the European Central Bank, which sets monetary policy for the whole region.

The same is true for governments. With a few exceptions, governments don't raise large sums by selling assets such as national parkland. Instead, when a government spends more than the tax revenue it receives—when it runs a budget deficit—it almost always borrows the extra funds. And governments that run persistent budget deficits end up with substantial debts.

To interpret the numbers that follow, you need to know a slightly peculiar feature of federal government accounting. For historical reasons, the U.S. government does not keep books for calendar years. Instead, budget totals are kept for **fiscal years**, which run from October 1 to September 30 and are named by the calendar year in which they end. For example, fiscal 2004 began on October 1, 2003, and ended on September 30, 2004.

At the end of fiscal 2004, the U.S. federal government had total debt equal to almost \$7.4 trillion. However, part of that debt represented special accounting rules specifying that the federal government as a whole owes funds to certain government programs, especially Social Security. We'll explain those rules shortly. For now, however, let's focus on **public debt**: government debt held by individuals and institutions outside the government. At the end of fiscal 2004, the federal government's public debt was "only" \$4.3 trillion, or 37% of GDP. If we include the debts of state and local governments, total government public debt was approximately 44% of GDP. Figure 12-10 compares the U.S. public debt-GDP ratio with the public debt-GDP ratios of other wealthy countries in 2003. As of 2003, the U.S. debt level was more or less typical.

U.S. federal government public debt at the end of fiscal 2004 was larger than it was at the end of fiscal 2003, because the federal government ran a budget deficit during fiscal 2004. A government that runs persistent budget deficits will experience a rising level of public debt. But why is this a problem?

PITFALLS

DEFICITS VERSUS DEBT

One common mistake—it happens all the time in newspaper reports—is to confuse *deficits* with *debt*. Let's review the difference.

A *deficit* is the difference between the amount of money a government spends and the amount it receives in taxes over a given period—usually, though not always, a year. Deficit numbers always come with a statement about the time period to which they apply, as in "The U.S. budget deficit in *fiscal 2004* was \$412 billion."

A *debt* is the sum of money a government owes at a particular point in time. Debt numbers usually come with a specific date, as in "U.S. public debt at the *end of fiscal 2004* was \$4.3 trillion."

Deficits and debt are linked, because government debt grows when governments run deficits. But they aren't the same thing, and they can even tell different stories. At the end of fiscal 2004, U.S. *debt* as a percentage of GDP was fairly low by historical standards, but the *deficit* during fiscal 2004 was quite high.

Fiscal years run from October 1 to September 30 and are named by the calendar year in which they end.

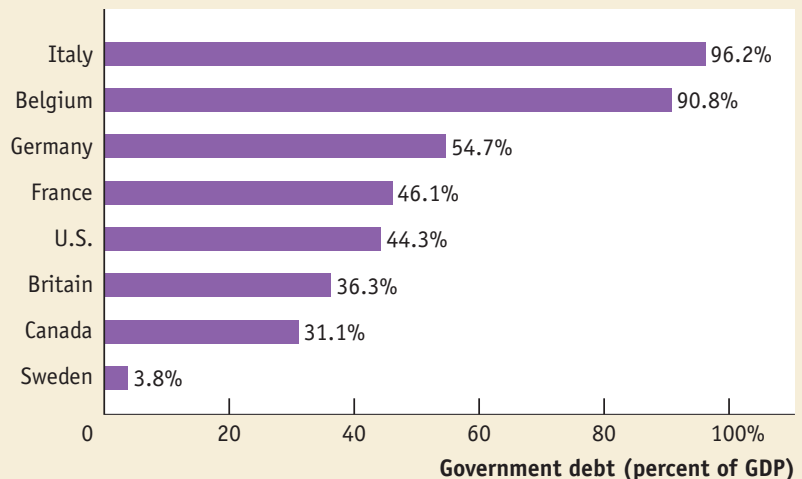
Public debt is government debt held by individuals and institutions outside the government.

Figure 12-10

Government Debt as a Percentage of GDP

Public debt as a percentage of GDP is a widely used measure of how deeply in debt a government is. The United States lies in the middle range among wealthy countries. Governments of countries with high public debt-GDP ratios, like Italy and Belgium, pay large sums in interest each year to service their debt.

Source: OECD.



Problems Posed by Rising Government Debt

There are two reasons to be concerned when a government runs persistent budget deficits. We described one reason in Chapter 9: when the government borrows funds in the financial markets, it is competing with firms that plan to borrow funds for investment spending. As a result, the government's borrowing may "crowd out" private investment spending and reduce the economy's long-run rate of growth.

