

SOLUTIONS TO TEXT PROBLEMS:

Quick Quizzes

1. Monetary and fiscal policies work with a lag. Monetary policy works with a lag because it affects spending for residential and business investment, but spending plans for such investment are often set in advance. Thus it takes time for changes in monetary policy, working through interest rates, to affect investment. Fiscal policy works with a lag because of the long political process that governs changes in spending and taxes.

These lags matter for the choice between active and passive policy because if the lags are long, policy must be set today for conditions far in the future, about which we can only guess. Since economic conditions may change between the time a policy is implemented and when it takes effect, policy changes may be destabilizing. Thus the lags favor policy that is passive rather than active.

2. There are many possible rules for monetary policy. One example is a rule that sets money growth at 3 percent per year. This rule might be better than discretionary policy because it prevents the political business cycle and the time inconsistency problem. It might be worse than discretionary policy because it would tie the Fed's hands when there are shocks to the economy. For example, in response to a stock market crash, the rule would prevent the Fed from easing monetary policy, even if it saw the economy slipping into recession.
3. The benefits of reducing inflation to zero include: (1) eliminating shoeleather costs; (2) eliminating menu costs; (3) reducing the variability of relative prices; (4) preventing unintended changes in tax liabilities due to nonindexation of the tax code; (5) eliminating the confusion and inconvenience resulting from a changing unit of account; and (6) preventing arbitrary redistribution of wealth associated with dollar-denominated debts. These benefits are all permanent. The costs of reducing inflation to zero are the high unemployment and low output needed to reduce inflation; these costs are temporary.
4. Reducing the budget deficit makes future generations better off because with lower debt today, future taxes will be lower; in addition, lower debt will reduce real interest rates, causing investment to increase, leading to a larger stock of capital in the future, which means higher future labor productivity and higher real wages. A fiscal policy that might improve the lives of future generations even more than reducing the budget deficit is increased spending on education, which will also increase incomes in the future.

5. Our society discourages saving in a number of ways: (1) taxing the return on interest income; (2) taxing some forms of capital twice; (3) taxing bequests; (4) having means tests for welfare and Medicaid; and (5) granting financial aid as a function of wealth. The drawback of eliminating these disincentives is that, in most cases [(1) to (3) and (5)], doing so would increase income for wealthy taxpayers and the lost income to the government would require higher taxes on everyone, so there would be a redistribution from rich to poor.

Questions for Review

1. The lags in the effect of monetary and fiscal policy on aggregate demand are caused by the fact that many households and firms set their spending plans in advance, so it takes time for changes in interest rates to alter the aggregate demand for goods and services. As a result, it is more difficult to engage in activist stabilization policy, because the economy will not respond immediately to policy changes.
2. A central banker might be motivated to cause a political business cycle by trying to influence the outcome of elections. A central banker who is sympathetic to the incumbent knows that if the economy is doing well at election time, the incumbent is likely to be reelected. So the central banker could stimulate the economy before the election. To prevent this, it might be desirable to have monetary policy set by rules, rather than discretion.
3. Credibility might affect the cost of reducing inflation because it influences how quickly the short-run Phillips curve adjusts. If the Fed announces a credible plan to reduce inflation, the short-run Phillips curve will shift down quickly and the cost of disinflation will be low. But if the plan is not credible, people will not adjust their expectations of inflation, the short-run Phillips curve will not shift, and the cost of disinflation will be high.
4. Some economists are against a target of zero inflation because they believe the costs of reaching zero inflation are large and the benefits are small.
5. Two ways in which a government budget deficit hurts a future worker are: (1) taxes on future workers are higher to pay off the government debt; and (2) because of crowding out, budget deficits lead to a reduction in the economy's capital stock, so future workers have lower incomes.
6. Two situations in which a budget deficit is justifiable are: (1) in wartime, so tax rates will not have to be increased so much that they lead to large deadweight losses; and (2) during a temporary downturn in economic activity, during which balancing the budget would force the government to increase taxes and cut spending, making the downturn even worse.

7. An example of how the government might hurt young generations while reducing the government debt they inherit occurs if the government reduces spending on education. Then the government debt will be smaller, so future generations will pay less in taxes. But they will also be less educated, so they will have less human capital and thus have lower incomes. So future generations might be worse off in this case.
8. The government can run a budget deficit forever because population and productivity continuously increase. Thus the economy's capacity to pay off its debt grows over time. So as long as the government debt grows slower than the economy's income, government deficits can continue forever.
9. Income from capital is taxed twice in the case of dividends on corporate stock. The income is taxed once by the corporate income tax and a second time by the individual income tax on dividend income.
10. Examples, other than tax policy, of how our society discourages saving include: (1) the fact that some government benefits, such as welfare and Medicaid, are means-tested, so people who save get reduced benefits; and (2) the fact that colleges and universities grant financial aid inversely to the wealth of students and their families, so people who save get less financial aid.
11. Tax incentives to raise saving may have the adverse effect of raising the government budget deficit, which reduces public saving. Thus national saving may not increase even though private saving rises.

