

**Principles of Economics II (Spring 2013)**

**Homework #6**

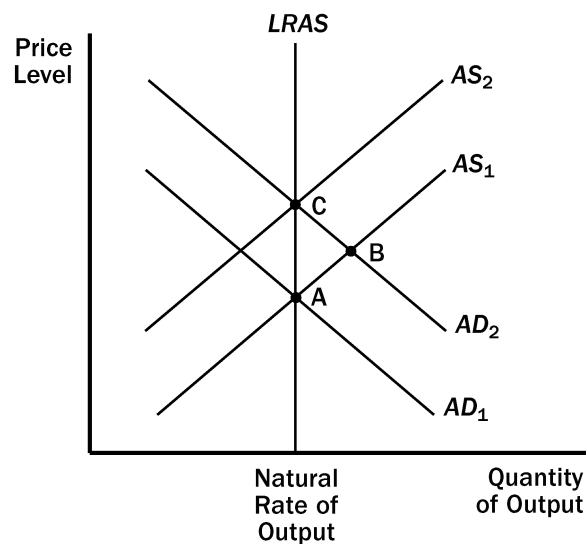
**(Chapter 33-36, due on June 14th, 2013, submitted out of class)**

**Note: All textbook problem numbers refer to “Problems and Application” part in corresponding chapter, the 6<sup>th</sup> Chinese/U.S. edition of the textbook.**

For Chapter 33

1. Textbook, Chapter 33, #3

3. a. The current state of the economy is shown in Figure 7. The aggregate-demand curve and short-run aggregate-supply curve intersect at the same point on the long-run aggregate-supply curve.



**Figure 7**

- b. If the central bank increases the money supply, aggregate demand shifts to the right (to point B). In the short run, there is an increase in output and the price level.
- c. Over time, nominal wages, prices, and perceptions will adjust to this new price level. As a result, the short-run aggregate-supply curve will shift to the left. The economy will return to its natural rate of output (point C).
- d. According to the sticky-wage theory, nominal wages at points A and B are equal. However, nominal wages at point C are higher.
- e. According to the sticky-wage theory, real wages at point B are lower than real wages at point A. However, real wages at points A and C are equal.

- f. Yes, this analysis is consistent with long-run monetary neutrality. In the long run, an increase in the money supply causes an increase in the nominal wage, but leaves the real wage unchanged.

2. Textbook, Chapter 33, # 5

- 5. a. The statement that "the aggregate-demand curve slopes downward because it is the horizontal sum of the demand curves for individual goods" is false. The aggregate-demand curve slopes downward because a fall in the price level raises the overall quantity of goods and services demanded through the wealth effect, the interest-rate effect, and the exchange-rate effect.
- b. The statement that "the long-run aggregate-supply curve is vertical because economic forces do not affect long-run aggregate supply" is false. Economic forces of various kinds (such as population and productivity) do affect long-run aggregate supply. The long-run aggregate-supply curve is vertical because the price level does not affect long-run aggregate supply.
- c. The statement that "if firms adjusted their prices every day, then the short-run aggregate-supply curve would be horizontal" is false. If firms adjusted prices quickly and if sticky prices were the only possible cause for the upward slope of the short-run aggregate-supply curve, then the short-run aggregate-supply curve would be vertical, not horizontal. The short-run aggregate supply curve would be horizontal only if prices were completely fixed.
- d. The statement that "whenever the economy enters a recession, its long-run aggregate-supply curve shifts to the left" is false. An economy could enter a recession if either the aggregate-demand curve or the short-run aggregate-supply curve shifts to the left.

3. Textbook, Chapter 33, # 8

- 8. a. People will likely expect that the new chairman will not actively fight inflation so they will expect the price level to rise.
- b. If people believe that the price level will be higher over the next year, workers will want higher nominal wages.
- c. At any given price level, higher labor costs lead to reduced profitability.

- d. The short-run aggregate-supply curve will shift to the left as shown in Figure 10.

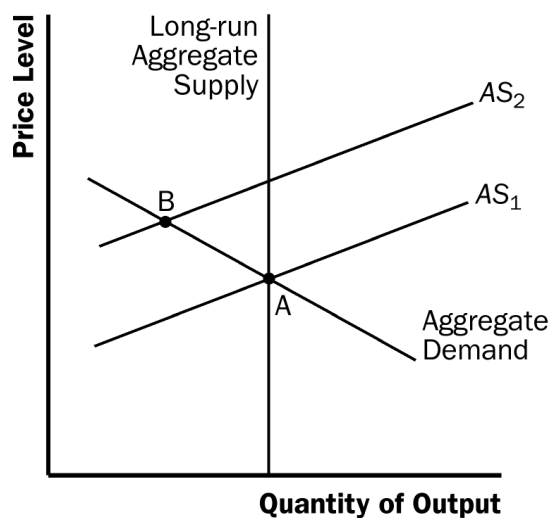


Figure 10

- e. A decline in short-run aggregate supply leads to reduced output and a higher price level.
- f. No, this choice was probably not wise. The end result is stagflation, which provides limited choices in terms of policies to remedy the situation.

