Econ 2004:
The Open Economy

Lecture 5: Demand Side and Trade Balance in the Open Economy

Reading.
Core:
Carlin and Soskice (2015) Chapter 10 Sections 10.1 (to see where we are going), 10.2.1
Blanchard, Amighini & Giavazzi (2010) Chapters 6 and 18 … much the same material is presented as in CS but in a different order and with less detail.

Optional: See Moodle page

These are the questions for this course:

1. What is happening in the real-world macro economy?

2. How are policy choices made & what would we expect their effects to be?

The aim is for you to be able to answer them using an organized framework … a set of related models

How far have we got?

Progress so far

1. The core concept of arbitrage behaviour in the forex market (there are profits to be made by anticipating what is expected to happen in the future) → UIP and real UIP condition

How do we know what will happen to *e, q* NOW?

2. Medium-run model: AD-ERU model.

How do we know if the economy is in medium-run equilibrium (in the model)? What determines $y_e, \pi^{MRE}, \bar{q}$?
How do demand & supply shocks affect ___ and ___ in MRE & why don't they affect ___ ?

3. 3-equation open economy model for *flexible* exchange rate economy – i.e. where there is monetary policy at national level: IS/PC/MR (modern monetary policy framework)

How do we get from one MRE to another following a shock?

To feel comfortable with the models, you must be able to answer the questions using   and   and

Why use?	Comment
AD-ERU Medium-run model – pins down MRE when inflation is constant Shows RER and equilibrium output in MRE	• AD & ERU are the same under fixed & flex exchange rates • Pins down destination when analysing adjustment to shocks (Z) • NB *Adjustment* is different under fixed & flex exchange rates (we discuss fixed e in Lecture 9) So far, we have *nothing to say* about how the economy adjusts to a new MRE under *fixed* exchange rates
3-equation open economy Dynamic model of inflation-targeting CB (flex e only)	• Given 'A' and 'Z', model adjustment to shocks; shows CB's r decisions explicitly • Adjustment process along RX curve is consistent with rational expectations – forex operators & CB 'solve the model' • CB uses MP to get on to MR/RX at point 'C' involves exchange rate overshooting

Why use?	Comment
The simulator	• To check that you understand both the 'destination' i.e. the new equilibrium and the dynamic adjustment – compare the impulse-response plots with your diagrams • To experiment with different shocks, different parameters, to play the role of policy maker • For example, model effects of Brexit, of Trump policies • To get a publication on the OUP website

This lecture

Focus on the demand side (AD) and the trade balance (BT) … (some of this will be familiar from ECON1001)

- Why is the AD curve positively sloped?

- If a real depreciation increases the real cost of   , how do we know it improves the trade balance?

- Why is the BT curve positively sloped in the q-y diagram and is it steeper or flatter than the AD?

Demand in the Open Economy

Assume we are in the short-run before the annual wage round,

Q1. What determines y?

Q2. What determines the balance of trade, BT?

Why do we care about BT?

When BT<0, M > X

→ home is borrowing from abroad and home's wealth is

Why do changes in wealth matter?

Goods Market Equilibrium

Simple functions for X =   and M =
y^D = demand for *domestically* produced goods & services requires that we

We therefore
have goods market
equilibrium

Data on mpc and mp to import (both matter for the multiplier)

Summary chart Estimated marginal propensity to consume of different types of households[a]

