14.02 Principles of Macroeconomics
Problem Set 3
Fall 2004

Posted: Wednesday, October 13, 2004
Due in class: Wednesday, October 20, 2004

Part I. True/False/Uncertain
Justify your answer with a short argument.

1. Suppose interest rates for a one-period deposit are 5% in the US (the home country) and 2% in Canada. Assume that the risk premium in Canada is the same as in the US. This implies that the investor should invest in the US.

2. Dan (a US citizen) pays $160,000 in cash to a US Mercedes Benz dealer for a 2005 SL500 Roadster. The dealer then pays $150,000 to Mercedes Benz of Germany. Mercedes deposits $150,000 in its US bank account. This transaction has increased the US capital account surplus. (Assume there is no statistical discrepancy.)

3. Following a real depreciation, the trade balance necessarily improves.

4. Consider the Mundell-Flemming model of a small open economy. If the government increases taxes, the exchange rate will depreciate. (Assume taxes are lump-sum, not proportional.) In order to bring the exchange rate down to its original level, the Fed should expand the money supply.

5. Compared to the closed economy, a given increase in government spending will cause a larger increase in output in the open economy with flexible exchange rates. (Assume that the two economies start in equilibrium.)

6. In an open economy, fiscal policy is more effective than (or at least as effective as) monetary policy.

Part II. The Goods Market in a Two-Country Model

Consider two open economies, Blanchardostan and the Republic of Caballeria. Assume that these countries only trade with each other. Variables with subscript B and variables with subscript C correspond to Blanchardostan and the Republic of Caballeria, respectively. The two economies are characterized by the following set of equations:

$C_i = c_{0i} + c_{1i}(Y_i - T_i)$ where i = B or C (B for Blanchardostan and C for Caballeria)

$I_i = \bar{I}$

$G_i = \bar{G}_i$

$T_i = t_i Y_i$

$IM_i = im_{0i} + im_{1i} Y_i$

$\varepsilon = 1$

1. Derive the expression for equilibrium output Y_B as a function of G_B and Y_C (Note that Y_C is exogenous from the perspective of Blanchardostan.) Similarly, derive the expression for Y_C.

2. Let: $c_{0B} = c_{0C} = 200$
   $c_{1B} = c_{1C} = 0.5$
   $\bar{I} = 250$
   $G_B = 114$
   $G_C = 120$
   $t_B = t_C = 0.4$
   $im_{0B} = im_{0C} = 40$
   $im_{1B} = 0.05$
   $im_{1C} = 0.3$
   $\varepsilon = 1$
   All figures are in millions of US dollars.

   Calculate the equilibrium levels of output in the two countries.

3. Calculate the trade balance (i.e. the current account) for each country. Is there a trade/current account deficit or surplus in Blanchardostan? In the Republic of Caballeria?

4. Draw a diagram to show equilibrium output and net exports for Blanchardostan. Label the equilibrium output $Y_0{}^B$ and the output at which there is trade balance, $Y_{TB}{}^B$.

5. Suppose the government of Blanchardostan wants to increase government spending by 147 million. What will be the new equilibrium output levels in the two economies? What is the multiplier in Blanchardostan?

6. Assume that exports are exogenously given from now on. What is the open economy multiplier in Blanchardostan? Suppose the two economies decide to close. What is the multiplier in Blanchardostan now, assuming all the other figures remained the same? Compare the different multipliers that you found in parts 5 and 6.

Part III. Fixed Exchange Rates

Consider a small open economy (call it Mundellia) which obeys our Mundell-Flemming model and is the domestic country. Assume that it has a credible fixed exchange rate regime and starts out in equilibrium. Assume that for Mundellia, US represents "the rest of the world."

1. Use intuition and diagrams to explain what happens in Mundellia as a result of the following changes.
   a. There is an increase in consumer confidence in Mundellia.
   b. The US Fed decreases money supply.

2. Discuss the pros (if any) and cons (if any) of the Mundellian fixed exchange rate regime. (Use intuition and your analysis in part 1 to answer this question.)