Economics 442
Macroeconomic Policy
Lecture 8
2/13/2017

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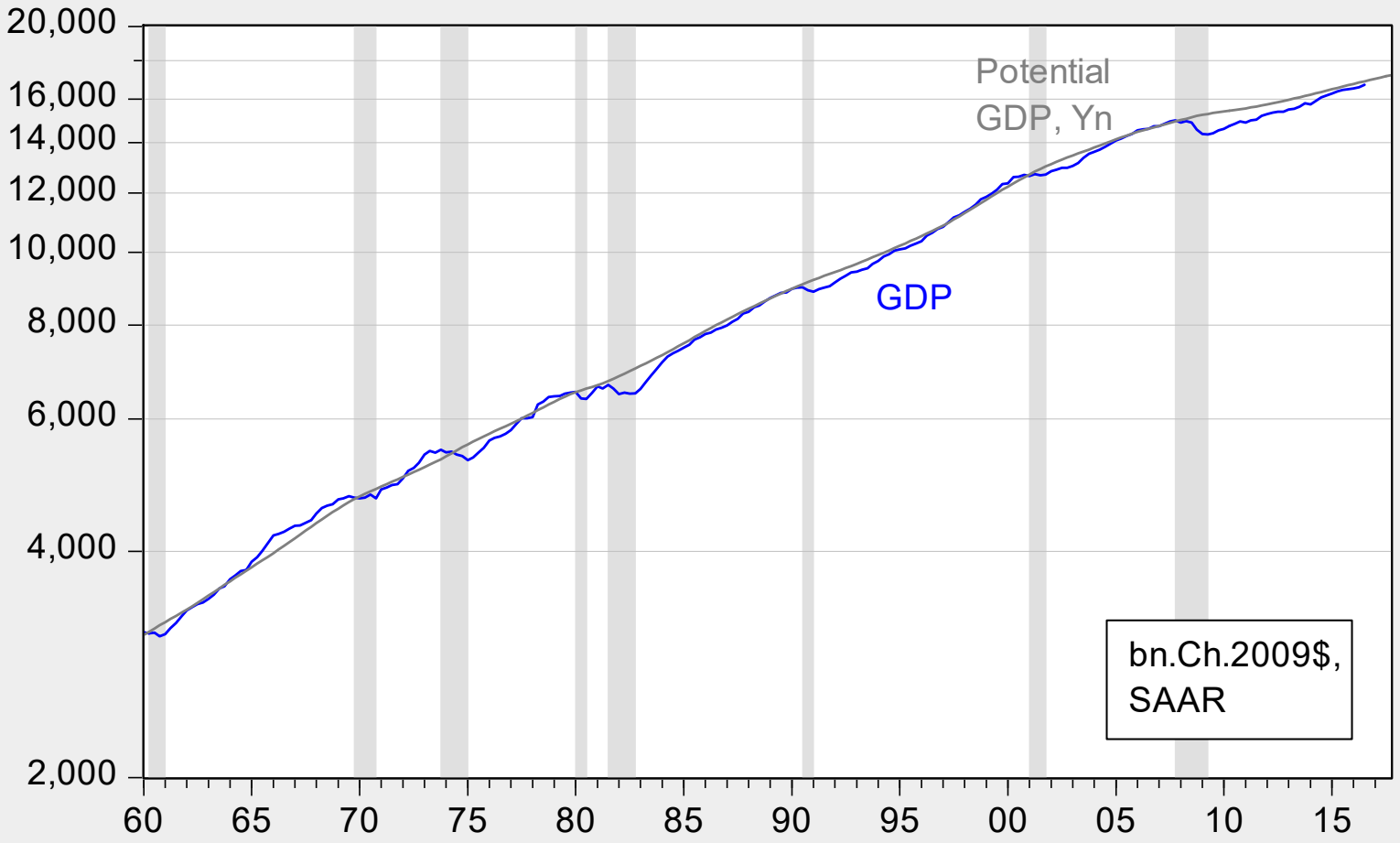
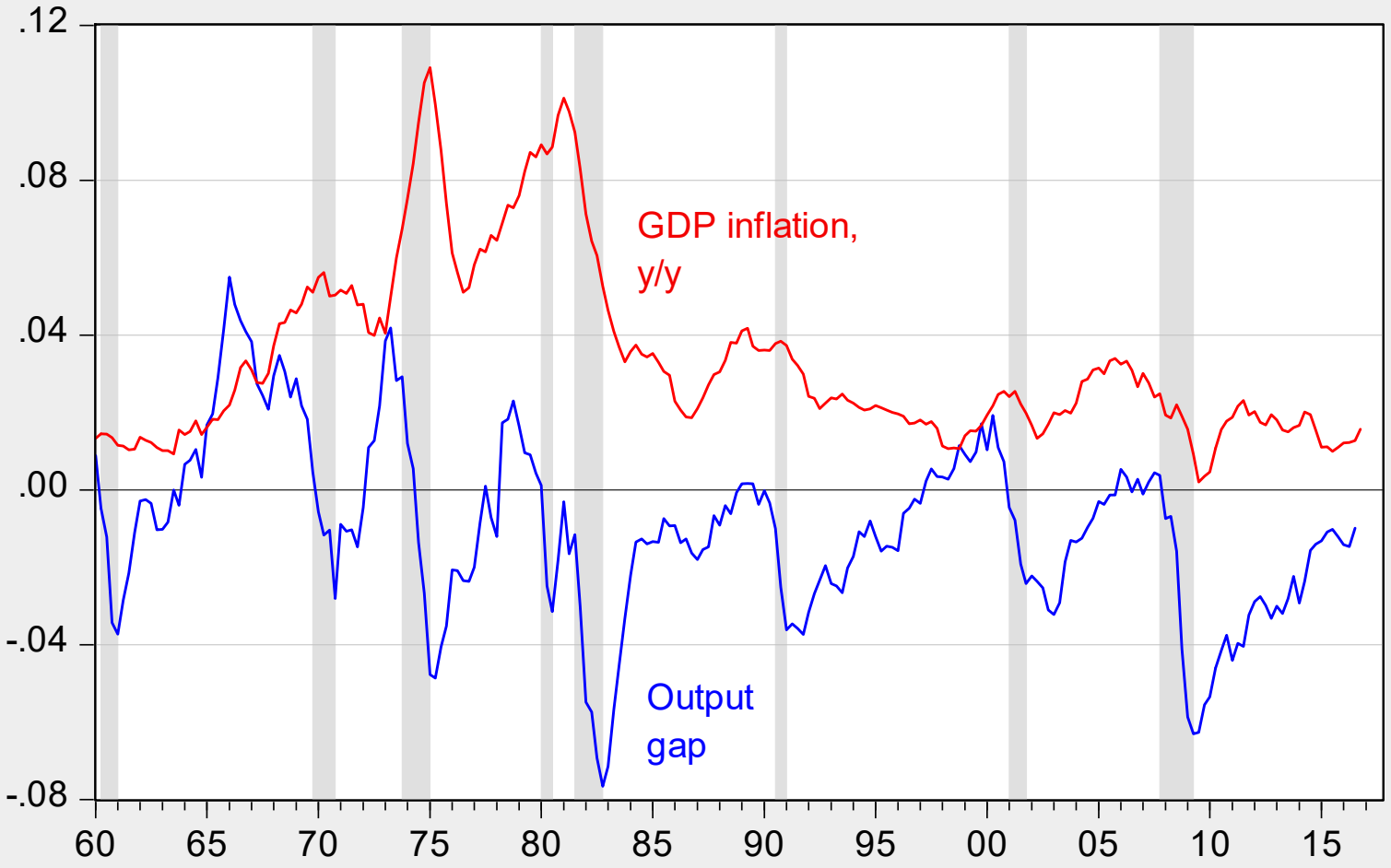
UW Madison
Spring 2017

Actual, Potential GDP



Simple Phillips Curve



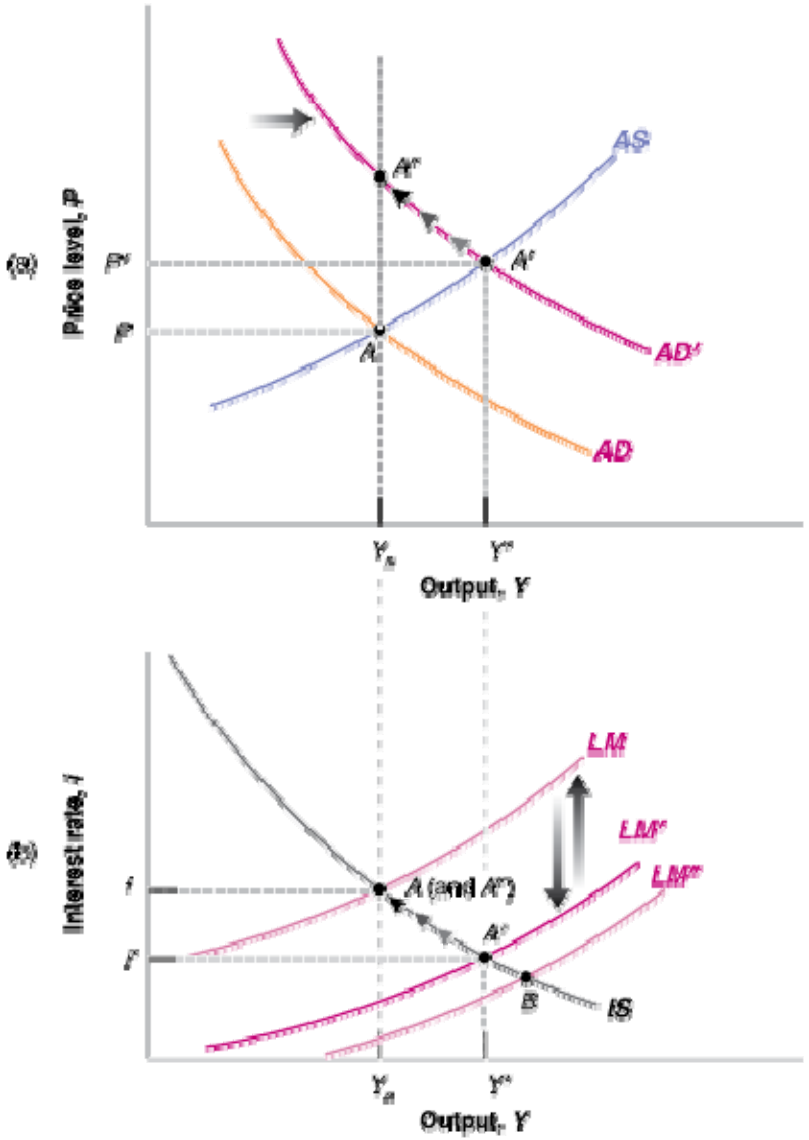
7-4 The Effects of a Monetary Expansion

Going Behind the Scenes

Figure 7 - 8

The Dynamic Effects of a Monetary Expansion on Output and the Interest Rate

The increase in nominal money initially shifts the LM curve down, decreasing the interest rate and increasing output. Over time, the price level increases, shifting the LM curve back up until output is back at the natural level of output.



7-4 The Effects of a Monetary Expansion

The Neutrality of Money

- In the *short run*, a monetary expansion leads to an increase in output, a decrease in the interest rate, and an increase in the price level.

