

32



THE INFLUENCE OF MONETARY AND FISCAL POLICY ON AGGREGATE DEMAND

Imagine that you are a member of the Federal Open Market Committee, which sets monetary policy. You observe that the president and Congress have agreed to cut government spending. How should the Fed respond to this change in fiscal policy? Should it expand the money supply, contract the money supply, or leave the money supply the same?

To answer this question, you need to consider the impact of monetary and fiscal policy on the economy. In the preceding chapter we saw how to explain short-run economic fluctuations using the model of aggregate demand and aggregate supply. When the aggregate-demand curve or the aggregate-supply curve shifts, the result is fluctuations in the economy's overall output of goods and services and in its overall level of prices. As we noted in the previous chapter, monetary and

IN THIS CHAPTER
YOU WILL . . .

Learn the theory of liquidity preference as a short-run theory of the interest rate

Analyze how monetary policy affects interest rates and aggregate demand

Analyze how fiscal policy affects interest rates and aggregate demand

Discuss the debate over whether policymakers should try to stabilize the economy

fiscal policy can each influence aggregate demand. Thus, a change in one of these policies can lead to short-run fluctuations in output and prices. Policymakers will want to anticipate this effect and, perhaps, adjust the other policy in response.

In this chapter we examine in more detail how the government's tools of monetary and fiscal policy influence the position of the aggregate-demand curve. We have previously discussed the long-run effects of these policies. In Chapters 24 and 25 we saw how fiscal policy affects saving, investment, and long-run economic growth. In Chapters 27 and 28 we saw how the Fed controls the money supply and how the money supply affects the price level in the long run. We now see how these policy tools can shift the aggregate-demand curve and, in doing so, affect short-run economic fluctuations.

As we have already learned, many factors influence aggregate demand besides monetary and fiscal policy. In particular, desired spending by households and firms determines the overall demand for goods and services. When desired spending changes, aggregate demand shifts. If policymakers do not respond, such shifts in aggregate demand cause short-run fluctuations in output and employment. As a result, monetary and fiscal policymakers sometimes use the policy levers at their disposal to try to offset these shifts in aggregate demand and thereby stabilize the economy. Here we discuss the theory behind these policy actions and some of the difficulties that arise in using this theory in practice.

HOW MONETARY POLICY INFLUENCES AGGREGATE DEMAND

The aggregate-demand curve shows the total quantity of goods and services demanded in the economy for any price level. As you may recall from the preceding chapter, the aggregate-demand curve slopes downward for three reasons:

- ◆ *The wealth effect:* A lower price level raises the real value of households' money holdings, and higher real wealth stimulates consumer spending.
- ◆ *The interest-rate effect:* A lower price level lowers the interest rate as people try to lend out their excess money holdings, and the lower interest rate stimulates investment spending.
- ◆ *The exchange-rate effect:* When a lower price level lowers the interest rate, investors move some of their funds overseas and cause the domestic currency to depreciate relative to foreign currencies. This depreciation makes domestic goods cheaper compared to foreign goods and, therefore, stimulates spending on net exports.

These three effects should not be viewed as alternative theories. Instead, they occur simultaneously to increase the quantity of goods and services demanded when the price level falls and to decrease it when the price level rises.

Although all three effects work together in explaining the downward slope of the aggregate-demand curve, they are not of equal importance. Because money

holdings are a small part of household wealth, the wealth effect is the least important of the three. In addition, because exports and imports represent only a small fraction of U.S. GDP, the exchange-rate effect is not very large for the U.S. economy. (This effect is much more important for smaller countries because smaller countries typically export and import a higher fraction of their GDP.) *For the U.S. economy, the most important reason for the downward slope of the aggregate-demand curve is the interest-rate effect.*

To understand how policy influences aggregate demand, therefore, we examine the interest-rate effect in more detail. Here we develop a theory of how the interest rate is determined, called the **theory of liquidity preference**. After we develop this theory, we use it to understand the downward slope of the aggregate-demand curve and how monetary policy shifts this curve. By shedding new light on the aggregate-demand curve, the theory of liquidity preference expands our understanding of short-run economic fluctuations.

theory of liquidity preference

Keynes's theory that the interest rate adjusts to bring money supply and money demand into balance

THE THEORY OF LIQUIDITY PREFERENCE

In his classic book, *The General Theory of Employment, Interest, and Money*, John Maynard Keynes proposed the theory of liquidity preference to explain what factors determine the economy's interest rate. The theory is, in essence, just an application of supply and demand. According to Keynes, the interest rate adjusts to balance the supply and demand for money.

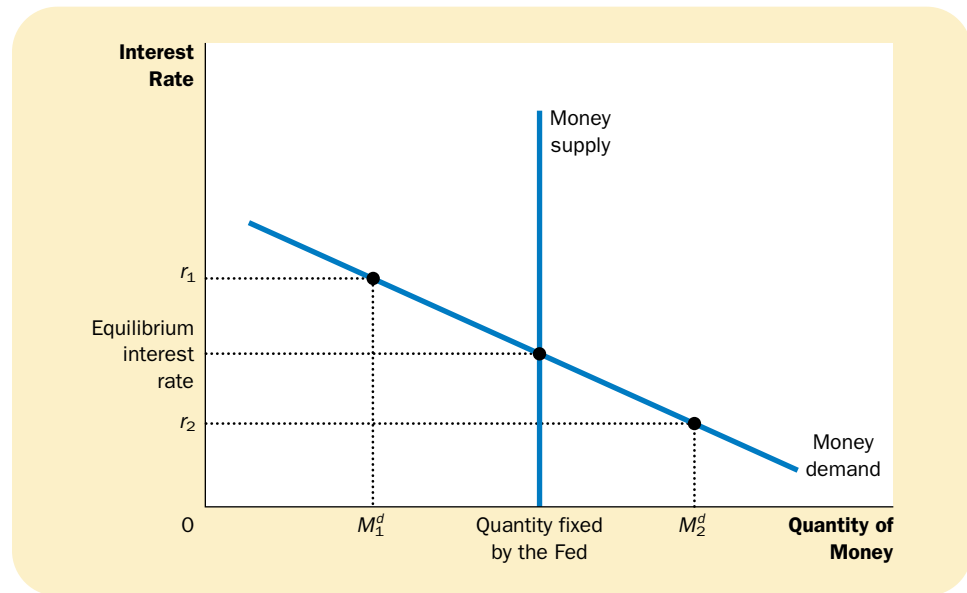
You may recall from Chapter 23 that economists distinguish between two interest rates: The *nominal interest rate* is the interest rate as usually reported, and the *real interest rate* is the interest rate corrected for the effects of inflation. Which interest rate are we now trying to explain? The answer is both. In the analysis that follows, we hold constant the expected rate of inflation. (This assumption is reasonable for studying the economy in the short run, as we are now doing). Thus, when the nominal interest rate rises or falls, the real interest rate that people expect to earn rises or falls as well. For the rest of this chapter, when we refer to changes in the interest rate, you should envision the real and nominal interest rates moving in the same direction.

Let's now develop the theory of liquidity preference by considering the supply and demand for money and how each depends on the interest rate.

Money Supply The first piece of the theory of liquidity preference is the supply of money. As we first discussed in Chapter 27, the money supply in the U.S. economy is controlled by the Federal Reserve. The Fed alters the money supply primarily by changing the quantity of reserves in the banking system through the purchase and sale of government bonds in open-market operations. When the Fed buys government bonds, the dollars it pays for the bonds are typically deposited in banks, and these dollars are added to bank reserves. When the Fed sells government bonds, the dollars it receives for the bonds are withdrawn from the banking system, and bank reserves fall. These changes in bank reserves, in turn, lead to changes in banks' ability to make loans and create money. In addition to these open-market operations, the Fed can alter the money supply by changing reserve requirements (the amount of reserves banks must hold against deposits) or the discount rate (the interest rate at which banks can borrow reserves from the Fed).

Figure 32-1

EQUILIBRIUM IN THE MONEY MARKET. According to the theory of liquidity preference, the interest rate adjusts to bring the quantity of money supplied and the quantity of money demanded into balance. If the interest rate is above the equilibrium level (such as at r_1), the quantity of money people want to hold (M_1^d) is less than the quantity the Fed has created, and this surplus of money puts downward pressure on the interest rate. Conversely, if the interest rate is below the equilibrium level (such as at r_2), the quantity of money people want to hold (M_2^d) is greater than the quantity the Fed has created, and this shortage of money puts upward pressure on the interest rate. Thus, the forces of supply and demand in the market for money push the interest rate toward the equilibrium interest rate, at which people are content holding the quantity of money the Fed has created.



These details of monetary control are important for the implementation of Fed policy, but they are not crucial in this chapter. Our goal here is to examine how changes in the money supply affect the aggregate demand for goods and services. For this purpose, we can ignore the details of how Fed policy is implemented and simply assume that the Fed controls the money supply directly. In other words, the quantity of money supplied in the economy is fixed at whatever level the Fed decides to set it.

Because the quantity of money supplied is fixed by Fed policy, it does not depend on other economic variables. In particular, it does not depend on the interest rate. Once the Fed has made its policy decision, the quantity of money supplied is the same, regardless of the prevailing interest rate. We represent a fixed money supply with a vertical supply curve, as in Figure 32-1.

