

# Universität Siegen

Fakultät III  
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Exam "International Economics"  
Winter Semester 2016-17  
(1<sup>st</sup> Exam Period)

## Solution

Available time: 60 minutes

### For your attention:

1. The exam is made up of 8 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. Please do not write and draw with a **pencil**.
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	5	Sum	Mark
Points achievable	6	13.5	11	16	13.5	60	
Points achieved							

**Problem 1: Trade and Trade Policy of the EU**

The European Union views itself as a Common Market (or: Internal Market).

- a) A common market is the third step towards an economic union. Please name the two stages of integration that precede the common market. [2 points]

**Solution:**

Free trade area (1)

Customs union (1)

- b) Briefly say what the two preceding stations imply for the trade of goods within the EU and for the trade of goods with the rest of the world.

[4 points]

Trade within EU:

Trade with rest of the world:

**Solution:**

Trade within EU: free trade (or: no tariffs, or: no trade barriers) (2)

Trade with rest of the world: common external trade policy (2)  
(or: unified tariffs)

**Problem 2: Ricardo Model**

Home has the following labour productivities:  $a_1 = 2$ ,  $a_2 = 4$ .

a) We look at the domestic opportunity costs in the production of good 2.

a<sub>1</sub> Please give a precise verbal interpretation of this variable. [4.5 points]

**Solution:** loss of output of good 1 (or: of  $X_1$ ) when output of good 2 rises by one unit  
 (1) (0.5) (0.5) (0.5) (0.5) (1) (0.5)

a<sub>2</sub> Please write the mathematical symbol of this variable. [2 points]

**Solution:**

$$\left| \frac{dX_1}{dX_2} \right| \quad \text{or :} \quad \left( \frac{dX_1}{dX_2} \right)^{\text{MRT}} \quad \frac{dX_1}{dX_2}$$

(2) (1.5 because absolute value not indicated)

a<sub>3</sub> What is the numerical value of this variable for the domestic country? Please show its calculation. [3 points]

**Solution:**

$$\frac{2}{4} = 0.5$$

(1) (1)

b) Assuming that both goods are produced, what is the price ratio in autarky  $(p_2/p_1)^a$ ? Please show its calculation in general mathematical terms as well as its numerical value. [4 points]

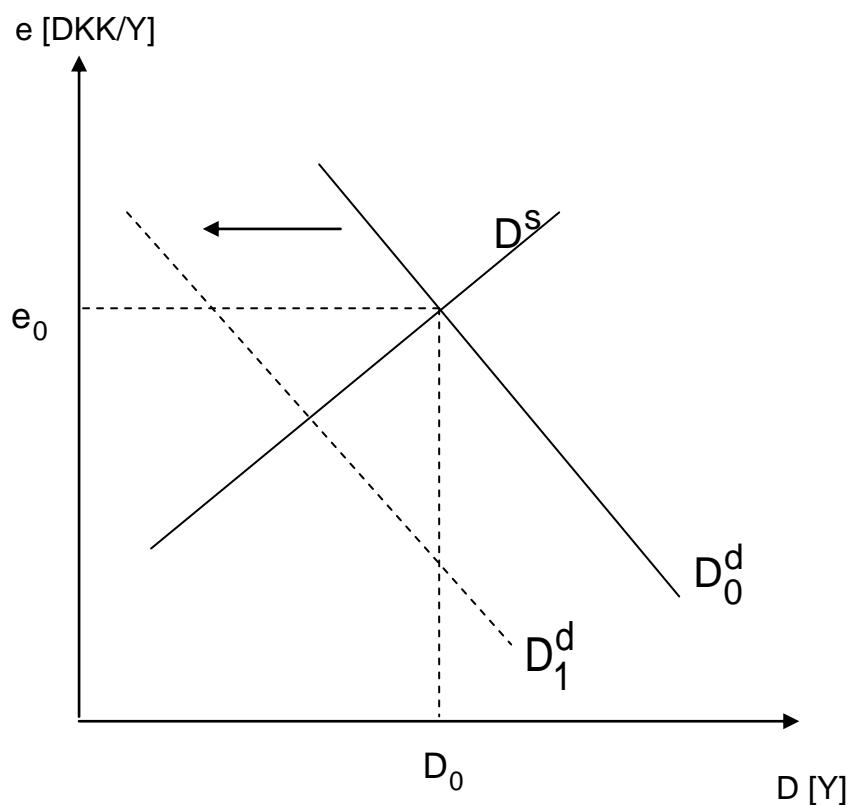
**Solution:**

$$\left( \frac{p_2}{p_1} \right)^a = \frac{a_1}{a_2} \quad \left( \text{or :} \quad = \left| \frac{dX_1}{dX_2} \right| \quad \text{or :} \quad = \left( \frac{dX_1}{dX_2} \right)^{\text{MRT}} \right) = 0.5$$

(2) (2)

**Problem 3: Forex market**

The following diagram depicts the market for exchange of Danish Kroner (DKK) against Chinese Yuan (Y).



a) Which Danish transactions with China cause a demand for Yuan? [4 points]

