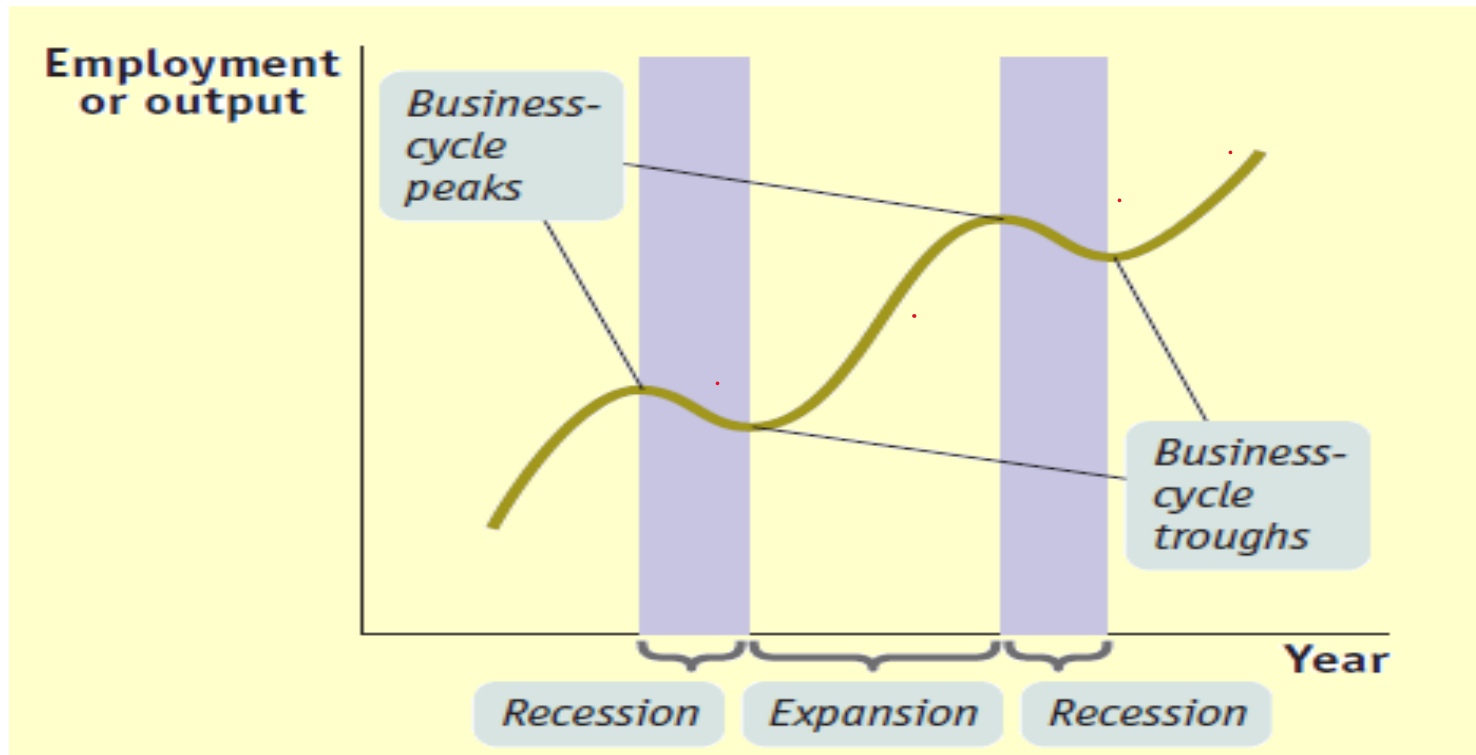


AS-AD model

Aggregate Demand (AD)
and Aggregate Supply (AS)

Macroeconomics

- **Economic fluctuations** – short run economic fluctuations
- **Economic growth** – longer trend



Economic Fluctuations

Economic activity

- Fluctuates from year to year – **Business cycle**

Recession

- Economic contraction
- Period of declining real incomes and rising unemployment

Depression

- Severe recession (real GDP # -10%)

Output gap?

- $(Y - Y_p)/Y_p$ [%]
- Estimate Y_p ?

AD-AS model

- Model of aggregate demand (AD) & aggregate supply (AS)
- Most economists use it to explain **short-run fluctuations** in economic activity
 - **Around its long-run trend**

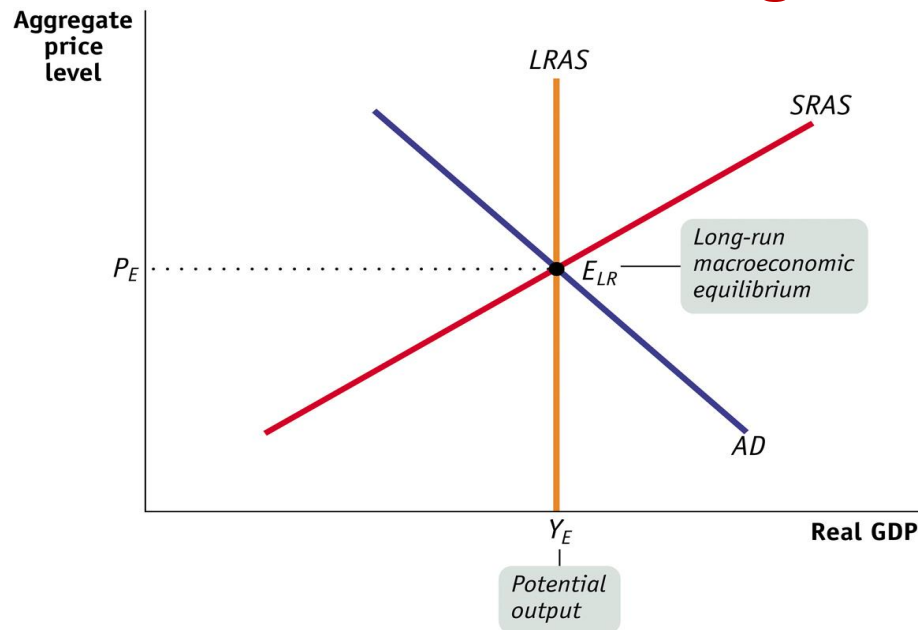
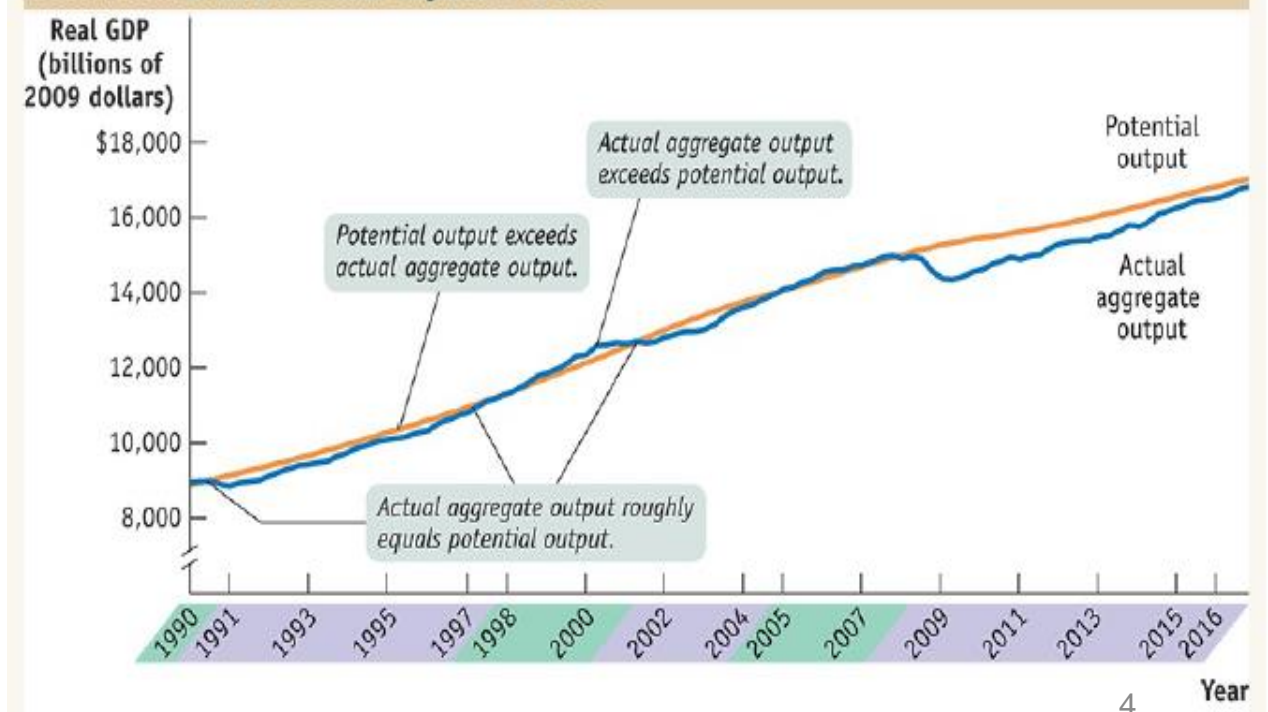
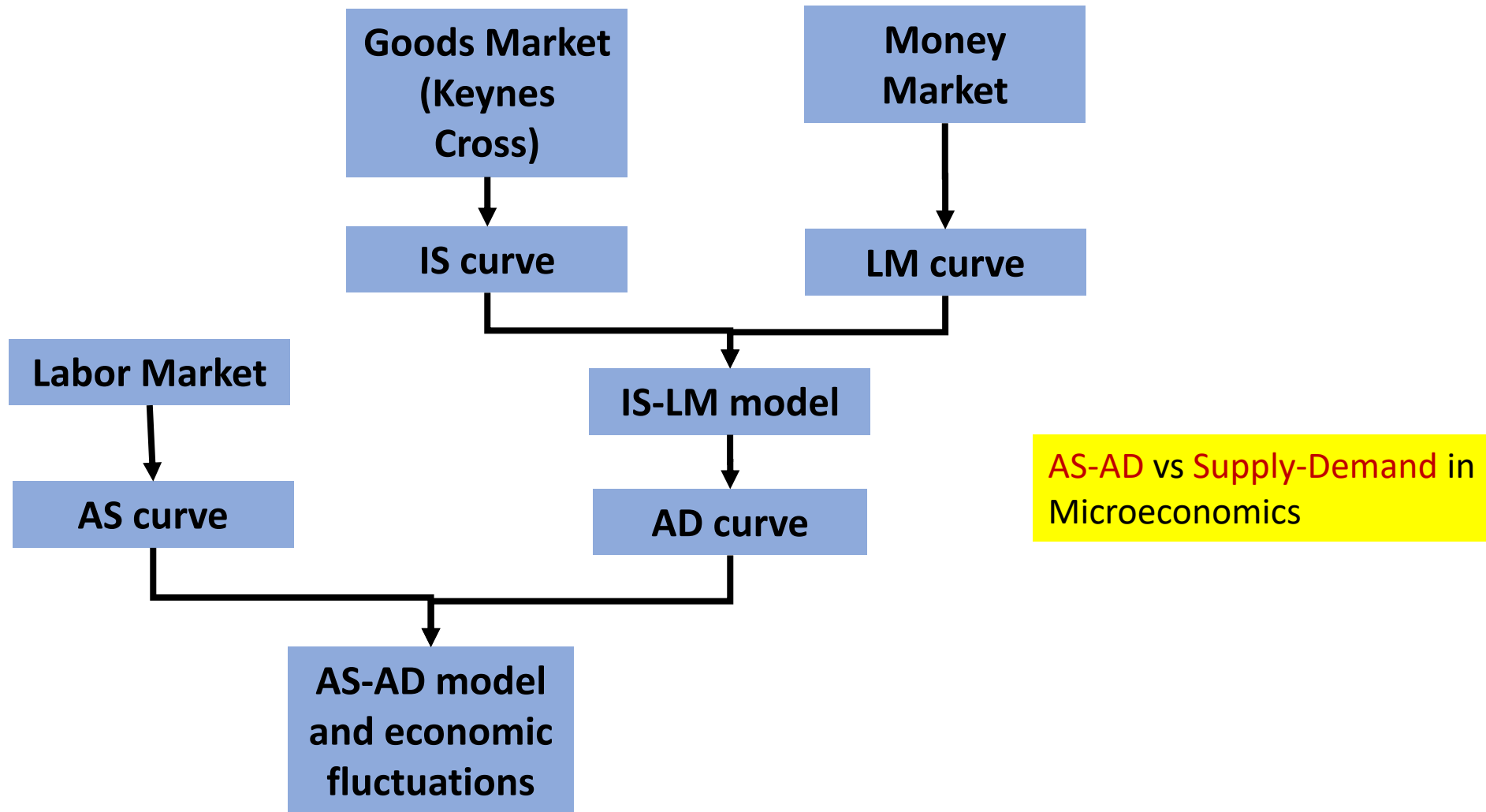


