Econ 2004:
The Open Economy

Lecture 6: The supply side and the AD-BT-ERU model

Reading.

Core:

Carlin & Soskice (2015) Chapter 10 Sections 10.1.2, 10.2.2, 10.2.3, 10.3, 10.4

Optional: See Moodle page

First half of the course – a balance sheet

Model-building

- MRE model (AD-BT-ERU) – equilibrium unemployment and exchange rate; medium-run inflation rate
- 3-equation model of inflation targeting central bank – incorporating forward-looking forex market
- Close-up on the balance of trade → Marshall-Lerner condition; BT curve

Policy questions

- Optimal response to shocks by inflation-targeting CB
- Overshooting & shocks from the forex market

Events

- Inflation and exchange rate regimes: under fixed & flexible exchange rates
- Thatcher and exchange rate overshooting; Swiss Franc
- 'Currency wars' (China, Japan – Abenomics, Trump) and CB policy

This lecture

Model-building

- A range of equilibrium unemployment rates in the open economy (downward-sloping ERU curve)
- The AD-BT-ERU model with a downward-sloping ERU
- Long-run equilibrium: real exchange rate expectations

Policy questions

Can the government use fiscal policy to choose a lower equilibrium unemployment rate?
Can a private sector boom lead to a lower equilibrium unemployment rate?

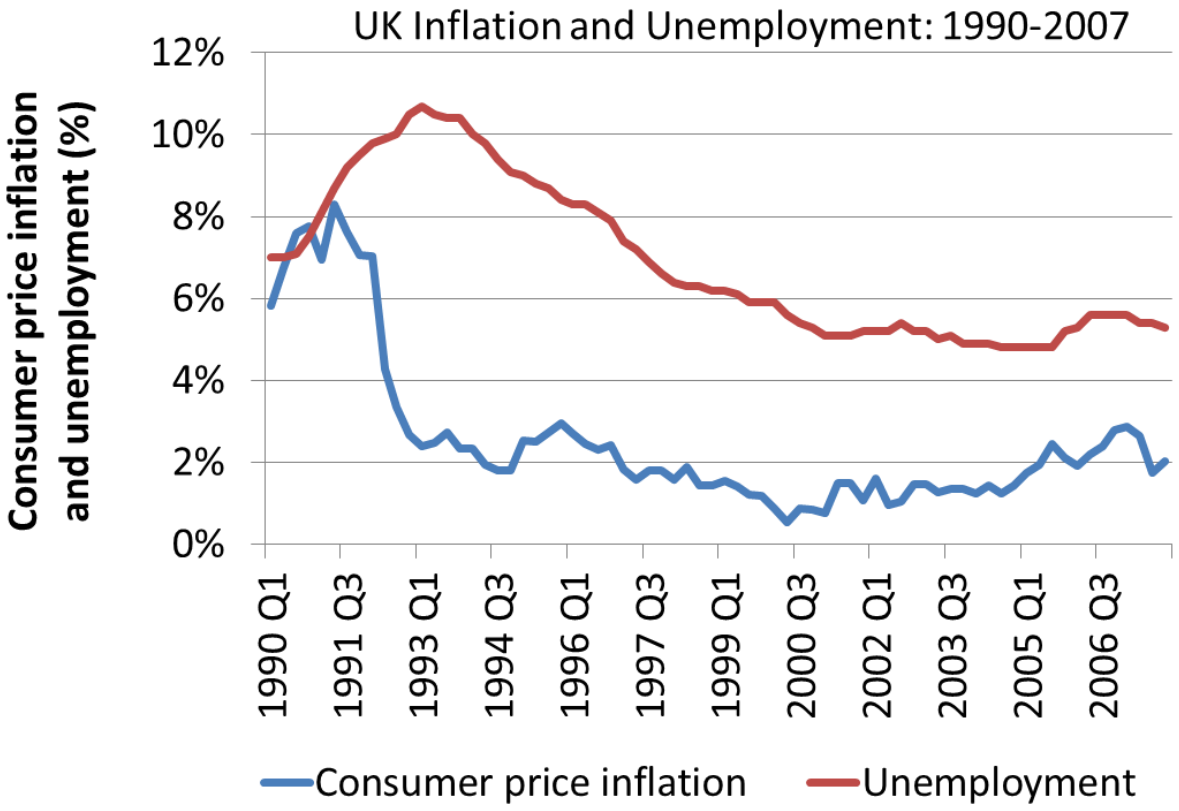
Why these questions?
Can DEMAND-SIDE policy or shocks affect equ. unemployment?

Case study – the NICE years for the British economy under the Labour government from 1997-2007 (before the global financial crisis)

The UK economy under Labour (from 1997) – the NICE years

- Remarkably strong performance of UK economy following exit from 'fixed' exchange rate ERM in 1992

What was this? See CS2006 pp. 698-704 or De Grauwe book



UK economic performance before the global financial crisis

Question. How was such a prolonged period of falling U without rising π possible?

