

Written Exam at the Department of Economics summer 2018-R

International Economics (2200-F18)

Final Exam

August 17, 2018

(3-hour open/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 in order to be registered as having fallen ill. Then you submit a blank exam paper and 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 Domestic market failures may be used as an argument against free trade.

1.3 Everyone gains from international labor mobility.

1.4. Consider one 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.

1.5. 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 and 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

Consider a Dornbusch, Fischer and Samuelson model with the following characteristics:

There are two countries, Home and Foreign, with respective quantities of labor of L and L^* . There is a continuous set of good on the unit interval ($z \in [0, 1]$) and the representative agents in both home and foreign have identical Cobb-Douglas utility over these inputs:

$$u = \exp\left(\int_0^1 \log c(z) dz\right).$$

The function $a(z)$ determines how many units of labor home need to produce one unit of z and $a^*(z)$ how much labor foreign needs. Let $A(z) \equiv a^*(z)/a(z)$ and assume that $A'(z) < 0$.

a) Argue that the cost of a good must be the same in both countries and equal to:

$$p(z) = p(z^*) = \min \{wa(z), w^*a^*(z)\},$$

where $p(z)$ is the cost of a good in home, $p(z^*)$ is the cost of a good in foreign and w and w^* are the respective wages in the two countries.

b) Let there be a product z' which the two can produce at equal costs. Argue that it is given by $wa(z') = w^*a^*(z')$ and argue that $A'(z) < 0$ is a sufficient condition to ensure that home produces $z \leq z'$ and foreign produces $z > z'$.

c) Show that with balanced trade the following condition must hold:

$$\frac{w}{w^*} = \frac{z'}{1 - z'} \frac{L^*}{L}.$$

This implies that w/w^* is increasing in z' . Why? Interpret

d) Show - either graphically or mathematically - that an increase in foreign population, L^* , raises the relative wage (w/w^*) of home workers.

e) Show that home utility is given by:

$$U = - \int_0^{z'} \log(a(z)) dz - \int_{z'}^1 \log(a(z) \frac{w^*}{w}) dz.$$

f) Show that home utility is increasing in L^* .

g) Foreign country considers introducing a gross tariff of $\tau > 1$ such that the government charges $(\tau - 1)p$ for the import of a unit of good with a price p . The entire tariff revenue will be paid out to the workers lump sum. For simplicity consider a marginal tariff, i.e. consider $\tau = 1$ (no tariff) and derive the (sign of) the effect on home utility from a marginal increase. Further, assume in the following that $L = L^* = 1$ and that:

$$A(z) = \frac{1}{2z}.$$

Show that the equilibrium is characterized by $(z^a, z^b, w/w^*)$ where $[0, z^a]$ products are produced at home $[z^a, z^b]$ products are produced in both countries and products $[z^b, 1]$ are produced in foreign. Show that the equilibrium wage is given by:

$$\left(2 \frac{w}{w^*} - 1\right) = 2 \frac{1}{2\tau^2 \frac{w}{w^*} - \tau + 1},$$

and that this implies:

$$\frac{d(w/w^*)}{d\tau} \Big|_{\tau=1} = -\frac{1}{2},$$

$$\frac{dz^a}{d\tau} \Big|_{\tau=1} = -\frac{1}{4}.$$

$$\frac{dz^b}{d\tau} \Big|_{\tau=1} = \frac{1}{4},$$

and that this implies unequivocally that foreign benefits and home loses from foreign imposing a (small) tariff.