FIGURE 12-8 Actual and Potential Output, 1990 to 2016

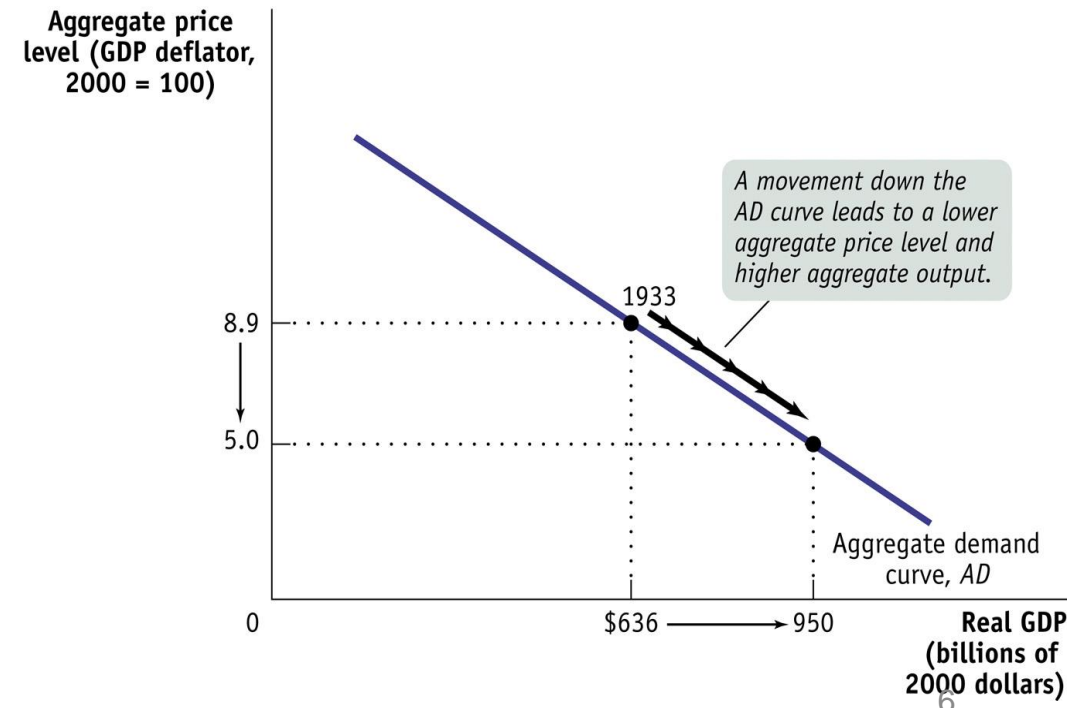


AS-AD Model



AD curve

- Shows the quantity of goods and services
- That households, firms, the government, and customers abroad
- Want to buy at each price level
- **Downward sloping** (slide 10)
- $AD = C + I + G + X - M$
- **Move along** vs. **shift** to left/right?
- **P**
- $AD = C(Y - T) + I(r) + G + X(\epsilon, Y^*) - M(\epsilon, Y)$



AD curve

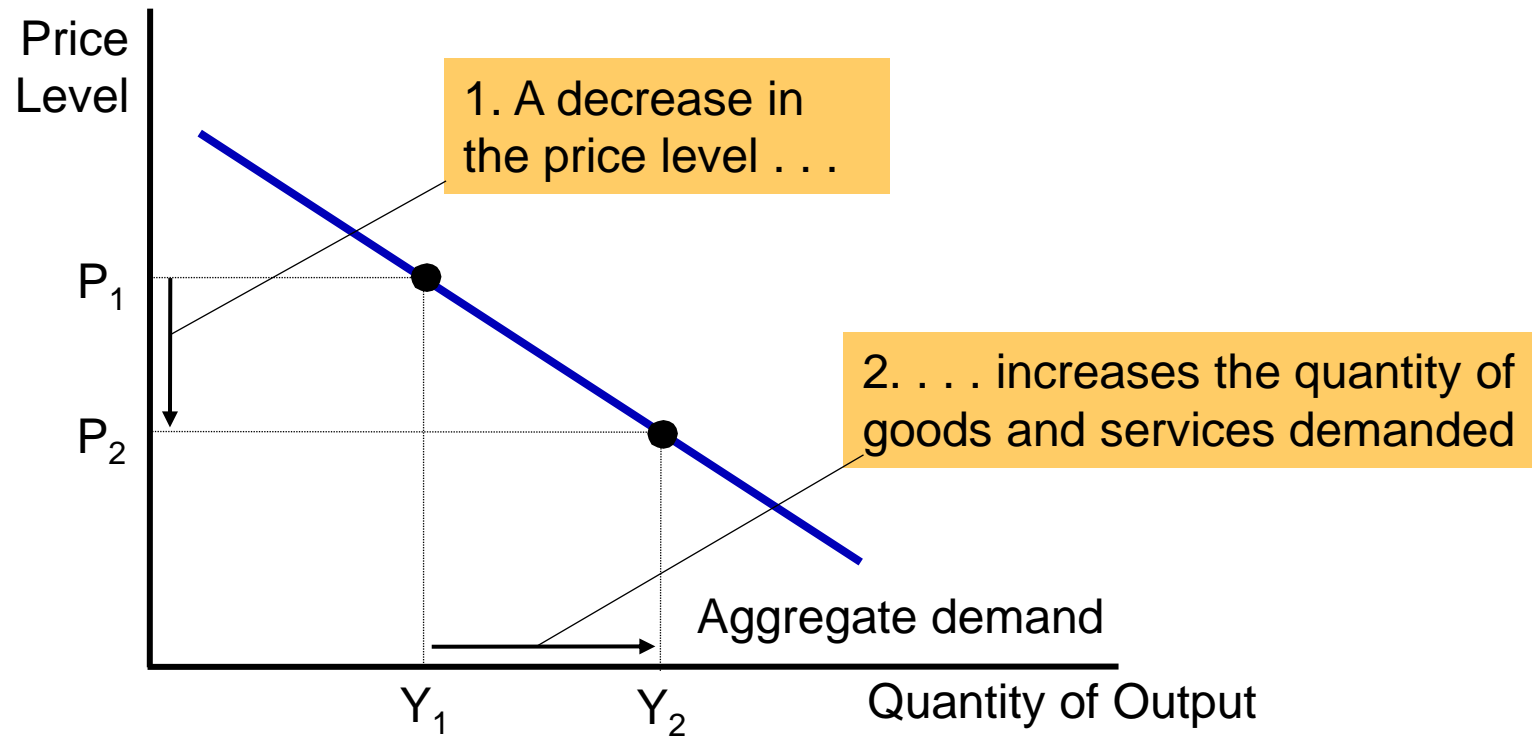
- Aggregate-demand (AD) curve slopes **downward**:
 - Simultaneously:
 - The wealth effect (?)
 - The interest-rate effect (?)
 - The exchange-rate effect (?)
 - When price level falls - quantity of goods and services demanded increases
 - When price level rises - quantity of goods and services demanded decreases