- In the *medium run*, the increase in nominal money is reflected entirely in a proportional increase in the price level. The increase in nominal money has no effect on output or on the interest rate.

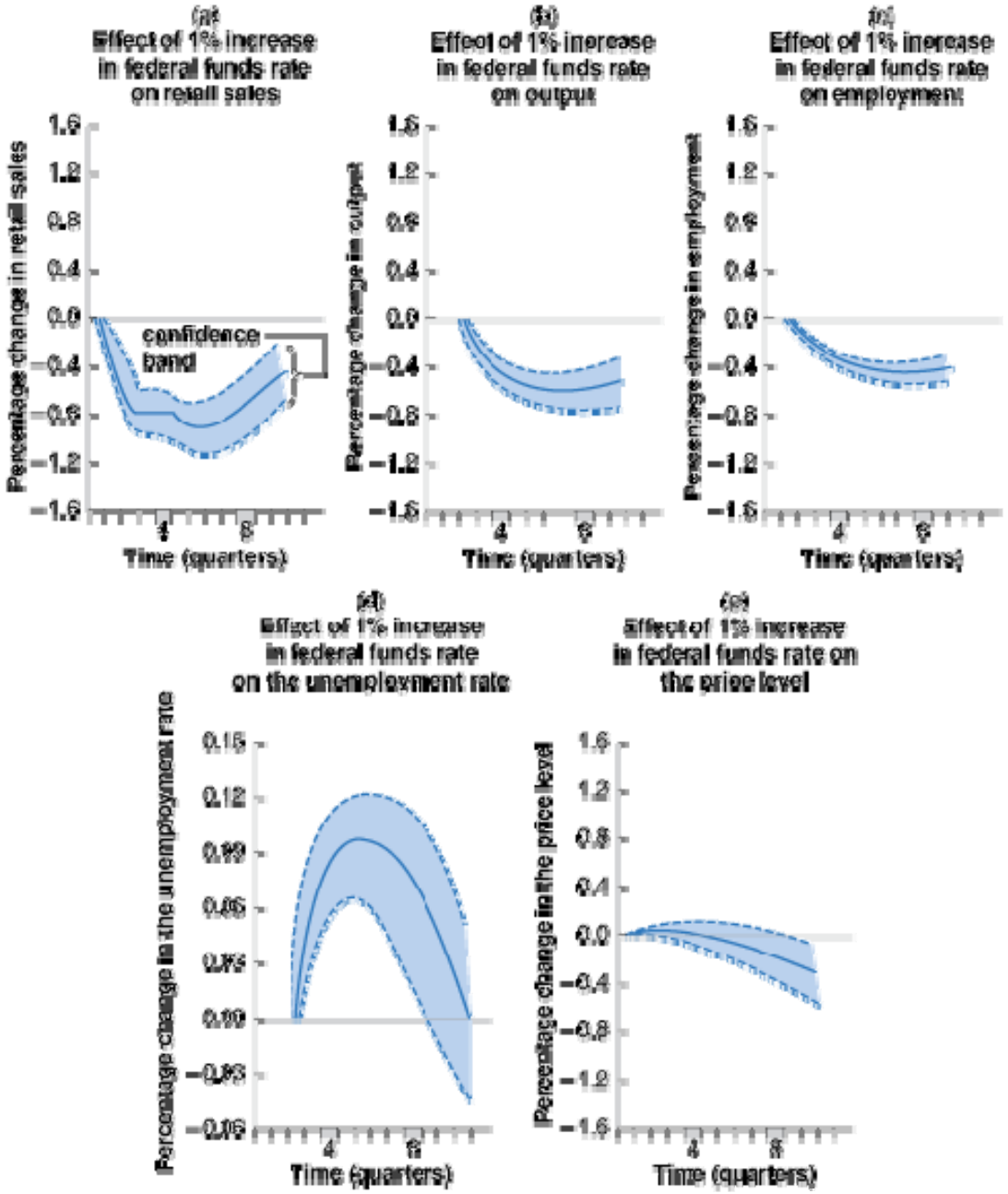
•The neutrality of money in the medium run does not mean that monetary policy cannot or should not be used to affect output.

5-5 How Does the *IS-LM* Model Fit the Facts?

Figure 5 - 9

The Empirical Effects of an Increase in the Federal Funds Rate

In the short run, an increase in the federal funds rate leads to a decrease in output and to an increase in unemployment, but it has little effect on the price level.

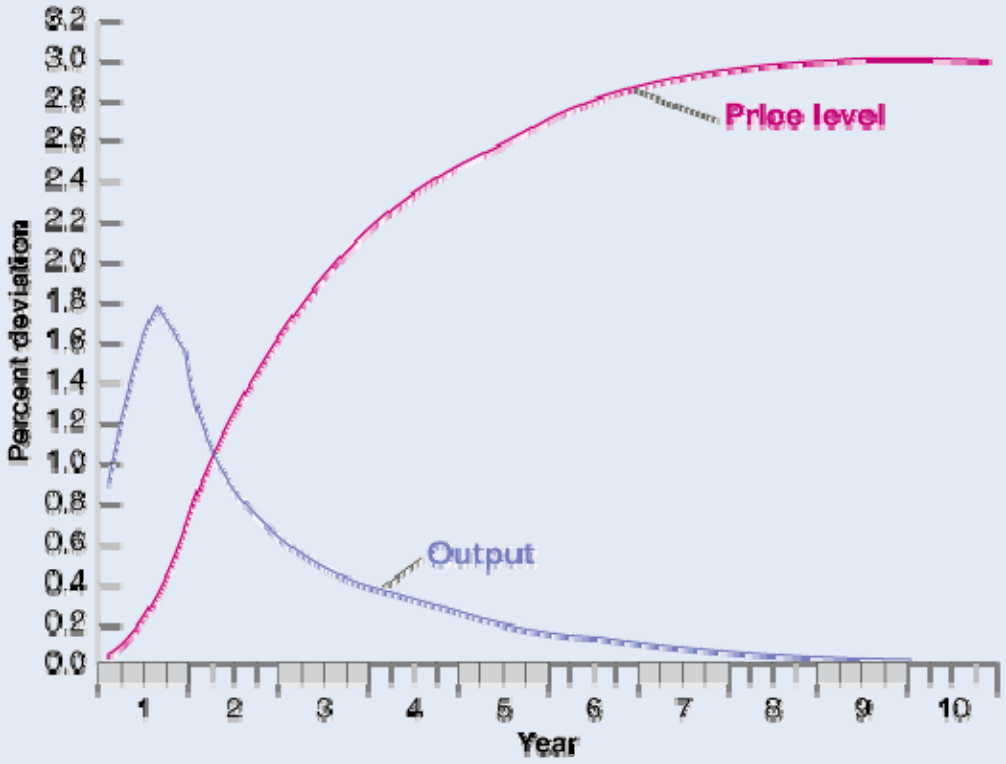


How Long Lasting Are the Real Effects of Money?

FOCUS

Figure 1

The Effects of an Expansion in Nominal Money in the Taylor Model



Macroeconometric models are larger-scale versions of the aggregate supply and aggregate demand model in this chapter. They are used to answer questions such as how long the real effects of money last.

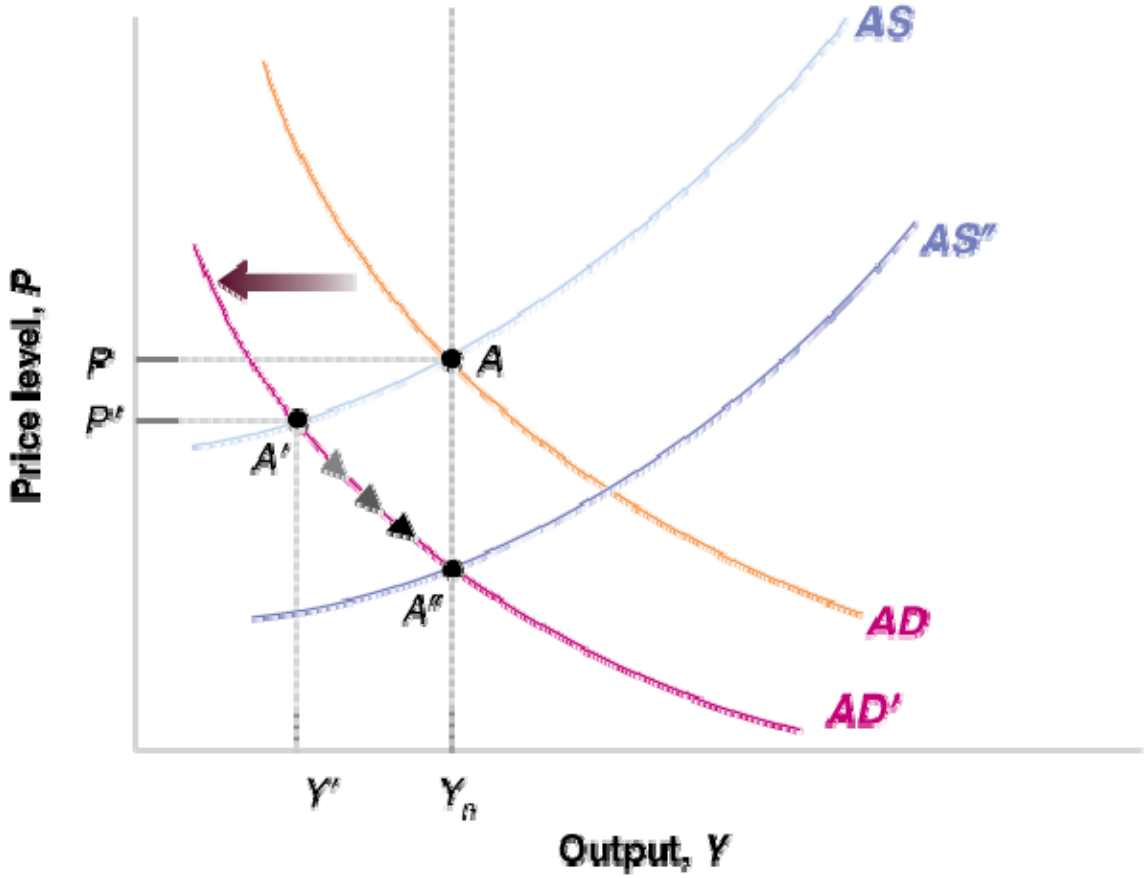
7-5 A Decrease in the Budget Deficit

Figure 7 - 9

The Dynamic Effects of a Decrease in the Budget Deficit

A decrease in the budget deficit leads initially to a decrease in output. Over time, however, output returns to the natural level of output.

Note: This assumes no portfolio crowding out/in effects.