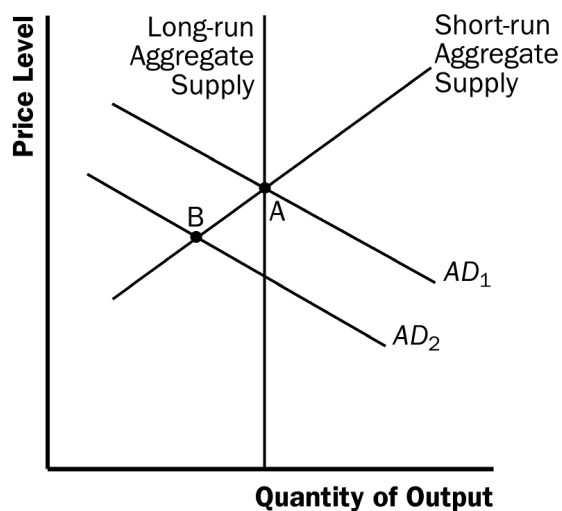


Figure 11

4. Textbook, Chapter 33, # 9

9. a. If households decide to save a larger share of their income, they must spend less on consumer goods, so the aggregate-demand curve shifts to the left, as shown in Figure 11. The equilibrium changes from point A to point B, so the price level declines and output declines.
- b. If Florida orange groves suffer a prolonged period of below-freezing temperatures, the orange harvest will be reduced. This decline in the natural rate of output is represented in Figure 12 by a shift to the left in both the short-run and long-run aggregate-supply curves. The equilibrium changes from point A to point B, so the price level rises and output declines.

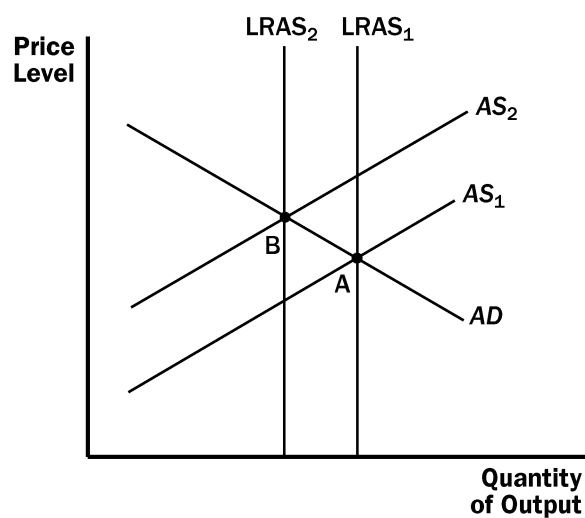


Figure 12

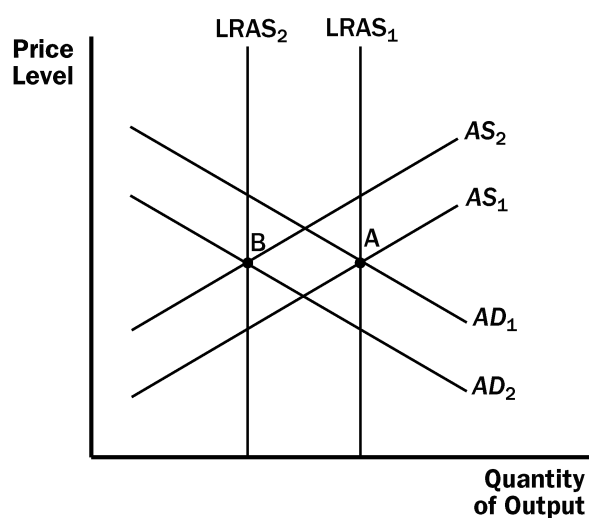


Figure 13

- c. If increased job opportunities cause people to leave the country, the long-run and short-run aggregate-supply curves will shift to the left because there are fewer people producing output. The aggregate-demand curve will also shift to the left because there are fewer people consuming goods and services. The result is a decline in the quantity of output, as Figure 13 shows. Whether the price level rises or declines depends on the relative sizes of the shifts in the aggregate-demand curve and the aggregate-supply curves.