P?AD?



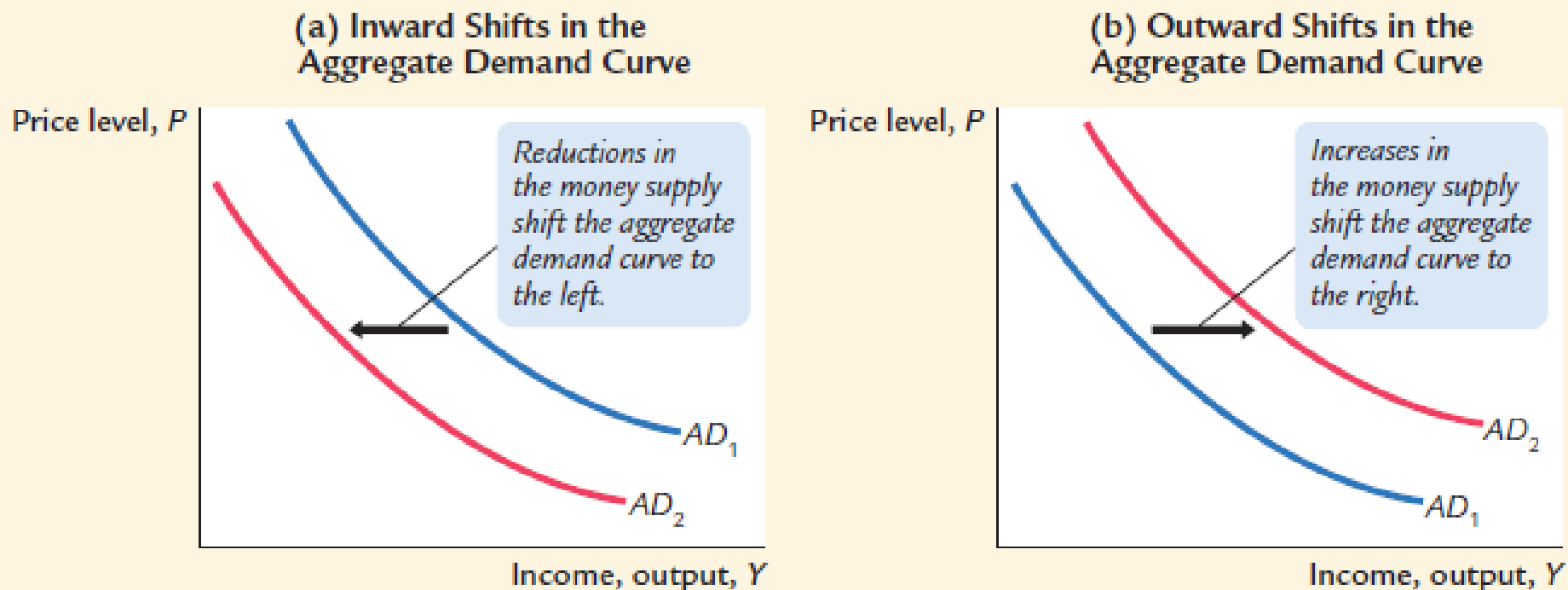
- $AD = C(Y - \mathbf{T}) + I(\mathbf{r}) + \mathbf{G} + X(\boldsymbol{\epsilon}, Y^*) - M(\boldsymbol{\epsilon}, Y)$

The Aggregate-Demand Curve



A fall in the price level from P_1 to P_2 increases the quantity of goods and services demanded from Y_1 to Y_2 . There are three reasons for this negative relationship. As the price level falls, real wealth rises, interest rates fall, and the exchange rate depreciates. These effects stimulate spending on consumption, investment, and net exports. Increased spending on any or all of these components of output means a larger quantity of goods and services demanded.

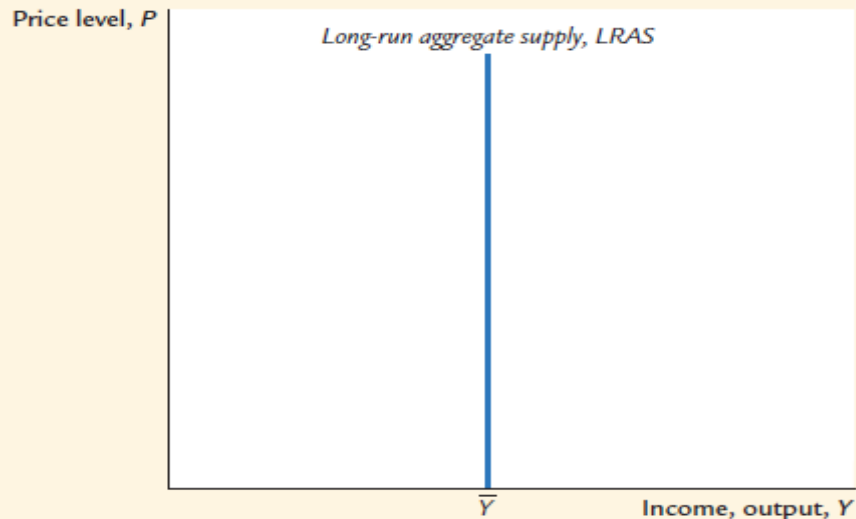
FIGURE 10-6



Shifts in the Aggregate Demand Curve Changes in the money supply shift the aggregate demand curve. In panel (a), a decrease in the money supply M reduces the nominal value of output PY . For any given price level P , output Y is lower. Thus, a decrease in the money supply shifts the aggregate demand curve inward from AD_1 to AD_2 . In panel (b), an increase in the money supply M raises the nominal value of output PY . For any given price level P , output Y is higher. Thus, an increase in the money supply shifts the aggregate demand curve outward from AD_1 to AD_2 .

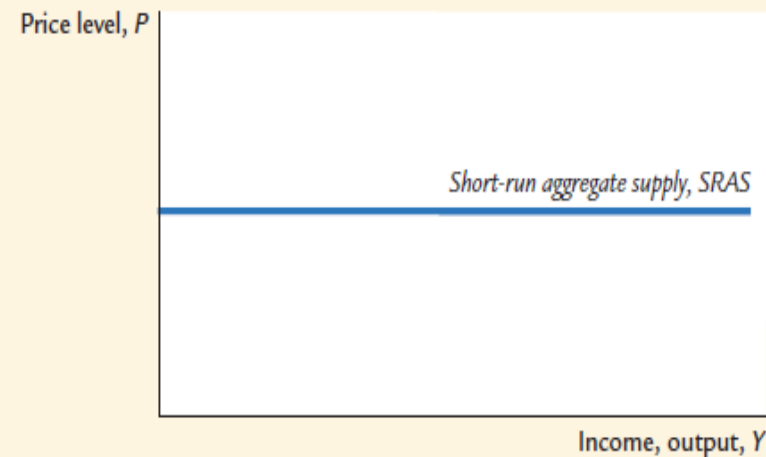
Keynes vs. Classical Theory

FIGURE 10-7



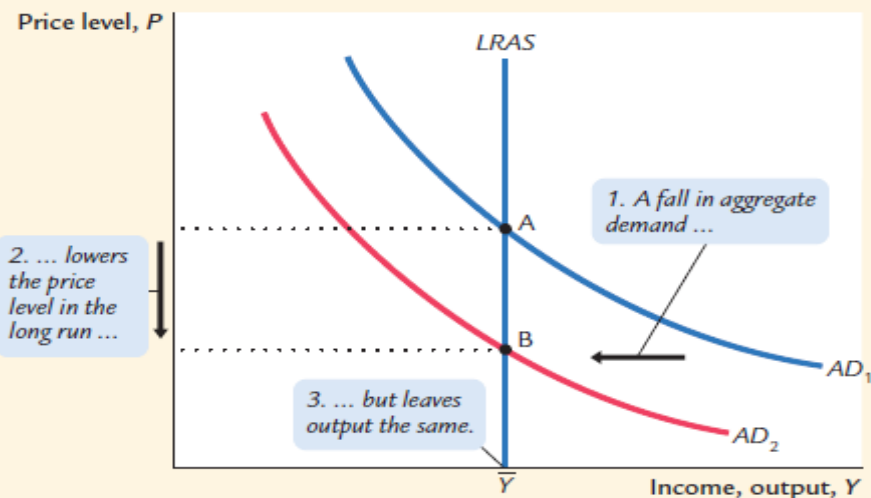
The Long-Run Aggregate Supply Curve In the long run, the level of output is determined by the amounts of capital and labor and by the available technology; it does not depend on the price level. The long-run aggregate supply curve, LRAS, is vertical.