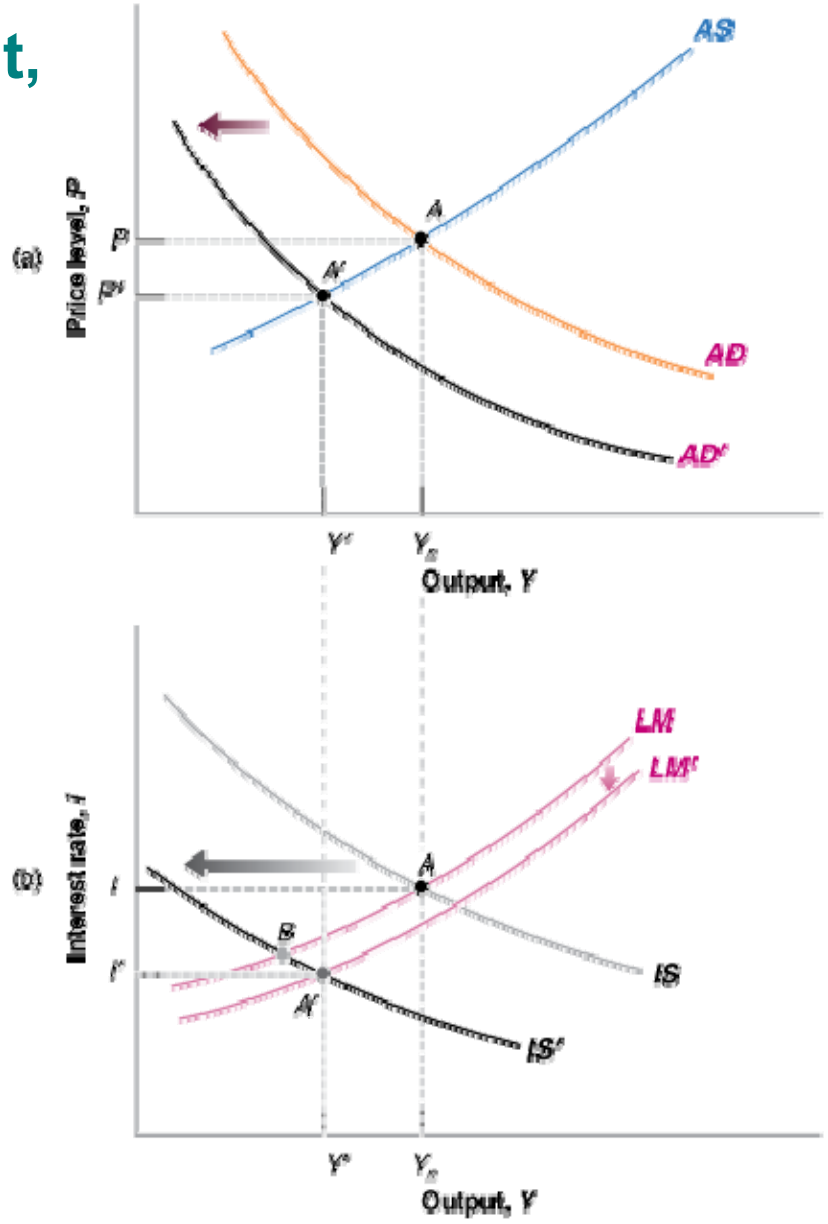


7-5 A Decrease in the Budget Deficit

Deficit Reduction, Output, and the Interest Rate

Since the price level declines in response to the decrease in output, the real money stock increases. This causes a shift of the *LM* curve to *LM'*.

Both output and the interest rate are lower than before the fiscal contraction.



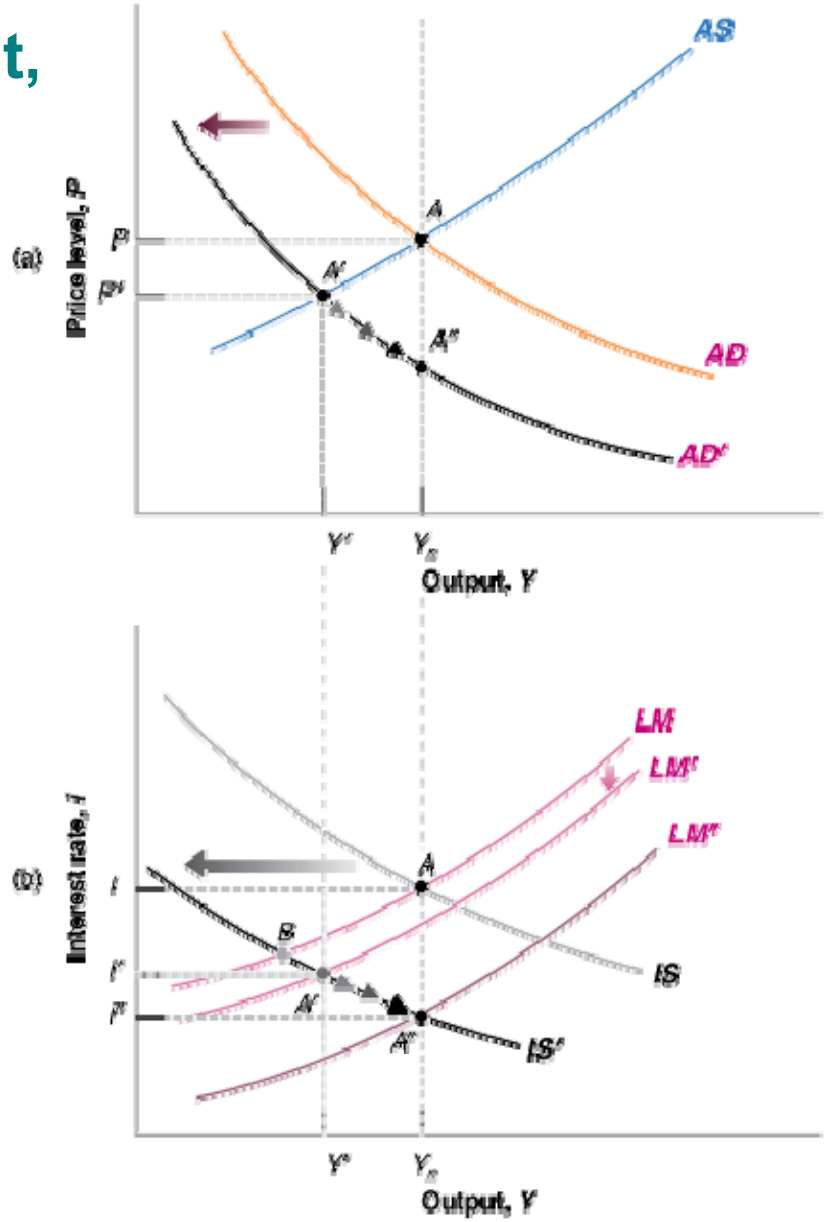
7-5 A Decrease in the Budget Deficit

Deficit Reduction, Output, and the Interest Rate

Figure 7 - 10

The Dynamic Effects of a Decrease in the Budget Deficit on Output and the Interest Rate

A deficit reduction leads in the short run to a decrease in output and to a decrease in the interest rate. In the medium run, output returns to its natural level, while the interest rate declines further.



7-5 A Decrease in the Budget Deficit

Deficit Reduction, Output, and the Interest Rate

- The composition of output is different than it was before deficit reduction. Consider if deficit reduction is due to decrease in G:

$$IS\ relation:\ Y_n = C(Y_n - T) + I(Y_n, i) + G$$

Income and taxes remain unchanged, thus, consumption is the same as before.

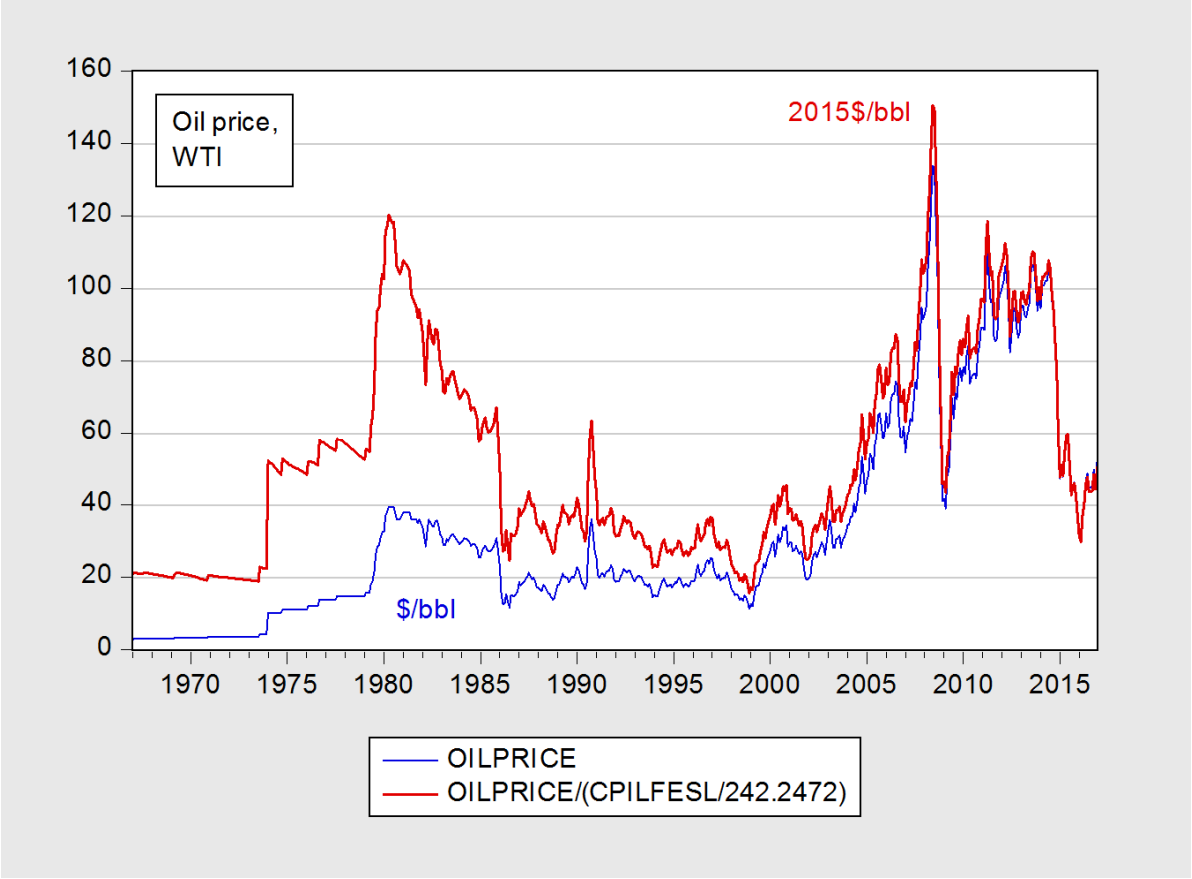
Government spending is lower than before; therefore, investment must be higher than before deficit reduction—higher by an amount exactly equal to the decrease in *G*.

7-6 Changes in the Price of Oil

Figure 7 - 11

The Real Price of Oil Since 1970

There were two sharp increases in the relative price of oil in the 1970s, followed by a decrease until the 1990s, and a large increase since then.



Each of the two large price increases of the 1970s was associated with a sharp recession and a large increase in inflation—a combination macroeconomists call **stagflation**, to capture the combination of *stag*nation and in*flation* that characterized these episodes.

