

Foreign Trade and the Exchange Rate

Additional Homework Problems

ECON 3133

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1. Consider a macro model consisting of the following relationships:

$$Y = C + I + G + (X - IM)$$

$$C = 220 + 0.63 \times Y$$

$$I = 400 - 2,000 \times R + 0.1 \times Y$$

$$M^S = (0.1583 \times Y - 1,000 \times R) \times P$$

$$(X - IM) = 600 - 0.1 \times Y - 100 \times E \times P / P_w$$

$$E \times P / P_w = 0.75 + 5 \times R$$

where government spending, G , equals 1,200 and the money supply, M^S , equals 900.

Suppose that the ROW price level, P_w , is always equal to 1.0 and that the U.S. price level, P , is predetermined at 1.0.

- Which are the endogenous variables and which are the exogenous variables in this relationship?
 - Find the values of Y , R , C , I , $(X - IM)$, and E that are predicted by the model.
 - Derive an algebraic expression for the aggregate demand curve in which the money supply, M^S , government spending, G , and price level, P , explicitly appear. For $M^S = 900$ and $G = 1,200$ draw the aggregate demand curve accurately to scale.
 - Keeping the price level, P , at 1.0, calculate the effect a decrease in government spending of \$10 billion will have on output, the interest rate, consumption, investment, net exports, and the exchange rate. Do the same thing for an increase in the money supply of \$20 billion.
2. Using the same numerical example as in Problem 1, calculate private saving, the government budget surplus, and the capital inflow from abroad for the case where $G = 1,200$, $M^S = 900$ and the tax rate, t , equals 0.3. Show that the sum of these three equals investment. Repeat your calculation for $G = 1,190$ and $M^S = 900$ and for $G = 1,200$ and $M^S = 920$. Comment on what happens to the three components of saving.
3. On any given day, interest rates will differ from country to country. For example, U.S. government securities may pay 10 percent interest while comparable Japanese securities are paying 5 percent interest.
- If Japanese investors can purchase U.S. securities, why would any of them purchase Japanese securities when they could earn a higher interest rate on U.S. securities? Be specific.
 - Is it likely that any American investors would want to purchase Japanese securities?
 - Suppose that PPP holds exactly, that interest rates in the U.S. and Japan are 10 percent and 5 percent respectively, and that U.S. inflation rate is 5 percent. If international investors are to be indifferent between purchasing U.S. and Japanese securities, what must the Japanese inflation rate be?

4. Suppose that output is initially at its potential but that the trade deficit is thought to be too large and the dollar is overvalued. Describe a change in monetary and fiscal policy that will keep output at its potential, but will lower both the trade deficit and the value of the dollar. Briefly explain. Use an IS-LM graph to support your answer.