

The Mundell Fleming model

This is IS-LM applied to a small open economy, in the short run (price level P is fixed, exogenous).

How are output and exchange rate determined in the short run?

We will see how the effect of fiscal and monetary policies depend on the exchange rate regime.

The crucial assumption: a small open economy with perfect capital mobility

The country can lend and borrow without restrictions on international financial markets. As a result, in equilibrium:

$$r = r^*$$

(domestic interest rate = world interest rate)

The IS* curve

describes the couples (Y, e) that ensure equilibrium on market for goods and services, i.e, such that output equals aggregate demand (and $r = r^*$):

$$Y = c(Y - T) + I(r^*) + G + NX(e)$$

The exchange rate e is defined as the quantity of foreign currency per unit of domestic currency (i.e. the higher e , the higher the value of the domestic currency)

Figures: Aggregate demand and the $Y=D$ line; the IS* curve.

Since net exports are decreasing in e (as defined above), IS* is decreasing in e .

The LM* curve

The couples (Y, e) such that money supply = money demand (and $r = r^*$)

$$M/P = L(r^*, Y)$$

Money supply M is an exogenous variable controlled by the central bank.

And since we're focusing on the short run, P is fixed.

Figures: LM curve in (Y, r) space, and $r = r^*$ line; this translated into a vertical LM* curve in the (Y, e) space.

Equilibrium (Y,e)

Put IS^* and LM^* together in the (Y,e) space: the couple (Y^*,e^*) where they intersect corresponds to the values of Y and e for which the market for goods and services and the money market are both in equilibrium (by definition of the curves).

Figure: Equilibrium in the Mundell Fleming model

From here, we can study the impact of fiscal (G and T) and monetary (M) policies on the equilibrium output and exchange rate. The effects depend on the chosen exchange rate regime, floating or fixed.

Our small open economy in a floating exchange rate regime
(Floating regime: e can freely adjust to changes in economic conditions)

Fiscal policy

Consider an increase in government expenditure G . This shifts IS^* to the right. Since LM^* is vertical, output is unchanged and the domestic currency appreciates.

To see what happens in more detail, it is useful to go back to the standard IS-LM diagram, and add the condition that $r = r^*$. The equilibrium of the small open economy is determined by the intersection of IS, LM and $r = r^*$.

Figure: an increase in G

After the increase in G , the domestic interest rate, determined by the intersection of IS and LM, is temporarily higher than r^* .

Then, because of full capital mobility, foreign capital instantly flows into the country. As a result, on the foreign exchange market, demand for the domestic currency increases, which leads to its appreciation.

But then, net exports decrease... This keeps happening until r is back to r^* .

To sum up, in floating exchange rate regime: increase in G leads to an appreciation of the domestic currency, and as a result, does not affect Y .

Monetary policy

Now assume that the central bank increases money supply M . Since P is fixed, LM^* shifts to the right: output increases and the domestic currency depreciates.

Again, look at the standard IS-LM diagram with $r = r^*$.

When M increases, LM shifts to the right, and r is temporarily lower than r^* . Then, capital goes out of the country and the demand for domestic currency decreases, which leads to its depreciation. Consequently, net exports increase and IS shifts to the right. This happens until r is back to r^* so that capital stops flying out of the country and exchange rate stabilizes to its new (lower) equilibrium level.

Trade policy

Now assume that the government wants to reduce imports by imposing a tariff or a quota. What is the effect on Y and e ?

Easy in our little model: the tariff or quota reduces imports, and since $NX = \text{Exports} - \text{Imports}$, Net exports increase. Graphically, IS^* shifts to the right. As a result, the exchange rate appreciates and output is unchanged. (exercise: explain the role of capital mobility. Hint: use the standard IS-LM diagram augmented with $r = r^*$)

Next, we turn to the effects of policies when our small open economy is in a fixed exchange rate regime.