

Examiner: Ludwig v. Auer

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.

Question 1:

Consider a *small* country called *Home* that produces two different goods, namely raw materials (output denoted by Q_R) and manufactures (Q_M).

- a) (6 points) Draw for Home the usual type of production possibility curve such that the maximum possible output of raw materials (horizontal axis) is roughly twice as large as the maximum possible output of manufactures. Using this diagram, graphically demonstrate that the opportunity cost of raw materials expressed in units of manufactures is increasing when the output of raw materials is increased.
- b) (5 points) Add to your diagram (or to a copy of that diagram) an isowelfare line W^1 , such that, in the autarky equilibrium, Home consumes roughly as much manufactures as it consumes raw materials. Also indicate in your diagram the associated consumption bundle D^1 , the output bundle Q^1 , and the autarky equilibrium price ratio $(P_R/P_M)^A$.
- c) (9 points) Suppose that the world equilibrium price ratio \tilde{P}_R/\tilde{P}_M is larger than $(P_R/P_M)^A$. Using your diagram, explain why the small country Home increases its welfare to W^2 when it fully integrates into the world market. Label the resulting consumption bundle by D^2 and the new output bundle by Q^2 . Indicate Home's national budget constraint and its exports and imports. Also indicate in your diagram the decomposition of Home's overall welfare gain into the gain from exchange and the gain from production adjustment.
- d) (10 points) Suppose that Home (a small country!) introduces an ad valorem tariff z on its imports. Using a fresh copy of your diagram (showing again Q^2 , D^2 , the national budget constraint, and the associated isowelfare line W^2), add the new national budget constraint and verbally justify its position and slope. Also indicate in the diagram the new output bundle Q^z , the new consumption bundle D^z , and the new welfare level W^z . Which two conditions must the consumption bundle D^z satisfy?
- e) (10 points) Using your diagram of question 1d, decompose the overall welfare change into a distortionary effect on the production side and a distortionary effect on the consumption side. Explain verbally why consumers' and producers' decisions give rise to these two distortions.

Question 2:

Consider a partial equilibrium analysis of the toys market of China and the EU (both are *large* countries!).

- a) (17 points) In the usual three part diagram, draw the supply and demand curves of China (left hand part of the diagram) and of the EU (right hand part of the diagram), such that with free trade China is an exporter of toys. Indicate in your diagram the free trade price of toys (P_W). Indicate also the volume of trade and the output of toys as well as the demand for toys in China and the EU (S^1 , \tilde{S}^1 , D^1 , and \tilde{D}^1). Also indicate the autarky prices that would prevail in China (P_A) and in the EU (\tilde{P}_A), if both countries were in autarky.

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- b) (9 points) Suppose that China's government imposes an export tax t on its exports of toys. Using your diagram of question 2a, derive the new world equilibrium. Indicate the resulting volume of trade as well as output and demand in China and the EU (S^2 , \tilde{S}^2 , D^2 , and \tilde{D}^2). Also indicate the export tax t , the price China's consumers (P_t), and the price the EU's consumers (\tilde{P}_t) have to pay for toys.
- c) (8 points) Indicate in a new diagram, how the Chinese export tax affects the welfare of China's consumers, producers, and the government. What is the net welfare effect on China?
- d) (5 points) In the context of import tariffs, an optimum tariff and a prohibitive tariff could be derived. However, the same can be done for an export tax. In your diagram of question 2c, indicate the prohibitive export tax t^{proh} . Also explain why the optimum export tax t^{opt} is larger or smaller than (or equal to) the export tax shown in your diagram of question 2c.
- e) (6 points) In an additional diagram, depict the relationship between the export tax t (horizontal axis) and China's welfare W (vertical axis). Indicate in this diagram t^{opt} , t^{proh} , and the associated welfare levels W^{proh} and W^{opt} .

Question 3: Shorties

- a) (6 points) Consider the Ricardian model with the two goods *wine* and *clothing*. Assume that the labour coefficients of *Home* are $a_W = 2$ and $a_K = 2$. In *Foreign* they are $\tilde{a}_W = 8$ and $\tilde{a}_K = 4$. Which values can the free trade equilibrium price ratio $(P_K/P_W)^*$ (!) possibly take? What is the resulting pattern of trade?
- b) (6 points) The large "country" *Latin America* primarily exports food (Q_N), whereas it imports manufactures (Q_M). Using the concept of world relative supply and demand curves, illustrate in two separate diagrams the impact on Latin America's terms of trade of the following events:
 A) Latin America grows biased towards its export product food;
 B) Latin America reduces its import tariffs on manufactures;
- c) (5 points) Consider the usual Heckscher-Ohlin-model with two countries (*Africa* and *Europe*), two goods (*low tech good* and *high tech good*), and two factors of production (*labour* and *capital*). Africa is labour abundant and the production of the low tech good is labour intensive. When the two countries introduce free trade, what is the resulting pattern of trade? Which groups gain from trade and which groups lose?
- d) (10 points) Suppose that in *Home* the available labour units for the production of chocolate bars is $L = 2,000$ and that the production technology is defined by $l_i = 500 + 5x_i$, with x_i denoting the produced quantity of chocolate bars of type i , and l_i denoting the labour 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 were opened up to free trade?
- e) (3 points) In the past, countries pursued different trade strategies. List three of them.
- f) (5 points) What are the two features characterizing foreign direct investment? What are the main advantages and disadvantages for the countries that receive foreign direct investment?