

EC132.02

Principles of Macroeconomics

Boston College

Thursday, May 2

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Announcements and Reminders

Final exam: Friday, May 10, 12:30 – 2:00pm.

Last names beginning with:

A or B: Higgins 263

C through S: Devlin 008

T through Z: Lyons 202

Final Exam Topics

Closed book exam, between 6 and 12 questions (short-answer, with multiple parts) covering:

1. Banks and the Money Supply
 2. The Fed's Tools of Monetary Control
 3. The Federal Funds Rate
 4. Banking and Financial Crises
 5. The Classical Theory of Inflation
- } Mankiw, Ch 29
- } Notes, Ch 29
- } Mankiw, Ch 30

Ch 33 Aggregate Demand and Supply

1. Three Key Facts About Economic Fluctuations ✓
2. Explaining Short-Run Fluctuations ✓
3. The Aggregate Demand Curve ✓
4. The Aggregate Supply Curve
 - A. Long-Run Aggregate Supply ✓
 - B. Short-Run Aggregate Supply ←
5. Two Causes of Aggregate Fluctuations

Short-Run Aggregate Supply

All of macroeconomists' stories imply a short-run supply relationship of the form

$$Y = Y^* + a(P - P^E)$$

with $a > 0$.

Then, “the long run” can be viewed as a time period after which the actual price level P returns to the level that is expected P^E , so that $Y = Y^*$.

Short-Run Aggregate Supply

All of these stories imply a short-run aggregate supply relationship of the form

$$Y = Y^* + a(P - P^E)$$

with $a > 0$.

1. Sticky Wage Theory
2. Sticky Price Theory

Short-Run Aggregate Supply

1. Sticky Wage Theory

Sticky wage theory assumes that wages are slow to adjust to changing economic conditions either because they are set by long-term contracts or because wage-setting conventions make it difficult for firms to rapidly adjust the wages they pay.

Short-Run Aggregate Supply

1. Sticky Wage Theory

Suppose that one year ago, a firm expected $P^E = 100$, and based on this expectation, agreed to pay its workers \$20 per hour.

Now suppose that instead, $P = 105$.

In the long run, the firm will have to raise wages to compensate workers for the higher cost of living.

Short-Run Aggregate Supply

1. Sticky Wage Theory

But in the short run, wages have been set “too low.”

Since the firm can hire workers at relatively low wages, it hires more and produces more.

Y rises above Y^* when P is above P^E .

Short-Run Aggregate Supply

2. Sticky Price Theory

Sticky price theory emphasizes, instead, that the price of some goods and services can be slow to adjust to changing economic conditions, because of “menu costs” or administrative costs of changing prices.

Short-Run Aggregate Supply

2. Sticky Price Theory

Suppose that managers at Dunkin Donuts decide that for 2013, \$1.49 is the “right” price to charge for a small coffee.

Suppose that this decision is based partly on the expectation that $P^E = 100$.

Now suppose that $P = 105$ instead.

Short-Run Aggregate Supply

2. Sticky Price Theory

Now the price of a cup of coffee at Dunkin Donuts is “too low.”

Customers will buy more; Dunkin Donuts will hire more workers and sell more cups of coffee.

Y rises above Y^* when P is above P^E .

Short-Run Aggregate Supply

Both of these stories imply a short-run aggregate supply relationship of the form

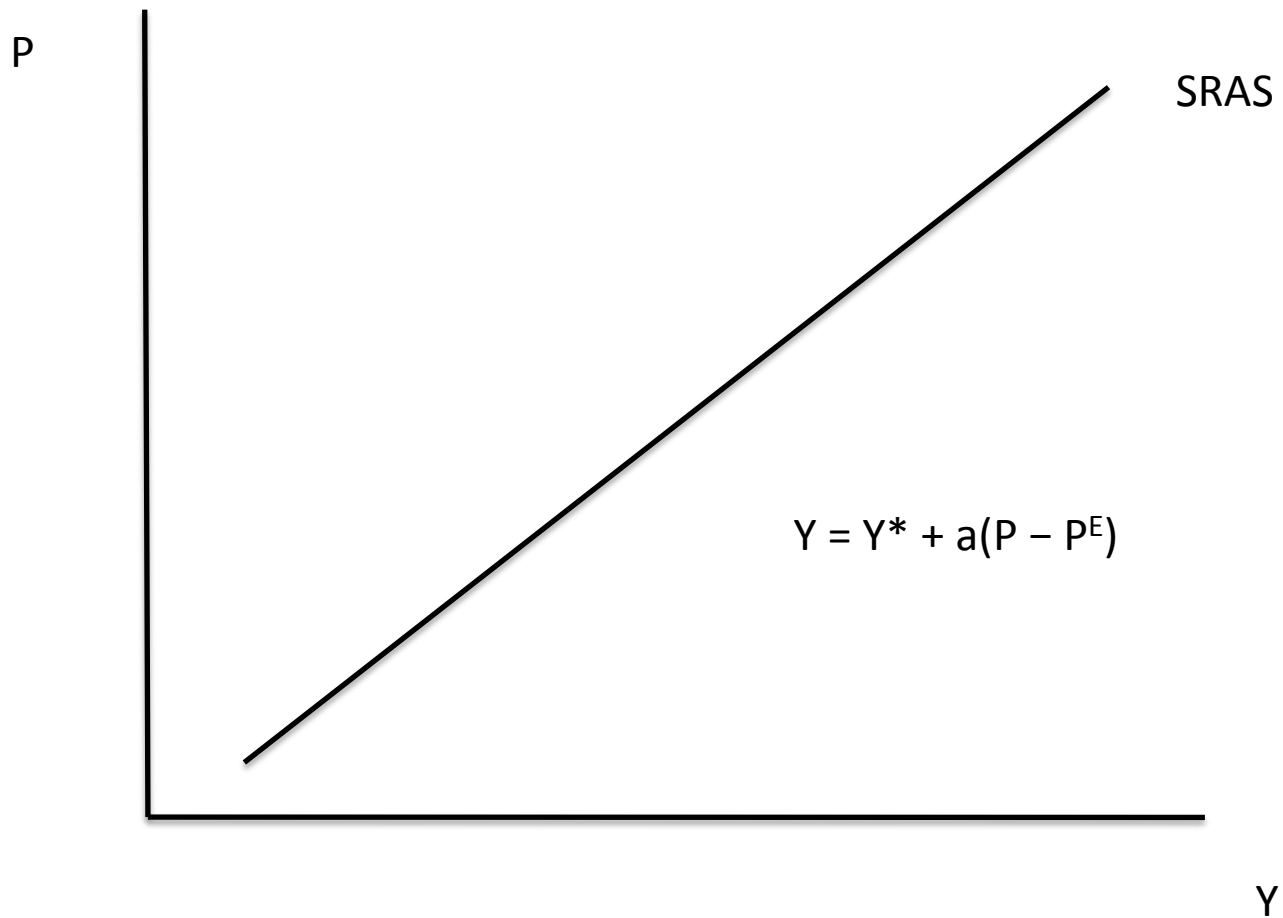
$$Y = Y^* + a(P - P^E)$$

with $a > 0$.

1. Sticky Wage Theory
2. Sticky Price Theory

Note that these theories are not mutually inconsistent. It is possible to believe that both work together to explain the upward-sloping SR aggregate supply curve.

Short-Run Aggregate Supply



Shifts in SR Aggregate Supply

Since

$$Y = Y^* + a(P - P^E)$$

the SRAS curve shifts when Y^* changes or when P^E changes.

Shifts in SR Aggregate Supply

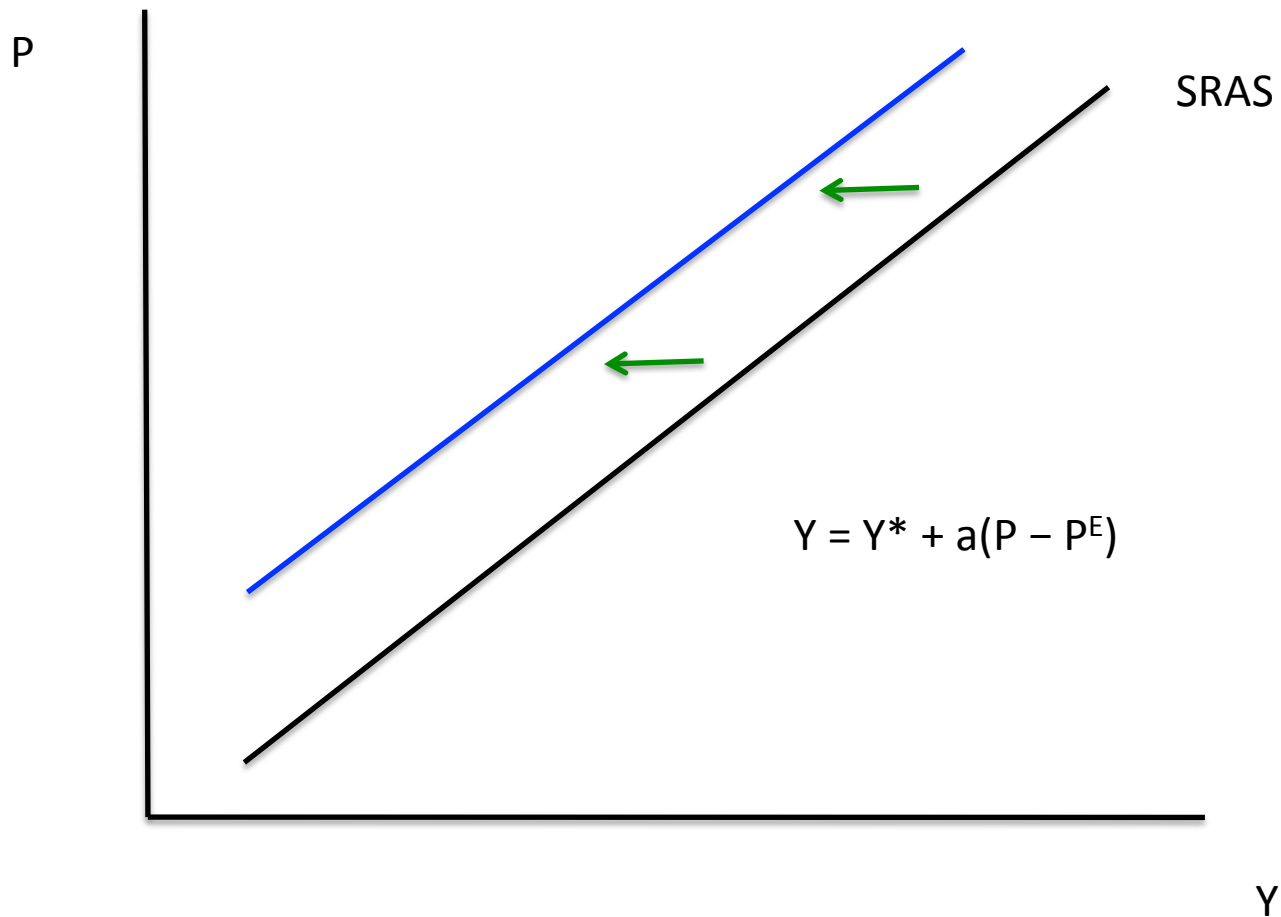
$$Y = Y^* + a(P - P^E)$$

If P^E rises, firms must set wages higher to compensate workers for inflation.

But **holding P fixed** this means higher real wages.

