Chapter 26: Aggregate Supply and Aggregate Demand

We look at the demand and supply of all final goods and services in the economy.

The *quantity of real GDP supplied* is the total quantity that firms plan to produce during a given period.

→ This quantity depends on the quantity of labor employed, the quantity of physical and human capital, and the state of technology.

Aggregate supply is the relationship between the quantity of real GDP supplied and the price level.

We distinguish two time frames associated with different states of the labor market:

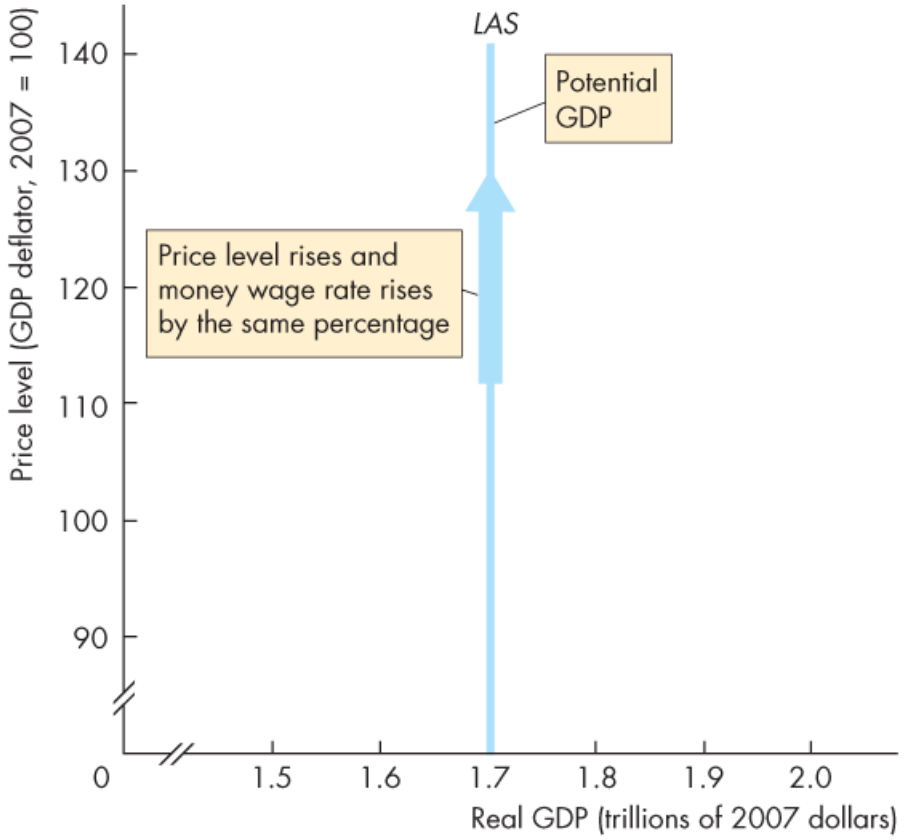
- Long-run aggregate supply
- Short-run aggregate supply

Long-run aggregate supply is the relationship between the quantity of real GDP supplied and the price level when the money wage rate changes in step with the price level to maintain full-employment.

→ The long-run aggregate supply curve (*LAS*) is vertical at potential GDP.

→ Why is real GDP unchanged when all prices change by the same percentage?

→ Potential GDP is independent of the price level.



Short-run aggregate supply is the relationship between the quantity of real GDP supplied and the price level when the money wage rate, the prices of other resources, and potential GDP remain constant.