Using a closed economy model, how can you explain this?

The UK economy under Labour (from 1997) – the NICE years before the global financial crisis

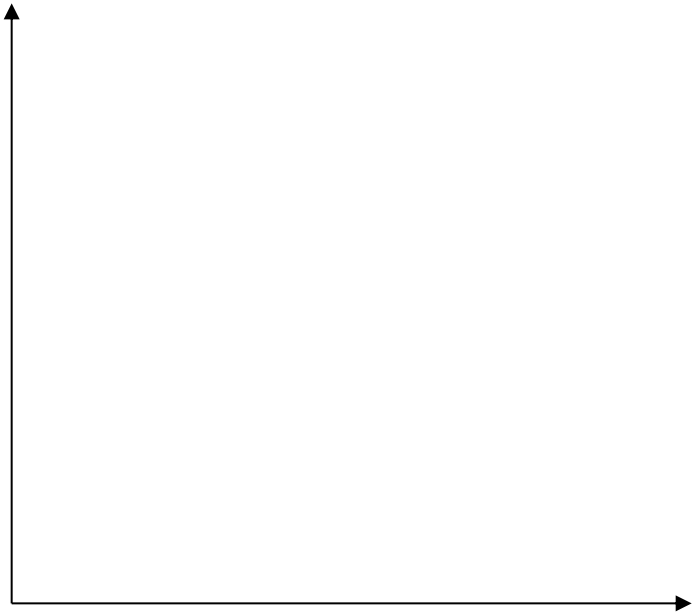
Using the open economy model:
H1. Supply-side improvements beginning with Thatcher reforms … ERU shifts right

Use AD-ERU model for H1

The UK economy under Labour (from 1997) – the NICE years

H2. Positive aggregate demand shocks… AD shifts right and economy moves down ERU

AD-ERU model for H2 cannot predict lower equilibrium U



→Is the ERU curve downward-sloping?
→If so, IS shocks & higher G can change equilibrium unemployment in open economy

Back to the model:

Why is there a range of equilibrium unemployment rates in the open economy?

The downward-sloping ERU curve – workers care about their real wage in terms of consumer prices (vertical ERU assumes _____ not ____)

Deriving the ERU curve

Components: as usual, WS &PS curves

1. WS curve – we now introduce the CPI

What is the consumer price index (CPI) in the open economy?

Assume:

- all imports are final goods
- households consume a bundle of home-produced & imported final goods

Hence, $P_C =$

Deriving the ERU curve (cont.)

2. PS curve – we have to define this in terms of W/P_C so we can show PS on same diagram as WS (p.370)

We know

$$P = P_x = (1+\mu)\frac{W}{\lambda}$$

$$P_m = P^* e$$

$$P_C = (1-\phi)P + \phi P^* e$$

$$\rightarrow \frac{W}{P_C} = w^{PS} = \frac{\lambda(1-\mu)}{1+\phi(Q-1)}$$

Compare with the closed economy & vertical ERU PS:

How to remember?

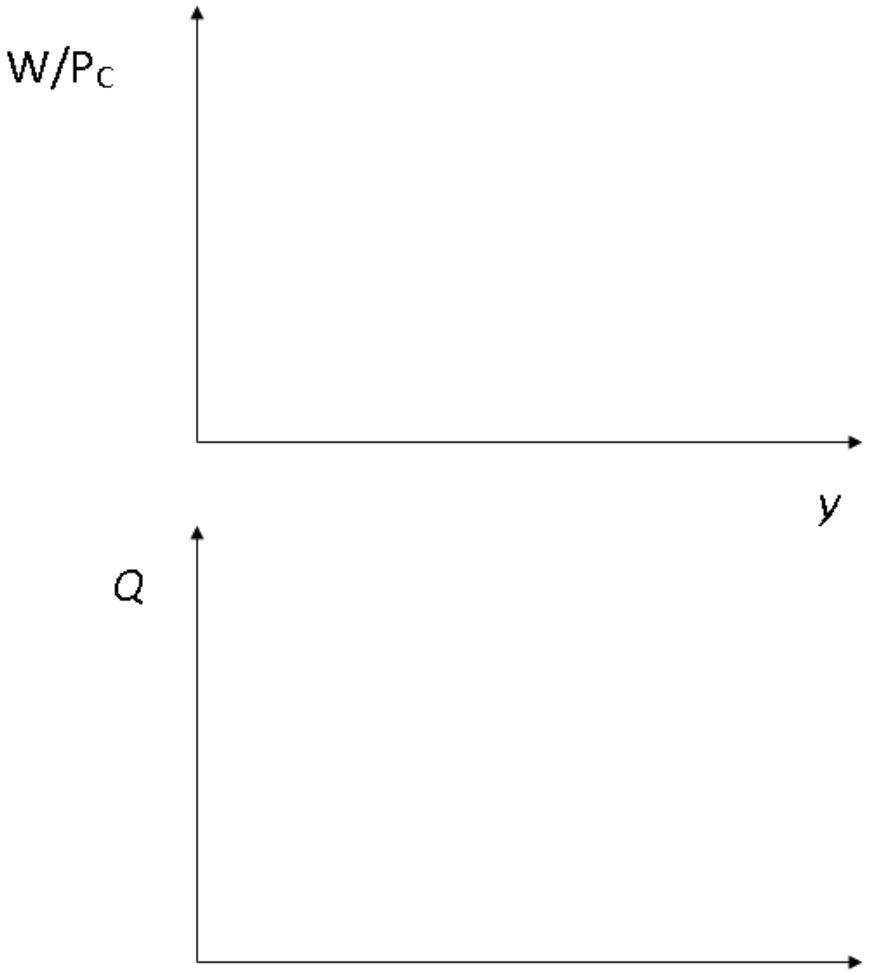
Deriving the ERU curve (cont.)