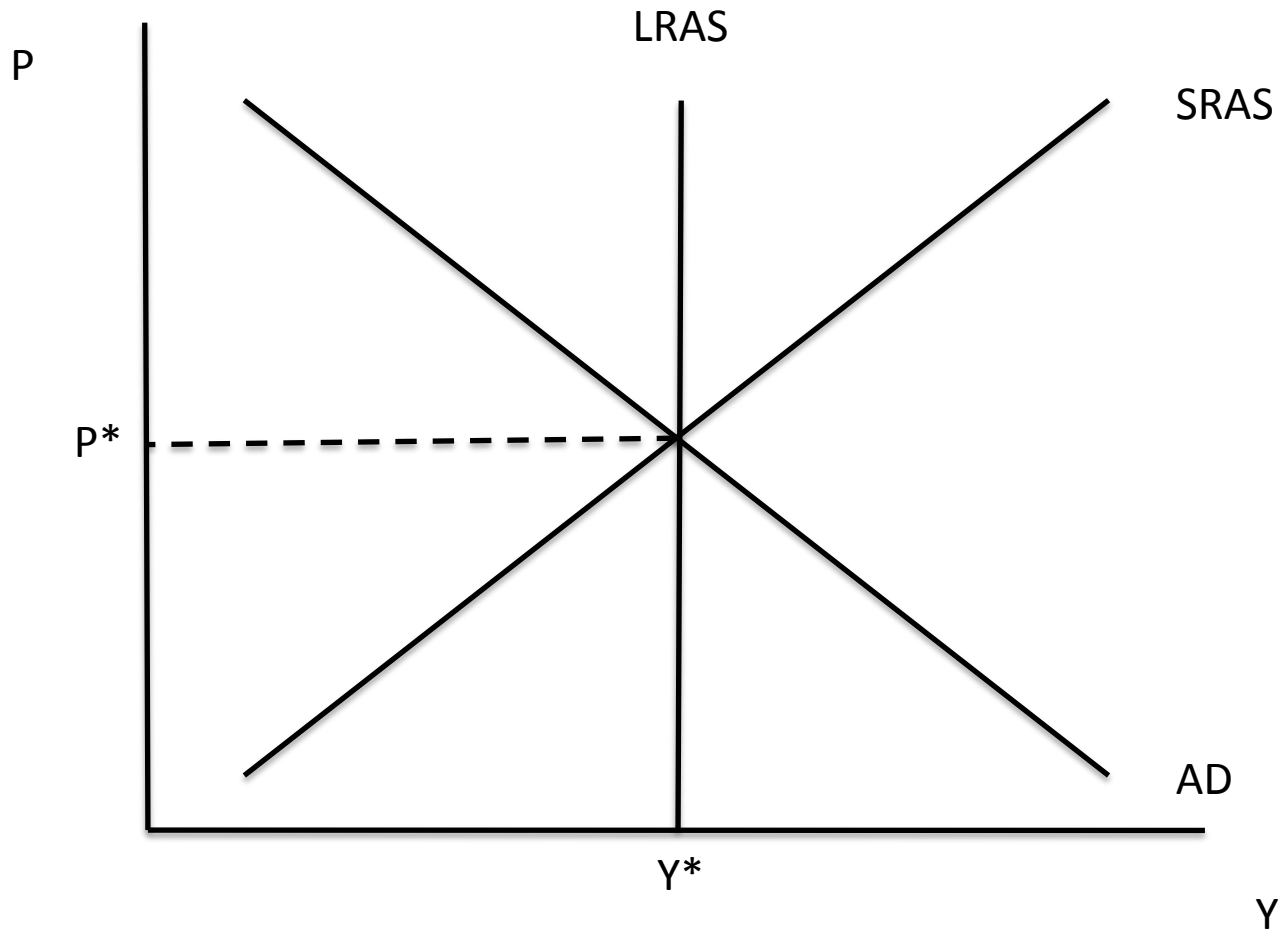
Firms will hire fewer workers and produce less.

Short-Run Aggregate Supply



When P^E rises, firms have to set higher wages. They produce less output **for any given level of P**. The SRAS curve shifts to the left.

Two Causes of Economic Fluctuations



In an initial long-run equilibrium:

$$Y = Y^*$$

Output is at its natural rate

$$P = P^E = P^*$$

Actual and expected prices coincide

Two Causes of Economic Fluctuations

From an initial long-run equilibrium, we can trace out the effects of various macroeconomic events by:

1. Deciding whether the event shifts the AD curve or the AS curve.
2. Deciding in which direction the relevant curve shifts.
3. Using the diagram to trace out the short-run effects.
4. Using the same diagram to trace out the long-run effects.

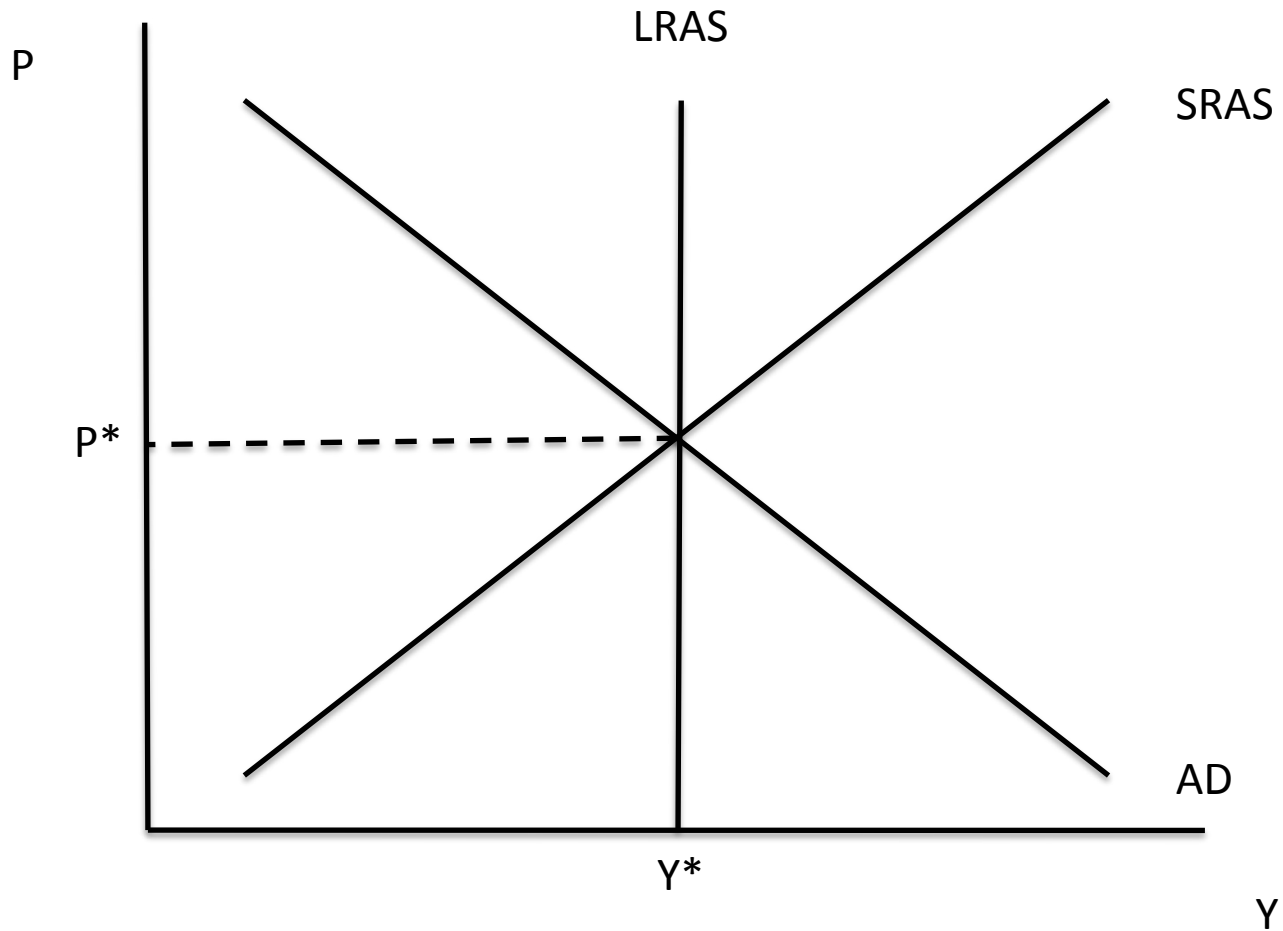
Ex 1 A Decline in Asset Prices

Suppose that the stock market crashes, or that real estate prices collapse.

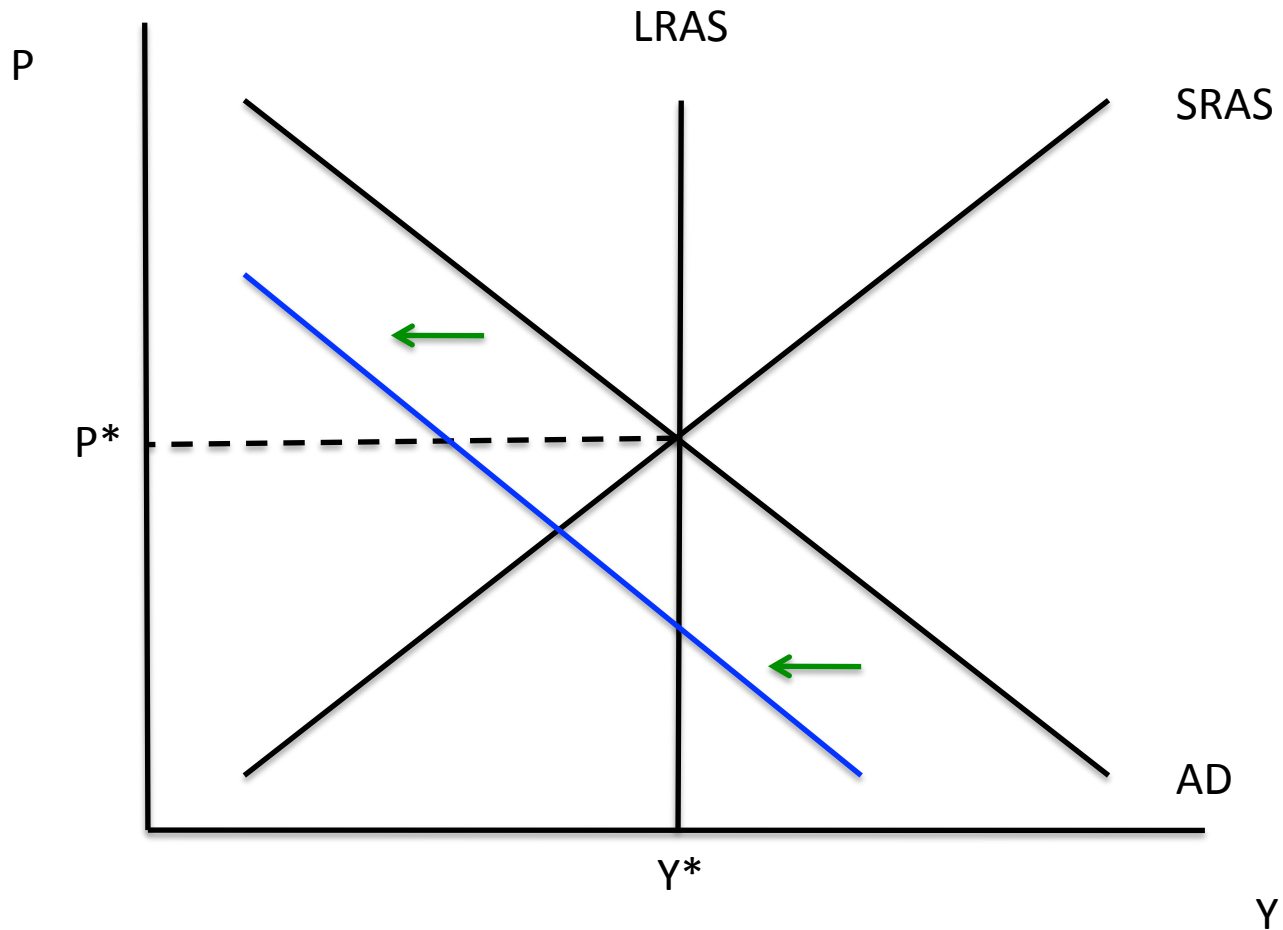
This affects consumers' nonmonetary wealth, and shifts the AD curve.

And since consumers demand fewer goods at any given price level, the AD curve shifts to the left.