Money Demand The second piece of the theory of liquidity preference is the demand for money. As a starting point for understanding money demand, recall that any asset's *liquidity* refers to the ease with which that asset is converted into the economy's medium of exchange. Money is the economy's medium of exchange, so it is by definition the most liquid asset available. The liquidity of money explains the demand for it: People choose to hold money instead of other assets that offer higher rates of return because money can be used to buy goods and services.

Although many factors determine the quantity of money demanded, the one emphasized by the theory of liquidity preference is the interest rate. The reason is that the interest rate is the opportunity cost of holding money. That is, when you hold wealth as cash in your wallet, instead of as an interest-bearing bond, you lose the interest you could have earned. An increase in the interest rate raises the cost of holding money and, as a result, reduces the quantity of money demanded. A decrease in the interest rate reduces the cost of holding money and raises the quantity demanded. Thus, as shown in Figure 32-1, the money-demand curve slopes downward.

Equilibrium in the Money Market According to the theory of liquidity preference, the interest rate adjusts to balance the supply and demand for money. There is one interest rate, called the *equilibrium interest rate*, at which the quantity of money demanded exactly balances the quantity of money supplied. If the interest rate is at any other level, people will try to adjust their portfolios of assets and, as a result, drive the interest rate toward the equilibrium.

For example, suppose that the interest rate is above the equilibrium level, such as r_1 in Figure 32-1. In this case, the quantity of money that people want to hold, M_1^d , is less than the quantity of money that the Fed has supplied. Those people who are holding the surplus of money will try to get rid of it by buying interest-bearing bonds or by depositing it in an interest-bearing bank account. Because bond issuers and banks prefer to pay lower interest rates, they respond to this surplus of money by lowering the interest rates they offer. As the interest rate falls, people become more willing to hold money until, at the equilibrium interest rate, people are happy to hold exactly the amount of money the Fed has supplied.

Conversely, at interest rates below the equilibrium level, such as r_2 in Figure 32-1, the quantity of money that people want to hold, M_2^d , is greater than the quantity of money that the Fed has supplied. As a result, people try to increase their holdings of money by reducing their holdings of bonds and other interest-bearing assets. As people cut back on their holdings of bonds, bond issuers find that they have to offer higher interest rates to attract buyers. Thus, the interest rate rises and approaches the equilibrium level.

THE DOWNWARD SLOPE OF THE AGGREGATE-DEMAND CURVE

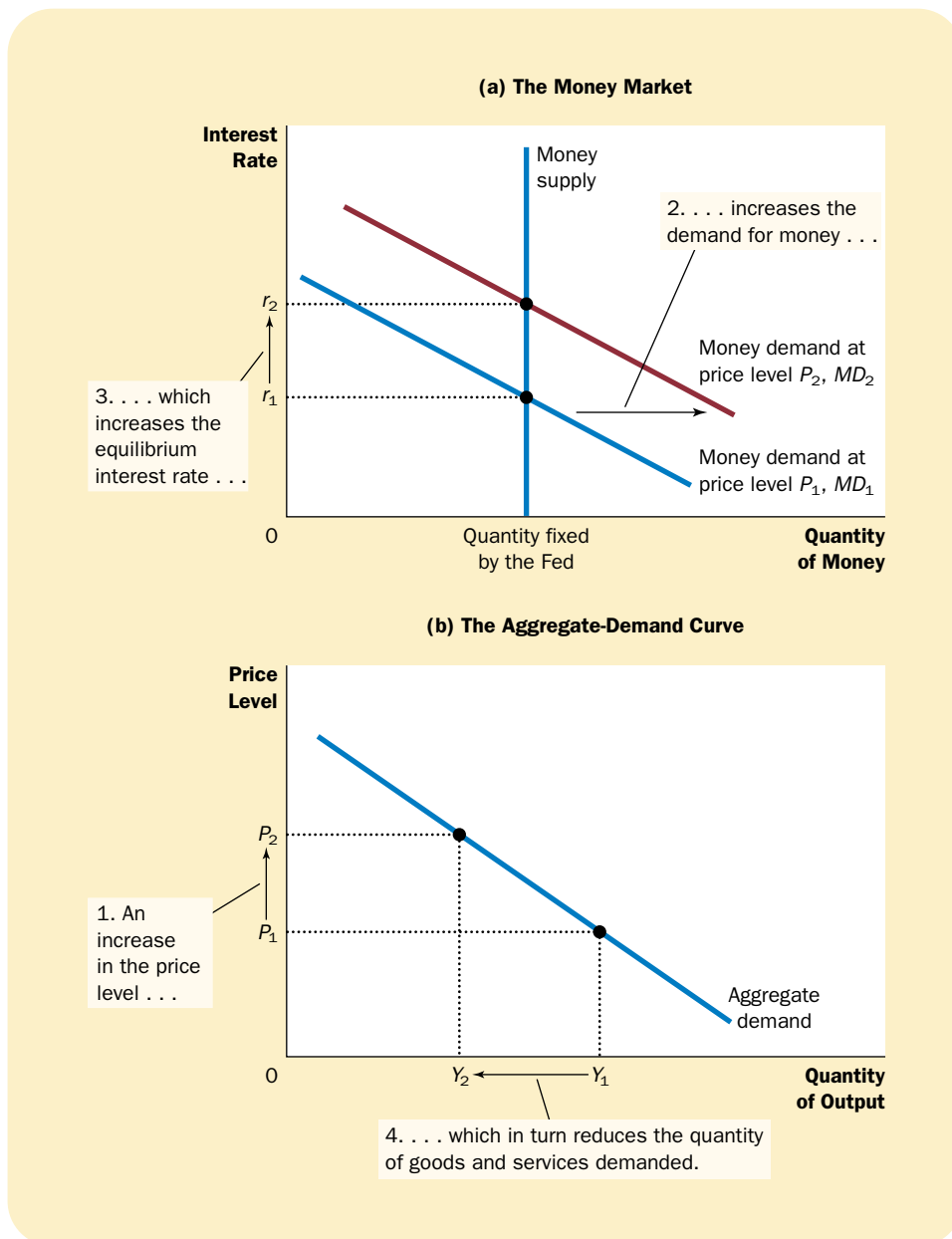
Having seen how the theory of liquidity preference explains the economy's equilibrium interest rate, we now consider its implications for the aggregate demand for goods and services. As a warm-up exercise, let's begin by using the theory to reexamine a topic we already understand—the interest-rate effect and the downward slope of the aggregate-demand curve. In particular, suppose that the overall level of prices in the economy rises. What happens to the interest rate that balances the supply and demand for money, and how does that change affect the quantity of goods and services demanded?

As we discussed in Chapter 28, the price level is one determinant of the quantity of money demanded. At higher prices, more money is exchanged every time a good or service is sold. As a result, people will choose to hold a larger quantity of money. That is, a higher price level increases the quantity of money demanded for any given interest rate. Thus, an increase in the price level from P_1 to P_2 shifts the money-demand curve to the right from MD_1 to MD_2 , as shown in panel (a) of Figure 32-2.

Notice how this shift in money demand affects the equilibrium in the money market. For a fixed money supply, the interest rate must rise to balance money supply and money demand. The higher price level has increased the amount of money people want to hold and has shifted the money demand curve to the right. Yet the quantity of money supplied is unchanged, so the interest rate must rise from r_1 to r_2 to discourage the additional demand.

Figure 32-2

THE MONEY MARKET AND THE SLOPE OF THE AGGREGATE-DEMAND CURVE. An increase in the price level from P_1 to P_2 shifts the money-demand curve to the right, as in panel (a). This increase in money demand causes the interest rate to rise from r_1 to r_2 . Because the interest rate is the cost of borrowing, the increase in the interest rate reduces the quantity of goods and services demanded from Y_1 to Y_2 . This negative relationship between the price level and quantity demanded is represented with a downward-sloping aggregate-demand curve, as in panel (b).



This increase in the interest rate has ramifications not only for the money market but also for the quantity of goods and services demanded, as shown in panel (b). At a higher interest rate, the cost of borrowing and the return to saving are greater. Fewer households choose to borrow to buy a new house, and those who do buy smaller houses, so the demand for residential investment falls. Fewer firms choose to borrow to build new factories and buy new equipment, so business investment falls. Thus, when the price level rises from P_1 to P_2 , increasing money demand from MD_1 to MD_2 and raising the interest rate from r_1 to r_2 , the quantity of goods and services demanded falls from Y_1 to Y_2 .

FYI

Interest Rates
in the Long Run
and the
Short Run

At this point, we should pause and reflect on a seemingly awkward embarrassment of riches. It might appear as if we now have two theories for how interest rates are determined. Chapter 25 said that the interest rate adjusts to balance the supply and demand for loanable funds (that is, national saving and desired investment). By contrast, we just established here that the interest

rate adjusts to balance the supply and demand for money. How can we reconcile these two theories?

To answer this question, we must again consider the differences between the long-run and short-run behavior of the economy. Three macroeconomic variables are of central importance: the economy's output of goods and services, the interest rate, and the price level. According to the classical macroeconomic theory we developed in Chapters 24, 25, and 28, these variables are determined as follows:

1. *Output* is determined by the supplies of capital and labor and the available production technology for turning capital and labor into output. (We call this the natural rate of output.)
2. For any given level of output, the *interest rate* adjusts to balance the supply and demand for loanable funds.
3. The *price level* adjusts to balance the supply and demand for money. Changes in the supply of money lead to proportionate changes in the price level.

These are three of the essential propositions of classical economic theory. Most economists believe that these propositions do a good job of describing how the economy works *in the long run*.