But there's also a second reason: today's deficits, by increasing the government's debt, place financial pressure on future budgets. The impact of current deficits on future budgets is straightforward. Like individuals, governments must pay their bills—including interest payments on their accumulated debt. When a government is deeply in debt, those interest payments can be substantial. In fiscal 2004, the U.S. federal government paid \$160 billion in interest on its debt, which was 1.4% of GDP. The two most heavily indebted governments shown in Figure 12-10, Italy and Belgium, each paid interest of more than 5% of GDP in 2004.

Other things equal, a government paying large sums in interest must raise more revenue from taxes or spend less than it would otherwise be able to afford—or it must borrow even more to cover the gap. But a government that borrows to pay interest on its outstanding debt pushes itself even deeper into debt. This process can eventually push a government to the point where lenders question its ability to repay. Like a consumer who has maxed out his or her credit cards, it will find that lenders are unwilling to lend any more funds. The result can be that the government defaults on its debt—it stops paying what it owes. Default is often followed by financial and economic turmoil.

The idea of a government defaulting sounds far-fetched, but it is not impossible. In the 1990s Argentina, a relatively high-income developing country, was widely praised for its economic policies—and it was able to borrow large sums from foreign lenders. By 2002, however, Argentina's interest payments were spiraling out of control, and the country stopped paying the sums that were due. We describe that default in the *Economics in Action* that follows this section.

Default creates havoc in a country's financial markets and badly shakes public confidence in both the government and the economy. Argentina's debt default was accompanied by a crisis in the country's banking systems and a very severe recession. And even if a highly indebted government avoids default, a heavy debt burden typically forces it to slash spending or raise taxes, politically unpopular measures that can also damage the economy.

One question some people ask is, can't a government that has trouble borrowing just print money to pay its bills? Yes, it can, but this leads to another problem: inflation. In fact, budget problems are the main cause of very severe inflation, as we'll see in Chapter 16. The point for now is that governments do not want to find themselves in a position where the choice is between defaulting on their debts and inflating those debts away.

Concerns about the long-run effects of deficits need not rule out the use of fiscal policy to stimulate the economy when it is depressed. However, these concerns do mean that governments should try to offset budget deficits in bad years with budget surpluses in good years. In other words, governments should run a budget that is approximately balanced over time. Have they actually done so?

Deficits and Debt in Practice

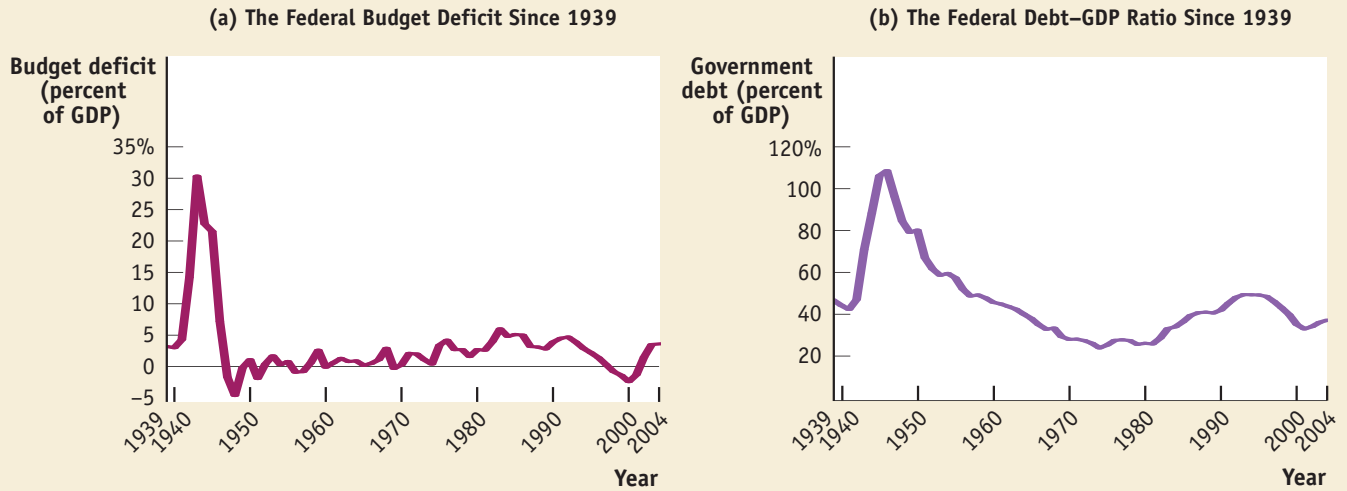
Figure 12-11 shows how the U.S. federal government's budget deficit and its debt have evolved since 1939. Part (a) shows the federal deficit as a percentage of GDP. As you can see, the federal government ran huge deficits during World War II. It briefly ran surpluses after the war, but it has normally run deficits ever since, especially after 1980. This seems inconsistent with the advice that governments should offset deficits in bad times with surpluses in good times.

