

International trade
Final exam
Université Paris I Panthéon-Sorbonne
January 2014
(Neither documents or calculators are allowed)

Short questions (6 points).

1. What is the indicator of revealed comparative advantage (i.e., the Balassa indicator)? What does it measure and what is its formula ? (1 point, write half page maximum)
2. State the Rybszinsky theorem and represent it graphically on a graph with (L,K) dimensions. State also the amplification effect that is associated to it. (1 point, write half page maximum)
3. Why is France exporting both clothes *and* airplanes? (1 point, write half page maximum)
4. The government aims at doubling the domestic production of a good, which is sold on a market characterized by perfect competition. Under the recommendation of your TD teaching assistant, the minister of industry hires you to analyze the implications of introducing one of these two measures: i) a tariff; ii) a production subsidy. Which of the two measures would you suggest him? Explain and base your answer on graphs of partial equilibrium with the welfare gains and losses. (3 points, write one page maximum)

Open question (4 points, 2 pages maximum).

According to polls on the public opinion, French people are in favor of free trade with Germany but not with China. Are French people racist or irrational? Answer by discussing different types of trade and their implications for wealth distribution.

Exercise I : The model of HOS (7 points)

Consider the framework of Heckscher-Ohlin-Samuelson, with two goods: textile (denoted by T) and automobiles (denoted by V). Two factors of production are used in each sector: skilled workers (denoted by Q) and unskilled workers (denoted by L). We denote by y_i the quantity of good i , which is produced while Q_i and L_i represent the number of skilled and unskilled workers to produce good i . Production in each sector is done according to the following technologies:

$$y_T = Q_T^{1/4} L_T^{3/4} \text{ et } y_V = Q_V^{3/4} L_V^{1/4}$$

As textile is the numeraire, p is the price of cars in terms of textiles. Y_j is the income of country j in real terms of textile; w_Q and w_L are real revenues in terms of textile of skilled and unskilled workers, respectively.

Consider country 1 and country 2. Factor endowments are:

$$Q_1 = L_1 \text{ et } Q_2 = 0.8 L_2$$

Demand functions are: $D_{Tj} = a_j Y_j$ et $D_{Vj} = (1-a_j) Y_j / p$, $0 < a < 1$.

Each country has the same technology and factors are mobile across sectors but not across countries. The market structure is characterized by perfect competition.

1. Compare relative endowments of factors in both countries. (0.5 pts)
2. Let $q_i = Q_i / L_i$ be the skilled-workers intensity to produce good i . Compute the relationship between q_i and w_L / w_Q in each sector and comment it. Compare the intensity of skilled work in both sectors. (1pt)
3. Compute the relation between p and w/r . Give an economic interpretation. (0.5 pt)
4. Let $a_A = a_B$.
 - a) What are the implications of this assumption? In this case, can you determine the specialization patterns? What is the theorem on which you base your answer? (1pt)
 - b) Countries 1 and 2 open to free trade. We suppose that the free-trade relative price is strictly between the autarky relative prices of both countries. How do real revenues of both types of workers change in in each country? Why? (no calculations are required). What theorem refers to this situation? (1pt)
 - c) Could the Ricardian model be appropriately used to answer to question b)? Explain and discuss the main differences between the Ricardian and the HOS frameworks. (0.5pt)
5. Do no more consider the previous assumption on a_A and a_B (i.e., $a_A = a_B$ is now not holding) and let demand conditions change such that $a_1 < a_2$.

- a) How does this assumption affect autarky prices? (0.5pt)
 - b) What is its effect on specialization patterns? (1pt)
6. Can the HOS model be used to infer the implications of a free-trade market enlargement between the European Union and the US? Why?
Which other frameworks would better fit this case? According to them, how would consumer's welfare vary in response to this free-trade market enlargement? (1pt)

Exercise II : Imperfect competition (3 points)

Consider the toys industry in Japan and China. For each company in both countries fixed costs are 50 euros and variable costs are 2 euros for each produced toy. On each separate market the equilibrium price is: $P = 2 + 50/n$, where n is the number of firms. The market size in China and Japan is represented by the number of sales of toys, respectively: $T_C = 160\,000$ and $T_J = 90\,000$.

1. Discuss the features of the model of monopolistic competition by comparing the equilibrium price P and their marginal cost. (0.5pt)
2. Let $X = T/n$, where X is the quantity produced by each firm. What is the relationship between average costs and n ? Explain. (0.5pt)
3. Given $X = T/n$, compute the number of firms existing on each separate market in the long term. Comment. (1pt)
4. Suppose now that both countries decide to open their markets to each other and that there are no transportation costs. How many toy producers are there in the long term? (in Japan + China) According to our monopolistic competition framework did you expect this result? Which effect is at the roots of this result? Explain. (1pt)

Questions for students that are allowed not to take the TDs (ie, "en contrôle terminal" (4 points).

According to the model of Ricardo, is it better to open up to free trade or to open borders to migrants?
Base your answer on the following table. You will find production costs (i.e., the number of workers necessary to produce one unit of good) in France and Japan. Compare trade and migration costs and benefits in the case in which when opening up (to migrants or trade) France reduces the production of electronics by one unit so that freed workers are used to maximize the world production of chemicals – but keeping constant the production of electronics.

	Japan	France
Chemicals	0.8	1.3
Electronics	0.4	2.1