Types of Inflation, Disinflation, and Deflation

RBZ unveils $100 trillion note

Herald Reporter

THE Reserve Bank of Zimbabwe has introduced a new family of trillion-dollar banknotes in denominations of $100 trillion, $50 trillion, $20 trillion and $10 trillion that go into circulation today, starting with the $10 trillion note.

The $20 trillion, $50 trillion and $100 trillion notes will be introduced gradually.

In a statement yesterday, the Reserve Bank of Zimbabwe said the notes would ensure that those in formal employment withdraw their salaries with minimal hassle.

"In a move meant to ensure that the public has access to their money from banks... the Reserve Bank of Zimbabwe has introduced a new family of banknotes which will gradually come into circulation, starting with the $10 trillion," read the statement from the RBZ.

With effect from January 12, workers can now withdraw their entire January salary in cash as long as they produce their current payslips.

The new notes have the same security features as the existing ones: a colour shift swipe with RBZ printed on it, the Zimbabwe Bird colour shift on the front, and see-through of the values on either side which are in perfect register.

The $10 trillion note has the image of the RBZ Building and the Conical Tower at the Great Zimbabwe National Monuments.

The $100 trillion note has the image of a buffalo and the Victoria Falls, the $50 trillion the Kariba Dam spilling and an elephant, while a miner/worker drilling in an underground shaft and the GMB grain silos appear on the new $20 trillion note.

RBZ last week introduced $10 billion, $20 billion and $50 billion notes with a view to enabling workers to access their full salaries.

THE new $10 trillion, $20 trillion, $50 trillion and $100 trillion banknotes which go into circulation in phases beginning today. The introduction of the higher denomination notes is meant to ensure that those in formal employment can withdraw their salaries with minimal hassle.

Ex-Rhodies charged with training bandits

What you will learn in this Module:

- The classical model of the price level
- Why efforts to collect an inflation tax by printing money can lead to high rates of inflation and even hyperinflation
- The types of inflation: cost-push and demand-pull

We have seen that monetary policy affects economic welfare in the short-run. Let's take a closer look at two phenomena that involve monetary policy: inflation and deflation.

Module 33: Types of Inflation, Disinflat...

Money and Inflation

In the summer of 2008, the African nation of Zimbabwe achieved the unenviable distinction of having the world's highest inflation rate: 11 million percent a year. Although the United States has not experienced the inflation levels that some countries have seen, in the late 1970s and early 1980s, consumer prices were rising at an annual rate as high as 13%. The policies that the Federal Reserve instituted to reduce this high level led to the deepest recession since the Great Depression. As we'll see later, moderate levels of inflation such as those experienced in the United States—even the double-digit inflation of the late 1970s—can have complex causes. Very high inflation, the type suffered by Zimbabwe, is associated with rapid increases in the money supply while the causes of moderate inflation, the type experienced in the United States, are quite different.

To understand what causes inflation, we need to revisit the effect of changes in the money supply on the overall price level. Then we'll turn to the reasons why governments sometimes increase the money supply very rapidly.

Money and Inflation

The Classical Model of Money and Prices

We learned that in the short run an increase in the money supply increases real GDP by lowering the interest rate and stimulating investment spending and consumer spending. However, in the long run, as nominal wages and other sticky prices rise, real GDP falls back to its original level. So in the long run, an increase in the money supply does not change real GDP. Instead, other things equal, it leads to an equal percentage rise in the overall price level; that is, the prices of all goods and services in the economy, including nominal wages and the prices of intermediate goods, rise by the same percentage as the money supply. And when the overall price level rises, the aggregate price level—the prices of all final goods and services—rises as well. As a result, a change in the *nominal* money supply, *M*, leads in the long run to a change in the aggregate price level, *P*, that leaves the *real* quantity of money, *M/P*, at its original level. As a result, there is no long-run effect on aggregate demand or real GDP. For example, when Turkey dropped six zeros from its currency, the Turkish lira, in January 2005, Turkish real GDP did not change. The only thing that changed was the number of zeros in prices: instead of something costing 2,000,000 lira, it cost 2 lira.

The Turkish currency is the *lira*. When Turkey made 1,000,000 "old" lira equivalent to 1 "new" lira, real GDP was unaffected because of the neutrality of money. Author's Image Ltd/Alamy

This is, to repeat, what happens in the long run. When analyzing large changes in the aggregate price level, however, macroeconomists often find it useful to ignore the distinction between the short run and the long run. Instead, they work with a simplified model in which the effect of a change in the money supply on the aggregate price level takes place instantaneously rather than over a long period of time. You might be concerned about this assumption given the emphasis we've placed on the difference between the short run and the long run. However, for reasons we'll explain shortly, this is a reasonable assumption to make in the case of high inflation.

