

Depreciation, the Trade Balance, and Output

Suppose the US government takes policy measures that leads to a depreciation of the dollar - a decrease in the nominal exchange rate. In the short run, we can take the price levels P and P^* as given, so a depreciation of the dollar leads to a real depreciation.

How will depreciation affect the US trade balance and output?

Recall: $NX = X - IM/\epsilon$

Imports are

Exports are

We cannot just subtract imports from exports as foreign goods are different from domestic goods. If we did, it would be like subtracting apples (foreign goods) from oranges (domestic goods). We must first express the value of imports in terms of domestic goods.

Recall that ϵ is the

→ $1/\epsilon$ is the

→ $IM(1/\epsilon)$ is

The real exchange rate depreciation effects the trade balance through three channels:

1. Exports (X) increase – The real depreciation makes US good relatively less expensive abroad. This leads to an increase in foreign demand for US goods – an increase in US exports.
2. Imports (IM) decrease – The real depreciation makes foreign goods relatively more expensive in the US. This leads to a shift in domestic demand towards domestic goods and to a decrease in the quantity of imports

3. The relative price of foreign goods in terms of domestic goods ($1/\epsilon$) increases – this increases the import bill IM/ϵ . The same quantity of imports now cost more to buy (in terms of domestic goods).

For the trade balance to improve following a real depreciation, exports must increase enough and imports must decrease enough to compensate for the increase in the price of imports.

The condition under which a real depreciation leads to an increase in net exports is known as the Marshall Lerner condition. So for the remainder of this course we will assume that a real depreciation leads to an increase in net exports, and vice versa.

Looking at dynamics – the J-curve

We have ignored the dynamics of the effects of an exchange rate on the trade balance so far. A depreciation leads to an increase in exports and a decrease in imports but this does not happen overnight.

In the first few months following the depreciation, the effect of the depreciation is likely to be reflected much more in prices than in quantities.

So a depreciation may well lead to an initial deterioration of the trade balance; ϵ decreases but neither X or IM adjusts very much initially, leading to a decline in net exports.

As time passes, the effects of the change in the relative prices of both exports and imports become stronger.

If the Marshall Lerner condition holds, the response of exports and imports eventually becomes stronger than the adverse price effect and the eventual effect of the depreciation is an improvement of the trade balance.

Below is the evolution of the trade balance against time in response to a real depreciation.

Economists refer to this adjustment process as the J curve because the curve resembles a “J” – down then up.

Savings, Investment, and the Trade Balance

In a closed economy, $Y = C+I+G$

Investment is the sum of private savings and public savings. This is another way of thinking about equilibrium in the goods market and is called the IS relation which stands for “Investment equals savings”.

In an open economy, $Y=C+I+G-IM/\epsilon + X$

In equilibrium, trade balance must be equal to saving (private and public savings) minus investment.

A Trade surplus corresponds to a case where

A trade deficit is when

Other things implied from the relation:

- 1) An increase in investment must be reflected in either an increase in private or public savings or in a deterioration of the trade balance (smaller trade surplus or larger trade deficit)
- 2) An increase in the budget deficit must be reflected in either an increase in private savings, a decrease in investment, or a deterioration in the trade balance
- 3) A country with a high savings rate must have either high investment or a large trade surplus

Understanding the IS curve (cont.)...

