Written Exam at the Department of Economics August 2019

International Economics

Re-exam

August 21st 2019

(3-hour open/closed book exam)

Answers only in English.

This exam question consists of 2 pages in total

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- contact an invigilator who will show you how to register and submit a blank exam paper.
- leave the examination.
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You cheat at an exam, if during the exam, you:
- Make use of exam aids that are not allowed
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- Or if you otherwise violate the rules that apply to the exam

Problem 1 - 50 per cent

Please evaluate if the following statements are true/false/uncertain. Remember, you only get points for answers with explanations!

1.1. A country gains from trade even if it has higher productivity than its trading partner in all industries.

1.2. The Rybczynski theorem states that an increase in the supply of labor will, holding prices constant, lead to a fall in the price of the capital-intensive good.

1.3. Imperfect competition gives governments incentives to subsidize exports, but these policies can be jointly suboptimal.

1.4. The classical trade models (the Heckscher–Ohlin model and the Ricardian model) are well-suited to explain all three of the following facts: The increase in income inequality in the developed world, the decrease in the labor share in the developed world, the rise in income inequality in the developing world.

1.5. Brexit is expected to disproportionately affect low-wage workers

1.6. Imposing an import quota or imposing and import tariff are equivalent when markets are competitive and the home government sells the quota (and gets the revenue).

1.7. In a competitive market, a foreign country strictly prefers a voluntary export constraint to an import tariff that reduces imports by the same amount.

Problem 2 - 50 per cent

Consider a market in country C with an inverse demand function of:

$$p(D),$$

where p is the price that results from total consumption of D units. $p'(D) < 0$ and $p''(D) \leq 0$.

Country C does not itself have a firm that can service this market. Country A and B each have one firm that can. They each have constant marginal costs of c_A and c_B, with $c_A \geq c_B$ where . The two firms choose how much to produce, q_A and q_B, simultanously, i.e. they play a simultanous move game where actions are quantitites.

a) Show that (a) Nash equilibrium is given by:

$$p'(q_A + q_B)q_A + p(q_A + q_B) - c_A = 0,$$

$$p'(q_A + q_B)q_B + p(q_A + q_B) - c_B = 0,$$

and show what the necessary constraint is for firm A to have positive production.

b) Show that the response functions (A's best response to production by firm B and $B's$ best response to production by firm A) are downward sloping and argue that this means the equilibrium is unique. Interpret

c) Show that firm B will be producing (weakly) more than firm A. Interpret

Henceforth, we will be assuming that that c_A and c_B are close enough that both firms will be producing.

d) Suppose that country A imposes an export subsidy of s per unit exported to country C. Show that this will increase firm A's production and reduce firm B's production. Interpret

e) From now on, assume that both country A and country B impose subsidies of s_A and s_B, respectively. Show that the equilibrium is now given by:

$$q_B = \frac{A + (c_A - s_A) - 2(c_B - s_B)}{3B},$$

$$q_A = \frac{A + (c_B - s_B) - 2(c_A - s_A)}{3B}.$$

f) Consider equal costs $c_A = c_B = c$. The home governments A and B seek to maximize home welfare (export profits minus government subsidies). Formally, we set up the following game: first stage, the two governments simultanously set subsidies (s_A, s_B), second stage: the two firms simultanously set quantities (q_A, q_B). Consumption takes place and profits are earned. Show that this equilibrium is worse for both countries A and B than an equilibrium with no subsidies $(s_A = s_B = 0)$. Interpret.