Ex 1 A Decline in Asset Prices

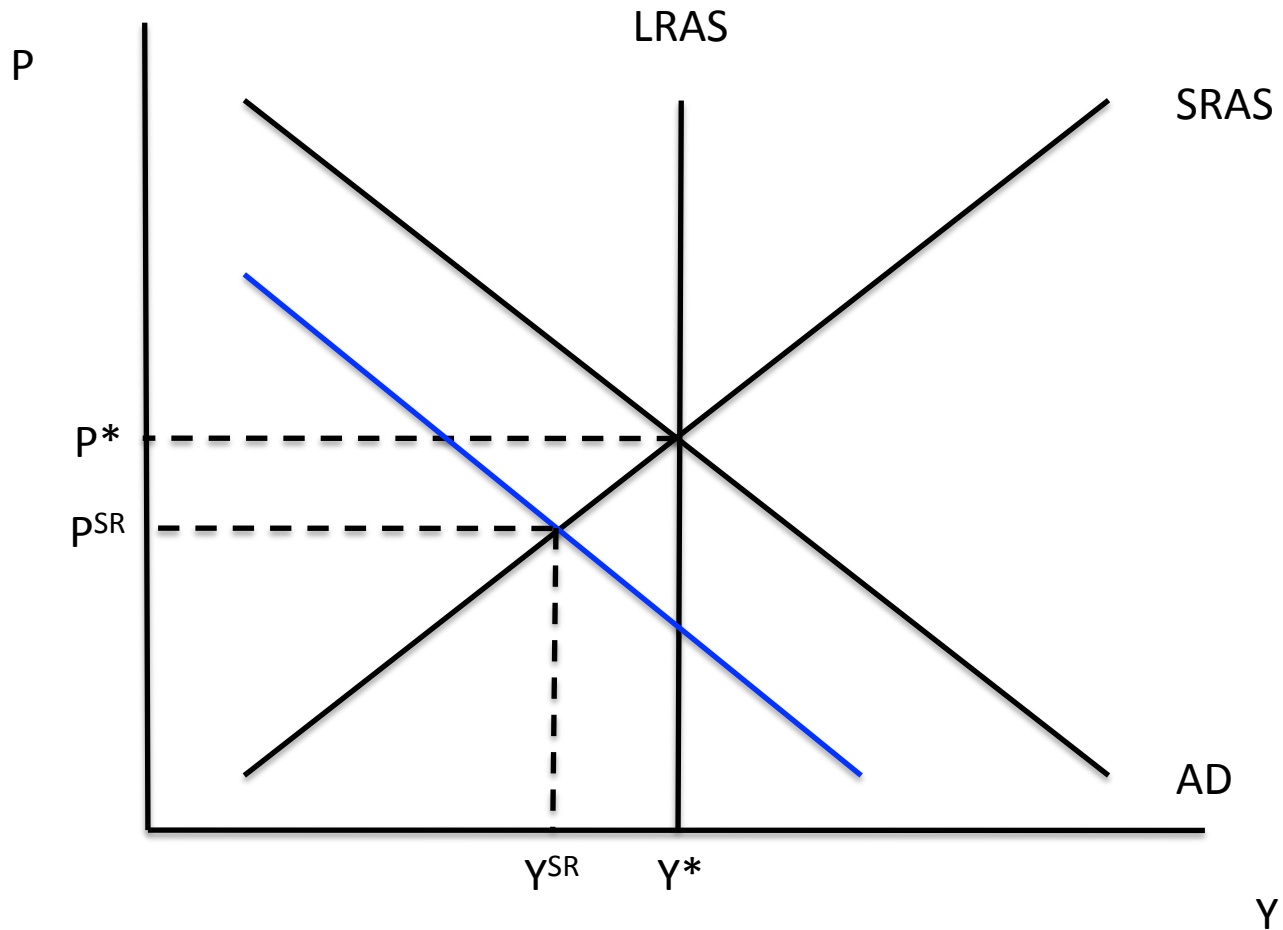


Ex 1 A Decline in Asset Prices



A sharp decline in asset prices causes the AD curve to shift to the left.

Ex 1 A Decline in Asset Prices



In the short run:

Output falls to $Y^{SR} < Y^*$

The price level falls to $p^{SR} < p^* = p^E$

The economy falls into a recession

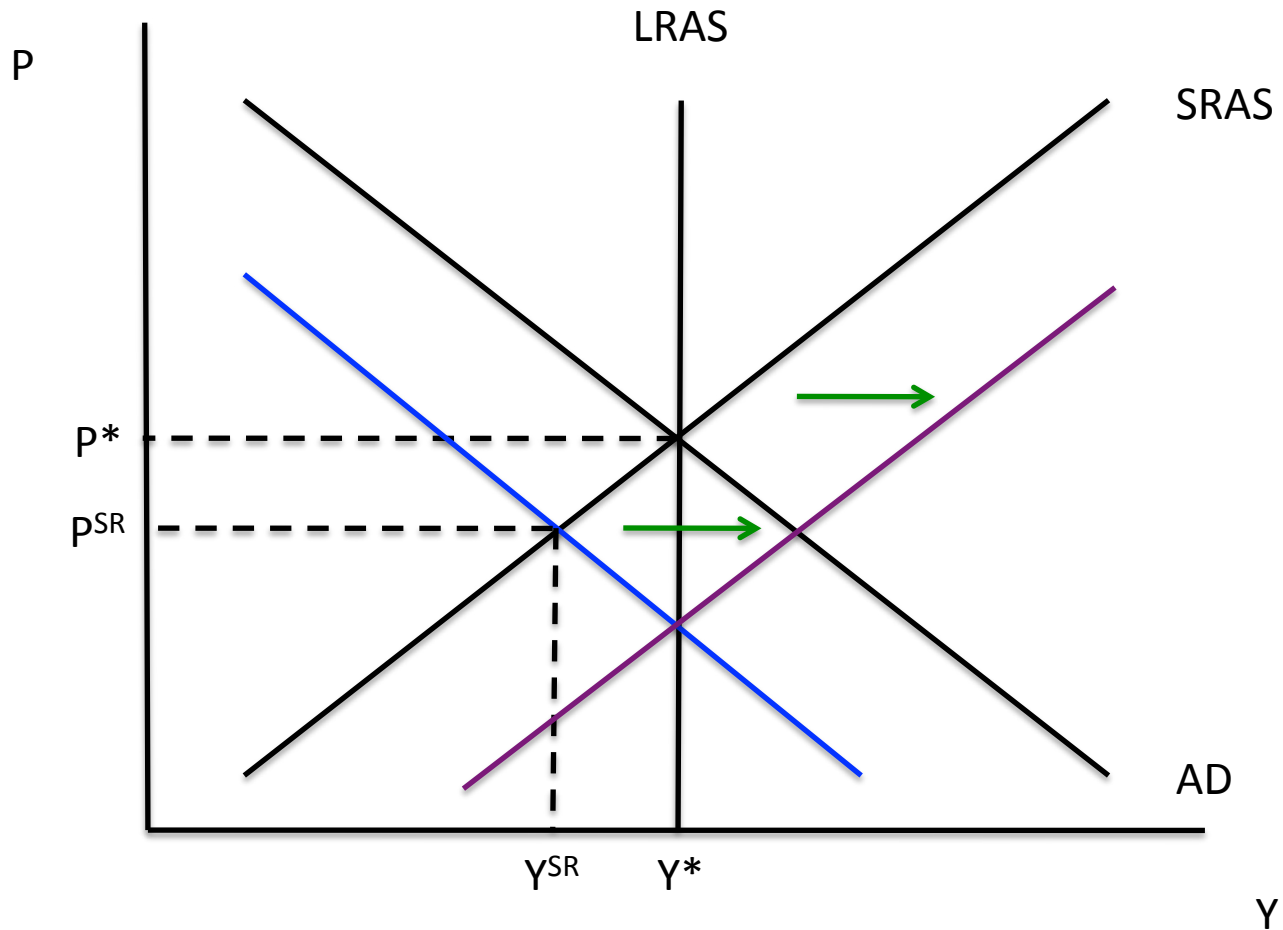
Inflation turns out to be lower than expected.

Ex 1 A Decline in Asset Prices

But because inflation turns out to be lower than expected, firms will be able to reduce wages the next time they are due to be reset.

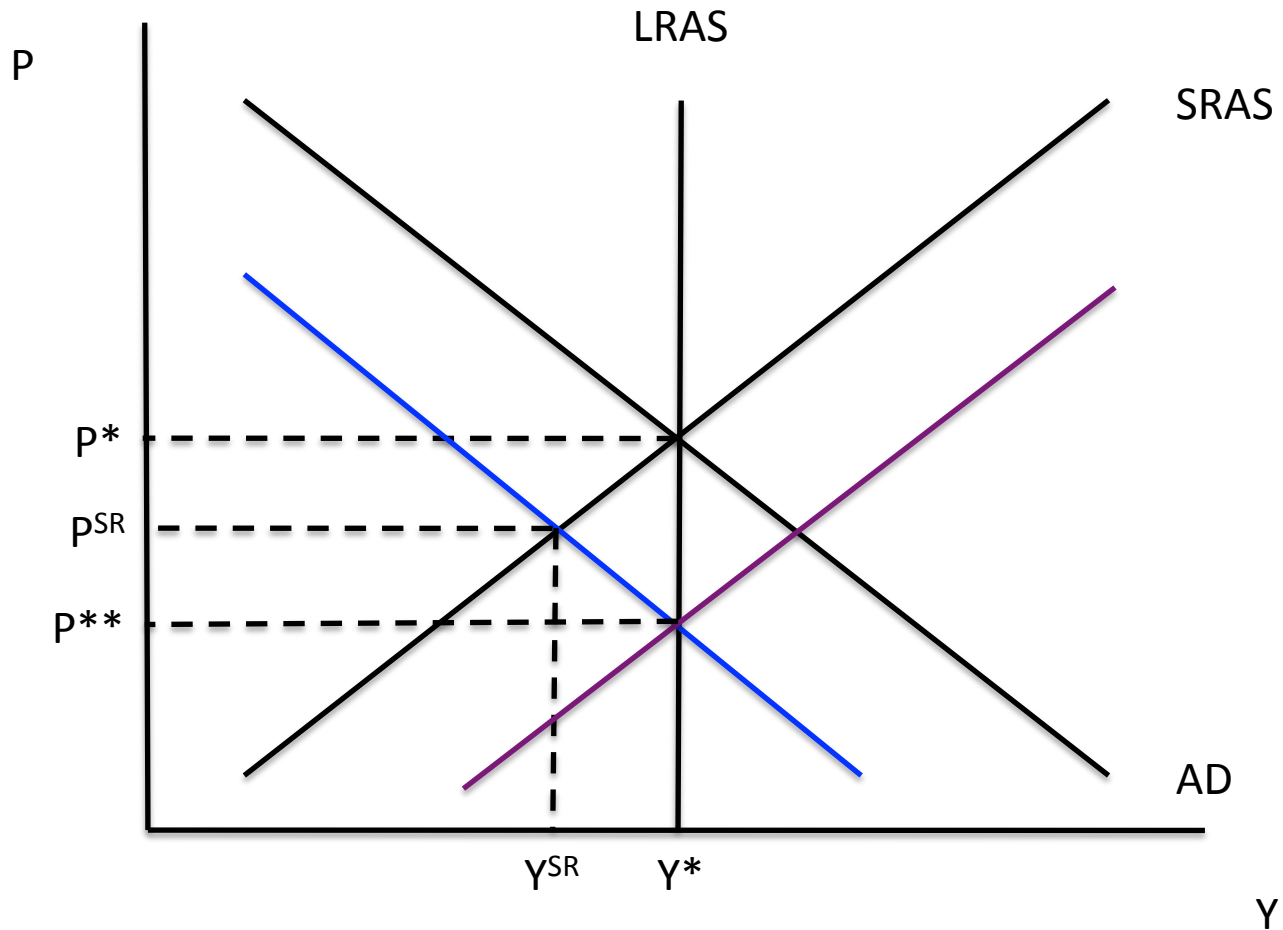
P^E will fall, and the SRAS curve will shift to the right.

Ex 1 A Decline in Asset Prices



In the long run, however, P^E will start to fall, shifting the $SRAS$ to the right.

Ex 1 A Decline in Asset Prices



A new long-run equilibrium is established, in which:

$$Y = Y^*$$

Output returns to its natural rate

$$P = P^E = P^{**}$$

Actual and expected prices again coincide, but at a lower level.

Ex 1 A Decline in Asset Prices

So far, however, we have assumed that the government does not respond to any of these events.

“But this long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell us that when the storm is long past the ocean is flat again.” – John Maynard Keynes, *A Tract on Monetary Reform* (1924).