5. Textbook, Chapter 33, #11

11. a. If firms become optimistic about future business conditions and increase investment, the result is shown in Figure 18. The economy begins at point A with aggregate-demand curve  $AD_1$  and short-run aggregate-supply curve  $AS_1$ . The equilibrium has price level  $P_1$  and output level  $Y_1$ . Increased optimism leads to greater investment, so the aggregate-demand curve shifts to  $AD_2$ . Now the economy is at point B, with price level  $P_2$  and output level  $Y_2$ . The aggregate quantity of output supplied rises because the price level has risen and people have misperceptions about the price level, wages are sticky, or prices are sticky, all of which cause output supplied to increase.

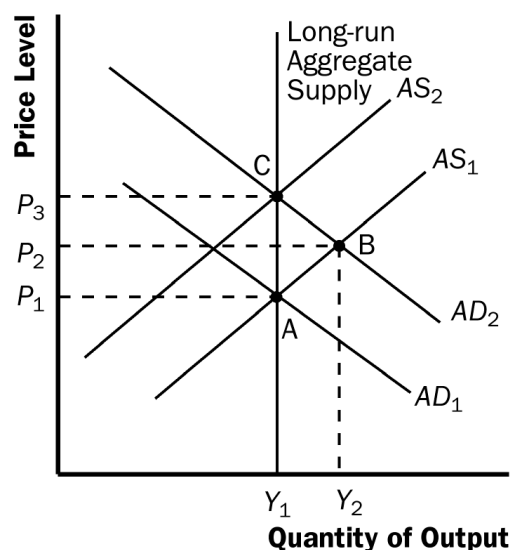


Figure 18

- b. Over time, as the misperceptions of the price level disappear, wages adjust, or prices adjust, the short-run aggregate-supply curve shifts up to  $AS_2$  and the economy gets to equilibrium at point C, with price level  $P_3$  and output level  $Y_1$ . The quantity of output demanded declines as the price level rises.
- c. The investment boom might increase the long-run aggregate-supply curve because higher investment today means a larger capital stock in the future, thus higher productivity and output.

6. Textbook, Chapter 33, # 12

12. Economy B would have a more steeply sloped short-run aggregate-supply curve than would Economy A, because only half of the wages in Economy B are “sticky.” A 5% increase in the money supply would have a larger effect on output in Economy A and a larger effect on the price level in Economy B.

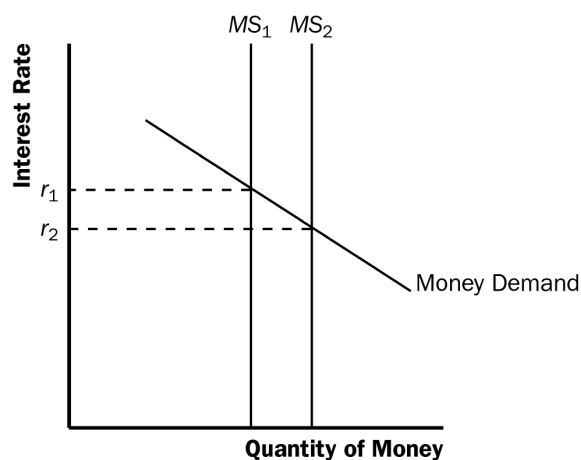
7. True or false? Keynes's primary message in *The General Theory* was that short-run economic fluctuations were the result of inadequate aggregate demand that could be corrected by using government policy.

**True**

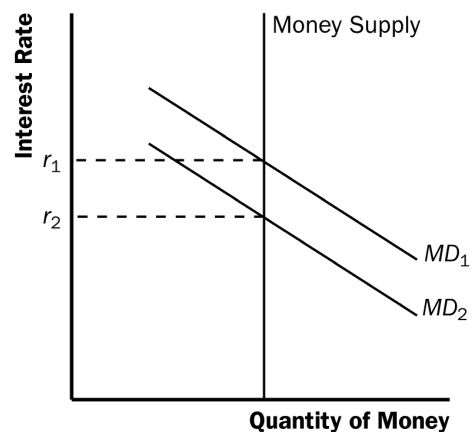
For Chapter 34

8. Textbook, Chapter 34, # 1

1. a. When the Fed's bond traders buy bonds in open-market operations, the money-supply curve shifts to the right from  $MS_1$  to  $MS_2$ , as shown in Figure 1. The result is a decline in the interest rate.



**Figure 1**



**Figure 2**

- b. When an increase in credit card availability reduces the cash people hold, the money-demand curve shifts to the left from  $MD_1$  to  $MD_2$ , as shown in Figure 2. The result is a decline in the interest rate.
- c. When the Federal Reserve reduces reserve requirements, the money supply increases, so the money-supply curve shifts to the right from  $MS_1$  to  $MS_2$ , as shown in Figure 1. The result is a decline in the interest rate.

- d. When households decide to hold more money to use for holiday shopping, the money-demand curve shifts to the right from  $MD_1$  to  $MD_2$ , as shown in Figure 3. The result is a rise in the interest rate.

