

Diploma Macro Paper 2

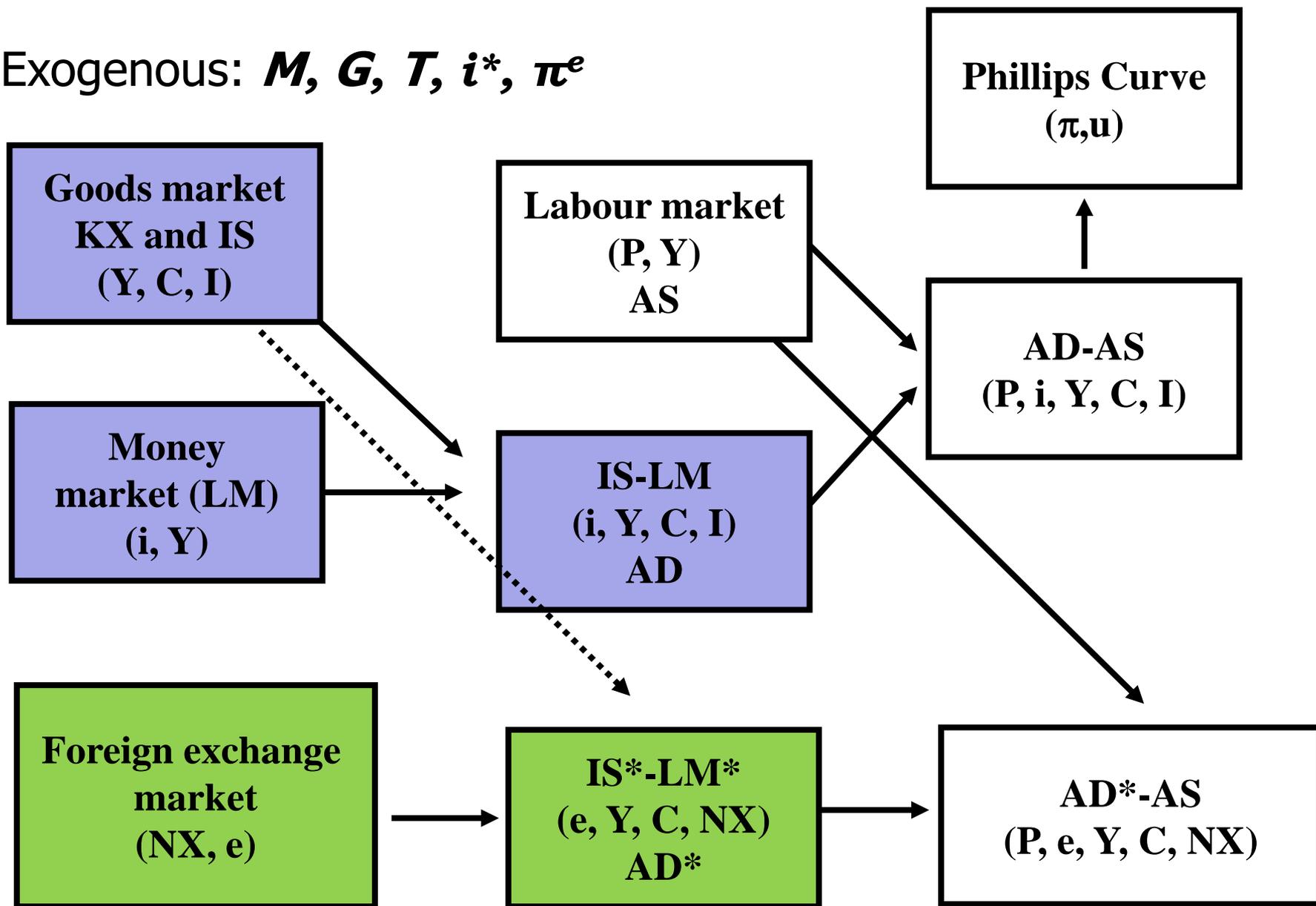
Monetary Macroeconomics

Lecture 5

Aggregate demand: external trade

Mark Hayes

Exogenous: M, G, T, i^*, π^e



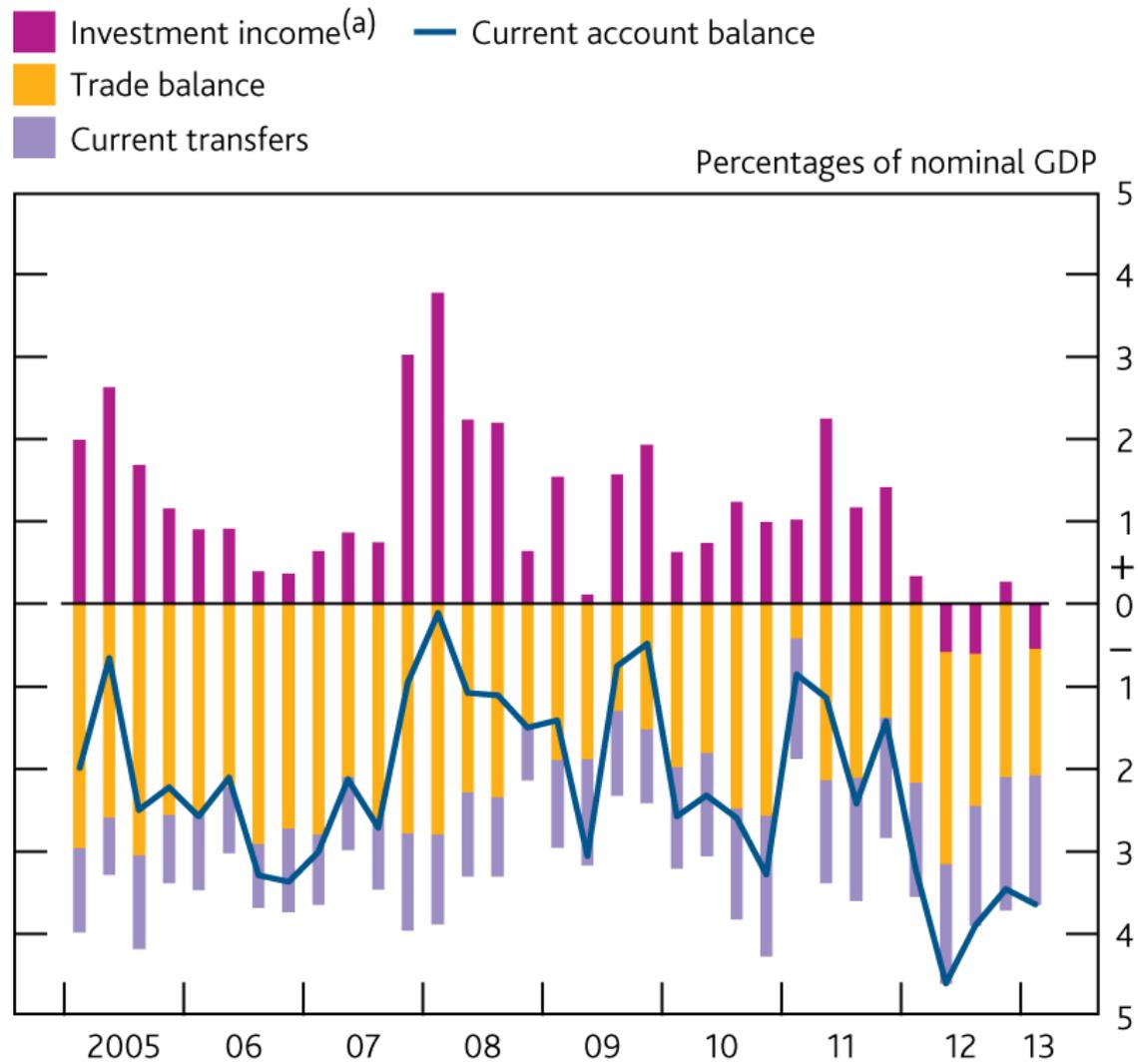
$$E = C + I + G + (X - Z)$$

$$= (c_1(1-t) - z_1)Y + A$$

Summary of policy effects in the Mundell-Fleming model

