



## Course information 2015–16

### EC3016 International economics

This course is an analytical course in international trade and international finance. Students are introduced to the theories with which to understand international trade patterns, examine trade policies, analyse the determinants of exchange rates and financial crises and address topical issues of international economic interdependence between states.

#### Prerequisites

If you are studying for this course as part of a BSc degree, you must have already passed EC2065 Macroeconomics and either MN3028 Managerial economics or EC2066 Microeconomics. Students should refer to the degree structures in the Regulations when choosing which prerequisite to select.

#### Aims and objectives

- To acquire the analytical methods needed and understanding of how and when to apply different models and approaches to events in the world economy.
- To provide an understanding of the intellectual and practical problems that arise from the economic interaction between countries.
- To offer explanations of the international pattern of trade and specialisation and of the reasons why similar economies often trade more with each other than with dissimilar ones.
- To provide an account of the sources of the gains from trade.
- To offer explanations, in the monetary sphere, of the determinants of exchange rates; of the timing and causes of financial crises and an analysis of the channels of international economic interdependence.

#### Assessment

This course is assessed by a three hour unseen written examination.

#### Learning outcomes

At the end of the course and having completed the essential reading and activities students should be able to:

- ✓ discuss and explain specific policy issues such as 'environmentalism as protectionism'; international dumping; the choice of exchange rate regime; the desirability of free capital flows
- ✓ apply a specific framework to illustrate the connection between a variety of models and approaches. Explain the connections between Ricardian, Heckscher-Ohlin and the specific factors models in trade theory, or between the 'monetary approach' and the 'asset approach' in exchange rate theory
- ✓ explain how international economic theory has been shaped by real world events.

#### Essential reading

This course is built predominantly around the following textbook:

Krugman, P., M. Obstfeld and M. Melitz  
*International Economics: Theory and Policy*. (Boston, Mass.; London: Pearson/Addison-Wesley, 2014) Pearson global edition; tenth edition [ISBN 9781292019550].

In the second part of the syllabus, on international finance, there are a couple of instances where the above book is supplemented with required readings from one other textbook:

Copeland, L. *Exchange Rates and International Finance*. (Harlow: Prentice Hall, 2014) sixth edition [ISBN 978-0273786047].

## Syllabus

This is a description of the material to be examined, as published in the *Programme handbook*. On registration, students will receive a detailed subject guide which provides a framework for covering the topics in the syllabus and directions to the essential reading

The module international economics is divided into two parts: international trade and international finance (sometimes referred to as international macroeconomics or international monetary economics). This split essentially coincides with the distinction between the microeconomics and the macroeconomics of the open economy.

International trade covers the reasons for trade and explanation of trade patterns and the gains accruing from trade or from restricting trade. These are core areas and call for extensive coverage. Linked to this core are a number of specific issues which must also be studied: increasing returns and trade; international factor movements; growth and trade; income distribution and trade; economic integration; multinational enterprises; and 'North-south' issues. Empirical evidence supplements the theoretical treatment. The European Union (EU), World Trade Organization (WTO) and the United Nations Conference on Trade and Development (UNCTAD) are institutionally involved in trade policy issues and their major concerns are included in the subjects to be studied.

International finance covers the balance of payments, exchange rates and open-economy macroeconomics. Linked to this core are a number of specific issues which must also be studied: national income accounting; spot and forward markets; parity conditions; exchange rate determination; exchange rate regimes; exchange rate stability and currency crises; and currency unions. Empirical evidence, though often inadequate and conflicting, is relevant in many areas. Issues associated with the European Monetary System (EMS), the International Monetary Fund (IMF) and, in general, with international monetary relations are also included in the syllabus.

Students should consult the *Programme Regulations for degrees and diplomas in Economics, Management, Finance and the Social Sciences* that are reviewed annually. Notice is also given in the *Regulations* of any courses which are being phased out and students are advised to check course availability.

---

# Examiners' commentaries 2015

## EC3016 International economics – Zone A

---

### Important note

This commentary reflects the examination and assessment arrangements for this course in the academic year 2014–15. The format and structure of the examination may change in future years, and any such changes will be publicised on the virtual learning environment (VLE).