Problems and Applications

1. a. Figure 1 illustrates the short-run effect of a fall in aggregate demand. The economy starts at point A on aggregate-demand curve AD_1 and short-run aggregate-supply curve $SRAS_1$. The decline in aggregate demand shifts the aggregate-demand curve from AD_1 to AD_2 and the economy moves to point B. Total output falls from Y_1 to Y_2 , so income and employment fall as well.

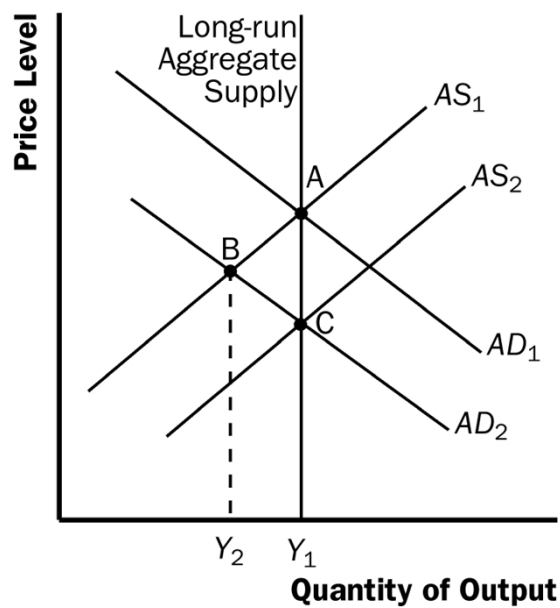


Figure 1

- b. With no policy changes, the economy restores itself gradually over time. The recession induces declines in wages, so the cost of production declines, and the short-run aggregate-supply curve shifts down to $SRAS_2$. The economy ends up at point C, with a lower price level, but with output back at Y_1 . However, this process may take years to complete.
 - c. If policymakers are passive, the economy restores itself, but very slowly. If policymakers shift aggregate demand to the right, they can get the economy back to long-run equilibrium much more quickly. However, due to lags and imperfect information, a policy to increase aggregate demand may be destabilizing.
 2. It is difficult for policymakers to choose the appropriate strength of their actions because of lags between when policy is changed and when it affects aggregate demand, as well as the difficulty in forecasting the economy's future condition. It is also difficult to anticipate how sensitive consumers and firms will be to the changes in policy.
 3.
 - a. If money demand rises, the interest rate increases for a given money supply, as shown in Figure 2. The rise in the interest rate from r_1 to r_2 reduces consumption and investment spending, shifting the aggregate-demand curve to the left from AD_1 to AD_2 . The result is a decline in output from Y_1 to Y_2 and a reduction of the price level from P_1 to P_2 .