However, panel (b) shows that these deficits have not led to runaway debt. To assess the ability of governments to pay their debt, we often use the **debt-GDP ratio**, government debt as a percentage of GDP. We use this measure, rather than simply looking at the size of the debt, because GDP, which measures the size of the economy as a whole, is a good indicator of the potential taxes the government can collect. If the government's debt grows more slowly than GDP, the burden of paying that debt is actually falling compared with the government's potential tax revenue.

What we see from panel (b) is that although the federal debt has grown in almost every year, the debt-GDP ratio fell for 30 years after the end of World War II. This

The **debt-GDP ratio** is government debt as a percentage of GDP.

Figure 12-11 U.S. Federal Deficits and Debt



Panel (a) shows the federal budget deficit as a percentage of GDP since 1939. The federal government ran huge deficits during World War II and has usually run smaller deficits ever since. Panel (b) shows the U.S. debt-GDP ratio. Comparing panels (a) and (b), you can see that in

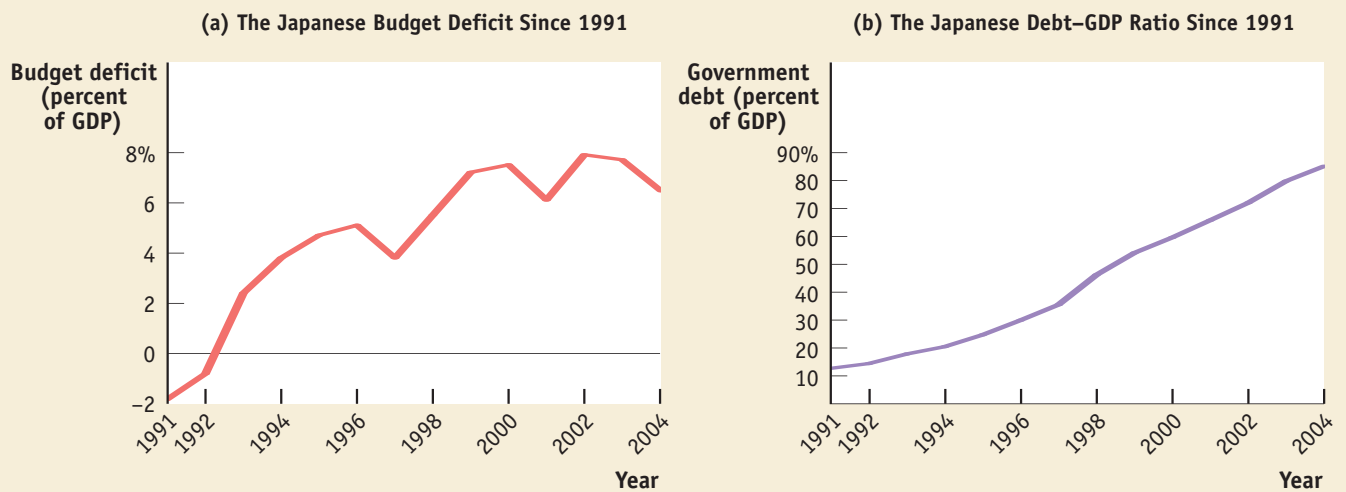
many years the debt-GDP ratio has declined in spite of government deficits. This seeming paradox reflects the fact that the debt-GDP ratio can fall, even when debt is rising, as long as GDP grows faster than debt.

Source: Economic Report of the President (2005).

shows that the debt-GDP ratio can fall, even when debt is rising, as long as GDP grows faster than debt. For Inquiring Minds, which focuses on the large debt the U.S. government ran up during World War II, explains how growth and inflation sometimes allow a government that runs persistent budget deficits to nevertheless have a declining debt-GDP ratio.

Still, a government that runs persistent *large* deficits will have a rising debt-GDP ratio when debt grows faster than GDP. Panel (a) of Figure 12-12 shows Japan's

Figure 12-12 Japanese Deficits and Debt



Panel (a) shows the budget deficit of Japan since 1991 and panel (b) shows its debt-GDP ratio, both expressed as percentages of GDP, since 1991. The large deficits that the Japanese government began running in the early 1990s have led to a

rapid rise in its debt-GDP ratio as debt has grown more quickly than GDP. This has led some analysts to express concern about the long-run fiscal health of the Japanese economy.

Source: OECD.

FOR INQUIRING MINDS

WHAT HAPPENED TO THE DEBT FROM WORLD WAR II?

As you can see from Figure 12-11, the U.S. government paid for World War II by borrowing on a huge scale. By the war's end, the public debt was more than 100% of GDP, and many people worried about how it could ever be paid off.