FIGURE 10-9



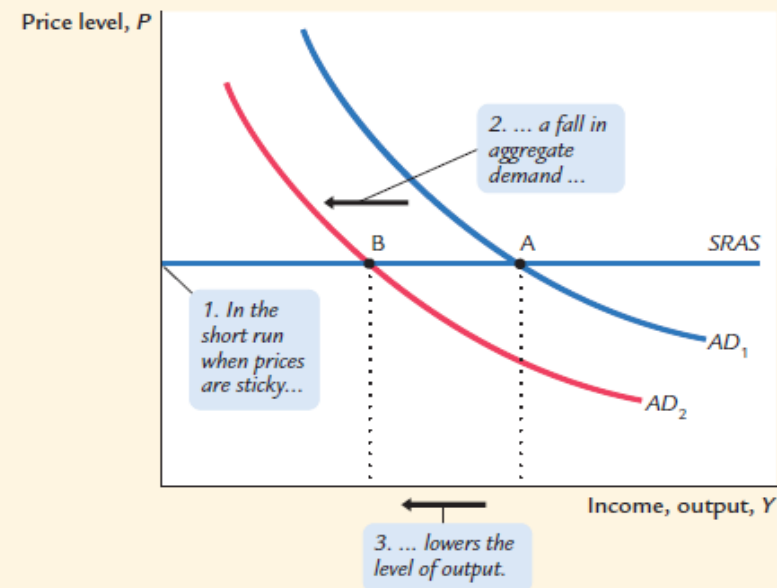
The Short-Run Aggregate Supply Curve In this extreme example, all prices are fixed in the short run. Therefore, the short-run aggregate supply curve, SRAS, is horizontal.

FIGURE 10-8



Shifts in Aggregate Demand in the Long Run A reduction in the money supply shifts the aggregate demand curve downward from AD_1 to AD_2 . The equilibrium for the economy moves from point A to point B. Because the aggregate supply curve is vertical in the long run, the reduction in aggregate demand affects the price level but not the level of output.

FIGURE 10-10



Shifts in Aggregate Demand in the Short Run A reduction in the money supply shifts the aggregate demand curve downward from AD_1 to AD_2 . The equilibrium for the economy moves from point A to point B. Because the aggregate supply curve is horizontal in the short run, the reduction in aggregate demand reduces the level of output.

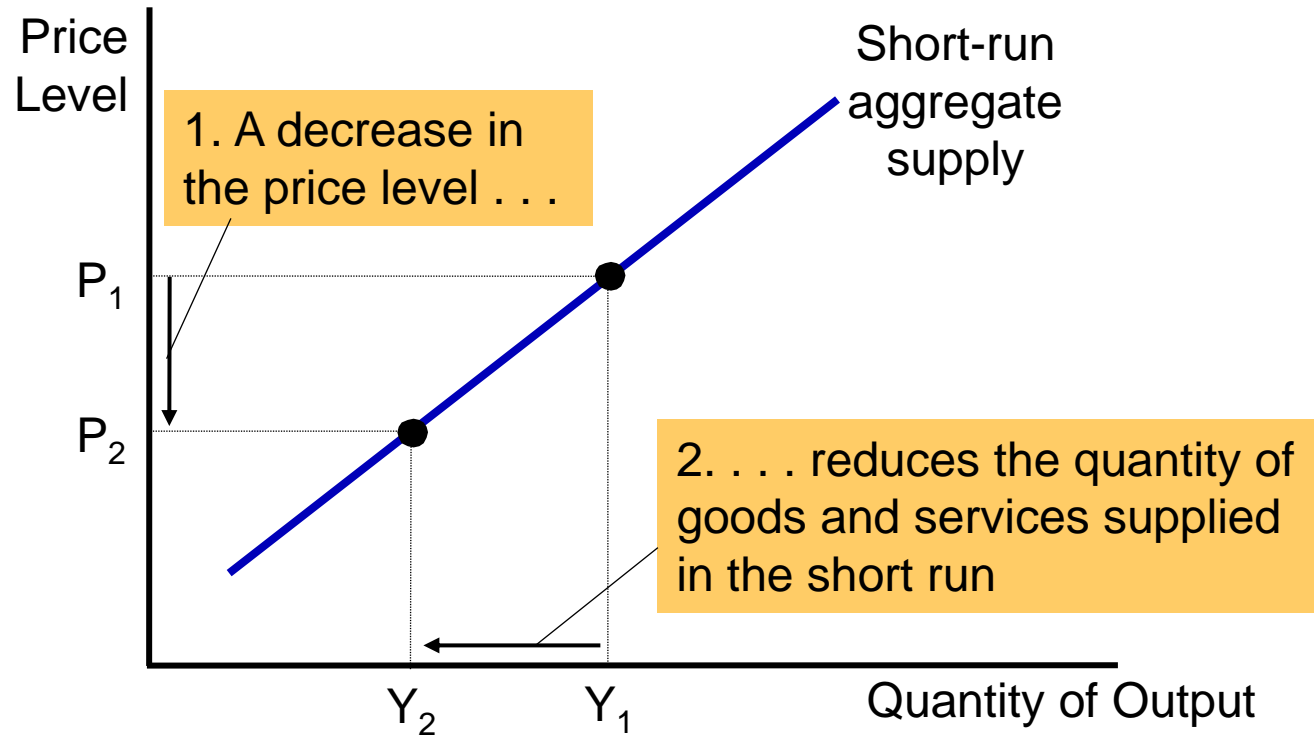
AS curve

- **SRAS** vs. **LRAS**
- Short run aggregate-supply curve, **SRAS**; Equation: $Y = Y_p + \alpha(P - P_e)$
 - Shows the quantity of goods and services
 - That firms choose to produce and sell
 - At each price level
 - **Upward sloping**
- Long run aggregate-supply curve, **LRAS**
 - Aggregate-supply curve is **vertical**
 - Price level does not affect the long-run determinants of GDP:
 - Supplies of labor, capital, and natural resources
 - Available technology
- **Move along** vs. **shift** to left/right?

SRAS shifts (Production costs – oil prices, expected price level - P_e)