The simplified model in which the real quantity of money, *M/P*, is always at its long-run equilibrium level is known as the **classical model of the price level** because it was commonly used by "classical" economists prior to the influence of John Maynard Keynes. To understand the classical model and why it is useful in the context of high inflation, let's revisit the *AD–AS* model and what it says about the effects of an increase in the money supply. (Unless otherwise noted, we will always be referring to changes in the *nominal* supply of money.)

According to the **classical model of the price level**, the real quantity of money is always at its long-run equilibrium level.

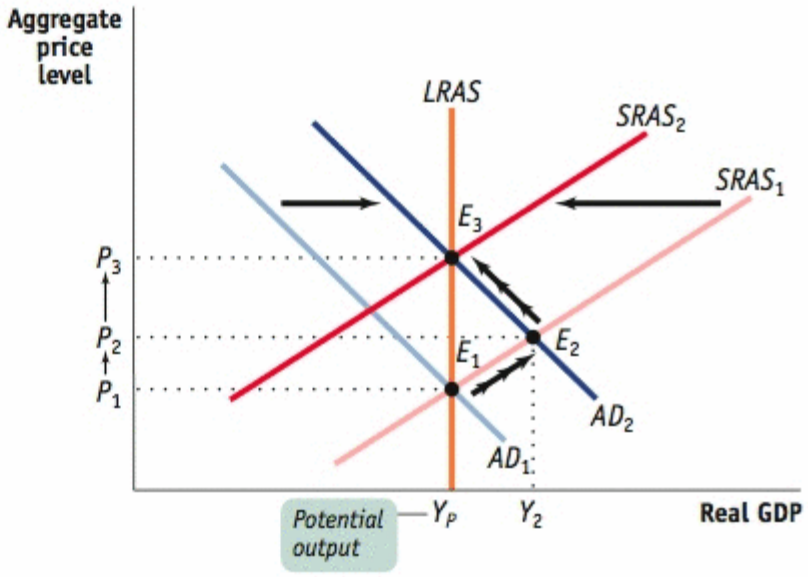
Figure 33.1 reviews the effects of an increase in the money supply according to the *AD–AS* model. The economy starts at E_1, a point of short-run and long-run macroeconomic equilibrium. It lies at the intersection of the aggregate demand curve, AD_1, and the short-run aggregate supply curve, $SRAS_1$. It also lies on the long-run aggregate supply curve, *LRAS*. At E_1, the equilibrium aggregate price level is P_1.

Now suppose there is an increase in the money supply. This is an expansionary monetary policy, which shifts the aggregate demand curve to the right, to AD_2, and moves the economy to a new short-run macroeconomic equilibrium at E_2. Over time, however, nominal wages adjust upward in response to the rise in the aggregate price level, and the *SRAS* curve shifts to the left, to $SRAS_2$. The new long-run macroeconomic equilibrium is at E_3, and real GDP returns to its initial level. The long-run increase in the aggregate price level from P_1 to P_3 is proportional to the increase in the money supply. As a result, in the long run changes in the money supply have no effect on the real quantity of money, *M/P*, or on real GDP. In the long run, money—as we learned—is *neutral*.

figure 33.1

The Classical Model of the Price Level

Starting at E_1, an increase in the money supply shifts the aggregate demand curve rightward, as shown by the movement from AD_1 to AD_2. There is a new short-run macroeconomic equilibrium at E_2 and a higher price level at P_2. In the long run, nominal wages adjust upward and push the *SRAS* curve leftward to $SRAS_2$. The total percent increase in the price level from P_1 to P_3 is equal to the percent increase in the money supply. In the *classical model of the price level*, we ignore the transition period and think of the price level as rising to P_3 immediately. This is a good approximation under conditions of high inflation.



The classical model of the price level ignores the short-run movement from E_1 to E_2, assuming that the economy moves directly from one long-run equilibrium to another long-run equilibrium. In other words, it assumes that the economy moves directly from E_1 to E_3 and that real GDP never changes in response to a change in the money supply. In effect, in the classical model the effects of money supply changes are analyzed as if the short-run as well as the long-run aggregate supply curves were vertical.

In reality, this is a poor assumption during periods of low inflation. With a low inflation rate, it may take a while for workers and firms to react to a monetary expansion by raising wages and prices. In this scenario, some nominal wages and the prices of some goods are sticky in the short run. As a result, under low inflation there is an upward-sloping *SRAS* curve, and changes in the money supply can indeed change real GDP in the short run.

But what about periods of high inflation? In the face of high inflation, economists have observed that the short-run stickiness of nominal wages and prices tends to vanish. Workers and businesses, sensitized to inflation, are quick to raise their wages and prices in response to changes in the money supply. This implies that under high inflation there is a quicker adjustment of wages and prices of intermediate goods than occurs in the case of low inflation. So the short-run aggregate supply curve shifts leftward more quickly and there is a more rapid return to long-run equilibrium under high inflation. As a result, the classical model of the price level is much more likely to be a good approximation of reality for economies experiencing persistently high inflation.