7-6 Changes in the Price of Oil

Effects on the Natural Rate of Unemployment

$$P = W(1+\mu)$$

$$P = (1+\mu)W^{a}P_E^{(1-a)}$$

$$\frac{W}{P} = \frac{1}{(1+\mu)}\left(\frac{W}{P_E}\right)^{1-a}$$

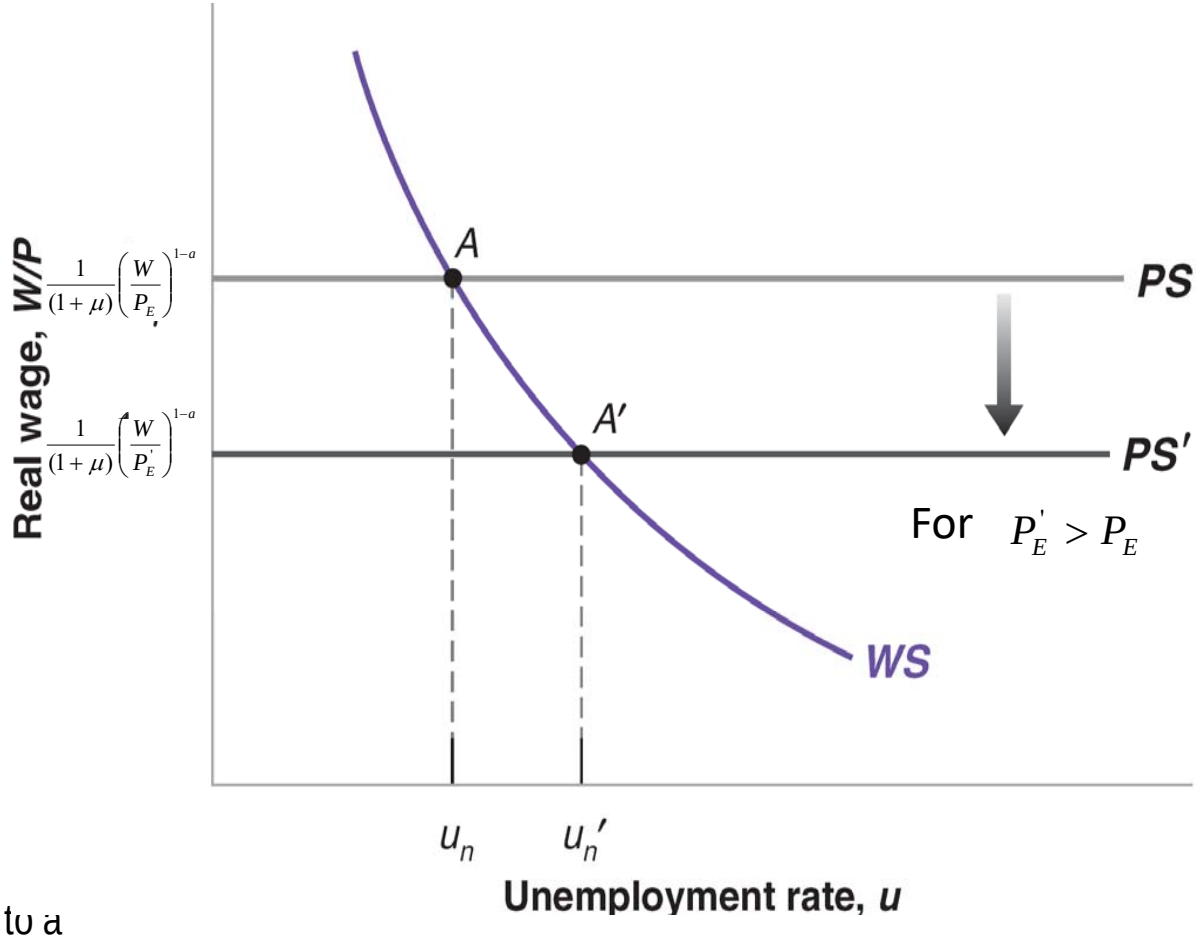


Figure 7 - 12

The Effects of an Increase in the Price of Oil on the Natural Rate of Unemployment

An increase in the price of oil leads to a lower real wage and a higher natural rate of unemployment.
[Note this is a slightly different treatment from in the textbook

7-6 Changes in the Price of Oil

The Dynamics of Adjustment

$$P = (1+\mu)W^{a}P_{E}^{(1-a)}$$

$$P = (1+\mu)[P^{e}F(u,z)]^{a}P_{E}^{(1-a)}$$

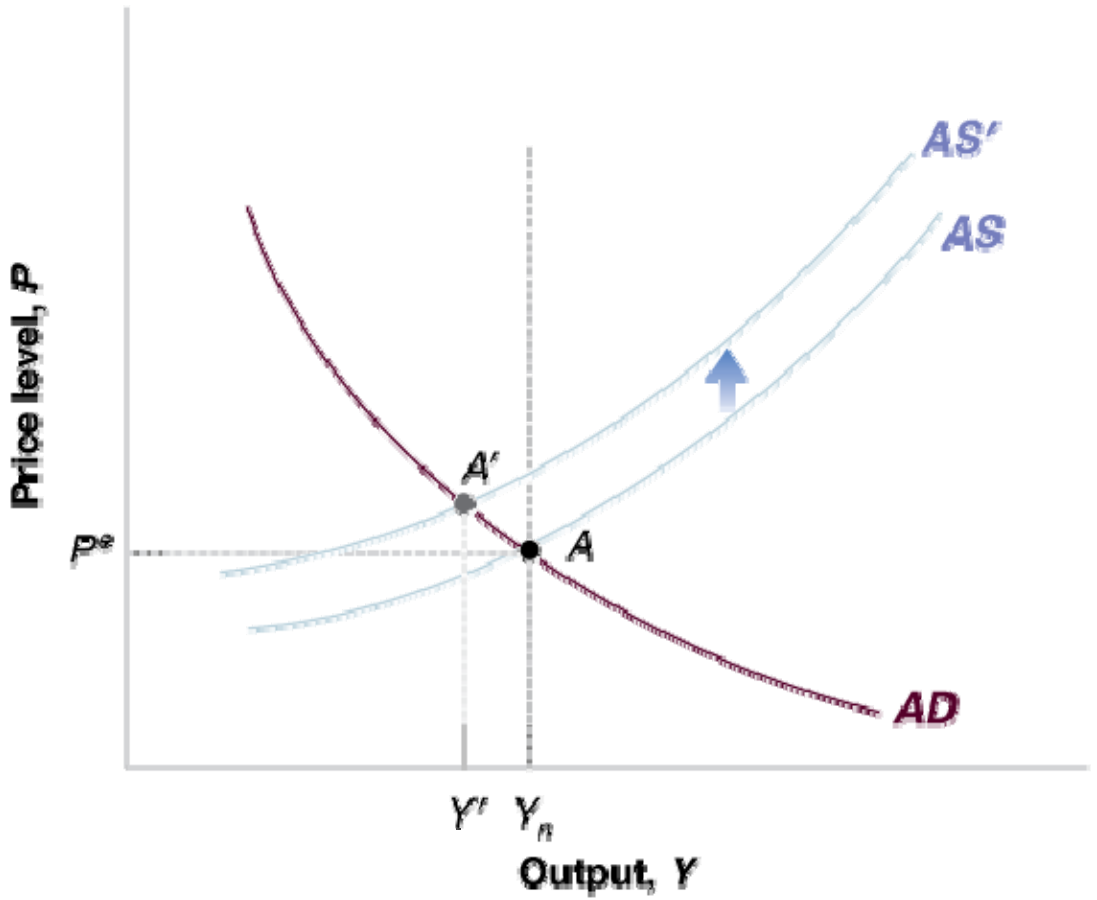
- An increase in the price of energy results in an increase in the price level, at any level of output, *Y*. The aggregate supply curve shifts up.
- In addition, Y_n falls and u_n rises.

7-6 Changes in the Price of Oil

The Dynamics of Adjustment

After the increase in the price of oil, the new *AS* curve goes through point *B*, where output equals the new lower natural level of output, Y'_n, and the price level equals P^e.

The economy moves along the *AD* curve, from *A* to *A'*. Output decreases from Y_n to *Y'*.



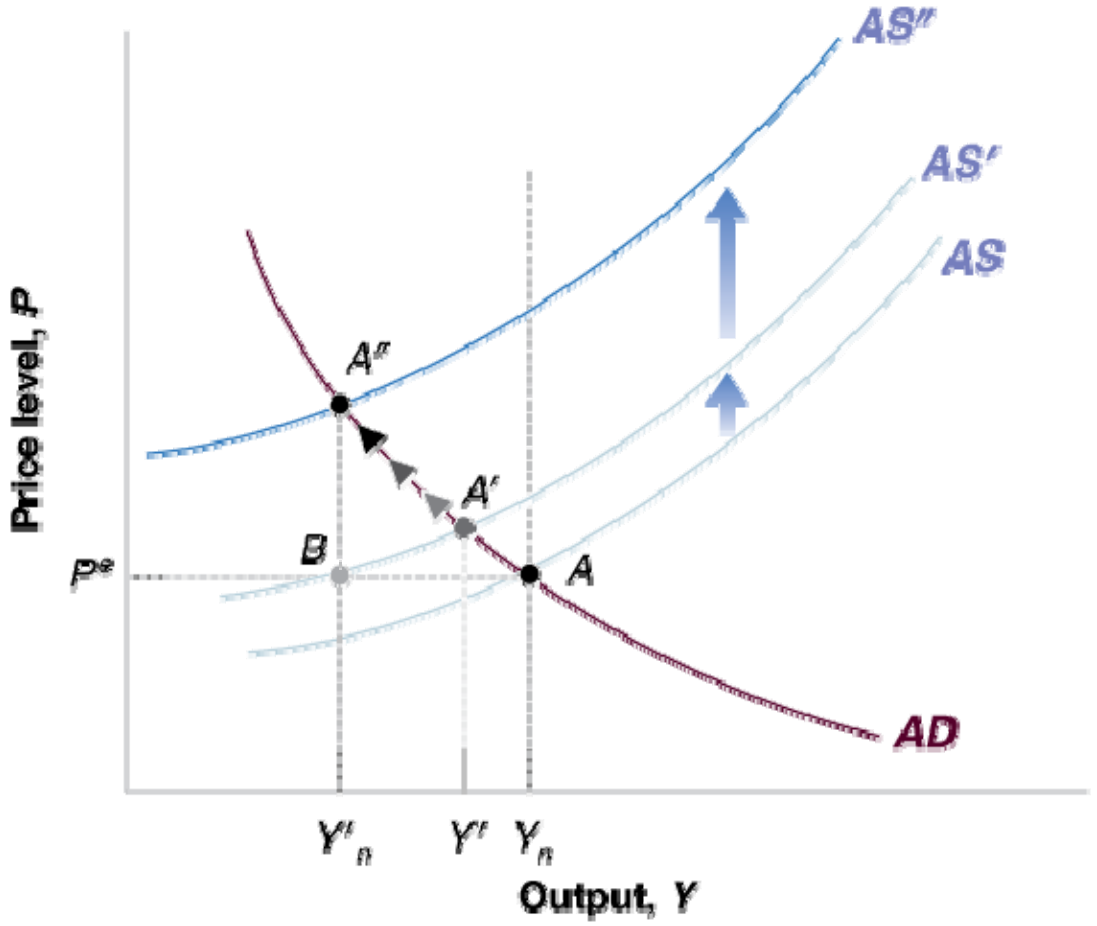
7-6 Changes in the Price of Oil

The Dynamics of Adjustment

Figure 7 - 13

The Dynamic Effects of an Increase in the Price of Oil

An increase in the price of oil leads, in the short run, to a decrease in output and an increase in the price level. Over time, output decreases further, and the price level increases further.