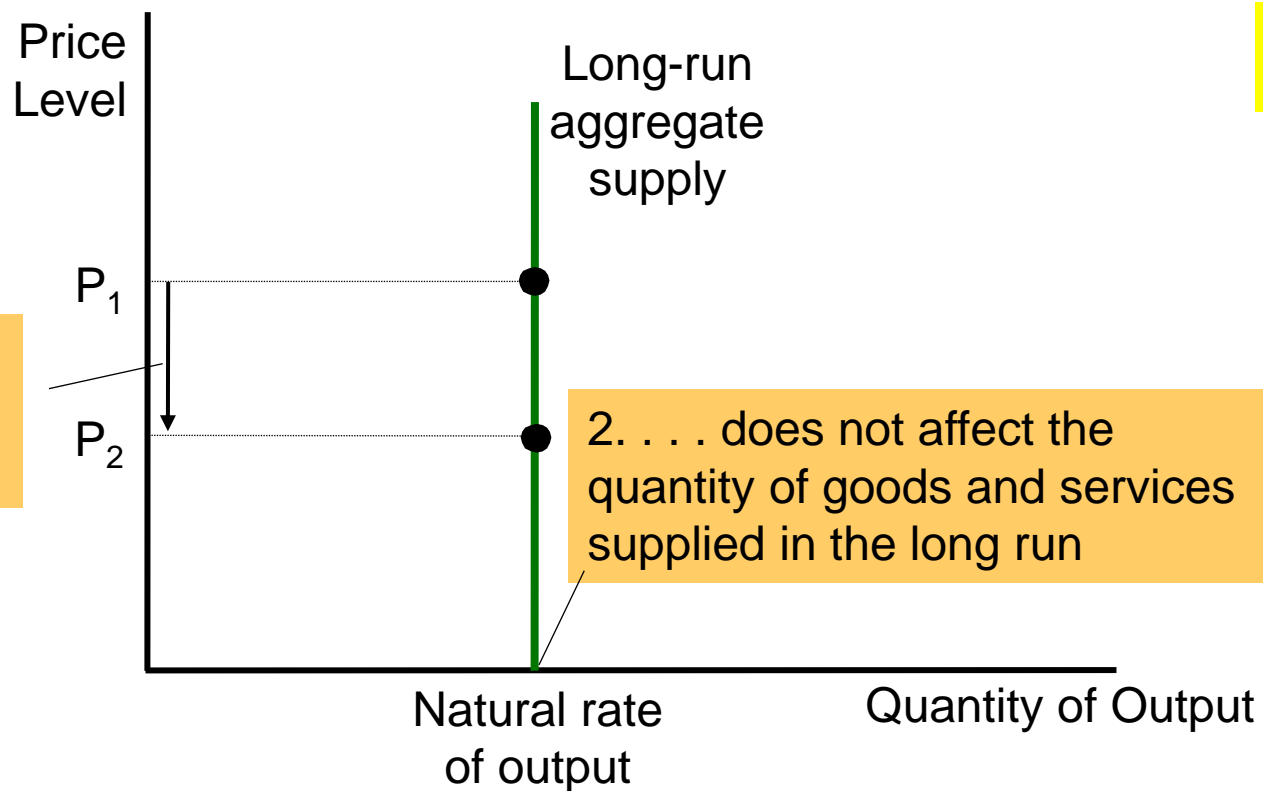
The Short-Run Aggregate-Supply Curve

$$Y = Y_p + \alpha(P - P_e)$$



In the short run, a fall in the price level from P_1 to P_2 reduces the quantity of output supplied from Y_1 to Y_2 . This positive relationship could be due to sticky wages, sticky prices, or misperceptions. Over time, wages, prices, and perceptions adjust, so this positive relationship is only temporary.

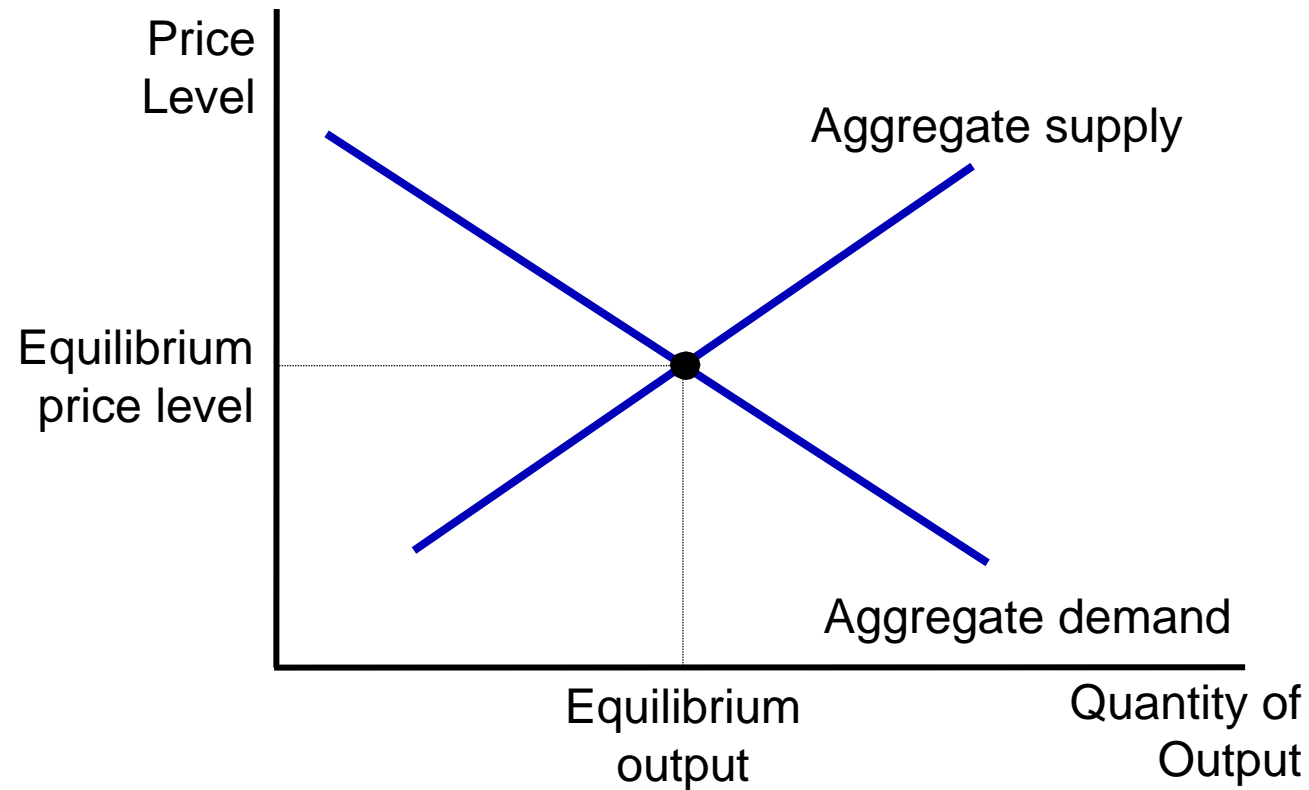
The Long-Run Aggregate-Supply Curve



$$Y = Y_p + \alpha(P - P_e)$$

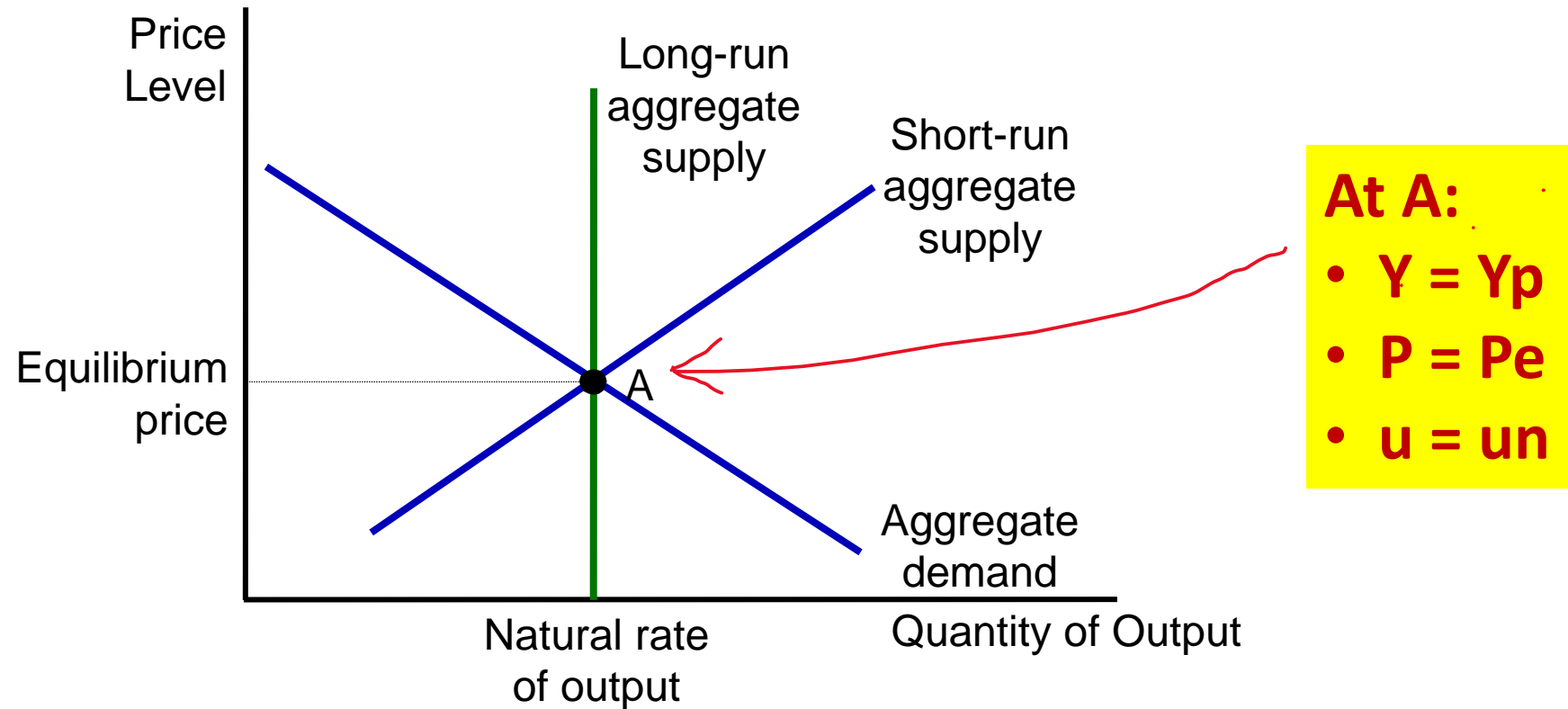
In the long run, the quantity of output supplied depends on the economy's quantities of labor, capital, and natural resources and on the technology for turning these inputs into output. Because the quantity supplied does not depend on the overall price level, the long-run aggregate-supply curve is vertical at the natural rate of output.