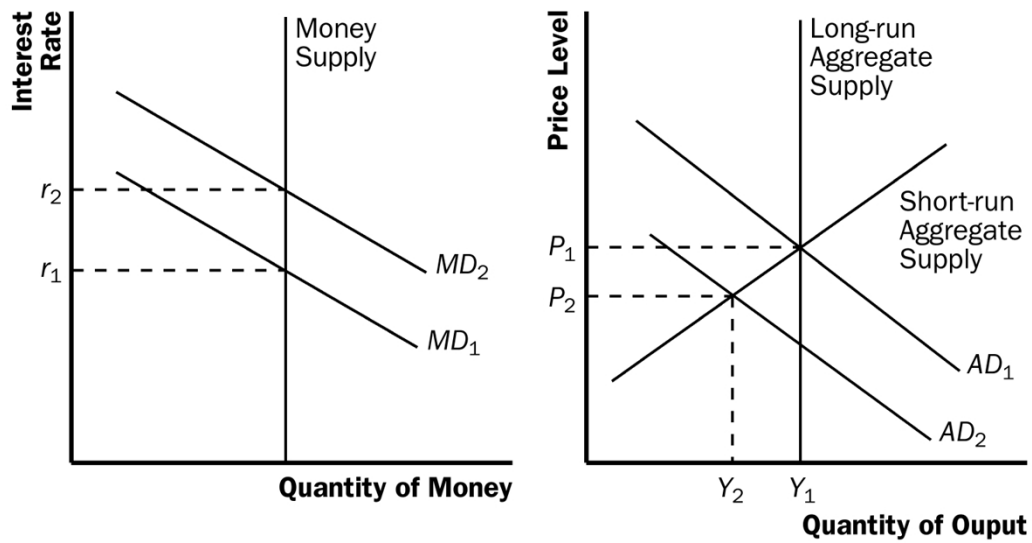


Figure 2

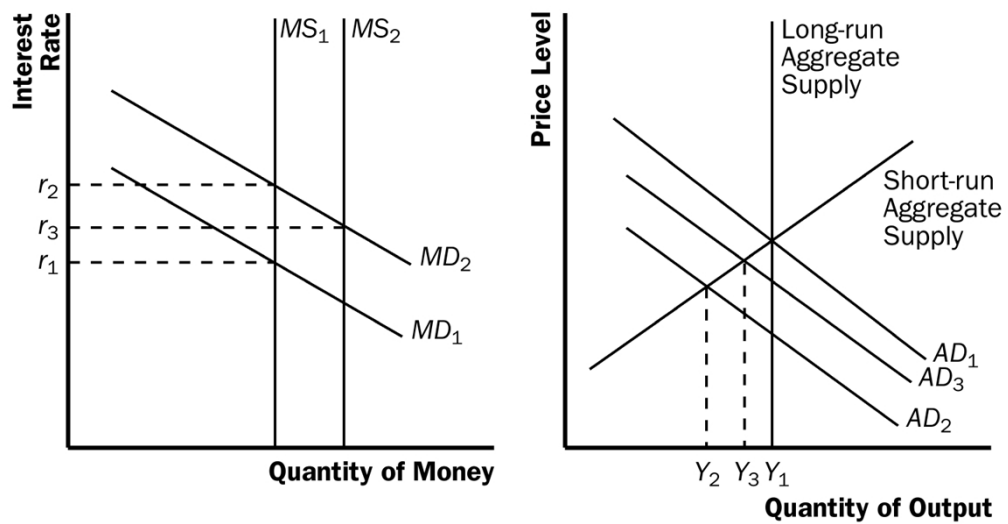


Figure 3

- b. If the Fed's rule responded to the unemployment rate, then the effects in part *a* would be modified, as shown in Figure 3. After output declines to Y_2 as in part *a*, which causes a rise in the unemployment rate, the Fed increases the money supply from MS_1 to MS_2 , thus reducing the interest rate from r_2 to r_3 . This stimulates consumption and investment spending, so the aggregate-demand curve shifts from AD_2 to AD_3 . The result is a rise in output from Y_2 to Y_3 .
- c. Having an element of feedback in the Fed's rule, as in part *b*, helps to stabilize the economy. If shocks to aggregate demand can be anticipated, as in the case of changes in fiscal policy, then it would help if the Fed's rule

responded to predicted unemployment instead of current unemployment, especially given the lags in the effects of policy. For example, suppose the government announced a cut in spending to occur in a year. Then forecasts of the economy would show rising unemployment in the future because of the reduction in aggregate demand. If the Fed's rule could respond to those forecasts, the money supply could increase today, so that interest rates would decline today, causing spending in the future to increase, offsetting the contractionary fiscal policy.

4. a. The logic behind this rule has 3 elements. First, the $2\% + \pi$ term means that in long-run equilibrium when $y = y^*$ and $\pi = \pi^*$, the real interest rate is 2 percent, since 2 percent is the difference between the nominal interest rate (r) and the inflation rate (π).

Second, when the term $y - y^*$ is *positive*, that would mean that aggregate demand and short-run aggregate supply intersect to the right of long-run aggregate supply, so the Fed should *tighten* monetary policy (raising r) to shift the aggregate-demand curve left. If $y - y^*$ is *negative*, that would mean that aggregate demand and short-run aggregate supply intersect to the left of long-run aggregate supply, so the Fed should *ease* monetary policy (reducing r) to shift the aggregate-demand curve right.

Third, when the term $\pi - \pi^*$ is *positive*, the inflation rate exceeds the Fed's goal, so it needs to *tighten* monetary policy (raising r) to move *down* the short-run Phillips curve to *reduce* inflation. When $\pi - \pi^*$ is *negative*, the inflation rate is below the Fed's goal, so it needs to *ease* monetary policy (reducing r) to move *up* the short-run Phillips curve to *increase* inflation.