Hence for *WS=PS(Q)* i.e. where inflation is constant, there is a range of levels of y_e: the ERU

$$WS \text{ curve: } w^{WS} = B(y, z^W)$$

$$PS \text{ curve: } w^{PS} = \frac{\lambda(1-\mu)}{1+\phi(Q-1)}$$

$$w^{WS} = w^{PS} : B(y, z^W) = \frac{\lambda(1-\mu)}{1+\phi(Q-1)}$$



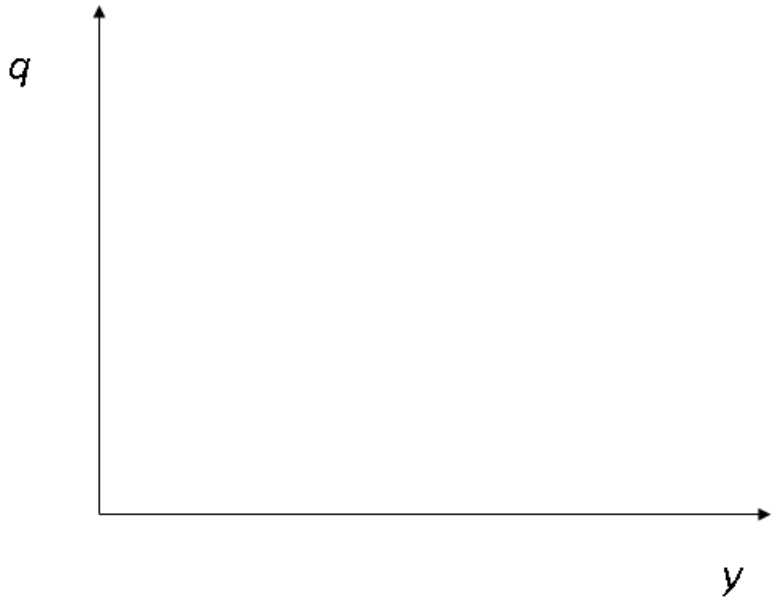
So much for the maths, what does it mean?

- Consider a real appreciation due to a nominal appreciation
- What are the implications for SUPPLY-SIDE equilibrium?
- What happens to P (for domestic production and exports) as a result of nominal appreciation?