With a low inflation rate, it may take a while for workers and firms to react to a monetary expansion by raising wages and prices. Denise Bober

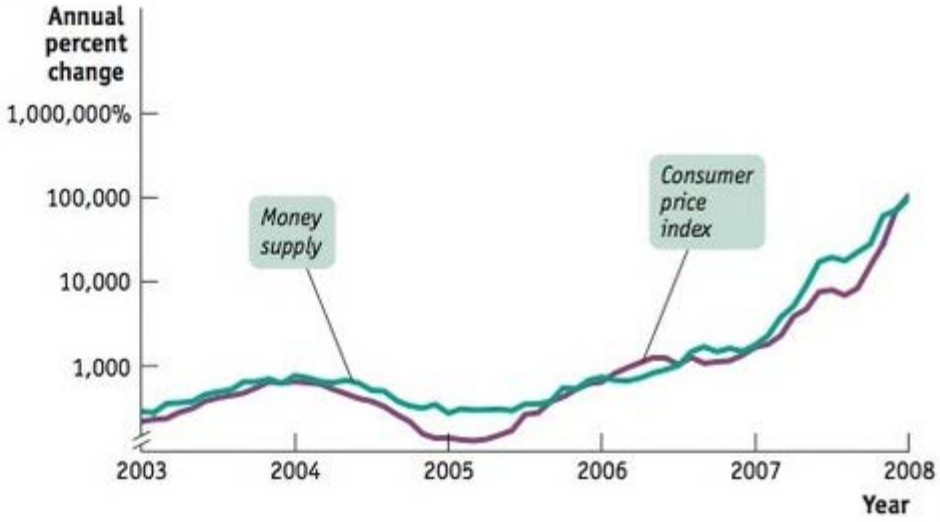
The consequence of this rapid adjustment of all prices in the economy is that in countries with persistently high inflation, changes in the money supply are quickly translated into changes in the inflation rate. Let's look at Zimbabwe. **Figure 33.2** shows the annual rate of growth in the money supply and the annual rate of change of consumer prices from 2003 through January 2008. As you can see, the surge in the growth rate of the money supply coincided closely with a roughly equal surge in the inflation rate. Note that to fit these very large percentage increases—exceeding 100,000 percent—onto the figure, we have drawn the vertical axis using a logarithmic scale.

figure 33.2

Money Supply Growth and Inflation in Zimbabwe

This figure, drawn on a logarithmic scale, shows the annual rates of change of the money supply and the price level in Zimbabwe from 2003 through January 2008. The surges in the money supply were quickly reflected in a roughly equal surge in the price level.

Source: Reserve Bank of Zimbabwe.



In late 2008, Zimbabwe's inflation rate reached 231 million percent. What leads a country to increase its money supply so much that the result is an inflation rate in the millions of percent?

The Classical Model of Money and Prices

The Inflation Tax

Modern economies use fiat money—pieces of paper that have no intrinsic value but are accepted as a medium of exchange. In the United States and most other wealthy countries, the decision about how many pieces of paper to issue is placed in the hands of a central bank that is somewhat independent of the political process. However, this independence can always be taken away if politicians decide to seize control of monetary policy.

So what is to prevent a government from paying for some of its expenses not by raising taxes or borrowing but simply by printing money? Nothing. In fact, governments, including the U.S. government, do it all the time. How can the U.S. government do this, given that the Federal Reserve, not the U.S. Treasury, issues money? The answer is that the Treasury and the Federal Reserve work in concert. The Treasury issues debt to finance the government's purchases of goods and services, and the Fed *monetizes* the debt by creating money and buying the debt back from the public through open-market purchases of Treasury bills. In effect, the U.S. government can and does raise revenue by printing money.

For example, in February 2010, the U.S. monetary base—bank reserves plus currency in circulation—was $559 billion larger than it had been a year earlier. This occurred because, over the course of that year, the Federal Reserve had issued $559 billion in money or its electronic equivalent and put it into circulation mainly through open-market operations. To put it another way, the Fed created money out of thin air and used it to buy valuable government securities from the private sector. It's true that the U.S. government pays interest on debt owned by the Federal Reserve—but the Fed, by law, hands the interest payments it receives on government debt back to the Treasury, keeping only enough to fund its own operations. In effect, then, the Federal Reserve's actions enabled the government to pay off $559 billion in outstanding government debt by printing money.

An alternative way to look at this is to say that the right to print money is itself a source of revenue. Economists refer to the revenue generated by the government's right to print money as *seignorage*, an archaic term that goes back to the Middle Ages. It refers to the right to stamp gold and silver into coins, and charge a fee for doing so, that medieval lords—seigneurs, in France—reserved for themselves.

