Problem Set 6

Principles of Economics

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The Monetary System

1. While cleaning your apartment, you look under the sofa cushion and find a \$50 bill. You deposit the bill in your checking account. The Fed's reserve requirement is 20% of deposits. What is the maximum amount that the money supply could increase?
   (a) \$10
   (b) \$50
   (c) \$200
   (d) \$250

2. Chloe takes \$100 of currency from her wallet and deposits it in a checking account. If the bank adds the entire \$100 to reserves, the money supply ________________, but if the bank lends out some of the \$100, the money supply ________________.
   (a) increases; increases even more
   (b) increases; increases by less
   (c) is unchanged; increases
   (d) decreases; decreases by less

3. In a system of fractional-reserve banking, even without any action by the central bank, the money supply declines if households choose to hold ________________currency or if banks choose to hold ________________excess reserves.
   (a) more; more
   (b) more; less
   (c) less; more
   (d) less; less

4. Suppose an economy contains 2,000 \$1 bills. If people initially deposit half their currency as demand deposits while banks maintain 100% reserves, the maximum quantity of money would be ________________. If, however, people initially deposit half their currency as demand deposits while banks maintain 10% reserves, the maximum quantity of money is ________________.
   (a) \$2,000; \$10,000
   (b) \$1,000; \$10,000
   (c) \$1,000; \$11,000
   (d) \$2,000; \$11,000

5. If the Fed wanted to increase the money supply, it could
   (a) purchase government bonds.
   (b) increase the required reserve ratio.
   (c) increase the discount rate.
   (d) increase the interest rate on reserves.

6. Suppose a shift in the money supply caused the value of money to decrease from 1/4 to 1/5. As such, the price level in the economy
   (a) decreased 20%.
   (b) increased 25%.
   (c) increased 20%.
   (d) decreased 25%.

7. Which of the following is NOT a tool the Fed uses to influence the money supply?
   (a) Raise/lower taxes
   (b) Purchase/sell bonds
   (c) Pay interest on reserves
   (d) Set reserve requirements
   (e) None of the above

8. The M1 money supply is composed of
   (a) currency, demand deposits, traveler's checks, and other checkable accounts.
   (b) currency, demand deposits, savings deposits, money market mutual funds, and small time deposits.
   (c) currency, government bonds, gold certificates, and coins.
   (d) currency, NOW accounts, savings accounts, and government bonds.
   (e) none of the above.

9. Required reserves of banks are a fixed percentage of their
   (a) loans.
   (b) assets.
   (c) deposits.
   (d) government bonds.

10. Which of the following Fed actions is likely to increase the money supply?
   (a) Reducing reserve requirements.
   (b) Selling government bonds.
   (c) Increasing the discount rate.
   (d) All of these will increase the money supply.

11. Suppose Joe changes his $1,000 demand deposit from Bank A to Bank B. If the reserve requirement is 10%, what is the potential change in demand deposits as a result of his actions?
    (a) $1,000
    (b) $10,000
    (c) $0
    (d) $9,000
12. If the Fed engages in an open-market purchase while simultaneously raising reserve requirements,
    (a) the money supply should rise.
    (b) the money supply should fall.
    (c) the money supply should remain unchanged.
    (d) we cannot be certain what will happen to the money supply.
13. Suppose the Fed purchases a $1,000 government bond from you. If you deposit the entire $1,000 in your bank, what is the total potential change in the money supply if reserve requirements are 20%?
    (a) $1,000
    (b) $4,000
    (c) $5,000
    (d) $0
14. Which of the following is not a function of money?
    (a) Unit of account.
    (b) Store of value.
    (c) Hedge against inflation.
    (d) Medium of exchange.
15. The discount rate is
    (a) the interest rate the Fed pays on reserves.
    (b) the interest rate the Fed charges on loans to banks.
    (c) the interest rate banks pay on the public's deposits.
    (d) the interest rate the public pays when borrowing from banks.

Money Growth and Inflation

1. An economy produces one good – rice. The economy has enough labor, capital, and land to produce 800 bags. The money supply in this economy is $2,000 and rice sells for $5/bag. The nominal GDP in the economy is ________________and the velocity of money is ________________.
    (a) $4,000; 2
    (b) $2,000; 2
    (c) $4,000; 1
    (d) $2,000; 1

2. According to the quantity theory of money and the Fisher effect, if the central bank increases the rate of money growth
   (a) inflation and the nominal rate will both increase.
   (b) inflation and the real interest rate both increase.
   (c) the nominal interest rate and the real interest rate both increase.
   (d) inflation, the real interest rate, and the nominal interest rate all increase.