- b. With actual values used in the rule, the rule is backward looking, which is a potential problem since policy works with lags—thus, the policy could be destabilizing. Using forecasts in the rule makes more sense because it avoids the lag problem, but forecasts may not be good enough for basing policy.
5. 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, then the policymakers could increase inflation to reduce real wages and stimulate the economy.
6. Issues about whether the costs of inflation are large or small are positive statements, as is the question about the size of the costs of reducing inflation. But the question of whether the Fed should reduce inflation to zero is a normative question.
7. The benefits of reducing inflation are permanent and the costs are temporary. Figure 4 illustrates this. The economy starts at point A. To reduce inflation, the Fed uses contractionary policy to move the economy down the short-run Phillips curve $SRPC_1$. Inflation declines and unemployment rises, so there are costs to reducing inflation. But the costs are only temporary, since the short-run Phillips curve eventually shifts down to $SRPC_2$, and the economy ends up at point B. Since inflation is lower at point B than at point A, and point B is on the long-run Phillips curve, the benefits of reducing inflation are permanent.

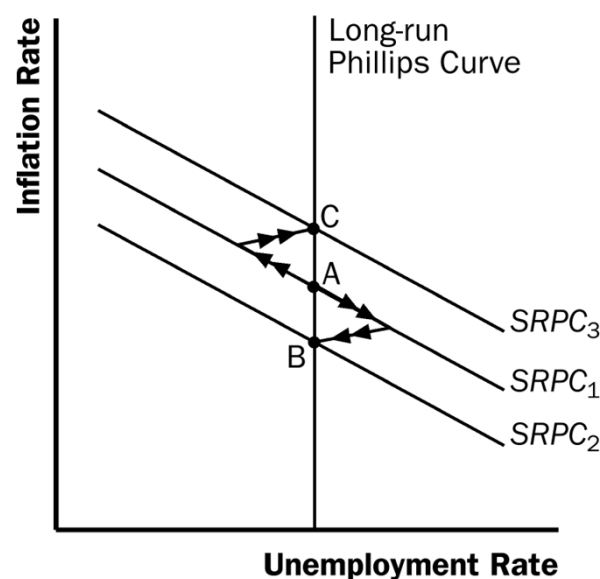


Figure 4

The costs of increasing inflation are permanent and the benefits are temporary for similar reasons. Again, suppose the economy starts at point A. To increase inflation, the Fed uses expansionary policy to move the economy up the short-run Phillips curve $SRPC_1$. Inflation rises and unemployment declines, so there are benefits to increasing inflation. But the benefits are only temporary, since the short-run Phillips curve eventually shifts up to $SRPC_3$, and the economy ends up at point C. Since inflation is higher at point C than at point A, and point C is on the long-run Phillips curve, the costs of increasing inflation are permanent.

8. If the budget deficit is 12 percent of GDP and nominal GDP is rising 7 percent each year, the ratio of government debt to GDP will rise until it hits a fairly high level. (That level turns out to be $\text{debt/income} = 12/7$, because at that point, a deficit that's 12 percent of GDP with GDP growing 7 percent maintains the debt/income ratio at exactly 12/7. To be sustainable, debt and GDP must grow at the same rate, 7 percent each year. If the deficit is 12 percent of GDP, which is growing 7 percent each year, the ratio of debt to GDP must be 12/7, so that the deficit can be both 12 percent of GDP and maintain a constant ratio of debt to GDP.) Such a high debt level is likely to require a big tax increase on future generations. To keep future generations from having to pay such high taxes, you could increase your savings today and leave a bequest to them.
9.
 - a. An increase in the budget deficit redistributes income from young to old, since 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, since future generations benefit from having higher human capital.
 - c. Greater investments in highways and bridges redistribute income from old to young, since future generations benefit from having a higher level of public capital than otherwise.
 - d. The indexation of Social Security benefits to inflation prevents income from being unintentionally redistributed from old to young, since older people get unchanged real benefits with indexation, but their benefits would decline over time without indexation.
10. People's opposition to budget deficits may be stronger in principle than in practice because people want the budget deficit to be lower, but they also don't want to cut government spending or to pay increased taxes.
11. In a recession, the government can use a budget deficit to increase aggregate demand, thus boosting income and output. But in the long run, budget deficits raise

interest rates, reducing investment, thus leading to a lower capital stock and reduced future income. An ideal fiscal policy would be one that allows budget deficits in the short run to combat recessions, but requires that the budget be balanced over time so that it does not have a detrimental effect on future income.

12. The fundamental tradeoff that society faces if it chooses to save more is that it will have to reduce its consumption. Thus, society can consume less today and save more if it wants higher future income and consumption. The choice is really one of consumption today versus consumption in the future.
13.
 - 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.
 - 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, would benefit from reducing the tax rate on income from savings.