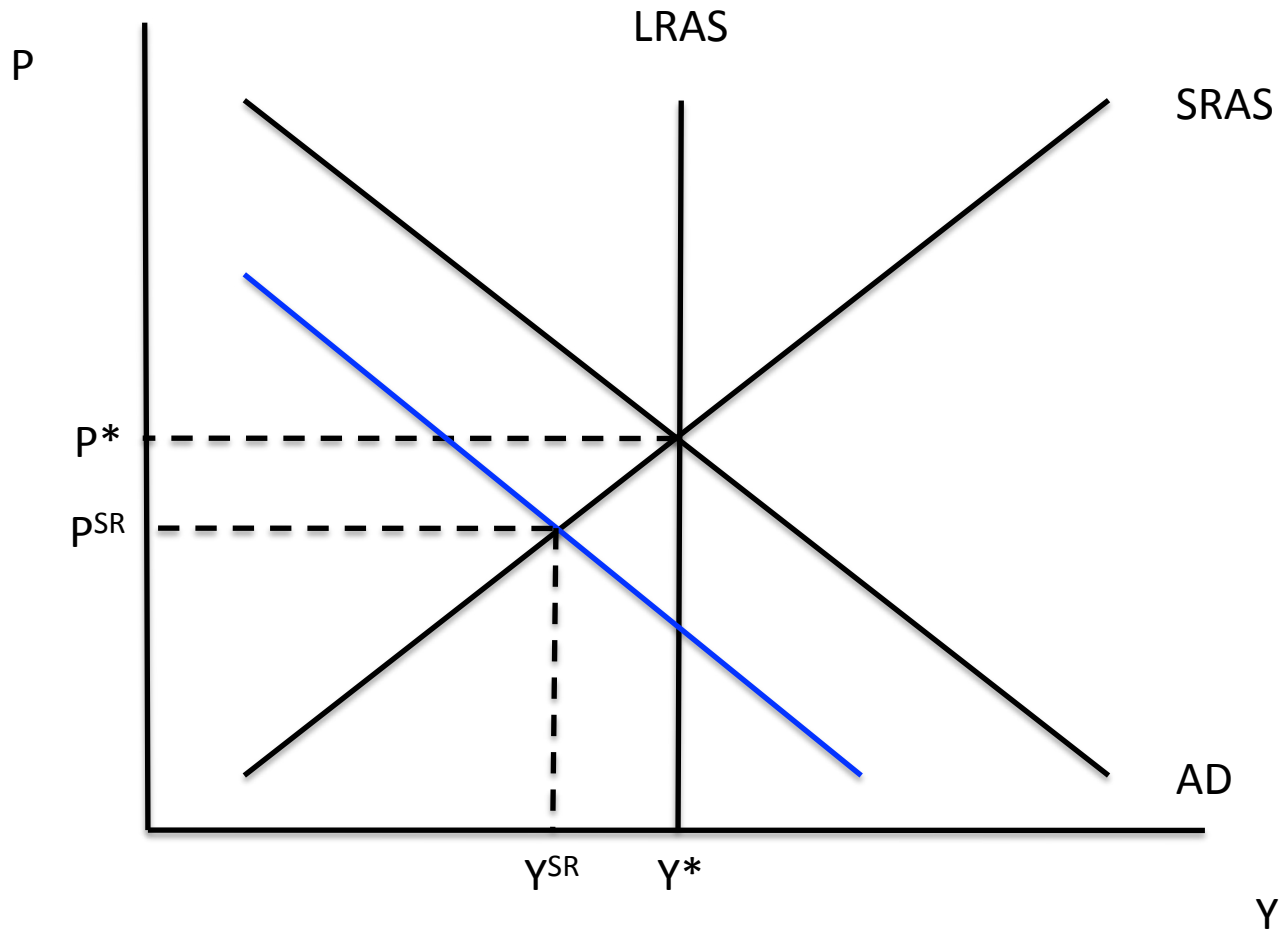
Ex 1 A Decline in Asset Prices

Suppose that instead of doing nothing:

- The Fed lowers interest rates, through a monetary policy easing.
- Congress cuts taxes and/or raises government spending, through a fiscal stimulus.

Both sets of policies work to shift the AD curve to the right.

Ex 1 A Decline in Asset Prices



In the short run:

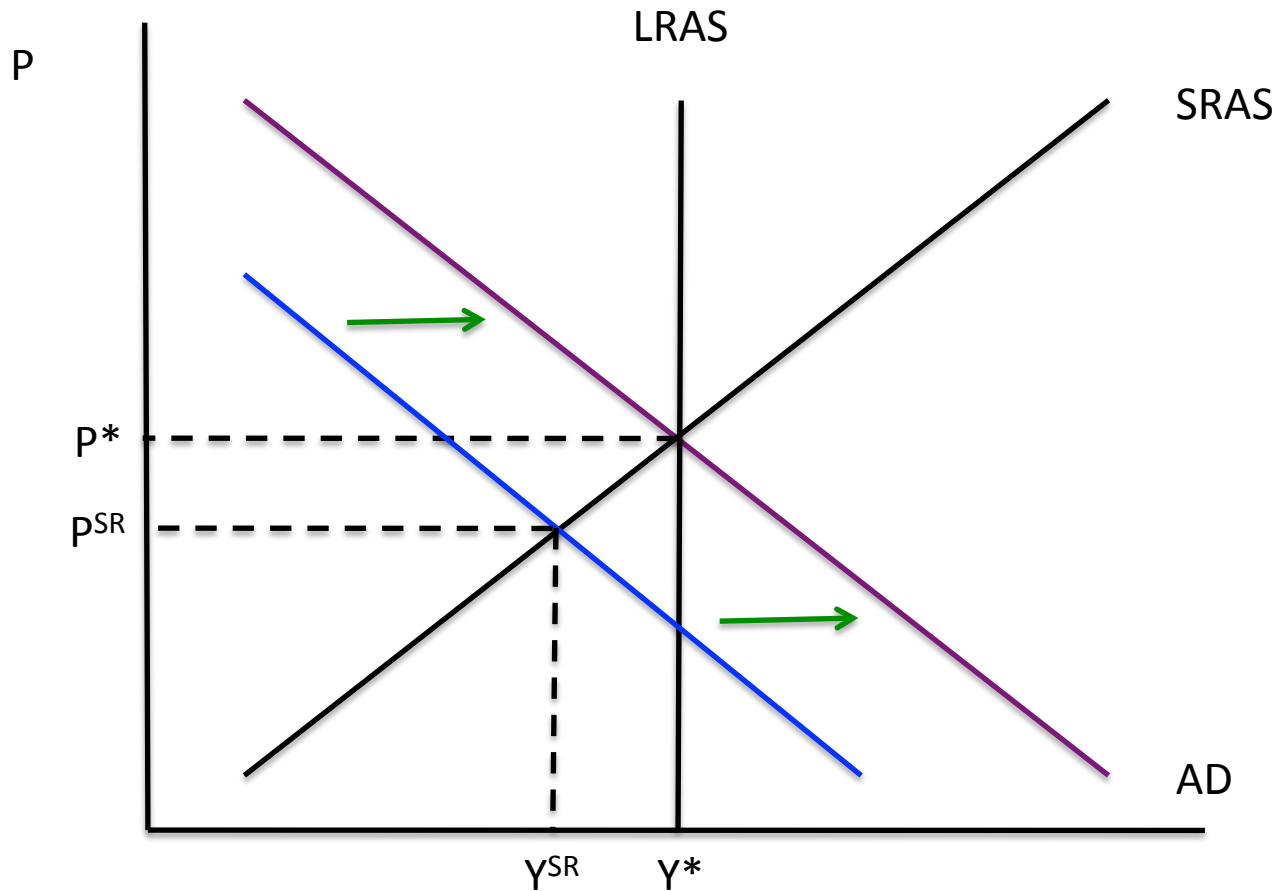
Output falls to $Y^{SR} < Y^*$

The price level falls to $p^{SR} < p^* = p^E$

The economy falls into a recession.

Inflation turns out to be lower than expected.

Ex 1 A Decline in Asset Prices



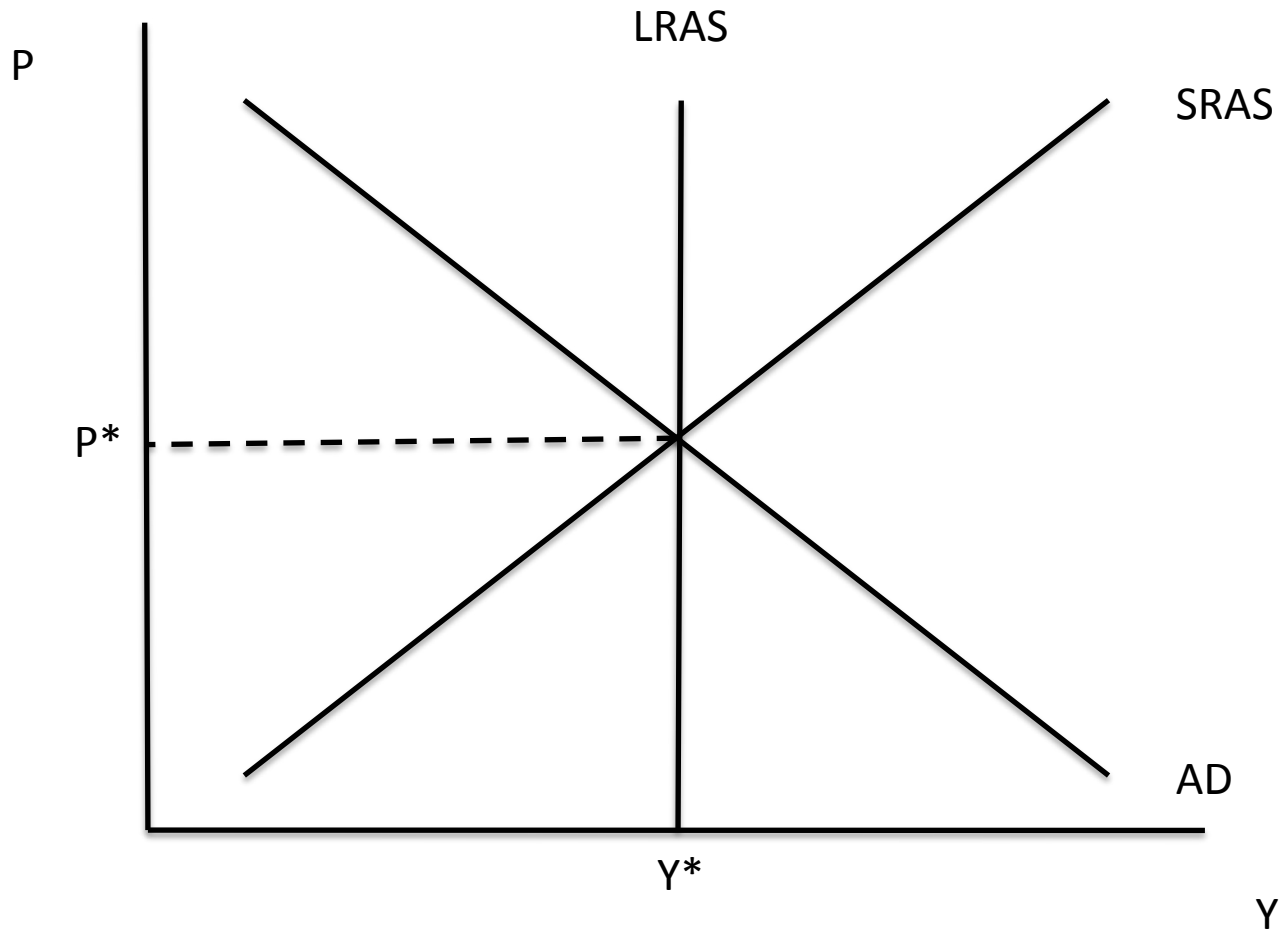
Suppose, however, that the government uses monetary and fiscal stimulus to push the AD curve back to the right. Now the economy can return to its initial long-run equilibrium, with $Y = Y^*$ and $P = P^E = P^*$.