Average marginal propensities to consume

Borrowers — ~0.48
Savers — ~0.09
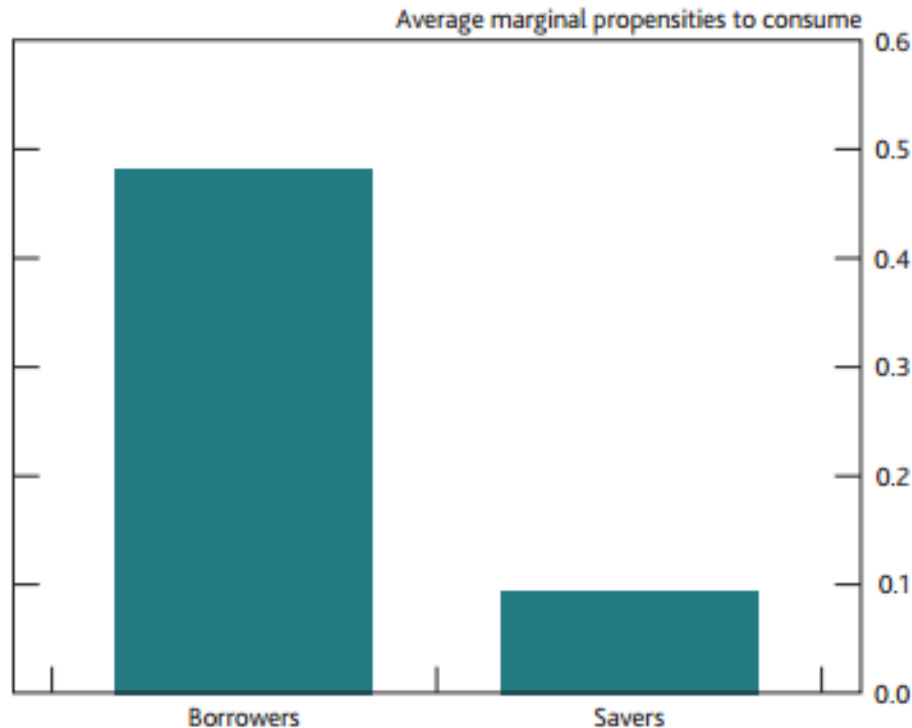
Sources: NMG Consulting survey and Bank calculations.

(a) See footnote to Chart 10 for more details on how this chart is constructed. The chart shows data from the 2015 H2 survey.

Data on marginal propensity to consume (UK) and marginal propensity to import (China)

| 2003-05 | 2006-07 | 2010-11 | 2012-13 |
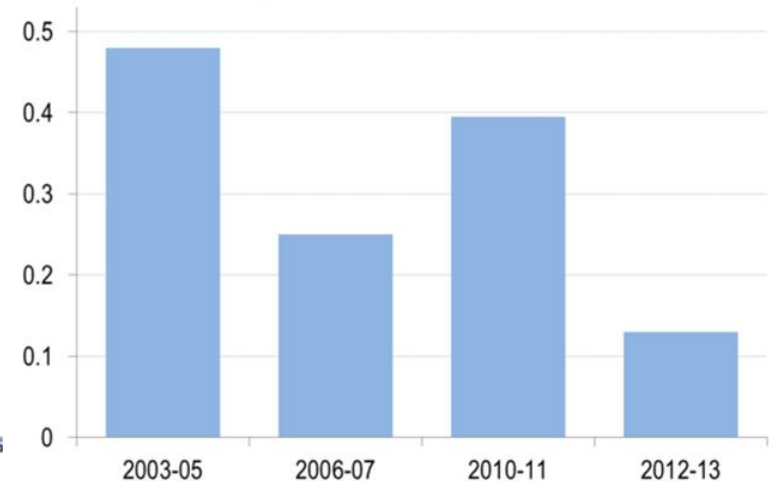
China's marginal propensity to import has declined sharply

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Another form of the goods market equilibrium condition

Outflows of demand (leakages) & inflows of demand (injections) for domestic output

Balance of trade:

