Problem Set 4

14.02 Fall 2001

1   True or false, explain (3 pts. each)

1. If the dollar is more expensive, Americans are happy because they own dollars and its good to own expensive things.

2. If we know that the Yen is going to be weaker in the future, we should anticipate our car purchases.

3. If a Colombian coffee producer owes us money, we are better off if the dollar becomes stronger and the Colombian Peso weaker.

4. If we expect the euro to suffer a discrete depreciation and then stabilize at a certain value, we expect the European interest rates to be higher than in the US now and lower than in the US after the depreciation.

5. Interest rate differences between Luxembourg and Belgium are explained by expected exchange rate movements.

6. If Argentina devalues its currency (and people expect this to happen), investment should expand.

7. If Chile revalues its currency (and people did not expect this to happen and hence start expecting it to reverse), money demand should fall.

8. If we are an American exporter and a Danish customer pays us with foreign stock, we are contributing to net capital flows. If he had paid with dollars it would not have had an effect on the capital account.

9. If an American mutual fund sells some of its German bonds in Frankfurt, it is contributing to net foreign holdings. If it sells it in New York, it is not.

10. In a world of open financial markets, where capitals move from country to country seeking better returns, interest rates have to be the same in all countries reflecting the fact that, if not, capitals will move to the country with the highest interest rates.

2 Monetary Questions (3 pts. each)

Consider a closed economy with prices fixed at 1. The behavior of demand can be described in the following way: consumption and investment demand depend on output and the interest rate according to:

$$C = c_0 + c_1 Y$$

$$I = \overline{I} - ki$$

and government demand is exogenous. Money demand is given by:

$$M^d = PYL(i)$$

There is a central bank in this economy that issues currency according to a rule where high powered money is reduced when income increases:

$$H = \overline{H} - hY$$

the Central Bank also sets the minimum reserve ratio at $\overline{\theta}$. At some very low interest rates, however, private banks find it in their interest to have a higher reserve ratio than $\overline{\theta}$, so that

$$\theta = \begin{cases} \overline{\theta} + \phi(\overline{i} - i) \text{ if } i \leq \overline{i} \\ \overline{\theta} \qquad \text{ if } i > \overline{i} \end{cases}$$

In this economy, private banks pay interest to depositors, assume that this rate is so close to the federal funds rate that we can consider them to be the same, that is, we can consider the spread to be very close to zero. Households decide the proportion of money that they will hold in their pockets according to:

$$c = \overline{c} - \underline{c}i$$

1. Explain why banks modify θ when the interest rate changes.

2. Explain why households modify c when the interest rate changes. Do you think there is any reason for c to depend on Y as well?

3. What happens to the money multiplier when interest rates go up? Explain.

4. Show the equations and graphs of equilibrium in the money market. Show the equilibrium in the high powered money market.

5. Is fiscal policy more or less effective in expanding output with $\phi>0$ or $\phi=0$. Why? Explain with graphs and equations.

6. Is fiscal policy more or less effective in expanding output with $\underline{c}>0$ or $\underline{c}=0$? Why? Explain with graphs and equations.

7. Is fiscal policy more or less effective in expanding output with $h>0$ or $h=0$. Why? Explain with graphs and equations.

8. Assume $\phi=0$, $\underline{c}=0$ and $h>0$. This economy is regularly subject to investment shocks, investors vary their enthusiasm from a "bullish" to a "bearish" mood and back. Sometimes $\overline{I}$ increases, sometimes it falls. Does $h>0$ make the economy more or less stable in terms of output?

9. Suppose that this economy has lending booms and busts. Sometimes banks are more or less willing to take the risks involved in creating money. Sometimes θ rises, sometimes it falls. Does $h>0$ make the economy more or less stable in terms of output?

10. Is there any rationale for having stabilization mechanisms like h? Isn't it supposed to be a good thing to let output expand as much as it can whenever it is possible? Develop an argument.

3   Fiscal Questions (3 pts. each)

Consider the same economy as in part 2, only $\phi=0$ and $h=0$. Also assume that government demand is given by

$$G = \overline{G} - gY$$

also assume that the government implements a subsidy to investment that depends on the output level, such that the demand for investment is given by

$$I = \overline{I} - ki + \overline{S} - sY$$

1. Explain how the innovations in the behavior of government demand affects the multiplier. Also explain how the policy towards investment affects the multiplier. Can you give any intuition?

2. Assume $g=0$ and $s>0$. This economy is regularly subject to investment shocks, investors vary their enthusiasm from a "bullish" to a "bearish" mood and back. Sometimes $\overline{I}$ increases, sometimes it falls. Does $s>0$ make the economy more or less stable in terms of output?

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4 Dynamic Questions (8 pts. each)

Consider a standard IS-LM economy where output adjusts slowly and interest rates adjust instantaneously. Answer the following questions using graphical, algebraic or intuitive arguments as you see fit:

1. What characterizes the money demand of an economy that has a infinitely elastic LM curve? Prove with simple algebra.

2. If bonds become close substitutes for money, what will happen to the LM? Will its slope change?

3. In an economy with an infinitely elastic LM curve, the interest rate is always the same, even when the government undertakes an expansive fiscal policy. True or false? Explain.

5 Hard Part (1 pt. each)

1. Write the TA's name and section time on the PS, be nice.