3. Suppose the interest rate on a home mortgage was set with the expectation that the price level would decrease by 3%. If through the course of the loan, the price level actually did not change, who was hurt most?
   (a) The mortgage holder
   (b) The bank
   (c) Neither was hurt
   (d) Both were hurt equally

4. You put money in an account that advertises a 5% interest rate. The inflation rate is 3%, and the tax rate on your returns is 20%. Your after-tax nominal rate of interest is ________________and your after-tax real rate of interest is ________________.
   (a) 1%; 2%
   (b) 1%; .8%
   (c) 4%; 1%
   (d) 4%; .8%

5. According to the quantity theory of money, an increase in the money supply will cause the price level to
   (a) remain relatively constant since money is neutral.
   (b) increase by the same percentage as the money supply.
   (c) increase by a greater percentage than the money supply.
   (d) increase by a smaller percentage than the money supply.

6. Suppose a shift in the money supply caused the value of money to decrease from 1/4 to 1/5. As such, the price level in the economy
   (a) decreased 20%.
   (b) increased 25%.
   (c) increased 20%.
   (d) decreased 25%.

7. Which of the following is NOT a cost of inflation?
   (a) Shoeleather costs
   (b) Relative-price stability
   (c) Arbitrary redistribution of wealth
   (d) Menu costs

8. Consider Figure 1, which shows the market for money in Portlandia. P is the overall price level in the economy.

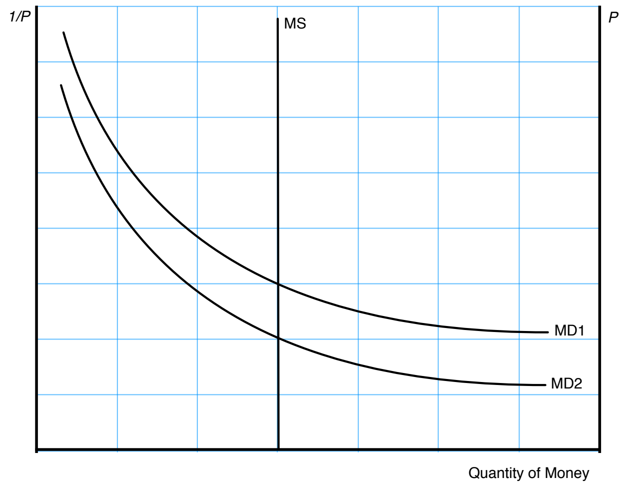

Figure 1: The Money Market

If the demand for money shifts from MD1 to MD2, then we can say that

(a) the value of money will increase, while the price level will decrease.

(b) the value of money and the price level will both increase.

(c) the value of money will decrease, while the price level will increase.

(d) the value of money and the price level will both decrease.

9. Unexpected deflation will

(a) lower the real value of debts and redistribute wealth from lenders to borrowers.

(b) lower the real value of debts and redistribute wealth from borrowers to lenders.

(c) raise the real value of debts and redistribute wealth from lenders to borrowers.

(d) raise the real value of debts and redistribute wealth from borrowers to lenders.

10. An example of a real variable is

(a) the nominal interest rate.

(b) the ratio of the value of wages to the price of soda.

(c) the price of corn.

(d) the dollar wage.

(e) none of the above.

11. Velocity is

(a) the annual rate of turnover of the money supply.

(b) the annual rate of turnover of output.

(c) the annual rate of turnover of business inventories.

(d) impossible to measure.

12. If actual inflation turns out to be greater than people had expected, then
    (a) wealth was redistributed from borrowers to lenders.
    (b) wealth was redistributed from lenders to borrowers.
    (c) no redistribution occurred.
    (d) the real interest rate is unaffected.

13. If the real interest rate is 4%, the inflation rate is 6%, and the tax rate is 20%, what is the after-tax real interest rate?
    (a) 1%
    (b) 2%
    (c) 3%
    (d) 4%
    (e) 5%

14. Which of the following is true about a situation where real incomes are rising at 3% per year?
    (a) If inflation were 5%, people should receive raises of about 8% per year.
    (b) If inflation were 0%, people should receive raises of about 3%.
    (c) If money were neutral, an increase in the money supply will not alter the rate of growth of real income.
    (d) All of the above are true.
    (e) None of the above are true.