All about the ERU curve

1. Use q not Q on the axis (for convenience)

2. Why is ERU downward-sloping?

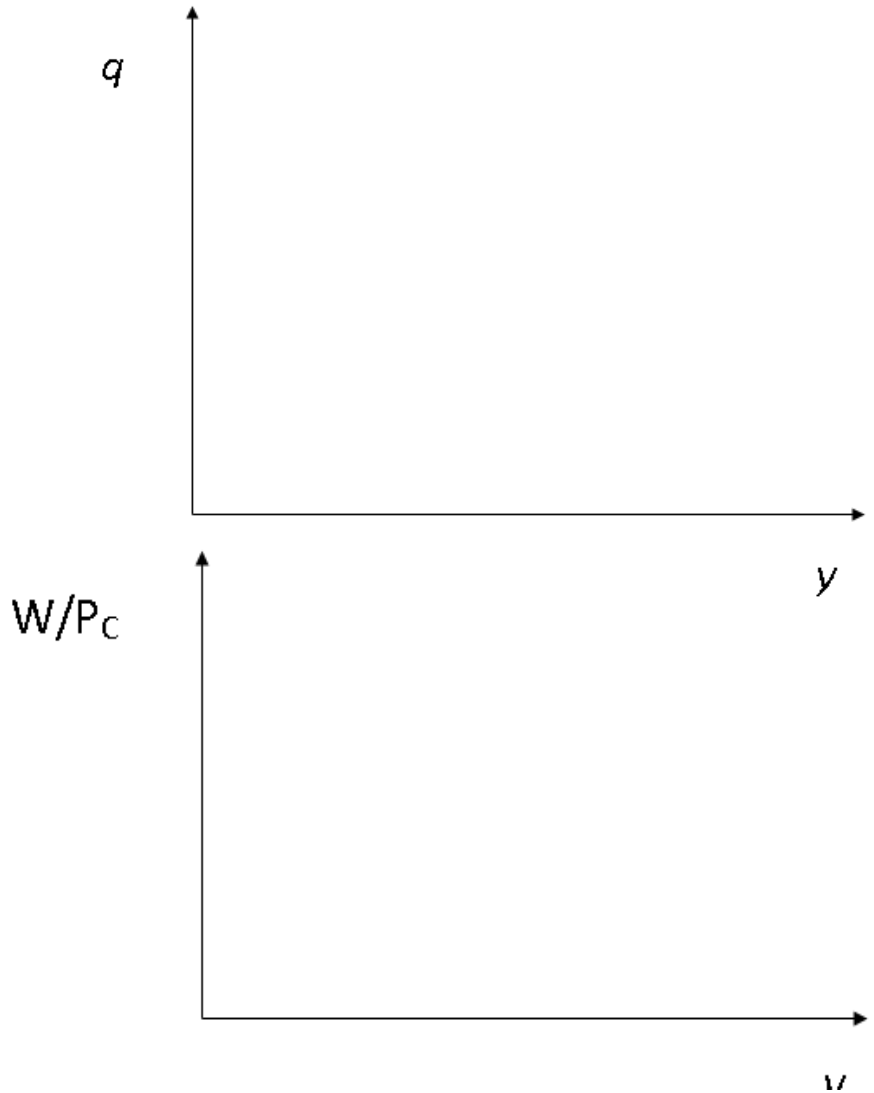


3. What shifts ERU (just as for vertical ERU – nothing new here)?

All about the ERU curve

4. Why is inflation constant on the ERU curve?

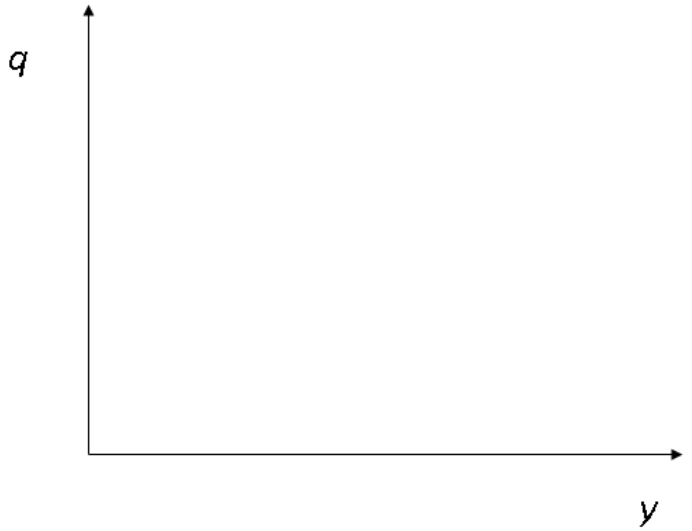
5. What is happening to inflation if not on ERU?



Back to the UK economy under Labour (from 1997) – the NICE years

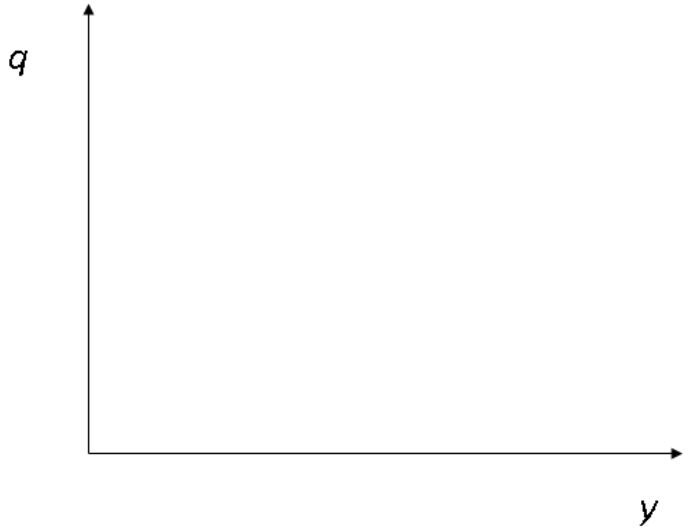
H1. Supply-side improvements beginning with Thatcher reforms;
ERU shifts right; new MRE at lower U

→ for *q, U, π, BT?*



H2. Positive aggregate demand shocks (consumption, housing, government spending)
AD shifts right; new MRE at lower U