Seignorage accounts for only a tiny fraction (less than 1%) of the U.S. government's budget. Furthermore, concerns about seignorage don't have any influence on the Federal Reserve's decisions about how much money to print; the Fed is worried about inflation and unemployment, not revenue. But this hasn't always been true, even in the United States: both sides relied on seignorage to help cover budget deficits during the Civil War. And there have been many occasions in history when governments turned to their printing presses as a crucial source of revenue. According to the usual scenario, a government finds itself running a large budget deficit—and lacks either the competence or the political will to eliminate this deficit by raising taxes or cutting spending. Furthermore, the government can't borrow to cover the gap because potential lenders won't extend loans, given the fear that the government's weakness will continue and leave it unable to repay its debts.

In such a situation, governments end up printing money to cover the budget deficit. But by printing money to pay its bills, a government increases the quantity of money in circulation. And as we've just seen, increases in the money supply translate into equally large increases in the aggregate price level. So printing money to cover a budget deficit leads to inflation.

Who ends up paying for the goods and services the government purchases with newly printed money? The people who currently hold money pay. They pay because inflation erodes the purchasing power of their money holdings. In other words, a government imposes an **inflation tax**, a reduction in the value of the money held by the public, by printing money to cover its budget deficit and creating inflation.

It's helpful to think about what this tax represents. If the inflation rate is 5%, then a year from now $1 will buy goods and services worth only about $0.95 today. So a 5% inflation rate in effect imposes a tax rate of 5% on the value of all money held by the public.

But why would any government push the inflation tax to rates of hundreds or thousands of percent? We turn next to the process by which high inflation turns into explosive hyperinflation.

An **inflation tax** is a reduction in the value of money held by the public caused by inflation.

The Inflation Tax

The Logic of Hyperinflation

Inflation imposes a tax on individuals who hold money. And, like most taxes, it will lead people to change their behavior. In particular, when inflation is high, people will try to avoid holding money and will instead substitute real goods as well as interest-bearing assets for money. During the German hyperinflation, people began using eggs or lumps of coal as a medium of exchange. They did this because lumps of coal maintained their real value over time but money didn't. Indeed, during the peak of German hyperinflation, people often burned paper money, which was less valuable than wood. Moreover, people don't just reduce their nominal money holdings—they reduce their *real* money holdings, cutting the amount of money they hold so much that it actually has less purchasing power than the amount of money they would hold if inflation were low. Why? Because the more real money holdings they have, the greater the real amount of resources the government captures from them through the inflation tax.

We are now prepared to understand how countries can get themselves into situations of extreme inflation. High inflation arises when the government must print a large quantity of money, imposing a large inflation tax, to cover a large budget deficit.

In the 1920s, hyperinflation made German currency worth so little that children made kites from banknotes. Keystone/Getty Images

Now, the seignorage collected by the government over a short period—say, one month—is equal to the change in the money supply over that period. Let's use M to represent the money supply and the symbol Δ to mean "monthly change in." Then:

$$\textbf{(33-1)} \quad \text{Seignorage} = \Delta M$$

The money value of seignorage, however, isn't very informative by itself. After all, the whole point of inflation is that a given amount of money buys less and less over time. So it's more useful to look at *real* seignorage, the revenue created by printing money divided by the price level, P:

$$\textbf{(33-2)} \quad \text{Real seignorage} = \Delta M/P$$

Equation 33-2 can be rewritten by dividing and multiplying by the current level of the money supply, M, giving us:

$$\textbf{(33-3)} \quad \text{Real seignorage} = (\Delta M/M) \times (M/P)$$

or

Real seignorage = Rate of growth of the money supply × Real money supply

But as we've just explained, in the face of high inflation the public reduces the real amount of money it holds, so that the far right-hand term in Equation 33-3, M/P, gets smaller. Suppose that the government needs to print enough money to pay for a given quantity of goods and services—that is, it needs to collect a given *real* amount of seignorage. Then, as people hold smaller amounts of real money due to a high rate of inflation, the government has to respond by accelerating the rate of growth of the money supply, $\Delta M/M$. This will lead to an even higher rate of inflation. And people will respond to this new higher rate of inflation by reducing their real money holdings, M/P, yet again. As the process becomes self-reinforcing, it can easily spiral out of control. Although the amount of real seignorage that the government must ultimately collect to pay off its deficit does not change, the inflation rate the government needs to impose to collect that amount rises. So the government is forced to increase the money supply more rapidly, leading to an even higher rate of inflation, and so on.

Here's an analogy: imagine a city government that tries to raise a lot of

money with a special fee on taxi rides. The fee will raise the cost of taxi rides, and this will cause people to turn to substitutes, such as walking or taking the bus. As taxi use declines, the government finds that its tax revenue declines and it must impose a higher fee to raise the same amount of revenue as before. You can imagine the ensuing vicious circle: the government imposes fees on taxi rides, which leads to less taxi use, which causes the government to raise the fee on taxi rides, which leads to even less taxi use, and so on.

