Lecture 8

Economic Policy Under Flexible Exchange Rates

The Consumption Function: $C = C(Y - T) = C(Y^d)$

The Current Account Function: $CA = CA(R_{£\$}, Y^d)$

where: $R_{£\$} = (E_{£\$} \times P_{US} / P_{UK})$ is the real exchange rate; $E_{£\$}$ is the nominal exchange rate; P_{UK} is the foreign (US) price level; and P_{UK} is the domestic price level.

Suppose and P_{UK}=£100 and P_{US}=$150: then . This means that one would need 20% more £ to buy the US basket than one would need to buy the UK basket.
So a **real depreciation** occurs when the value of $R_{£\$}$ rises. This means that the purchasing power of £ in the USA *declines*.

Imports and Exports: $CA = X - E_{£\$} \frac{P_{US}}{P_{US}} M = X - R_{£\$} \times M$

Note that imports from the US are expressed in terms of domestic output

The Real Exchange Rate and the Current Account

The UK price level attaches a high weight to domestically produced commodities and a smaller weight to foreign-produced (US) goods.
So if $R_{£\$}$ rises, it means that the price of imports relative to home produced commodities goes up: $R_{£\$} = (E_{£\$} \times P_{US} / P_{UK}) \uparrow$
Domestic consumers substitute out of imports into home-produced commodities: . This is the **volume** effect on the CA.
If the demand elasticity for imports is high, the **value** of imports also will fall; if the demand elasticity for imports is low, the **value** of imports will rise.
The effect of a real depreciation on the value of UK imports is ambiguous: it depends on the elasticity of demand for imports.
We **assume** that it improves the CA: the value of imports falls, following a real exchange rate depreciation.

But foreign (US) consumers will find that their real exchange rate ( ) has appreciated: UK products are now relatively cheaper in the US:
The value of exports falls, following a real exchange rate depreciation.

For both reasons, a real exchange rate depreciation leads to an improvement in the current balance.

Disposable Income and the Current Account

An increase in disposable income causes the volume of imports to rise ( ) and CA to worsen.

Aggregate Demand and Product Market Equilibrium

Aggregate Demand is the amount of a country's goods and services demanded throughout the world. The aggregate demand equation is:

(1)

where: Y is National Income; T is taxes; I is Investment; and G is government expenditure.

A real depreciation increases aggregate demand:

An increase in national income, Y, increases Y^d: this raises C but worsens CA through increasing imports: net effect is to increase D

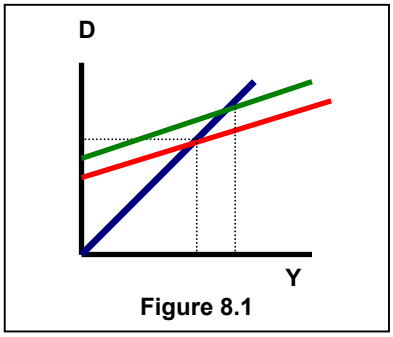


Figure 8.1

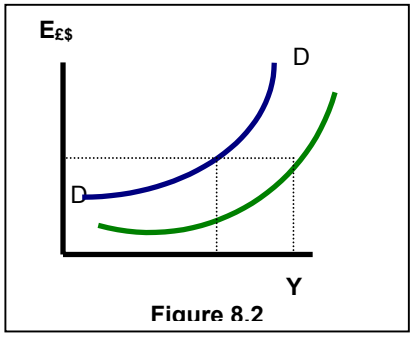


Figure 8.2

In Figure 8.1, a depreciation of the exchange rate, $E_{£\$}$, raises aggregate demand and, hence, national income.

