ECO 352 – International Trade – Spring Term 2010

FINAL EXAMINATION

Thursday May 13, 1.30-4.30 p.m.

IMPORTANT INSTRUCTIONS:

1. NO ELECTRONIC EQUIPMENT – computers, calculators, cell phones, etc. - can be used.
2. Any material on paper – books, notes, etc. – can be used.
3. This exam has THREE pages. Make sure you have them all.
4. Write your name clearly in uppercase letters on each answer book you use.
5. Write out and sign the honor pledge on the cover of your first answer book: "I pledge my honor that I have not violated the Honor Code during this examination."
6. The total time available is 3 hours = 180 minutes. Allocate your time carefully. We suggest using the first 10 minutes to read the exam carefully, and the final 15 minutes to read your answers and make any corrections or editorial changes, leaving 155 minutes for actually writing your answers. The number of minutes indicated on individual questions are only suggestions; your allocation should depend on your skills in answering the different types of questions.
7. Extra time can be "purchased" at the rate of FOUR points per MINUTE or part thereof.

QUESTION 1: 20 points (4 for each part), 30 minutes

For each of the statements below, say whether it is clearly true, clearly false, or uncertain (true in some circumstances not specified in the statement and false in others), and justify your answer in two or three sentences.

(a) When two countries open up to trade, the country with an absolute productivity advantage will gain more from trade.

(b) A small open economy produces clothing and food with a bowed-out PPF and competitive markets. The country currently exports clothing. An improvement in its terms of trade will increase the volume of its clothing exports.

(c) Intra-industry trade between two countries is a sign of comparative advantage.

(d) Both tariffs and export subsidies on a good increase the price of that good inside the country relative to the world price.

(e) The Most Favored Nation principle says that when a country joins the WTO, it is allowed to designate one trading partner country for which it can maintain its existing the preferential treatment.

QUESTION 2: 30 points (10 for each part), 45 minutes

(a) "When I buy a coat made in England, I have the coat and England has the money. When I buy a coat made in America, I have the coat and America has the money." – Attributed to Abraham Lincoln. Is this a valid argument for protection? (Important: This is not a macroeconomics question. Interpret 'money' in the sense of 'real resources'.)

QUESTION 2 CONTINUED

(b) "The U.S. political process is bound to capture any attempt at strategic trade management and undermine its economic aims for political reasons." - Anne Krueger (Stanford professor and former IMF Chief Economist) Outline how such capture can occur. Can you suggest any reform of laws or processes so as to reduce or minimize it?

(c) Douglas Irwin gives the following quote from an Oxfam publication: "History makes a mockery of the claim that trade cannot work for the poor. Participation in world trade has figured prominently in many of the most successful cases of poverty reduction." Why does this statement carry a special force in support of outward-looking trade policies? And despite this evidence, why do many less-developed countries retain trade barriers?

QUESTION 3: 20 points, 30 minutes

Consider a Ricardian model of trade with two countries, Home and Foreign, and two goods, Clothing and Food. Each Home worker can produce z units of either food or clothing per work hour, where $z > 0$ is an index of Home worker productivity. Each Foreign worker can produce either 1 unit of clothing or 4 units of food per work hour. Each country has an endowment of 1000 work hours. All workers in both countries have the same preferences for clothing and food, represented by the utility function $U(C,F) = C F$ in obvious notation. All prices in both countries are measured in a common unit of account.

(a) (2 points) State (without deriving) the relative demand function for the goods.

(b) (2 points) Which country has comparative advantage in which good? How does your answer depend on the value of z?

(c) First assume that home productivity is given by $z = 2$.
(i) (4 points) What is the equilibrium relative price of clothing P_C/P_F under free trade? (You will find it easier to assume that the countries are completely specialized and then verify the validity of this assumption.)
(ii) (4 points) Let w and w* represent the wages paid to Home and Foreign workers per hour; calculate the ratio w/w* under free trade.

(d) Now assume that Home's productivity z increases, but that both countries remain completely specialized in the new free trade equilibrium.
(i) (4 points) Calculate expressions for P_C/P_F and w/w* as functions of z.
(ii) (4 points) How does the increase in z change the welfare of each Home and Foreign worker? Explain the intuitive explanation for your finding.

QUESTION 4: 30 points, 50 minutes

Note: [1] Show clearly and readably all the steps of your calculations. [2] You are not allowed to use calculators. Almost all the numerical calculations in this question can be done using paper and pencil. You are given the following information for the few exceptions; they will also serve as hints as to whether your answers are correct: $112 * 112 = 12544$, $114 * 114 = 12996$, $120 * 105 = 12600$.

QUESTION 4 CONTINUED

Note continued: [3] You can also use the following result: For any constants a and b, the function f(x) = (x-a)(b-x) is maximized when x = (a+b) / 2.

For the purpose of this question, suppose that Airbus is totally owned by European citizens and Boeing is totally owned by US citizen. They compete in world markets as price-setting duopolists. For the purpose of this question you should ignore the market for airplanes within the EU and the US, and focus only on the export market in the rest of the world. The demand functions for their planes in that market are given by

$$Q_A = 200 - P_A + \tfrac{1}{2} P_B \quad \text{and} \quad Q_B = 200 + \tfrac{1}{2} P_A - P_B$$

in obvious notation. The average and marginal costs of producing each plane equal 64 in each country. The EU is contemplating a strategic trade policy.

(a) Suppose the EU offers Airbus a subsidy S_A for each plane it exports.

(i) (2 points) Write down expressions for the profits of Airbus and Boeing as functions of the prices and the EU subsidy.

(ii) (4 points) Calculate the best response functions giving each manufacturer's profit-maximizing price as a function of the other's price and the EU subsidy.

(iii) (4 points) Solve these functions to express the Bertrand-Nash equilibrium prices as functions of the EU subsidy.

(iv) (4 points) Find the resulting expressions for the quantities and the profits of each firm, also as functions of the EU subsidy.

(b) The EU wants to maximize its welfare or total surplus, which equals Airbus' profit minus the budgetary cost of the subsidy. The US government is not deploying any strategic trade policy; its total surplus is simply Boeing's profit.

(i) (2 points) What are the EU and US total surpluses in the absence of any policy, that is, when $S_A = 0$?

(ii) (6 points) What is EU's optimal choice of S_A ?

(iii) (2 points) What are the resulting EU and US total surpluses and how do they compare to the case when $S_A = 0$?

(iv) (6 points) How do these results differ from the quantity-setting duopoly of Problem Set 5? Give an economic explanation for your findings.