14.02 Principles of Macroeconomics

Problem Set # 2, Questions

Posted during Week # 3, due on the last day of Week # 4. You must staple a a copy of this frontpage on your problem set. Remember to write down your TAs section name and recitation time and your name.

Name: ____

TA: ____

(Table is for corrector use only)

	1	2	3	4	5	Total
Part I						
Part II (1-5)						
Part II (6-10)						
Part II (11-15)						
Grand Total						

Part I: True, False Questions. Decide whether each statement is true or false and justify your answer with a short argument. (5 points each, 25 points total)

1. If taxes are set proportional to income, $T = tY$, and $t > 0$, then the multiplier is larger.
2. A fiscal contraction must decrease consumption, output and investment.
3. A monetary expansion coupled with a fiscal expansion causes both output and the interest rate to raise for sure.
4. The introduction of ATMs could have positive effect on the GDP.
5. The Fed can off-set a fiscal expansion by open market transactions.

Part II. National Accounts. (5 points each, 75 points total)

Consider the following Good Market model in a **closed** economy, where we modify the linear form of the consumption and investment:

$$C = c_0 + c_1 Y_d - c_2 r + c_3 W \quad (1)$$

$$I = b_0 + b_1 Y - b_2 r \quad (2)$$

$$W = M + B \quad (3)$$

Where: Y- GDP, C- consumption, G- government spending, Y^d – disposal income, r- interest rate, W- net wealth, I- investment, B- bonds. Assume Taxes $= tY + T$.

1. Interpret the parameters in the equations above.
2. What are the endogenous and exogenous variables in the above model?
3. Solve for the equilibrium output in the goods market. Represent equilibrium in the Z-Y space.
4. Plot and show the slope of the IS curve in the r-Y space.
5. How does the slope depend on the parameters? Give an economic interpretation.
6. What is the effect on output and consumption of a fiscal expansion financed by a similar increase in the per capita taxes: $\Delta G=\Delta T$. Does the budget deficit BD=G-Taxes, change in any particular way?

7. What is the effect on output and consumption of a fiscal expansion financed by borrowing from the domestic public: $\Delta G = \Delta B$. Does the budget deficit BD=G-Taxes, change in any particular way?

Now assume that the money demand and supply are the following (here P=1):

(4)
$$M^d = m_0 + m_1 Y - m_2 r + m_3 W$$

(5)
$$M^s = M^d$$

8. What is the equilibrium condition? Represent equilibrium in the r-M space.
9. Interpret the parameters in equation (4).
10. Plot and show the slope of the LM curve in the r-Y space.
11. How does the slope depend on m_1? on m_2? Give an economic interpretation.
12. Solve for both the LM and IS equation and find the equilibrium output.

Now assume that the economy **opens** to international trade. Assume that exports are exogenous (X= $\bar{X}$) and imports (Im) behave according to the following equation.

(6)
$$\mathrm{Im} = v_0 + v_1 Y$$

13. Interpret equation (6). Has anything changed regarding exogenous and endogenous variables?
14. Draw NX=X-Im in the NX-Y space.
15. Also discuss what happens to the slope of the IS relative to the closed economy case of question II.4