

**Problem Set 4** (corrected)

Due *in lecture* on Monday, December 6th. Be sure to put your name on your problem set. Put “boxes” around your answers to the algebraic questions.

1. Chapter 11, Numerical Problem #4.
2. Chapter 11, Analytical Problem #3a.,b.
3. Suppose you are given the real side of an open economy as:

$$Y = AD$$

$$AD \equiv C + I + G + X$$

$$C = a_0 + bY_d$$

$$Y_d \equiv Y - T + F$$

$$T = TA_0$$

$$F = FT_0 - \psi Y$$

$$I = e_0 - dR$$

$$G = GO_0$$

$$X = g_0 - mY + m_w Y_{w,0} - n \left( \frac{EP}{P_w} \right)$$

$$\left( \frac{EP}{P_w} \right) = q_0 + \nu R$$

Where the LM curve is given by  $R = \left( \frac{\mu_0}{h} \right) - \left( \frac{1}{h} \right) \left( \frac{M_0}{P_0} \right) + \left( \frac{k}{h} \right) Y$

Where  $Y_{w,0}$  is the initial exogenous level of rest-of-world output.

- 3.1. Solve for the open economy IS curve (Y as a function of R).
- 3.2. Solve for equilibrium income.
- 3.3 Using total differentials, show the impact on income of a decline in autonomous consumption on income. What is the economic intuition for this result?
- 3.4. Using the LM curve, solve for the change in interest rates.
- 3.4 Consider the quasi-reduced form expression for the trade balance (net exports):  

$$X = g_0 - mY + m_w Y_{w,0} - nq_0 - \nu R$$
 Calculate the impact on net exports arising from the autonomous consumption decline.
4. Using the answer to 3.2,
  - 4.1 Show, algebraically, the impact of an increase in the real money supply on the interest rate.
  - 4.2 Show, algebraically, the impact on the real exchange rate.

4.3 Once again, consider the quasi-reduced form expression for the trade balance (net exports):

$$X = g_0 - mY + m_w Y_{w,0} - nq_0 - nvR$$

Can you tell whether X increases or decreases?

5. Consider the overshooting model described at the end of the open economy macro handout.

5.1 Suppose the rate of reversion to purchasing power parity,  $\Theta$ , becomes infinite. What happens to the price level, the exchange rate and interest rate when the money supply in the U.S. is increased by 10%. Use the time line graph to illustrate your answer.

5.2 What is this rate of reversion coefficient dependent upon?

5.3 Does purchasing power parity hold in this world?

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