



## What you will learn in this Module:

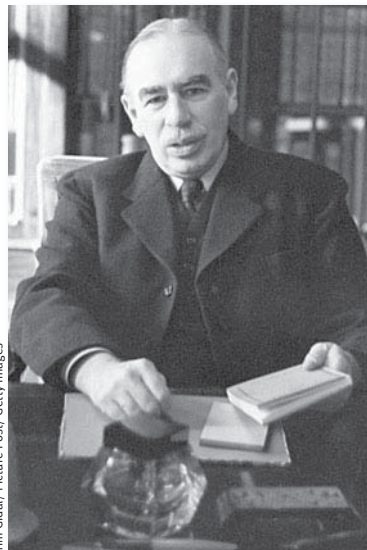
- How the  $AD-AS$  model is used to formulate macroeconomic policy
- The rationale for stabilization policy
- Why fiscal policy is an important tool for managing economic fluctuations
- Which policies constitute expansionary fiscal policy and which constitute contractionary fiscal policy

# Module 20 Economic Policy and the Aggregate Demand–Aggregate Supply Model

## Macroeconomic Policy

We've just seen that the economy is self-correcting in the long run: it will eventually trend back to potential output. Most macroeconomists believe, however, that the process of self-correction typically takes a decade or more. In particular, if aggregate output is below potential output, the economy can suffer an extended period of depressed aggregate output and high unemployment before it returns to normal.

This belief is the background to one of the most famous quotations in economics: John Maynard Keynes's declaration, "In the long run we are all dead." Economists usually interpret Keynes as having recommended that governments not wait for the economy to correct itself. Instead, it is argued by many economists, but not all, that the government should use fiscal policy to get the economy back to potential output in the aftermath of a shift of the aggregate demand curve. This is the rationale for active **stabilization policy**, which is the



Tim Gidal / Picture Post / Getty Images

Some people use *Keynesian economics* as a synonym for *left-wing economics*—but the truth is that the ideas of John Maynard Keynes have been accepted across a broad range of the political spectrum.

**Stabilization policy** is the use of government policy to reduce the severity of recessions and rein in excessively strong expansions.

use of government policy to reduce the severity of recessions and rein in excessively strong expansions.

Can stabilization policy improve the economy's performance? As we saw in Figure 18.4, the answer certainly appears to be yes. Under active stabilization policy, the U.S. economy returned to potential output in 1996 after an approximately five-year recessionary gap. Likewise, in 2001, it also returned to potential output after an approximately four-year inflationary gap. These periods are much shorter than the decade or more that economists believe it would take for the economy to self-correct in the absence of active stabilization policy. However, as we'll see shortly, the ability to improve the economy's performance is not always guaranteed. It depends on the kinds of shocks the economy faces.

## Policy in the Face of Demand Shocks

Imagine that the economy experiences a negative demand shock, like the one shown by the shift from  $AD_1$  to  $AD_2$  in Figure 19.5. Monetary and fiscal policy shift the aggregate demand curve. If policy makers react quickly to the fall in aggregate demand, they can use monetary or fiscal policy to shift the aggregate demand curve back to the right. And if policy were able to perfectly anticipate shifts of the aggregate demand curve and counteract them, it could short-circuit the whole process shown in Figure 19.5. Instead of going through a period of low aggregate output and falling prices, the government could manage the economy so that it would stay at  $E_1$ .

Why might a policy that short-circuits the adjustment shown in Figure 19.5 and maintains the economy at its original equilibrium be desirable? For two reasons: First, the temporary fall in aggregate output that would happen without policy intervention is a bad thing, particularly because such a decline is associated with high unemployment. Second, *price stability* is generally regarded as a desirable goal. So preventing deflation—a fall in the aggregate price level—is a good thing.