#### Information about the subject guide and the Essential reading references

Unless otherwise stated, all cross-references will be to the latest version of the subject guide (2011). You should always attempt to use the most recent edition of any Essential reading textbook, even if the commentary and/or online reading list and/or subject guide refers to an earlier edition. If different editions of Essential reading are listed, please check the VLE for reading supplements – if none are available, please use the contents list and index of the new edition to find the relevant section.

---

### Comments on specific questions

Candidates should answer **FOUR** of the following **TEN** questions: **QUESTION 1** of Section A (40 marks) and **THREE** questions from Section B (20 marks each). **Candidates are strongly advised to divide their time accordingly.**

If more questions are answered than requested, only the first answers attempted will be counted.

#### Section A

Answer Question 1 from this section.

##### Question 1

Assume the world has just two competitive economies, Home and Foreign, denoted respectively by  $j = H, F$ . There is just one homogeneous production factor, labour ( $L$ ), which is immobile across countries, but perfectly mobile across sectors within a country. Each country has  $L_j = 60$  units of labour. There are two goods, denoted by  $i = 1, 2$ . Each country has a representative consumer with identical Cobb-Douglas preferences over goods:

$$u_j = u[c_j(1), c_j(2)] = c_j(1)^{1/2} c_j(2)^{1/2}.$$

[For the full examination question, please refer to the examination paper.]

#### Reading for part (a) to part (f)

Krugman, P. and M. Obstfeld *International economics: theory and policy*. (Boston, MA; London: Pearson/Addison-Wesley, 2009) Pearson international edition; eighth edition [ISBN 0321553985; 9780321553980] (hereafter KO). Chapter 3. Subject guide, Chapter 1.

**Approaching the question (part (a) to part (f))**

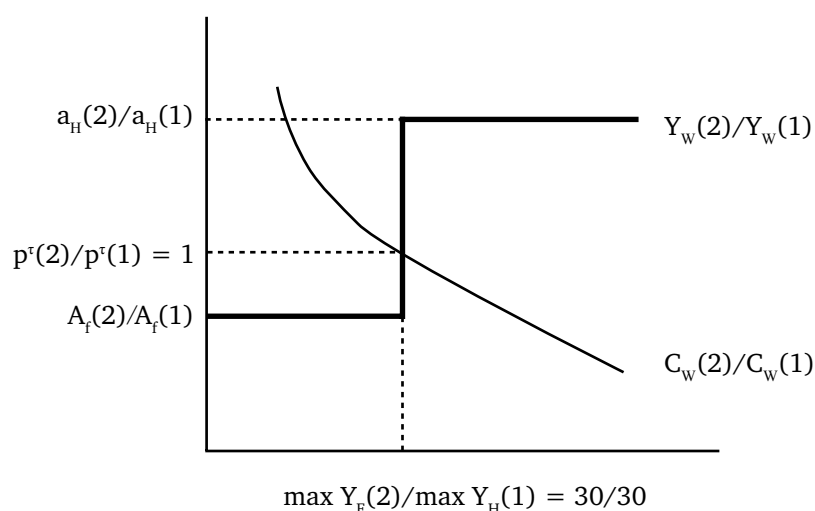
- a. Home has a comparative advantage in good 1 (and Foreign necessarily has a comparative advantage in good 2). Under free trade, Home would therefore export good 1 to Foreign in exchange for good 2.
- b. Each country specialises completely. The equilibrium relative price solve the maximisation problem of the firm:  $p A_j(2) / p A_j(1) = a_j(2) / a_j(1)$ .
- c. Write down the maximisation problem.

$$\max u [c_j(1), c_j(2)]$$

$$p_j(1) c_j(1) + p_j(2) c_j(2) = w_j L_j .$$

The first order conditions of the problem give:  $c_j(i) = w_j L_j / 2 p_j(i)$ .

- d.  $c_H(1) = c_F(2) = 15$ , and  $c_H(2) = c_F(1) = 7.5$ .
- e. Both countries specialise completely. Candidates should draw the following graph.



- f. Each of them produces 30 units of the goods. 15 consumed at home and 15 exported

**Reading for part (g) to part (k)**

Subject guide, Chapter 12.

