

The Real Exchange Rate

1. Nominal and real exchange rate

- Nominal exchange rate: price of a foreign currency unit in terms of the domestic currency units:

e in LCU/foreign currency (LCU for Local Currency Unit).

- Real exchange rate

Relative price of two goods: $RER = \frac{\text{price of tradable goods}}{\text{price of nontradable goods}}$

Note: it is an index. The level has no meaning, only analyze changes.

Indicator of competitiveness of domestic economy vs. foreign economy, relative to the base year

- Indicators of real exchange rate

1) Nominal exchange corrected for differential inflation in the country and abroad:

$$RER1 = e/e_0 \frac{p^{\$/p_0^{\$}}}{p^d/p_0^d} \dots \dots \left[\frac{\text{price of foreign goods}}{\text{price of domestic goods}} \right]$$

where $p^{\$/p_0^{\$}}$ is a general index of the dollar prices in the world market, measured by the U.S. Wholesale Price Index (WPI), and p^d/p_0^d is the domestic price index measured by the country's own Consumer Price Index (CPI).

Extension of this real exchange rate index to include several trade partners:

$$RER1 = \sum_i \alpha_i e_i / e_{i0} \frac{p_i^{\$/p_{i0}^{\$}}}{p_i^d / p_{i0}^d} \text{ with } \sum_i \alpha_i = 1$$

where the α_i are weights equal to the share of each partner in the country's international trade (imports, exports or both) in a base year.

2) Relative price of the tradables to the nontradables:

$$RER2 = \frac{P_T}{P_{NT}}$$

A currency appreciates when the RER decreases.

2. Equilibrium exchange rate

Currency is overvalued, undervalued? What is the "equilibrium" exchange rate?

The *purchasing power parity (PPP)* theory for the **equilibrium nominal exchange rate**.

If foreign trade markets work well, in the long run, prices should equalize across countries.

$$e^* p^s = p^d$$

“Markets work well” means no major distortions such as quotas, tariffs, taxes.

Two ways:

- Define a bundle, and compute its cost in different countries.

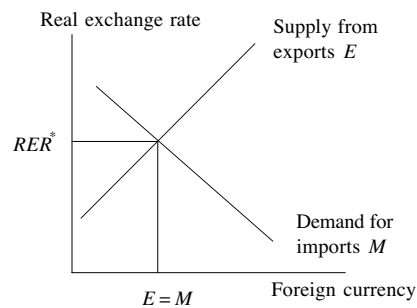
Example: *The Economist’s Big Mac index*, and the *PPP equilibrium exchange rate* in international statistics

- Once you have found a year in which the markets were not too distorted, and hence e was at its equilibrium value, then you can compute the *PPP equilibrium exchange rate* for any other year by correction for differential inflation:

$$e^*(PPP) = e_0^* \frac{p^d/p_0^d}{p^s/p_0^s}$$

A currency is overvalued if the nominal exchange rate is lower than the equilibrium exchange rate, i.e., the foreign exchange price is lower than its equilibrium price.

3. The foreign exchange market equilibrium and the real exchange rate



Mechanisms:

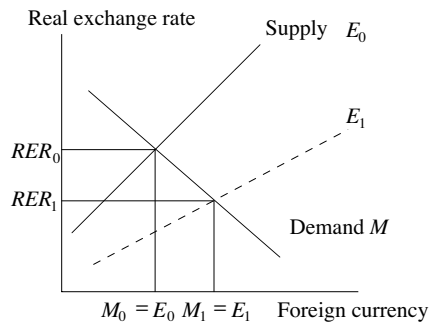
Flexible exchange rate regime: adjustment by depreciation/appreciation of the nominal exchange rate.

Fixed/pegged exchange rate regime: adjustment by domestic inflation and periodically by devaluation. Example: African countries of the CFA Franc zone. Argentina until summer 2001.