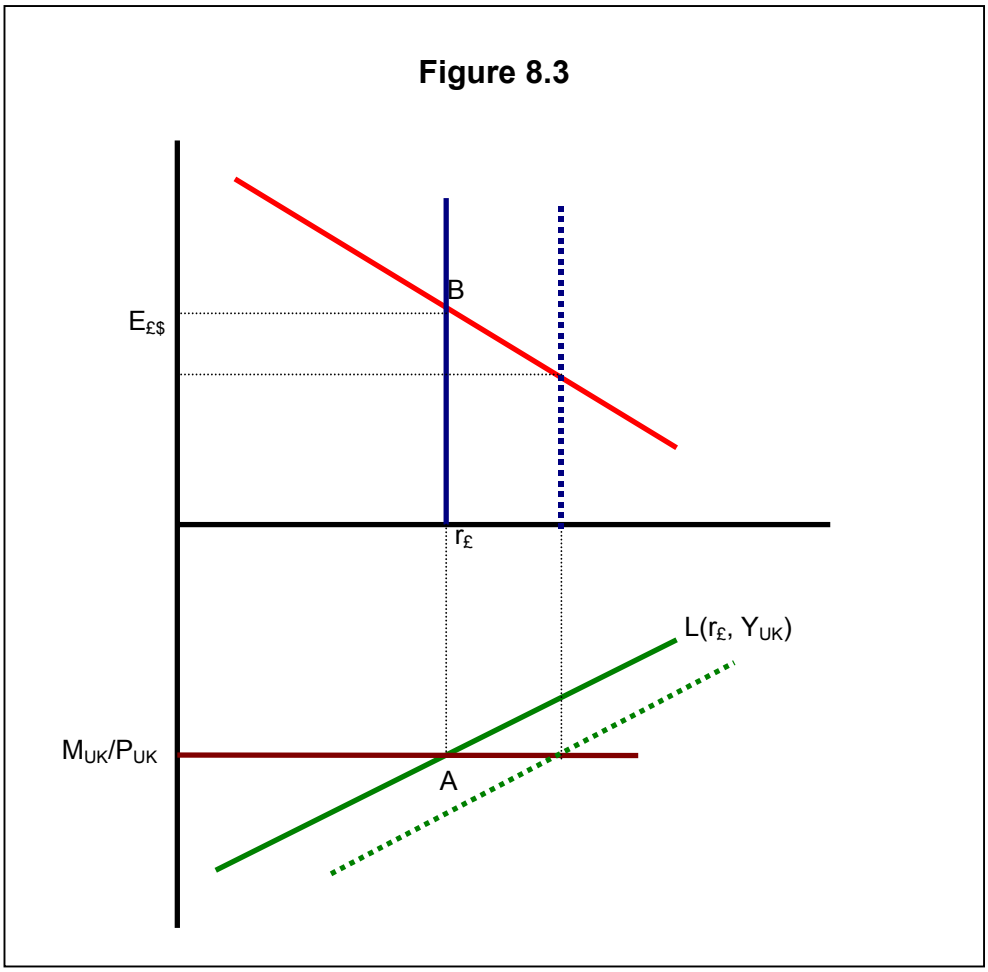
The DD schedule (Figure 8.2) shows the E£$-Y combinations that result in equilibrium in the product market.

1. An increase in government or investment expenditure or a reduction in taxes shifts the DD schedule outwards (Figure 8.2).
2. An increase in domestic prices, P_{UK}, leads to a real exchange rate appreciation which reduces D and shifts the DD curve inward.
3. An increase in foreign prices, P_{US}, leads to a real exchange rate depreciation which raises D and shifts the DD curve outward
4. An increase in the marginal propensity to import causes D to fall and DD curve shifts inwards

Money Market and Asset Market Equilibrium

Interest Rate Parity Condition:

Money Market Equilibrium:



A rise in Y shifts the $L(r_£,Y)$ curve outwards; $r_£$ rises and $E_{£\$}$ falls (appreciates) The AA curve shows the $E_{£\$}$-Y combinations that bring about equilibrium in the money market.

