

Universität Siegen

Fakultät III

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Exam "International Economics"
Winter Semester 2013-14
(1st Exam Period)

Solution

Available time: 60 minutes

For your attention:

1. The exam is made up of 9 pages (including this cover page). Please check and see if the exam you are holding is **complete**.
2. For your answers, use the designated spaces. Should these not suffice, use the backside of the pages. Answers written in **pencil** will **not** be scored.
3. Additional materials you may use for the exam: a non-programmable calculator. (Smart phones and mobile **phones** are **not** allowed!)
4. **ATTENTION:** The names for variables have the same meaning as in the lecture. Insofar as you also use the same symbols for the variables as we did in the lecture you will not have to define these any further.

Question	1	2	3	4	Sum	Mark
Points achievable	14	17.5	12	16.5	60	
Points achieved						

WS 2013-14: "International Economics" (1st exam period)

Problem 1: External Trade in Goods of the EU

The following table shows external trade relations of the EU for the year 2002, measured in terms of exports of goods (values in euro billions):

From	To	EU	USA	Japan	Rest of the World	World	World without Intra-EU
EU		1610.8	239.9	42.3	715.0	(i)	(ii)
USA		152.3	-	54.4	506.9	713.6	713.6
Japan		64.8	127.1	-	221.0	412.9	412.9
Rest of the World		588.3	769.1	212.1	1234.5	2804.0	2804.0
World		2416.2	1136.1	308.8	2667.4	6538.5	4927.7
World without Intra-EU		805.4	1136.1	308.8	2677.4	4927.7	4927.7

a) Please calculate the missing numbers (i) and (ii). [4 points]

Solution:

(i) 2608,0

(ii) 997,2

b) What does the number 1610.8 in the left upper part indicate? [2 points]

Solution:

Sales between EU countries (2)

(or: dispatches)

c) We want to assess the mutual dependency of the EU and the USA as customers:

c₁ Which data from the table do we need? Please write down the numbers and briefly indicate their economic meaning. [5 points]

Solution:

- 239.9: EU exports to USA
(1) (0.5) (0.5) (0.5)
- 152.3 : American exports to the EU
(1) (0.5) (0.5) (0.5)

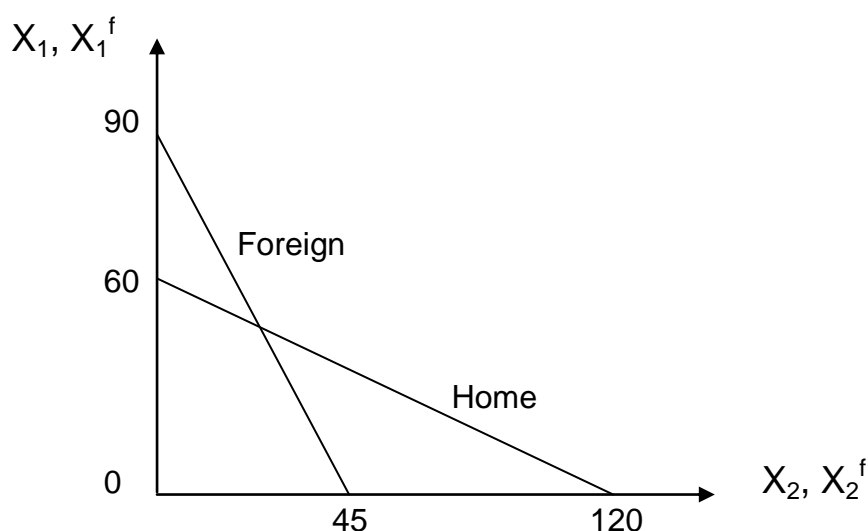
c₂ The numbers in c₁ are not sufficient to assess the mutual dependency as customers. Please briefly describe how they have to be supplemented. [3 points]

Solution:

They must be divided by the respective GDPs
(1) (2)

Problem 2: Trade in the Ricardo Model

The following graph shows the transformation curves of two countries, Home and Foreign.