Inflows,

outflows

y
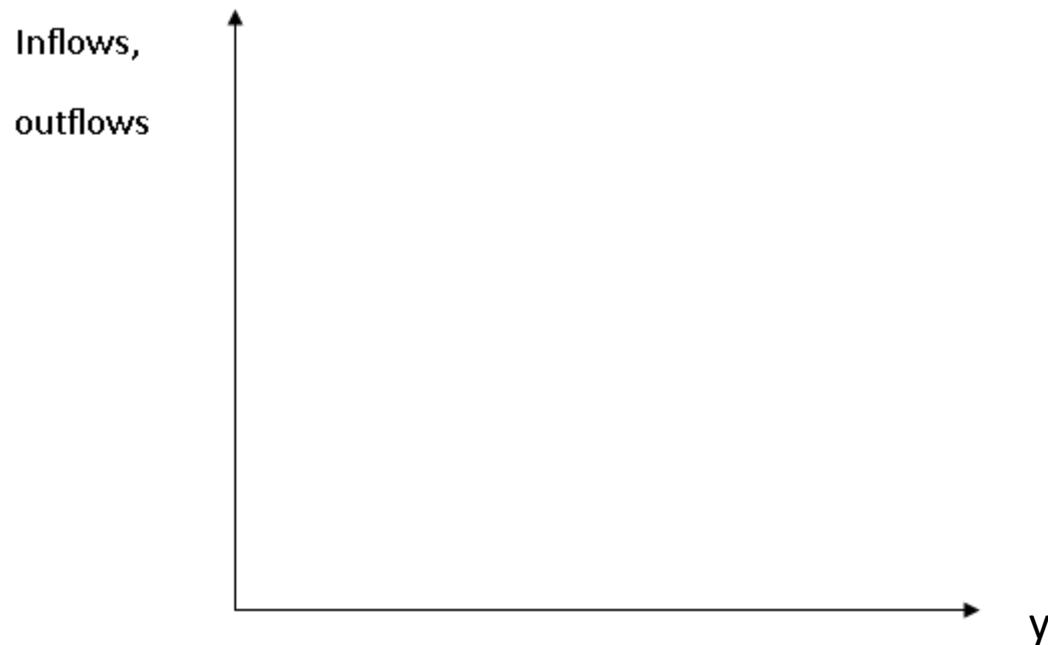
Summary

From the short run model (so far), compare open with closed economy IS

1. IS is steeper because multiplier is _____ because of
2. IS shifts with exogenous exports

Note that when $y = y^D$, i.e. at GME, BT

Can policy eliminate BT deficit or surplus?

What instruments do we have in the model (so far)?
What happens to y?

Bringing in the richer model of imports & exports

What affects demand for imports cf. home production; demand for our exports cf. other countries' output?

Price-setting in the open economy

We assume
- imperfect competition,
- differentiated goods
- segmented markets

2 hypotheses for price-setting

P1. Home-cost based (same as closed economy)

P2. World-price based (based on prices of similar goods in foreign markets)

Price-setting & the real exchange rate

Example:
Home's costs rise ($\uparrow$ W and / or $\downarrow$ labour productivity, λ), what happens to P_X and to RER defined as   ?
Note: definition of unit labour costs: W/λ

With home-cost based price-setting i.e. P1,

With world price-setting, i.e. P2,

Price-setting & the real exchange rate

Puzzle – P2 suggests that a rise in home's costs does not affect its RER as defined by price competitiveness,   .
Is home's competitiveness affected by higher costs?

Why?

→ We need a second definition of RER, *cost competitiveness*

$$RULC \equiv \frac{(W/\lambda)^* e}{(W/\lambda)} = \frac{ULC^* e}{ULC}$$

Increase in RULC is a real

Comparison with an integrated goods market

When the goods market is perfectly integrated across borders, Law Of One Price holds

When LOOP holds for all goods & services in the economy, Absolute Purchasing Power Parity holds

When LOOP & Absolute PPP & perfect competition hold then

Choosing a set of assumptions
Empirical evidence:

1. goods markets are segmented across national borders

2. much trade is in differentiated products (goods and services) under imperfect competition

3. non-traded services are an important component of GDP

Hence,
we do *not* assume

Defining export & import functions in terms of the RER
(use home cost pricing, P1)
Use P_X
               P_M

Simple function	New function

Introducing the Terms of Trade

Using home cost pricing, P1,

$$Q \equiv \frac{P^* e}{P} = \frac{P_M}{P_X} \quad \text{and} \quad \frac{P_X}{P_M} \equiv \text{ terms of trade } = \frac{1}{Q}$$

A rise in Q as defined is
- a   in home's competitiveness BUT ALSO

- a   in home's terms of trade … explain why →

How does a change in the real exchange rate affect the trade balance?