Yet these propositions do not hold in the short run. As we discussed in the preceding chapter, many prices are slow to adjust to changes in the money supply; this is reflected in a short-run aggregate-supply curve that is upward sloping rather than vertical. As a result, the overall price level cannot, by itself, balance the supply and demand for money in the short run. This stickiness of the price level forces the interest rate to move in order to bring the money market into equilibrium. These changes in the interest rate, in turn, affect the aggregate demand for goods and services. As aggregate demand fluctuates, the economy's output of goods and services moves away from the level determined by factor supplies and technology.

For issues concerning the short run, then, it is best to think about the economy as follows:

1. The *price level* is stuck at some level (based on previously formed expectations) and, in the short run, is relatively unresponsive to changing economic conditions.
2. For any given price level, the *interest rate* adjusts to balance the supply and demand for money.
3. The level of *output* responds to the aggregate demand for goods and services, which is in part determined by the interest rate that balances the money market.

Notice that this precisely reverses the order of analysis used to study the economy in the long run.

Thus, the different theories of the interest rate are useful for different purposes. When thinking about the long-run determinants of interest rates, it is best to keep in mind the loanable-funds theory. This approach highlights the importance of an economy's saving propensities and investment opportunities. By contrast, when thinking about the short-run determinants of interest rates, it is best to keep in mind the liquidity-preference theory. This theory highlights the importance of monetary policy.

Hence, this analysis of the interest-rate effect can be summarized in three steps: (1) A higher price level raises money demand. (2) Higher money demand leads to a higher interest rate. (3) A higher interest rate reduces the quantity of goods and services demanded.

Of course, the same logic works in reverse as well: A lower price level reduces money demand, which leads to a lower interest rate, and this in turn increases the quantity of goods and services demanded. The end result of this analysis is a negative relationship between the price level and the quantity of goods and services demanded, which is illustrated with a downward-sloping aggregate-demand curve.

CHANGES IN THE MONEY SUPPLY

So far we have used the theory of liquidity preference to explain more fully how the total quantity of goods and services demanded in the economy changes as the price level changes. That is, we have examined movements along the downward-sloping aggregate-demand curve. The theory also sheds light, however, on some of the other events that alter the quantity of goods and services demanded. Whenever the quantity of goods and services demanded changes *for a given price level*, the aggregate-demand curve shifts.

One important variable that shifts the aggregate-demand curve is monetary policy. To see how monetary policy affects the economy in the short run, suppose that the Fed increases the money supply by buying government bonds in open-market operations. (Why the Fed might do this will become clear later after we understand the effects of such a move.) Let's consider how this monetary injection influences the equilibrium interest rate for a given price level. This will tell us what the injection does to the position of the aggregate-demand curve.

As panel (a) of Figure 32-3 shows, an increase in the money supply shifts the money-supply curve to the right from MS_1 to MS_2 . Because the money-demand curve has not changed, the interest rate falls from r_1 to r_2 to balance money supply and money demand. That is, the interest rate must fall to induce people to hold the additional money the Fed has created.

Once again, the interest rate influences the quantity of goods and services demanded, as shown in panel (b) of Figure 32-3. The lower interest rate reduces the cost of borrowing and the return to saving. Households buy more and larger houses, stimulating the demand for residential investment. Firms spend more on new factories and new equipment, stimulating business investment. As a result, the quantity of goods and services demanded at a given price level, \bar{P} , rises from Y_1 to Y_2 . Of course, there is nothing special about \bar{P} : The monetary injection raises the quantity of goods and services demanded at every price level. Thus, the entire aggregate-demand curve shifts to the right.

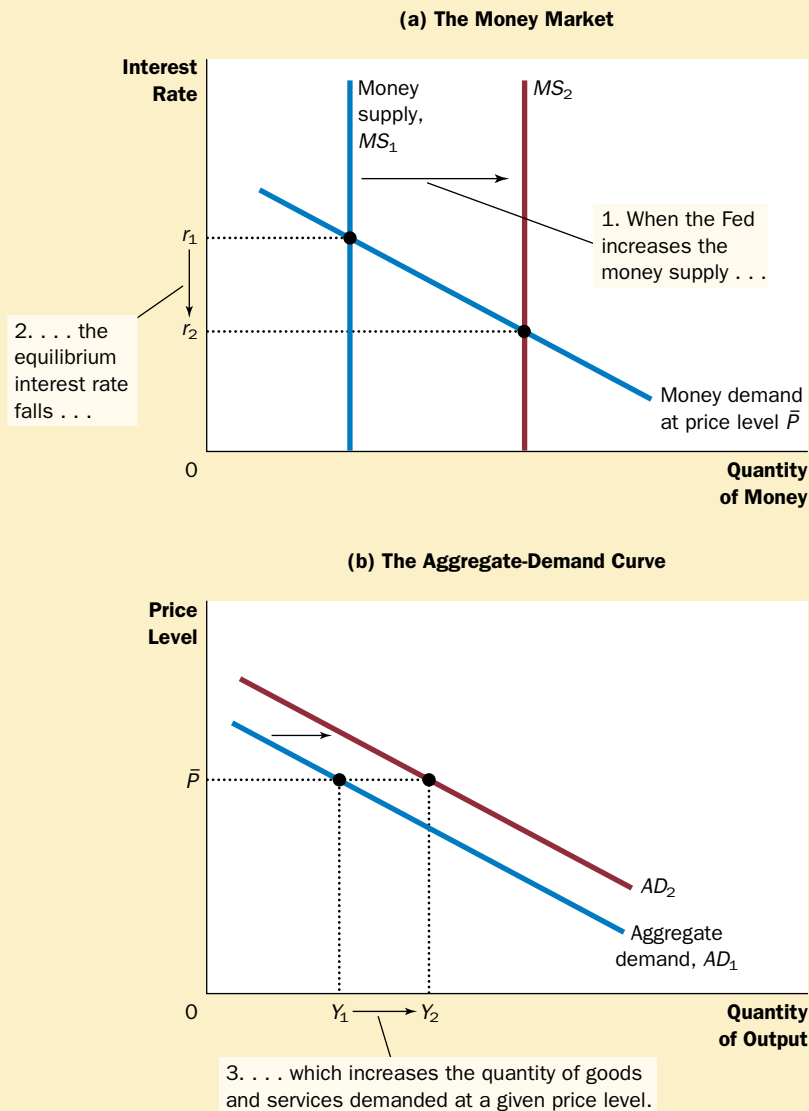
To sum up: *When the Fed increases the money supply, it lowers the interest rate and increases the quantity of goods and services demanded for any given price level, shifting the aggregate-demand curve to the right. Conversely, when the Fed contracts the money supply, it raises the interest rate and reduces the quantity of goods and services demanded for any given price level, shifting the aggregate-demand curve to the left.*

THE ROLE OF INTEREST-RATE TARGETS IN FED POLICY

How does the Federal Reserve affect the economy? Our discussion here and earlier in the book has treated the money supply as the Fed's policy instrument. When the Fed buys government bonds in open-market operations, it increases the money supply and expands aggregate demand. When the Fed sells government bonds in open-market operations, it decreases the money supply and contracts aggregate demand.

Often discussions of Fed policy treat the interest rate, rather than the money supply, as the Fed's policy instrument. Indeed, in recent years, the Federal Reserve has conducted policy by setting a target for the *federal funds rate*—the interest rate that banks charge one another for short-term loans. This target is reevaluated every six weeks at meetings of the Federal Open Market Committee (FOMC). The

Figure 32-3



A MONETARY INJECTION. In panel (a), an increase in the money supply from MS_1 to MS_2 reduces the equilibrium interest rate from r_1 to r_2 . Because the interest rate is the cost of borrowing, the fall in the interest rate raises the quantity of goods and services demanded at a given price level from Y_1 to Y_2 . Thus, in panel (b), the aggregate-demand curve shifts to the right from AD_1 to AD_2 .

FOMC has chosen to set a target for the federal funds rate (rather than for the money supply, as it has done at times in the past) in part because the money supply is hard to measure with sufficient precision.

The Fed's decision to target an interest rate does not fundamentally alter our analysis of monetary policy. The theory of liquidity preference illustrates an important principle: *Monetary policy can be described either in terms of the money supply or in terms of the interest rate.* When the FOMC sets a target for the federal funds rate of, say, 6 percent, the Fed's bond traders are told: "Conduct whatever open-market operations are necessary to ensure that the equilibrium interest rate equals



“Ray Brown on bass, Elvin Jones on drums, and Alan Greenspan on interest rates.”

6 percent.” In other words, when the Fed sets a target for the interest rate, it commits itself to adjusting the money supply in order to make the equilibrium in the money market hit that target.

As a result, changes in monetary policy can be viewed either in terms of a changing target for the interest rate or in terms of a change in the money supply. When you read in the newspaper that “the Fed has lowered the federal funds rate from 6 to 5 percent,” you should understand that this occurs only because the Fed’s bond traders are doing what it takes to make it happen. To lower the federal funds rate, the Fed’s bond traders buy government bonds, and this purchase increases the money supply and lowers the equilibrium interest rate (just as in Figure 32-3). Similarly, when the FOMC raises the target for the federal funds rate, the bond traders sell government bonds, and this sale decreases the money supply and raises the equilibrium interest rate.