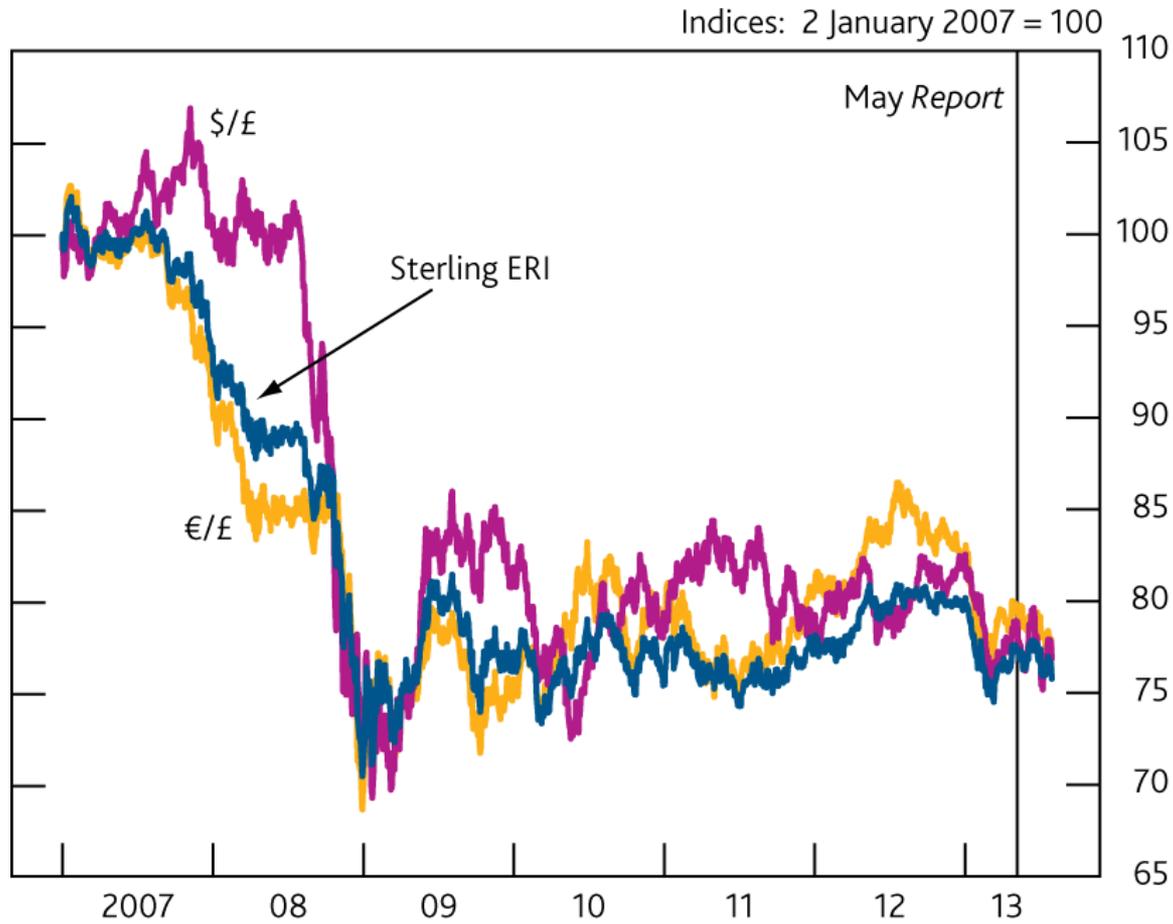
	<i>type of exchange rate regime:</i>					
	floating			fixed		
	<i>impact on:</i>					
<i>Policy</i>	Y	e	NX	Y	e	NX
fiscal expansion	0	↑	↓	↑	0	0
mon. expansion	↑	↓	↑	0	0	0
trade policy	0	↑	0	↑	0	↑

Chart 2.13 UK current account



(a) Includes compensation of employees.