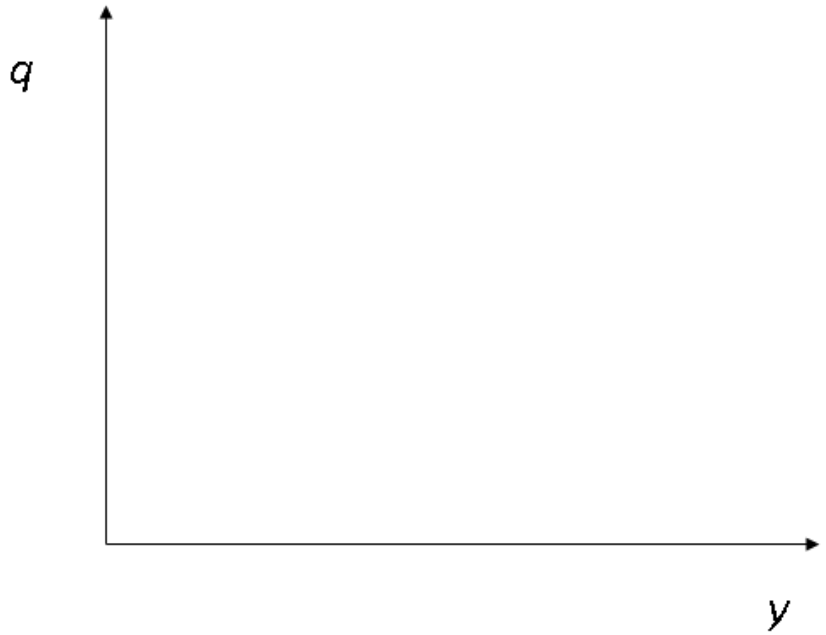
→ for *q, U, π, BT?*



Summarizing the AD-BT-ERU model

The BT curve – why flatter than AD?

If the economy is above the BT curve,
there is a BT _____ and vice versa;
BT shifts with _____



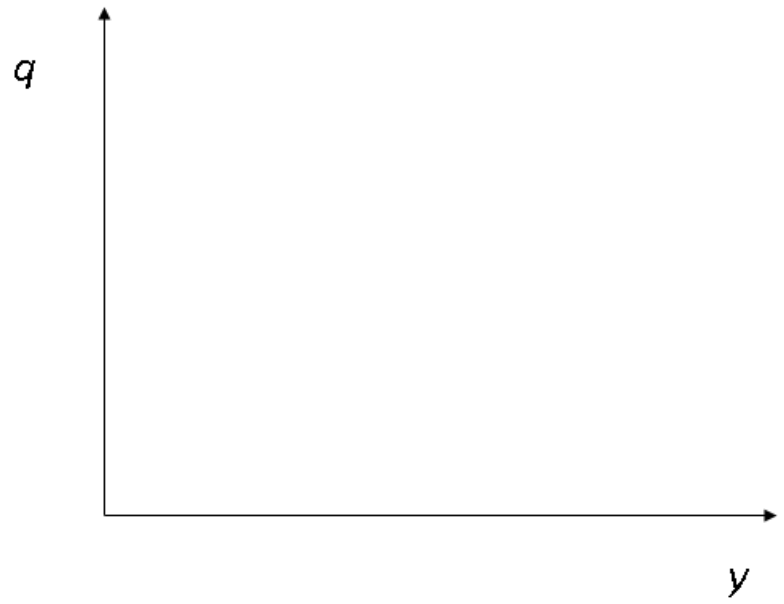
Back to the UK economy under Labour (from 1997) – the NICE years

H1 Supply side – how does it work?

ERU shifts right → downward pressure on inflation; looser MP; new MRE at depreciated RER and lower U.

Model predicts:

- BT *improves*
- *real depreciation* &
- lower U



Back to the UK economy under Labour (from 1997) – the NICE years

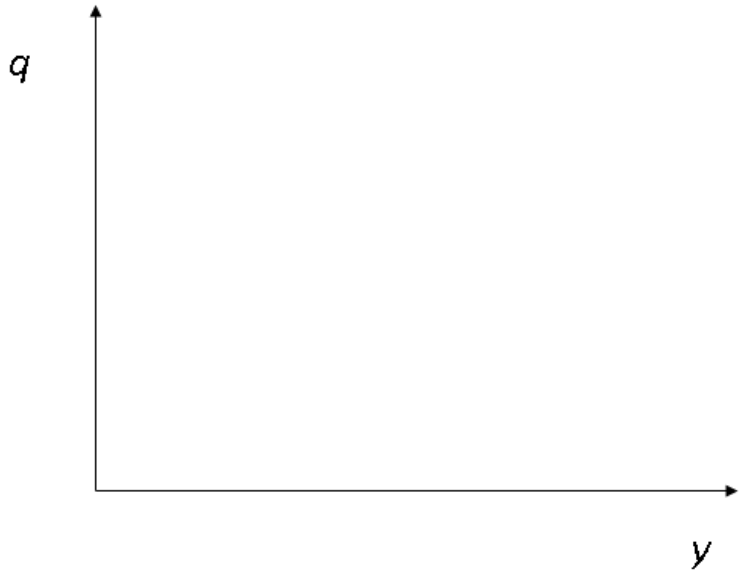
H2. Positive aggregate demand shocks (consumption, housing, government spending) … AD shifts right; new MRE at lower U

How does it work?