- a) Please interpret the economic content of a transformation curve. [3.5 points]

Solution:

Maximum production of good 1 for given production of good 2
 (1) (1) (0.5) (0.5) (0.5)

Or: combinations of production quantities at full employment

- b) We consider the opportunity costs of good 2 in Home.

- b₁ Please calculate these costs. In doing so, please use the appropriate mathematical expression for these costs. [2.5 points]

Solution:

$$\left(\frac{dX_1}{dX_2} \right)^{\text{MRT}} = \frac{60}{120} = 0.5$$

b₂ Please carefully interpret the costs calculated in b₁. [4.5 points]

Solution:

An increase of production of good 2 by one unit leads to a loss of 0.5 units of good 1
 (1) (0.5) (0.5) (0.5) (1) (0.5) (0.5)

c) Which good should Home specialize in? Why? [3.5 points]

Solution:

good 2 because the opportunity cost of good 2 are lower than in foreign
 (1) (0.5) (0.5) (1) (0.5)

d) Which condition must be satisfied by an international price relation $(p_2/p_1)^W$ such that trade is beneficial for both countries? [3.5 points]

Solution:

It must lie between the national autarky price relations
 (2) (1) (0.5)

(or: it must lie between the national opportunity costs

or: it must lie between the national marginal rates of transformation)

Problem 3: Exchange-Rate System

a) What are the two elements of a system of a fixed exchange rate? Please also name the two institutions responsible for these elements. [6 points]

Solution:

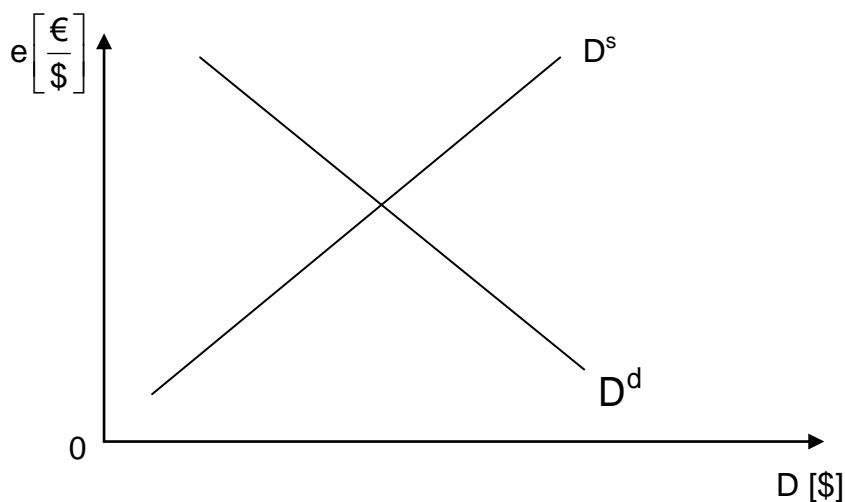
- official target rate (or: a fixed rate) (2)

responsible: government (or: minister of finance) (1)