Aggregate Demand and Aggregate Supply – The short-run equilibrium (SRAS and AD)



Economists use the model of aggregate demand and aggregate supply to analyze economic fluctuations. On the vertical axis is the overall level of prices. On the horizontal axis is the economy's total output of goods and services. Output and the price level adjust to the point at which the aggregate-supply and aggregate-demand curves intersect.

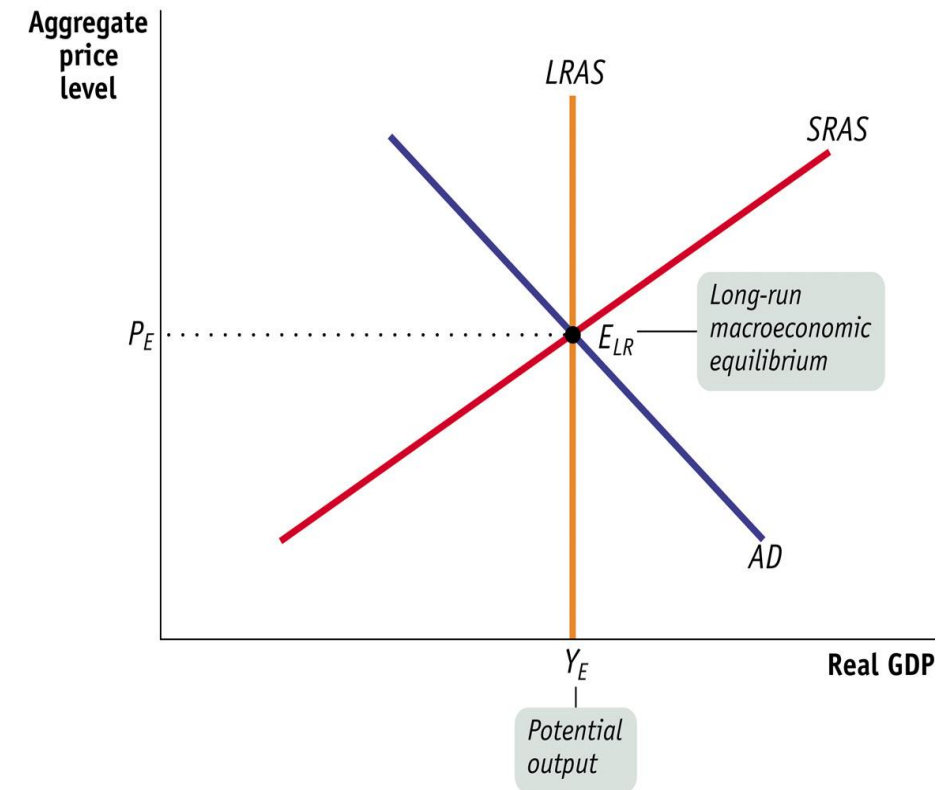
The Long-Run Equilibrium



The long-run equilibrium of the economy is found where the aggregate-demand curve crosses the long-run aggregate-supply curve (point A). When the economy reaches this long-run equilibrium, the expected price level will have adjusted to equal the actual price level. As a result, the short-run aggregate-supply curve crosses this point as well.

Causes of Economic Fluctuations

- Assumption
 - Economy begins in long-run equilibrium
- **Long-run equilibrium:**
 - Intersection of **AD and LRAS** curves
 - Output - natural rate
 - Actual price level
 - Intersection of **AD and short-run AS** curve
 - Expected price level = Actual price level



Causes of Economic Fluctuations

- Shift in aggregate demand

- **Wave of pessimism** – Aggregate demand shifts left

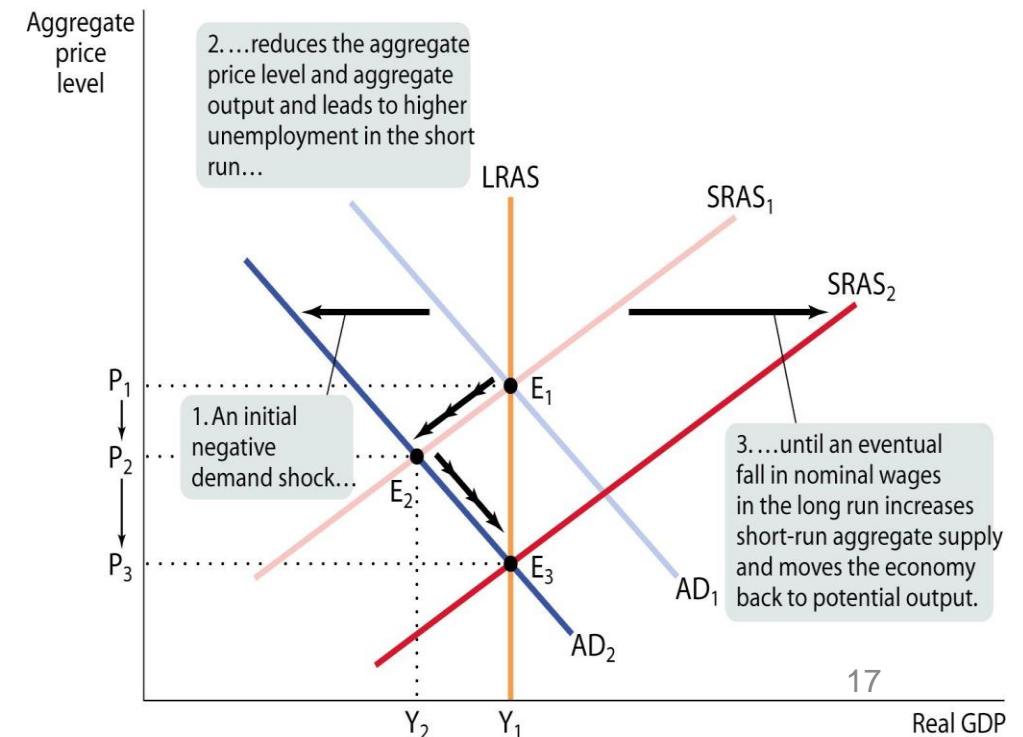
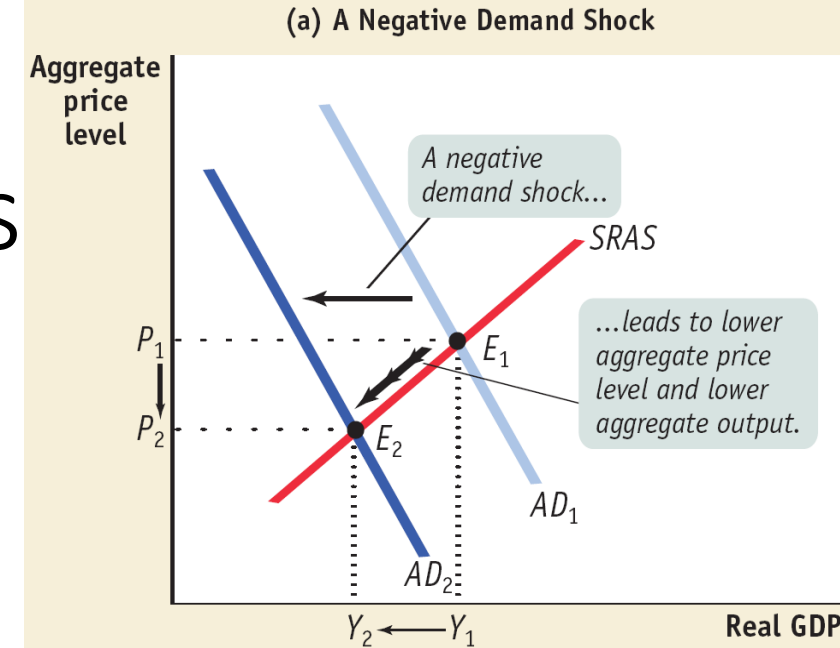
- **Short-run**

