

Hjemmeopgave 2, 2002, opgave 3

Spørgsmål 3.9

From the exercise text we know that $\sigma \equiv \frac{de}{e}$.

In question 3.7 we found out that

$$\frac{de}{e} = \frac{dP^*}{P^*} - \frac{dP}{P} + \frac{d\varepsilon}{\varepsilon} \quad (9)$$

We can therefore insert this expression in (1) to give

$$i = i^* - \left[\frac{dP^*}{P^*} - \frac{dP}{P} + \frac{d\varepsilon}{\varepsilon} \right].$$

We know that the real rate of interest is given by $r = i - \pi = i - \frac{dP}{P}$, so we can use this together

with the above expression to find

$$r = r^* - \frac{d\varepsilon}{\varepsilon}.$$

The theory of purchasing power parity states that one unit of currency must have the same value whether it is used at home or abroad, so a basket of goods in Denmark must cost the same (in DKK) as a basket of goods in the UK. If this was not the case, then *arbitrage* would cause prices to equalize. For example, consider what would happen if the price of a basket of goods was cheaper in the UK than in Denmark. Then everyone would buy in England to sell in Denmark. The increased demand in England would push prices up, whilst the lessened demand in Denmark would push prices down. This would continue until prices equalized.*

With PPP, therefore, $eP = P^* \Rightarrow \varepsilon = 1$. This means that net export demand, NX , is perfectly elastic with regard to the real exchange rate. If the real exchange rate is not equal to one, then goods will flood out of or into the country and NX will be plus or minus infinity. (See Mankiw p. 138.) Since ε cannot change, $d\varepsilon = 0$ and this implies the equation we wanted:

$$r = r^*$$

* Of course, this need not be the case in practice. Some goods (such as a haircut) cannot easily be traded between countries, and even goods that can be traded can have a price difference equivalent to e.g. the transport cost between the two countries.