15. Suppose that this year's money supply is $500 billion, nominal GDP is $10 trillion, and the real GDP is $5 trillion.
    (a) What is the price level? What is the velocity of money?
    (b) Suppose that velocity is constant and the economy's output of goods and services rises by 5% each year. What will happen to nominal GDP and the price level next year if the Fed keeps the money supply constant?
    (c) What money supply should the Fed set next year if it wants to keep the price level stable?
    (d) What money supply should the Fed set next year if it wants an inflation of 10%?

AS-AD Model

1. When the economy goes into a recession, real GDP ________________and unemployment ________________.
    (a) rises; rises
    (b) rises; falls
    (c) falls; rises
    (d) falls; falls

2. A change in the expected price level shifts
   (a) the AD curve.
   (b) the short-run AS curve, but not the long-run AS curve.
   (c) the long-run AS curve, but not the short-run AS curve.
   (d) both the short-run and the long-run AS curve.

3. An increase in the AD for goods and services has a larger impact on output ________________and a larger impact on the price level ________________.
   (a) in the short run; in the long run
   (b) in the long run; in the short run
   (c) in the short run; also in the short run
   (d) in the long run; also in the long run

4. If inflation is greater than expected inflation,
   (a) firms' profits will increase.
   (b) money growth will cause the aggregate demand curve to shift.
   (c) firms' profits will decrease.
   (d) there will be no change in real GDP growth in the short run.

5. Sticky wages and prices
   (a) reduce the impact of negative shocks.
   (b) increase the impact of positive shocks.
   (c) have no effect on the impact of negative shocks.
   (d) offset the impacts of positive shocks.

6. Which of the following causes the aggregate demand curve to shift left?
   (i) Increased taxes
   (ii) Increased consumer confidence
   (iii) Increased import growth
   (a) i and ii only
   (b) ii and iii only
   (c) i and iii only
   (d) i, ii, and iii

7. Which of the following is an example of a negative shock to an economy?
   (a) A decrease in oil prices
   (b) Tax cuts
   (c) New technology
   (d) Terrorist attacks

8. Sticky wages and prices
    (a) reduce the short-run impact of negative shocks.
    (b) increase the short-run impact of positive shocks.
    (c) have no effect on the short-run impact of negative shocks.
    (d) offset the short-run impacts of positive shocks.
9. A real shock causes
    (a) a shift of the aggregate demand curve.
    (b) a shift of the aggregate demand and the long-run aggregate supply curve.
    (c) a shift of the long-run aggregate supply curve.
    (d) a movement along the long-run aggregate supply curve.
    (e) none of the above.
10. Beginning in equilibrium in an AS-AD model, an unexpected increase in money supply growth will cause
    (a) inflation and real growth to increase in the short run.
    (b) inflation to increase and real growth to decrease in the short run.
    (c) inflation to increase and real growth to remain unchanged in the short run.
    (d) inflation and real growth to remain unchanged.
11. If the growth rate of money is 3% and the growth rate of velocity is 1%, the growth rate of nominal GDP is
    (a) 4%.
    (b) 1%
    (c) 0%.
    (d) 2%.
12. In the AS-AD model, changes in the growth rate of C, I, G, and NX are reflected in changes in
    (a) money supply.
    (b) money velocity.
    (c) price levels.
    (d) all of the above.
13. Other things held constant, an increase in the velocity of money will cause the aggregate demand to
    (a) shift right.
    (b) shift left.
    (c) not shift at all.
    (d) shift randomly.

14. Which of the following shocks could shift the long-run aggregate supply curve?
    (a) A productivity shock.
    (b) A negative supply shock.
    (c) A real shock.
    (d) All of the above.

15. Use Figure 2 to answer the questions that follow. Assume that firms are changing the price of final goods at the same rate as inflation.