Stockphoto

Substitute the real money supply for taxi rides and the inflation rate for the increase in the fee on taxi rides, and you have the story of hyperinflation. A race develops between the government printing presses and the public: the presses churn out money at a faster and faster rate to try to compensate for the fact that the public is reducing its real money holdings. At some point the inflation rate explodes into hyperinflation, and people are unwilling to hold any money at all (and resort to trading in eggs and lumps of coal). The government is then forced to abandon its use of the inflation tax and shut down the printing presses.

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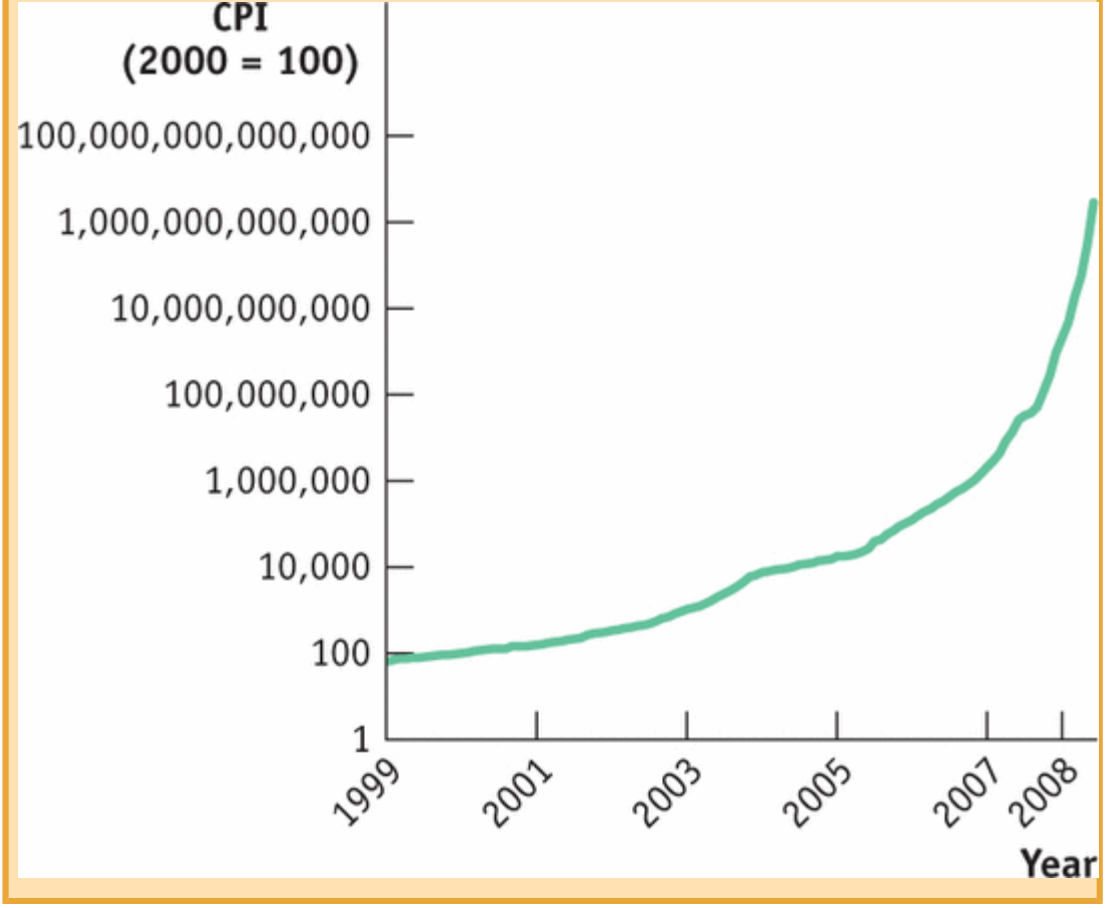
Zimbabwe's Inflation

Zimbabwe offers a recent example of a country experiencing very high inflation. Figure 33.2 Showed that surges in Zimbabwe's money supply growth were matched by almost simultaneous surges in its inflation rate. But looking at rates of change doesn't give a true feel for just how much prices went up.

The figure here shows Zimbabwe's consumer price index from 1999 to June 2008, with the 2000 level set equal to 100. As in Figure 33.2, we use a logarithmic scale, which lets us draw equal-sized percent changes as the same size. Over the course of about nine years, consumer prices rose by approximately 45 trillion percent.