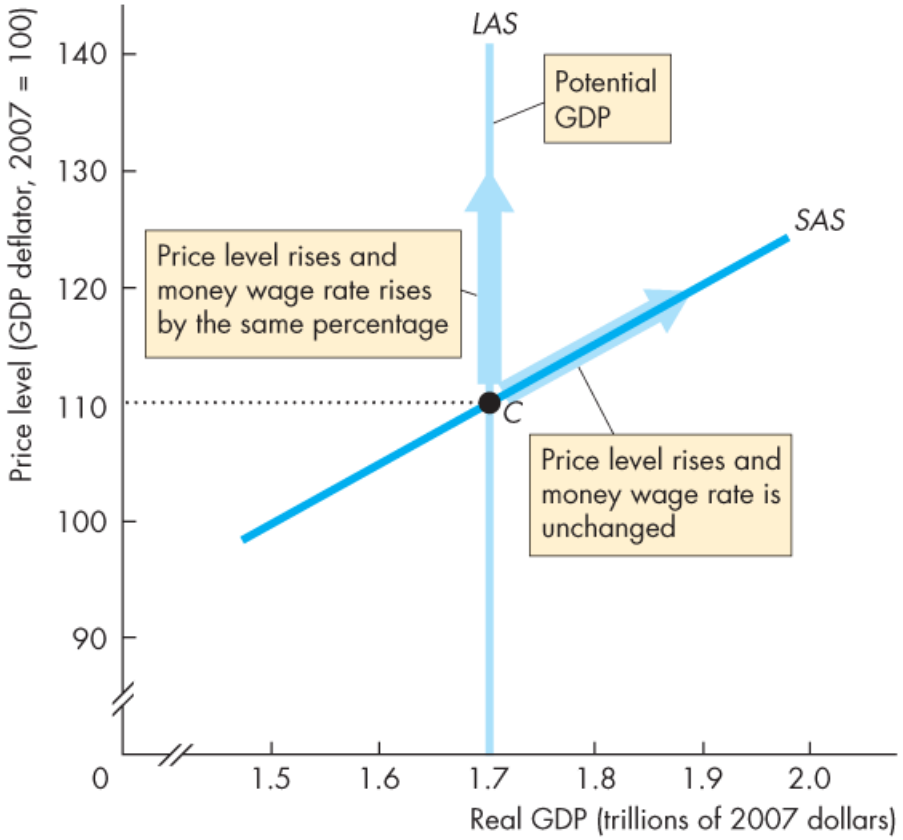
→ A rise in the price level with no change in the money wage rate and other factor prices increases the quantity of real GDP supplied.

→ The short-run aggregate supply curve (*SAS*) is upward sloping.

In the short run, the quantity of real GDP supplied increases if the price level rises.

The *SAS* curve slopes upward.

A rise in the price level with no change in the money wage rate induces firms to increase production.

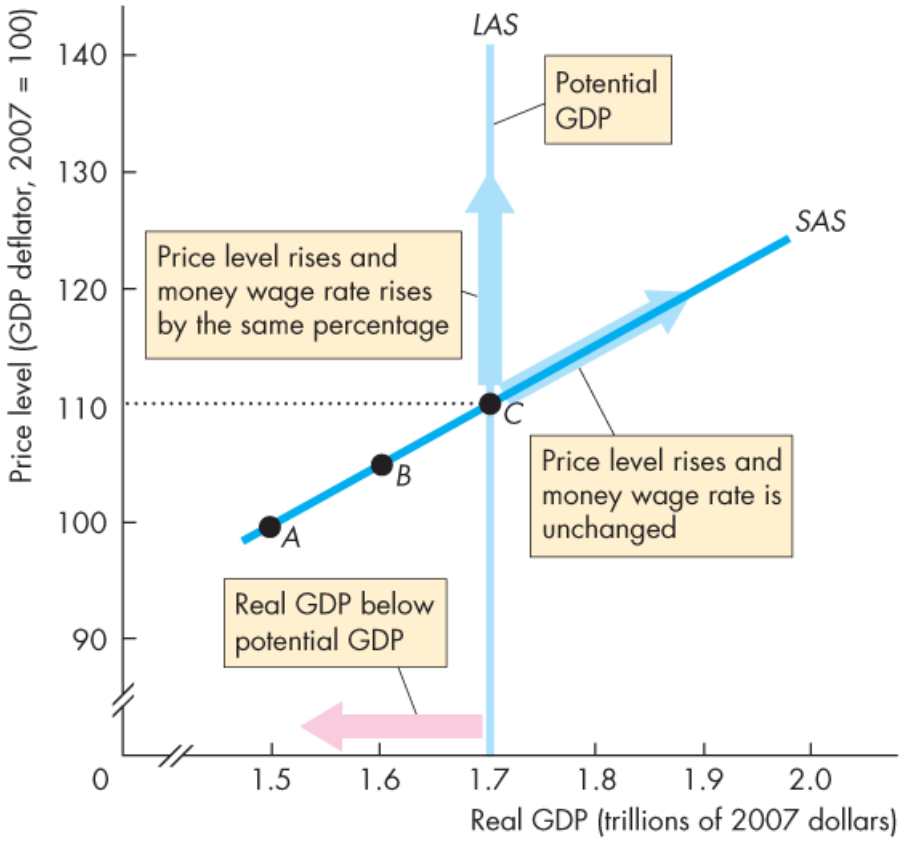


With a given money wage rate, the *SAS* curve cuts the *LAS* curve at potential GDP.

The price level is 110.

With the given money wage rate, as the price level falls below 110 ...