Does this mean that policy makers should always act to offset declines in aggregate demand? Not necessarily. As we'll see, some policy measures to increase aggregate demand, especially those that increase budget deficits, may have long-term costs in terms of lower long-run growth. Furthermore, in the real world policy makers aren't perfectly informed, and the effects of their policies aren't perfectly predictable. This creates the danger that stabilization policy will do more harm than good; that is, attempts to stabilize the economy may end up creating more instability. We'll describe the long-running debate over macroeconomic policy in later modules. Despite these qualifications, most economists believe that a good case can be made for using macroeconomic policy to offset major negative shocks to the  $AD$  curve.

Should policy makers also try to offset positive shocks to aggregate demand? It may not seem obvious that they should. After all, even though inflation may be a bad thing, isn't more output and lower unemployment a good thing? Again, not necessarily. Most economists now believe that any short-run gains from an inflationary gap must be paid back later. So policy makers today usually try to offset positive as well as negative demand shocks. For reasons we'll explain later, attempts to eliminate recessionary gaps and inflationary gaps usually rely on monetary rather than fiscal policy. For now, let's explore how macroeconomic policy can respond to supply shocks.

## Responding to Supply Shocks

In panel (a) of Figure 19.3 we showed the effects of a negative supply shock: in the short run such a shock leads to lower aggregate output but a higher aggregate price level. As we've noted, policy makers can respond to a negative *demand* shock by using monetary and fiscal policy to return aggregate demand to its original level. But what can or should they do about a negative *supply* shock?

In contrast to the case of a demand shock, there are no easy remedies for a supply shock. That is, there are no government policies that can easily counteract the

changes in production costs that shift the short-run aggregate supply curve. So the policy response to a negative supply shock cannot aim to simply push the curve that shifted back to its original position.

And if you consider using monetary or fiscal policy to shift the aggregate demand curve in response to a supply shock, the right response isn't obvious. Two bad things are happening simultaneously: a fall in aggregate output, leading to a rise in unemployment, *and* a rise in the aggregate price level. Any policy that shifts the aggregate demand curve helps one problem only by making the other worse. If the government acts to increase aggregate demand and limit the rise in unemployment, it reduces the decline in output but causes even more inflation. If it acts to reduce aggregate demand, it curbs inflation but causes a further rise in unemployment.

It's a trade-off with no good answer. In the end, the United States and other economically advanced nations suffering from the supply shocks of the 1970s eventually chose to stabilize prices even at the cost of higher unemployment. But being an economic policy maker in the 1970s, or in early 2008, meant facing even harder choices than usual.



AP Photo/Manual Balce Ceneta

In 2008, *stagflation* made for difficult policy choices for Federal Reserve Chairman Ben Bernanke.

## fyi

### Is Stabilization Policy Stabilizing?

We've described the theoretical rationale for stabilization policy as a way of responding to demand shocks. But does stabilization policy actually stabilize the economy? One way we might try to answer this question is to look at the long-term historical record. Before World War II, the U.S. government didn't really have a stabilization policy, largely because macroeconomics as we know it didn't exist, and there was no consensus about what to do. Since World War II, and especially since 1960, active stabilization policy has become standard practice.

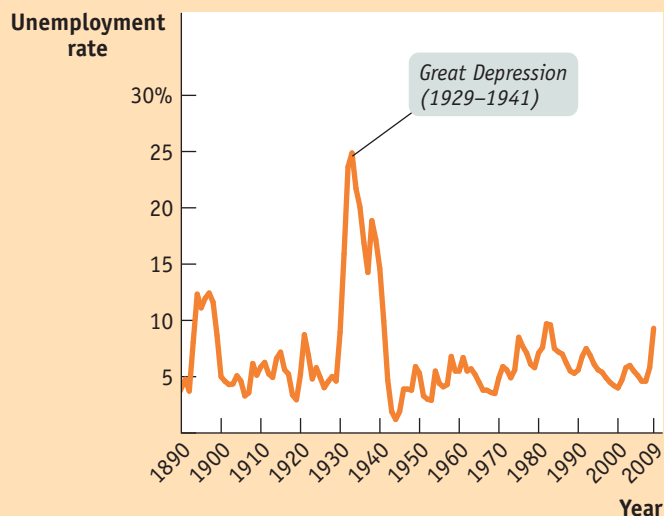
So here's the question: has the economy actually become more stable since the government began trying to stabilize it? The answer is a qualified yes. It's qualified because data from the pre-World War II era are less reliable than more modern data. But there still seems to be a clear reduction in the size of economic fluctuations.

