14.54 International Economics

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Midterm Exam
Wednesday, October 22, 2003

Instructions: you are required to answer both long questions and 5 out of 6 True/False/Uncertain questions. Always explain the reasoning behind your answer in order to obtain full credit for the question. This a 80-minute exam. You should use the points assigned to each question as a guide for time allocation.

1 Long question (30 marks)

Two countries, Home and Foreign, use one factor, labor, to produce two goods, Sweaters and Chocolate. The Home country can produce one Sweater with one unit of labor and one Chocolate with two units of labor. The Foreign country can produce one Sweater with three units of labor and one Chocolate with two units of labor. The Home country is endowed with a labor force of 100 units, while the Foreign country is endowed with a labor force of 200 units. Preferences are the same in the two countries and are described by the following utility function:

$$U(S,C) = S^{\frac{1}{2}}C^{\frac{1}{2}}$$

1. Which country has an absolute advantage in producing Sweaters? Which country has an absolute advantage in producing Chocolate? (2 marks)

2. Which country has a comparative advantage in producing Sweaters? Explain in words why this is the relevant information to determine the pattern of production in a world where the two countries are allowed to trade. (2 marks)

3. What is the pattern of production and consumption of the two goods in the Home country when it is in autarky? (3 marks)

4. What is the pattern of production and consumption of the two goods in the Foreign country when it is in autarky? (3 marks)

5. Draw for both countries a graph with the production possibility frontier and the graphical solution to the maximization problem. Show on each graph the numerical values where the PPF intercepts the two axes, the slope of the PPF and the equilibrium consumption and production values for the two goods. (3 marks)

6. Now imagine the two countries are allowed to trade. Draw the world relative supply curve. For which range of prices will both countries specialize? What happens if the price is not in this range? (5 marks)

7. Now draw the world relative demand curve and find the world equilibrium price. Do both countries specialize? What is the pattern of trade? (5 marks)

8. Explain what is the source of gains from trade in this world. (2 marks)

9. What is the relative wage in this economy? List all the possible determinants of relative wages in a Ricardian model like the one you have analyzed and illustrate the channel through which each factor contributes to the determination of relative wages. (5 marks)

2 Long question (20 marks)

A country, Microserf, produces two goods: food (F) and software (S).

In the short run, there are three factors of production: farm workers (L_F) who are specific to the food sector; software engineers (L_S) who are specific to the software sector; capital (K) is mobile between the two sectors.

In the long run, the two products are still food (F) and software (S). Capital (K) is still mobile across sectors, but labour can be retrained. That is, farm workers can be retrained to work in the software industry, if necessary, and vice versa. Food employs labour relatively intensively. Software employs capital relatively intensively.

Microserf is currently trading with the rest of the world. It exports food and imports software and is protecting its software sector with a tariff.

Suppose Microserf eliminates the tariff and experiences a fall in the absolute price of software as a result. The absolute price of food remains unchanged.

1. Rank the percentage change in all five prices (the three factor prices, and the two goods prices) in the short run. Explain the reasoning behind this ranking. (6 marks)

2. Rank the percentage changes in all four price (the two factor prices, and the two goods prices) in the long run. Explain the reasoning behind your ranking. (6 marks)

3. Who is likely to support the removal of the tariff in the short run? Who is likely to support the removal of the tariff in the long run?. (3 marks)

4. Demonstrate graphically the short-run and long-run effect of the fall in the price of software on the wage (factor return) paid to capital, and on the amount of capital employed in the two sectors. (5 marks) [Hint: you may want to use the graph from the specific factors model which shows the allocation of the mobile factor across sectors]

3 True/False/Uncertain (30 marks)

Answer 5 of the next 6 questions [if you answer all 6, only the first five that appear in your answer book will be marked]. Each question is worth 6 marks.

Discuss whether each of the following statements are True/False/Uncertain. Explain in detail the reasoning underlying your answer. Simply stating your answer will not earn you any credit.

1. International trade is bad for the US because it is destroying manufacturing jobs.

2. The existence of positive production externalities in the import-competing industries such as auto manufacturing is a sure sign that there is need to impose a tariff on these industries.

3. A tariff reduces welfare more than an equivalent quota.

4. A small open economy that receives a transfer from a foreign country unambiguously benefits from it.

5. In a country that is relatively more endowed with capital than the rest of the world, capital owners always gain from free trade.

6. The more similar countries are, the less they can benefit from trading with each other.