The truth is that it never was paid off. In 1946 public debt was \$270 billion; that number dipped slightly in the next few years, as the United States ran postwar budget surpluses, but the government budget went back into

deficit in 1950 with the start of the Korean War. By 1956 the debt was back up to \$270 billion.

But by that time nobody was worried about the fiscal health of the U.S. government because the debt-GDP ratio had fallen almost by half. The reason? Vigorous economic growth, plus mild inflation, had led to a rapid rise in GDP. The experience was a clear lesson in the peculiar fact that modern governments can run deficits forever, as long as they aren't too large.

budget deficit as a percentage of GDP and panel (b) shows Japan's debt-GDP ratio, both since 1991. As we have already mentioned, Japan began running large deficits in the early 1990s, a by-product of its effort to prop up aggregate demand with government spending. This has led to a rapid rise in the debt-GDP ratio. For this reason, some economic analysts have begun to express concern about the long-run fiscal health of the Japanese economy.

Implicit Liabilities

Looking at Figure 12-11, you might be tempted to conclude that the U.S. federal budget is in fairly decent shape: the return to budget deficits after 2001 caused the debt-GDP ratio to rise a bit, but that ratio is still low compared with both historical experience and some other wealthy countries. In fact, however, experts on long-run budget issues view the situation of the United States (and other countries such as Japan and Italy) with alarm. The reason is the problem of *implicit liabilities*.

Implicit liabilities are promises made by governments that are effectively a debt despite the fact that they are not included in the usual debt statistics.

The largest implicit liabilities of the U.S. government arise from two transfer programs that principally benefit older Americans: Social Security and Medicare. The third-largest implicit liability, Medicaid, benefits low-income families. In each of these cases the government has promised to provide transfer payments to future as well as current beneficiaries. So these programs represent a future debt that must be honored, even though the debt does not currently show up in the usual statistics. Together, these three programs currently account for about 40% of federal spending.

The implicit liabilities created by these transfer programs worry fiscal experts. Figure 12-13 shows why. It shows current spending on Social Security, Medicare, and Medicaid as percentages of GDP, together with Congressional Budget Office projections of spending in 2010, 2030, and 2050. According to these projections, spending on Social Security will rise substantially over the next few decades and spending on the two health care programs will soar. Why?

In the case of Social Security, the answer is demography. There was a huge surge in the U.S. birth rate between 1946 and 1964, the years of the baby boom. Baby boomers are currently of working age—which means they are paying taxes, not collecting benefits. As the baby boomers retire, they will stop earning income that is taxed and start collecting benefits. As a result, the ratio of retirees receiving benefits to workers paying into the Social Security system will rise. In 2004 there were 30 retirees receiving benefits for every 100 workers paying into the system. By 2030, according to the

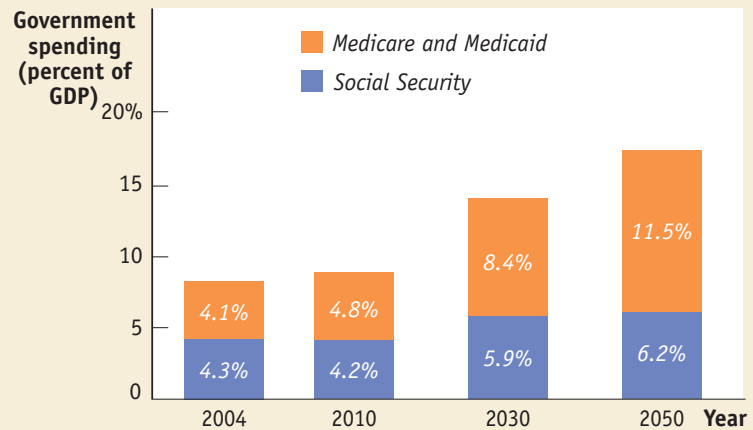
Implicit liabilities are spending promises made by governments that are effectively a debt despite the fact that they are not included in the usual debt statistics.

Figure 12-13

The Implicit Liabilities of the U.S. Government

This figure shows current spending on Social Security, Medicare, and Medicaid as percentages of GDP, together with Congressional Budget Office projections of spending in 2010, 2030, and 2050. Due to the combined effects of the aging of the population and rising health care spending, these programs represent large implicit liabilities of the federal government.

Source: Congressional Budget Office.



Social Security Administration, that number will rise to 46; by 2050 it will rise to 50. This will raise benefit payments relative to the size of the economy.

The aging of the baby boomers is also part of the explanation for projected increases in Medicare spending, since Medicare is a health care program for older Americans. The main story behind projections of higher Medicare and Medicaid spending, however, is the long-run tendency of health care spending to rise faster than overall spending, both for government-funded and for privately funded health care.