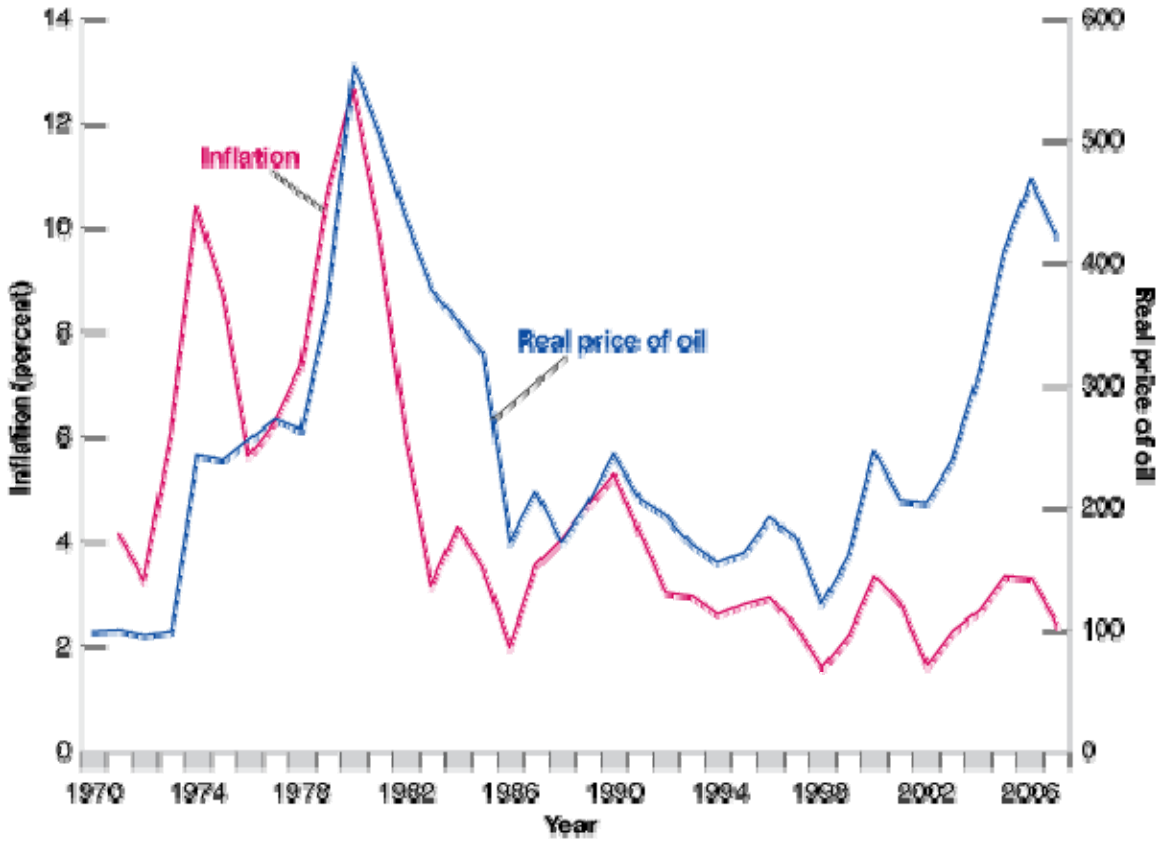
7-6 Changes in the Price of Oil

Effects on the Natural Rate of Unemployment

Figure 7 - 14

Oil Price Increases and Inflation in the United States Since 1970

The oil price increases of the 1970s were associated with large increases in inflation. But this has not been the case for the recent oil price increases.



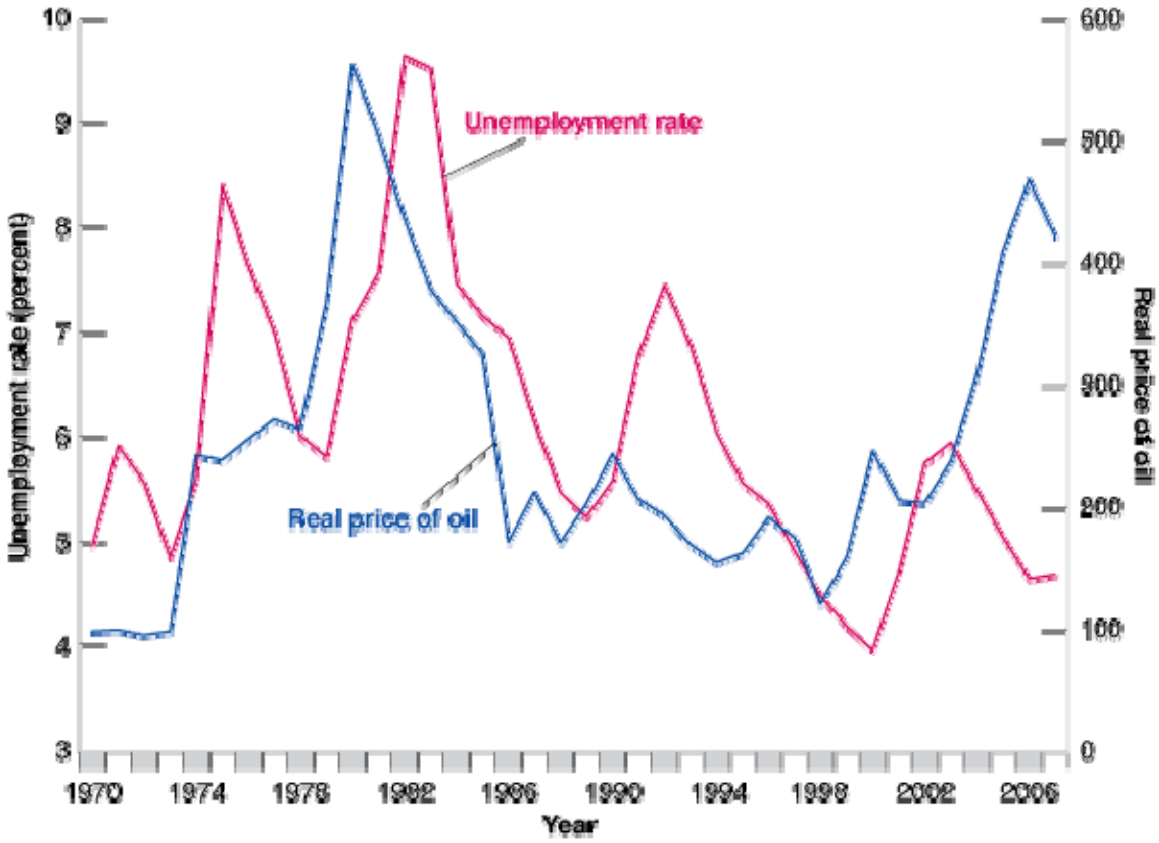
7-6 Changes in the Price of Oil

Effects on the Natural Rate of Unemployment

Figure 7 - 15

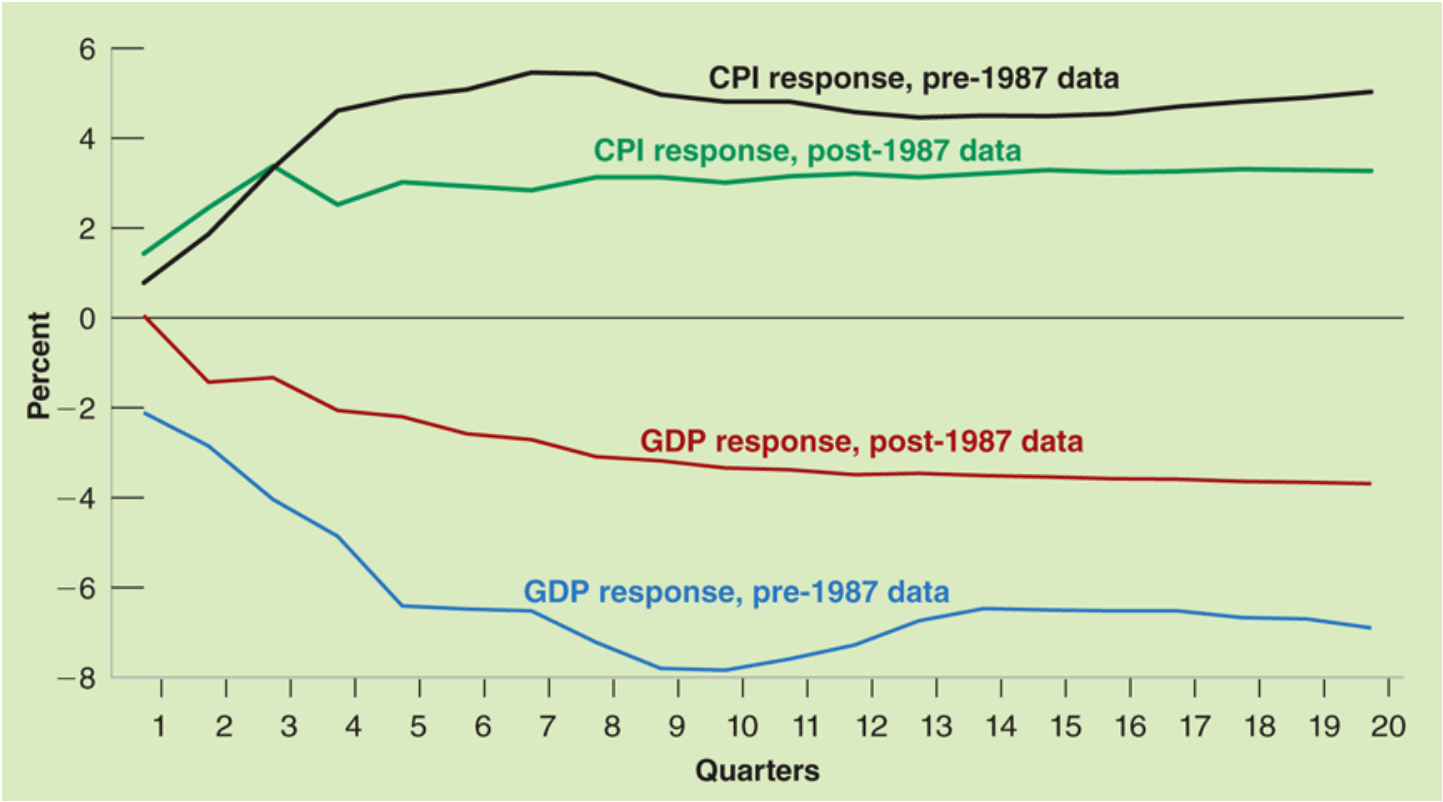
Oil Price Increases and Unemployment in the United States Since 1970

The oil price increases of the 1970s were associated with large increases in unemployment. But this has not been the case for the recent oil price increases.



Focus: Oil Price Increases: Why Were the 2000s so Different from the 1970s?

