MOT 112A Economic Foundations

Exercises – International Trade (Lecture Week 4)

Exercise 1 – Comparative advantage and absolute advantage

1. Consider the following statement: *"In a model of international trade with 2 countries and 2 goods, each country can have comparative advantage only in one of the two goods"*. Would you agree with this statement? If yes, explain why. If not, explain why not.
2. Consider the following statement: *"In a model of international trade with 2 countries and 2 goods, each country can have absolute advantage only in one of the two goods"*. Would you agree with this statement? If yes, explain why. If not, explain why not.

Exercise 2 – The Ricardian model of trade

Assume a Ricardian trade model. Trade takes place between Brazil and India. The goods traded are sandalwood and coffee. Brazil has 1,000 units of labour available, while India's labour supply equals 4,000 units. The labour input requirements for producing these goods in Brazil (a_S^{BRA},a_C^{BRA}) and India (a_S^{IND},a_C^{IND}) are as follows:

	Sandalwood	Coffee
Brazil	1	2
India	4	4

1. Write down the production possibility constraint for Brazil and India and represent them graphically showing the quantity of coffee on the horizontal axis!
2. What would be the prices of coffee in terms of sandalwood in Brazil and in India in a situation of autarky (assuming that both goods are produced so that wages are identical in the two industries)?
3. Assume that in autarky both countries use half of their labour supply to produce sandalwood and the other half to produce coffee. What would be the amounts produced? Mark these points on the respective production possibility frontier as B^A (for Brazil - autarky) and I^A (for India - autarky).
4. Imagine now, that Brazil and India engage in international trade. Which country would the Ricardian model predict to export sandalwood and coffee respectively? Use the concept of comparative advantage and the concept of opportunity costs to underpin your answer.
5. Suppose further that under free trade the relative price of coffee is 1.5 units of sandalwood ($P_C/P_S = 1.5$). Which type of specialisation would result under this world price?

6. Can you infer from your answer in question 5) the quantities of coffee and sandalwood produced in Brazil and India respectively?
7. Assume that under free trade Brazil consumes the same amount of sandalwood as under autarky (see question 3). What is the amount of coffee Brazil can consume under the established world price of $P_C/P_S = 1.5$? Also calculate the corresponding amounts of consumption for India!
   Note: For this question it is useful to remember that the quantity exported of any good *i*, by one country is by definition equal to the quantity imported of that good by the other country, so that $X_i^{country\ 1} \equiv IM_i^{country\ 2}$ and $X_i^{country\ 2} \equiv IM_i^{country\ 1}$
8. From your answers obtained so far, can you identify any gains from trade? If so, which country/ies can reap the gains from trade?
   Note: For this question you may want to compare the consumption points of the two countries obtained under autarky and under free trade.

Exercise 3 – The Ricardian model of trade – once more

Assume a Ricardian trade model. Trade takes place between the US and China. The goods traded are potato chips and computer chips. The US has 800 units of labour available, while the labour supply in China is 8,000 units. The labour input requirements for producing these goods in the US (a_P^{USA},a_C^{USA}) and China (a_P^{CHN},a_C^{CHN}) are as follows:

	Potato chips	Computer chips
USA	1	5
China	10	100

1. Given these labour input requirements, assign absolute advantages and comparative advantages to the US and China!
2. Which trade patterns will emerge when the two countries decide to engage in international trade? (Note: a qualitative answer indicating which country is expected to export which good is sufficient).
3. Now assume that world demand is such that the world market price of computer chips is established at 5 potato chips ($P_C/P_P = 5$). What type of specialisation will emerge in this situation?
4. What will be the amount of computer chips and potato chips produced in China?
5. According to the Ricardian model, which country, if any, would reap gains from trade in this constellation? Explain your answer. (Note: again a qualitative answer supplemented with the accompanying argument is sufficient).
6. In your view, what could be a potential critique to a Ricardian type of trade analysis in the context of the goods considered in this example, in particular the computer chips? More specifically, would you think that it is reasonable to assume that the labour input requirements for producing computer chips a_C^{USA} and a_C^{CHN} were constant over the past decades. Compare your answer to the assumptions made in the Ricardian model.