

Written Exam at the Department of Economics summer 2019

International Economics

Final Exam

May 27th 2019

(3-hour closed book exam)

Answers only in English.

This exam question consists of 3 pages in total

Falling ill during the exam

If you fall ill during an examination at Peter Bangs Vej, you must:

- contact an invigilator who will show you how to register and submit a blank exam paper.
- leave the examination.
- contact your GP and submit a medical report to the Faculty of Social Sciences no later than five (5) days from the date of the exam.

Be careful not to cheat at exams!

You cheat at an exam, if during the exam, you:

- Make use of exam aids that are not allowed
- Communicate with or otherwise receive help from other people
- Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text
- Use the ideas or thoughts of others without making use of source referencing, so it may appear to be your own idea or your thoughts
- Or if you otherwise violate the rules that apply to the exam

Problem 1 - 50 per cent

True/false questions. Each question has equal weight. You can only get points for answers with an explanation!

1.1. Consider a country which trades costlessly with the rest of the world and is described by the two-factor model with capital and labor. Keep the world price fixed. Suppose there is a positive immigration inflow but that these immigrants are wealthy and bring with them more capital per person than the native population. This will increase production of the capital-intensive good but keep the wage and return on capital constant.

1.2. Suppose the EU is struggling, a new sovereign debt crisis is emerging in Southern Europe and there are concerns about whether Southern European governments can pay their debt back. All else equal, this increases the US current account deficit.

1.3 Consider a small open economy which imposes an import tariff of t . The distortions are likely to be higher if demand is elastic.

1.4 Within the Ricardian trade model, an absolute advantage in the production of a given good is neither necessary nor sufficient for a country to have a comparative advantage in producing the same good.

1.5. An import quota and an import tax that lead to the same total imports will be welfare equivalent if the home government sells the quota in an auction.

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

Problem 2 - 50 per cent

Consider a market in home country where the utility function is:

$$U = aq - \frac{1}{2}bq^2 + z,$$

where q is production in the market we focus on and z is an “outside” good and $a, b > 0$. Let the price of good q be p and the price of good z be 1. Let income of a representative agent, I , be high enough that demand is active both for good q and z .

Q1. Show that the inverse demand function is given by

$$p(q) = a - bq.$$

Only two firms can potentially produce in this market. A home firm and a foreign firm. x is the production of the firm in the home country and y is the production of a firm in the foreign country such that $q = x + y$. The home firm has costs of production c where $a > c$. The foreign country has cheaper cost of production, but needs to pay an iceberg cost for transportation for a total cost of τc^* , with $c > c^* > 0$ and $\tau \geq 1$.

Q2. Find the best response function for the home and foreign firm, respectively. That is, find a function, $R_x(y)$ which gives the optimal production of home firm given foreign production (and equivalently for foreign). Show that they are:

$$R_x(y) = \frac{a - by - c}{2b}.$$

$$R_y(x) = \frac{a - bx - \tau c^*}{2b}.$$

Q3. Find the equilibrium when the two firms make moves simultaneously. Call these x^* and y^*

Q4. Find the condition on τ (other than $\tau \geq 1$) that ensures that both firms are active in this market. Assume that this condition is met from now on.

Q5. How does equilibrium home production, x^* , depend on transportation costs, τ ? Interpret

Q6. Show that home and foreign firm have profits of, respectively:

$$\pi^x = (p - c) x^* = \frac{(a + \tau c^* - 2c)^2}{9b}$$

$$\pi^y = (p - \tau c^*) y^* = \frac{(a + c - 2\tau c^*)^2}{9b}$$

Q7. Show that if the home government values the sum of the utility of the home representative agent and the firm's profits the welfare function for the home government will be:

$$W = \frac{1}{2} \frac{(2a - c - \tau c^*)^2}{9b} + I + \frac{(a + \tau c^* - 2c)^2}{9b}$$

Q8. Show that this function is *not* monotone in τ , that is for some values of τ it is increasing in τ and for some values it is decreasing. Interpret

Q9. How would total welfare in home depend on a foreign export subsidy, i.e. if the foreign government subsidized exports from foreign to home in this sector? An explanation without math is sufficient.