The figure shows the number of unemployed as a percentage of the nonfarm labor force since 1890. (We focus on nonfarm workers because farmers, though they often suffer economic hardship, are rarely reported as un-

employed.) Even ignoring the huge spike in unemployment during the Great Depression, unemployment seems to have varied a lot more before World War II than after. It's also worth noticing that the peaks in postwar unemployment in 1975 and 1982 corresponded to major supply shocks—the kind of shock for which stabilization policy has no good answer.

It's possible that the greater stability of the economy reflects good luck rather than policy. But on the face of it, the evidence suggests that stabilization policy is indeed stabilizing.

Source: C. Romer, "Spurious Volatility in Historical Unemployment Data," *Journal of Political Economy* 94, no. 1 (1986): 1–37 (years 1890–1930); Bureau of Labor statistics (years 1931–2009).



## Fiscal Policy: The Basics

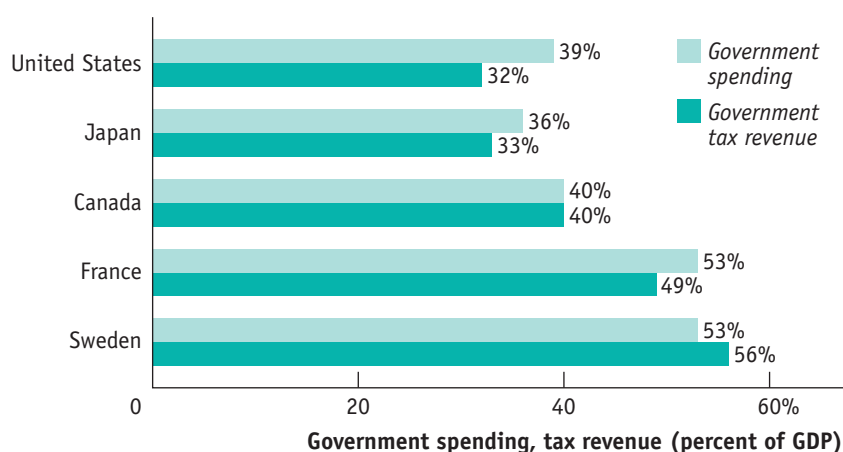
Let's begin with the obvious: modern governments spend a great deal of money and collect a lot in taxes. Figure 20.1 shows government spending and tax revenue as percentages of GDP for a selection of high-income countries in 2008. As you can see, the Swedish government sector is relatively large, accounting for more than half of the Swedish economy. 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. As a result, changes in the federal budget—changes in government spending or in taxation—can have large effects on the American economy.

figure 20.1

### Government Spending and Tax Revenue for Some High-Income Countries in 2008

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 (data for Japan is for year 2007).



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.

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

In the circular flow diagram discussed in Module 10, 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; funds flow *out* in the form of government purchases of goods and services and government transfers to households.

What kinds of taxes do Americans pay, and where does the money go? Figure 20.2 shows the composition of U.S. tax revenue in 2008. 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 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 44% of total government revenue in 2008; social insurance taxes accounted for 27%; and a variety of other taxes, collected mainly at the state and local levels, accounted for the rest.



figure 20.2

**Sources of Tax Revenue in the United States, 2008**

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.