To some extent, the implicit liabilities of the U.S. government are already reflected in debt statistics. We mentioned earlier that the government had a total debt of \$7.4 trillion at the end of 2004 but that only \$4.3 trillion of that total was owed to the public. The main explanation for that discrepancy is that both Social Security and part of Medicare (the hospital insurance program) are supported by *dedicated taxes*: their expenses are paid out of special taxes on wages. At times, these dedicated taxes yield more revenue than is needed to pay current benefits. In particular, since the mid-1980s the Social Security system has been taking in more revenue than it currently needs in order to prepare for the retirement of the baby boomers. This surplus in the Social Security system has been used to accumulate a Social Security *trust fund*, which was \$1.7 trillion at the end of 2004.

The \$1.7 trillion in the trust fund is held in the form of U.S. government bonds, which are included in the \$7.4 trillion in total debt. You could say that there's something funny about counting bonds in the Social Security trust fund as part of government debt. After all, they're owed by one part of the government (the government outside the Social Security system) to another part of the government (the Social Security system itself). But the debt corresponds to a real, if implicit, liability: promises to pay future retirement benefits. So many economists argue that the gross debt of \$7.4 trillion, the sum of public debt and government debt held by Social Security and other trust funds, is a more accurate indication of the government's fiscal health than the smaller amount owed to the public alone.

economics in action

Argentina's Creditors Take a Haircut

As we mentioned earlier, the idea that a government's debt can reach a level at which the government can't pay its creditors can seem far-fetched. In the United States, government debt is usually regarded as the safest asset there is.

But countries *do* default on their debts—fail to repay the money they borrowed. In 1998 Russia defaulted on its bonds, triggering a worldwide panic in financial markets. In 2001, in the biggest default of modern times, the government of Argentina stopped making payments on \$81 billion in debt.

How did the Argentine default happen? During much of the 1990s, the country was experiencing an economic boom and the government was easily able to borrow money from abroad. Although deficit spending led to rising government debt, few considered this a problem. In 1998, however, the country slid into an economic slump that reduced tax revenues, leading to much larger deficits. Foreign lenders, increasingly nervous about the country's ability to repay, became unwilling to lend money except at very high interest rates. By 2001 the country was in a vicious circle: to cover its deficits and pay off old loans as they came due, it was forced to borrow at much higher interest rates, and the escalating interest rates on new borrowing made the deficits even bigger.

Argentine officials tried to reassure lenders by raising taxes and cutting government spending, but they were never able to balance the budget due to the continuing recession and the negative multiplier impact of their restrictive fiscal policies. These strongly contractionary fiscal policies drove the country deeper into recession. Late in 2001, facing popular protests, the Argentine government collapsed, and the country defaulted on its debt.

Creditors can take individuals who fail to pay debts to court. The court, in turn, can seize the debtors' assets and force them to pay part of future earnings to their creditors. But when a government defaults, it's different. Its creditors can't send in the police to seize the country's assets. They must negotiate a deal with the country for partial repayment. The only leverage creditors have in these negotiations is the defaulting government's fear that if it fails to reach a settlement, its reputation will suffer and it will be unable to borrow in the future. (A report by Reuters, the news agency, on Argentina's debt negotiations was headlined "Argentina to unhappy bondholders: so sue.")

It took three years for Argentina to reach an agreement with its creditors because the new Argentine government was determined to strike a hard bargain. And it did. Here's how Reuters described the settlement reached in March 2005: "The deal, which exchanged new paper valued at around 32 cents for every dollar in default, was the biggest 'haircut,' or loss on principal, for investors of any sovereign bond restructuring in modern times." Let's put this into English: Argentina forced its creditors to trade their "sovereign bonds"—debts of a sovereign nation, that is, Argentina—for new bonds worth only 32% as much. Such a reduction in the value of debt is known as a "haircut."

It's important to avoid two misconceptions about this "haircut." First, you might be tempted to think that because Argentina ended up paying only a fraction of the sums it owed, it paid little price for default. In fact, Argentina's default accompanied one of the worst economic slumps of modern times, a period of mass unemployment, soaring poverty, and widespread unrest. Second, it's tempting to dismiss the Argentine story as being of little relevance to countries like the United States. After all, aren't we more responsible than that? But Argentina wouldn't have been able to borrow so much in the first place if its government hadn't been well regarded by international lenders. In fact, as late as 1998 Argentina was widely admired for its economic management. What Argentina's slide into default shows is that concerns about the long-run effects of budget deficits are not at all academic. Due to its large and growing debt-GDP ratio, one recession pushed it over the edge into economic collapse. ■

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>> QUICK REVIEW

- Persistent budget deficits lead to increases in *public debt*.
- Rising public debt can lead to government default. In less extreme cases, it can crowd out investment spending, reducing long-run growth. This suggests that budget deficits in bad years should be offset with budget surpluses in good years.
- A widely used indicator of fiscal health is the *debt-GDP ratio*. A country with rising GDP can have a stable debt-GDP ratio even if it runs budget deficits if GDP is growing faster than the debt.
- In addition to their official debt, modern governments have implicit *liabilities*. The U.S. government has large implicit liabilities in the form of Social Security, Medicare, and Medicaid.

