



International Trade (2007/26)

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Fall term 2007/2008

Final Exam
February 9th, 2008

Surname _____

First Name _____

Matrikelnummer _____

Please turn in this set of problems!
Perform the graphical analysis always in this problem set!

This document consists of 11 pages and 8 problems!

Time: 120 minutes

Maximum number of points: 120

You are allowed to use a ruler and a German – English dictionary.

You have to work on all problems!

Please always label in all figures

- the axes,
- the curves, and
- the shifts carefully.

Do not feel too bad when you come under time pressure. I don't expect that all students are able to finish the exam completely.

Problem 1: Monetarized version of the Ricardo model**(15 points)**

Consider the following unit labour requirements.

	Shoes	Wine
1. Italy	9 hr	3 hr
2. Switzerland	18 hr	3 hr

- Which country has an absolute advantage in the wine industry? Why?
- Once prices are brought into the Ricardian model, what is the export condition for Italy (country 1) that determines the basis for trade?
- Suppose that the wage rate in Italy is 2 €/hr, the wage rate in Switzerland is 3 SFR/hr, and the exchange rate is 2 SFR/€. Is the export condition met for the shoe (wine) industry?
- Calculate the wage rate limits for Switzerland (country 2) for both goods. Use the following scheme to organize your results in a meaningful way!

Wage rate limit for country 2:

Wage rate level:

Wage rate level:

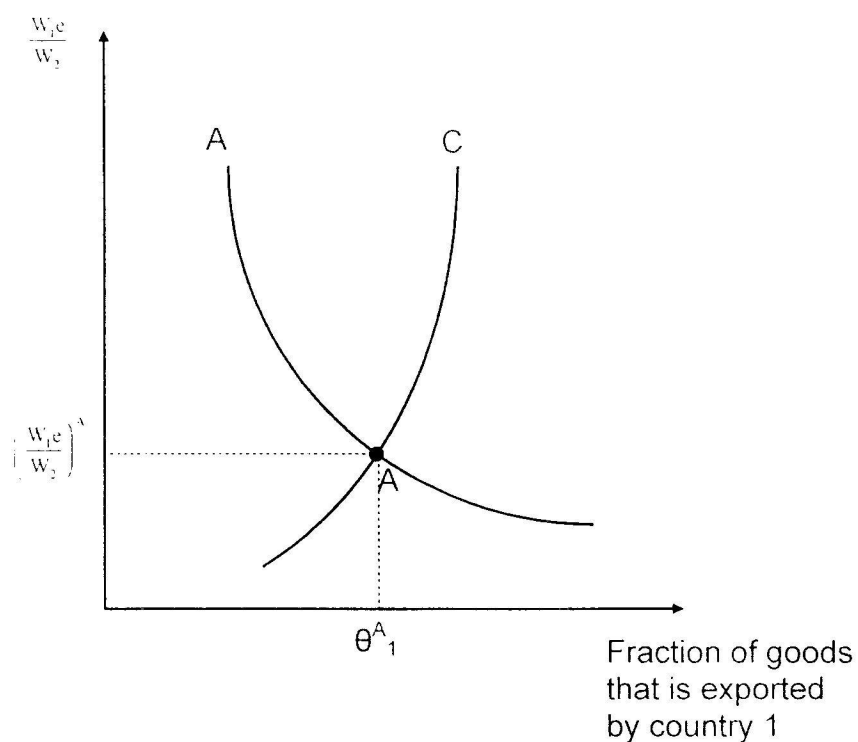
Italy ..ports shoes and ..ports wine	Italy ..ports shoes and ..ports wine	Italy ..ports shoes and ..ports wine
Switzerland ..ports shoes and ..ports wine	Switzerland ..ports shoes and ..ports wine	Switzerland ..ports shoes and ..ports wine

Problem 2: Dornbusch, Fischer, and Samuelson model (DFS) (20 points)

Please explain how an increase in L_1 influences the endogenous variables in the DFS model

- Explain in which direction the curve must shift horizontally. Explain in which direction the curve must shift vertically.
- Verbally perform a comparative static analysis.
- Verbally perform a dynamic analysis.
- How does this shock influence the real wage of country 2 in terms of the export good and import good?

Use the diagram to support your arguments.



Problem 3:

(5 points)

Consider two large countries (Germany and Poland) that both produce banking services and agricultural products. Suppose that there are two factors of production (labor and capital) and that the agricultural sector is labor intensive and banking is capital intensive. Suppose also that Germany is the capital abundant country.