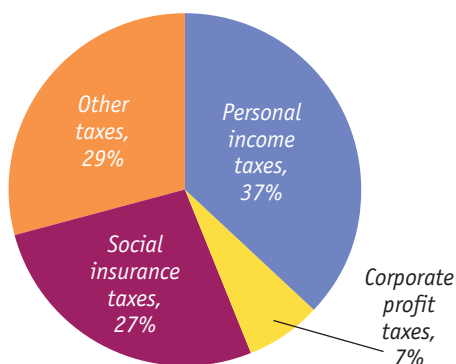


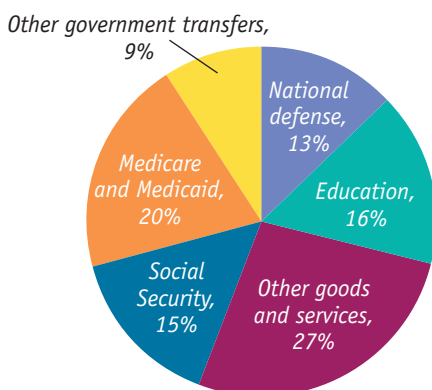
Figure 20.3 shows the composition of 2008 total U.S. government spending, which takes two forms. One form is purchases of goods and services. This includes everything from ammunition for the military to the salaries of public schoolteachers (who are treated in the national accounts as providers of a 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.

figure 20.3

**Government Spending in the United States, 2008**

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 the Medicare and Medicaid health care programs.

Source: Bureau of Economic Analysis.



The other form of government spending is government transfers, which are payments by the government to households 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 U.S. 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 health care for Americans over age 65
- Medicaid, which covers much of the cost of health care for Americans with low incomes



Government transfers on their way: Social Security checks are run through a printer at the U.S. Treasury printing facility in Philadelphia, Pennsylvania.

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 taxation and government spending have a strong effect on total aggregate spending in the economy.

## The Government Budget and Total Spending

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

$$(20-1) \quad GDP = C + I + G + X - IM$$

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 aggregate spending, the 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 20-1: government purchases of goods and services ( $G$ ). But that's not the only effect fiscal policy has on aggregate spending in the economy. Through changes in taxes and transfers, it also influences consumer spending ( $C$ ) and, in some cases, investment spending ( $I$ ).

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 consumer spending.

The government's ability to affect investment spending is a more complex story, which we won't discuss in detail. 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 spend on investment goods.

Because the government itself is one source of spending in the economy, and because taxes and transfers can affect spending by consumers and firms, the government can use changes in taxes or government spending to *shift the aggregate demand curve*. There are sometimes good reasons to shift the aggregate demand curve. In early 2008, there was bipartisan agreement that the U.S. government should act to prevent a fall in aggregate demand—that is, to move the aggregate demand curve to the right of where it would otherwise be. The 2008 stimulus package was a classic example of fiscal policy: the use of taxes, government transfers, or government purchases of goods and services to stabilize the economy by shifting 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.

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

figure 20.4

### Expansionary Fiscal Policy Can Close a Recessionary Gap

At  $E_1$  the economy is in short-run macroeconomic equilibrium where the aggregate demand curve,  $AD_1$ , intersects the  $SRAS$  curve. At  $E_1$ , there is a recessionary gap of  $Y_P - Y_1$ . An expansionary fiscal policy—an increase in government purchases of goods and services, 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 macroeconomic equilibrium,  $E_2$ , which is also a long-run macroeconomic equilibrium.