Why did Zimbabwe's government pursue policies that led to runaway inflation? The reason boils down to political instability, which in turn had its roots in Zimbabwe's history. Until the 1970s, Zimbabwe had been ruled by its small white minority; even after the shift to majority rule, many of the country's farms remained in the hands of whites. Eventually Robert Mugabe, Zimbabwe's president, tried to solidify his position by seizing these farms and turning them over to his political supporters. But because this seizure disrupted production, the result was to undermine the country's economy and its tax base. It became impossible for the country's government to balance its budget either by raising taxes or by cutting spending. At the same time, the regime's instability left Zimbabwe unable to borrow money in world markets. Like many others before it, Zimbabwe's government turned to the printing press to cover the gap—leading to massive inflation.



The Logic of Hyperinflation

Moderate Inflation and Disinflation

The governments of wealthy, politically stable countries like the United States and Britain don't find themselves forced to print money to pay their bills. Yet over the past 40 years both countries, along with a number of other nations, have experienced uncomfortable episodes of inflation. In the United States, the inflation rate peaked at 13% in 1980. In Britain, the inflation rate reached 26% in 1975. Why did policy makers allow this to happen?

Using the aggregate demand and supply model, we can see that there are two possible changes that can lead to an increase in the aggregate price level: a decrease in aggregate supply or an increase in aggregate demand. Inflation that is caused by a significant increase in the price of an input with economy-wide importance is called **cost-push inflation**. For example, it is argued that the oil crisis in the 1970s led to an increase in energy prices in the United States, causing a leftward shift of the aggregate supply curve, increasing the aggregate price level. However, aside from crude oil, it is difficult to think of examples of inputs with economy-wide importance that experience significant price increases.

Inflation that is caused by an increase in aggregate demand is known as **demand-pull inflation**. When a rightward shift of the aggregate demand curve leads to an increase in the aggregate price level, the economy experiences demand-pull inflation. This is sometimes referred to by the phrase "too much money chasing too few goods," which means that the aggregate demand for goods and services is outpacing the aggregate supply and driving up the prices of goods.

Cost-push inflation is inflation that is caused by a significant increase in the price of an input with economy-wide importance.

Demand-pull inflation is inflation that is caused by an increase in aggregate demand.

In the short run, policies that produce a booming economy also tend to lead to higher inflation, and policies that reduce inflation tend to depress the economy. This creates both temptations and dilemmas for governments.

Imagine yourself as a politician facing an election in a year, and suppose that inflation is fairly low at the moment. You might well be tempted to pursue expansionary policies that will push the unemployment rate down, as a way to please voters, even if your economic advisers warn that this will eventually lead to higher inflation. You might also be tempted to find different economic advisers, who will tell you not to worry: in politics, as in ordinary life, wishful thinking often prevails over realistic analysis.

Conversely, imagine yourself as a politician in an economy suffering from inflation. Your economic advisers will probably tell you that the only way to bring inflation down is to push the economy into a recession, which will lead to temporarily higher unemployment. Are you willing to pay that price? Maybe not.

This political asymmetry—inflationary policies often produce short-term political gains, but policies to bring inflation down carry short-term political costs—explains how countries with no need to impose an inflation tax sometimes end up with serious inflation problems. For example, that 26% rate of inflation in Britain was largely the result of the British government's decision in 1971 to pursue highly expansionary monetary and fiscal policies. Politicians disregarded warnings that these policies would be inflationary and were extremely reluctant to reverse course even when it became clear that the warnings had been correct.

But why do expansionary policies lead to inflation? To answer that question, we need to look first at the relationship between output and unemployment.

The Output Gap and the Unemployment Rate

Earlier we introduced the concept of *potential output*, the level of real GDP that the economy would produce once all prices had fully adjusted. Potential output typically grows steadily over time, reflecting long-run growth. However, as we learned from the aggregate demand-aggregate supply model, actual aggregate output fluctuates around potential output in the short run: a recessionary gap arises when actual aggregate output falls short of potential output; an inflationary gap arises when actual aggregate output exceeds potential output. Recall that the percentage difference between the actual level of real GDP and potential output is called the *output gap*. A positive or negative output gap occurs when an economy is producing more than or less than what would be "expected" because all prices have not yet adjusted. And wages, as we've learned, are the prices in the labor market.

Meanwhile, we learned that the unemployment rate is composed of cyclical unemployment and natural unemployment, the portion of the unemployment rate unaffected by the business cycle. So there is a relationship between the unemployment rate and the output gap. This relationship is defined by two rules:

- When actual aggregate output is equal to potential output, the actual unemployment rate is equal to the natural rate of unemployment.
- When the output gap is positive (an inflationary gap), the unemployment rate is *below* the natural rate. When the output gap is negative (a recessionary gap), the unemployment rate is *above* the natural rate.

In other words, fluctuations of aggregate output around the long-run trend of potential output correspond to fluctuations of the unemployment rate around the natural rate.

