

Macroeconomics A; EI060

Quiz

Cédric Tille

Class of March 5, 2025

1 Exchange rate

Question: What is the different between a nominal and a real exchange rate?

Answer: The **nominal exchange rate** is the **relative price between two currency**. It measures the international purchasing power of a currency into another.

The **real exchange rate** is the **relative price between two consumption baskets**. It measures the international purchasing power of one set of good into another.

The two are linked through the price levels, which are the domestic purchasing power of a currency.

If a currency is strong simply because prices in the country are low, the real exchange rate is unaffected. The low price means that the currency has a high domestic purchasing power. This is reflected also in a high international purchasing power. But if this is the only link, the basket of goods of the country does not have a particularly high international purchasing power in terms of the goods in other countries.

2 Real exchange rate and intertemporal consumption

Question: Consider that a country always has a strong real exchange rate (the price of non-traded good is always high). How does this affect the timing of the consumption of traded goods?

What if the real exchange rate depreciates, meaning that we start with a high price of non-traded goods, but then it decreases.

Answer: **The solution for initial consumption of traded goods reflects the dynamics of the real exchange rate.** So if it is constant, at whatever level, there is no impact on the timing of consumption.

If the non-traded goods are initially expensive, we have two effects:

- The future reduction in the price of non-traded goods means that the price of the overall consumption basket will decrease. The basket is thus more valuable today than tomorrow, i.e. the

real exchange rate in terms of the consumption basket is high (we need many units of the future basket to buy a current one). Consumption thus shifts to the future, including in the form of consumption of traded goods, especially when the intertemporal elasticity of substitution is high.

- The non-traded goods are expensive today, and will become cheaper. The consumer then shifts the allocation of a given level of basket towards the cheaper traded goods today, waiting for tomorrow to shift towards the non-traded good which will then be cheaper (relatively speaking). Traded good consumption thus shifts to the present, especially when the elasticity of substitution between traded and non-traded goods is high.

3 International prices

Question: What is purchasing power parity?

What is the link between the terms-of-trade and the real exchange rate?

Answer: Purchasing power parity is the case where the price of the consumption basket is the same in all countries, once expressed in the same currency. In other words, the real exchange rate is equal to 1.

This is not the case in practice three reasons. First, there are non-traded goods, and in general their price differ across countries. Second, individual traded goods may not sell for the same price in all countries (the law of one price does not hold).

Third, the composition of the basket of traded goods can differ, for instance when consumers prefer domestic goods (home bias). In that case, even when the law of one price holds, the terms-of-trade enter the real exchange rate.

4 Productivity and the real exchange rate

Question: Consider that traded and non-traded goods are produced using capital (mobile across sectors and countries) and labor (mobile across sectors)

How does a country's real exchange rate react to a productivity decrease in the production of traded good? What happens if the same decrease also occurs abroad?

Answer: The real interest rate is set by the world, and producers of the trade sector choose a capital-labor ratio such that the marginal product of capital is equal to the interest rate.

The decrease of productivity reduces the marginal product of capital. Firms cannot compensate through higher prices, as the price of the traded good is set in world markets. The only way to increase the marginal productivity of capital is to lower the capital-labor ratio, as there are decreasing returns to scale.

The wage in the traded good sector then falls, as productivity is lower and the sector has become less capital intensive.

Firms in the non-traded sector also see the decrease in wages. As they are competitive, they pass this into lower prices for their goods. The price of the non-traded good then decreases, and this leads to a lower price for the consumption basket, i.e. a real depreciation.

If the decrease of productivity also takes place abroad, then there is no effect on the real exchange rate. It is a cross-country variable, and thus moves when the situation differs across countries. When a shock happens to all of them, it leads to no change in the real exchange rate.