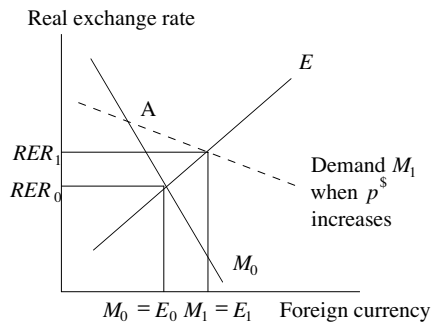
“Fundamental” determinants of the RER.

Factors that affect the supply of foreign exchange: Exports earnings (price of exported goods or volume), foreign capital inflow (aid, debt, interest rate)

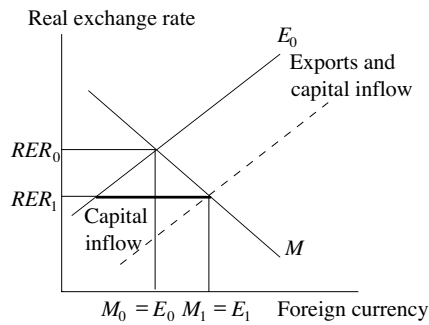
Factors that affect the demand for foreign exchange: Import expenditures (import price or volume), capital flight and foreign capital outflow (debt service), trade policy (import tariff); Demand for imports is itself influenced by domestic inflation (Government deficit, increase in wages, increase in money supply (credit)).



8.4a. Shift in exports earnings



8.4b. Increase in world price of imports



8.4c. Capital inflow spent on nontradables

Balance of payment accounts:

Exports – Imports of goods and services		
+ Net investment income		Current account
+ Net transfers (remittances, foreign aid, debt service)		
+ Direct investment		
+ Long term net capital inflow (debt accumulation)		Capital account
+ Short term net capital inflow		

= Overall balance of payment
= Change in foreign reserve + IMF credit

Can be decomposed into: external (international prices, international interest rate on debt, aid) and internal factors (trade policy, capital control, productivity gain in tradables relative to non-tradables)

4. Effects of real exchange rate appreciation

- Is the observed real exchange rate an equilibrium?