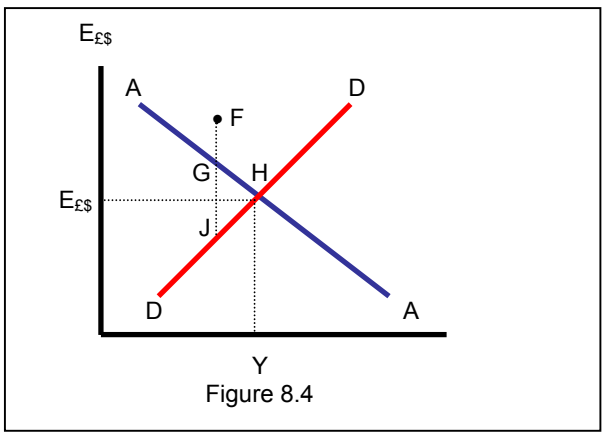


Figure 8.4

The AA curve is shifted outward/inwards by anything that raises/lowers $E_{£\$}$ for a given level of Y:

1. An increase in the UK money supply, lowers $r_£$ and raises $E_{£\$}$ (£ depreciates)
2. An increase in the US money supply, lowers $r_\$$ and lowers $E_{£\$}$ (£ depreciates)
3. An increase in the UK price level, reduces real money supply, raises $r_£$ and reduces $E_{£\$}$ (£ appreciates)
4. An increase in the US price level, reduces real money supply in the US, raises $r_\$$ and raises $E_{£\$}$ (£ depreciates)
5. A change in expectations: suppose $E^1_{£\$}$ is expected to be higher: the $r_\$^£$ curve shifts outwards and $E^0_{£\$}$ rises to preserve the same expected rate of depreciation,

Equilibrium

Equilibrium occurs when the AA & DD curves intersect. At a point F in Figure 8.2, neither the money market nor the product market are in equilibrium. Because $E_{£\$}$ is high relative to AA, the expected rate of depreciation at F is too low for interest rate parity. So at existing rates, $r_£$ and $r_\$$, there is excess demand for £ assets. This excess demand makes £ more desirable and it appreciates: $E_{£\$}$ falls from F to G.
Because $E_{£\$}$ is high relative to DD, there is excess demand for domestic output: the CA is in surplus. To eliminate this, producers increase output from J to H: as Y rises, $r_£$ rises and $E_{£\$}$ falls from G to H.

Monetary Policy and Fiscal Policy: Temporary Changes

An (temporary) increase in the money supply causes the AA curve to shift outwards and leads to higher $E_{£\$}$ and Y:

(for interest rate parity). *If the increase in money supply is temporary*, the expected future exchange rate does not change so the current exchange rate must rise in order to reduce the expected rate of depreciation, . When rises, Y rises. (Figure 8.4, left-panel).

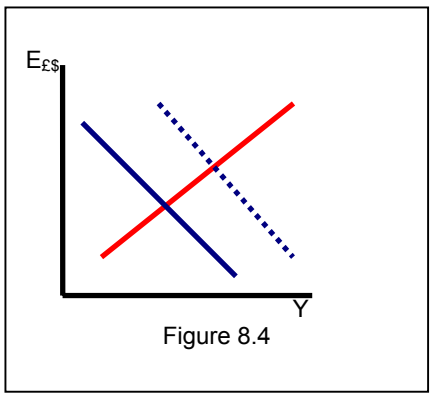


Figure 8.4

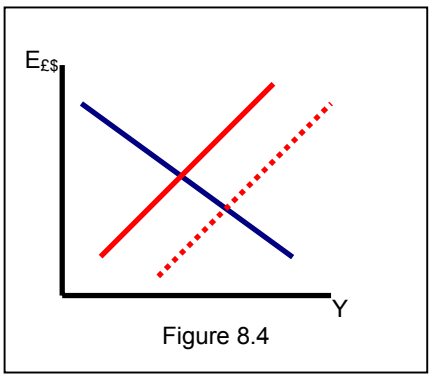


Figure 8.4

An increase in government expenditure, G, shifts the DD schedule outwards leading to a fall in $E_{£\$}$: the increase in G, increases transactions demand for money, so $r_£$ rises and $E_{£\$}$ falls to restore interest rate parity.