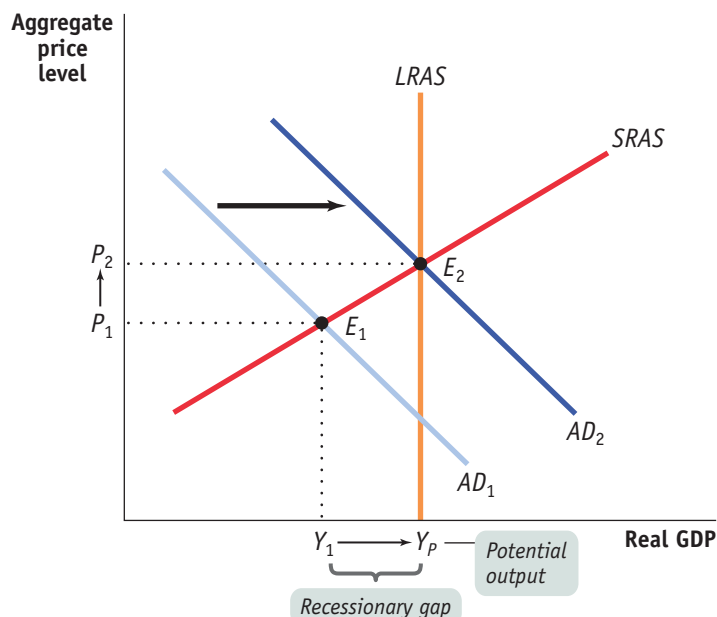


Figure 20.4 shows the case of an economy facing a recessionary gap.  $SRAS$  is the short-run aggregate supply curve,  $LRAS$  is the long-run aggregate supply curve, and  $AD_1$  is the initial aggregate demand curve. At the initial short-run macroeconomic equilibrium,  $E_1$ , aggregate output is  $Y_1$ , below potential output,  $Y_P$ . 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 that increases aggregate demand, called **expansionary fiscal policy**, normally takes one of three forms:

- an increase in government purchases of goods and services
- a cut in taxes
- an increase in government transfers

Figure 20.5 on the next page shows the opposite case—an economy facing an inflationary gap. At the initial equilibrium,  $E_1$ , aggregate output is  $Y_1$ , above potential output,  $Y_P$ . As we'll explain later, policy makers often try to head off inflation by eliminating inflationary gaps. To eliminate the inflationary gap shown in Figure 20.5, fiscal policy must reduce aggregate demand and shift the aggregate demand curve leftward to  $AD_2$ . This reduces aggregate output and makes 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:

- a reduction in government purchases of goods and services
- an increase in taxes
- a reduction in 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 purchases of goods and services, which had risen dramatically because of the cost of the Vietnam War.

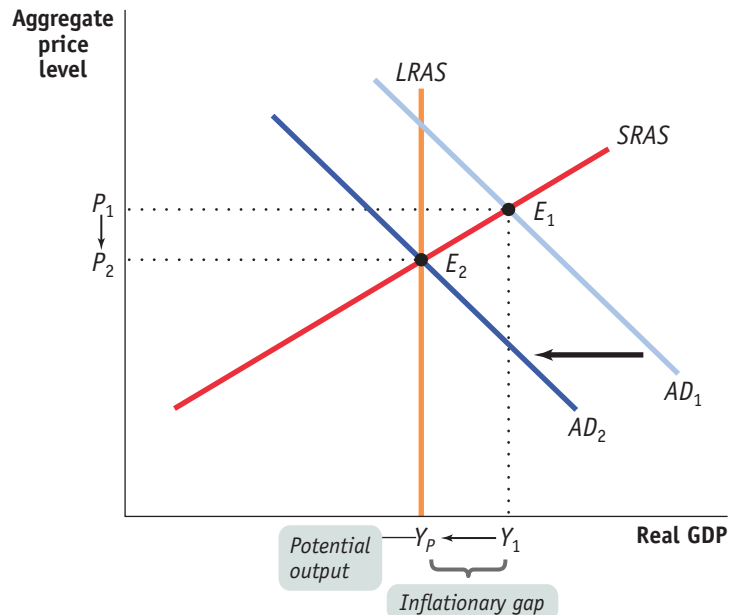
**Expansionary fiscal policy** increases aggregate demand.