The lessons from all this are quite simple: Changes in monetary policy that aim to expand aggregate demand can be described either as increasing the money supply or as lowering the interest rate. Changes in monetary policy that aim to contract aggregate demand can be described either as decreasing the money supply or as raising the interest rate.

CASE STUDY WHY THE FED WATCHES THE STOCK MARKET (AND VICE VERSA)

“Irrational exuberance.” That was how Federal Reserve Chairman Alan Greenspan once described the booming stock market of the late 1990s. He is right that the market was exuberant: Average stock prices increased about four-fold during this decade. Whether this rise was irrational, however, is more open to debate.

Regardless of how we view the booming market, it does raise an important question: How should the Fed respond to stock-market fluctuations? The Fed

has no reason to care about stock prices in themselves, but it does have the job of monitoring and responding to developments in the overall economy, and the stock market is a piece of that puzzle. When the stock market booms, households become wealthier, and this increased wealth stimulates consumer spending. In addition, a rise in stock prices makes it more attractive for firms to sell new shares of stock, and this stimulates investment spending. For both reasons, a booming stock market expands the aggregate demand for goods and services.

As we discuss more fully later in the chapter, one of the Fed's goals is to stabilize aggregate demand, for greater stability in aggregate demand means greater stability in output and the price level. To do this, the Fed might respond to a stock-market boom by keeping the money supply lower and interest rates higher than it otherwise would. The contractionary effects of higher interest rates would offset the expansionary effects of higher stock prices. In fact, this analysis does describe Fed behavior: Real interest rates were kept high by historical standards during the "irrationally exuberant" stock-market boom of the late 1990s.

The opposite occurs when the stock market falls. Spending on consumption and investment declines, depressing aggregate demand and pushing the economy toward recession. To stabilize aggregate demand, the Fed needs to increase the money supply and lower interest rates. And, indeed, that is what it typically does. For example, on October 19, 1987, the stock market fell by 22.6 percent—its biggest one-day drop in history. The Fed responded to the market crash by

IN THE NEWS

European Central Bankers Expand Aggregate Demand



NEWSPAPERS ARE FILLED WITH STORIES about monetary policymakers adjusting the money supply and interest rates in response to changing economic conditions. Here's an example.

European Banks, Acting in Unison, Cut Interest Rate: 11 Nations Decide That Growth, Not Inflation, Is Top Concern

BY EDMUND L. ANDREWS

FRANKFURT, DEC. 3—In the most coordinated action yet toward European monetary union, 11 nations simultaneously cut their interest rates today to a nearly uniform level.

The move came a month before the nations adopt the euro as a single currency and marked a drastic shift in policy. As recently as two months ago, European central bankers had adamantly resisted demands from political leaders to lower rates because they were intent on establishing the credibility of the euro and the fledgling European Central Bank in world markets.

But today, citing signs that the global economic slowdown has begun

to chill Europe, the central banks of the 11 euro-zone nations reduced their benchmark interest rates by at least three-tenths of a percent. The cuts are intended to help bolster the European economies by making it cheaper for businesses and consumers to borrow.

"We are deaf to political pressure, but we are not blind to facts and arguments," Hans Tietmeyer, the president of Germany's central bank, the Bundesbank, said. . . .

In announcing the decision, Mr. Tietmeyer said today that the central bankers had acted in response to mounting evidence that European growth rates would be significantly slower next year than they had predicted as recently as last summer.

SOURCE: *The New York Times*, December 4, 1998, p. A1.

increasing the money supply and lowering interest rates. The federal funds rate fell from 7.7 percent at the beginning of October to 6.6 percent at the end of the month. In part because of the Fed's quick action, the economy avoided a recession.

While the Fed keeps an eye on the stock market, stock-market participants also keep an eye on the Fed. Because the Fed can influence interest rates and economic activity, it can alter the value of stocks. For example, when the Fed raises interest rates by reducing the money supply, it makes owning stocks less attractive for two reasons. First, a higher interest rate means that bonds, the alternative to stocks, are earning a higher return. Second, the Fed's tightening of monetary policy risks pushing the economy into a recession, which reduces profits. As a result, stock prices often fall when the Fed raises interest rates.

QUICK QUIZ: Use the theory of liquidity preference to explain how a decrease in the money supply affects the equilibrium interest rate. How does this change in monetary policy affect the aggregate-demand curve?

HOW FISCAL POLICY INFLUENCES AGGREGATE DEMAND

The government can influence the behavior of the economy not only with monetary policy but also with fiscal policy. Fiscal policy refers to the government's choices regarding the overall level of government purchases or taxes. Earlier in the book we examined how fiscal policy influences saving, investment, and growth in the long run. In the short run, however, the primary effect of fiscal policy is on the aggregate demand for goods and services.

CHANGES IN GOVERNMENT PURCHASES

When policymakers change the money supply or the level of taxes, they shift the aggregate-demand curve by influencing the spending decisions of firms or households. By contrast, when the government alters its own purchases of goods and services, it shifts the aggregate-demand curve directly.

Suppose, for instance, that the U.S. Department of Defense places a \$20 billion order for new fighter planes with Boeing, the large aircraft manufacturer. This order raises the demand for the output produced by Boeing, which induces the company to hire more workers and increase production. Because Boeing is part of the economy, the increase in the demand for Boeing planes means an increase in the total quantity of goods and services demanded at each price level. As a result, the aggregate-demand curve shifts to the right.

By how much does this \$20 billion order from the government shift the aggregate-demand curve? At first, one might guess that the aggregate-demand curve shifts to the right by exactly \$20 billion. It turns out, however, that this is not

right. There are two macroeconomic effects that make the size of the shift in aggregate demand differ from the change in government purchases. The first—the multiplier effect—suggests that the shift in aggregate demand could be *larger* than \$20 billion. The second—the crowding-out effect—suggests that the shift in aggregate demand could be *smaller* than \$20 billion. We now discuss each of these effects in turn.

THE MULTIPLIER EFFECT

When the government buys \$20 billion of goods from Boeing, that purchase has repercussions. The immediate impact of the higher demand from the government is to raise employment and profits at Boeing. Then, as the workers see higher earnings and the firm owners see higher profits, they respond to this increase in income by raising their own spending on consumer goods. As a result, the government purchase from Boeing raises the demand for the products of many other firms in the economy. Because each dollar spent by the government can raise the aggregate demand for goods and services by more than a dollar, government purchases are said to have a **multiplier effect** on aggregate demand.

This multiplier effect continues even after this first round. When consumer spending rises, the firms that produce these consumer goods hire more people and experience higher profits. Higher earnings and profits stimulate consumer spending once again, and so on. Thus, there is positive feedback as higher demand leads to higher income, which in turn leads to even higher demand. Once all these effects are added together, the total impact on the quantity of goods and services demanded can be much larger than the initial impulse from higher government spending.

Figure 32-4 illustrates the multiplier effect. The increase in government purchases of \$20 billion initially shifts the aggregate-demand curve to the right from AD_1 to AD_2 by exactly \$20 billion. But when consumers respond by increasing their spending, the aggregate-demand curve shifts still further to AD_3 .

This multiplier effect arising from the response of consumer spending can be strengthened by the response of investment to higher levels of demand. For instance, Boeing might respond to the higher demand for planes by deciding to buy more equipment or build another plant. In this case, higher government demand spurs higher demand for investment goods. This positive feedback from demand to investment is sometimes called the *investment accelerator*.

multiplier effect

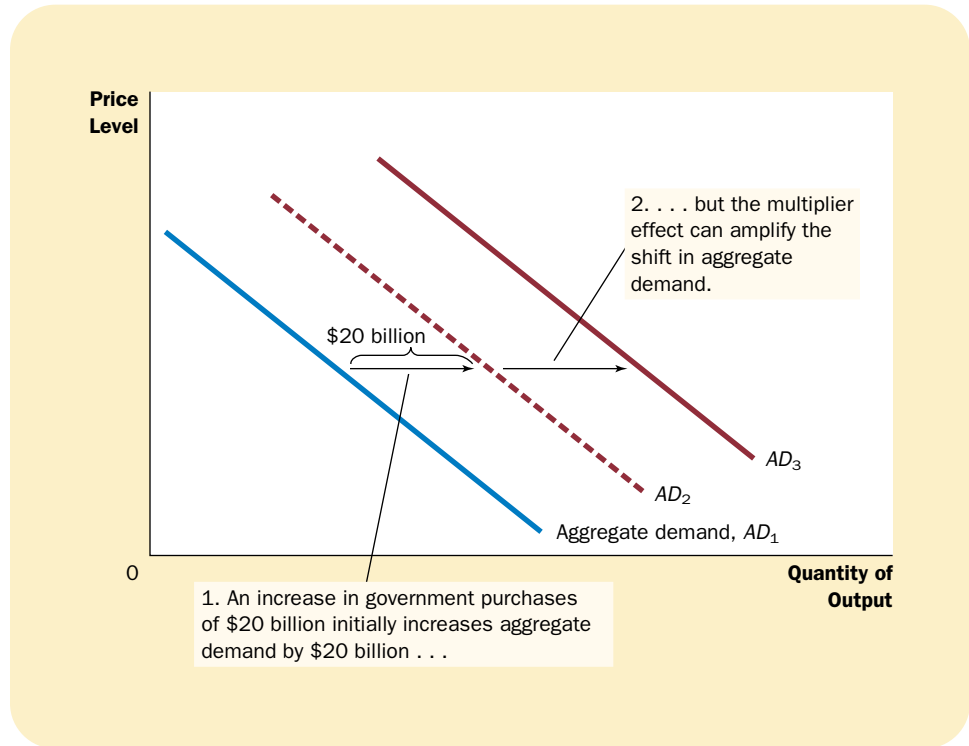
the additional shifts in aggregate demand that result when expansionary fiscal policy increases income and thereby increases consumer spending

A FORMULA FOR THE SPENDING MULTIPLIER

A little high school algebra permits us to derive a formula for the size of the multiplier effect that arises from consumer spending. An important number in this formula is the *marginal propensity to consume* (MPC)—the fraction of extra income that a household consumes rather than saves. For example, suppose that the marginal propensity to consume is $3/4$. This means that for every extra dollar that a household earns, the household spends \$0.75 ($3/4$ of the dollar) and saves \$0.25. With an MPC of $3/4$, when the workers and owners of Boeing earn \$20 billion from the government contract, they increase their consumer spending by $3/4 \times \$20$ billion, or \$15 billion.