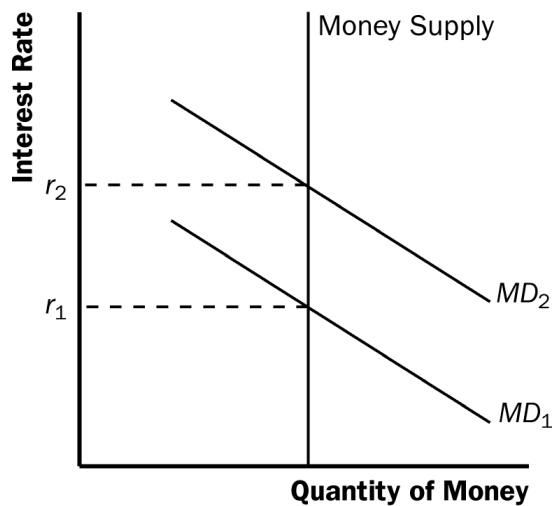


Figure 3

- e. When a wave of optimism boosts business investment and expands aggregate demand, money demand increases from  $MD_1$  to  $MD_2$  in Figure 3. The increase in money demand increases the interest rate.

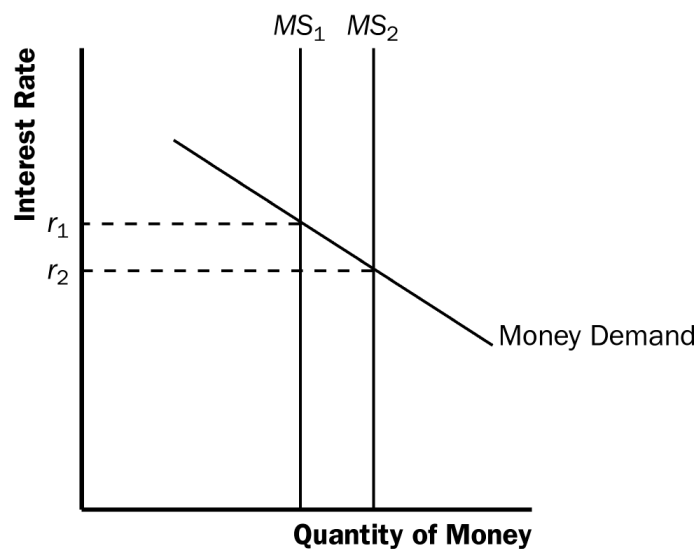


Figure 4

2. a. The increase in the money supply will cause the equilibrium interest rate to decline, as shown in Figure 4. Households will increase spending and will invest in more new housing. Firms too will increase investment spending. This will cause the aggregate demand curve to shift to the right as shown in Figure 5.

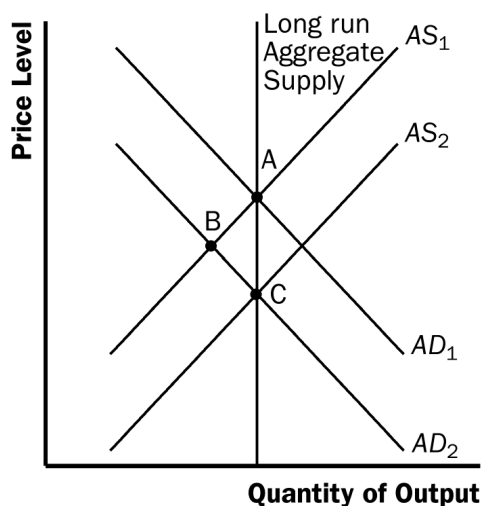


Figure 5

- b. As shown in Figure 5, the increase in aggregate demand will cause an increase in both output and the price level in the short run (point B).
- c. When the economy makes the transition from its short-run equilibrium to its long-run equilibrium, short-run aggregate supply will decline, causing the price level to rise even further (point C).
- d. The increase in the price level will cause an increase in the demand for money, raising the equilibrium interest rate.
- e. Yes. While output initially rises because of the increase in aggregate demand, it will fall once short-run aggregate supply declines. Thus, there is no long-run effect of the increase in the money supply on real output.