**Contractionary fiscal policy** reduces aggregate demand.

figure 20.5

### Contractionary Fiscal Policy Can Close an Inflationary Gap

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



### A Cautionary Note: Lags in Fiscal Policy

Looking at Figures 20.4 and 20.5, 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 later modules. In the case of fiscal policy, one key reason for caution is that there are important *time lags* in its use. To understand the nature of these lags, think about

what has to happen before the government increases spending 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 take 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 economy has already recovered on its own. In fact, 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.



AP Photo/Ron Edmonds

Will the stimulus come in time to be worthwhile? President Barack Obama listens to a question during a news conference in the East Room of the White House in Washington D.C.

fact, 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. In early 2008, there was good reason to believe that the U.S. economy had begun a lengthy slowdown caused by turmoil in the financial markets, so that a fiscal stimulus designed to arrive within a few months would almost surely push aggregate demand in the right direction. 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.

## Module 20 AP Review

Solutions appear at the back of the book.

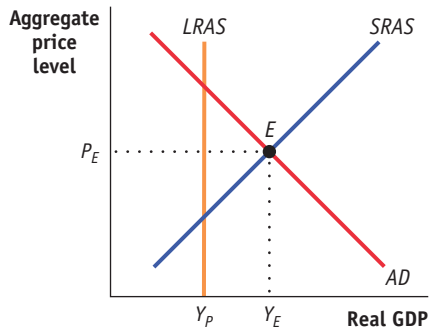
### Check Your Understanding

- In each of the following cases, determine whether the policy is an expansionary or contractionary fiscal policy.
  - Several military bases around the country, which together employ tens of thousands of people, are closed.
  - The number of weeks an unemployed person is eligible for unemployment benefits is increased.
  - The federal tax on gasoline is increased.
- Explain why federal disaster relief, which quickly disburses funds to victims of natural disasters such as hurricanes, floods, and large-scale crop failures, will stabilize the economy more effectively after a disaster than relief that must be legislated.
- Suppose someone says, "Using monetary or fiscal policy to pump up the economy is counterproductive—you get a brief high, but then you have the pain of inflation."
  - Explain what this means in terms of the  $AD-AS$  model.
  - Is this a valid argument against stabilization policy? Why or why not?

### Tackle the Test: Multiple-Choice Questions

- Which of the following contributes to the lag in implementing fiscal policy?
  - It takes time for Congress and the President to pass spending and tax changes.
  - Current economic data take time to collect and analyze.
  - It takes time to realize an output gap exists.
  - I only
  - II only
  - III only
  - I and III only
  - I, II, and III
- Which of the following is a government transfer program?
  - Social Security
  - Medicare/Medicaid
  - unemployment insurance
  - food stamps
  - all of the above
- Which of the following is an example of expansionary fiscal policy?
  - increasing taxes
  - increasing government spending
  - decreasing government transfers
  - decreasing interest rates
  - increasing the money supply
- Which of the following is a fiscal policy that is appropriate to combat inflation?
  - decreasing taxes
  - decreasing government spending
  - increasing government transfers
  - increasing interest rates
  - expansionary fiscal policy
- An income tax rebate is an example of
  - an expansionary fiscal policy.
  - a contractionary fiscal policy.
  - an expansionary monetary policy.
  - a contractionary monetary policy.
  - none of the above.

## Tackle the Test: Free-Response Questions



1. Refer to the graph above.
  - a. What type of gap exists in this economy?
  - b. What type of fiscal policy is appropriate in this situation?
  - c. List the three variables the government can change to implement fiscal policy.
  - d. How would the government change each of the three variables to implement the policy you listed in part b.

Answer (8 points)

1 point: Inflationary

1 point: Contractionary

1 point: Taxes

1 point: Government transfers

1 point: Government purchases of goods and services

1 point: Increase taxes

1 point: Decrease Government transfers

1 point: Decrease government purchases of goods and services

2. a. Draw a correctly labeled graph showing an economy experiencing a recessionary gap.
- b. What type of fiscal policy is appropriate in this situation?
- c. Give an example of what the government could do to implement the type of policy you listed in part b.