Chart 1.5 Sterling exchange rates



Real and nominal exchange rates

- In Mankiw, nominal exchange rate is relative price of *domestic* currency ('indirect' measure)

$$e = m_f / m_d$$

- real exchange rate is relative price of domestic goods (terms of trade)

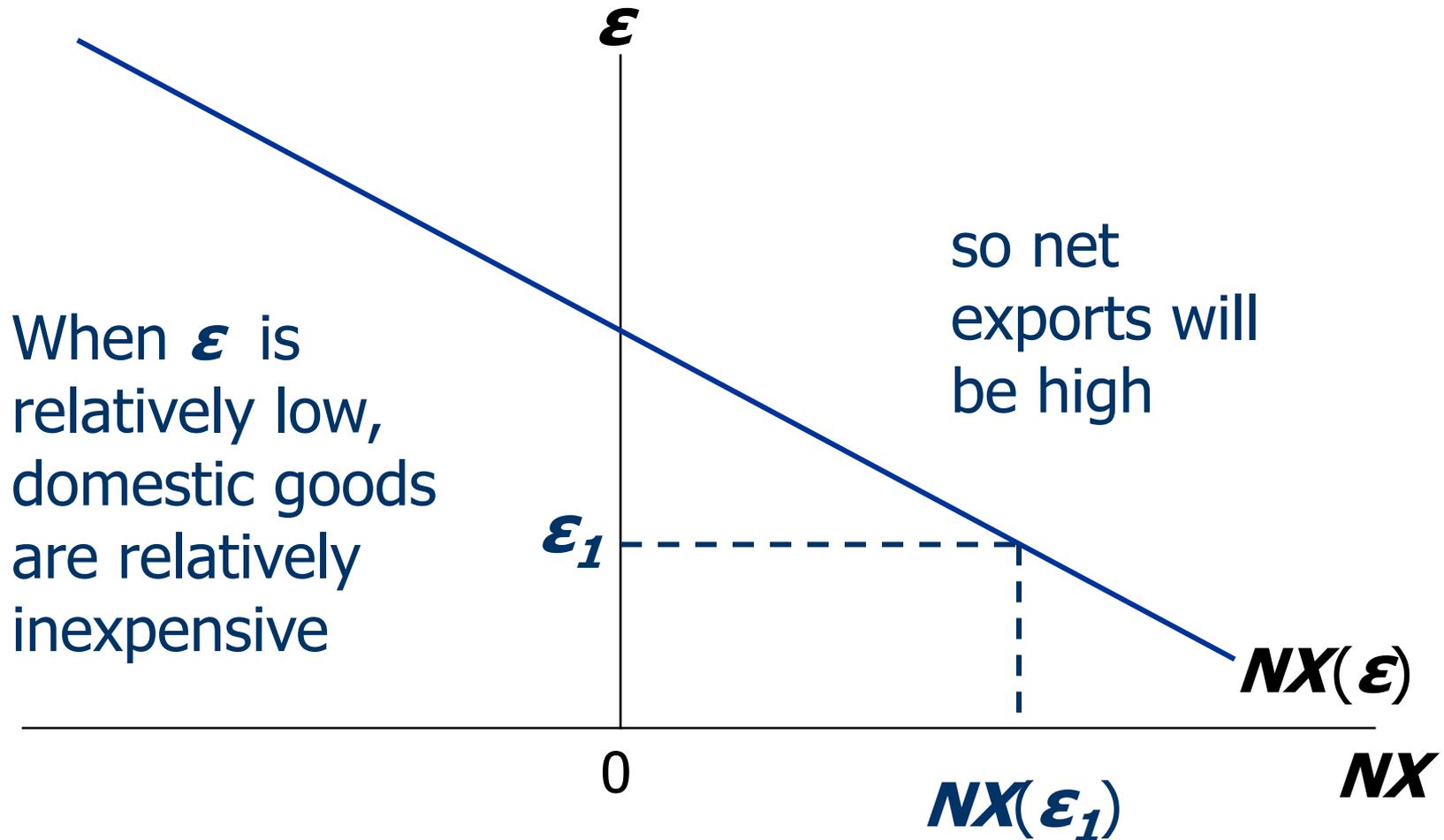
$$\varepsilon = e \times P_d / P_f = m_f / m_d \times m_d / q_d \times q_f / m_f = q_f / q_d$$