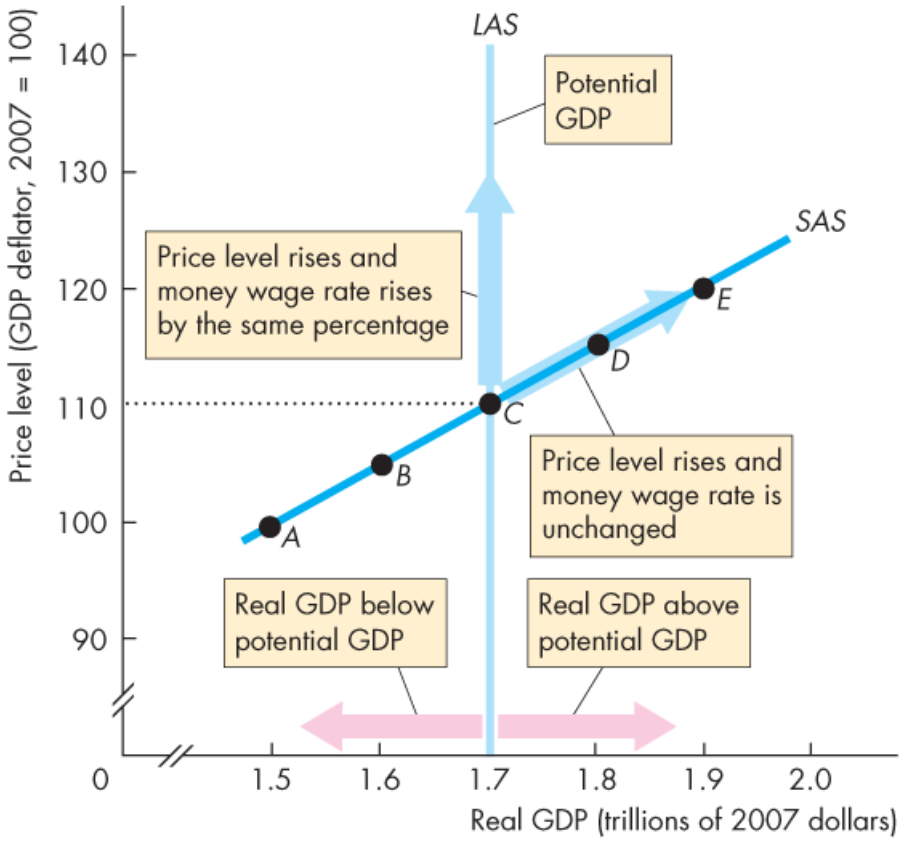
the quantity of real GDP supplied decreases along the *SAS* curve.



With the given money wage rate, as the price level rises above 110 …

the quantity of real GDP supplied increases along the *SAS* curve.

Real GDP exceeds potential GDP.



Changes in Aggregate Supply

Aggregate supply changes if an influence on production plans other than the price level changes. These influences include:

- Changes in potential GDP
- Changes in money wage rate (and other factor prices)

Changes in Potential GDP

Potential GDP changes for three reasons:

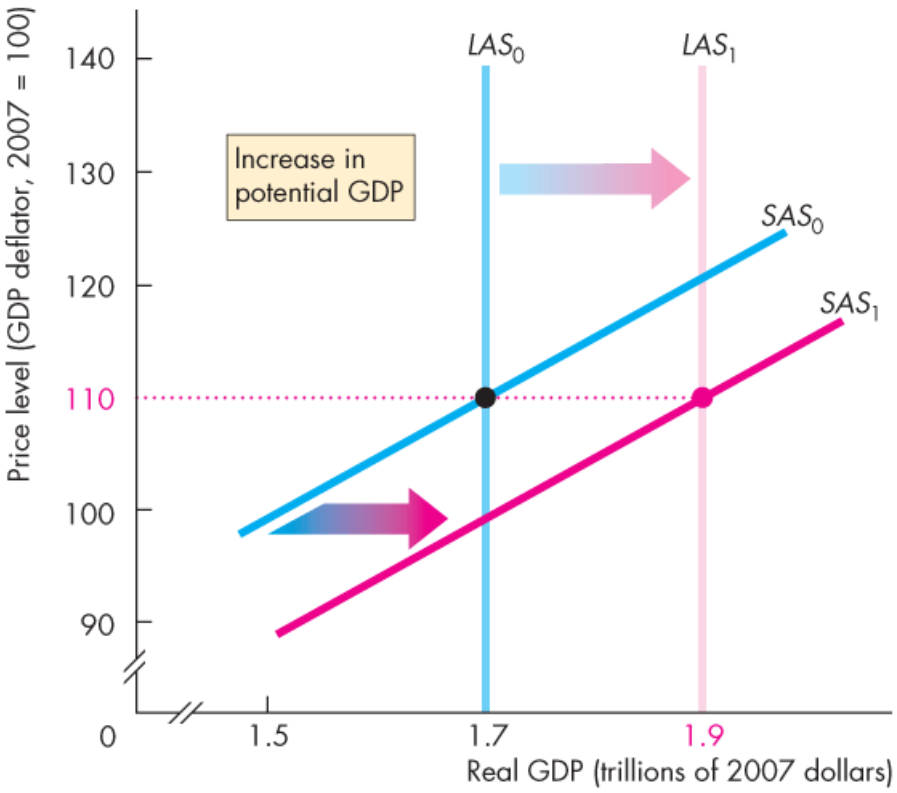
- An increase in the full-employment quantity of labor
- An increase in the quantity of capital (physical or human)
- Advancement in technology

The Effect of an Increase in Potential GDP

When potential GDP increases, both the *LAS* and *SAS* curves shift rightward.