Ex 2 A Monetary Expansion

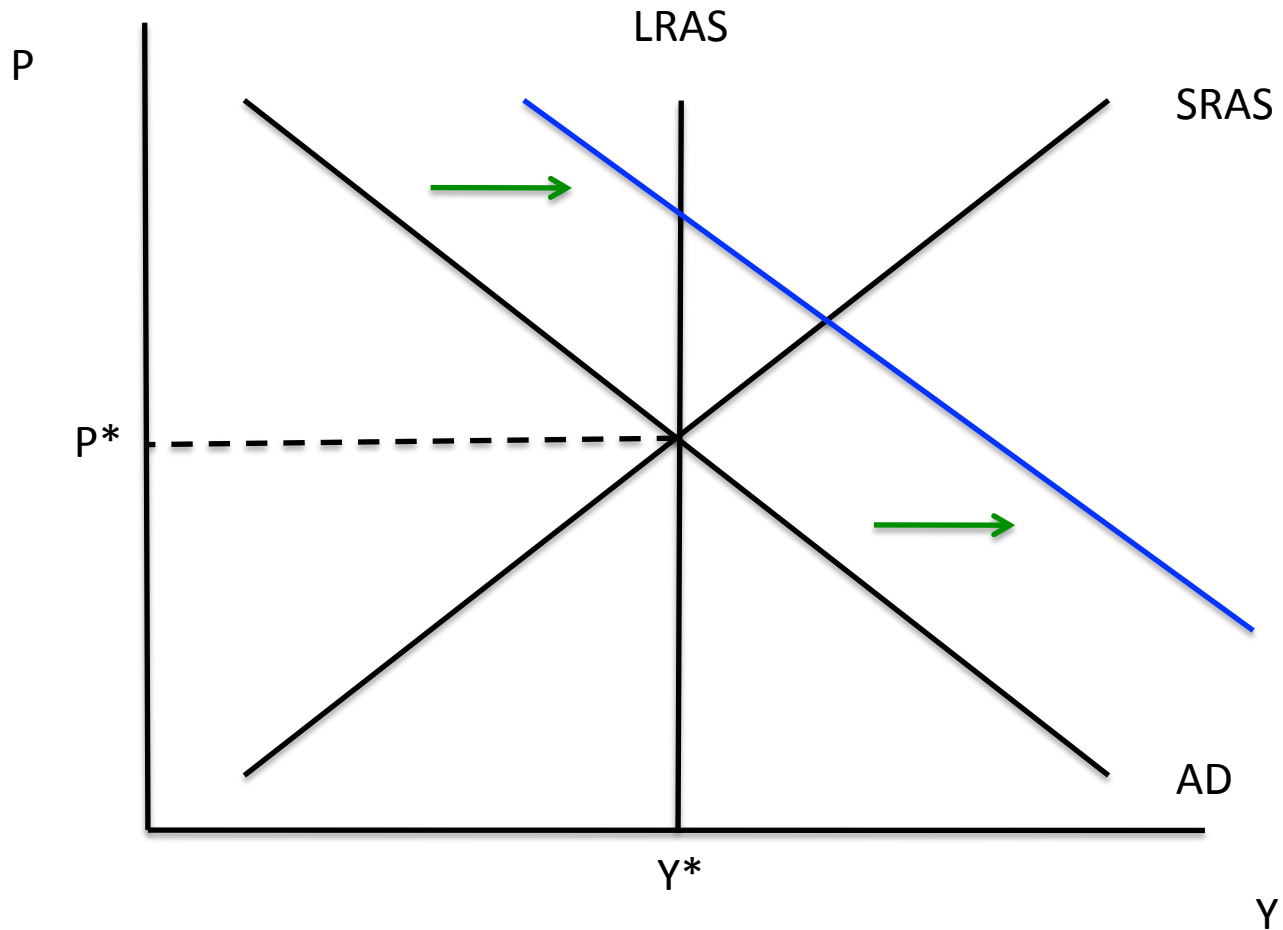
Now let's see what happens when, independent of any other event, the Fed decides to lower interest rates and expand the money supply.

This monetary easing works to shift the aggregate demand curve to the right.

Ex 2 A Monetary Expansion

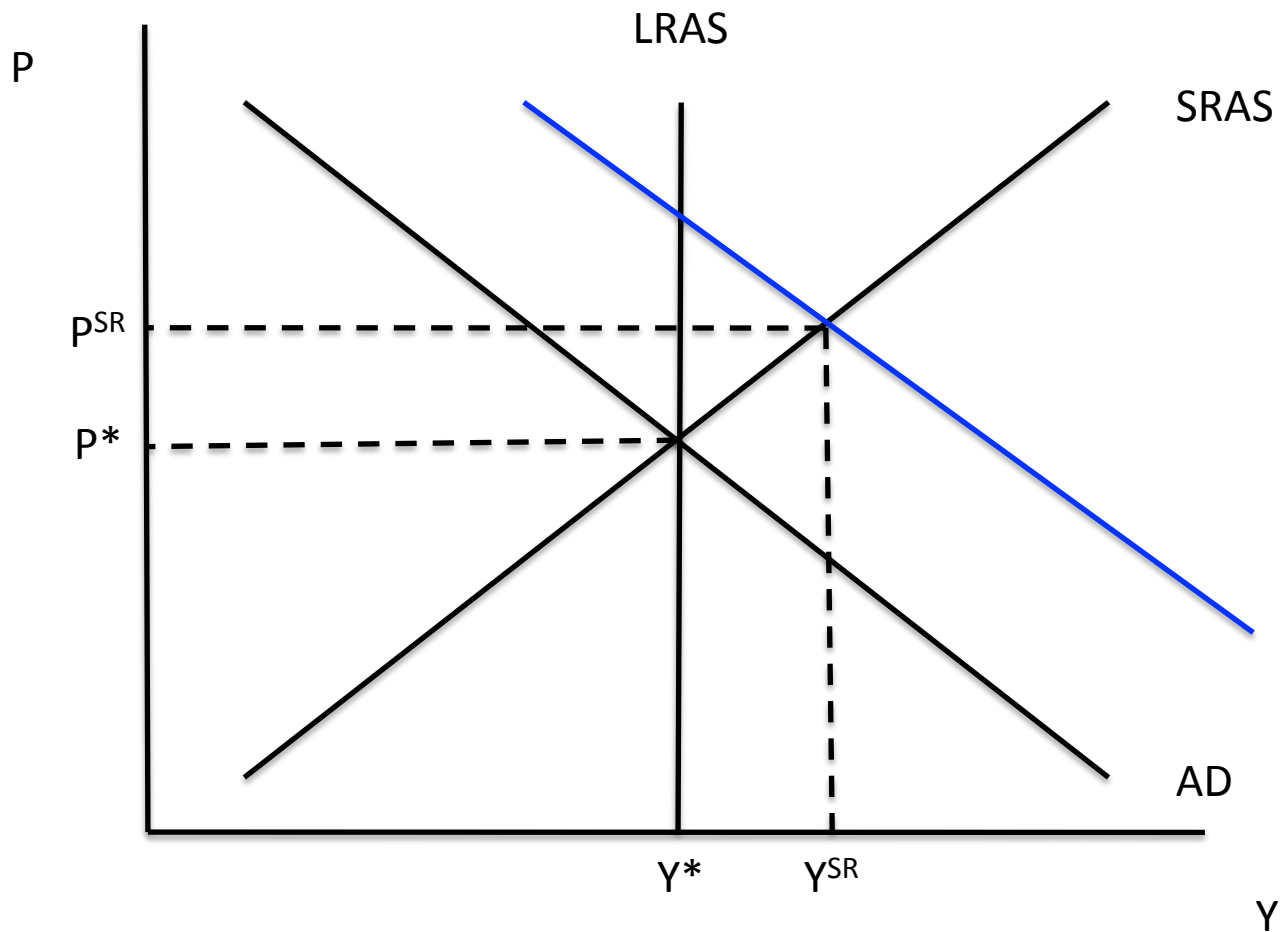


Ex 2 A Monetary Expansion



The Fed lowers interest rates and expands the money supply, shifting the AD curve to the right.

Ex 2 A Monetary Expansion



In the short run:

Output rises to $Y^{SR} > Y^*$

The price level rises to $P^{SR} > P^*$

The economy overheats.

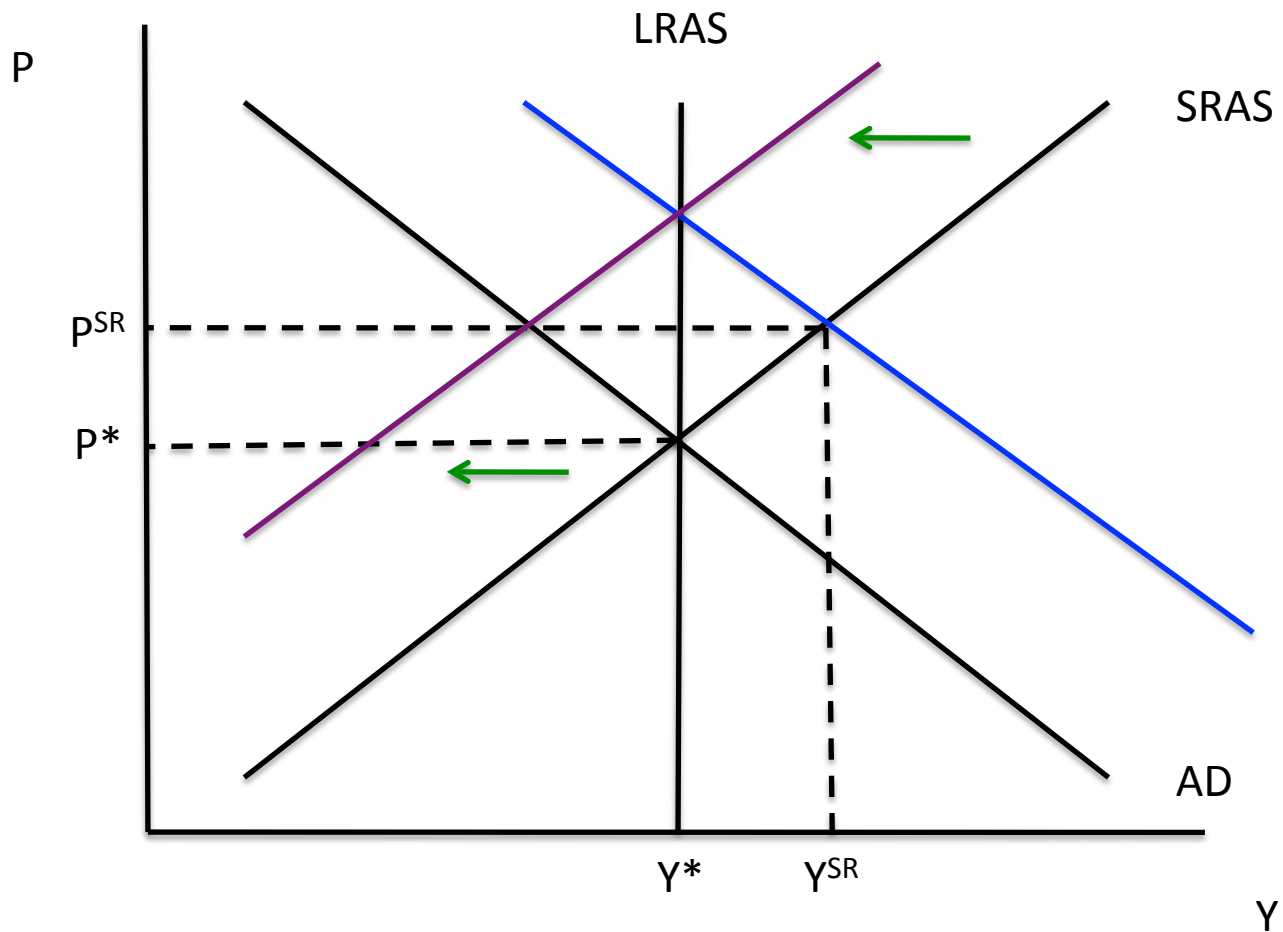
Inflation turns out to be higher than expected.

Ex 2 A Monetary Expansion

But because inflation turns out to be higher than expected, firms will have to raise wages the next time they are due to be reset.