10. Textbook, Chapter 34, # 3



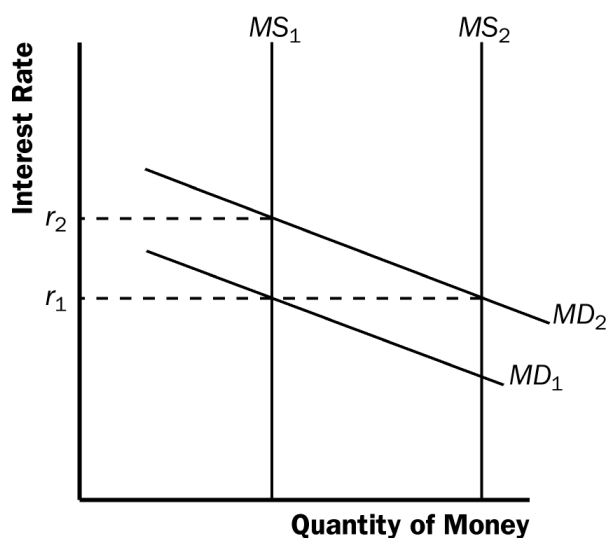


Figure 6

3. a. When fewer ATMs are available, money demand is increased and the money-demand curve shifts to the right from  $MD_1$  to  $MD_2$ , as shown in Figure 6. If the Fed does not change the money supply, which is at  $MS_1$ , the interest rate will rise from  $r_1$  to  $r_2$ . The increase in the interest rate shifts the aggregate-demand curve to the left, as consumption and investment fall.
- b. If the Fed wants to stabilize aggregate demand, it should increase the money supply to  $MS_2$ , so the interest rate will remain at  $r_1$  and aggregate demand will not change.
- c. To increase the money supply using open market operations, the Fed should buy government bonds.

11. Textbook, Chapter 34, #8

8. a. The initial effect of the tax reduction of \$20 billion is to increase aggregate demand by  $\$20 \text{ billion} \times 3/4$  (the  $MPC$ ) = \$15 billion.
- b. Additional effects follow this initial effect as the added incomes are spent. The second round leads to increased consumption spending of  $\$15 \text{ billion} \times 3/4 = \$11.25 \text{ billion}$ . The third round gives an increase in consumption of  $\$11.25 \text{ billion} \times 3/4 = \$8.44 \text{ billion}$ . The effects continue indefinitely. Adding them all up gives a total effect that depends on the multiplier. With an  $MPC$  of  $3/4$ , the multiplier is  $1/(1 - 3/4) = 4$ . So the total effect is  $\$15 \text{ billion} \times 4 = \$60 \text{ billion}$ .
- c. Government purchases have an initial effect of the full \$20 billion, because they increase aggregate demand directly by that amount. The total effect of an increase in government purchases is thus  $\$20 \text{ billion} \times 4 = \$80 \text{ billion}$ . So

government purchases lead to a bigger effect on output than a tax cut does. The difference arises because government purchases affect aggregate demand by the full amount, but a tax cut is partly saved by consumers, and therefore does not lead to as much of an increase in aggregate demand.

- d. The government could increase taxes by the same amount it increases its purchases.

12. Textbook, Chapter 34, # 9

9. If the marginal propensity to consume is 0.8, the spending multiplier will be  $1/(1 - 0.8) = 5$ . Therefore, the government would have to increase spending by  $\$400/5 = \$80$  billion to close the recessionary gap.

13. Textbook, Chapter 34, 11

- 11. a. Expansionary fiscal policy is more likely to lead to a short-run increase in investment if the investment accelerator is large. A large investment accelerator means that the increase in output caused by expansionary fiscal policy will induce a large increase in investment. Without a large accelerator, investment might decline because the increase in aggregate demand will raise the interest rate.
- b. Expansionary fiscal policy is more likely to lead to a short-run increase in investment if the interest sensitivity of investment is small. Because fiscal policy increases aggregate demand, thus increasing money demand and the interest rate, the greater the sensitivity of investment to the interest rate the greater the decline in investment will be, which will offset the positive accelerator effect.

For Chapter 35

14. Textbook, Chapter 35, #1

1. Figure 8 shows two different short-run Phillips curves depicting these four points. Points A and D are on  $SRPC_1$  because both have expected inflation of 3%. Points B and C are on  $SRPC_2$  because both have expected inflation of 5%.