Policies to Maintain Full-Employment

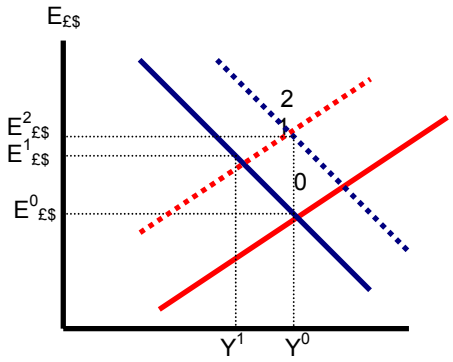


Figure 8.4
Temporary Fall in Demand for UK Output

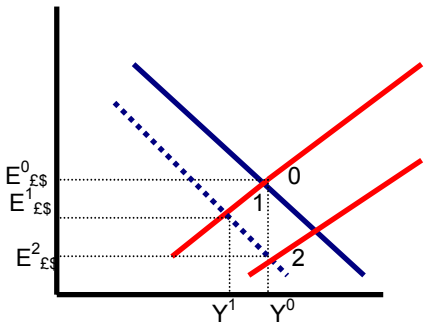


Figure 8.5
Temporary Rise in UK Money Demand

The original equilibrium is at 0, where the economy is at full-employment.. A shift in tastes away from UK product shifts the DD curve inwards. The new equilibrium is at 1: $E_{£\$}$ is higher and Y is lower. Full employment is restored by either:

1. Fiscal expansion: move DD back to original position
2. Monetary expansion: move AA outwards: original output at higher exchange rate because interest rate has fallen and a higher $E_{£\$}$ is needed for the interest rate parity condition to hold.

An increase in money demand in the UK shifts the AA curve inwards. raises $r_£$ and reduces $E_{£\$}$. The new equilibrium is at 1. At 1, the exchange rate appreciation makes UK products relatively more expensive and output falls. Full employment is restored by:

1. Monetary expansion which restores the AA curve
2. Fiscal expansion which shifts the DD curve outwards: the original output is restored at an even lower exchange rate because increase in Y increases money demand, raises $r_£$ and lowers $E_{£\$}$.

Monetary Policy: Permanent Change

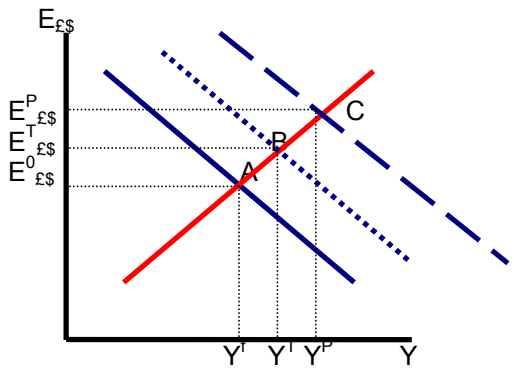


Figure 8.6
Short-run Effects of a Permanent Increase in UK Money Supply

A is a point of *long run* equilibrium: Y^0 is *full-employment* output and $E^0_{£\$}$ is the long term exchange rate. Because $E^0_{£\$}$ is the long run exchange, no change is expected in its value and, therefore, the expected rate of depreciation, $D^e_{£\$}=0$: consequently, by the interest rate parity condition $r_£=r_\$$.

Now there is a *permanent* increase in the UK money supply. When the increase in money supply was temporary, the expected future exchange rate, $E^1_{£\$}$ was not affected. Consequently, $r_£$ fell and by the interest parity condition, $D^e_{£\$}$ fell implying that the current exchange rate, $E^0_{£\$}$ had to rise. See point B in Figure 8.6.