- Output falls
- Price level falls

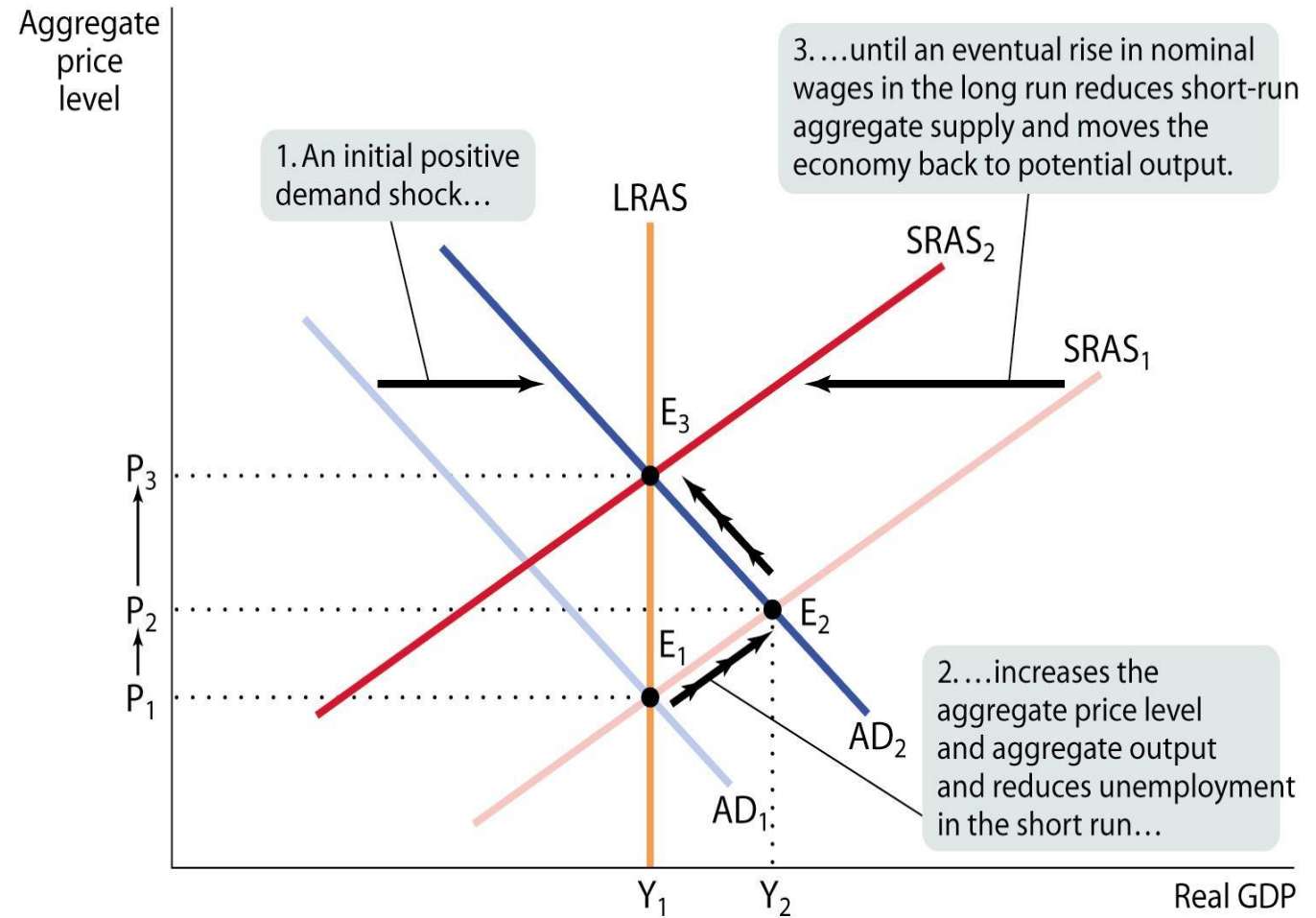
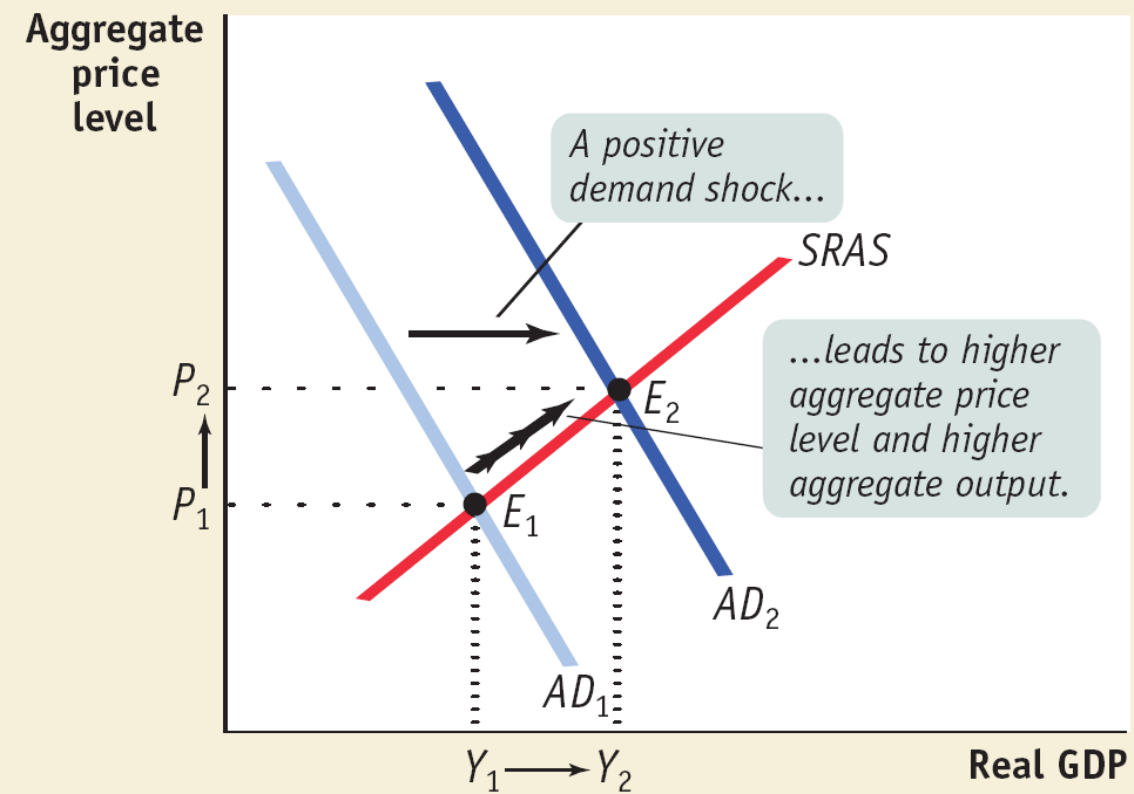
- **Long-run**

- Short-run aggregate supply curve shifts right
- Output – natural rate
- Price level – falls

Shift AD because of govt. policy
(fiscal or monetary)?