We want to draw BT in AD-ERU diagram:

Determinants of BT:

Why is there ambiguity about the effect of Q on BT?

Two steps to work out implications of change in Q for BT

Step 1. Keep y fixed, i.e. $\dfrac{\partial BT}{\partial Q}$

Step 2. Allow for implications of $\dfrac{\partial BT}{\partial Q}$ on y, i.e. if y rises, imports rise as well … so what is the effect on BT?

Step 1. The Marshall-Lerner condition: sign of $\dfrac{\partial BT}{\partial Q}$

Economic intuition: a depreciation of Q has two effects
- it boosts home's competitiveness raising *volume* of exports & reducing volume of imports → unambiguous rise in BT

This is the

- it raises the *real cost of imports* (this is what causes the volume effect for imports) → unambiguous fall in BT

This is the

Step 1. The Marshall-Lerner condition (cont.)

We write down BT and identify the volume and terms of trade effects:

Which is larger?

If volume effect is 'big enough', then
$\uparrow Q \rightarrow \uparrow BT$

Step 1. The Marshall-Lerner condition (cont.)
What is 'big enough'?

Since TT effect is exactly
sum of volume effects must >1 for $\dfrac{\partial BT}{\partial Q} > 0$.

This is the Marshall-Lerner condition:

Empirical evidence

1. Shows that elasticities are large enough to satisfy M-L condition

2. In the very short-run, volumes are fixed by contracts
→ only terms of trade effect operates
→ so-called J-curve effect

BT

Step 2. Since y is endogenous, what is $\dfrac{dBT}{dQ}$?

$$BT = BT(Q, y, y^*)$$
$$= X(Q, y^*) - QM(Q, y)$$

We can sign the partial equilibrium effects, but what is the general equilibrium effect?

This lecture: relating what we have done today to the AD-ERU diagram

- Why is the AD curve positively sloped?

Because …

- Why is the BT curve positively sloped?

- Is the BT curve in the q-y diagram steeper or flatter than the AD?

We still have to show this …

To show that BT is flatter than AD:
We write down the goods market equilibrium using the new export & import functions
→ open economy IS curve

Compare with y_{BT}, i.e. level of output, y, at which BT=0

By inspection, we can see that

Hence, BT is flatter than AD

Summary:

Assume $r = r^*$ and begin at balanced trade (on AD and BT)

Consider a unit increase in Q:

Step 1. If ML holds, AD and BT are positively sloped because net exports are higher

Step 2. If the new y is lower than the new y_{BT}, then there must be BT surplus at the GME and hence, BT must be flatter than AD

Compare
With
you know that …..

Draw in q-y diagram:

How are the current account and the RER related? – eurozone countries

Points to note

1. Real exchange matters for trade balance and current account
2. Eurozone highlights this as there is no variation in intra-eurozone nominal exchange rate
3. RER measure is RULC with data here defined such that a rise in RULC is a real appreciation
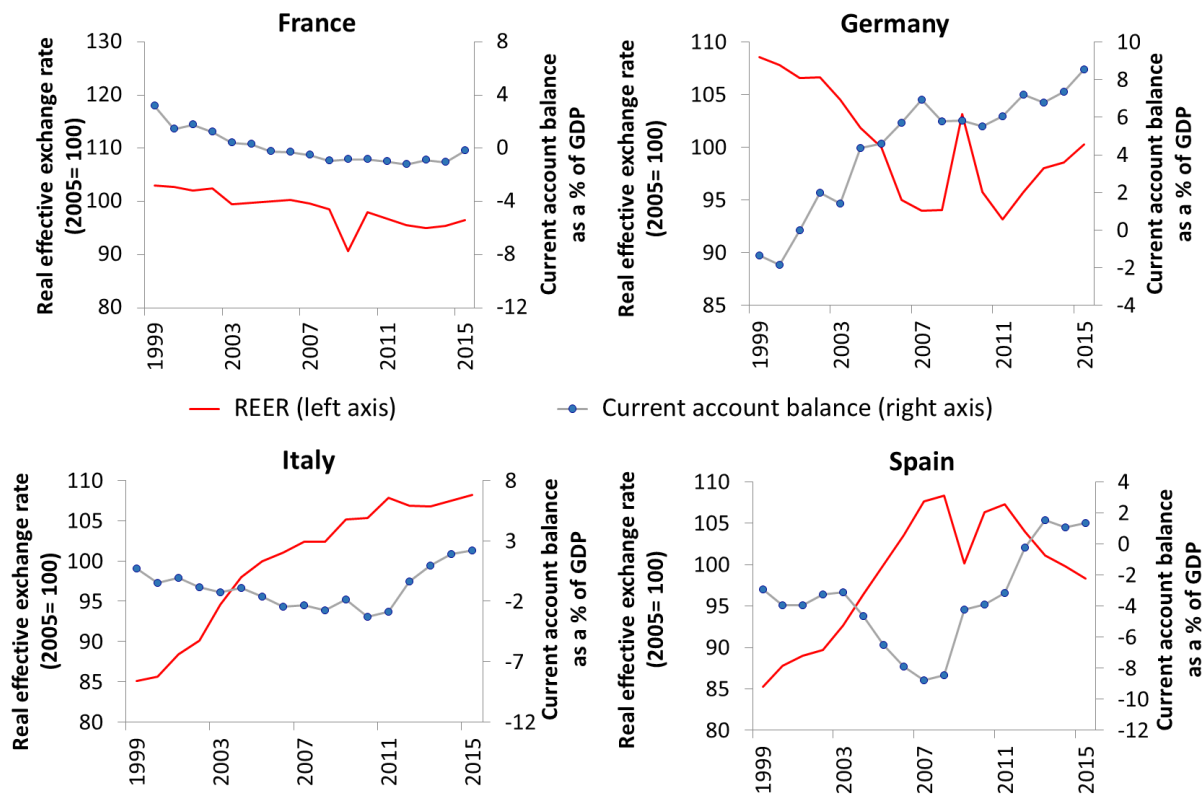
Using AD-BT-ERU
Example – Trump's policies, the dollar and the current account
Points to note

- See Eichengreen FT article on Moodle
- Note: There is a typo in the third para. "Thus, fiscal policy will ~~strengthen~~ worsen the current account of the balance of payments, …"
- For Reagan years, see Figure 11.13, p. 413
- Show the arguments about fiscal and monetary policy in the AD-BT-ERU diagram

Powerful forces will lead to a strong dollar under Trump

The US president fails to see that his policy plans will drive the exchange rate up

❝Barry Eichengreen

Summary

Key concepts: volume effect; terms of trade effect; Marshall-Lerner condition

- Price-setting in the open economy for differentiated goods leads to a natural definition of price competitiveness, i.e. Q
- Imports & exports depend on Q
- Opening the economy affects the IS through the multiplier and the determinants of IS shifts
- A rise in Q (i.e. a real depreciation) improves the trade balance
- We have added to the model the BT curve & an explanation for why it is flatter than AD … we use this result a great deal because it will allow us to see whether a shock has led to an improvement or deterioration in external balance… learn how to explain it

Self-test questions

       CS (2015) Chapter 10, Checklist questions 1-3, 8

Next lecture … after Reading Week

Model-building:

A range of equilibrium unemployment rates in the open economy (downward-sloping ERU curve)
The full AD-BT-ERU model

Policy questions:

Can the government use *fiscal* policy to choose a lower *equilibrium* unemployment rate?
Case study – the NICE years for the British economy under the Blair Labour government