The net exports function

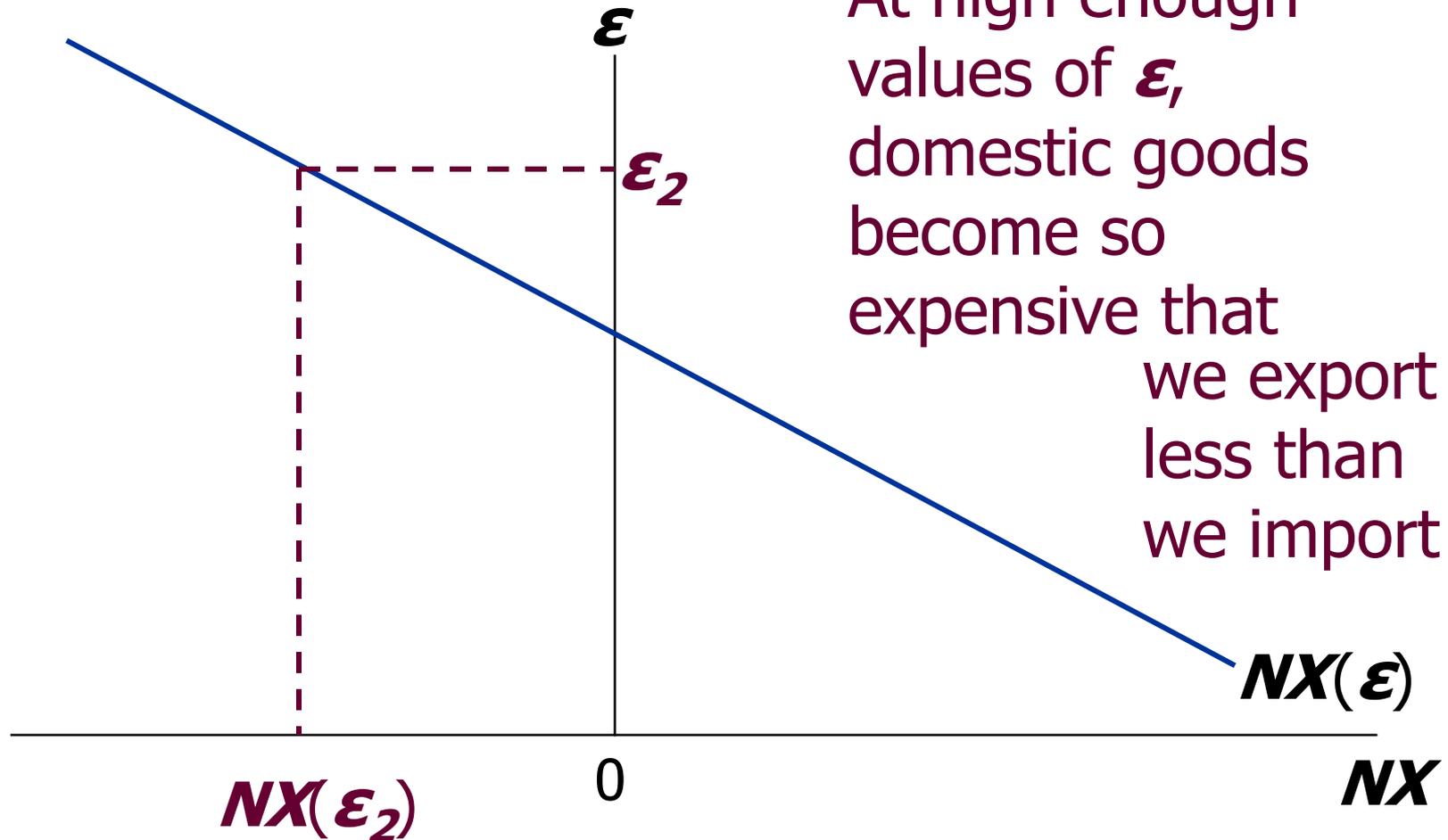
- The **net exports function** represents an inverse relationship between NX and ϵ :

$$NX = NX(\epsilon)$$

The NX curve



The NX curve



The Mundell-Fleming model

- IS*-LM* - a simplified version of Robert Mundell and Marcus Fleming (1962)
- *ABSOLUTELY KEY ASSUMPTION:*
Small open economy with perfect capital mobility.

$$i = i^*$$

- Goods market equilibrium – the IS^* curve:

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NB: $NX(\mathbf{e})$ not $NX(\boldsymbol{\varepsilon})$

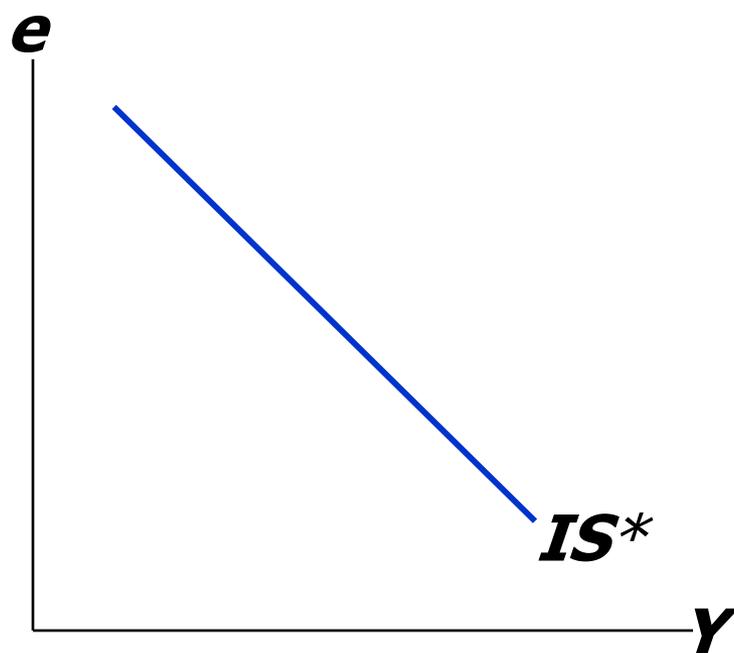
The IS^* curve: Goods market eq'm

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The IS^* curve is drawn for a given value of i^* .