The two curves shift by the same amount ONLY IF the full-employment price level remains constant, which we will assume to be the case.

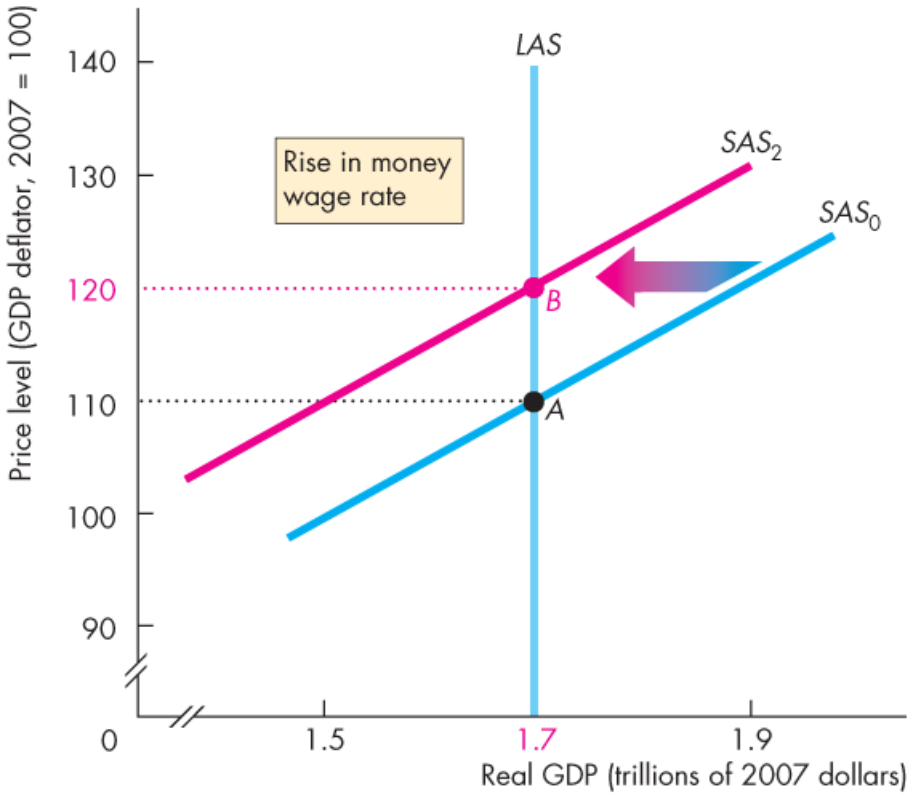
The *LAS* curve shifts rightward and the *SAS* curve shifts along with the *LAS* curve.



Changes in the Money Wage Rate

The effect of a rise in the money wage rate.

- Short-run aggregate supply decreases and the *SAS* curve shifts leftward.
- Long-run aggregate supply does not change.



Review:

Short-Run Aggregate Supply and Long-Run Aggregate Supply:

Which Curve Shifts, if any? Which Direction?

Aggregate Demand

The quantity of real GDP demanded, Y, is the total amount of final goods and services produced in Canada that people, businesses, governments, and foreigners plan to buy.

This quantity is the sum of consumption expenditures, C, investment, I, government expenditure, G, and net exports, $X - M$.

That is,

$$Y = C + I + G + X - M.$$

Buying plans depend on many factors and some of the main ones are

- The price level
- Expectations
- Fiscal policy and monetary policy
- The world economy

Let us first focus on the relationship between the quantity of real GDP demanded and the price level, keeping all other influences constant.