>> CHECK YOUR UNDERSTANDING 12-4

1. Explain how each of the following events would affect the public debt or implicit liabilities of the U.S. government, other things equal. Would the public debt or implicit liabilities be greater or smaller?
 - a. A higher growth rate of GDP
 - b. Retirees living longer
 - c. A decrease in tax revenue
 - d. Government borrowing to pay interest on its current public debt

2. Suppose the economy is in a slump and the current public debt is quite large. Explain the trade-off of short-run versus long-run objectives that policy makers face when deciding whether or not to engage in deficit spending.

Solutions appear at back of book.

• A LOOK AHEAD •

Fiscal policy isn't the only way governments can stimulate aggregate demand when the economy is slumping or reduce aggregate demand when it is too high. In fact, although most economists believe that automatic stabilizers play a useful role, many are skeptical about the usefulness of discretionary fiscal policy due to the time lags in its formulation and implementation.

But there's an important alternative: monetary policy. In the next two chapters we'll learn about monetary institutions and see how monetary policy works.

SUMMARY

1. The government plays a large role in the economy, collecting a large share of GDP in taxes and spending a large share both to purchase goods and services and to make transfer payments, largely for **social insurance**. **Fiscal policy** is the use of taxes, government transfers, or government purchases of goods and services to shift the aggregate demand curve. But many economists caution that a very active fiscal policy may in fact make the economy less stable due to the lags in policy formulation and implementation.
2. Government purchases of goods and services directly affect aggregate demand, and changes in taxes and government transfers affect aggregate demand indirectly by changing households' disposable income. **Expansionary fiscal policies** shift the aggregate demand curve rightward, while **contractionary fiscal policies** shift the aggregate demand curve leftward.
3. Fiscal policy has a multiplier effect on the economy. Expansionary fiscal policy leads to an increase in real GDP larger than the initial rise in aggregate spending caused by the policy. Conversely, contractionary fiscal policy leads to a fall in real GDP larger than the initial reduction in aggregate spending caused by the policy. The size of the shift of the aggregate demand curve depends on the type of fiscal policy. The multiplier on changes in government purchases, $1/(1 - MPC)$, is larger than the multiplier on changes in taxes or transfers, $MPC/(1 - MPC)$, because part of any change in taxes or transfers is absorbed by savings. So changes in government purchases have a more powerful effect on the economy than equal-sized changes in taxes or transfers.
4. Rules governing taxes and some transfers act as **automatic stabilizers**, reducing the size of the multiplier and automatically reducing the size of fluctuations in the business cycle. In contrast, **discretionary fiscal policy** arises from deliberate actions by policy makers rather than from the business cycle.
5. Some of the fluctuations in the budget balance are due to the effects of the business cycle. In order to separate the effects of the business cycle from the effects of discretionary fiscal policy, governments estimate the **cyclically adjusted budget balance**, an estimate of the budget balance if the economy were at potential output.
6. U.S. government budget accounting is calculated on the basis of **fiscal years**. Persistent budget deficits have long-run consequences because they lead to an increase in **public debt**. This can be a problem for two reasons. Public debt may crowd out investment spending, which reduces long-run economic growth. And in extreme cases, rising debt may lead to government default, resulting in economic and financial turmoil.
7. A widely used measure of fiscal health is the **debt-GDP ratio**. This number can remain stable or fall even in the face of moderate budget deficits if GDP rises over time. However, a stable debt-GDP ratio may give a misleading impression that all is well because modern governments often have large **implicit liabilities**. The largest implicit liabilities of the U.S. government come from Social Security, Medicare, and Medicaid, the cost of which are increasing due to the aging of the population and rising medical costs.