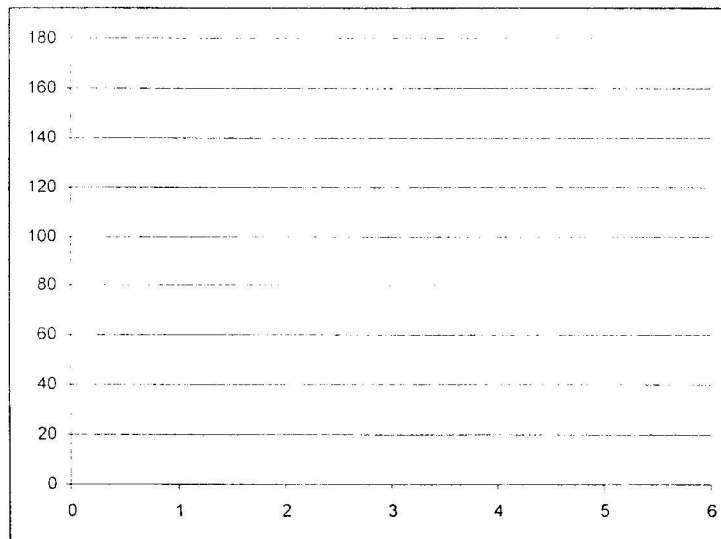
- In the Heckscher-Ohlin model, what is the resulting pattern of trade?
- Which groups gain from free trade and which groups lose?

Problem 4:

(10 points)

Suppose that in *Home* the available labor units for the production of chocolate bars is $L=2,000$ and that the production technology is defined by $L_i=400+10x_i$, with x_i denoting the produced quantity of chocolate bars of type i , and L_i denoting the labor units necessary to produce this quantity.

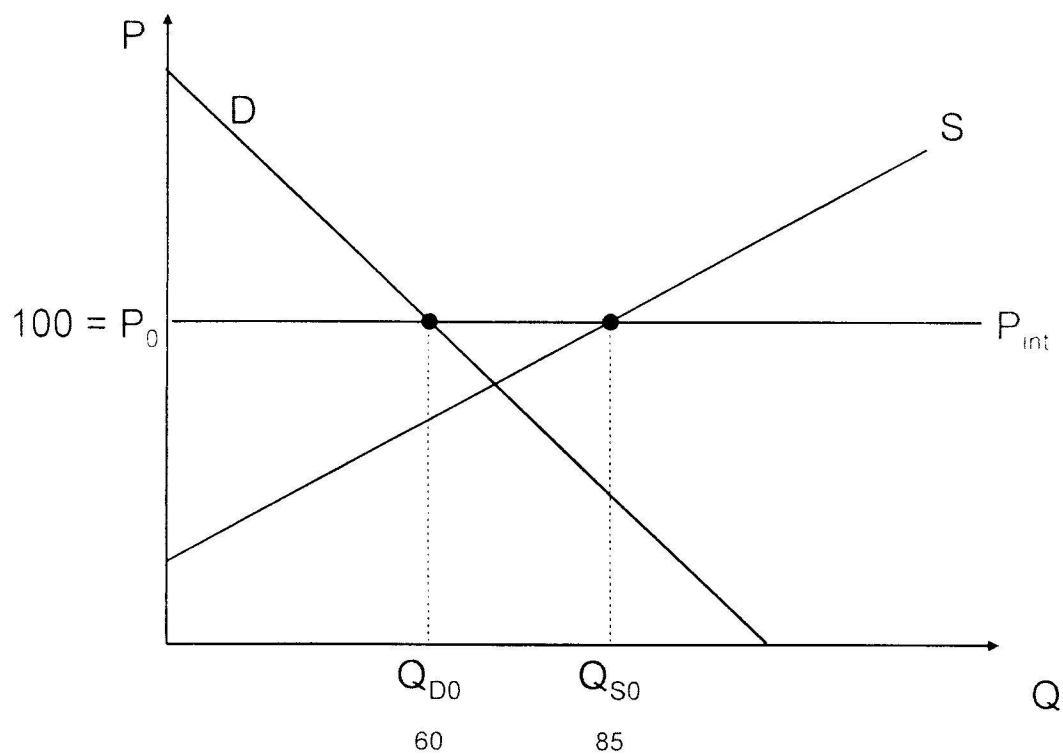
- Demonstrate numerically that with this production function doubling inputs leads to more than double output.
- In a suitable diagram, depict as precisely as you can the resulting trade off between Home's total output of chocolate bars and the variety of choice.



- What would happen to this trade off, when the chocolate market would be opened up to free trade?