AD shifts right → upward pressure on inflation; tighter monetary policy; nominal appreciation; new MRE at appreciated RER and lower U

Model predicts:

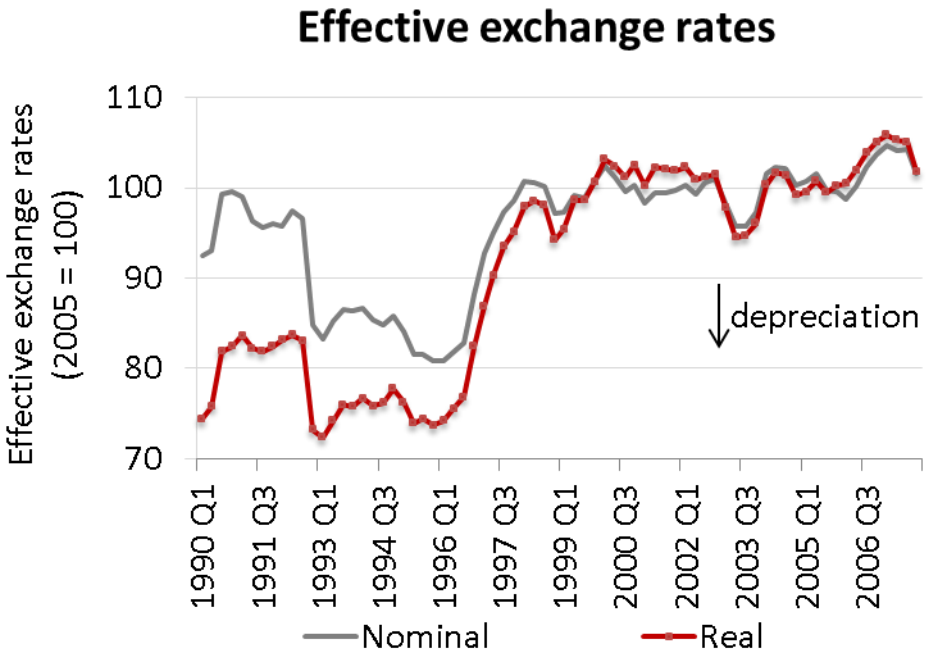
- BT *deteriorates*
- *real appreciation* &
- lower U



Next step: check with the evidence …

The UK economy under Labour (from 1997) – the NICE years

Step 1. Evidence on predicted outcomes
H1 and H2 both predict lower U and stable inflation
But
H1 predicts real depreciation, improvement in BT
H2 predicts real appreciation, deterioration in BT



For BT data, see slide 21 below

The UK economy under Labour (from 1997) – the NICE years

Step 2. Evidence on causes

H1. Supply-side improvements beginning with Thatcher reforms …
ERU shifts right
Many indicators of this

Table 10.2 UK labour market institutions and government policy: 1983–2003.

	1983	1988	1993	1998	2003
Average replacement rate	21.7	18.1	18.5	17.5	16.5
Tax wedge	26.6	25.1	23.8	24.9	17.4
Product market regulation	4.5	3.8	2.2	1.4	1.0
Union density	48.0	42.6	36.1	31.5	30.5

Source: OECD Employment Outlook 2006, June 2006.

- WS curve shifted ____ (weaker unions, tighter conditions for U benefits)
- PS shifted ____ (lower taxes, more product market competition)

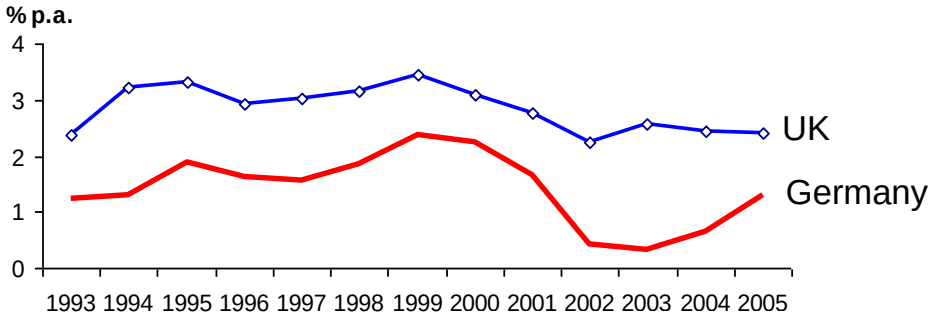
The UK economy under Labour (from 1997) – the NICE years

Step 2. Evidence on causes

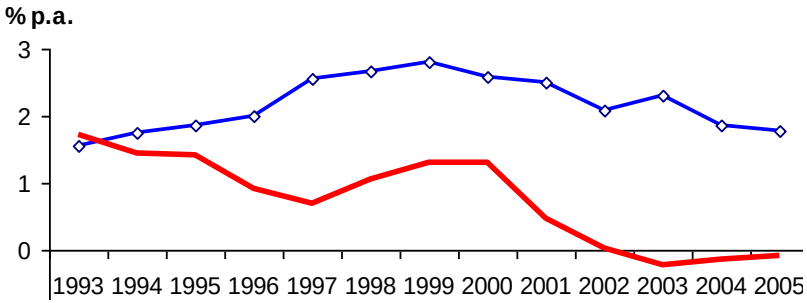
H2. Positive aggregate demand shocks (consumption, housing, government spending) … AD shifts right; new MRE at lower U