(b) A Positive Demand Shock

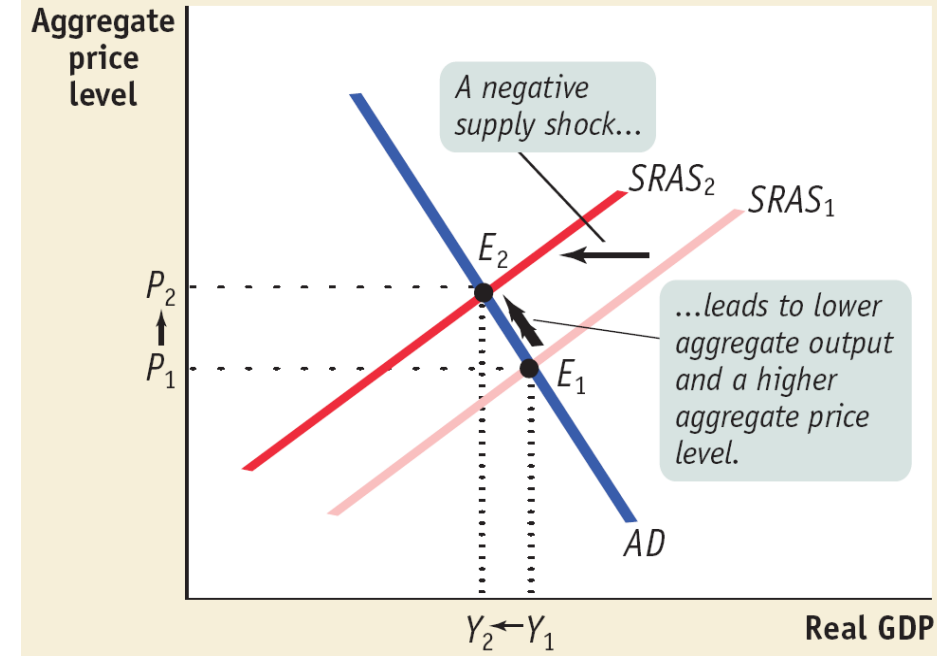


Causes of Economic Fluctuations

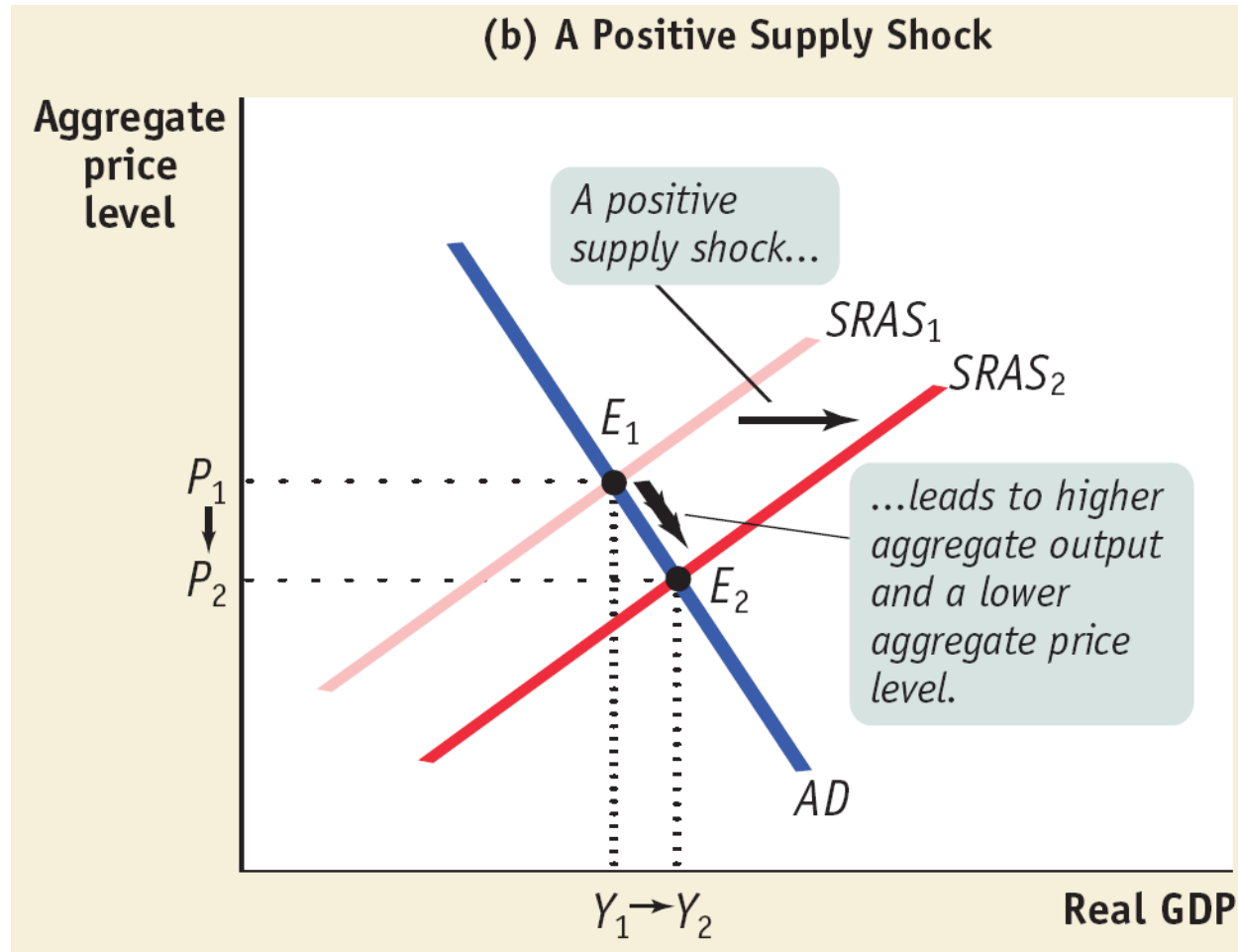
- Shift in aggregate supply

- Firms – **increase in production costs**
 - Aggregate supply curve – shifts left
- Short-run - **stagflation**
 - Output falls
 - Price level rises
- Long-run, if AD is held constant
 - Short-run AS shifts back to right (???)
 - Output – natural rate
 - Price level - falls

(a) A Negative Supply Shock

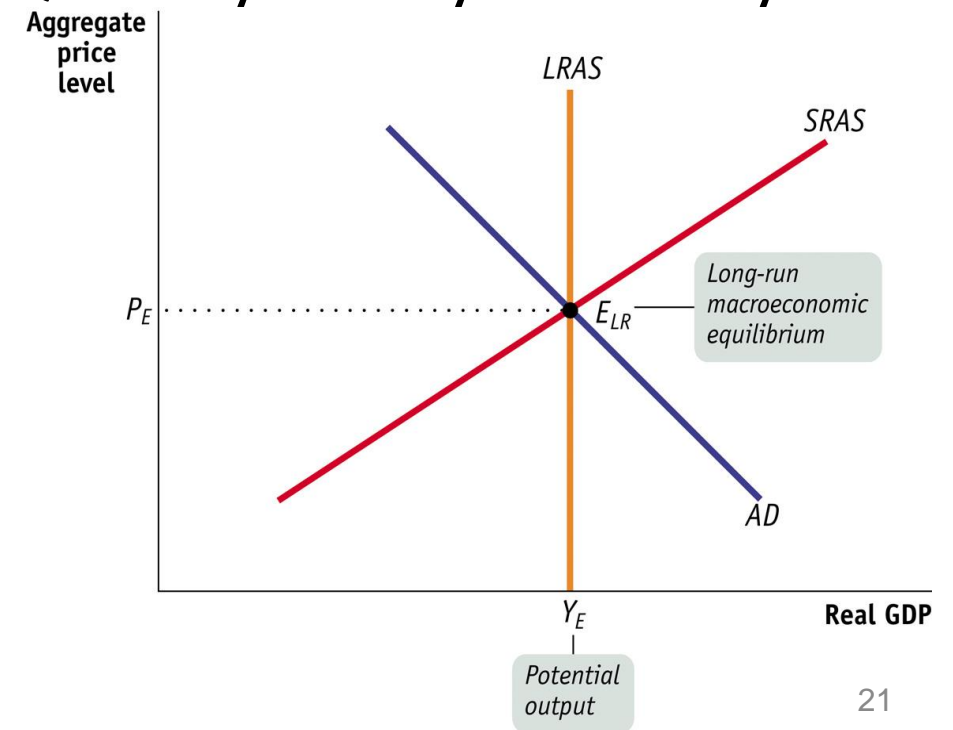


Positive supply shocks?



Discussion

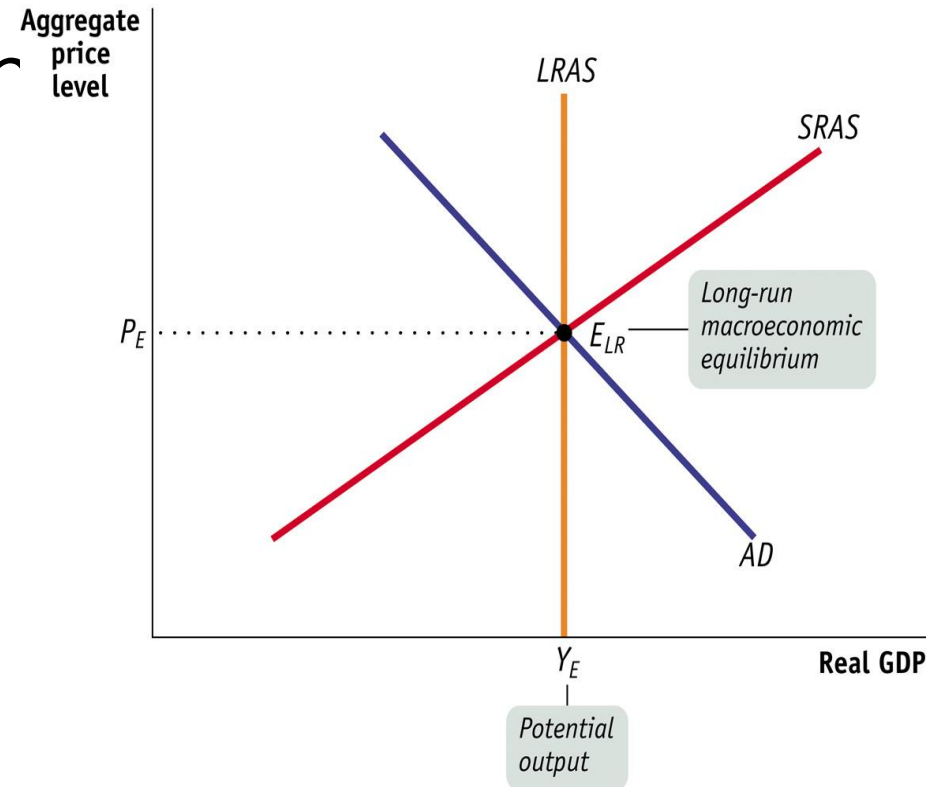
1. Short-run vs. long-run equilibrium
2. Inflationary gap vs. recessionary gap
3. Demand-pull vs. cost-push inflation [+ Quantity theory of money & inflation?]
4. Stagflation = Stagnation + Inflation
5. Case 1929-33



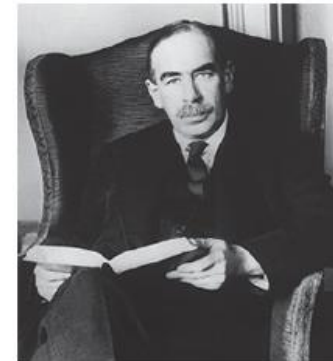
Keynes and Great Depressior 1929-1933

- GDP: - 30%
- u: 3,2% (1929) => 25,2% (1933)
- Ms: -25%
- P: -22%
- i: 5,9% (1929) => 1,7% (1933)

1. IS-LM Model?
2. AS-AD Model?
3. Supply or Demand Side?



useless a task if in tempestuous seasons they can only tell us that when the storm is long past the sea is flat again.



Bettmann/Getty Images

Keynes focused the attention of economists of his day on the short run.