Figure 1 The Effects of a 100% Permanent Increase in the Price of Oil on the CPI and on GDP. The effects of an increase in the price of oil on output and the price level are smaller than they used to be



7-7 Conclusions

The Short Run Versus the Medium Run

Table 7-1 Short-Run Effects and Medium-Run Effects of a Monetary Expansion, a Budget Deficit Reduction, and an Increase in the Price of Oil on Output, the Interest Rate, and the Price Level

	Short Run			*Medium Run*		
	Output Level	Interest Rate	Price Level	Output Level	Interest Rate	Price Level
Monetary expansion	Increase	Decrease	Increase (small)	No change	No change	Increase
Deficit reduction	Decrease	Decrease	Decrease (small)	No change	Decrease	Decrease
Increase in oil price	Decrease	Increase	Increase	Decrease	Increase	Increase

7-7 Conclusions

Shocks and Propagation Mechanisms

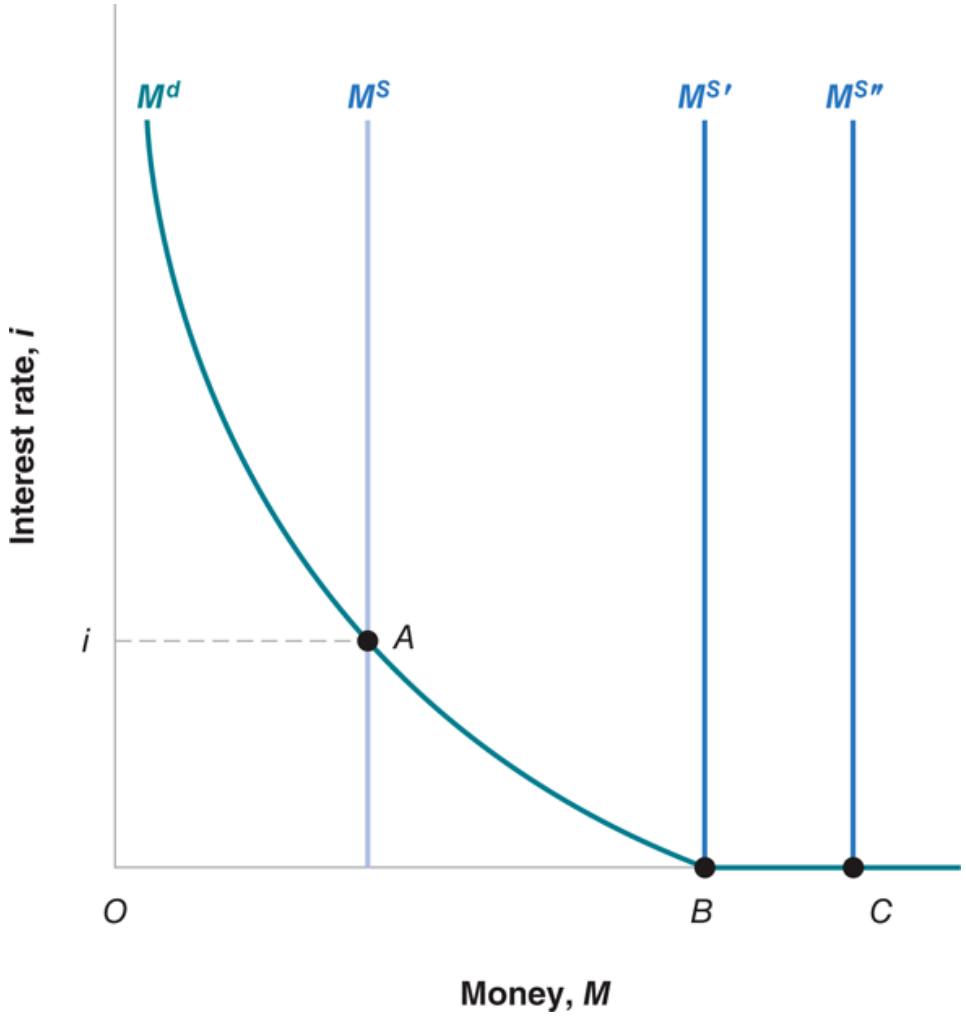
Output fluctuations (sometimes called **business cycles**) are movements in output around its trend.

The economy is constantly hit by **shocks** to aggregate supply, or to aggregate demand, or to both.

Each shock has dynamic effects on output and its components. These dynamic effects are called the **propagation mechanism** of the shock.

9-2 The Use and Limits of Policy

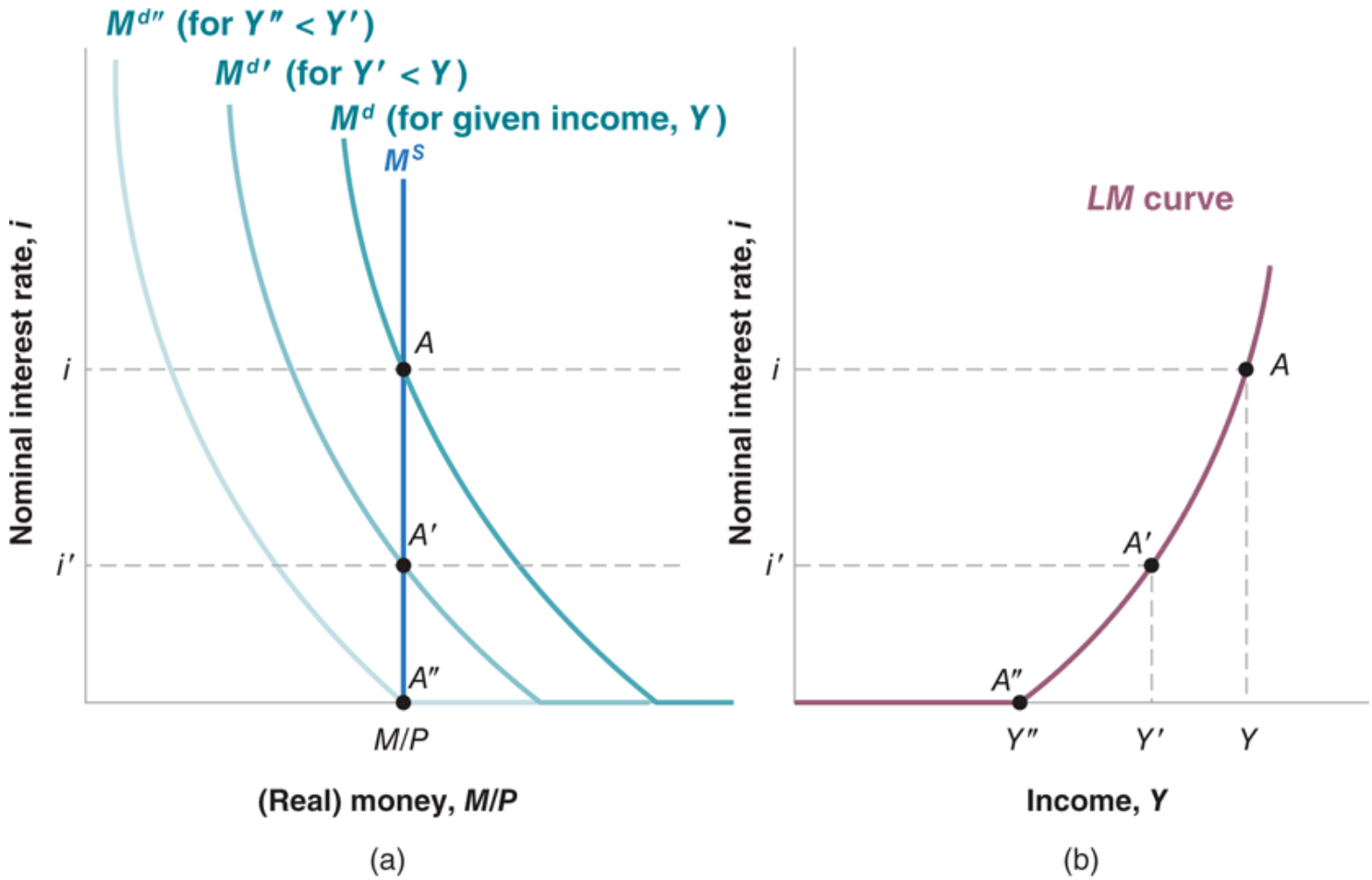
Figure 9-7 Money Demand, Money Supply, and the Liquidity Trap