- Many indicators of this – covered in Term 1
- Charts on next slide (show growth of GDP p.a.; and contributions of C (including housing); I; G; and (X-M)
- Comparison with Germany

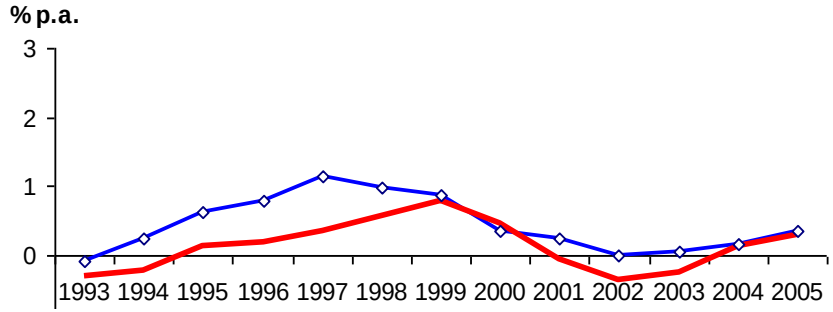
GDP



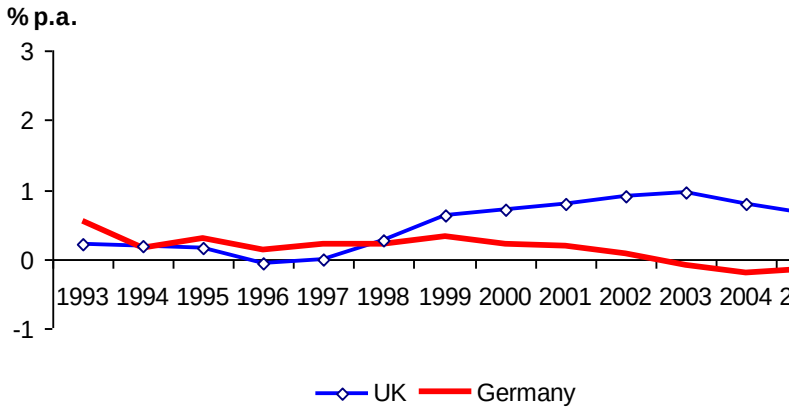
Private consumption and housing



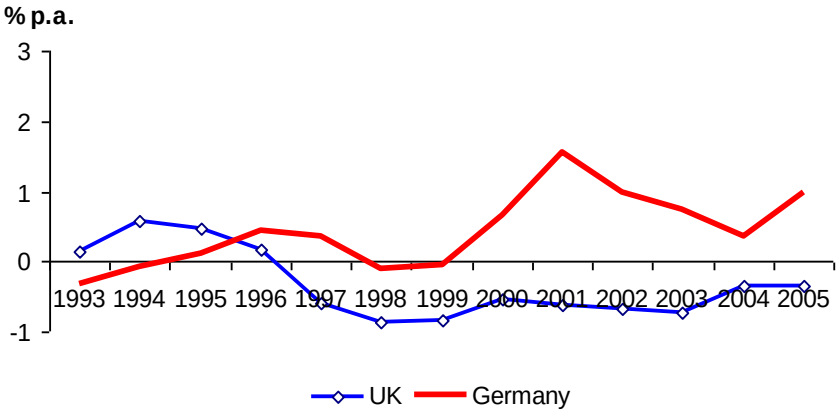
Private non-housing investment



Government consumption & investment



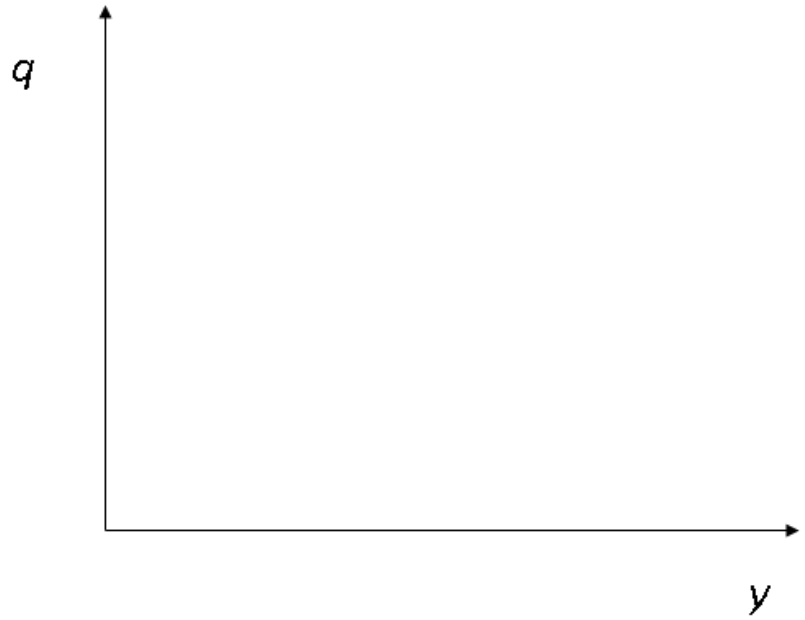
Net exports



Summary of 2 hypotheses about the NICE years

Evidence supports a synthetic hypothesis with a combination of

- ERU (supply-side) shocks – lagged effect of Thatcher reforms
- AD shocks (private and public sector spending booms)
- BT (some new sources of comparative advantage including financial sector probably helped maintain ‘strong’ pound)

