

Economics 222

Exercise D

due Friday 25 November by noon

1. Suppose that the current nominal exchange rate between the euro and the Canadian dollar is C\$1 = 0.71 euro. Suppose further that the nominal interest rate in Canada is 5.5% while the nominal interest rate in France is 4%.

- (a) What is the expected future nominal exchange rate?
- (b) If no change is expected in the real exchange rate, what must be the difference in expected inflation between Canada and France?
- (c) If expected inflation is 1% in France and 4% in Canada, by what percentage is the real exchange rate expected to increase?

2. On the midterm test we considered a small, open economy that was required to reduce its government spending G in order to qualify for loans from the IMF. In this question we consider the cyclical implications of this policy. Suppose that the economy can be represented by the following set of equations:

$$\begin{aligned}C^d &= 300 + 0.5Y - 200r \\I^d &= 200 - 300r \\NX &= 150 - 0.1Y - 0.5e \\M/P &= Y - 100i\end{aligned}$$

Suppose further that $\bar{Y} = 900$, $G = 100$, $M = 875$, $P = P_{for} = 1$, $r = 0.25$ and $\pi^e = 0$. The exchange rate e_{nom} is flexible and the interest rate r does not deviate from the foreign interest rate.

- (a) If the economy is initially operating at full employment, solve for the equilibrium values of e and NX .
- (b) If the IMF requires that the government reduce G by 15%, solve for the new short run equilibrium value of e and NX .
- (c) Suppose that the exchange rate e is fixed at the value found in part (a). Describe the action that must be taken by the monetary authority when G falls and solve for the short run equilibrium values of Y and M . Illustrate this short-run equilibrium using an IS-LM-FE diagram.

(d) In this particular case, is the country better off with a flexible or fixed exchange rate? Explain.

3. This question examines how a speculative run contributed to the devaluation of Thailand's currency during the 1997 Asian financial crisis. Suppose that the supply and demand curves for the bhat are given by:

$$\begin{aligned}Q^s &= 10000 + 2000e \\ Q^d &= 10105 - 1000e\end{aligned}$$

Suppose further that the official value for the bhat is 0.04.

(a) Foreign investors suspect that the bhat is overvalued. Are they correct? Explain.

(b) Anticipating a devaluation of the bhat, investors increase their supply of the currency in the foreign exchange market, so that

$$Q^s = 10024 + 2000e$$

Find the new fundamental value for the currency and explain how this change makes a devaluation more likely.

(c) Government advisors suggest that a devaluation of the bhat can be avoided if international transactions of the currency are restricted. Why might the government not want to do this?

4. The textbook claims that exchange rate changes are difficult to predict. This question studies this issue for two reasons. First, if the expected future nominal exchange rate were different from the current rate, then that might explain some international interest rate differentials (see section 10.3). Second, there might be profit opportunities from such patterns.

(a) Collect the monthly value of the exchange rate between the Canadian and US dollars. Denote the monthly value by e_{nomt} . Construct a graph of either e_{nomt} on the vertical axis and e_{nomt-1} (the previous month's value) on the horizontal axis, or $\Delta e_{nomt}/e_{nomt-1}$, the rate of depreciation, on the vertical axis and time on the horizontal axis.

(b) Briefly comment on whether the appreciation or depreciation seems to be predictable.

5. Consider an open economy described by the following equations:

$$\begin{aligned}C^d &= 200 + 0.7Y \\I^d &= 80 - 1000r \\NX &= 85 - 0.1Y - e \\M/P &= 0.5Y - 200i\end{aligned}$$

Suppose further that $\bar{Y} = 300$, $G = 20$, $M = 115$, $r = 0.175$, $\pi^e = 0$ and the domestic and foreign price levels are both equal to 1. The exchange rate e_{nom} is flexible and in this economy the interest rate r does not deviate from the foreign interest rate.

- (a) If the economy is initially operating at full employment, solve for the equilibrium values for e and NX .
- (b) Suppose that there is a monetary expansion, whereby the money supply M expands to 125. Find the new short run values of Y , NX , e , and e_{nom} .
- (c) Given the eventual adjustment in the price level, what will be the long-run values of e and e_{nom} ?

6. This question examines the role of inflationary expectations during a period of monetary contraction. Suppose that there is a tradeoff between unanticipated inflation and unemployment as described by the following Phillips curve:

$$\pi_t = \pi_t^e - (u_t - \bar{u}_t)$$

Suppose also that inflationary expectations are given by

$$\pi_t^e = \pi_{t-1}$$

Inflation has persisted for a number of years at a constant rate of 7.5%. The natural rate of unemployment $\bar{u}_t$ is 6%.

- (a) Suppose that the government wants to lower the unemployment rate to 5% for two consecutive periods ($u_t = u_{t+1} = 5\%$). What must inflation rates be in periods t and $t + 1$?
- (b) Now suppose that inflationary expectations are slower to adjust, so that

$$\pi_t^e = 0.5\pi_{t-1} + 0.5\pi_{t-2}$$

If the government wants to lower the unemployment rate for two consecutive periods as in part (a), what must the inflation rates be in periods t and $t + 1$?

(c) Finally, suppose that inflationary expectations are given by

$$\pi_t^e = a\pi_{t-1} + (1 - a)\pi_{t-2}$$

Where a is a measure of how quickly new information about inflation is received. Would the government prefer a to be large or small? Explain.