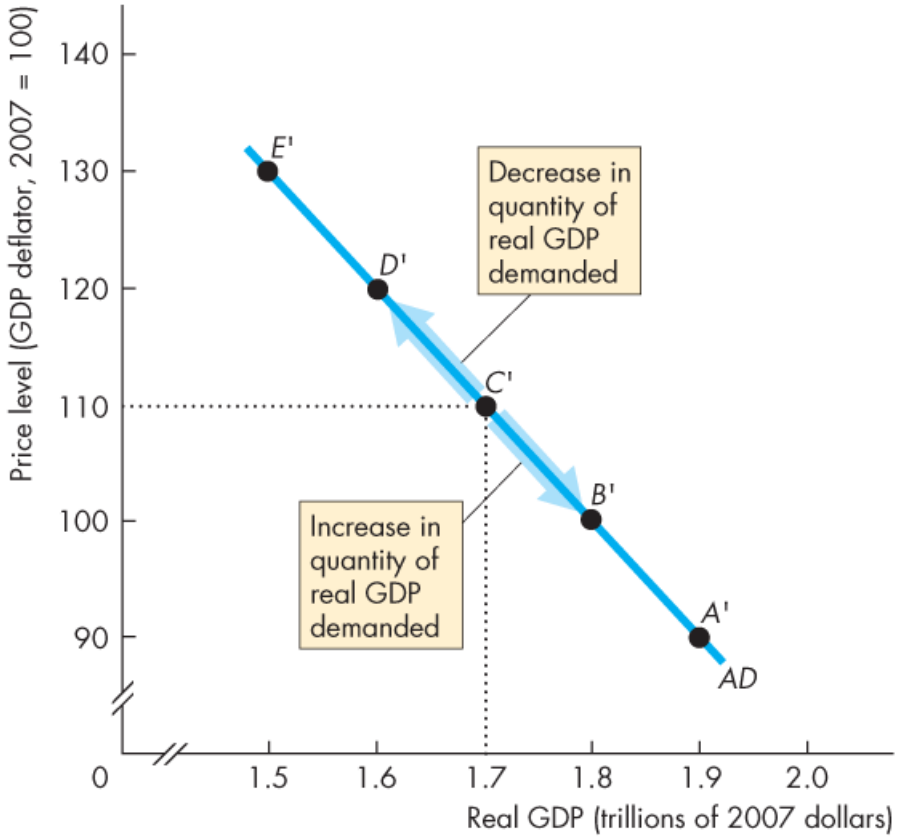
Aggregate demand is the relationship between the quantity of real GDP demanded and the price level.

The aggregate demand curve (*AD*) plots the quantity of real GDP demanded against the price level.

How does the quantity of real GDP demanded vary as the price level varies?

The *AD* curve slopes downward for two reasons:

- Wealth effect
- Substitution effects



Wealth Effect

A rise in the price level, other things remaining the same, decreases the quantity of real wealth.

What is real wealth?

How is real wealth affected by the price level?

To restore their real wealth, people increase saving and decrease spending.

The quantity of real GDP demanded decreases.

Similarly, a fall in the price level, other things remaining the same, increases the quantity of real wealth, which increases the quantity of real GDP demanded.

Substitution Effects

Intertemporal substitution effect:

A rise in the price level, other things remaining the same, decreases the real value of money and raises the interest rate. How?

The idea is, with a smaller amount of real money around, banks and other lenders can get a higher interest rate on loans.

When the interest rate rises, people borrow and spend less, so the quantity of real GDP demanded decreases.

This substitution effect involves changing the timing of purchases and is called an intertemporal substitution effect – a substitution across time.

Similarly, a fall in the price level increases the real value of money and lowers the interest rate.

When the interest rate falls, people borrow and spend more, so the quantity of real GDP demanded increases.

International substitution effect:

A rise in the price level, other things remaining the same, increases the price of domestic goods relative to foreign goods.

How would this affect imports?

How would this affect exports?

Therefore, quantity of real GDP demanded

Similarly, a fall in the price level, other things remaining the same, increases the quantity of real GDP demanded.

Changes in Aggregate Demand

A change in any influence on buying plans other than the price level changes aggregate demand.

The main influences on aggregate demand are:

- Expectations
- Fiscal policy and monetary policy
- The world economy

Expectations

Expectations about future income, future inflation, and future profits change aggregate demand.

→ Increases in expected future income increase people's consumption today and increases aggregate demand.

→ A rise in the expected inflation rate makes buying goods cheaper today and increases aggregate demand.

→ An increase in expected future profits boosts firms' investment, which increases aggregate demand.

Fiscal Policy and Monetary Policy

Fiscal policy is the government's attempt to influence the economy by setting and changing taxes, making transfer payments, and purchasing goods and services.

A tax cut or an increase in transfer payments increases households' **disposable income** (aggregate income minus taxes plus transfer payments).

↑ disposable income →

↑ government expenditure on goods and services →

Monetary policy is the central bank's attempt to influence the economy by changing the interest rate and adjusting the quantity of money.