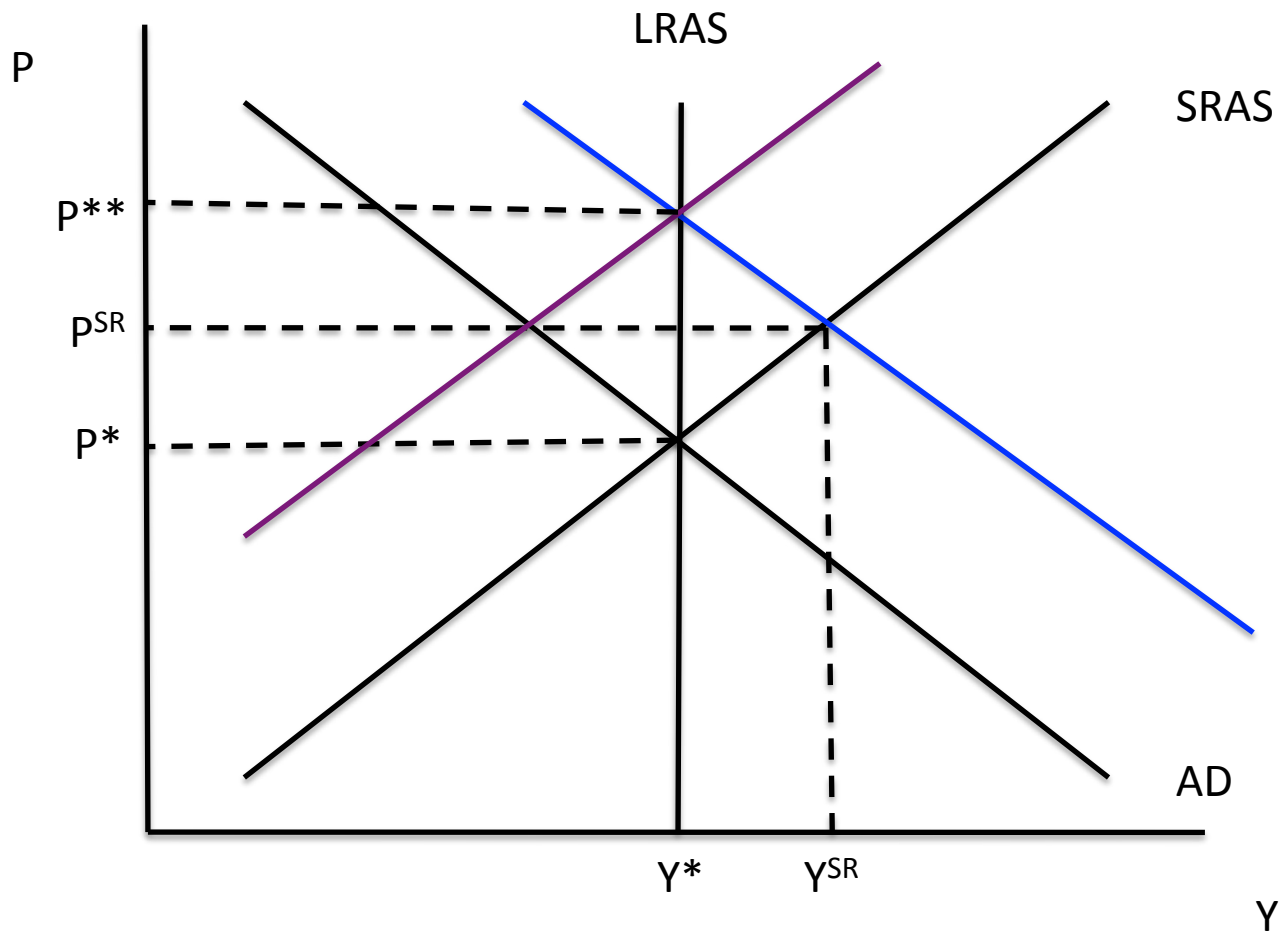
P^E will rise, shifting the SRAS curve to the left.

Ex 2 A Monetary Expansion



But in the long run, P^E will rise, shifting the $SRAS$ curve to the left.

Ex 2 A Monetary Expansion



But new long-run equilibrium is established, in which:

$$Y = Y^*$$

Output returns to its natural rate.

$$P = P^E = P^{**}$$

Actual and expected prices again coincide, but at a higher level.

Ex 2 A Monetary Expansion

This second example is consistent with both of David Hume's observations about the effects of an increase in the money supply:

1. In the short run, it works to increase output and employment.
2. But in the long run, it leads only to higher prices.

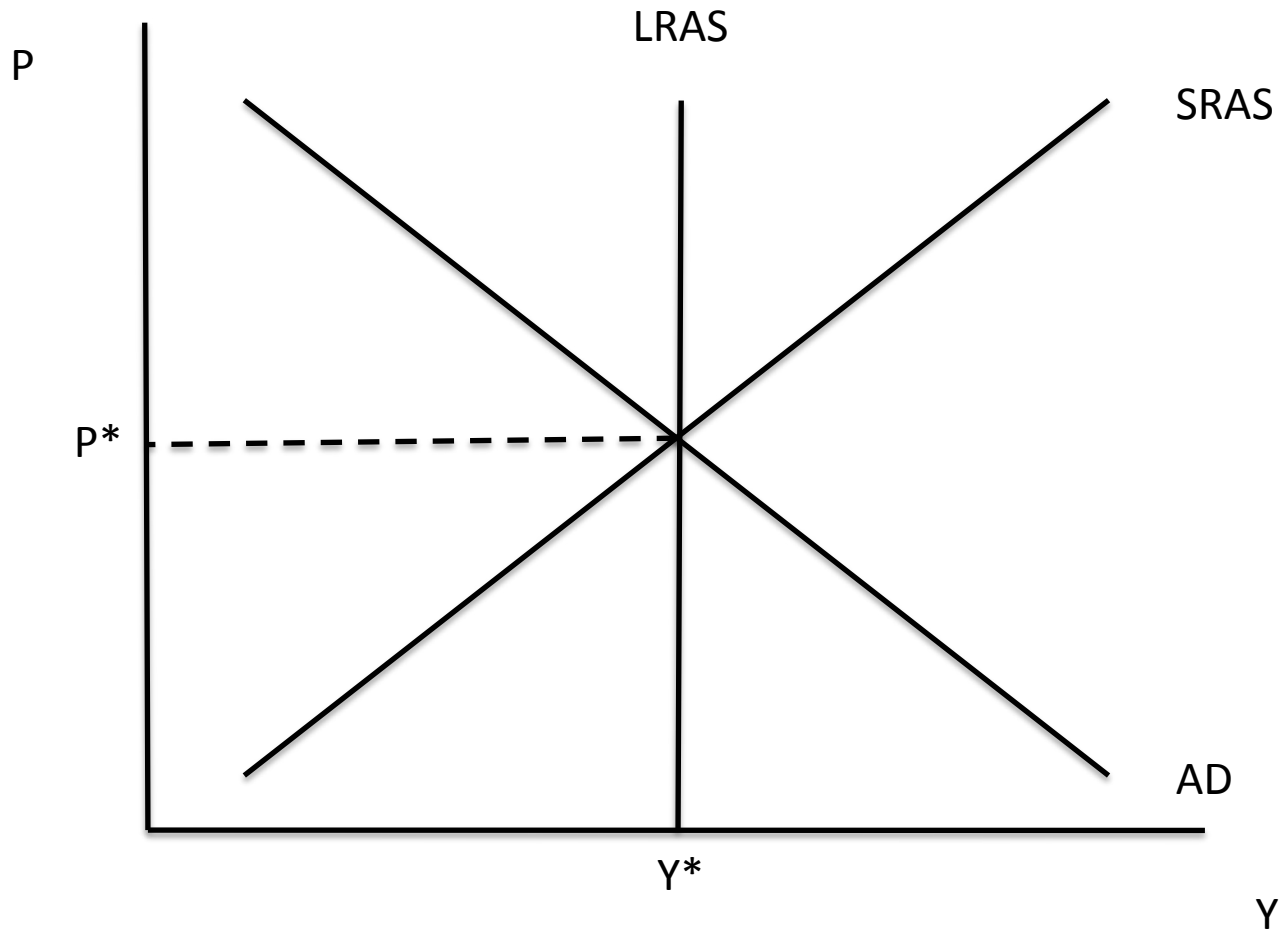
Ex 3 An Oil Price Shock

Now suppose there is a temporary disruption of world oil supplies.

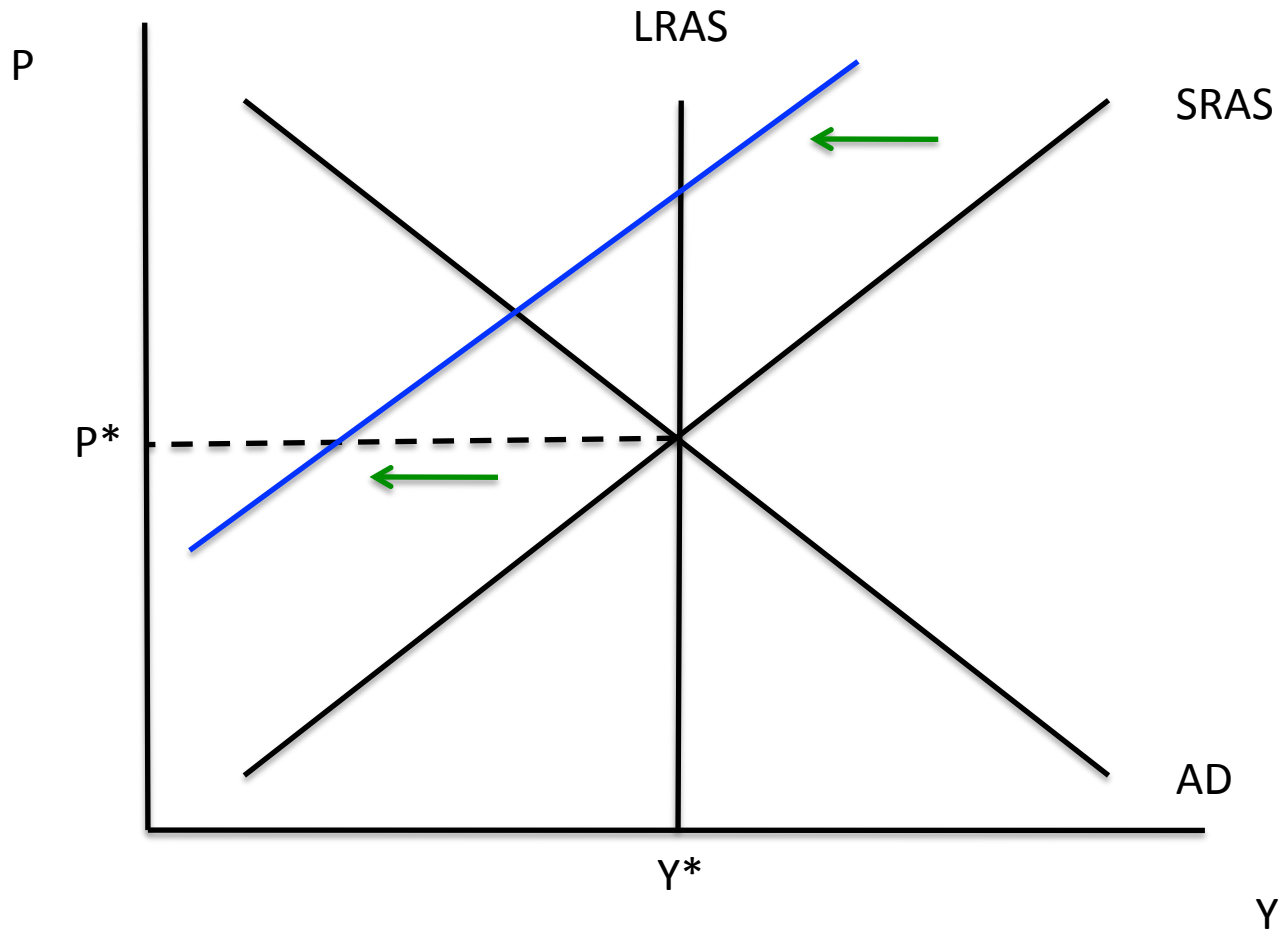
If the disruption is temporary, we can view it as leaving the LRAS curve unchanged.

But since producing goods and services is temporarily more costly, the SRAS curve shifts to the left.