Intuition for the slope:

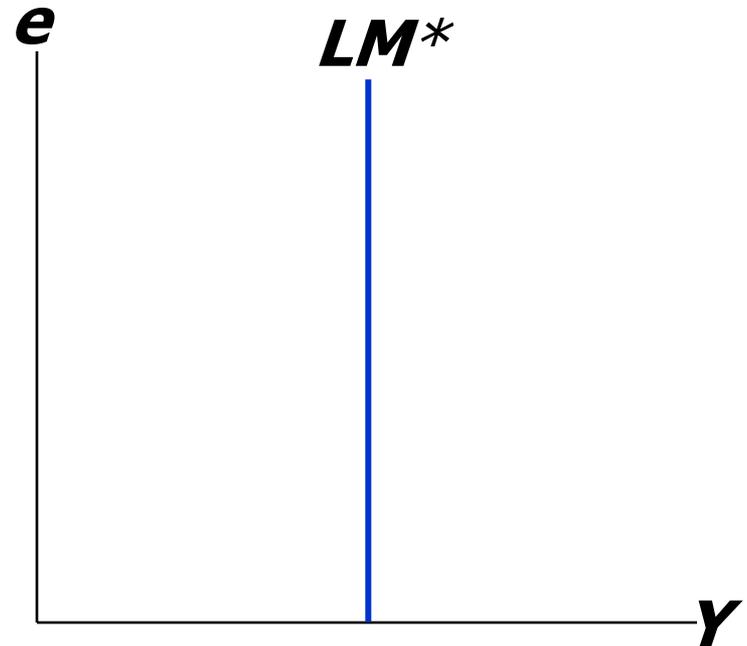
$\downarrow e \Rightarrow \uparrow NX \Rightarrow \uparrow Y$



The LM^* curve: Money market eq'm

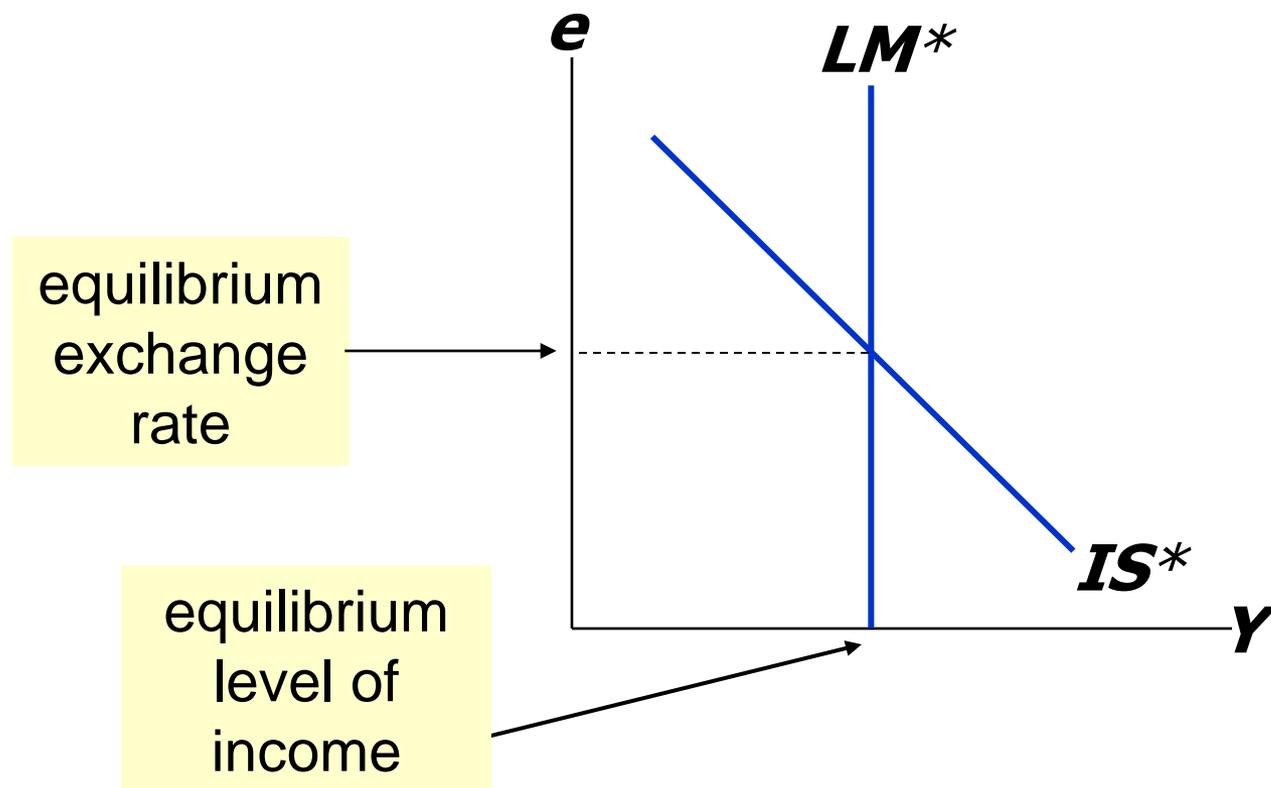
The LM^* curve:

- is drawn for a given value of i^* .
- is vertical because: given i^* , there is only one value of Y that equates money demand with supply, regardless of e .



Equilibrium in the Mundell-Fleming model

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Floating & fixed exchange rates

- In a system of **floating exchange rates**, e is allowed to fluctuate in order to clear the foreign exchange market.
- In contrast, under **fixed exchange rates**, the central bank trades its domestic for foreign currency to “peg” the exchange rate and “makes the market”.
- Next, policy analysis –
 - first, in a floating exchange rate system
 - then, in a fixed exchange rate system