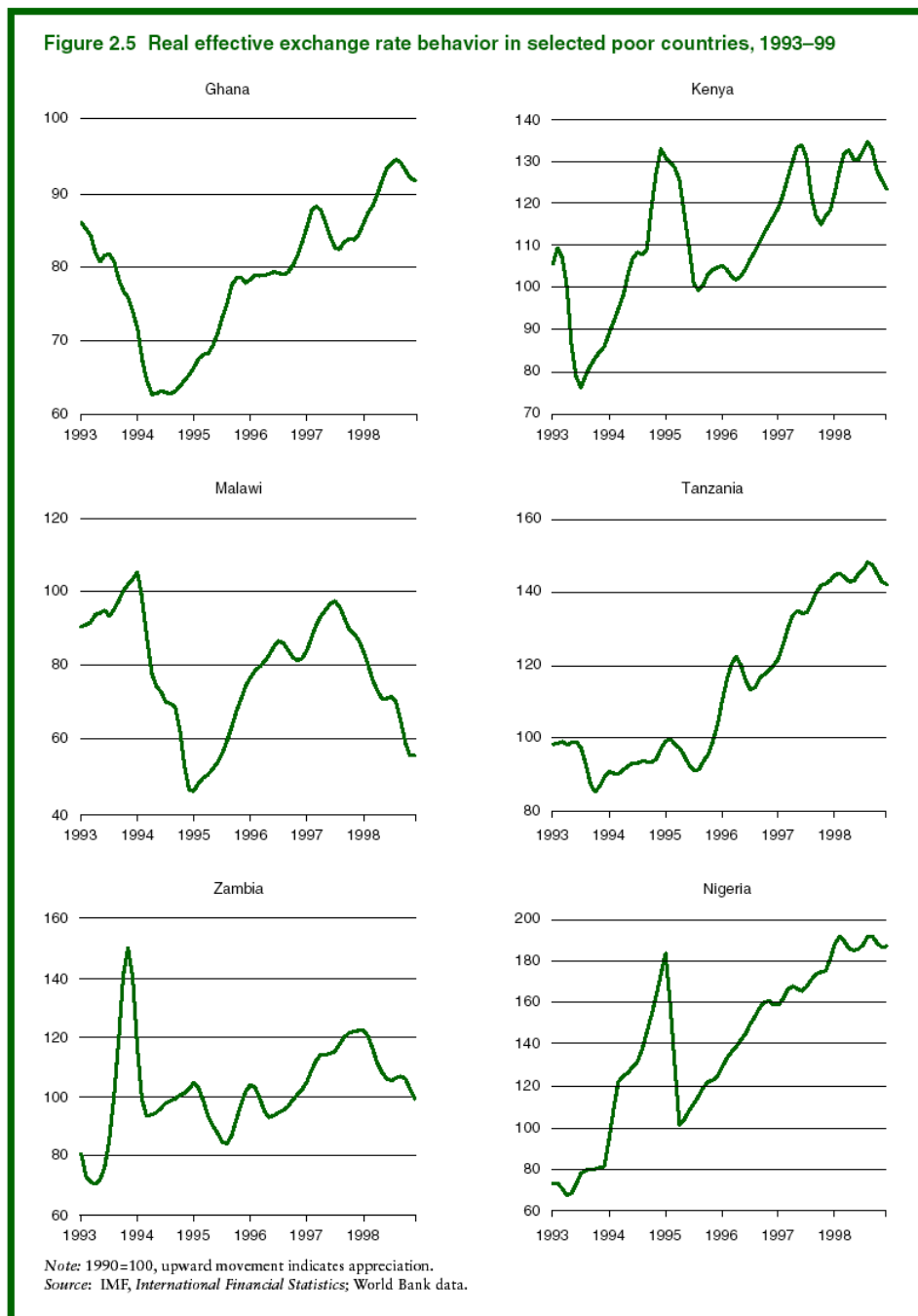
Yes, in terms of Balance of Payments.

The real problem is whether it is sustainable or not.

Not sustainable if based on debt accumulation, exceptional aid inflow, exceptional resource exploitation (the dutch disease).

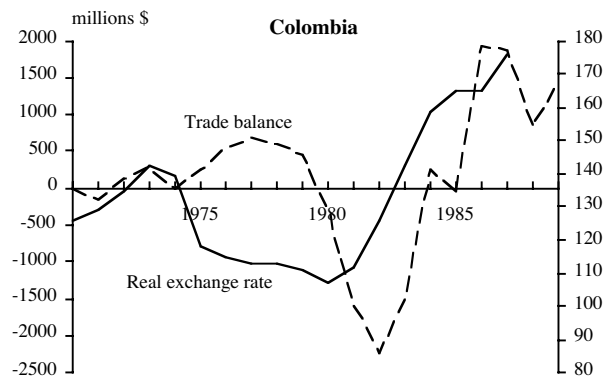
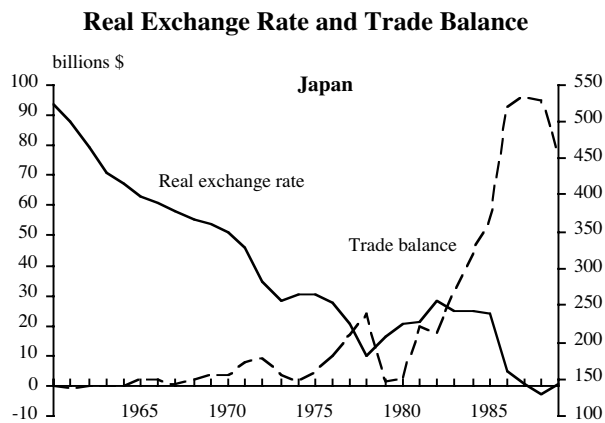
Sustainable if based on gains in efficiency