Read pp. 992-999

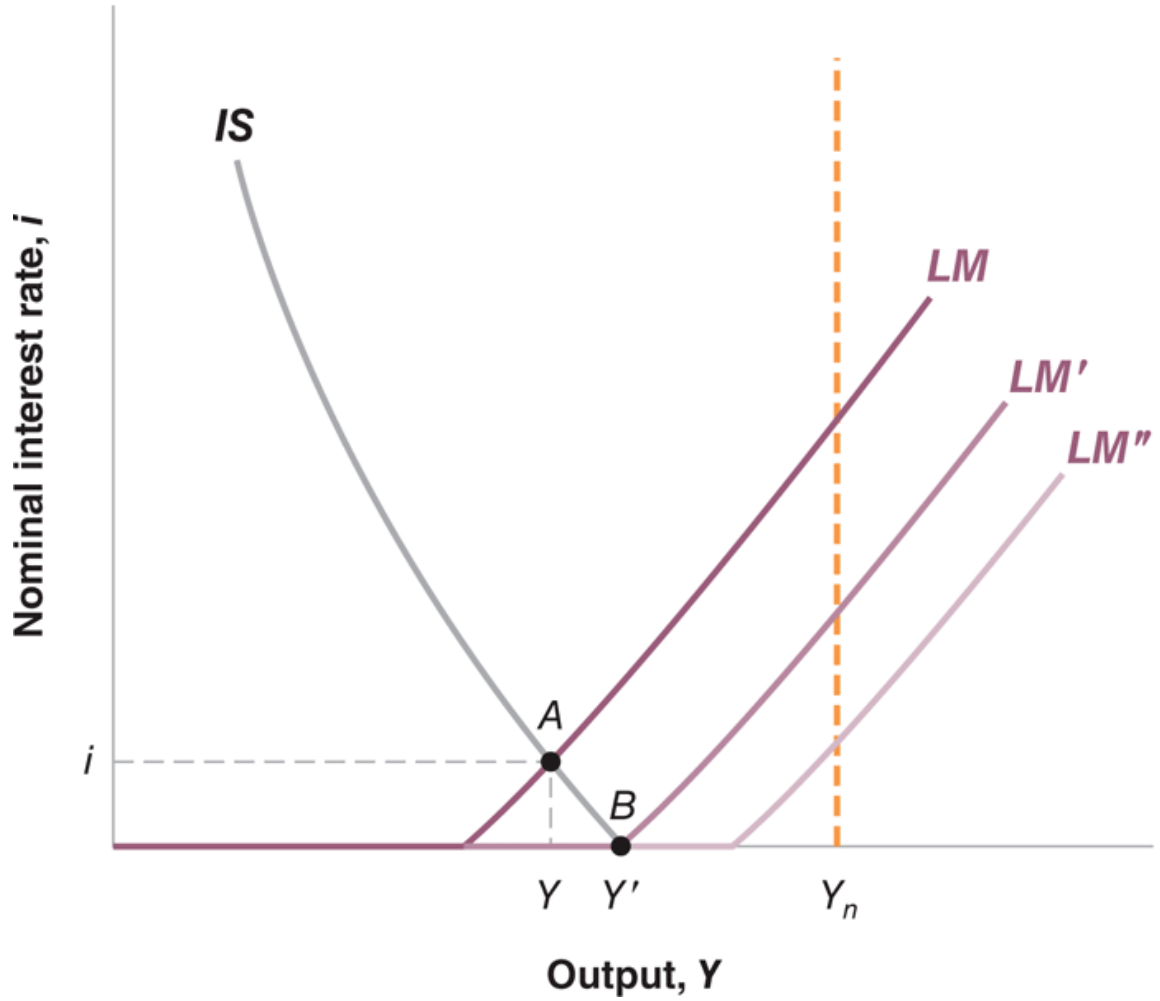
9-2 The Use and Limits of Policy

Figure 9-8 The Derivation of the LM Curve in the Presence of a Liquidity Trap



9-2 The Use and Limits of Policy

Figure 9-9 The IS–LM Model and the Liquidity Trap



9-3 The Slow Recovery

Figure 9-10 The Liquidity Trap and Adjustment Failure

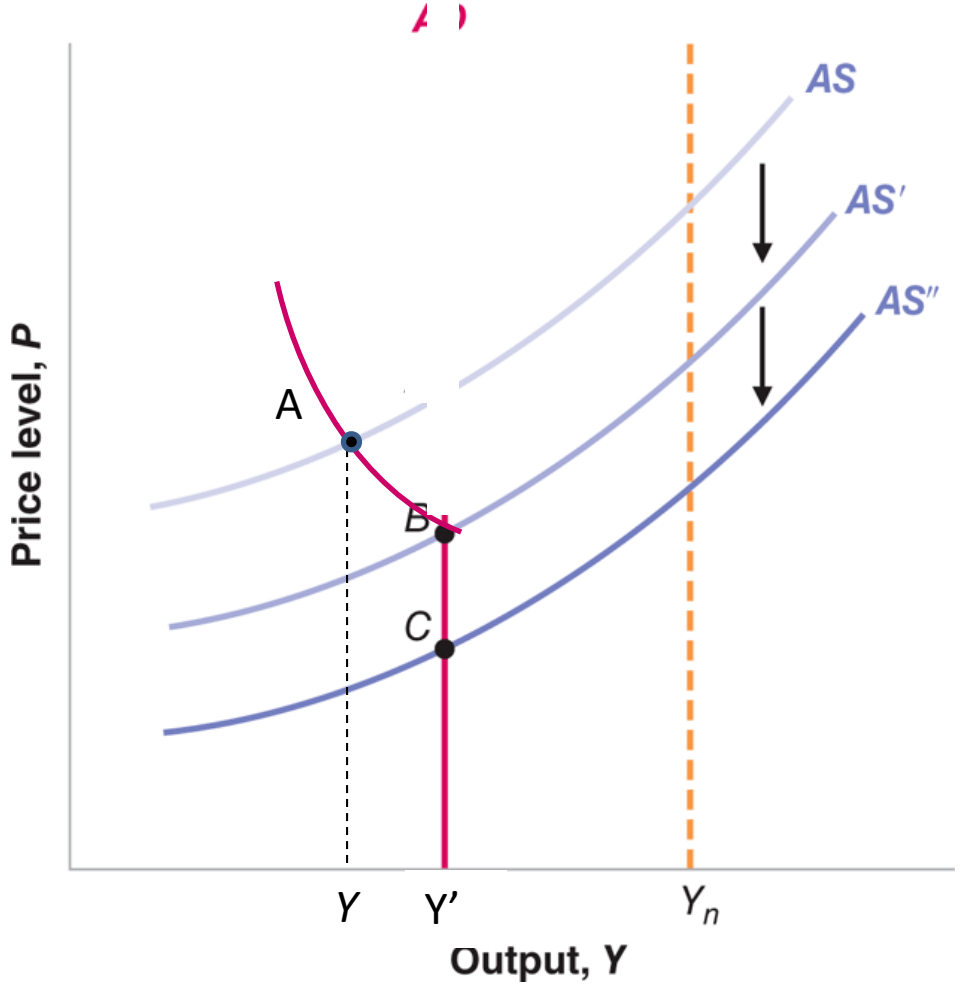
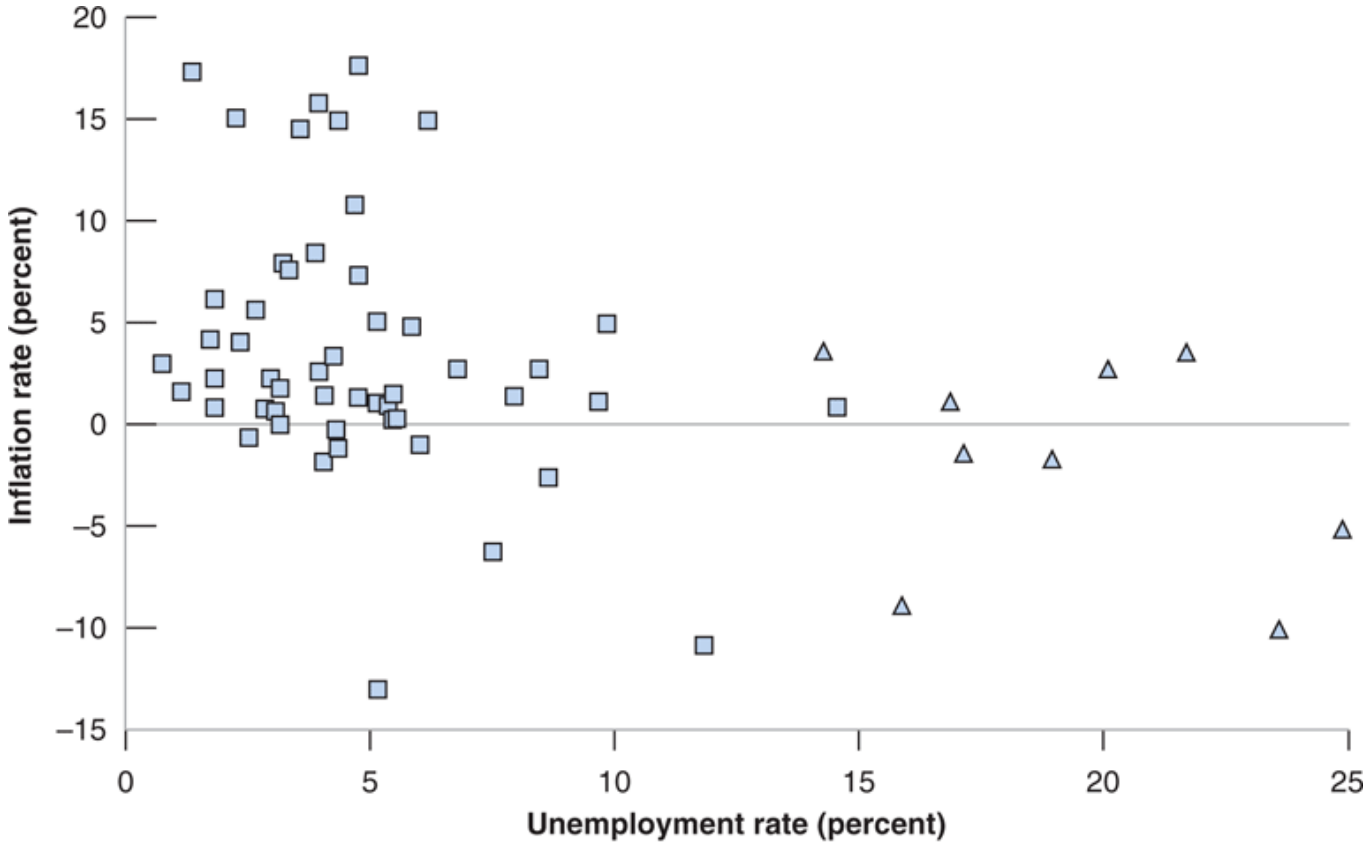


Figure 8-1 Inflation versus Unemployment in the United States, 1900–1960



Source: Historical Statistics of the United States. http://hsus.cambridge.org/HSUSWeb/index.do

8-1 Inflation, Expected Inflation, and Unemployment

$$P = P^e(1 + m)(1 - \alpha u + z) \tag{8.1}$$

$$\pi = \pi^e + (m + z) - \alpha u \tag{8.2}$$

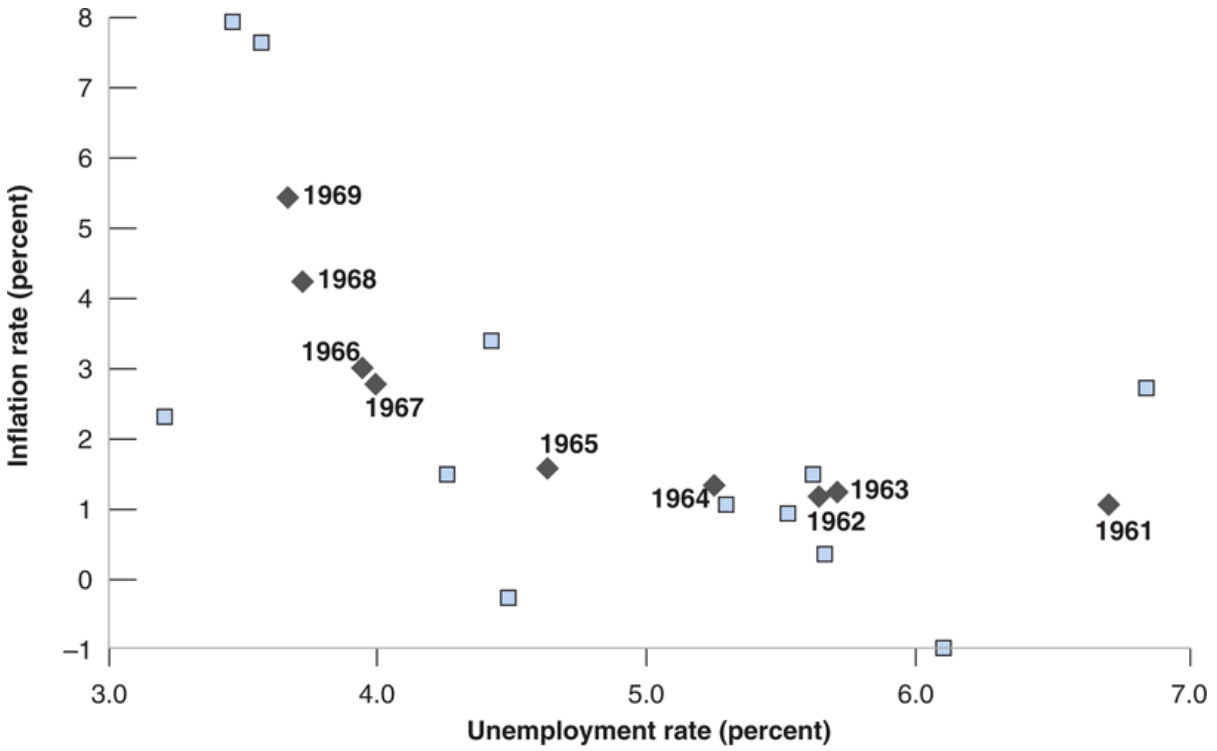
$$\pi_t = \pi_t^e + (m + z) - \alpha u_t \tag{8.3}$$