Ex 3 An Oil Price Shock

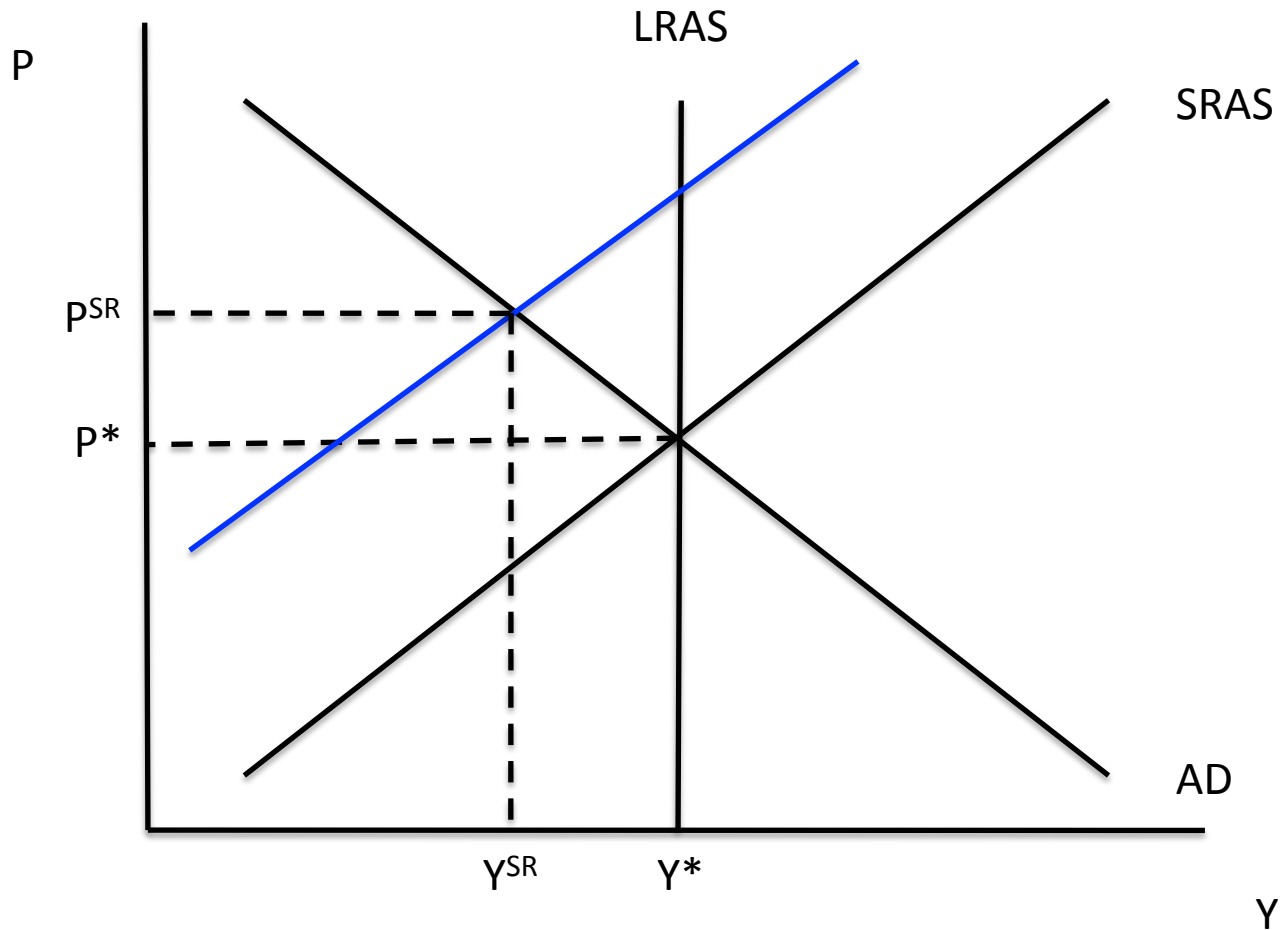


Ex 3 An Oil Price Shock



A temporary disruption to world oil supplies causes the SRAS curve to shift to the left.

Ex 3 An Oil Price Shock



In the short run:

Output falls to $Y^{SR} < Y^*$

The price level rises to $P^{SR} > P^*$

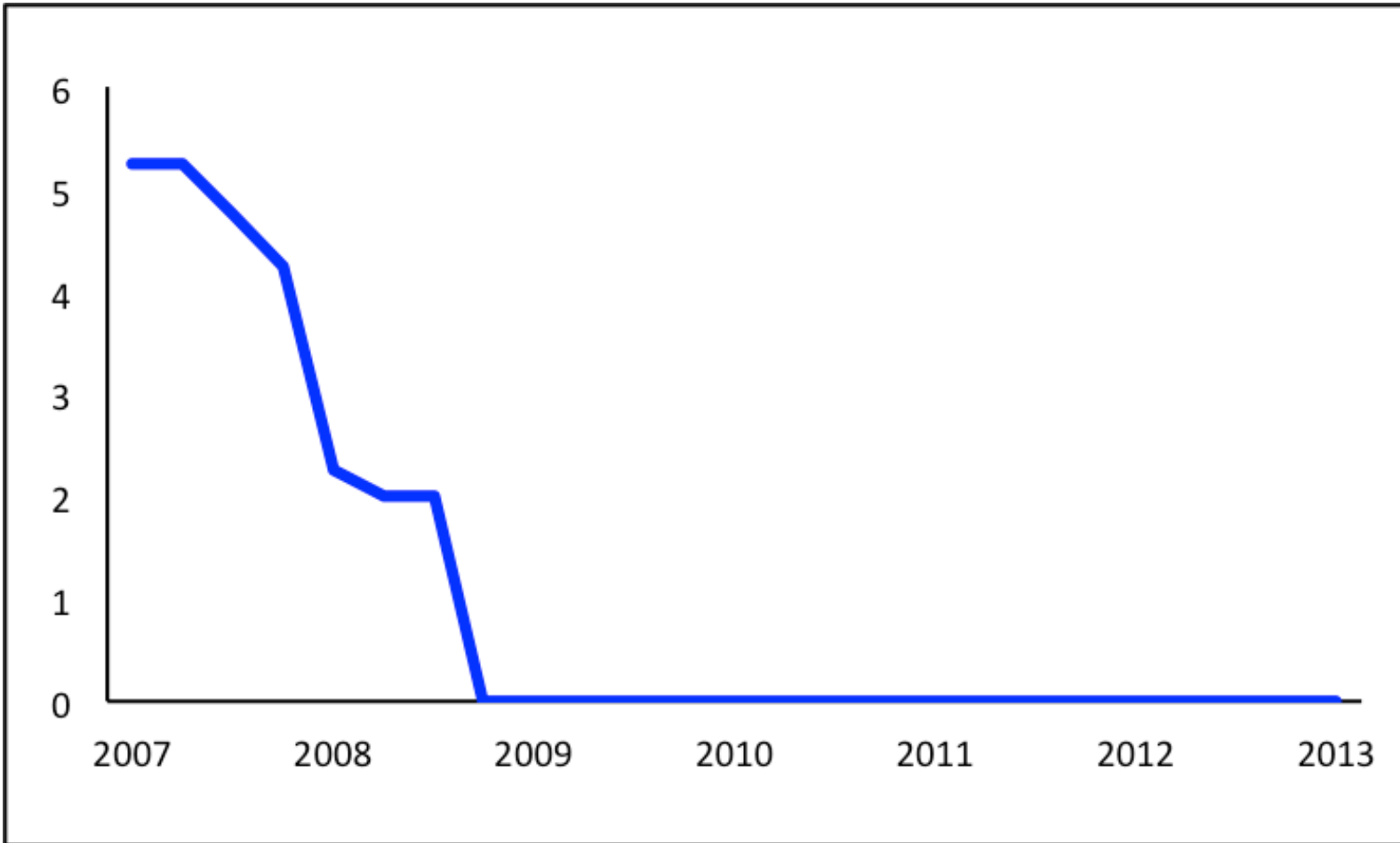
The economy experiences “stagflation.”

Ex 3 An Oil Price Shock

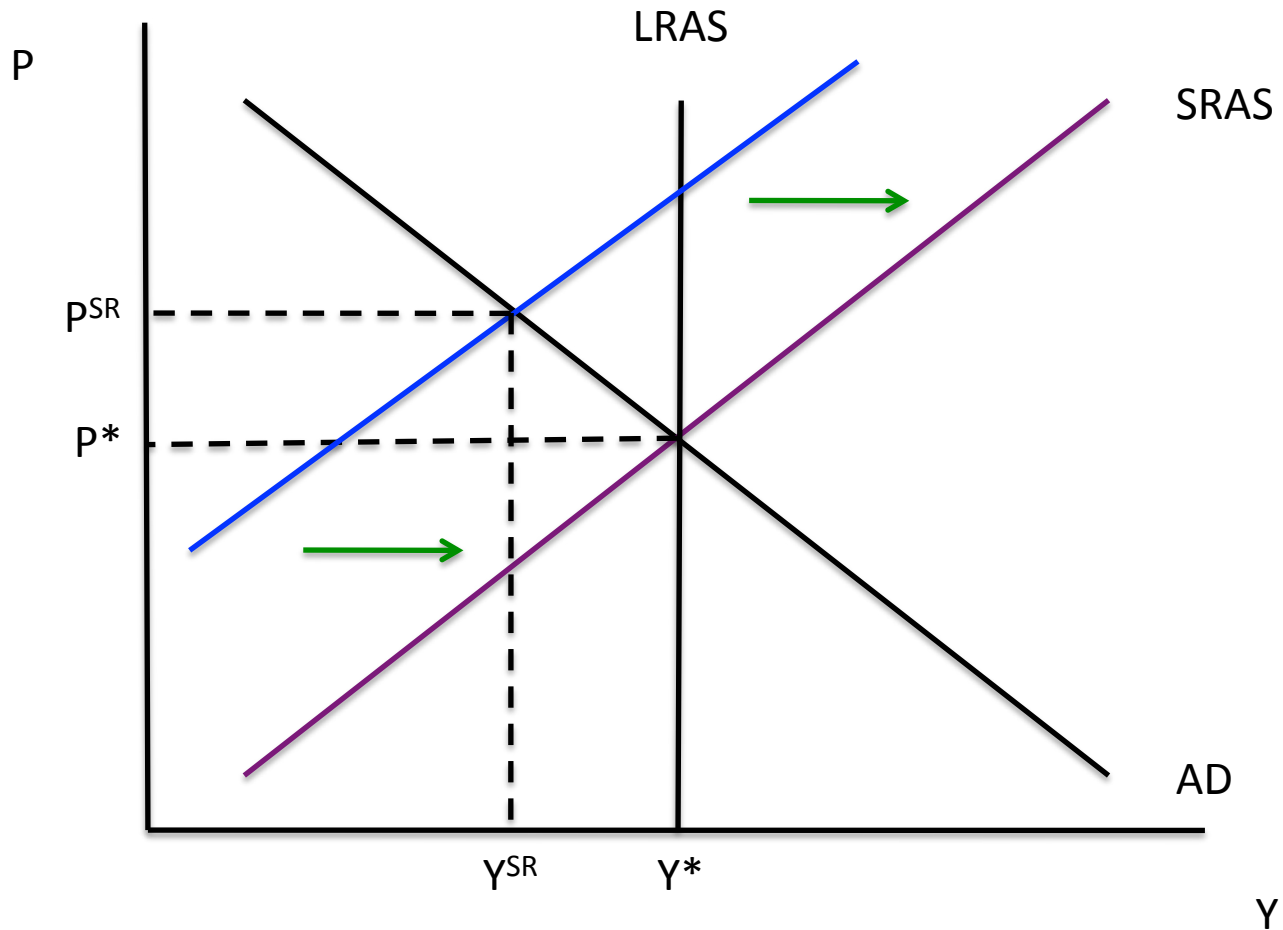
If the Fed and Congress do nothing, and simply wait for oil supplies to be restored and oil prices to return to their original level, then the SRAS curve will eventually shift back to the right.

This appears to be how the Fed and Congress responded to rising oil prices during the first half of 2008: the Fed held its funds rate target constant even as the economy continued to weaken.

Ex 3 An Oil Price Shock



Ex 3 An Oil Price Shock



Once oil supplies are restored, the $SRAS$ curve shifts back to the right. The recession ends and there is no lasting effect on inflation.