Figure 32-4

THE MULTIPLIER EFFECT. An increase in government purchases of \$20 billion can shift the aggregate-demand curve to the right by more than \$20 billion. This multiplier effect arises because increases in aggregate income stimulate additional spending by consumers.



To gauge the impact on aggregate demand of a change in government purchases, we follow the effects step-by-step. The process begins when the government spends \$20 billion, which implies that national income (earnings and profits) also rises by this amount. This increase in income in turn raises consumer spending by $MPC \times \$20$ billion, which in turn raises the income for the workers and owners of the firms that produce the consumption goods. This second increase in income again raises consumer spending, this time by $MPC \times (MPC \times \$20$ billion). These feedback effects go on and on.

To find the total impact on the demand for goods and services, we add up all these effects:

Change in government purchases =	\$20 billion
First change in consumption =	$MPC \times \$20$ billion
Second change in consumption =	$MPC^2 \times \$20$ billion
Third change in consumption =	$MPC^3 \times \$20$ billion
•	•
•	•
•	•
Total change in demand =	
	$(1 + MPC + MPC^2 + MPC^3 + \dots) \times \20 billion.

Here, “...” represents an infinite number of similar terms. Thus, we can write the multiplier as follows:

$$\text{Multiplier} = 1 + MPC + MPC^2 + MPC^3 + \dots$$

This multiplier tells us the demand for goods and services that each dollar of government purchases generates.

To simplify this equation for the multiplier, recall from math class that this expression is an infinite geometric series. For x between -1 and $+1$,

$$1 + x + x^2 + x^3 + \dots = 1/(1 - x).$$

In our case, $x = MPC$. Thus,

$$\text{Multiplier} = 1/(1 - MPC).$$

For example, if MPC is $3/4$, the multiplier is $1/(1 - 3/4)$, which is 4. In this case, the \$20 billion of government spending generates \$80 billion of demand for goods and services.

This formula for the multiplier shows an important conclusion: The size of the multiplier depends on the marginal propensity to consume. Whereas an MPC of $3/4$ leads to a multiplier of 4, an MPC of $1/2$ leads to a multiplier of only 2. Thus, a larger MPC means a larger multiplier. To see why this is true, remember that the multiplier arises because higher income induces greater spending on consumption. The larger the MPC is, the greater is this induced effect on consumption, and the larger is the multiplier.

OTHER APPLICATIONS OF THE MULTIPLIER EFFECT

Because of the multiplier effect, a dollar of government purchases can generate more than a dollar of aggregate demand. The logic of the multiplier effect, however, is not restricted to changes in government purchases. Instead, it applies to any event that alters spending on any component of GDP—consumption, investment, government purchases, or net exports.

For example, suppose that a recession overseas reduces the demand for U.S. net exports by \$10 billion. This reduced spending on U.S. goods and services depresses U.S. national income, which reduces spending by U.S. consumers. If the marginal propensity to consume is $3/4$ and the multiplier is 4, then the \$10 billion fall in net exports means a \$40 billion contraction in aggregate demand.

As another example, suppose that a stock-market boom increases households' wealth and stimulates their spending on goods and services by \$20 billion. This extra consumer spending increases national income, which in turn generates even more consumer spending. If the marginal propensity to consume is $3/4$ and the multiplier is 4, then the initial impulse of \$20 billion in consumer spending translates into an \$80 billion increase in aggregate demand.

The multiplier is an important concept in macroeconomics because it shows how the economy can amplify the impact of changes in spending. A small initial change in consumption, investment, government purchases, or net exports can end up having a large effect on aggregate demand and, therefore, the economy's production of goods and services.

THE CROWDING-OUT EFFECT

The multiplier effect seems to suggest that when the government buys \$20 billion of planes from Boeing, the resulting expansion in aggregate demand is necessarily larger than \$20 billion. Yet another effect is working in the opposite direction. While an increase in government purchases stimulates the aggregate demand for goods and services, it also causes the interest rate to rise, and a higher interest rate reduces investment spending and chokes off aggregate demand. The reduction in aggregate demand that results when a fiscal expansion raises the interest rate is called the **crowding-out effect**.

crowding-out effect

the offset in aggregate demand that results when expansionary fiscal policy raises the interest rate and thereby reduces investment spending

To see why crowding out occurs, let's consider what happens in the money market when the government buys planes from Boeing. As we have discussed, this increase in demand raises the incomes of the workers and owners of this firm (and, because of the multiplier effect, of other firms as well). As incomes rise, households plan to buy more goods and services and, as a result, choose to hold more of their wealth in liquid form. That is, the increase in income caused by the fiscal expansion raises the demand for money.

The effect of the increase in money demand is shown in panel (a) of Figure 32-5. Because the Fed has not changed the money supply, the vertical supply curve remains the same. When the higher level of income shifts the money-demand curve to the right from MD_1 to MD_2 , the interest rate must rise from r_1 to r_2 to keep supply and demand in balance.

The increase in the interest rate, in turn, reduces the quantity of goods and services demanded. In particular, because borrowing is more expensive, the demand for residential and business investment goods declines. That is, as the increase in government purchases increases the demand for goods and services, it may also crowd out investment. This crowding-out effect partially offsets the impact of government purchases on aggregate demand, as illustrated in panel (b) of Figure 32-5. The initial impact of the increase in government purchases is to shift the aggregate-demand curve from AD_1 to AD_2 , but once crowding out takes place, the aggregate-demand curve drops back to AD_3 .

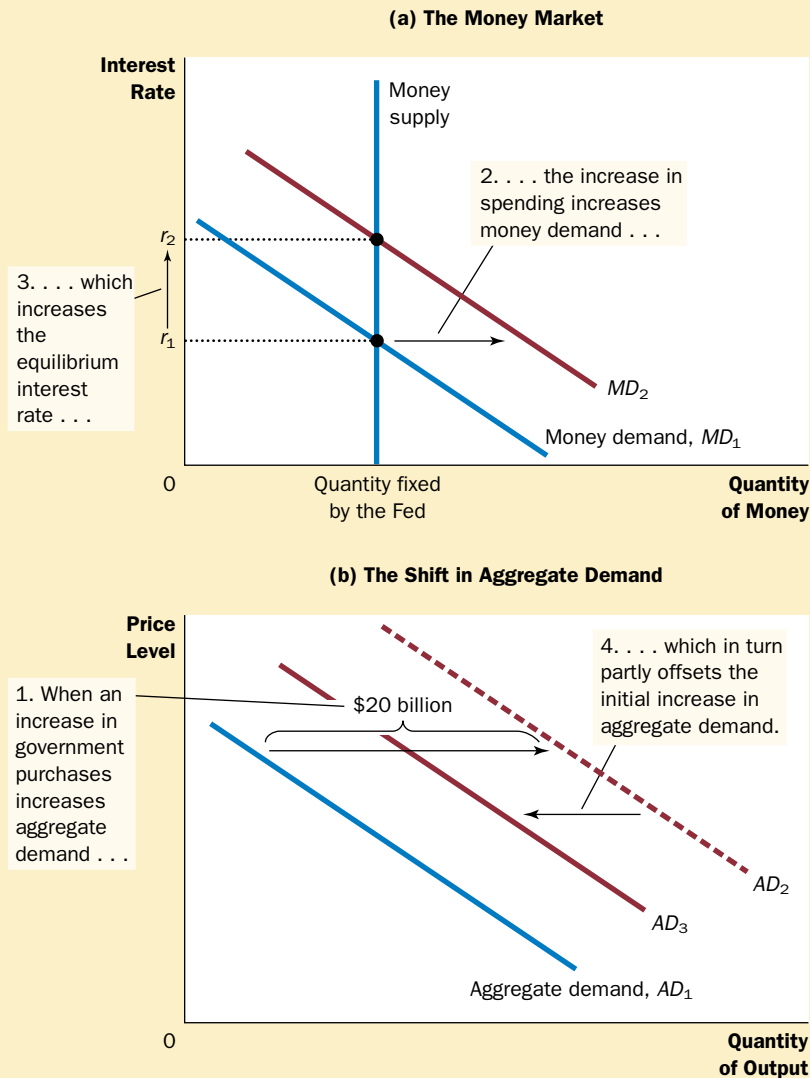
To sum up: *When the government increases its purchases by \$20 billion, the aggregate demand for goods and services could rise by more or less than \$20 billion, depending on whether the multiplier effect or the crowding-out effect is larger.*

CHANGES IN TAXES

The other important instrument of fiscal policy, besides the level of government purchases, is the level of taxation. When the government cuts personal income taxes, for instance, it increases households' take-home pay. Households will save some of this additional income, but they will also spend some of it on consumer goods. Because it increases consumer spending, the tax cut shifts the aggregate-demand curve to the right. Similarly, a tax increase depresses consumer spending and shifts the aggregate-demand curve to the left.