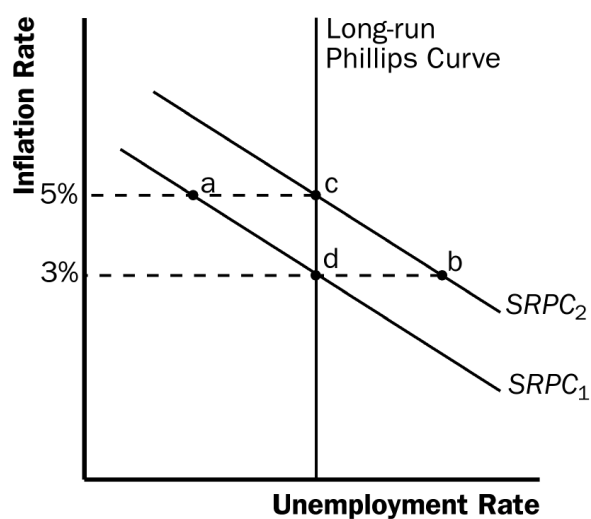


Figure 8

15. Textbook, Chapter 35, #4

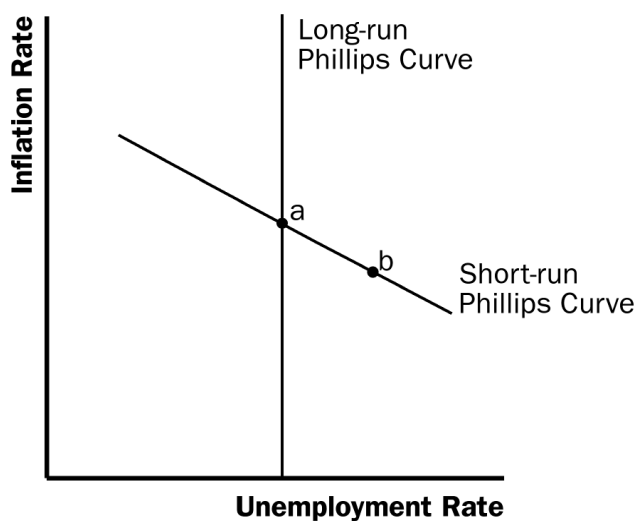


Figure 14

4. a. Figure 14 shows the economy in long-run equilibrium at point A, which is on both the long-run and short-run Phillips curves.
- b. A wave of business pessimism reduces aggregate demand, moving the economy to point B in the figure. The unemployment rate rises and the

inflation rate declines. If the Fed undertakes expansionary monetary policy, it can increase aggregate demand, offsetting the pessimism and returning the economy to point A, with the initial inflation rate and unemployment rate.

- c. Figure 15 shows the effects on the economy if the price of imported oil rises. The higher price of imported oil shifts the short-run Phillips curve up from  $SRPC_1$  to  $SRPC_2$ . The economy moves from point A to point C, with a higher inflation rate and higher unemployment rate. If the Fed engages in expansionary monetary policy, it can return the economy to its original unemployment rate at point D, but the inflation rate will be higher. If the Fed engages in contractionary monetary policy, it can return the economy to its original inflation rate at point E, but the unemployment rate will be higher. This situation differs from that in part (b) because in part (b) the economy stayed on the same short-run Phillips curve, but in part (c) the economy moved to a higher short-run Phillips curve, which gives policymakers a less favorable trade-off between inflation and unemployment.

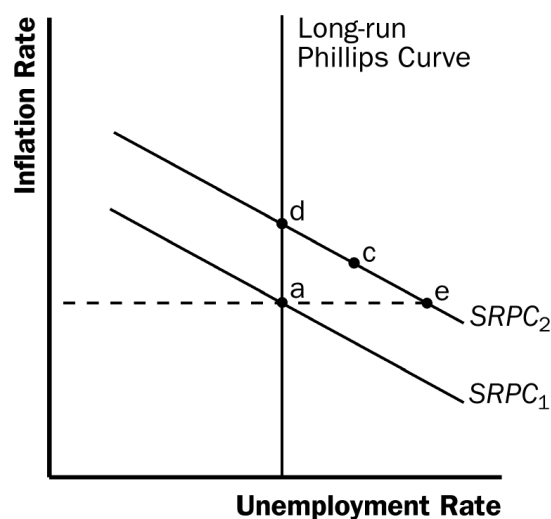


Figure 15

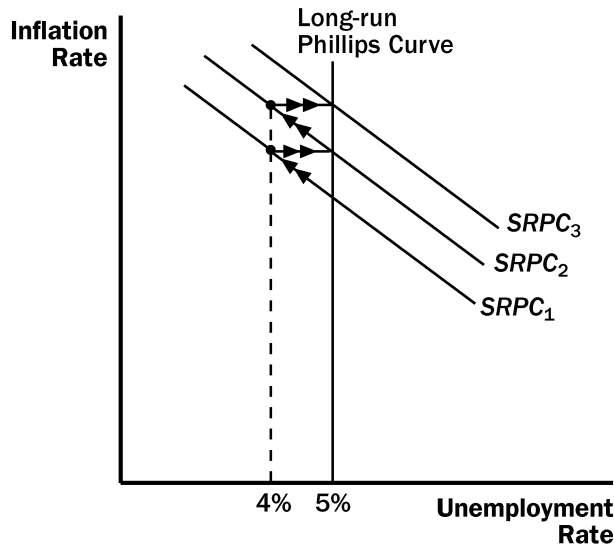


Figure 16

6. If the Fed acts on its belief that the natural rate of unemployment is 4%, when the natural rate is in fact 5%, the result will be a spiraling up of the inflation rate, as shown in Figure 16. Starting from a point on the long-run Phillips curve, with an unemployment rate of 5%, the Fed will believe that the economy is in a recession, because the unemployment rate is greater than its estimate of the natural rate. Therefore, the Fed will increase the money supply, moving the economy along the short-run Phillips curve  $SRPC_1$ . The inflation rate will rise and the unemployment rate will fall to 4%. As the inflation rate rises over time, expectations of inflation will rise, and the short-run Phillips curve will shift up to  $SRPC_2$ . This process will continue, and the inflation rate will spiral upwards.