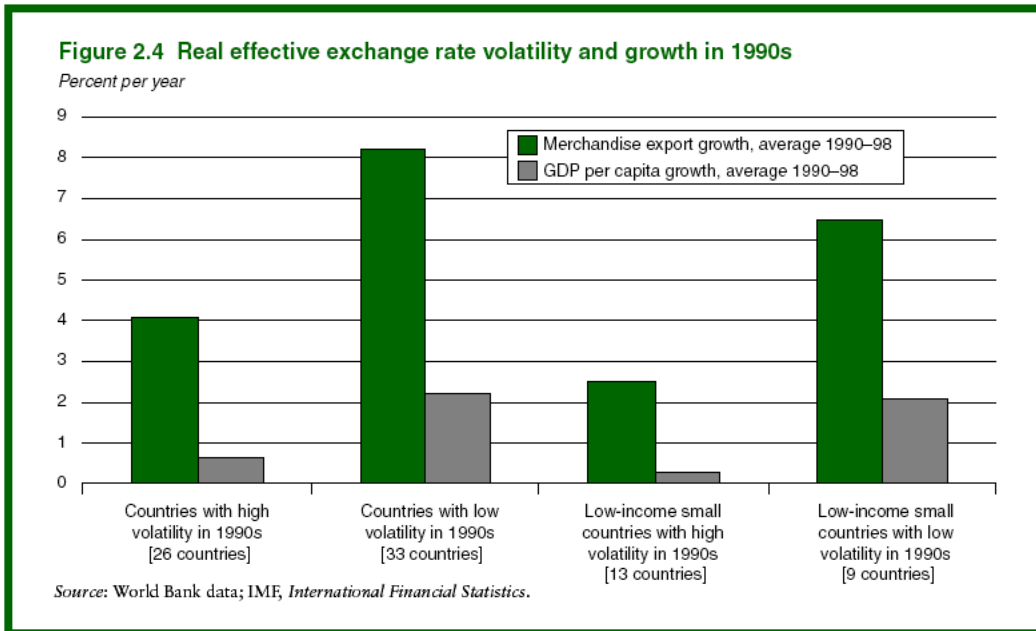
ATTENTION: REAL EXCHANGE RATES ARE THE REVERSE OF WHAT WE HAVE USED



Global Economic Prospects and the Developing Countries, The World Bank, 2001. At <http://www.worldbank.org/prospects/gep2001/toc.htm>

- Should one worry when the currency is appreciating?
 - Potential problem for the balance of trade
 - Restructuring of the economy from tradables to non-tradables (service, construction)
 - Gainers and losers. Gainers are producers of the non-tradable sectors and consumers of the tradable commodities. Losers are producers of the tradable sectors and consumers of the non-tradables.
- “Import substitution strategies” = protection of industry \Rightarrow appreciation of the real exchange rate. Negative effects on agriculture (non-protected tradables).





5. Fiscal and monetary policies

Policies to influence the real exchange rate:

Control inflation: high interest rates, limit government deficit, limit wage increase (if feasible) ⇒ restrains demand.

Enhance productivity growth ⇒ increases supply

Effects of a devaluation:

Devaluation ⇒ Increase in import prices ⇒ Inflation ... which reduces the effectiveness of the devaluation.

Devaluation ⇒ Increase in the debt service expressed in local currency unit.

Hence needs to be accompanied by tight monetary and fiscal policies.

But, more fundamentally, a devaluation will not change the *RER* in itself. It produces a quick fix, but the *RER* will return to its value unless the fundamentals of the foreign exchange market are changed. Preferably with policies to enhance supply and growth rather than policies to restrain demand.

Distributive effects: Most negative effects on workers in the service/trade sectors, and on those with fixed wages.