↑ quantity of money →

↓ interest rates →

The World Economy

The world economy influences aggregate demand in two ways:

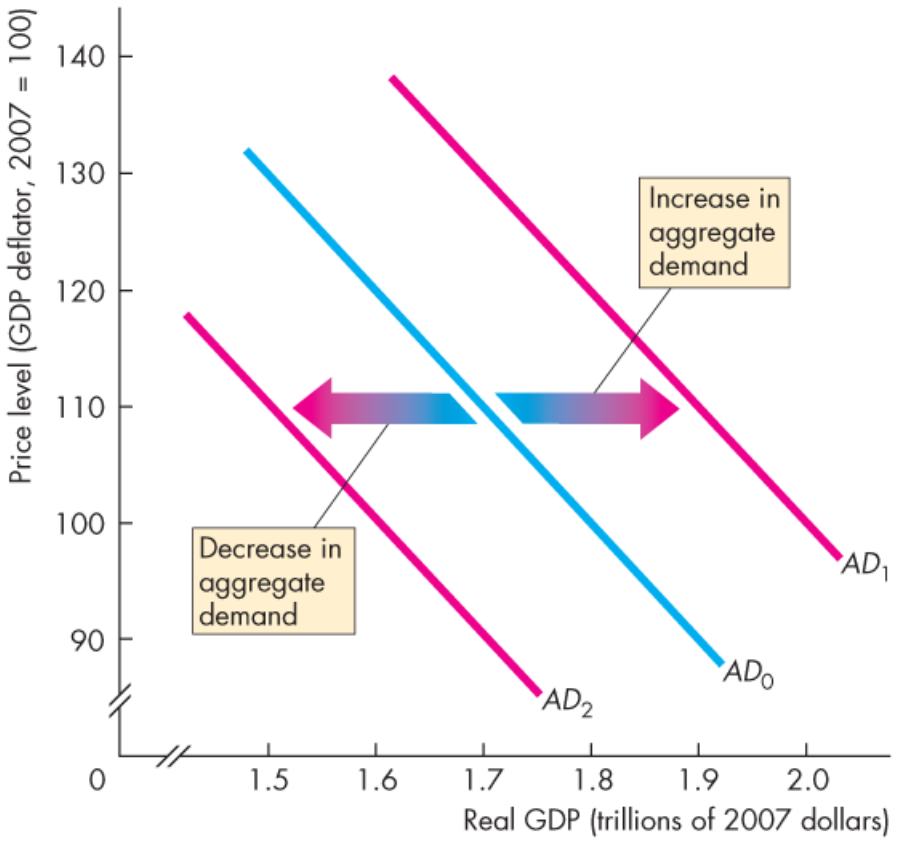
→ Let's look at the effects of a fall in the exchange rate:

→ Let's look at the effects of an increase in foreign income:

Changes in aggregate demand.

When aggregate demand increases, the *AD* curve shifts rightward …

… and when aggregate demand decreases, the *AD* curve shifts leftward.



Review:

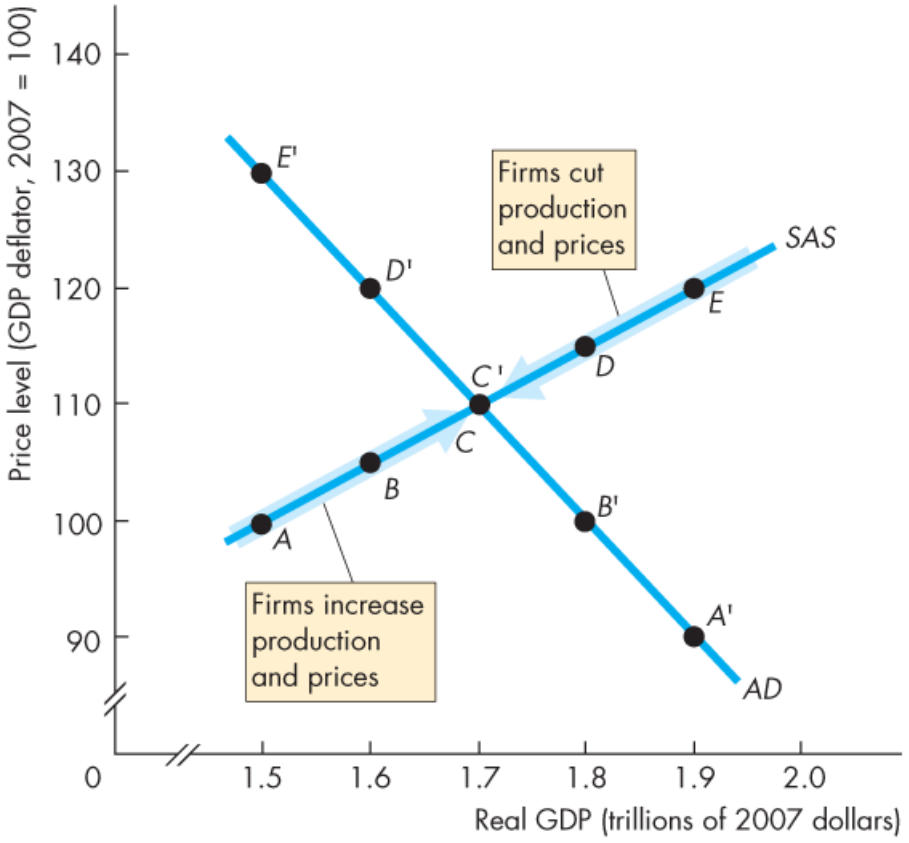
Aggregate Demand: Shifts or Movement along the Curve?