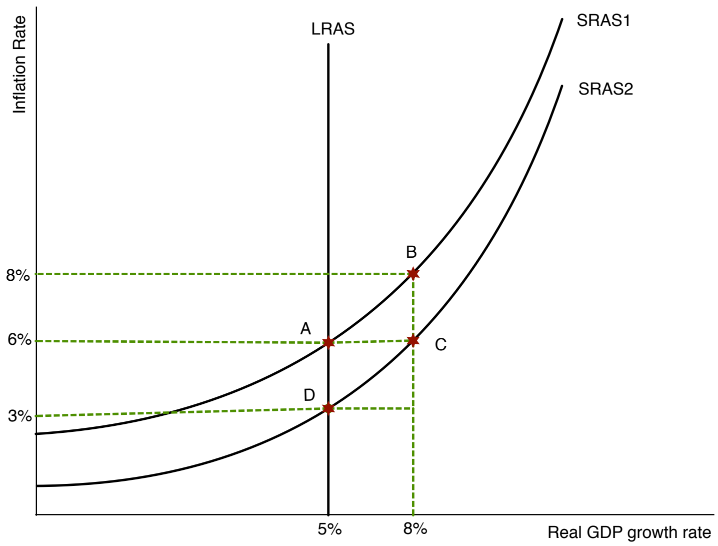

Figure 2: SRAS

    (a) If nominal wages are growing at 3% annually, then at point D how fast are real wages growing?
    (b) If nominal wages are growing at 3% annually, then at point C how fast are real wages growing?
    (c) If nominal wages are growing at a constant rate, what happens to firm profits between points D and C? How will the change in profits affect the growth rate of output?
    (d) Assume we are at point C, and workers are at the point where they can renegotiate wages. In order to maintain the same standard of living that they had at point D, what wage growth rate will they negotiate?
    (e) Will the economy remain at point C? Why or why not? If the point does change, what will the new point be?

Monetary & Fiscal Policy

1. Imagine that a government starts out with a budget surplus. If in the next period the government temporarily runs a budget deficit, what would you expect to happen to aggregate demand?
    (a) AD would increase.
    (b) AD would lie at the natural growth of output.
    (c) AD would be unchanged.
    (d) AD would decrease.

2. If the central bank wants to expand aggregate demand, it can ________________the money supply, which would ________________the interest rate.
    (a) increase; increase
    (b) increase; decrease
    (c) decrease; increase
    (d) decrease; decrease

3. Which of the following is an example of an automatic stabilizer? When the economy goes into a recession,
    (a) more people become eligible for unemployment insurance benefits.
    (b) stock prices decline, particularly for firms in cyclical industries.
    (c) Congress begins hearings about a possible stimulus package.
    (d) the Fed changes its target for the federal funds rate.

4. When consumers are very reluctant to spend in a recessionary environment, the government's most effective strategy is to
    (a) increase spending through bond financing.
    (b) decrease income taxes.
    (c) decrease corporate taxes.
    (d) do nothing - the economy will self-correct in the short run.

5. If the government wants to contract aggregate demand, it can ________________government purchases or ________________taxes.
    (a) increase; increase
    (b) increase; decrease
    (c) decrease; increase
    (d) decrease; decrease

6. Suppose that a permanent decrease in investment spending causes a recession. If the Fed wishes to counteract this change in aggregate demand in order to get the economy back to its initial real GDP growth rate, it could

    (a) sell bonds.

    (b) increase the interest rate on reserves.

    (c) lower the discount rate.

    (d) increase reserve requirements.

    (e) None of the above achieves this goal.

7. Consider Figure 3.

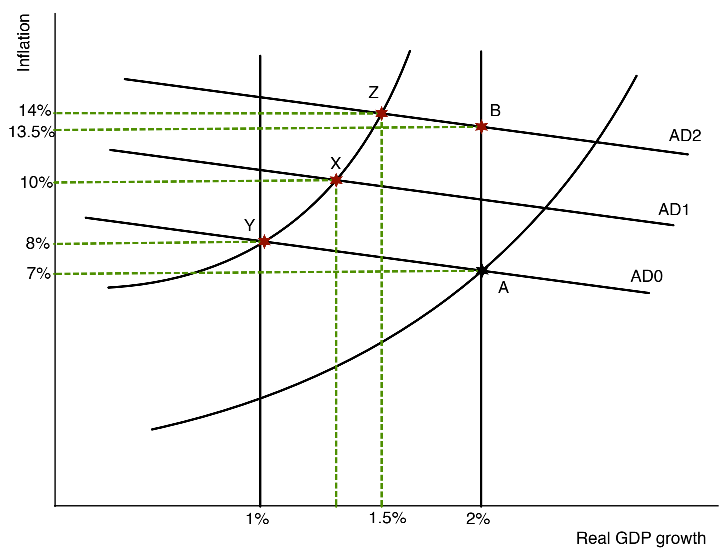

Figure 3: Real Shock

If after a real shock the economy is operating at point Y, then, in the absence of crowding out, fiscal policy that shifted $AD0$ to $AD2$ would move the economy to point

    (a) A

    (b) B

    (c) Z

    (d) X

8. Which of the following poses a limit to fiscal policy?

    (a) Crowding out

    (b) Size of government expenditures.