8-2 The Phillips Curve

$$\pi_t = (m + z) - \alpha u_t \qquad (8.4)$$

8-2 The Phillips Curve

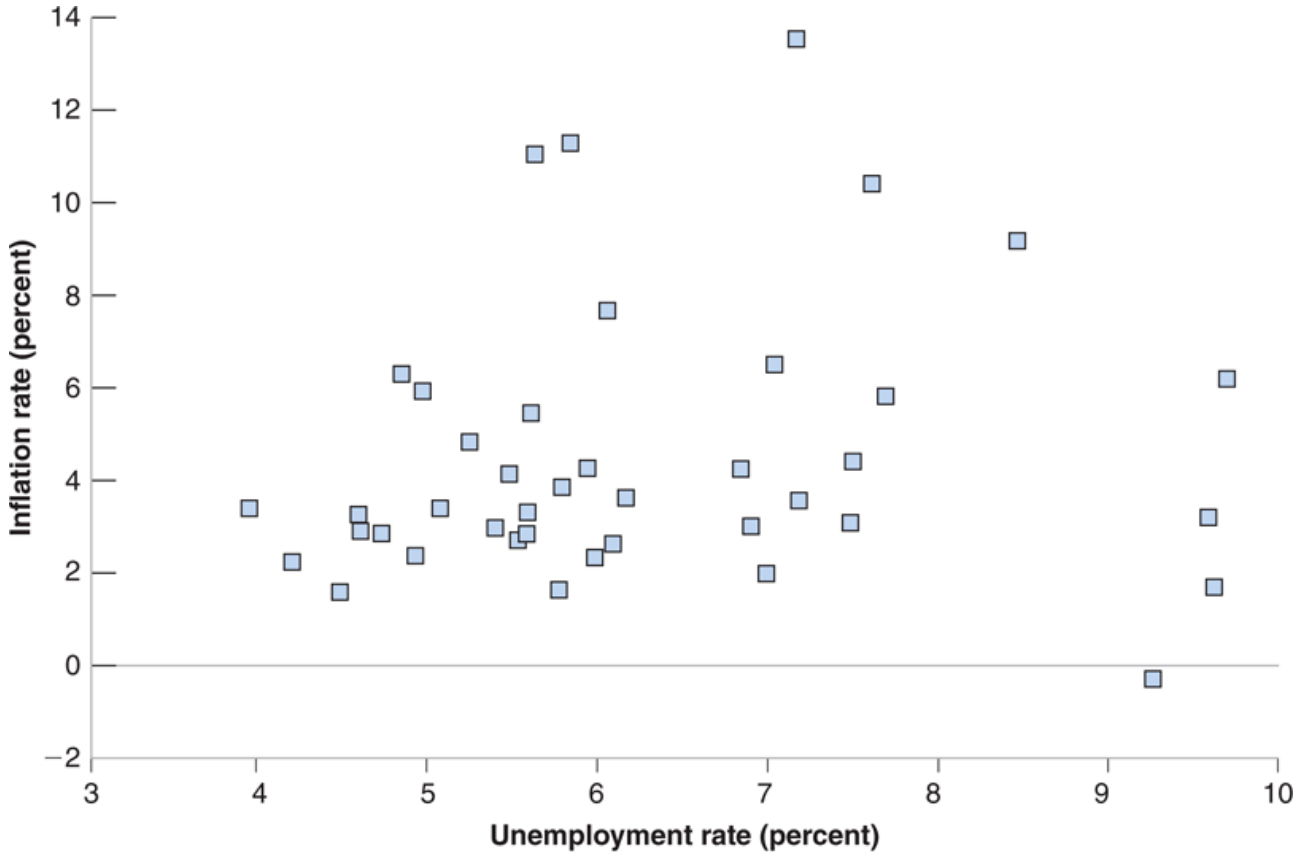
Figure 8-2 Inflation versus Unemployment in the United States, 1948–1969



Source: Series UNRATE, CPIAUSCL Federal Reserve Economic Data (FRED) http://research.stlouisfed.org/fred2/

8-2 The Phillips Curve

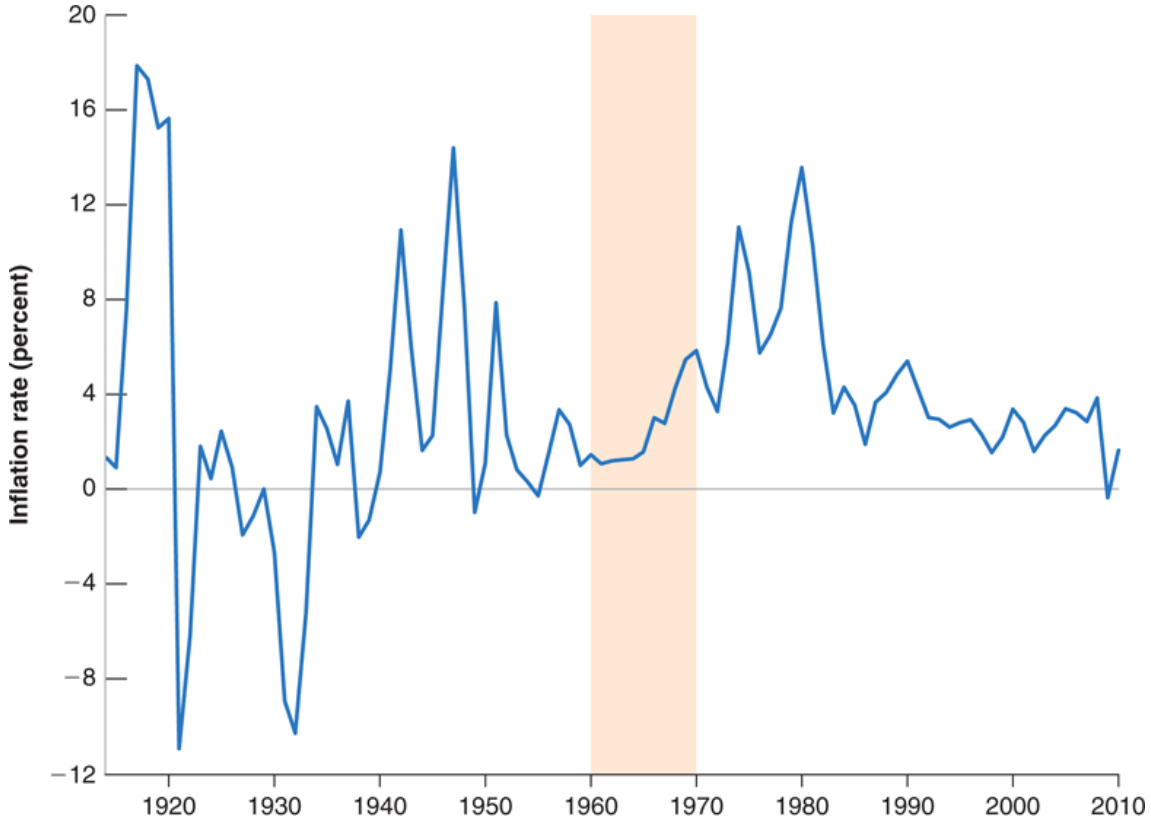
Figure 8-3 Inflation versus Unemployment in the United States, 1970–2010



Source: See Figure 8-2.

8-2 The Phillips Curve

Figure 8-4 U.S. Inflation, since 1914



Source: Years 1900–1914, Historical Statistics of the United States. After 1914: Series CPIAUNS, Federal Reserve Economic Data (FRED) http://research.stlouisfed.org/fred2/

8-2 The Phillips Curve

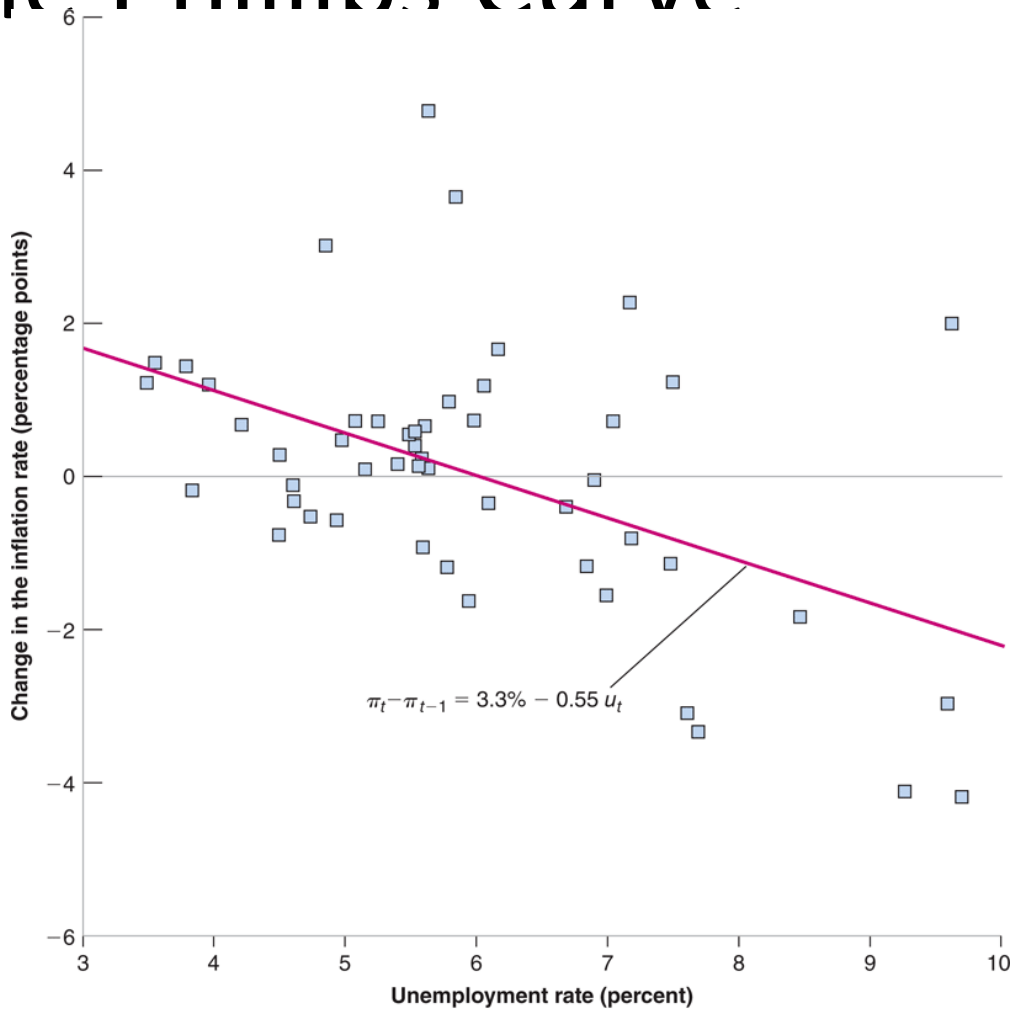
$$\pi_t^e = \theta\, \pi_{t-1} \tag{8.5}$$

$$\pi_t - \pi_{t-1} = (m + z) - \alpha u_t \tag{8.6}$$

$$\pi_t - \pi_{t-1} = 3.3\% - 0.55\, u_t \tag{8.7}$$

8-2 The Phillips Curve

Figure 8-5 Change in Inflation versus Unemployment in the United States, 1970–2010



Source: Series CPIUNSCL, UNRATE: Federal Reserve Economic Data (FRED) http://research.stlouisfed.org/fred2/

8-2 The Phillips Curve

$$u_n = \frac{m + z}{\alpha} \tag{8.8}$$

$$\pi_t - \pi_t^e = -\alpha(u_t - u_n) \tag{8.9}$$

$$\pi_t - \pi_{t-1} = -\alpha(u_t - u_n) \tag{8.10}$$