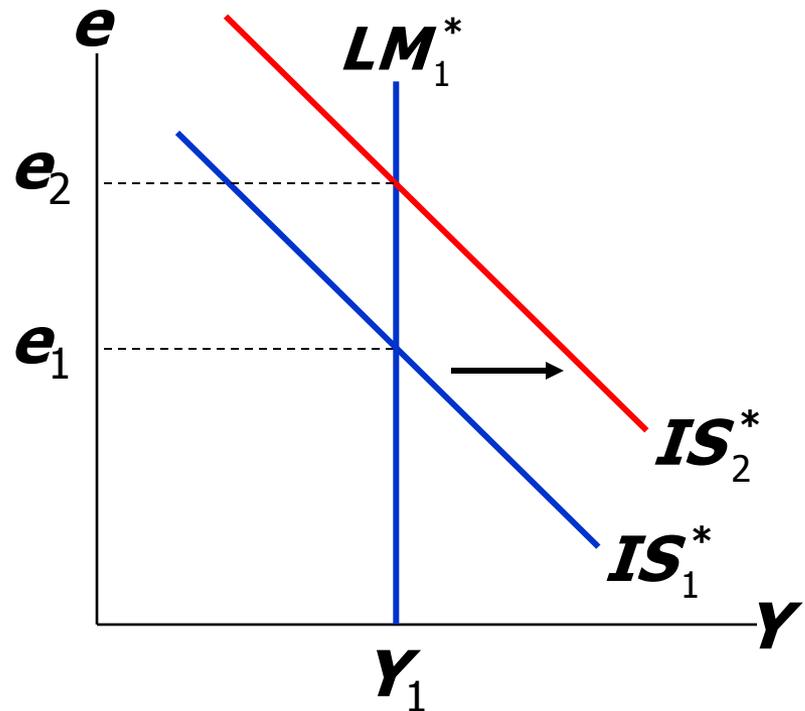
Fiscal policy under floating exchange rates

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At any given value of e ,
a fiscal expansion
increases Y ,
shifting IS^* to the right.

Results:

$$\Delta e > 0, \Delta Y = 0$$



Lessons about fiscal policy

- In a small open economy with perfect capital mobility, fiscal policy cannot affect real GDP.
- “Crowding out”
 - *closed economy*:
Fiscal policy crowds out investment by causing the interest rate to rise.
 - *small open economy*:
Fiscal policy crowds out net exports by causing the exchange rate to appreciate. 100%!

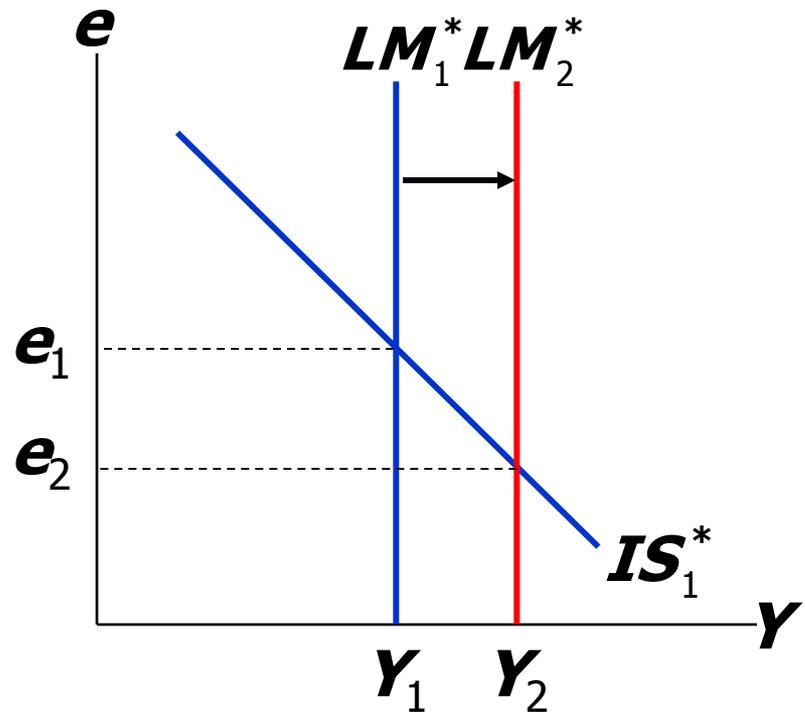
Monetary policy under floating exchange rates

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An increase in M shifts LM^* right because Y must rise to restore eq'm in the money market.

Results:

$$\Delta e < 0, \Delta Y > 0$$



Lessons about monetary policy

- Monetary policy affects output by affecting the components of aggregate demand:

closed economy: $\uparrow \mathbf{M} \Rightarrow \downarrow \mathbf{i} \Rightarrow \uparrow \mathbf{I} \Rightarrow \uparrow \mathbf{Y}$

small open economy: $\uparrow \mathbf{M} \Rightarrow \downarrow \mathbf{e} \Rightarrow \uparrow \mathbf{NX} \Rightarrow \uparrow \mathbf{Y}$

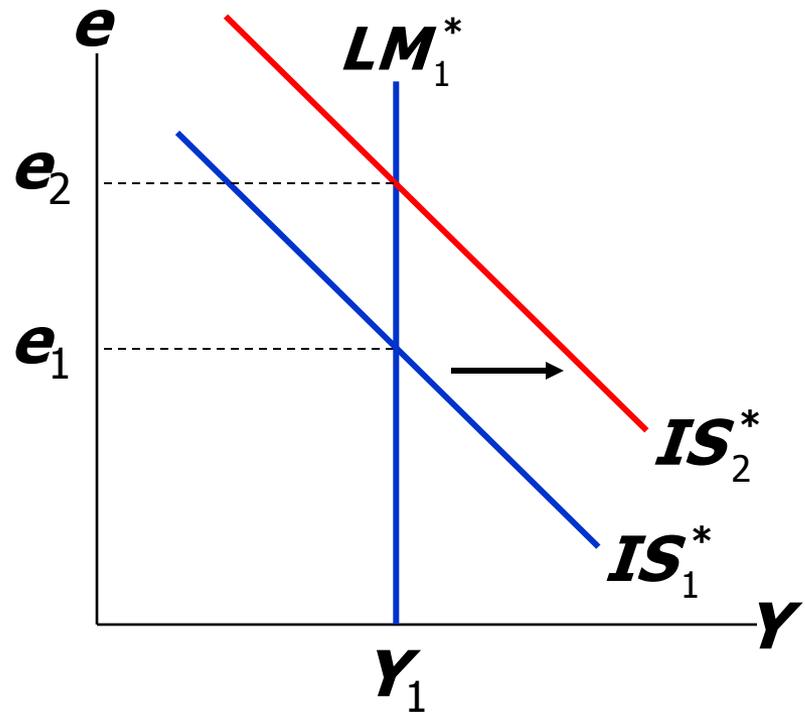
Trade policy under floating exchange rates

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At any given value of e ,
a tariff or quota reduces
imports, increases NX ,
and shifts IS^* to the right.

