

Written Exam at the Department of Economics winter 2018-19

**International Economics**

Final Exam

January 18<sup>th</sup> 2019

(3-hour closed book exam)

Answers only in English.

**This exam question consists of 2 pages in total**

*NB: 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. Then you leave the examination. When you arrive home, you must contact your GP and submit a medical report to the Faculty of Social Sciences no later than seven (7) 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

Answer whether each statement is true, false or uncertain. Defend your answer! Answers without comments can at most get half points.

1.1. 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.

1.2. Consider one country which trades 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. Production is active in both sectors both before and after the inflow of immigrants. This will increase the production of the capital-intensive good but not change the return to capital or labor.

1.3. The increase in the skill-premium in both the US and Mexico over the past 30 years is best explained by increased reliance on trade in final goods

1.4. Brexit is expected to help low-wage workers

1.5. Consider the Dornbusch/Fisher/Samuelson model of continuous goods and two countries. Suppose there is an increase in population abroad. This will benefit home.

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

1.7 The most favored nation (MFN) principle states that all countries who are members of the GATT/WTO should be treated equally with respect to tariffs.

## Problem 2 - Strategic Trade Policy

Consider the production of a new aircraft, with quantity denoted by  $z$ ; by two countries France and USA. In each country there is one firm producing the good with constant marginal costs  $c$ : The two firms sell the good abroad in the world market (i.e. no domestic consumption), and they compete in quantities (Cournot competition). The output of the firm in France is denoted  $x$  and the output of the firm in USA is denoted  $y$ ; so that the total quantity sold in the world market is  $z = x + y$ : The demand  $z$  by airline companies in the world market is given by the following (inverse) demand curve  $p = a - bz$ , with  $a, b > 0$ : The French government subsidizes exports of the French firm by  $s$  per unit.

2.1. Given this subsidy, state the two firms' maximization problems and show that the French and American firm's reaction functions are given by  $x = \frac{a-by-c+s}{2b}$  and  $y = \frac{a-bx-c}{2b}$ .

2.2. Find the Cournot Nash equilibrium and quantities. How does the subsidy affect prices and quantities? Illustrate graphically the impact of increasing the subsidy level from 0 to  $s$ .

2.3. Find the profits of the two firms. How does the subsidy affect these profit levels? Discuss this result.

*Assume that welfare in France is measured by profit of the French firm minus the cost of the subsidy,  $G$*

$$G = \pi - sx,$$

2.4 Find the subsidy that maximizes French welfare. Is it beneficial for the French government to subsidize exports? Discuss why this result differs from the impact of export subsidies on welfare in models with perfect competition.

*Suppose the French government no longer subsidizes the French firm. Assume instead that the French firm is the first mover. That is, first the French firm sets its quantity and thereafter the US firm sets its quantity (the French firm knows the US firm follows it). (i.e., the French firm is the Stackelberg leader and the US firm is the Stackelberg follower).*

Question 2.5: Find the Stackelberg equilibrium and discuss how this solution relates to the optimal subsidy from the previous question.