Explaining Macroeconomic Trends and Fluctuations

Short-run macroeconomic equilibrium occurs when the quantity of real GDP demanded equals the quantity of real GDP supplied at the point of intersection of the *AD* curve and the *SAS* curve.

Suppose that the price level is 120.

What can you say about the economy?



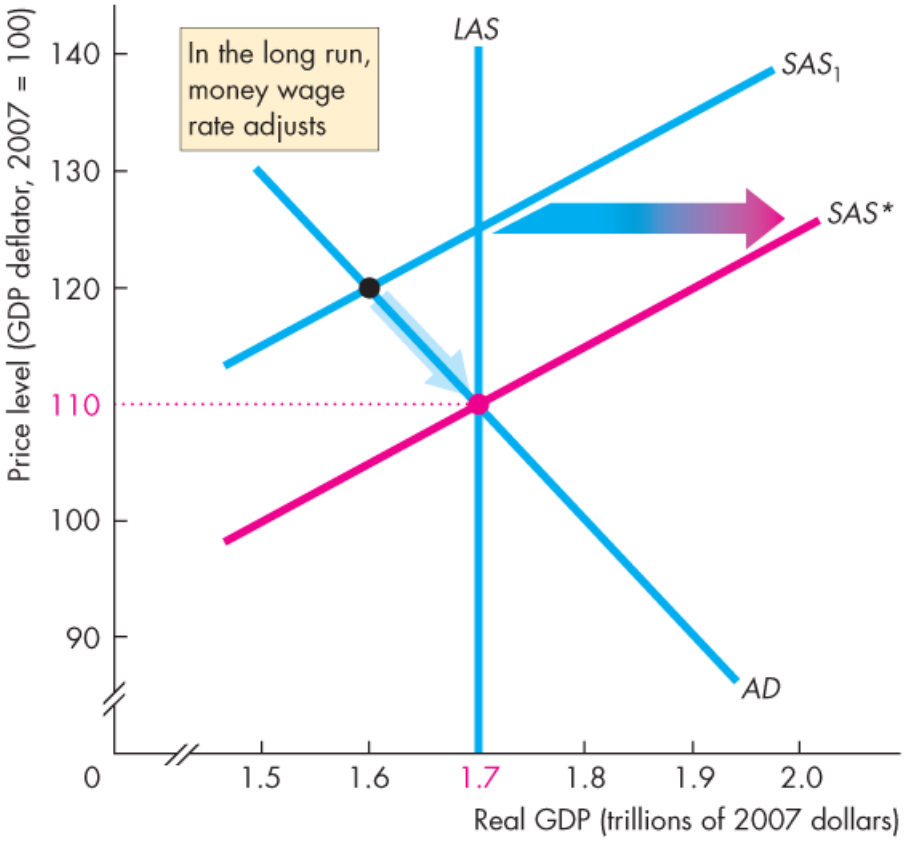
Long-run macroeconomic equilibrium occurs when real GDP equals potential GDP—when the economy is on its *LAS* curve.

Long-run equilibrium occurs at the intersection of the *AD* and *LAS* curves.

The adjustment to long-run equilibrium.