The Fed may eventually realize that its estimate of the natural rate of unemployment is wrong by examining the rising trend in the inflation rate.

17. Textbook, Chapter 35, #7

7. a. If wage contracts have short durations, a recession induced by contractionary monetary policy will be less severe, because wage contracts can be adjusted more rapidly to reflect the lower inflation rate. This will allow a more rapid movement of the short-run aggregate-supply curve and short-run Phillips curve to restore the economy to long-run equilibrium.
- b. If there is little confidence in the Fed's determination to reduce inflation, a recession induced by contractionary monetary policy will be more severe. It will take longer for people's inflation expectations to adjust downwards.

- c. If expectations of inflation adjust quickly to actual inflation, a recession induced by contractionary monetary policy will be less severe. In this case, people's expectations adjust quickly, so the short-run Phillips curve shifts quickly to restore the economy to long-run equilibrium at the natural rate of unemployment.

18. Textbook, Chapter 35, #9

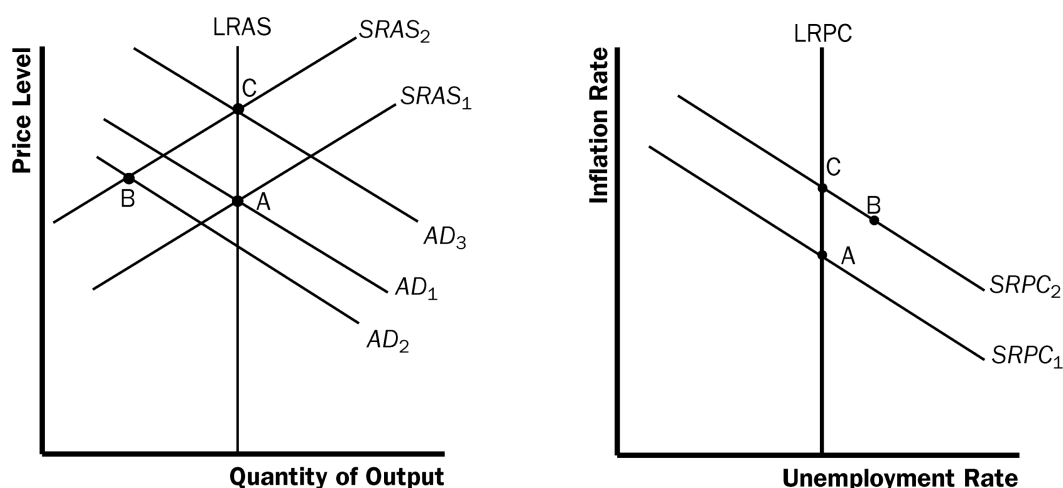


Figure 17

9. a. As shown in the left diagram of Figure 17, equilibrium output and employment will fall. However, the effects on the price level and inflation rate will be ambiguous. The fall in aggregate demand puts downward pressure on prices, while the decline in short-run aggregate supply pushes prices up. The diagram on the right side of Figure 17 assumes that the inflation rate rises.
- b. The Fed would have to use expansionary monetary policy to keep output and employment at their natural rates. Aggregate demand would have to shift to  $AD_3$ .
- c. The Fed may not want to pursue this action because it will lead to a rise in the inflation rate as shown by point C.

19. 选举周期与经济波动：

一个经济某一年的菲利普斯曲线由下列的关系式确定：

$$\pi = \pi^e - (u - 4\%)。$$

其中  $\pi$  和  $\pi^e$  分别代表实际和预期的通货膨胀率， $u$  代表失业率。预期通货膨胀率总是在上一年年底预先确定下来。

有两个政党：民主党和共和党。两个政党对如何评价宏观经济表现持有不同的看法。

具体的,给定不同预期通货膨胀率的短期菲利普斯曲线时,两个政党各自选择的失业率不同。如下表所示:

公众的预期通货膨胀率 (%)	民主党选择的失业率 (%)	共和党选择的失业率 (%)
3	2	4
4	3	5
5	4	6

假定今年年底——在人们形成对下一年的预期之后——将进行选举。民主党和共和党有相同的机会(各为50%)获胜,并在以后若干年执政。

(1) 根据菲利普斯曲线,这个经济的自然失业率是多少?

自然失业率为4%。

(2) 根据菲利普斯曲线,说出在不同预期通胀率下,民主党和共和党各自选择的通货膨胀率,以完成下表。相对而言,哪个政党更关心失业而非通胀?