This makes sense. When the economy is producing less than potential output—when the output gap is negative—it is not making full use of its productive resources. Among the resources that are not fully used is labor, the economy's most important resource. So we would expect a negative output gap to be associated with unusually high unemployment. Conversely, when the economy is producing more than potential output, it is temporarily using resources at higher-than-normal rates. With this positive output gap, we would expect to see lower-than-normal unemployment.

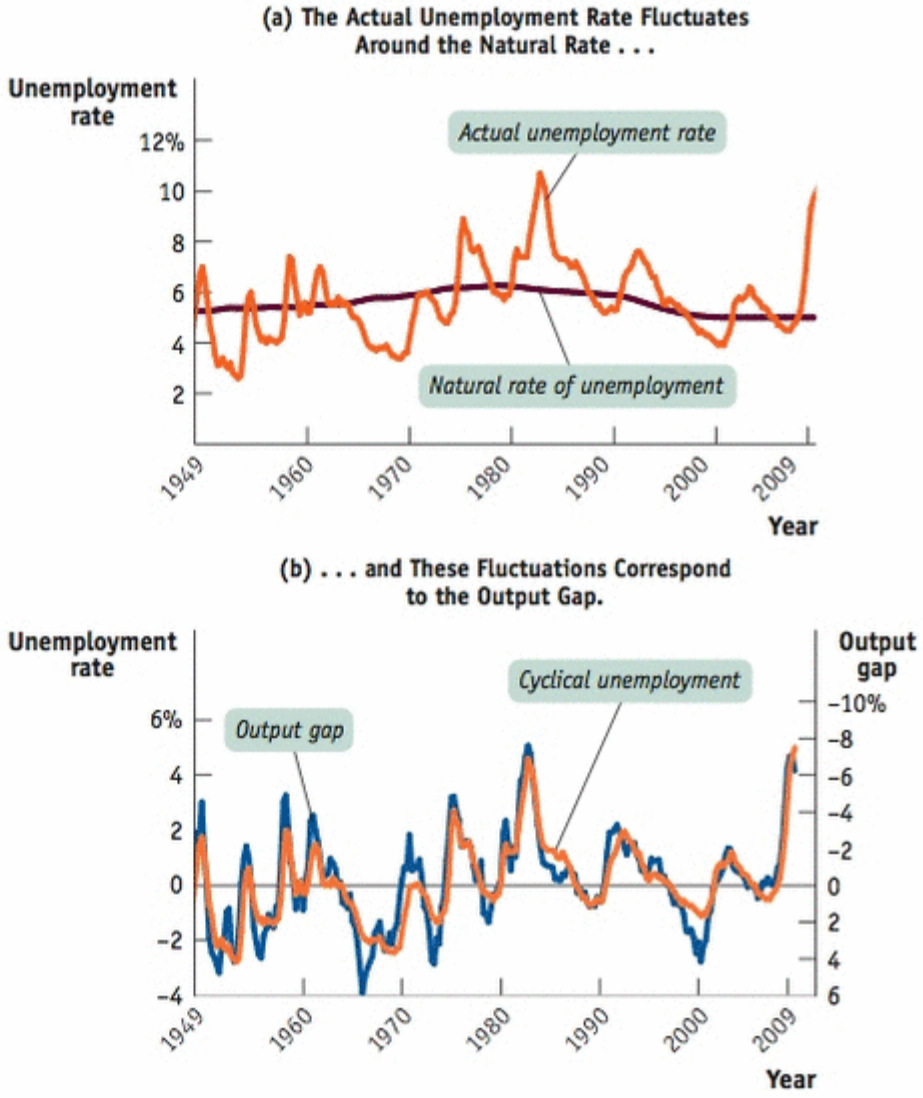
Figure 33.3 confirms this rule. Panel (a) shows the actual and natural rates of unemployment, as estimated by the Congressional Budget Office (CBO). Panel (b) shows two series. One is cyclical unemployment: the difference between the actual unemployment rate and the CBO estimate of the natural rate of unemployment, measured on the left. The other is the CBO estimate of the output gap, measured on the right. To make the relationship clearer, the output gap series is inverted—shown upside down—so that the line goes down if actual output rises above potential output and up if actual output falls below potential output. As you can see, the two series move together quite closely, showing the strong relationship between the output gap and cyclical unemployment. Years of high cyclical unemployment, like 1982 or 2009, were also years of a strongly negative output gap. Years of low cyclical unemployment, like the late 1960s or 2000, were also years of a strongly positive output gap.

figure 33.3

Cyclical Unemployment and the Output Gap

Panel (a) shows the actual U.S. unemployment rate from 1949 to 2009, together with the Congressional Budget Office estimate of the natural rate of unemployment. The actual rate fluctuates around the natural rate, often for extended periods. Panel (b) shows cyclical unemployment—the difference between the actual unemployment rate and the natural rate of unemployment—and the output gap, also estimated by the CBO. The unemployment rate is measured on the left vertical axis, and the output gap is measured with an inverted scale on the right vertical axis. With an inverted scale, it moves in the same direction as the unemployment rate: when the output gap is positive, the actual unemployment rate is below its natural rate; when the output gap is negative, the actual unemployment rate is above its natural rate. The two series track one another closely, showing the strong relationship between the output gap and cyclical unemployment.