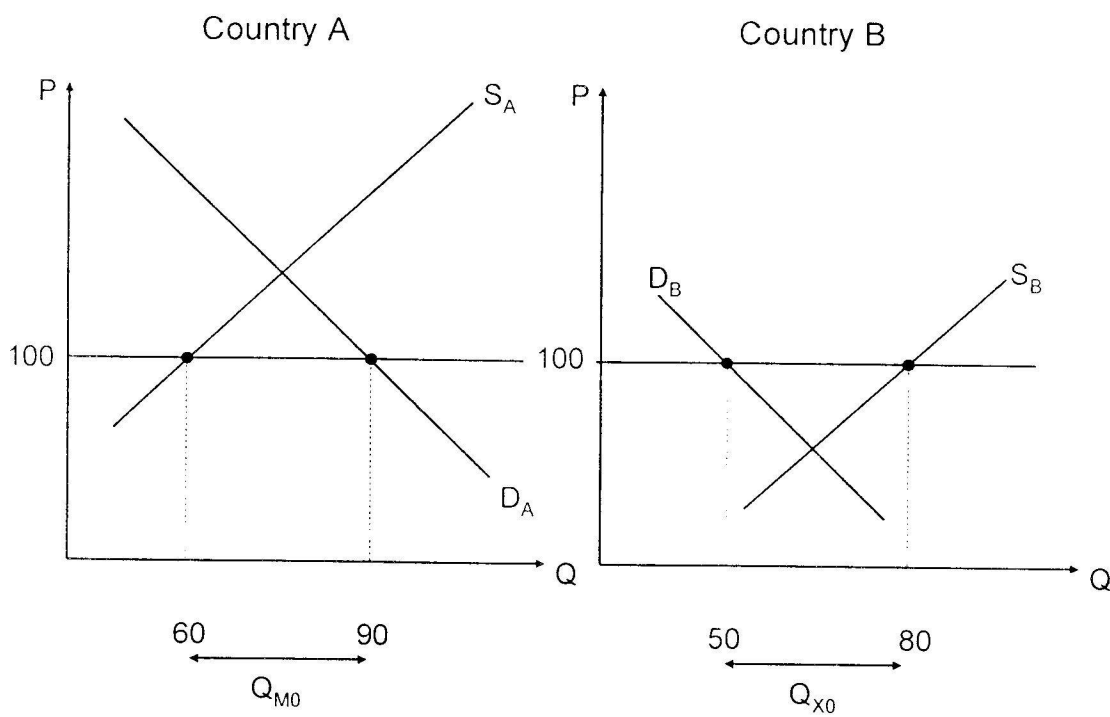
Problem 5: Welfare effects export subsidy small country (5 points)

Suppose that the small Home exports a product and introduces an export subsidy. Using the diagram below, explain the welfare effects for the home country. P_{int} is the price in the world market (**international price**).



Problem 6: Welfare effects export tax large country**(10 points)**

Suppose that Country A and Country B are two large countries and that Country A imports while Country B exports. Suppose that Country B introduces for its export product an export tax. Using the diagram below, explain the welfare effects for Country A as well as for country B.



Problem 7: Increasing economies of scale**(30 points)**

Suppose that in Germany each producer of helicopters faces the demand curve

$$(1) \quad Q = 50 \left[\frac{1}{n} - \frac{P - \bar{P}}{1,600} \right]$$

with Q = output of the producer
 P = price charged by the producer
 \bar{P} = average price charged by the helicopter industry
 n = number of producers in the helicopter industry

The cost function of each producer is given by

$$(2) \quad C = 20,000 + 100 * Q$$

It is assumed that all producers are identical and that they behave as if n and \bar{P} cannot be affected by their individual market behavior. Furthermore, it is assumed that there are no imports or exports of helicopters.

Part a) (10 points)

Show algebraically that the marginal revenue is

$$(3) \quad MR = -32 * Q + P$$

and that for given n , the profit maximizing price of each producer is given by

$$(4) \quad P = 100 + \frac{1,600}{n}$$

Part b) (5 points)

Show that for given n , the average cost of each producer is determined by

$$(5) \quad AC = 100 + 400n$$

Part c) (5 points)

In equilibrium, how many producers of helicopters are in the German helicopter industry and how large is each producer's output and which price will they charge?

Part d) (10 points)

Suppose that the demand and cost functions of the British, French and Italian helicopter markets are identical to the German one and that these four countries integrate their helicopter markets. In equilibrium, how many producers of helicopters will exist in the world and which price will they charge?

Comment on the welfare effects of integrating the four countries' helicopter markets.

Problem 8: Specific factor model**(25 points)**

Oppa Lutschekowski has increased his product range and offers now two goods, namely drinks (D) and snacks (S). On a match day he orders

- F = 200 packs of frikadellen (meat balls),
- B = 100 kegs of beer, and
- L = 200 units of labor.

The production function in the drinking sector is given by

$$Q_D = L_D * B - L_D^2.$$

The production function in the snack sector is given by

$$Q_S = L_S * F - L_S^2.$$

- a) **(3 points)** Which factor of production is specific in the drink industry and which one is specific in the production of snacks? Which factor of production is the mobile factor?
- b) **(8 points)** Suppose that initially prices are given by $P_D = 4$ and $P_S = 1$.

Using the diagram below, explain how the equilibrium wage rate for the factor labor and the equilibrium allocation of labor L on the two sectors can be derived.

- c) **(5 points)** One week later Oppa Lutschekowsky orders the same quantities of inputs but prices adjusted – due to an exogenous shock – to: $P_D = 1$, $P_S = 1$. Determine within the graph of part b: What is the optimal split of labor after the price adjustment? What will be the new equilibrium wage rate?
- d) **(6 points)** Compute the real wage in terms of drinks and snacks before and after the shock!
- e) **(3 points)** What is the specific reason why labor gained in real terms when measured in drink units but lost when measured in snack units?