**Approaching the question (part (g) to part (k))**

Consider now Dornbusch's overshooting model in which there is a small open economy described by the following set of equations (Lowercase variables refer to logarithms):

Aggregate Demand:  $y^d = h(e + p^* - p) + g$  (1)

Money Market Equilibrium:  $m^s - p = k y^d - 1r$  (2)

Aggregate Supply:  $\Delta p = p (y^d - \bar{y})$  (3)

Uncovered Interest Parity:  $r = r^* + \Delta e^e$  (4)

Expectations:  $\Delta e^e = \theta (e - \bar{e})$  (5)

**(Note that the last equation in the text has a typo in terms of the sign of the term in the brackets. The correct version is**

$\Delta e^e = \theta (\bar{e} - e)$  where  $e$  is the nominal exchange rate,  $\bar{e}$  is the long-run value of the nominal exchange rate,  $p^*(p)$  is the domestic (foreign) price level,  $m^s$  stands for nominal money balances,  $\bar{y}$  is potential output,  $r^*(r)$  is the domestic (foreign) nominal interest rate,  $\Delta e^e$  the expected rate of

change in the nominal exchange rate,  $\Delta p$  is the rate of change of prices and  $g$  is the public expenditure component in the aggregate demand.

g. Dornbusch's overshooting

(Foreign international interest rate and prices, and are taken as given)

Building blocks are:

Aggregate Demand Block: (IS-LM mechanism in open economy)

Aggregate Demand:

$$y^d = h(e + p^* - p) + g \quad (1)$$

Money Demand:

$$m - p = k\bar{y} - lr \quad (2)$$

Aggregate Supply Block: (goods prices are sticky). The aggregate supply curve is horizontal in the immediate impact phase, increasingly steep in the adjustment phase and vertical in the long-run.

$$\Delta p = \pi(y^d - \bar{y}) \quad (3)$$

Uncovered Interest Parity:

$$r = r^* + \Delta e^e \quad (4)$$

Expectations:

$$\Delta e^e = \theta(\bar{e} - e) \quad (5)$$

In the long-run  $y = \bar{y}$ ,  $r = \bar{r}$ . From (2) we get that

$$p_0 = m_0 + lr_0^* - k\bar{y}_0$$

From (1) we get that

$$q_0 = \frac{\bar{y}_0 - g}{h}$$

And from the definition of the real exchange rate we get that

$$\bar{e}_0 = \frac{\bar{y}_0 - g}{h} - p_0 + m_0 + lr_0^* - k\bar{y}_0$$

h. Combining equation (2), (4) and (5) one should obtain

$$m - p = k\bar{y} - lr^* - l\theta(\bar{e} - e)$$

That can be rewritten, by taking into account the long run value for  $p$ , as

$$e = \bar{e} - \frac{1}{l\theta}(p - \bar{p})$$

i. Combining equation (1) and (3) we obtain

$$\Delta p = \pi(q - \bar{q})$$

In equilibrium

$$q = \bar{q} \text{ and } e = p + \bar{q}$$

j. An increase in domestic public expenditure will cause a long-run appreciation of both real and nominal exchange rates. In the long-run  $y = \bar{y}$ ,  $r = \bar{r}$ . From (2) we get that

$$p_1 = p_0 = m_0 + lr_0^* - k\bar{y}_0$$

From (1) we get that

$$q_1 = \frac{\bar{y}_0 - g_1}{h} < q_0$$

And from the definition of the real exchange rate we get that

$$\bar{e}_1 = \frac{\bar{y}_0 - g_1}{h} - p_0^* + m_0 + lr_0^* - k\bar{y}_0 < e_0$$

- k. The increase in domestic public expenditure will increase aggregate demand. In the long-run for a given output capacity, goods market equilibrium will require that external demand will be lower and as such the real exchange rate has to appreciate.

Appreciation of the real exchange rate is associated with nominal appreciation as the price level does not change since monetary conditions (money supply and the real interest rate) are invariant.

The only curve that will shift is the GG line ( $q = \bar{q}$ ) since now the real exchange rate has appreciated. The economy will jump from the initial equilibrium to the new ones in which the nominal exchange rate reaches immediately the new long-run value. There is no overshooting of the nominal exchange rate.

## Section B

Answer three questions from this section.

### Question 2

Trade eliminates cross-country inequality in income. Is this statement true in the context of the Ricardian model? Explain.

#### Reading for the question

KO, Chapter 3.

Subject guide, Chapter 1.

#### Approaching the question

False. Wage rates remain equal to the marginal productivity of labour. Hence wage rates are not equalised in terms of wage rate.

