

The following aids may be used: Calculator, dictionary

This examination comprises three questions. All of them are to be answered. The available amount of time is two hours.

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Question 1:

Consider the usual Heckscher-Ohlin-model with two countries (*Home* and *Foreign*), two goods ( $Q_S$ =software,  $Q_T$ =carpet) and two factors of production ( $A$ =academics,  $H$ =untrained workers). Both countries have the same linearly homogeneous production functions  $Q_S(A_S, H_S)$  and  $Q_T(A_T, H_T)$ .  $P_S$  is the price of a software package and  $P_T$  is the price of a carpet. The wage of an academic is  $z$  and the wage of an untrained worker is  $w$ .

- a) (4 points) Suppose that *Home* is abundantly endowed with *academics* and that the production of *software* is *academic-intensive*. Translate these two statements into a formal representation.
- b) (12 points) For a given  $z$ - $w$ - $P_S$ - $P_T$ -combination, draw a set of isocost lines. What is the slope of these lines? Show this analytically. What does a single isocost line graphically represent?
- c) (6 points) Add to your diagram of question 1b the unit isoquant for the production of *carpets*. Add also an isoquant for *software* production such that the  $z$ - $w$ - $P_S$ - $P_T$ -combination underlying your diagram represents an equilibrium and such that the diagram is consistent with the information given in question 1a. What does your *software*-isoquant graphically represent?
- d) (5 points) Illustrate in your diagram of question 1b/c how the equilibrium  $z/w$ -ratio changes, when the price ratio  $P_S/P_T$  falls. Which consequences arise for the equilibrium factor input ratios  $H_S/A_S$  and  $H_T/A_T$ ?
- e) (6 points) Draw a new figure which directly depicts the relationship between  $P_S/P_T$  and  $w/r$  and the factor input ratios  $H_S/A_S$  and  $H_T/A_T$  (as derived in question 1d).
- f) (6 points) Suppose that with identical price ratios, both countries have the same relative demand. In a new diagram depict the relative demand curve for the world ( $RD_W$ ). Add to this diagram a relative supply curve for *Home* ( $RS$ ), for *Foreign* ( $RS^*$ ), and for the world ( $RS_W$ ), such that all these curves are consistent with the information given in the preceding questions. Which pattern of trade arises? Use your diagram to justify your answer.
- g) (7 points) Suppose that *Foreign* returns to autarky. Which consequences arise for the welfare of *Home's* and *Foreign's* recipients of factor income? Provide a simple verbal explanation for your answer.
- h) (4 points) List two important reasons why from an empirical perspective the Heckscher-Ohlin-model fares so badly.

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**Question 2:**

In the lectures, the reasons for international financial capital movements were illustrated by a very simple trade model with the two goods *present wheat* and *future wheat*.

- a) (12 points) For *Home*, draw a production possibility frontier and a set of indifference curves. For *Foreign*, draw the same type of diagram, such that for *Home* there is a comparative advantage in *present wheat*.
- b) (2 points) Indicate in your two diagrams the output and consumption points ( $Q_A, D_A$  and  $Q_A^*, D_A^*$ ) that would arise in autarky.
- c) (10 points) Add to your diagrams the respective isovalue lines (intertemporal budget constraints) that (approximately) correspond to a world trade equilibrium. Which graphical feature do these two isovalue lines have in common? Also indicate in your diagrams the corresponding consumption points ( $D$  and  $D^*$ ) and output points ( $Q$  and  $Q^*$ ) as well as the exports, imports and investment.
- d) (6 points) International financial capital flows usually take the form of credits. However, sometimes they take the form of foreign direct investment? What is the difference between these two forms? What are the major advantages and disadvantages for a country that, instead of a credit, receives a foreign direct investment.

**Question 3: Shorties**

- a) (4 points) Explain the difference between increasing external and internal returns to scale.
- b) (8 points) Based on a suitable diagram, explain the welfare consequences that arise for a *small* country which up to now sells import licenses but now abolishes the import quota.
- c) (6 points) Hinting at imperfect competition, it is sometimes argued that for an advanced nation strategic trade policy could be beneficial. Based on a simple numerical example, illustrate how a subsidy may increase the welfare of an advanced nation.
- d) (5 points) Consider a simple Ricardo-model. In *Home*, two goods ( $B=bicycles, H=heaters$ ) are produced. The respective prices are  $P_B$  and  $P_H$  and the respective labour unit requirements are  $a_{LB}$  and  $a_{LH}$ . What is the interpretation of the term  $P_B/a_{LB}$ ? Provide a verbal explanation for the fact that in autarky the equilibrium condition  $P_B/a_{LB} = P_H/a_{LH}$  must be satisfied.
- e) (4 points) Explain the difference between a prohibitive and an optimal tariff.
- f) (8 points) Learning effects may create increasing external returns to scale. Using a suitable diagram, explain how this point can be used to form an infant industry argument in favour of a tariff.
- g) (5 points) „Migration and trade are substitutes.“ What is meant by this statement?