14.02 Principles of Macroeconomics, Spring 2000
2 pages

Problem Set 3
Answers

Question 1

a) False. The difference between GNP and NNP is the depreciation of capital (capital consumption allowance).

b) False. GNP= labor income + capital income + *indirect taxes*.

c) True. Higher consumer confidence increases aggregate demand for output at any given level of i. It shifts the IS curve to the right just as a reduction in taxes or an increase in G would.

d) False. If the new equilibrium is a result of the shift of the IS curve to the right then higher output is associated with a higher interest rate. However, if the new equilibrium is the result of a shift of the LM curve to the right then the higher output is accompanied by a lower interest rate.

e) True. An increase in exports shifts the IS curve to the right. This results in a higher interest rate in equilibrium.

f) False. A monetary expansion shifts the LM curve down / to the right.

Question 2

a) Equilibrium in the goods market: $Y = C + G + I + X - Q \Rightarrow$ IS:

$$Y = \frac{c_0 - c_1 T + G + b_0 + X}{1 - c_1 + q} - \frac{b_1}{1 - c_1 + q} i$$

b) Equilibrium in financial markets: $(M/P)^d = (M/P)^s \quad \Rightarrow$ LM:

$$Y = \frac{\bar{M}}{m_0} + \frac{m_1}{m_0} i$$

c) General equilibrium: IS-LM intersect so:

$$i = \frac{m_0 \left(c_0 - c_1 T + G + b_0 + X\right) - \left(1 - c_1 + q\right) \bar{M}}{m_1 \left(1 - c_1 + q\right) + m_0 b_1}$$

$$Y = \frac{\bar{M}}{m_0} + \frac{m_1}{m_0} * \frac{m_0 \left(c_0 - c_1 T + G + b_0 + X\right) - \left(1 - c_1 + q\right) \bar{M}}{m_1 \left(1 - c_1 + q\right) + m_0 b_1}$$

d) IS: $Y = 900 - 30i$. LM: $Y = 400 + 20i$. General equilibrium: $i = 10$, $Y = 600$.

e) LM curve shifts down. New LM: $Y = 500 + 20i$

f) Use IS from (d), LM from (e). Get: $i = 8$, $Y = 660$.

g) IS curve shifts to the right. New IS: $Y = 1000 - 30i$.

h) Use IS from (g), LM from (d). Get: $i = 12$, $Y = 640$.

Comment: Compare the results in parts (f), (h) to the True/False question (d).

Question 3

a) Money market equilibrium: $(M/P)^d = (M/P)^s \Rightarrow 0.5Y - 10i = 200/P \Rightarrow i = 0.05Y - 20/P$. Holding Y, M constant, when prices go up real money supply (M/P) goes down and i goes up.

b) AD: $Y = 360 + 240/P$. When prices increase, Y falls (we move along the AD curve).