But when the rise in the money supply is permanent, the future exchange rate is expected to rise in proportion to the increase in money supply. So, to keep the interest rate parity condition when $r_£$ fell, the required fall in $D^e_{£\$}$, requires an even greater rise in the current exchange rate, $E^0_{£\$}$. See point C in Figure 8.6.

But, at C, output is greater than full employment. Consequently, inflationary pressures build up: workers demand higher wages and producers raise prices. A rise in P_{UK} makes UK goods relatively more expensive to US goods: the real exchange rate, $R_{£\$}$ falls, the CA balance falls, and the DD curve shifts inwards.

But a rising P_{UK} reduces real money supply and AA curve shifts inwards. Long-run equilibrium is restored when the two schedules intersect. At this new equilibrium the exchange rate is higher than before ($E^L_{£\$} > E^0_{£\$}$) the increase in money supply – it has risen in proportion to the rise in money supply.

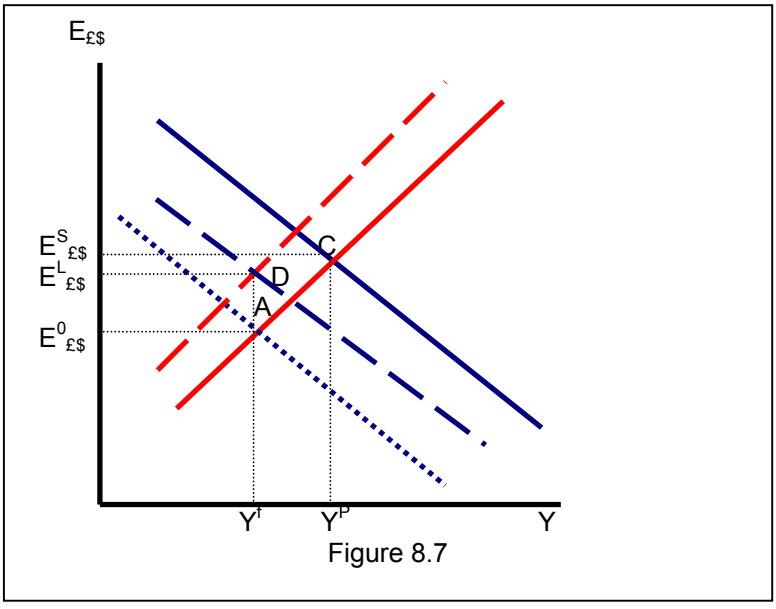


Figure 8.7

Fiscal Policy: Permanent Change

A permanent increase in government expenditure (say, an extra £10 billion on the NHS for the next 10 years) shifts the DD curve outwards. The demand for UK, relative to US, products rises and PUS/PUK falls: the real exchange rate falls and the future expected exchange rate, $E^1_{£\$}$, falls. So to restore interest rate parity, the current exchange rate, $E^0_{£\$}$, must also fall. So, the AA curve shifts inwards. The fall in the exchange rate from $E^0_{£\$}$ to $E^L_{£\$}$ "crowds out" the effect of the fiscal expansion.