**Solution:**

- Import of goods (1)  
(1)
- Export of capital (1)  
(1)

b) In the graph, the curve of demand for Yuan shifts from the initial position  $D_0^d$  to the position  $D_1^d$ .

b<sub>1</sub> Is this a decrease or an increase of the demand for Yuan? [1 point]

**Solution:**

Decrease (1)

b<sub>2</sub> At the exchange rate  $e_0$ , which constellation of supply and demand of Yuan does now prevail? [1 point]

**Solution:**

Excess supply (1)

b<sub>3</sub> Assume a system of flexible exchange rates. Will the above constellation of supply and demand lead to a depreciation of the Yuan or to an appreciation? [2 points]

**Solution:**

depreciation (2)

b<sub>5</sub> Now suppose that the Danish central bank wants to keep the exchange rate at its initial level  $e_0$ . How must the central bank intervene in order to keep the rate constant at  $e_0$ ? [1 point]

**Solution:**

Buy Yuan (1)

b<sub>6</sub> How can the Danish central bank avoid a change of the monetary base resulting from its intervention? [2 points]

**Solution:**

reduction (1)  
of credits to the domestic economy (1)

**Problem 4: Interest Rate Parity**

a) How is the following relation called?

[3 points]

$$\frac{e^e - e}{e} = i - i^f .$$

**Solution:**

Uncovered interest rate parity

(1) (1) (1)

b) Please carefully interpret its economic content.

[4 points]

**Solution:**

Expected relative change of spot (or: exchange) rate equals the interest rate differential

(0.5) (0.5) (0.5) (0.5) (0.5) (0.5) (0.5) (0.5)

or: the currency with the lower interest rate is expected to appreciate

c) Consider the USA as the foreign country. The spot rate of the US dollar in terms of the euro is 0.9 [€/\$]. The one-year interest rates are 3 % for the dollar and 8 % for the euro, respectively.

c<sub>1</sub> Assuming that market participants are risk-neutral, what is the implied market prediction of the spot rate one year ahead? [5 points]**Solution:**

$$\frac{e^e - e}{e} = i - i^f = 0.08 - 0.03 = 0.05$$

$$\rightarrow e^e = 0.05 e + e = 1.05 e = 0.945 \quad (5)$$

c<sub>2</sub> Now, assume that market participants are risk-averse. Their risk premium (RIS) is 4 %. Please show how to modify the equation from a). [4 points]**Solution:**

$$\frac{e^e - e}{e} = i - (i^f - \text{RIS})$$

( 3 ) ( 1 )

**Problem 5: Income and Trade Balance in the Short Run**

We consider the following equation where exogenous variables are marked by an upper bar, e. g.  $\bar{EX}$ :

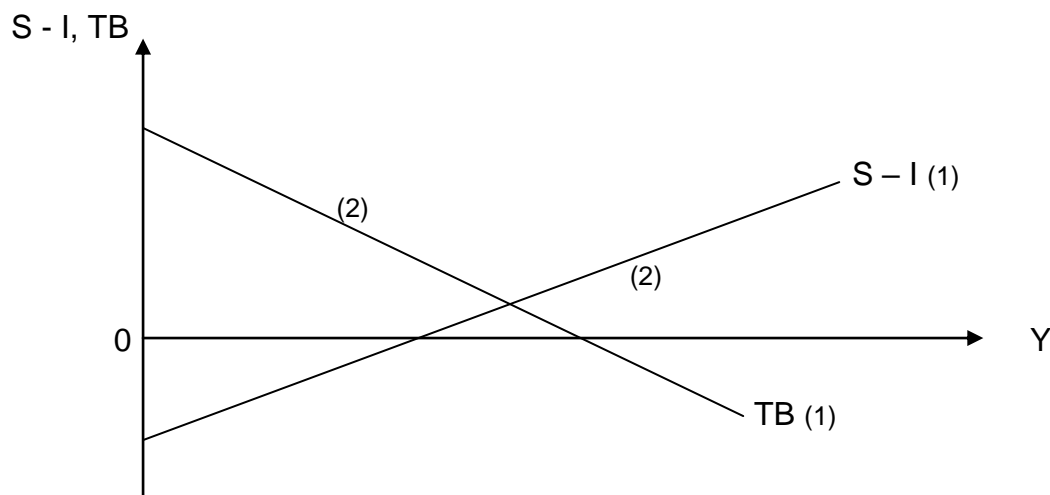
$$S(Y) = \bar{T} + \bar{EX} - IM(Y)$$

- a) Please very briefly interpret the equation. [1.5 points]

**Solution:**

Equilibrium condition of the goods market  
(1) (0.5)

- b) Please illustrate the model in the following diagram. Please denote the curves as TB and as S-I, respectively. [6 points]

**Solution:**

- c) Now, exports rise ( $\bar{EX} \uparrow$ ).

- c<sub>1</sub> Please say in words, whether curves shift and, if so, how they shift. [4 points]

**Solution:**

S - I : no shift (2)

TB : shift to the right (or: upward) (2)

c<sub>2</sub> How will the following variables change:

[2 points]

**Solution:**

Y : increases (1)

TB: increases (1)