KEY TERMS

Social insurance, p. 000

Fiscal policy, p. 000

Expansionary fiscal policy, p. 000

Contractionary fiscal policy, p. 000

Automatic stabilizers, p. 000

Discretionary fiscal policy, p. 000

Cyclically adjusted budget balance, p. 000

Fiscal years, p. 000

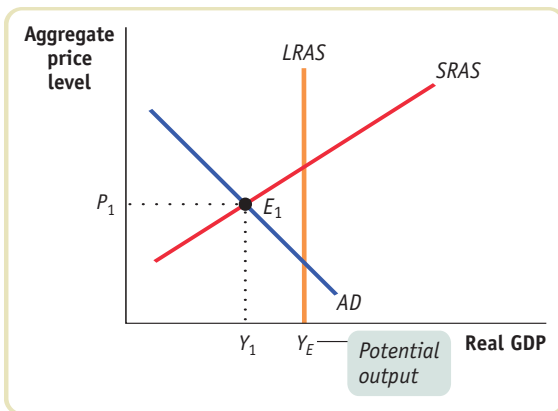
Public debt, p. 000

Debt-GDP ratio, p. 000

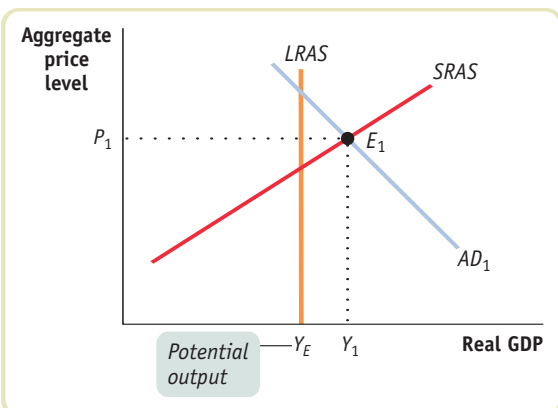
Implicit liabilities, p. 000

PROBLEMS

1. The accompanying diagram shows the current macroeconomic situation for the economy of Albernia. You have been hired as an economic consultant to help the economy move to potential output, Y_E .



- Is Albernia facing a recessionary or inflationary gap?
 - Would expansionary or contractionary fiscal policies move the economy of Albernia to potential output, Y_E ? What are some examples of such policies?
 - Illustrate the macroeconomic situation in Albernia with a diagram after the successful fiscal policy has been implemented.
2. The accompanying diagram shows the current macroeconomic situation for the economy of Brittania; real GDP is Y_1 and the aggregate price level is P_1 . You have been hired as an economic consultant to help the economy move to potential output, Y_E .



- Is Brittania facing a recessionary or inflationary gap?
- Would expansionary or contractionary fiscal policies move the economy of Brittania to potential output, Y_E ? What are some examples of such policies?
- Illustrate the macroeconomic situation in Brittania with a diagram after the successful fiscal policy has been implemented.

3. An economy is in long-run macroeconomic equilibrium when each of the following aggregate demand shocks occurs. What kind of gap will the economy face after the shock, and what type of fiscal policies would help move the economy back to potential output?

- A stock market boom increases the value of stocks held by households.
- Firms come to believe that a recession in the near future is likely.
- Anticipating the possibility of war, the government increases its purchases of military equipment.
- The quantity of money in the economy declines and interest rates increase.

4. Show why a \$10 billion decrease in government purchases will have a larger effect on real GDP than a \$10 billion increase in taxes by completing the accompanying table for an economy with a marginal propensity to consume (MPC) of 0.6. The first and second rows of the table are filled in for you: in the first row, the \$10 billion decrease in government purchases decreases real GDP and disposable income, YD , by \$10 billion, leading to a decrease in consumer spending of \$6 billion ($MPC \times$ change in disposable income) in row 2. However, the \$10 billion increase in taxes has no effect on real GDP in round 1 but does lower YD by \$10 billion, resulting in a decrease in consumer spending of \$6 billion in round 2.

Rounds	Decrease $G = \$10$ billion			Increase $T = \$10$ billion		
	Change in G (billions of dollars)	Change in real GDP (billions of dollars)	Change in YD (billions of dollars)	Change in T (billions of dollars)	Change in real GDP (billions of dollars)	Change in YD (billions of dollars)
1	$\Delta G = -\$10.00$	$-\$10.00$	$-\$10.00$	$\Delta T = \$10.00$	$\$0.00$	$-\$10.00$
2	$\Delta C = -\$6.00$	-6.00	-6.00	$\Delta C = -6.00$	-6.00	-6.00
3	$\Delta C =$			$\Delta C =$		
4	$\Delta C =$			$\Delta C =$		
5	$\Delta C =$			$\Delta C =$		
6	$\Delta C =$			$\Delta C =$		
7	$\Delta C =$			$\Delta C =$		
8	$\Delta C =$			$\Delta C =$		
9	$\Delta C =$			$\Delta C =$		
10	$\Delta C =$			$\Delta C =$		