Results:

$$\Delta e > 0, \Delta Y = 0$$



Lessons about trade policy

- Import restrictions under floating rates cannot reduce a trade deficit.
- Even though ***NX*** is unchanged, there is less trade:
 - the trade restriction reduces imports.
 - the exchange rate appreciation reduces exports.
- Less trade means fewer “gains from trade”
- No increase in income or total employment.

Fixed exchange rates

- Under fixed exchange rates, the central bank stands ready to buy or sell the domestic currency for foreign currency at a predetermined rate.
- In the Mundell-Fleming model, the central bank shifts the LM^* curve as required to keep e at its preannounced rate.
- This system fixes the nominal exchange rate. When prices are flexible, the real exchange rate can move even if the nominal rate is fixed.

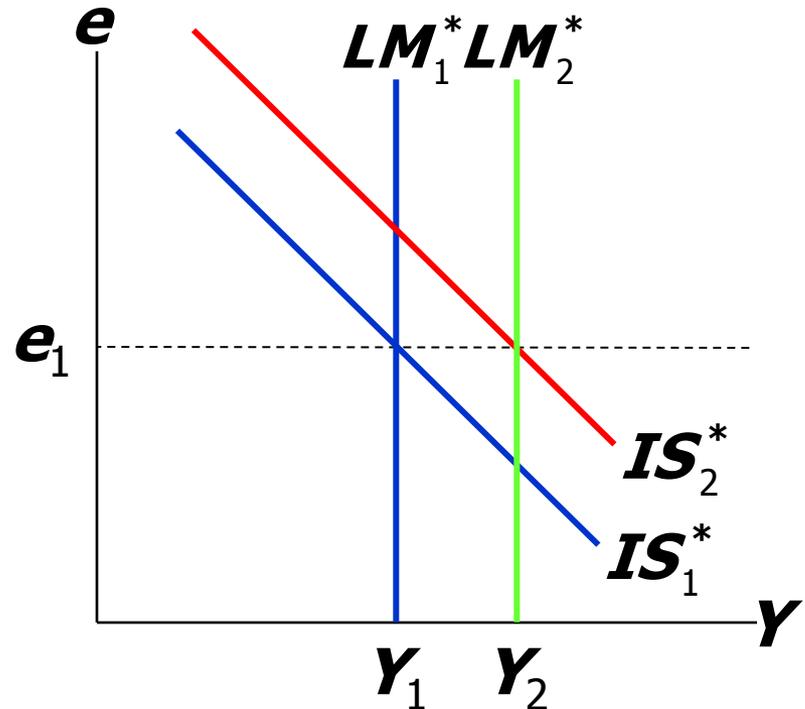
Fiscal policy under fixed exchange rates

Under floating rates, fiscal policy is ineffective at changing output.

Under fixed rates, fiscal policy is very effective at changing output.

Results:

$$\Delta e = 0, \Delta Y > 0$$



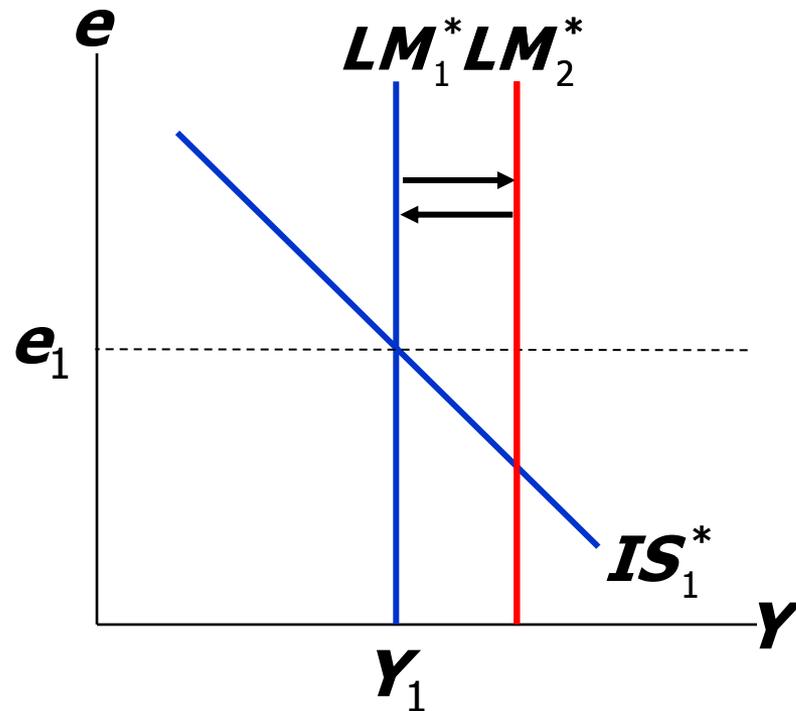
Monetary policy under fixed exchange rates

Under floating rates, monetary policy is very effective at changing output.

Under fixed rates, monetary policy cannot be used to affect output.