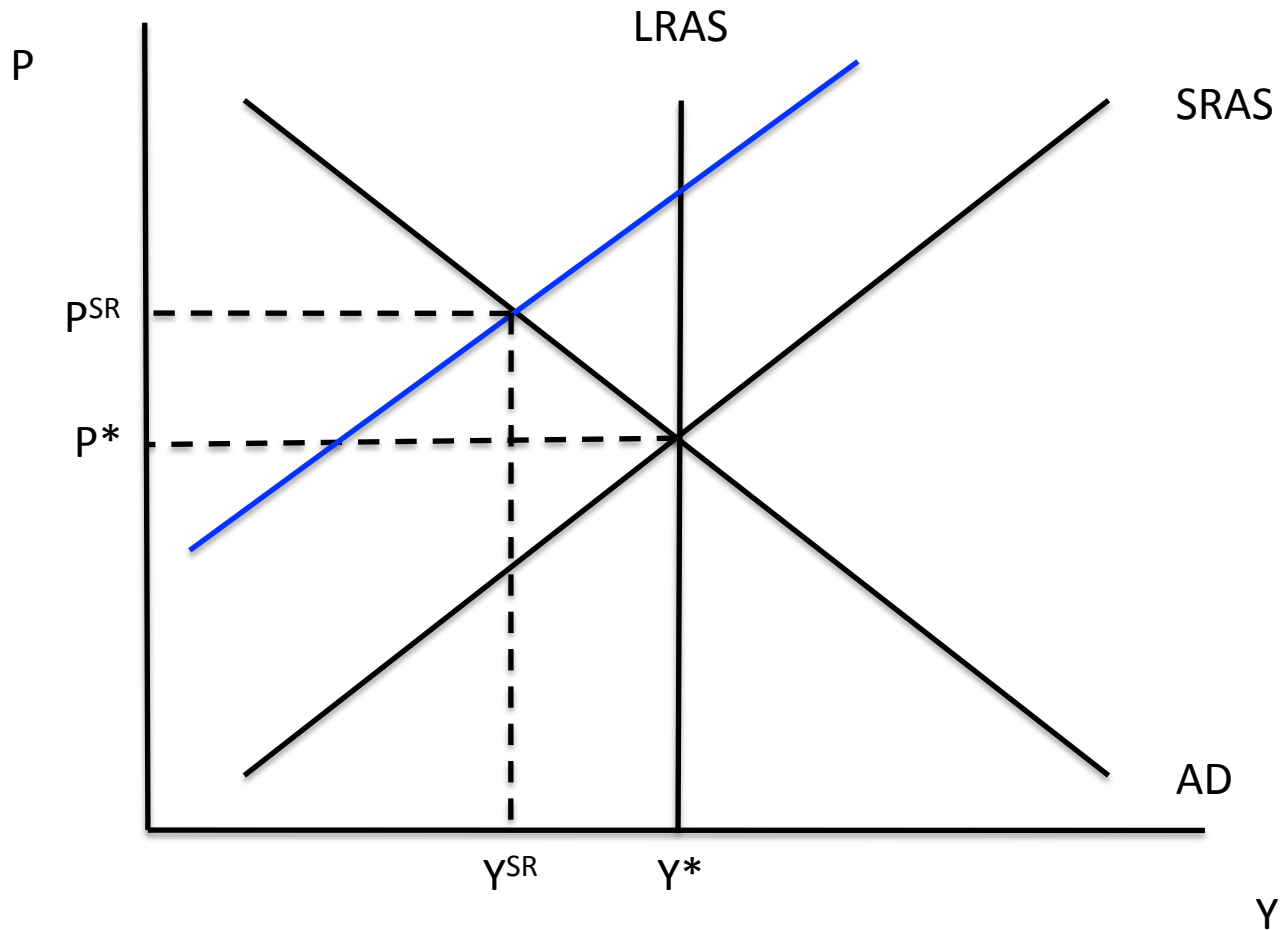
Ex 3 An Oil Price Shock

But suppose the Fed acts to lower interest rates and expand the money supply to pull the economy out of its recession more quickly.

Many economists believe that this is how the Fed reacted to the OPEC oil embargoes of the 1970s.

The monetary easing will shift the AD curve to the right.

Ex 3 An Oil Price Shock



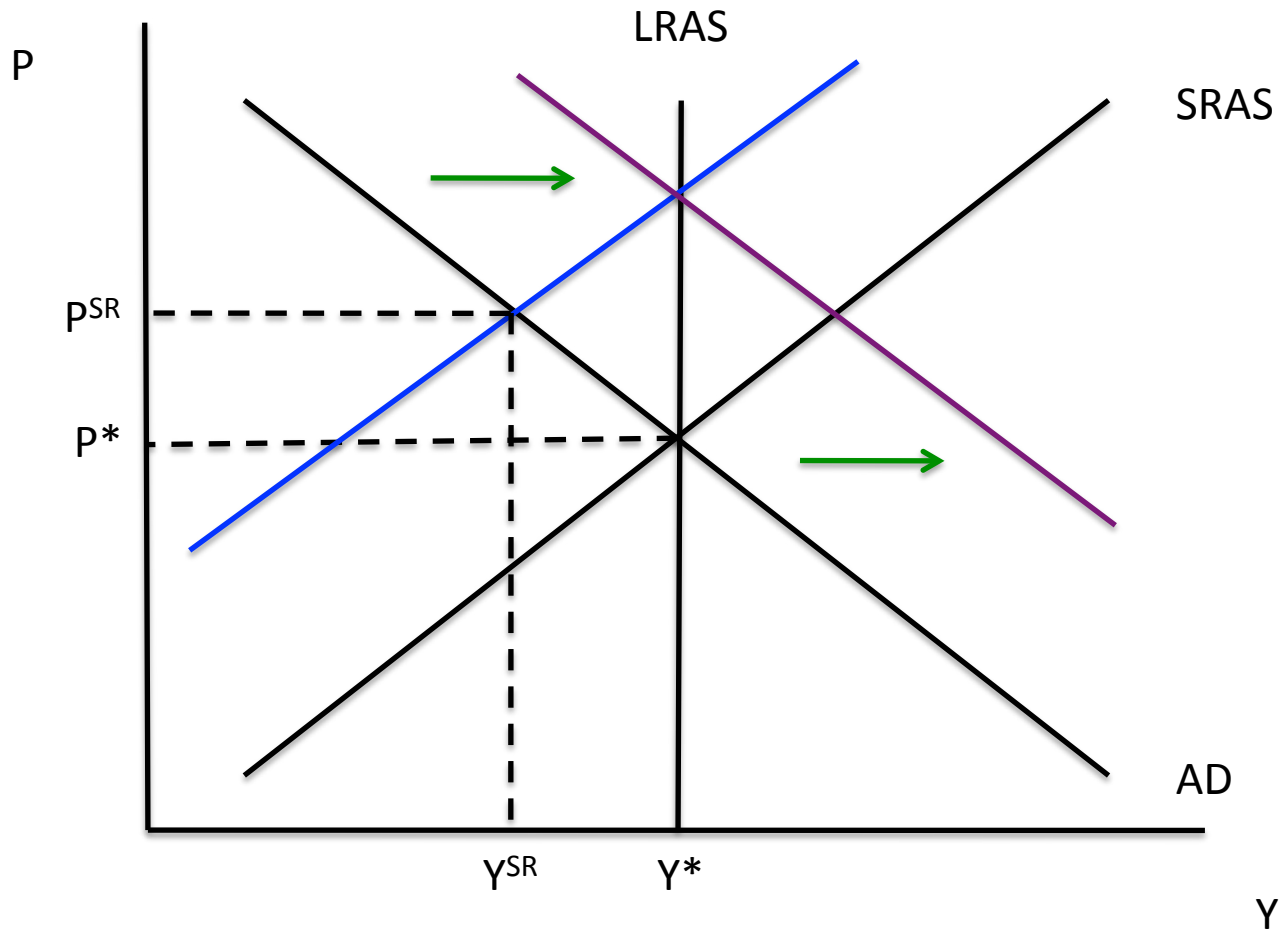
In the short run:

Output falls to $Y^{SR} < Y^*$

The price level rises to $P^{SR} > P^*$

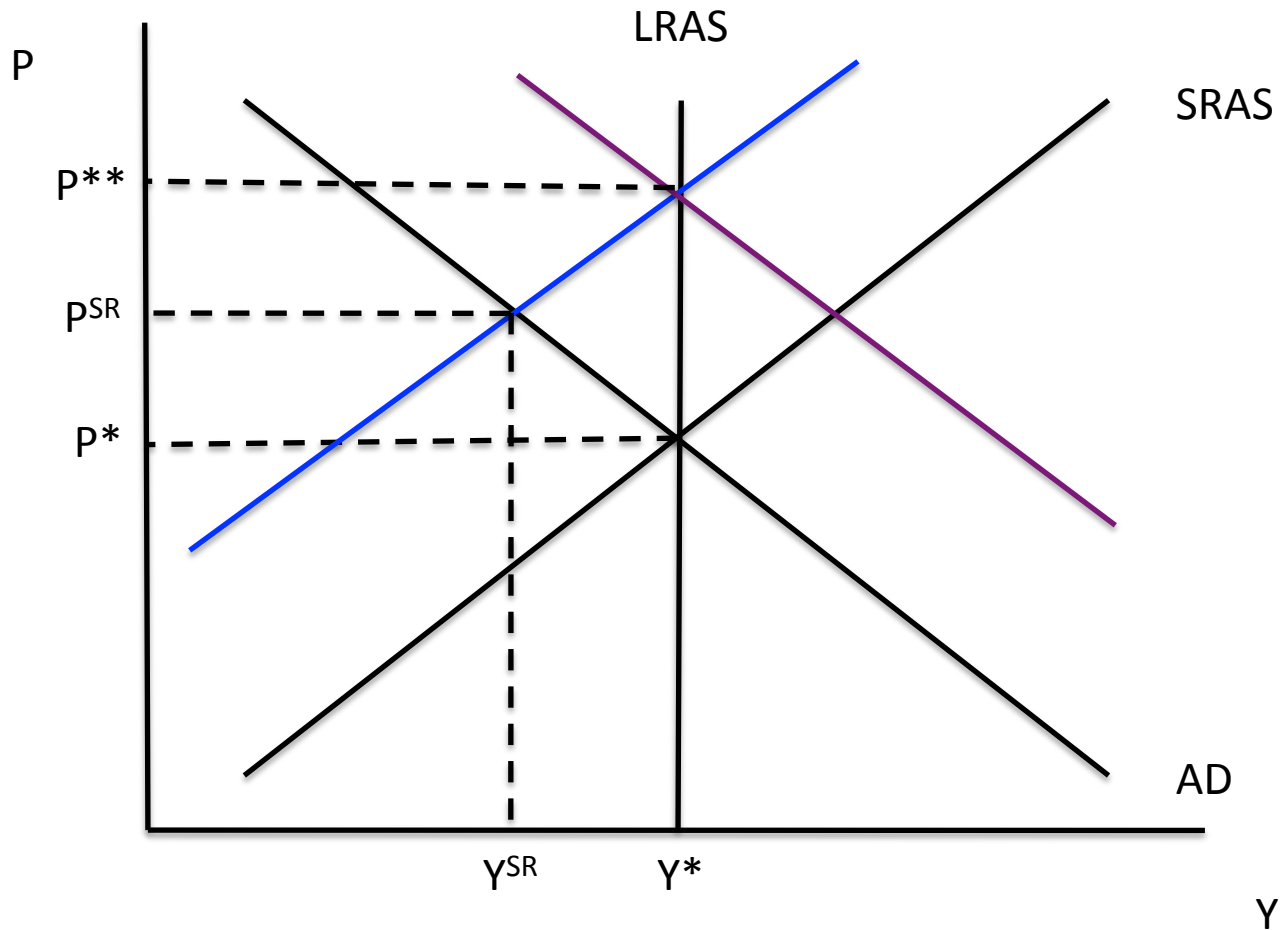
The economy experiences “stagflation.”

Ex 3 An Oil Price Shock



If the Fed tries to end the recession by lowering interest rates and expanding the money supply, the AD curve shifts to the right.

Ex 3 An Oil Price Shock



When the Fed “accommodates” the shift in aggregate supply, the recession may end sooner, but at the cost of leaving the price level permanently higher.

The GDP Deflator and the CPI