The size of the shift in aggregate demand resulting from a tax change is also affected by the multiplier and crowding-out effects. When the government cuts taxes and stimulates consumer spending, earnings and profits rise, which further stimulates consumer spending. This is the multiplier effect. At the same time, higher income leads to higher money demand, which tends to raise interest rates. Higher

Figure 32-5



THE CROWDING-OUT EFFECT. Panel (a) shows the money market. When the government increases its purchases of goods and services, the resulting increase in income raises the demand for money from MD_1 to MD_2 , and this causes the equilibrium interest rate to rise from r_1 to r_2 . Panel (b) shows the effects on aggregate demand. The initial impact of the increase in government purchases shifts the aggregate-demand curve from AD_1 to AD_2 . Yet, because the interest rate is the cost of borrowing, the increase in the interest rate tends to reduce the quantity of goods and services demanded, particularly for investment goods. This crowding out of investment partially offsets the impact of the fiscal expansion on aggregate demand. In the end, the aggregate-demand curve shifts only to AD_3 .

interest rates make borrowing more costly, which reduces investment spending. This is the crowding-out effect. Depending on the size of the multiplier and crowding-out effects, the shift in aggregate demand could be larger or smaller than the tax change that causes it.

In addition to the multiplier and crowding-out effects, there is another important determinant of the size of the shift in aggregate demand that results from a tax change: households' perceptions about whether the tax change is permanent or temporary. For example, suppose that the government announces a tax cut of \$1,000 per household. In deciding how much of this \$1,000 to spend, households must ask themselves how long this extra income will last. If households expect the

IN THE NEWS*Japan Tries a
Fiscal Stimulus*

IN THE 1990s, JAPAN EXPERIENCED A LONG and deep recession. As the decade was coming to a close, it looked like an end might be in sight, in part because the government was using fiscal policy to expand aggregate demand.

**The Land of the Rising Outlook:
Public Spending May Have
Reversed Japan's Downturn**

BY SHERYL WUDUNN

NAKANOJOMACHI, JAPAN—Bulldozers and tall cranes are popping up around the country like bamboo shoots after a spring rain, and this is raising hopes that Japan may finally be close to lifting itself out of recession.

No other country has ever poured as much money—more than \$830 billion the last 12 months alone—into economic revival as has Japan, and much of that money is now sloshing around the country and creating a noticeable impact. Here in this village in central Japan, as in much of the country, construction crews are busy again, small companies are getting loans again, and some people are feeling a tad more confident.

Japanese leaders have traditionally funneled money into brick-and-mortar projects to stimulate the economy, so the signs of life these days are interpreted by most experts as just a temporary comeback, not a self-sustaining recovery. There have been many false starts the last eight years, but the economy has always sunk back, this time into the deepest recession since World War II.

To the pessimists Japan is like a vehicle being towed away along the road by all that deficit spending; they doubt its engine will start without an overhaul.

Whatever the reasons for the movement, whatever the concerns for the future, though, the passengers throughout Japan seem relieved that at least the vehicle may be going forward again.

SOURCE: *The New York Times*, March 11, 1999, p. C1.

tax cut to be permanent, they will view it as adding substantially to their financial resources and, therefore, increase their spending by a large amount. In this case, the tax cut will have a large impact on aggregate demand. By contrast, if households expect the tax change to be temporary, they will view it as adding only slightly to their financial resources and, therefore, will increase their spending by only a small amount. In this case, the tax cut will have a small impact on aggregate demand.

An extreme example of a temporary tax cut was the one announced in 1992. In that year, President George Bush faced a lingering recession and an upcoming reelection campaign. He responded to these circumstances by announcing a reduction in the amount of income tax that the federal government was withholding from workers' paychecks. Because legislated income tax rates did not change, however, every dollar of reduced withholding in 1992 meant an extra dollar of taxes due on April 15, 1993, when income tax returns for 1992 were to be filed. Thus, Bush's "tax cut" actually represented only a short-term loan from the government. Not surprisingly, the impact of the policy on consumer spending and aggregate demand was relatively small.

QUICK QUIZ: Suppose that the government reduces spending on highway construction by \$10 billion. Which way does the aggregate-demand curve shift? Explain why the shift might be larger than \$10 billion. Explain why the shift might be smaller than \$10 billion.

FYI*How Fiscal Policy Might Affect Aggregate Supply*

So far our discussion of fiscal policy has stressed how changes in government purchases and changes in taxes influence the quantity of goods and services demanded. Most economists believe that the short-run macroeconomic effects of fiscal policy work primarily through aggregate demand. Yet fiscal policy can potentially also influence the quantity of goods and services supplied.

For instance, consider the effects of tax changes on aggregate supply. One of the *Ten Principles of Economics* in Chapter 1 is that people respond to incentives. When government policymakers cut tax rates, workers get to keep more of each dollar they earn, so they have a greater incentive to work and produce goods and services. If they respond to this incentive, the quantity of goods and services supplied will be greater at each price level, and the

aggregate-supply curve will shift to the right. Some economists, called *supply-siders*, have argued that the influence of tax cuts on aggregate supply is very large. Indeed, as we discussed in Chapter 8, some supply-siders claim the influence is so large that a cut in tax rates will actually increase tax revenue by increasing worker effort. Most economists, however, believe that the supply-side effects of tax cuts are much smaller.

Like changes in taxes, changes in government purchases can also potentially affect aggregate supply. Suppose, for instance, that the government increases expenditure on a form of government-provided capital, such as roads. Roads are used by private businesses to make deliveries to their customers; an increase in the quantity of roads increases these businesses' productivity. Hence, when the government spends more on roads, it increases the quantity of goods and services supplied at any given price level and, thus, shifts the aggregate-supply curve to the right. This effect on aggregate supply is probably more important in the long run than in the short run, however, because it would take some time for the government to build the new roads and put them into use.

USING POLICY TO STABILIZE THE ECONOMY

We have seen how monetary and fiscal policy can affect the economy's aggregate demand for goods and services. These theoretical insights raise some important policy questions: Should policymakers use these instruments to control aggregate demand and stabilize the economy? If so, when? If not, why not?

THE CASE FOR ACTIVE STABILIZATION POLICY

Let's return to the question that began this chapter: When the president and Congress cut government spending, how should the Federal Reserve respond? As we have seen, government spending is one determinant of the position of the aggregate-demand curve. When the government cuts spending, aggregate demand will fall, which will depress production and employment in the short run. If the Federal Reserve wants to prevent this adverse effect of the fiscal policy, it can act to expand aggregate demand by increasing the money supply. A monetary expansion would reduce interest rates, stimulate investment spending, and expand aggregate demand. If monetary policy responds appropriately, the combined changes in monetary and fiscal policy could leave the aggregate demand for goods and services unaffected.

This analysis is exactly the sort followed by members of the Federal Open Market Committee. They know that monetary policy is an important determinant

of aggregate demand. They also know that there are other important determinants as well, including fiscal policy set by the president and Congress. As a result, the Fed's Open Market Committee watches the debates over fiscal policy with a keen eye.

This response of monetary policy to the change in fiscal policy is an example of a more general phenomenon: the use of policy instruments to stabilize aggregate demand and, as a result, production and employment. Economic stabilization has been an explicit goal of U.S. policy since the Employment Act of 1946. This act states that "it is the continuing policy and responsibility of the federal government to . . . promote full employment and production." In essence, the government has chosen to hold itself accountable for short-run macroeconomic performance.

The Employment Act has two implications. The first, more modest, implication is that the government should avoid being a cause of economic fluctuations. Thus, most economists advise against large and sudden changes in monetary and fiscal policy, for such changes are likely to cause fluctuations in aggregate demand. Moreover, when large changes do occur, it is important that monetary and fiscal policymakers be aware of and respond to the other's actions.

The second, more ambitious, implication of the Employment Act is that the government should respond to changes in the private economy in order to stabilize aggregate demand. The act was passed not long after the publication of John Maynard Keynes's *The General Theory of Employment, Interest, and Money*. As we discussed in the preceding chapter, *The General Theory* has been one of the most influential books ever written about economics. In it, Keynes emphasized the key role of aggregate demand in explaining short-run economic fluctuations. Keynes claimed that the government should actively stimulate aggregate demand when aggregate demand appeared insufficient to maintain production at its full-employment level.

Keynes (and his many followers) argued that aggregate demand fluctuates because of largely irrational waves of pessimism and optimism. He used the term "animal spirits" to refer to these arbitrary changes in attitude. When pessimism reigns, households reduce consumption spending, and firms reduce investment spending. The result is reduced aggregate demand, lower production, and higher unemployment. Conversely, when optimism reigns, households and firms increase spending. The result is higher aggregate demand, higher production, and inflationary pressure. Notice that these changes in attitude are, to some extent, self-fulfilling.