    (c) Timing lags.

    (d) All of the above.

9. For questions 10-11, refer to Figure 4. Suppose an economy is operating at point G and assume this position came about through a permanent demand side shock.

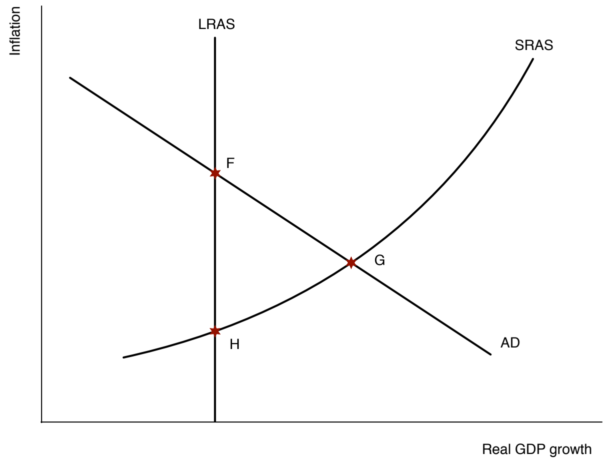

Figure 4: AS-AD Model

10. At point G, actual inflation is ________________than expected inflation, and real GDP growth is ________________the natural rate.
    (a) less; above
    (b) less; below
    (c) greater; below
    (d) greater; above

11. In the absence of monetary or fiscal policy, as the economy transitions to its long-run equilibrium,
    (a) expected inflation will increase and real GDP growth will increase.
    (b) expected inflation will decrease and real GDP growth will increase.
    (c) expected inflation will increase and real GDP growth will decrease.
    (d) expected inflation will decrease and real GDP growth will decrease.

12. Expansionary fiscal policy can reduce real growth if the increase in government spending
    (a) causes a large enough increase in private spending.
    (b) causes a large enough decrease in private spending.
    (c) is believed to be temporary.
    (d) is believed to be permanent.

13. Fiscal policies that help an economy in a recession without additional actions by policy makers are called
    (a) consumption smoothers.
    (b) Ricardian equalizers.
    (c) automatic equalizers.
    (d) all of the above.

14. When expansionary fiscal policy increases income and consumer spending, the subsequent increase in aggregate demand is called the ______________ effect.
    (a) expansionary
    (b) secondary
    (c) multiplier
    (d) None of the above

15. Suppose that an economy has a natural growth rate of 2%. Moreover, the central bank in the country has perfect control over the money supply and increases it by 4% every year. Assume spending is such that the velocity of money is constant over time and that the economy is currently at its long-run equilibrium.
    (a) Draw a clearly labeled dynamic AS-AD diagram that shows the long-run equilibrium point, as well as the economy's current growth rate of real GDP, inflation, and expected inflation. Label this point E_0. Be sure to include both the short-run and long-run aggregate supply curves.
    (b) Now, suppose that the stock market declines sharply, reducing consumers' wealth. As a result, consumers spend at a rate that is 4% lower than before. Assume this change is permanent. Does this affect aggregate demand, short-run aggregate supply, or long-run aggregate supply? Explain why.
    (c) Show this change graphically. Assume that neither the central bank nor the federal government enact any policies to counteract this change. Label the short-run equilibrium point A and the long-run equilibrium point E_1. What is the inflation rate in the short run if this change in consumer spending caused real GDP growth to decrease to -1%? What will be the long-run real GDP growth rate and inflation rate?
    (d) Explain why the short-run growth rate of output is different from the long-run growth rate of output. What causes the economy to move from point A to point E_1?
    (e) Suppose the central bank decides to intervene while the economy is at point A in order to get the economy back to point E_0. Regardless of the policy pursued, show how this policy would be reflected graphically. Specify what the growth rate of the money supply must be in order for this policy to achieve its goal.