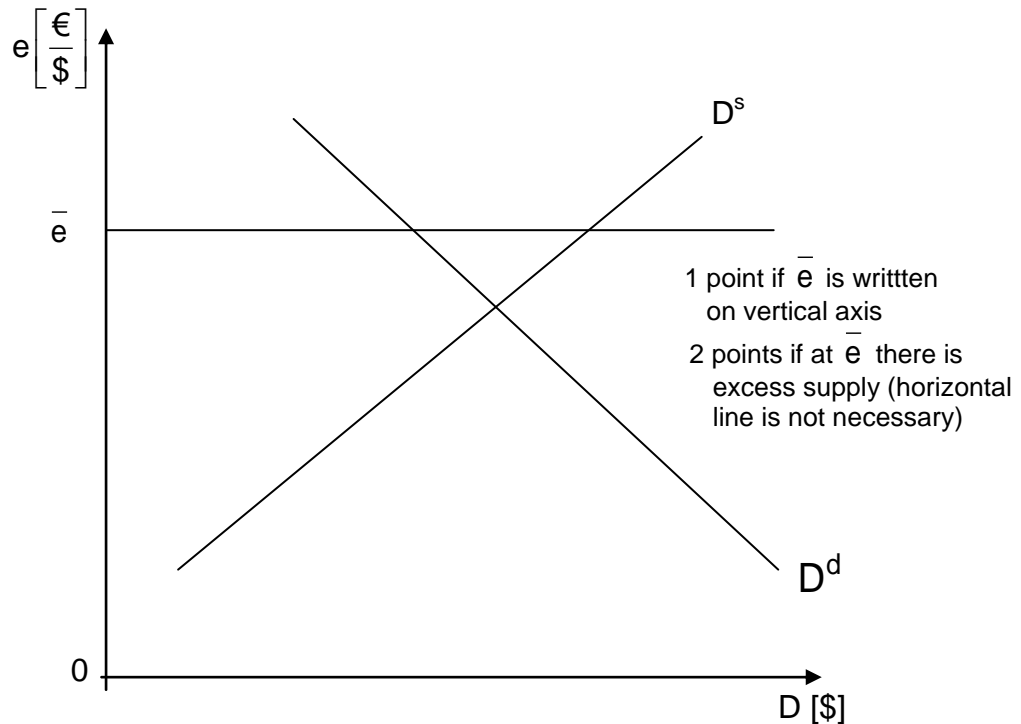
- interventions (2)

responsible: central bank (or: currency authority) (1)

b) The following graph shows the market for foreign exchange with the US dollar (\$) as the foreign currency:

Solution:

b₁ Please indicate a fixed exchange rate (\bar{e}) such that there is an excess supply of foreign currency. [3 points]

Solution:

b₂ Briefly indicate the implications of this situation for the following variables:
[3 points]

Official reserves:

Monetary base:

Quantity of money:

Solution:

Official reserves: increase (1)

Monetary base: increase (1)

Quantity of money: increase (1)

Problem 4: International Parity Relations

We are given the following approximate versions of international parity relations:

$$(I) \quad i - i^f = \left(\frac{de}{e} \right)^e$$

$$(II) \quad \left(\frac{de}{e} \right)^e = \left(\frac{dP}{P} \right)^e - \left(\frac{dP^f}{P^f} \right)^e$$

Now consider the following statistics about the euro and the dollar (all percentage rates are annual rates):

	<u>€</u>	<u>\$</u>
Inflation	$(dP/P)^e = 0.12$	$(dP^f/P^f)^e = ?$
One-year interest rate	$i = 0.16$	$i^f = 0.14$
Spot exchange rate		$e = ?$ [€/\$]
Expected spot exchange rate in one year		$e^e = 0.80$ [€/\$]
One-year forward exchange rate e^F [€/\$]		?

We want to replace the question marks (?) with appropriate numbers. In order to do so, we use the above relations (I) and (II).

- a) Please start with the expected foreign inflation rate $(dP^f/P^f)^e$. Please show your way of calculation. [5.5 points]

Solution:

Setting (I) and (II) equal leads to:

$$i - i^f = \left(\frac{dP}{P} \right)^e - \left(\frac{dP^f}{P^f} \right)^e$$

(1.5) (1.5)

Inserting the interest rates and the domestic inflation rate:

$$0.16 - 0.14 = 0.12 - (dP^f/P^f)^e$$

(0.5) (0.5) (0.5)

and thus $(dP^f/P^f)^e = 0.10$ (1)

- b) Next, please calculate the one-year forward rate (e^F). (Hint: in order to calculate it from the information given, you need a relation other than (I) and (II) above.) [3 points]

Solution:

$$e^F (= e^e) = 0.80$$

(3)

- c) Now, please calculate the spot exchange rate (e). Please show the way of calculation. [8 points]

Solution:

$$(A) e [1 + (de/e)^e] = e^e$$

(3)

We get $(de/e)^e$ from (I):

$$i - i^f = \left(\frac{de}{e} \right)^e$$

and thus $0.16 - 0.14 = 0.02 = (de/e)^e$ (3)

Inserting this along with $e^e = 0.80$ in (A), we find $e = 0.80 / [1 + 0.02] = 0.78$ (2)