- When government purchases decrease by \$10 billion, what is the sum of the changes in real GDP after the 10 rounds?
 - When the government increases taxes by \$10 billion, what is sum of the changes in real GDP after the 10 rounds?
 - Using the formula for the multiplier for changes in government purchases and for changes in taxes, calculate the total change in real GDP due to the \$10 billion decrease in government purchases and the \$10 billion increase in taxes. What explains the difference?
- In each of the following cases, either an expansionary or inflationary gap exists. Calculate both the change in government purchases of goods and services and the change in taxes necessary to close the gap.
 - Real GDP equals \$100 billion, potential output equals \$160 billion, and the marginal propensity to consume is 0.75.
 - Real GDP equals \$250 billion, potential output equals \$200 billion, and the marginal propensity to consume is 0.5.
 - Real GDP equals \$180 billion, potential output equals \$100 billion, and the marginal propensity to consume is 0.8.
 - Most macroeconomists believe it is a good thing that taxes act as automatic stabilizers and lower the size of the multiplier. However, a smaller multiplier means that the change in government purchases of goods and services, government transfers, or taxes necessary to close an inflationary or recessionary gap is larger. How can you reconcile this apparent inconsistency?
 - The accompanying table shows how consumers' marginal propensities to consume in a particular economy are related to their level of income:

Income range	Marginal propensity to consume
\$0–\$20,000	0.9
\$20,001–\$40,000	0.8
\$40,001–\$60,000	0.7
\$60,001–\$80,000	0.6
Above \$80,000	0.5

- What is the “bang for the buck” for an additional \$1 of income for consumers in each income range?
 - If the government needed to close a recessionary or inflationary gap, what types of fiscal policies would you recommend to close the gap with the smallest change in either government purchases of goods and services or taxes?
- The government’s budget surplus in Macroland has risen consistently over the past five years. Two government policy makers differ as to why this has happened. One argues that a rising budget surplus indicates a growing economy; the other argues that it shows that the government is using contractionary fiscal policy. Which policy maker is correct?
 - Figure 12-9 shows the actual deficit and the cyclically adjusted budget balance as a percentage of real GDP in the United States since 1970. Using this figure, determine in which years since 1992 the government used expansionary fiscal policy and in which years it used contractionary fiscal policy.
 - You are an economic adviser to a candidate for national office. She asks you for a summary of the economic consequences of a balanced-budget rule for the federal government and for your recommendation on whether she should support such a rule. How do you respond?
 - In 2005, the policy makers of the economy of Eastlandia projected the debt–GDP ratio and the deficit–GDP ratio for the

economy for the next 10 years under different scenarios for growth in the government's deficit. Real GDP is currently \$1,000 billion per year and is expected to grow by 3 percent per year, the public debt is \$300 billion at the beginning of the year, and the deficit is \$30 billion per year.

Year	Real GDP (billions of dollars)	Debt (billions of dollars)	Budget deficit (billions of dollars)	Debt (percent of real GDP)	Budget deficit (percent of real GDP)
2005	\$1,000	\$300	\$30		
2006	\$1,030				
2007	\$1,061				
2008	\$1,093				
2009	\$1,126				
2010	\$1,159				
2011	\$1,194				
2012	\$1,230				
2013	\$1,267				
2014	\$1,305				
2015	\$1,344				

- Complete the accompanying table to show the debt-GDP ratio and the deficit-GDP ratio for the economy if the government's budget deficit remains constant at \$30 billion over the next 10 years. (Remember that the government's debt will grow by the previous year's deficit.)
 - Redo the table to show the debt-GDP ratio and the deficit-GDP ratio for the economy if the government's deficit grows by 3% per year over the next 10 years.
 - Redo the table again to show the debt-GDP ratio and the deficit-GDP ratio for the economy if the government's deficit grows by 20% per year over the next 10 years.
 - What happens to the debt-GDP ratio and the deficit-GDP ratio for the economy over time under the three different scenarios?
- Your study partner argues that the distinction between the government's budget deficit and debt is similar to the distinction between consumer savings and wealth. He also argues that if you have large budget deficits, you must have a large debt. In what ways is your study partner correct and in what ways is he incorrect?
 - In which of the following cases do the size of the government's debt and the size of the budget deficit indicate potential problems for the economy?
 - The government's debt is relatively low, but the government is running a large budget deficit as it builds a high-speed rail system to connect the major cities of the nation.
 - The government's debt is relatively high due to a recently ended war, but the government is running a small budget deficit.
 - The government's debt is relatively low, but the government is running a budget deficit to finance the interest payments on the debt.
 - How did or would the following affect the public debt and implicit liabilities of the U.S. government?
 - In 2003, Congress passed and President Bush signed the Medicare Modernization Act, which provides seniors and individuals with disabilities with a prescription drug benefit. Some of the benefits under this law took effect immediately, but others will not begin until sometime in the future.
 - The age at which retired persons can receive full Social Security benefits is raised to age 70.
 - For future retirees, Social Security benefits are limited to those with low incomes.
 - Because the cost of health care is increasing faster than the overall inflation rate, annual increases in Social Security benefits are increased by the annual increase in health care costs rather than the overall inflation rate.