### Question 3

Consider two countries (E and I) that can produce two goods (cloth and machinery) using two factors (labour and capital). The technology to produce the two goods is the same in the two countries and allows for substitution among inputs. Cloth production is labour intensive, while machinery production is capital intensive. E is relatively capital abundant while I is relatively labour intensive. Suppose that the two countries trade freely, but because of a natural disaster country E's endowments of labour and capital are halved. What are the effects on the observed trade pattern?

#### Reading for the question

KO, Chapter 4.

Subject guide, Chapter 2.

#### Approaching the question

As both E L and K are halved, E is still capital abundant. This means that it will specialise in the sector that requires the inputs in which the country is rich. So it will still specialise in the machinery production.

#### Question 4

**'A country should not impose an import tariff because it reduces national welfare.' Is this statement true? Explain.**

##### **Reading for this question**

Subject guide, Chapters 4 and 7.  
KO, Chapters 6 and 9.

##### **Approaching the question**

Statement is not true it depends on the size of the country. If the country is big then the introduction of trade barriers may improve national welfare. On the other hand if the country is small the policy is certainly welfare reducing. Full grades when the candidate also draws graphs.

#### Question 5

**B is a small country that is considering the introduction of a tariff or an equivalent quota on computers. The Education Minister argues that the government should choose a tariff rather than a quota because the education rates are rising and the demand for computer is expected to grow in future years. Evaluate the Minister's argument in the context of the welfare impact of these two trade instruments**

##### **Reading for this question**

Subject guide, Chapter 4.  
KO, Chapters 6 and 9.

##### **Approaching the question**

True. Quotas would need to be re-established every period while the tariffs being a constant markup on prices can be decided only once. However, if you are willing to re-assess quotas in every period the two instruments are in principle the same.

#### Question 6

**Why might countries engage in preferential trade agreements?**

##### **Reading for this question**

Subject guide, Chapter 9.  
KO, Chapter 9, pp.232–36.

##### **Approaching the question**

First step to further integration. Better than no policy if the trade creating is more than trade diversion.

#### Question 7

**In the coming months, the Federal Reserve is expected to increase the Fed fund rate. What would be the impact of the increase in the Fed fund rate for a small open economy? (Hint: you could use the IS-LM model and interpret the foreign interest rate as the Fed fund rate.)**

##### **Reading for this question**

Subject guide, Chapter 13.  
KO, Chapter 18.  
Copeland, L. *Exchange rates and international finance*. (Harlow: FT Prentice Hall, 2008) fifth edition [ISBN 9780273710271], Chapter 6.

##### **Approaching the question**

An increase in the fed fund rate, interpreted as an increase in the foreign interest rate, will affect the capital account of the balance of payment

creating a situation of capital outflows. Depending on the degree of capital mobility (and also on the exchange rate regime), this will translate into pressure for the exchange rate to depreciate. If international capital flows are perfectly mobile and there is a floating exchange rate regime, a depreciation of the currency will be needed to restore the equilibrium. As the currency depreciates, the IS curve shifts to the right and in the new equilibrium the economy will have a higher interest rate and a crowding out effect on domestic investment in favour of the net exports. Under a fixed exchange rate regime, there will be a reduction in international foreign reserve to maintain the peg and the LM curve will shift to the left with a higher equilibrium domestic interest rate as well.

### Question 8

**Briefly describe the flexible price monetary approach to exchange rate determination. Explain what happens when there is an exogenous decrease in income from  $y_0$  to  $y_1$  (i.e.  $y_1 < y_0$ ) under a floating and a fixed exchange rate regime in the context of this model. In the floating exchange regime case, is it possible for monetary authorities to use monetary policy to restore the initial equilibrium in the domestic price level? If so, how?**

#### **Reading for this question**

Copeland (2008), Chapter 5.

#### **Approaching the question**

The monetary approach to exchange rate determination is characterised by flexible prices, fixed supply and money demand equation that depends only on income through velocity of money.

Under a floating exchange rate regime changes we have that changes in real income implies a lower demand for money other things being equal. In order to restore equilibrium in the money market prices should be higher. In the external side this increase in the price level is matched by a depreciation of the nominal exchange rate needed in order to have PPP holding (or otherwise in order to restore competitiveness). (with graphs as well)

In the fixed exchange rate regime instead we will observe changes in domestic price level.

