Open economy macroeconomics   Fall 2006

Assignment 5 (week 45): The monetary approach to exchange rate determination

1. Consider the flexible-price monetary model of chapter 4 in Rødseth (2000). The differential equation for the (log) nominal exchange rate is

$$\dot{s}(t) = \frac{1}{\eta} s(t) - z(t)$$

   where $z(t) = \frac{1}{\eta}(m(t) - p^*(t) - \kappa y(t)) + i^*(t)$. In what sense is the differential equation unstable? The general solution is

$$s(t) = \left[s(t_0) - \int_{t_0}^{t} z(\tau) \exp\left(-\frac{1}{\eta}(\tau - t_0) \right) d\tau \right] \exp\left(\frac{1}{\eta}(t - t_0) \right)$$

   How does the monetary approach pin down the initial condition $s(t_0)$? Impose this condition and show that the solution for the exchange rate can be written as

$$s(t) = \int_{t}^{\infty} \left[\frac{1}{\eta}(m(\tau) - p^*(\tau) - \kappa y(\tau)) + i^*(\tau) \right] \exp\left(-\frac{1}{\eta}(\tau - t) \right) d\tau.$$

   Provide an interpretation of this equation.

2. In the model in question 1; what are the effects on the exchange rate, the domestic price level and the domestic interest rate of an

   (a) unexpected permanent increase in the foreign nominal interest rate?

   (b) unexpected temporary increase in the foreign nominal interest rate?

   (c) announcement of a future permanent increase in the foreign nominal interest rate?

In each case derive the analytical solution for the exchange rate and draw graphs that show the time paths of the variables. Explain the intuition behind the results.

3. Exercise 5 to chapter 4 of Rødseth (2000)

4. Below is a plot of the (log difference of the) US nominal and real trade-weighted exchange rate. What does this plot tell you about the empirical validity of the flexible-price monetary model? In what sense is the sticky-price monetary model (i.e., the Dornbusch model) better suited to explain the data?

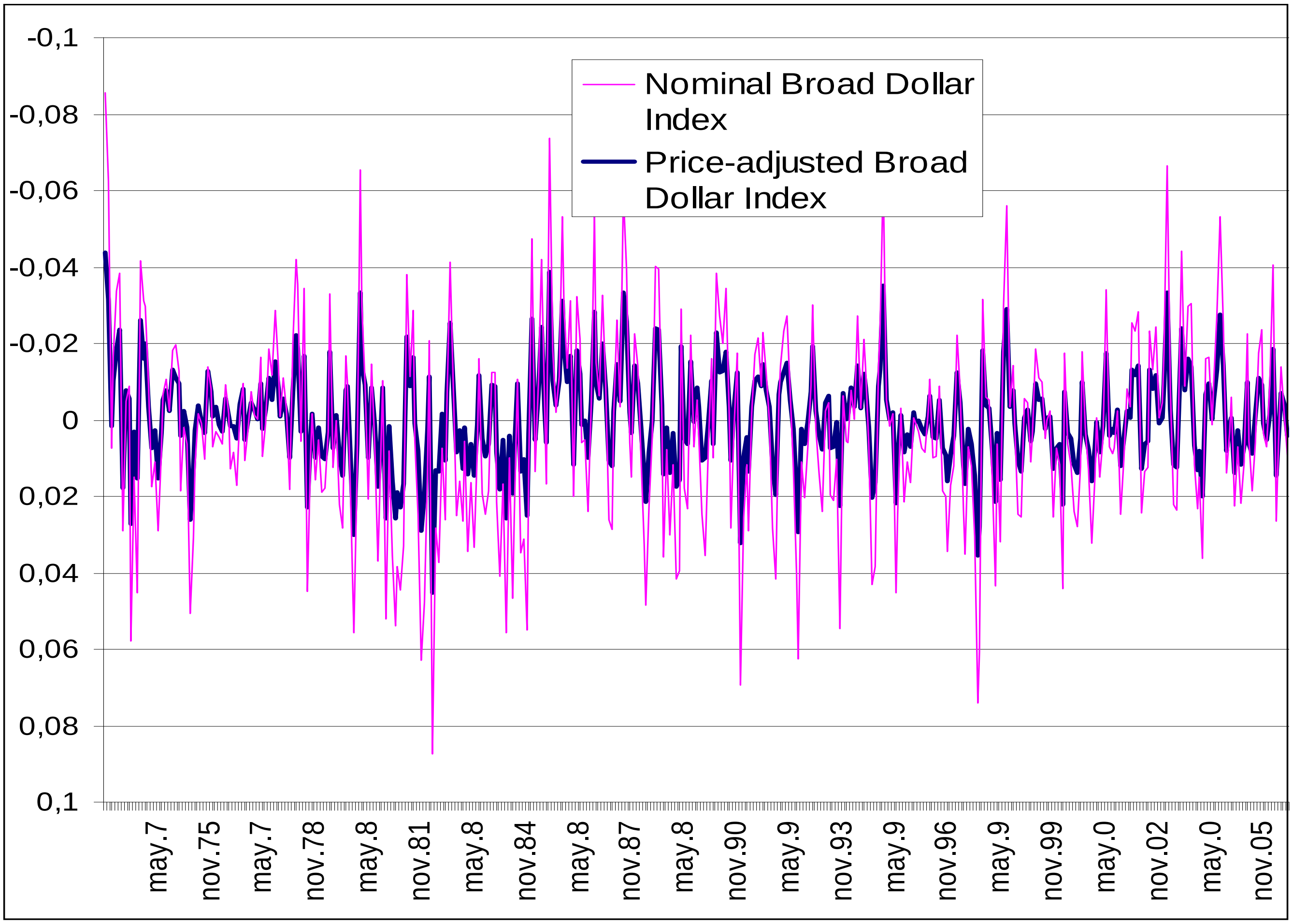

Figure 1: US nominal and real effective (trade-weighted) exchange rate (log differences)