In principle, the government can adjust its monetary and fiscal policy in response to these waves of optimism and pessimism and, thereby, stabilize the economy. For example, when people are excessively pessimistic, the Fed can expand the money supply to lower interest rates and expand aggregate demand. When they are excessively optimistic, it can contract the money supply to raise interest rates and dampen aggregate demand. Former Fed Chairman William McChesney Martin described this view of monetary policy very simply: "The Federal Reserve's job is to take away the punch bowl just as the party gets going."

CASE STUDY KEYNESIANS IN THE WHITE HOUSE

When a reporter asked President John F. Kennedy in 1961 why he advocated a tax cut, Kennedy replied, "To stimulate the economy. Don't you remember your

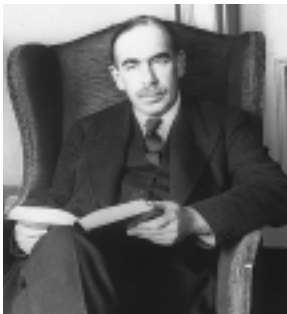
Economics 101?” Kennedy’s policy was, in fact, based on the analysis of fiscal policy we have developed in this chapter. His goal was to enact a tax cut, which would raise consumer spending, expand aggregate demand, and increase the economy’s production and employment.

In choosing this policy, Kennedy was relying on his team of economic advisers. This team included such prominent economists as James Tobin and Robert Solow, each of whom would later win a Nobel Prize for his contributions to economics. As students in the 1940s, these economists had closely studied John Maynard Keynes’s *General Theory*, which then was only a few years old. When the Kennedy advisers proposed cutting taxes, they were putting Keynes’s ideas into action.

Although tax changes can have a potent influence on aggregate demand, they have other effects as well. In particular, by changing the incentives that people face, taxes can alter the aggregate supply of goods and services. Part of the Kennedy proposal was an investment tax credit, which gives a tax break to firms that invest in new capital. Higher investment would not only stimulate aggregate demand immediately but would also increase the economy’s productive capacity over time. Thus, the short-run goal of increasing production through higher aggregate demand was coupled with a long-run goal of increasing production through higher aggregate supply. And, indeed, when the tax cut Kennedy proposed was finally enacted in 1964, it helped usher in a period of robust economic growth.

Since the 1964 tax cut, policymakers have from time to time proposed using fiscal policy as a tool for controlling aggregate demand. As we discussed earlier, President Bush attempted to speed recovery from a recession by reducing tax withholding. Similarly, when President Clinton moved into the Oval Office in 1993, one of his first proposals was a “stimulus package” of increased government spending. His announced goal was to help the U.S. economy recover more quickly from the recession it had just experienced. In the end, however, the stimulus package was defeated. Many in Congress (and many economists) considered the Clinton proposal too late to be of much help, for the economy was already recovering as Clinton took office. Moreover, deficit reduction to encourage long-run economic growth was considered a higher priority than a short-run expansion in aggregate demand.

A VISIONARY AND TWO DISCIPLES



JOHN MAYNARD KEYNES



JOHN F. KENNEDY



BILL CLINTON

THE CASE AGAINST ACTIVE STABILIZATION POLICY

Some economists argue that the government should avoid active use of monetary and fiscal policy to try to stabilize the economy. They claim that these policy instruments should be set to achieve long-run goals, such as rapid economic growth and low inflation, and that the economy should be left to deal with short-run fluctuations on its own. Although these economists may admit that monetary and fiscal policy can stabilize the economy in theory, they doubt whether it can do so in practice.

The primary argument against active monetary and fiscal policy is that these policies affect the economy with a substantial lag. As we have seen, monetary policy works by changing interest rates, which in turn influence investment spending. But many firms make investment plans far in advance. Thus, most economists believe that it takes at least six months for changes in monetary policy to have much effect on output and employment. Moreover, once these effects occur, they can last for several years. Critics of stabilization policy argue that because of this lag, the Fed should not try to fine-tune the economy. They claim that the Fed often reacts too late to changing economic conditions and, as a result, ends up being a cause of rather than a cure for economic fluctuations. These critics advocate a passive monetary policy, such as slow and steady growth in the money supply.

Fiscal policy also works with a lag, but unlike the lag in monetary policy, the lag in fiscal policy is largely attributable to the political process. In the United States, most changes in government spending and taxes must go through congressional committees in both the House and the Senate, be passed by both legislative bodies, and then be signed by the president. Completing this process can take months and, in some cases, years. By the time the change in fiscal policy is passed and ready to implement, the condition of the economy may well have changed.

These lags in monetary and fiscal policy are a problem in part because economic forecasting is so imprecise. If forecasters could accurately predict the condition of the economy a year in advance, then monetary and fiscal policymakers could look ahead when making policy decisions. In this case, policymakers could stabilize the economy, despite the lags they face. In practice, however, major recessions and depressions arrive without much advance warning. The best policymakers can do at any time is to respond to economic changes as they occur.

AUTOMATIC STABILIZERS

All economists—both advocates and critics of stabilization policy—agree that the lags in implementation render policy less useful as a tool for short-run stabilization. The economy would be more stable, therefore, if policymakers could find a way to avoid some of these lags. In fact, they have. **Automatic stabilizers** are changes in fiscal policy that stimulate aggregate demand when the economy goes into a recession without policymakers having to take any deliberate action.

The most important automatic stabilizer is the tax system. When the economy goes into a recession, the amount of taxes collected by the government falls automatically because almost all taxes are closely tied to economic activity. The personal income tax depends on households' incomes, the payroll tax depends on workers' earnings, and the corporate income tax depends on firms' profits. Be-

automatic stabilizers
changes in fiscal policy that stimulate aggregate demand when the economy goes into a recession without policymakers having to take any deliberate action

cause incomes, earnings, and profits all fall in a recession, the government's tax revenue falls as well. This automatic tax cut stimulates aggregate demand and, thereby, reduces the magnitude of economic fluctuations.

Government spending also acts as an automatic stabilizer. In particular, when the economy goes into a recession and workers are laid off, more people apply for unemployment insurance benefits, welfare benefits, and other forms of income support. This automatic increase in government spending stimulates aggregate demand at exactly the time when aggregate demand is insufficient to maintain full employment. Indeed, when the unemployment insurance system was first enacted in the 1930s, economists who advocated this policy did so in part because of its power as an automatic stabilizer.

The automatic stabilizers in the U.S. economy are not sufficiently strong to prevent recessions completely. Nonetheless, without these automatic stabilizers, output and employment would probably be more volatile than they are. For this reason, many economists oppose a constitutional amendment that would require the federal government always to run a balanced budget, as some politicians have proposed. When the economy goes into a recession, taxes fall, government spending rises, and the government's budget moves toward deficit. If the government faced a strict balanced-budget rule, it would be forced to look for ways to raise taxes or cut spending in a recession. In other words, a strict balanced-budget rule would eliminate the automatic stabilizers inherent in our current system of taxes and government spending.

QUICK QUIZ: Suppose a wave of negative “animal spirits” overruns the economy, and people become pessimistic about the future. What happens to aggregate demand? If the Fed wants to stabilize aggregate demand, how should it alter the money supply? If it does this, what happens to the interest rate? Why might the Fed choose not to respond in this way?

CONCLUSION

Before policymakers make any change in policy, they need to consider all the effects of their decisions. Earlier in the book we examined classical models of the economy, which describe the long-run effects of monetary and fiscal policy. There we saw how fiscal policy influences saving, investment, the trade balance, and long-run growth, and how monetary policy influences the price level and the inflation rate.

In this chapter we examined the short-run effects of monetary and fiscal policy. We saw how these policy instruments can change the aggregate demand for goods and services and, thereby, alter the economy's production and employment in the short run. When Congress reduces government spending in order to balance the budget, it needs to consider both the long-run effects on saving and growth and the short-run effects on aggregate demand and employment. When the Fed reduces the growth rate of the money supply, it must take into account the long-run effect on inflation as well as the short-run effect on production. In the next chapter we discuss the transition between the short run and the long run more

IN THE NEWS*The Independence of the Federal Reserve*

CLOSELY RELATED TO THE QUESTION OF whether monetary and fiscal policy should be used to stabilize the economy is the question of who should set monetary and fiscal policy. In the United States, monetary policy is made by a central bank that operates free of most political pressures. As this opinion column discusses, some members of Congress want to reduce the Fed's independence.

Don't Tread on the Fed

BY MARTIN AND KATHLEEN FELDSTEIN

We and most other economists give very high marks to the Federal Reserve for the way it has managed monetary policy in recent years. Fed officials have very successfully carried out their responsibility to reduce the rate of inflation and have done so without interrupting the economic expansion that began back in 1991.

Despite that excellent record, there are influential figures in Congress who are planning to introduce legislation that would weaken the Federal Reserve's ability to continue to make sound monetary policy decisions. That legislation would give Congress and the president more influence over Federal Reserve policy, making monetary policy responsive to political pressures. If that happened, the risk of higher inflation and of increased cyclical volatility would become much greater.

To achieve the good economic performance of the past five years, the Fed had to raise interest rates several times

in 1994 and, more recently, has had to avoid political calls for easier money to speed up the pace of economic activity. Looking ahead, the economy may slow in the next year. If it does, you can expect to hear members of Congress and maybe the White House urging the Fed to lower interest rates in order to maintain economic momentum. But we're betting that, even if the economy does slow, the inflationary pressures are building and will force the Fed to raise interest rates by early in the new year.