Consider a decrease in real income level in the fixed case.

For given domestic prices, the demand of real money balances is lower; in order to have equilibrium in the domestic money market prices will be forced up; at the fixed exchange rate, the economy is now undercompetitive and a balance of payment deficit will arise reserves will decrease in order to defend the parity up to the point in which overall money supply has decreased to match the new lower demand. (with graphs as well)

Under a floating exchange rate regime, the monetary authority can restore the initial price level by decreasing money supply.  $P = \frac{M^s}{ky}$  and the required money supply adjustment is such that

$$\frac{M_1^s}{M_0^s} = \frac{y_1}{y_0}$$



### Question 9

Propose a model that explains the fact that richer countries tend to have higher price levels (describe the necessary assumptions and the implications of such a model).

#### Reading for this question

Subject guide, Chapter 12.

#### Approaching the question

To address the empirical regularity we should refer to the Balassa Samuelson model characterised by difference in productivity among rich and poor countries.

We will assume that there are two countries and they produce two goods: a tradeable (T) and non-tradeable (NT). The key assumptions are that:

- labour is the only factor of production and is perfectly mobile within countries but completely immobile between countries;
- countries are equally productive in the N sector, but Foreign (\*), the rich country, is more productive in the T sector:

$$Y_N = A_N L_N \quad Y_N^* = A_N^* L_N^*, \quad A_N = A_N^*,$$

$$Y_T = A_T L_T \quad Y_T^* = A_T^* L_T^*, \quad A_T < A_T^*$$

- the law of one price holds for tradeable.

Note that we haven't specified anything in terms of the demand side of the model.

Profit maximisation by firms in all sectors implies (there is perfect competition and prices are equal to marginal costs):

$$W_N = A_N P_N \quad \text{and} \quad W_T = A_T P_T,$$

$$W_N^* = A_N^* P_N^* \quad \text{and} \quad W_T^* = A_T^* P_T^*$$

Labour mobility within countries ensures wage equalisation between sectors in each country:

$$W_N^* = W_T^* \quad \text{and} \quad W_N = W_T$$

This implies that

$$\frac{P_N}{P_T} = \frac{A_T}{A_N} \quad \text{and} \quad \frac{P_N^*}{P_T^*} = \frac{A_T^*}{A_N^*}$$

By assumption we have that  $A_T < A_T^*$  and  $A_N = A_N^*$  so that

$$\frac{P_N}{P_T} < \frac{P_N^*}{P_T^*} = \frac{eP_N^*}{eP_T^*}$$

and if the law of one price holds for traded goods it follows

$$P_N < eP_N^*$$

The price level of the non-tradeable is higher in the rich country and PPP fails.

Low wages in poor countries (due to low productivity in the tradeable sectors) result in relatively low prices in non-tradeable sectors, as productivity in these sectors is approximately the same as in rich countries. It is plausible to assume that international productivity differences are sharper in traded than in non-tradeable goods. Note that a key assumption is that labour is perfectly mobile within a country.

As transition economies are catching up their productivity in the tradeable sectors may well increase at a higher rate compared both to the developed

world and to the productivity in their own non tradable sectors. This would imply that  $\frac{P_N}{P_T}$  increases over time which in turn implies real appreciation in these countries. This appreciation will not last forever. It will stop when the productivity levels in the transition economies will become closer to the levels of developed countries.

#### Question 10

**The Swiss National Bank (SNB) introduced a pegged exchange rate between the Swiss franc and the Euro in 2011 at 1.20 Swiss francs per Euro. In January 2015, the Swiss authorities decided to abandon the peg. Which model of currency crises could be used to explain the SNB's decision?**

#### **Reading for this question**

Copeland (2008), Chapter 16.

#### **Approaching the question**

One model that could rationalise this situation is the second generation currency crisis model. Indeed in the first generation currency crisis model, the problem is foreign reserve depletion while in the case of Switzerland the problem has been foreign reserve accumulation.

In the second generation currency crisis model a crisis could occur also when there is pressure for a revaluation of the currency as long as the speculators perceive that there is a cost of defending the peg that can exceed its benefits. For the Swiss case the cost can be represented in terms of the undesirable level of foreign exchange reserve that had been accumulated by the SNB in defence of the CHF/EUR exchange rate while the benefits could be interpreted in terms of keeping the currency relatively undervalued.