公众的预期通货膨胀率 (%)	民主党选择的通胀率 (%)	共和党选择的通胀率 (%)
3	5	3
4	5	3
5	5	3

各自选择的通货膨胀率如表中红字所示。

民主党更关心失业而非通胀。

(3) 当人们的预期通货膨胀率分别是3%、4%和5%时,给定两个政党各自当选的机会,经济在下一年中平均来说得到的实际通胀率各是多少?由此你认为哪个预期通货膨胀率是理性预期?(提示:理性的预期通胀率是人们根据已有信息可以得出的最佳预期。)

不同预期通胀率下的实际通胀率均为4%。

理性的通货膨胀预期为4%。

(4) 假定人们选择了上述的理性预期。如果是民主党当选,在当选后第一年,经济当中的实际通货膨胀率与失业率各是多少?如果是共和党当选呢?

如果民主党当选,实际通胀率为5%,失业率为3%。如果共和党当选,实际通胀率为3%,失业率为5%。

(5) 在当选后第二年,人们重新调整了自己的理性预期。如果民主党当选,此时经济的通货膨胀率与失业率各是多少?如果是共和党当选呢?两党执政下的失业率会趋于一致吗?通货膨胀率呢?

对于民主党来说,通胀率5%,失业率4%;对于共和党来说,通胀率3%,失业率4%。失业率趋于一致;通胀率不趋向一致,民主党更高。

(论证:因为选举不确定性已消除,人们可以将预期通胀率调整为等于实际通胀率。这意味着预期通胀率必然等于两党在该预期下选择的实际通胀率。查上表即求得实际通胀率。而在预期通胀等于实际通胀时,失业率总是等于自然失业率。)

(6) 假设新当选的政府是民主党,而上一届政府也是民主党。描述在选举后第一、二年失业率的变化方向。民主党连续执政是否消除了失业率的波动?

第一年失业率下降(从4%到3%),第二年回升(从3%到4%)。

民主党连续执政的现实没有消除失业率的波动。(因为选举前的公众预期不依赖于实际的选举结果。)

(7) 如果经济当中有一个具有压倒优势的政党,使得人们预期它总能当选,而且它实际上总是当选。这时,经济的波动是否能够被消除?

是。

For Chapter 36

20. Textbook, Chapter 36, #3

3. a. If investors believe that capital taxes will remain low, then a reduction in capital taxes leads to increased investment.
- b. After the increase in investment has occurred, the government has an incentive to renege on its policy because it can get more tax revenue by increasing taxes on the higher income from the larger capital stock.
- c. Given the government's obvious incentive to renege on its promise, firms will be reluctant to increase investment when the government reduces tax rates. The government can increase the credibility of its tax change by somehow committing to low future tax rates. For example, it could write a law that guarantees low future tax rates for all capital income from investments made within the next year, or write a law penalizing itself if it raises future taxes.
- d. This situation is similar to the time-inconsistency problem facing monetary policymakers because the government's incentives change over time. In both cases, the policymaker has an incentive to tell people one thing, then to do another once people have made an economic decision. For example, in the case of monetary policy, policymakers could announce an intention to lower inflation (so firms and workers will enter labor contracts with lower nominal wages), and policymakers could increase inflation to reduce real wages and stimulate the economy.

21. Textbook, Chapter 36, #7

7. a. An increase in the budget deficit redistributes income from young to old, because future generations will have to pay higher taxes and will have a lower capital stock.
- b. More generous subsidies for education loans redistribute income from old to young, because future generations benefit from having higher human capital.
- c. Greater investments in highways and bridges redistribute income from old to young, because future generations benefit from having a higher level of public capital than otherwise.
- d. An increase in Social Security benefits redistributes income from young to old, because current workers fund the benefits of those retired.



22. Textbook, Chapter 36, # 10

10. a. A reduction in the tax rate on income from saving would most directly benefit wealthy people who have a greater amount of capital income. The rise in the tax rate on workers would harm individuals whose incomes come mainly from labor earnings.
- b. The increased incentive to save would reduce the interest rate, thus increasing investment, so the capital stock would be larger. As capital per worker rises, productivity would increase, as well as the real wage paid to workers.
- c. Thus, in the long run, everyone, not just the wealthy, can benefit from reducing the tax rate on income from savings. However, these benefits would be reduced by the level of taxes paid on earnings.

23. The time inconsistency of policy implies that:

- a. people will believe Fed policy will be more inflationary than the Fed claims.
- b. what policymakers say they will do is generally what they will do, but people don't believe them because of current policy.
- c. when people expect that inflation is low, it is harder for the Fed to increase output by increasing the money supply.
- d. None of the above are correct.

Answer: **a**