If the Fed does raise interest rates in order to prevent a rise in inflation, the increased political pressure on the Fed may find popular support. There is always public resistance to higher interest rates, which make borrowing more expensive for both businesses and homeowners. Moreover, the purpose of higher interest rates would be to slow the growth of spending in order to prevent an overheating of demand. That too will meet popular opposition. It is, in part, because good economic policy is not always popular in the short run that it is important for the

fully, and we see that policymakers often face a tradeoff between long-run and short-run goals.

Summary

- ◆ In developing a theory of short-run economic fluctuations, Keynes proposed the theory of liquidity preference to explain the determinants of the interest rate. According to this theory, the interest rate adjusts to balance the supply and demand for money.
- ◆ An increase in the price level raises money demand and increases the interest rate that brings the money market into equilibrium. Because the interest rate represents the cost of borrowing, a higher interest rate reduces investment and, thereby, the quantity of goods and services demanded. The downward-sloping aggregate-demand curve expresses this negative relationship between the price level and the quantity demanded.
- ◆ Policymakers can influence aggregate demand with monetary policy. An increase in the money supply reduces the equilibrium interest rate for any given price level. Because a lower interest rate stimulates investment spending, the aggregate-demand curve

Fed to be sheltered from short-run political pressures.

The Fed is an independent agency that reports to Congress but doesn't take orders from anyone. Monetary policy and short-term interest rates are determined by the Federal Open Market Committee (the FOMC), which consists of the 7 governors of the Fed plus the 12 presidents of the regional Federal Reserve Banks. The regional presidents vote on an alternating basis but all participate in the deliberations.

A key to the independence of the Fed's actions lies in the manner that appointments are made within the system. Although the 7 Federal Reserve governors are appointed by the president and confirmed by the Senate, each of the 12 Federal Reserve presidents is selected by the local board of a regional Federal Reserve Bank rather than being responsive to Washington. These regional presidents often serve for many years. Frequently they are long-term employees of the Federal Reserve system who have risen through the ranks. And many are

professional economists with expertise in monetary economics. But whatever their backgrounds, they are not political appointees or friends of elected politicians. Their allegiance is to the goal of sound monetary policy, including both macroeconomic performance and supervision of the banking system.

The latest challenge to Fed independence would be to deny these Federal Reserve presidents the power to vote on monetary policy. This bad idea, explicitly proposed by Senator Paul Sarbanes, a powerful Democrat on the Senate Banking Committee, would mean shifting all of the authority to the 7 governors. Because at least one governor's term ends every two years, a president who spends eight years in the White House would be able to appoint a majority of the Board of Governors and could thus control monetary policy. An alternative bad idea, proposed by Representative Henry Gonzalez, a key Democrat on the House Banking Committee, would take away the independence of the Fed by having the regional Fed presidents ap-

pointed by the president subject to Senate confirmation.

Either approach would inevitably mean more politicalization of Federal Reserve policy. In an economy that is starting to overheat, the temptation would be to resist raising interest rates and to risk an acceleration of inflation. In the long run, that would mean volatile interest rates and less stability in the overall economy.

Ironically, such a move toward cutting the independence of the Federal Reserve is just counter to developments in other countries. Experience around the world has confirmed that the independence of central banks such as our Fed is the key to sound monetary policy. It would be a serious mistake for the United States to move in the opposite direction.

SOURCE: *The Boston Globe*, November 12, 1996, p. D4.

shifts to the right. Conversely, a decrease in the money supply raises the equilibrium interest rate for any given price level and shifts the aggregate-demand curve to the left.

- ◆ Policymakers can also influence aggregate demand with fiscal policy. An increase in government purchases or a cut in taxes shifts the aggregate-demand curve to the right. A decrease in government purchases or an increase in taxes shifts the aggregate-demand curve to the left.
- ◆ When the government alters spending or taxes, the resulting shift in aggregate demand can be larger or smaller than the fiscal change. The multiplier effect tends to amplify the effects of fiscal policy on aggregate

demand. The crowding-out effect tends to dampen the effects of fiscal policy on aggregate demand.

- ◆ Because monetary and fiscal policy can influence aggregate demand, the government sometimes uses these policy instruments in an attempt to stabilize the economy. Economists disagree about how active the government should be in this effort. According to advocates of active stabilization policy, changes in attitudes by households and firms shift aggregate demand; if the government does not respond, the result is undesirable and unnecessary fluctuations in output and employment. According to critics of active stabilization policy, monetary and fiscal policy work with such long lags that attempts at stabilizing the economy often end up being destabilizing.

Key Concepts

theory of liquidity preference,
p. 32-5

multiplier effect, p. 32-15
crowding-out effect, p. 32-18

automatic stabilizers, p. 32-25

Questions for Review

1. What is the theory of liquidity preference? How does it help explain the downward slope of the aggregate-demand curve?
2. Use the theory of liquidity preference to explain how a decrease in the money supply affects the aggregate-demand curve.
3. The government spends \$3 billion to buy police cars. Explain why aggregate demand might increase by more than \$3 billion. Explain why aggregate demand might increase by less than \$3 billion.
4. Suppose that survey measures of consumer confidence indicate a wave of pessimism is sweeping the country. If policymakers do nothing, what will happen to aggregate demand? What should the Fed do if it wants to stabilize aggregate demand? If the Fed does nothing, what might Congress do to stabilize aggregate demand?
5. Give an example of a government policy that acts as an automatic stabilizer. Explain why this policy has this effect.

Problems and Applications

1. Explain how each of the following developments would affect the supply of money, the demand for money, and the interest rate. Illustrate your answers with diagrams.
 - a. The Fed's bond traders buy bonds in open-market operations.
 - b. An increase in credit card availability reduces the cash people hold.
 - c. The Federal Reserve reduces banks' reserve requirements.
 - d. Households decide to hold more money to use for holiday shopping.
 - e. A wave of optimism boosts business investment and expands aggregate demand.
 - f. An increase in oil prices shifts the short-run aggregate-supply curve to the left.
2. Suppose banks install automatic teller machines on every block and, by making cash readily available, reduce the amount of money people want to hold.
 - a. Assume the Fed does not change the money supply. According to the theory of liquidity preference, what happens to the interest rate? What happens to aggregate demand?
 - b. If the Fed wants to stabilize aggregate demand, how should it respond?
3. Consider two policies—a tax cut that will last for only one year, and a tax cut that is expected to be permanent. Which policy will stimulate greater spending by consumers? Which policy will have the greater impact on aggregate demand? Explain.
4. The interest rate in the United States fell sharply during 1991. Many observers believed this decline showed that monetary policy was quite expansionary during the year. Could this conclusion be incorrect? (Hint: The United States hit the bottom of a recession in 1991.)
5. In the early 1980s, new legislation allowed banks to pay interest on checking deposits, which they could not do previously.
 - a. If we define money to include checking deposits, what effect did this legislation have on money demand? Explain.
 - b. If the Federal Reserve had maintained a constant money supply in the face of this change, what would have happened to the interest rate? What would have happened to aggregate demand and aggregate output?
 - c. If the Federal Reserve had maintained a constant market interest rate (the interest rate on nonmonetary assets) in the face of this change,

- what change in the money supply would have been necessary? What would have happened to aggregate demand and aggregate output?
6. This chapter explains that expansionary monetary policy reduces the interest rate and thus stimulates demand for investment goods. Explain how such a policy also stimulates the demand for net exports.
 7. Suppose economists observe that an increase in government spending of \$10 billion raises the total demand for goods and services by \$30 billion.
 - a. If these economists ignore the possibility of crowding out, what would they estimate the marginal propensity to consume (*MPC*) to be?
 - b. Now suppose the economists allow for crowding out. Would their new estimate of the *MPC* be larger or smaller than their initial one?
 8. Suppose the government reduces taxes by \$20 billion, that there is no crowding out, and that the marginal propensity to consume is $3/4$.
 - a. What is the initial effect of the tax reduction on aggregate demand?
 - b. What additional effects follow this initial effect? What is the total effect of the tax cut on aggregate demand?
 - c. How does the total effect of this \$20 billion tax cut compare to the total effect of a \$20 billion increase in government purchases? Why?
 9. Suppose government spending increases. Would the effect on aggregate demand be larger if the Federal Reserve took no action in response, or if the Fed were committed to maintaining a fixed interest rate? Explain.
 10. In which of the following circumstances is expansionary fiscal policy more likely to lead to a short-run increase in investment? Explain.
 - a. when the investment accelerator is large, or when it is small?
 - b. when the interest sensitivity of investment is large, or when it is small?
 11. Assume the economy is in a recession. Explain how each of the following policies would affect consumption and investment. In each case, indicate any direct effects, any effects resulting from changes in total output, any effects resulting from changes in the interest rate, and the overall effect. If there are conflicting effects making the answer ambiguous, say so.
 - a. an increase in government spending
 - b. a reduction in taxes
 - c. an expansion of the money supply
 12. For various reasons, fiscal policy changes automatically when output and employment fluctuate.
 - a. Explain why tax revenue changes when the economy goes into a recession.
 - b. Explain why government spending changes when the economy goes into a recession.
 - c. If the government were to operate under a strict balanced-budget rule, what would it have to do in a recession? Would that make the recession more or less severe?
 13. Recently, some members of Congress have proposed a law that would make price stability the sole goal of monetary policy. Suppose such a law were passed.
 - a. How would the Fed respond to an event that contracted aggregate demand?
 - b. How would the Fed respond to an event that caused an adverse shift in short-run aggregate supply?
- In each case, is there another monetary policy that would lead to greater stability in output?