Results:

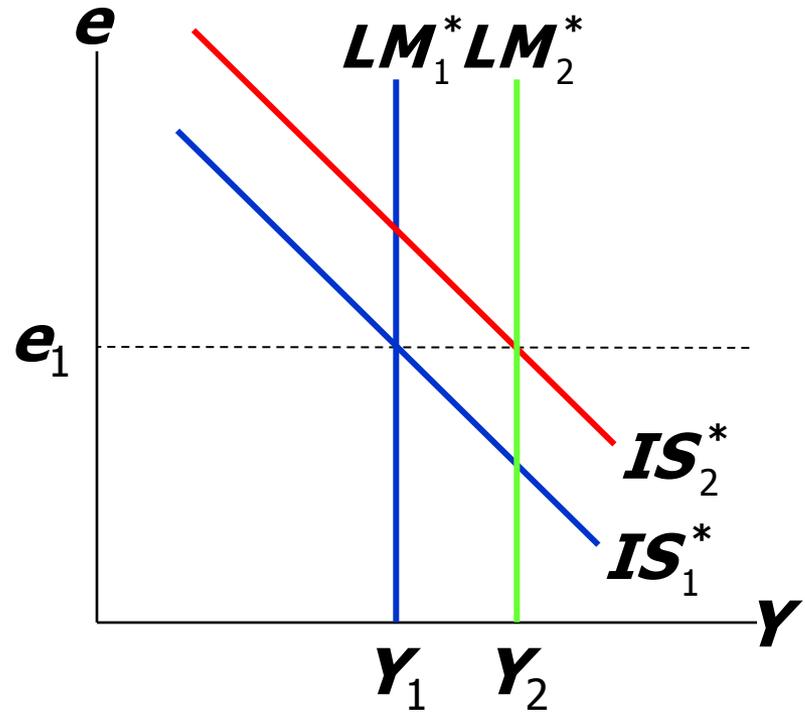
$$\Delta e = 0, \Delta Y = 0$$



Trade policy under fixed exchange rates

Under floating rates, import restrictions do not affect Y or NX .

Under fixed rates, import restrictions increase Y and NX .



Summary of policy effects in the Mundell-Fleming model

	<i>type of exchange rate regime:</i>					
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	<i>impact on:</i>					
<i>Policy</i>	Y	e	NX	Y	e	NX
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trade policy	0	↑	0	↑	0	↑

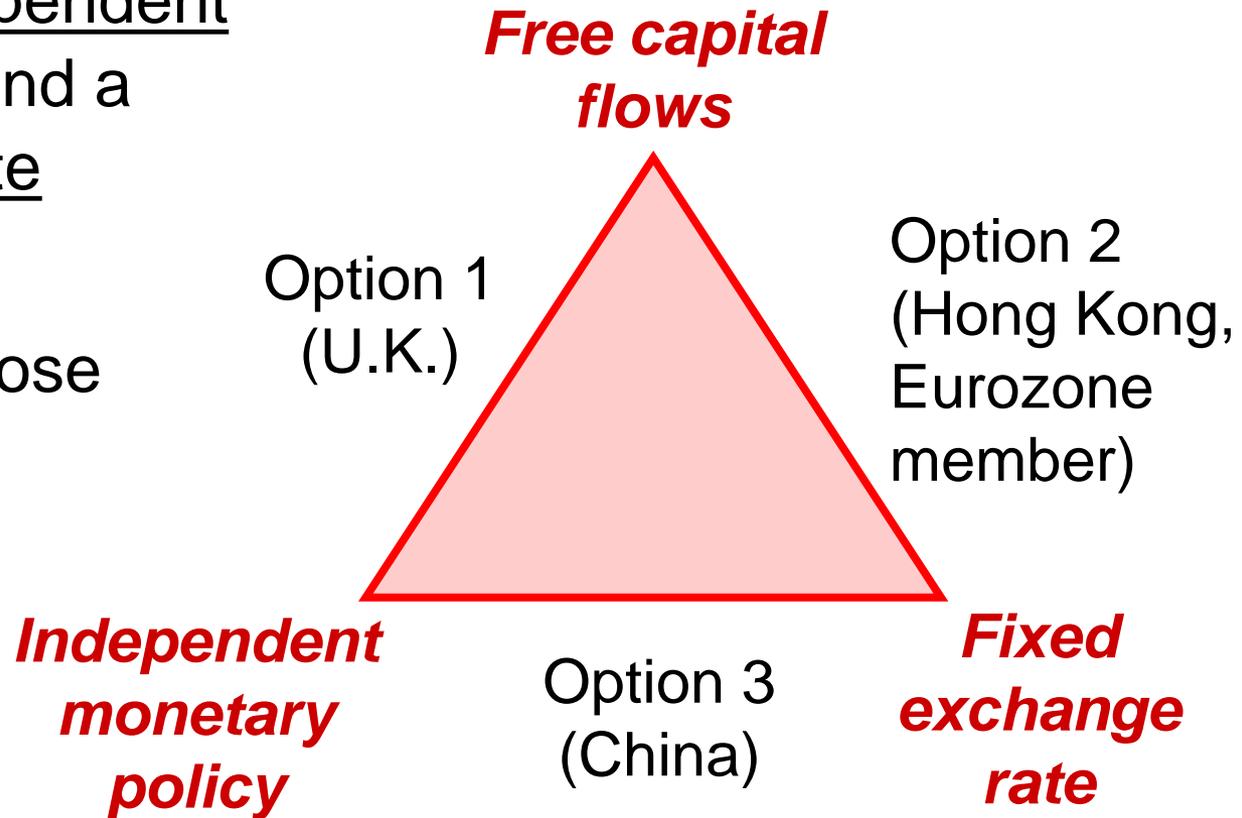
Summary of policy effects in the Mundell-Fleming model (extended)

	<i>type of exchange rate regime:</i>					
	floating			fixed		
	<i>impact on:</i>					
<i>Policy</i>	Y	e	NX	Y	e	NX
fiscal expansion	0	↑	↓	↑	0	↓
mon. expansion	↑	↓	↑	0	0	0
trade policy	0	↑	0	↑	0	↑

The Policy Trilemma

A nation cannot have free capital flows, independent monetary policy, and a fixed exchange rate simultaneously.

A nation must choose one side of this triangle and give up the opposite corner.



Next time

- Tie up IS^* - LM^* with AD curve
- Consider aggregate supply (AS)
- Tie AD and AS together to complete the model