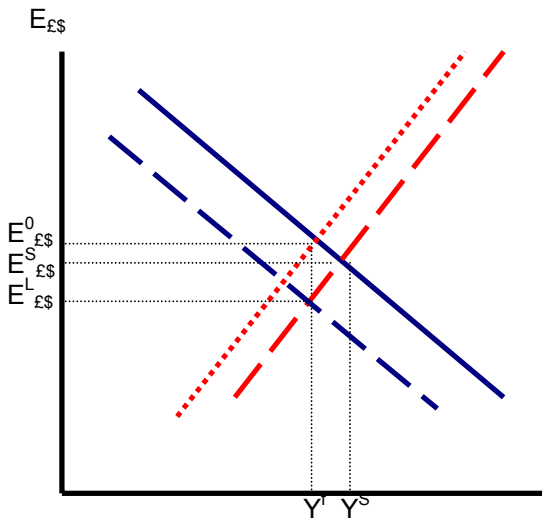


Figure 8.8

Macroeconomic Policies and the Current Account

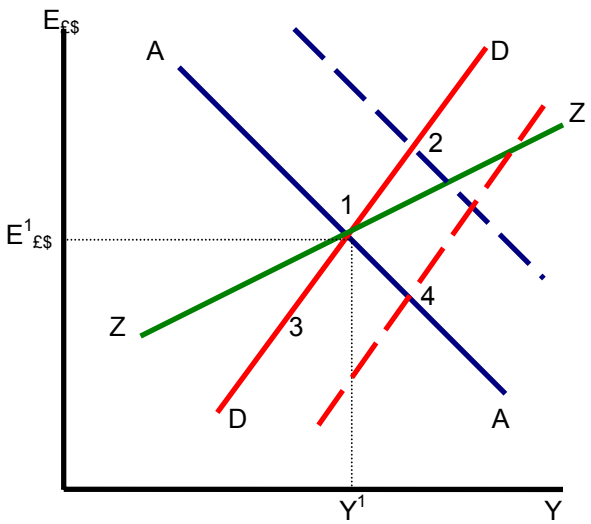


Figure 8.9

Say the current account balance is desired to be set at some level, Z:

(2)

Holding Z constant, equation (2) can be solved for combinations of $E_{£\$}$ and Y which yield CA=Z. This is the ZZ curve in Figure 8.9. All points above ZZ represent $E_{£\$}$ and Y combinations for which CA>Z and all points below ZZ represent $E_{£\$}$ and Y combinations for which CA<Z.

At point 1, where the three curves intersect, all three markets – asset, product and foreign trade – are in equilibrium.

The ZZ curve is flatter than the DD curve. Along the DD curve, aggregate demand = aggregate supply. From point 1, if one moves up the DD curve, Y goes up; but domestic demand D rises by less than Y, because some of Y is saved and some is spent on imports. So to restore D=Y, $E_{£\$}$ must rise to increase exports more than imports: so at point 2, CA>Z. Similarly, at point 3, CA<Z.

Monetary policy shifts the economy to point 2: output expands, exchange depreciates and CA balance increases. Fiscal policy shifts the economy to point 4: exchange rate appreciates and CA balance is reduced.

Current Account Dynamics: the J-curve

An assumption of the previous analysis is a real depreciation would immediately result in an improvement in the CA. But because of time lags there may be a delay before a rise in $R_{£\$}$ improves the CA balance.

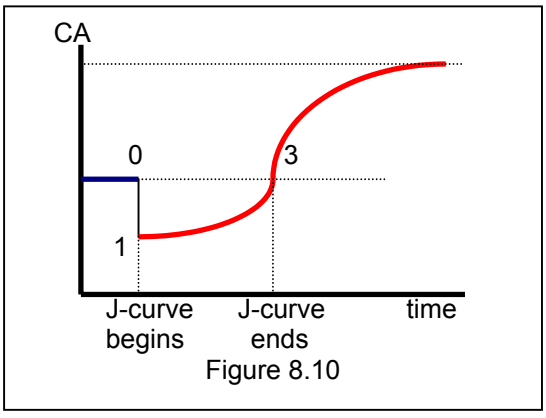


Figure 8.10

Current Account Dynamics: Exchange Rate Pass-Through

The assumption is that that exchange rate changes will be perfectly reflected in export and import price changes. In many cases this exchange rate 'pass-through' may be incomplete.

The Marshall-Lerner Condition

The **Marshall-Lerner** condition establishes the condition under which an exchange rate depreciation will improve the current account.
The current account is defined as:

(3)

where: ;

Therefore:

(4)

Define as the elasticity of export demand and as the elasticity of import demand (with respect to $R_{£\$}$). Then multiplying the RHS of equation (4) by can be written as:

(5)

If CA=0 at the outset, then and equation (5) becomes:

(6)

which implies that:

(7)

Equation (7) is the **Marshall-Lerner** condition