Source: Congressional Budget Office; Bureau of Labor Statistics; Bureau of Economic Analysis.



The Output Gap and the Unemployment Rate...

Check Your Understanding

1. Suppose there is a large increase in the money supply in an economy that previously had low inflation. As a consequence, aggregate output expands in the short run. What does this say about situations in which the classical model of the price level applies?

[Answer Field]

Show Answer

2. Suppose that all wages and prices in an economy are indexed to inflation. Can there still be an inflation tax?

[Answer Field]

Show Answer

Tackle the Test: Multiple-Choice Questions

1. The real quantity of money is
I. equal to M/P.
II. the money supply adjusted for inflation.
III. higher in the long run when the Fed buys government securities.
a. I only
b. II only
c. III only
d. I and II only
e. I, II, and III

[Answer Field]

Show Answer

2. In the classical model of the price level
a. only the short-run aggregate supply curve is vertical.
b. both the short-run and long-run aggregate supply curves are vertical.
c. only the long-run aggregate supply curve is vertical.
d. both the short-run aggregate demand and supply curves are vertical.
e. both the long-run aggregate demand and supply curves are vertical.

[Answer Field]

Show Answer

3. The classical model of the price level is most applicable in
a. the United States.
b. periods of high inflation.
c. periods of low inflation.
d. recessions.
e. depressions.

[Answer Field]

Show Answer

4. An inflation tax is
a. imposed by governments to offset price increases.
b. paid directly as a percentage of the sale price on purchases.
c. the result of a decrease in the value of money held by the public.
d. generally levied by states rather than the federal government.
e. higher during periods of low inflation.

[Answer Field]

Show Answer

5. Revenue generated by the government's right to print money is known as
a. seignorage.
b. an inflation tax.
c. hyperinflation.
d. fiat money.
e. monetary funds.

[Answer Field]

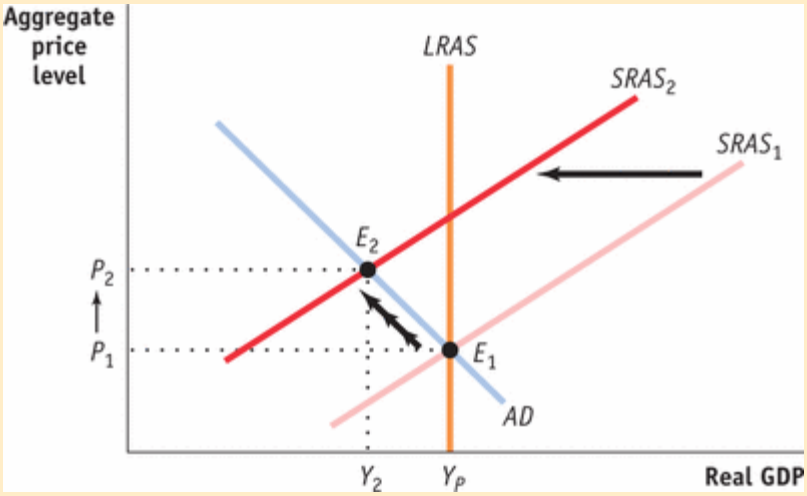
Show Answer

Tackle the Test: Free-Response Questions

1. Use a correctly labeled aggregate supply and demand graph to illustrate cost-push inflation. Give an example of what might cause cost-push inflation in the economy.

[Answer Field]

Answer (9 points)



1 point: Aggregate price level on vertical axis and real GDP on horizontal axis

1 point: *AD* downward sloping and labeled

1 point: *SRAS* upward sloping and labeled

1 point: *LRAS* vertical and labeled

1 point: Potential output labeled at horizontal intercept of *LRAS*

1 point: Long-run macroeconomic equilibrium aggregate price level labeled on vertical axis at intersection of *SRAS, LRAS*, and *AD*

1 point: Leftward shift of the *SRAS* curve

1 point: Higher equilibrium aggregate price level at new intersection of *SRAS* and *AD*

1 point: This could be caused by anything that would shift the short-run aggregate supply curve to the left, such as an increase in the price of energy, labor, or another input with economy-wide importance.

2. Draw a correctly labeled aggregate demand and supply graph showing an economy in long-run macroeconomic equilibrium. On your graph, show the effect of an increase in the money supply, according to the classical model of the price level.

[Answer Field]

Show Answer