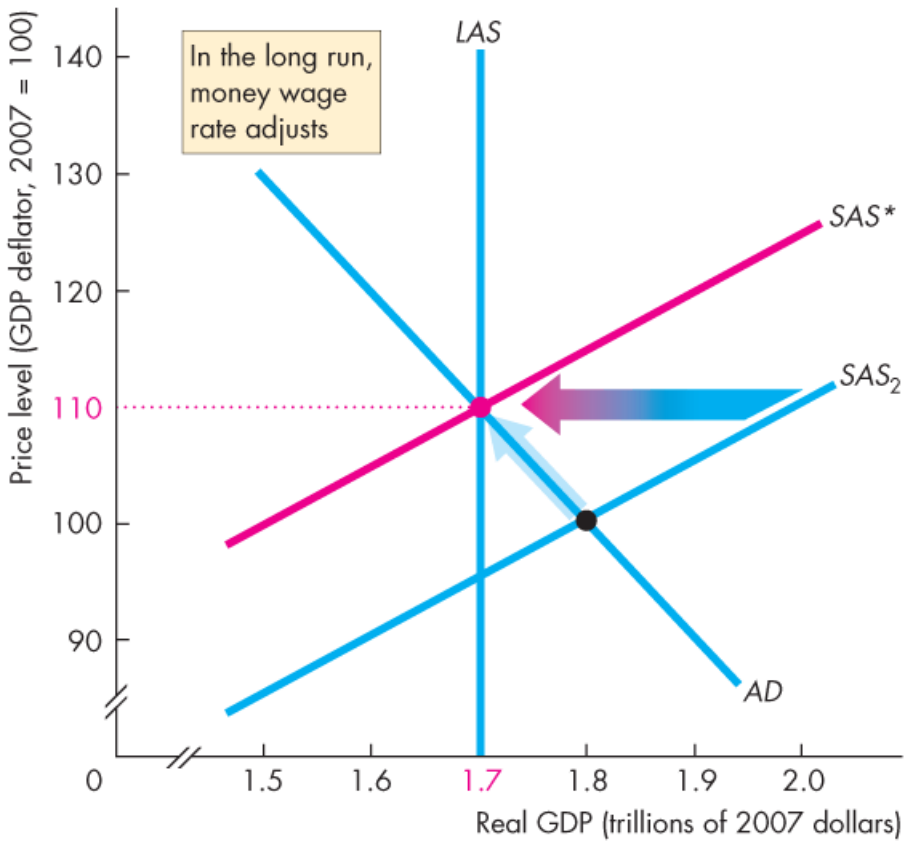
Initially, the economy is at below-full employment equilibrium.

In the long run, the money wage falls until the *SAS* curve passes through the long-run equilibrium point.



Suppose instead that the economy is initially at an above-full employment equilibrium.

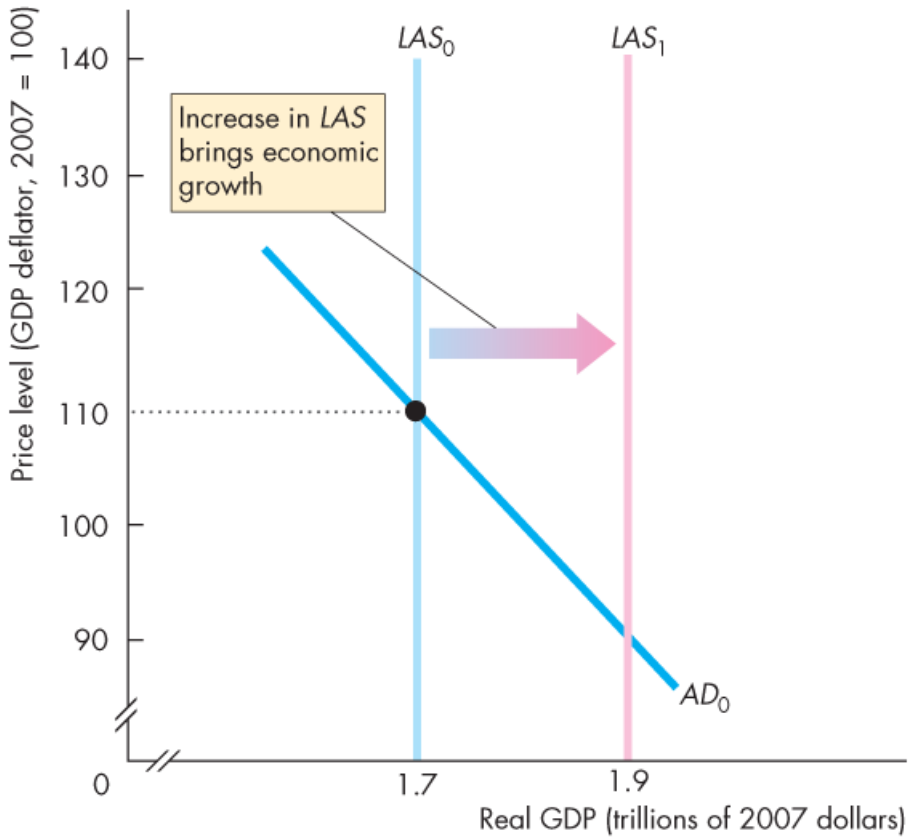
In the long run, the money wage rises until the *SAS* curve passes through the long-run equilibrium point.



Economic Growth and Inflation in the *AS-AD* Model

Because the quantity of labor grows, capital is accumulated, and technology advances, potential GDP increases.

The *LAS* curve shifts rightward.



If the quantity of money grows faster than potential GDP, aggregate demand increases by more than long-run aggregate supply.

The *AD* curve shifts rightward faster than the rightward shift of the *LAS* curve.