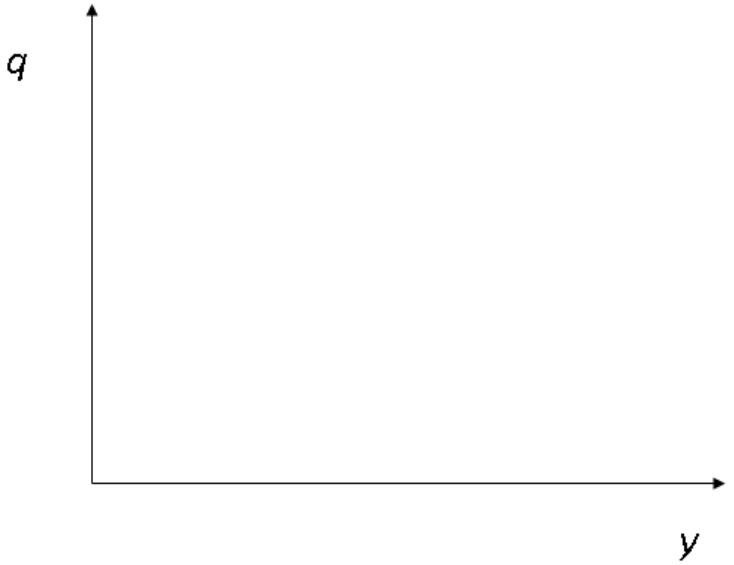


Medium- and long-run equilibrium

In the model so far,
Equilibrium real exchange rate, ___ , is determined by _____

But in the long run, pressures toward

Why?



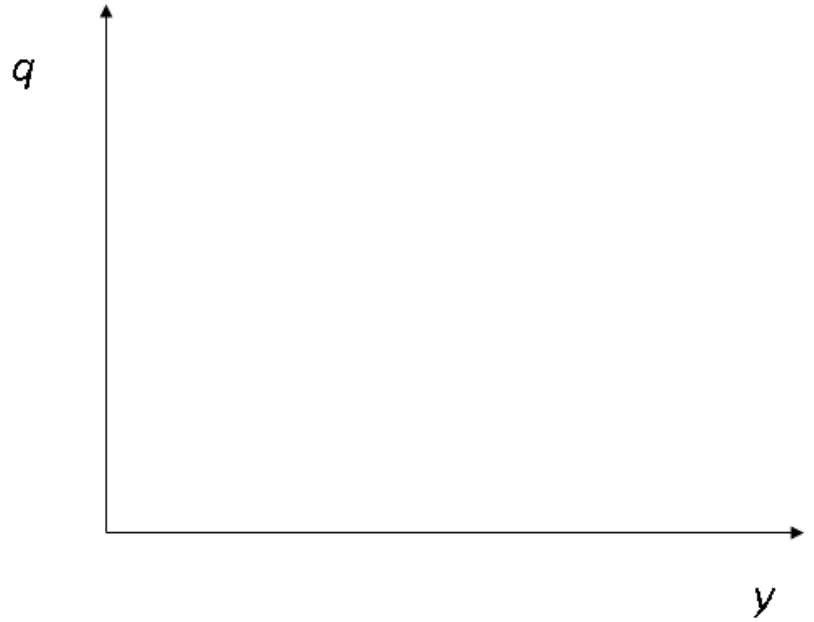
→ Concept of long-run equilibrium RER:

Medium- and long-run equilibrium

What happens if q^E is determined by *BT=0*?

Begin at MRE with *BT < 0.*

Show that the only stable MRE is at *BT=0*.



What happens if at MRE, *BT > 0 ?*

Summing up

1. Full model: AD-BT-ERU provides a general framework for policy analysis & can be used to look at MRE irrespective of exchange rate regime

2. Remember what is behind each curve, what affects its slope & what can shift it; think about data relevant to each curve
   a) AD: the demand side, i.e. IS curve
   b) BT: X, M and their determinants
   c) ERU: the supply side, i.e. WS, PS

3. Can be used in conjunction with the 3-equation model to discuss CB's response to shocks under flexible exchange rates

Next week … all about oil

How to analyse

- the macro impact of oil price shocks
- discovery of a natural resource

Self-test questions

CS (2015) Chapter 10, checklist questions 5, 7, 9, 10