

## International Economics Exam: October 30, 2012

Last name (in capital letters):

First name (in capital letters):

Student registration number:

Signature:

*General instructions:*

1. Answer all questions from sections A and C, and answer only one question out of two from section B;
2. Exam papers that are missing either name, student number, or signature are not valid;
3. Write your name, student number, and signature also on the sheets employed to solve the exam; these sheets, together with scratch paper, have to be handed back;
4. Questions are to be answered in pen; pencil is allowed only for graphs;
5. Available time: 1 hour and 30 minutes.

### **SECTION A**

**Multiple choice questions (2 points for correct answer, 0 for blank answer, -1 for wrong answer)**

1. In the context of the Heckscher-Ohlin model of trade, the opening up to free trade by a country
  - a) hurts the factor of production which is used intensively in the good being imported
  - b) hurts the factor of production which is used intensively in the good being exported
  - c) hurts the factor of production whose marginal product goes up
2. Consider the following curve  $SS$ , which displays the relationship between the relative price of cigars over food,  $P_C/P_F$ , and the relative price of the wage rate over the rental rate of capital,  $w/r$ .



From the slope of the curve it can be deduced that:

- a) cigars are labor-intensive, while food is capital-intensive
- b) cigars are capital-intensive, while food is labor-intensive
- c) both goods are labor-intensive

3. When varieties are completely differentiated, it is true that  $s = 1$ ; that is; each firm enjoys a perfect monopoly power. In this situation (the **variety effect** framework) the total number of firms in the integrated market is equal to  $n_T = 2 n_A$ . In the integrated market it is also true that

- a) there is a scale effect, since the quantity produced by each firm goes up
- b) there is a defragmentation effect, since the total number of firms is larger than in autarchy
- c) there is no pro-competitive effect, since the price charged by each firm stays unchanged

4. Consider the model about the choice between licensing and horizontal FDI. In this model the royalty  $R$  paid by the foreign agent to the national enterprise is

- a) constant in  $\lambda$ , the degree of excludability of the knowledge capital of the national enterprise
- b) increasing in  $\lambda$
- c) decreasing in  $\lambda$

**SECTION B:** Answer only one question out of the following two (answer either B.1 or B.2).

**Question B.1: Import tariffs with big countries**

Let us consider two big countries,  $H$  and  $F$ , that are trading with each other a good  $X$  and a good  $Y$ .

- i) Draw the graph for the excess demand curves **for good  $Y$**  for these two countries under free trade, under the hypothesis that  $p_A^H > p_A^F$ ; that is, the equilibrium relative price  $p_X/p_Y$  in autarchy is higher in country  $H$  with respect to country  $F$ . Determine also graphically the equilibrium terms of trade,  $\hat{p}$ . What is the condition that equilibrium terms of trade  $\hat{p}$  satisfy?

Country  $F$  decides to levy an *ad valorem* tariff equal to  $t$  on imports. After the introduction of the tariff, equilibrium terms of trade change, and they assume a new value that we indicate with  $\hat{p}_t$ .

- ii) Write the analytic expression for the domestic relative price in country  $F$ ,  $p_t^F$ , after the import tariff is levied, as a function of the new international terms of trade  $\hat{p}_t$ .
- iii) Show graphically through the excess demand curves for good  $Y$  in country  $H$  and country  $F$  how to determine the new terms of trade,  $\hat{p}_t$ , after the tariff is levied.
- iv) Redo points ii) and iii) in the case of an import tariff levied by country  $H$  on good  $X$ .

**Question B.2: Horizontal FDI and proximity-concentration trade-off**

Consider the horizontal FDI model. There are two markets, each with a demand level equal to  $E$ . The firm faces two options. The first entails staying as a national enterprise ( $NE$ ), and so carrying out production in a single plant with a fixed cost  $F$ , a marginal cost  $c$ , and a transport cost  $t$  to reach the foreign market. The second entails becoming a multinational enterprise ( $MNE$ ), with headquarters cost  $H$ , and so carrying out production in two separate plants, each with fixed cost  $F$  and marginal cost  $c$ .

- i) Write the profit function for the multinational and national organizational forms, respectively.
- ii) Compute the profit differential  $\Pi^{MNE} - \Pi^{NE}$  and write the conditions under which this profit differential is larger, equal or smaller than zero.
- iii) Compute analytically the level of foreign demand,  $E^*$ , below which it is convenient to stay national.
- iv) Show graphically how to get the foreign demand level  $E^*$  and provide a graphical assessment of the impact of **trade liberalization** (lower  $t$ ) on the likelihood of being  $MNE$ . Give the economic intuition explaining this effect of trade liberalization.
- v) Say why this model is said to formalize the trade-off between proximity and concentration.

## SECTION C

### **Traditional theories of trade**

Consider the following Ricardian framework. There are two countries,  $E$  and  $P$ , two tradable goods,  $v$  and  $c$ , and one factor of production, labor, which is immobile across countries. Good  $c$  is the numeraire good in both countries; that is,  $p_c^E = p_c^P = 1$ . Country  $E$  is endowed with 200 units of labor while country  $P$  is endowed with 90 units of labor. We have the following technologies in each country (unit labor requirements):

$a_c^E = 3$ ;  $a_v^E = 2$ ;  $a_c^P = 2$ ;  $a_v^P = 1$ . Preferences over the two goods are of the Leontief type in both countries.

- i) Compute the autarchy equilibrium for  $E$  and  $P$ ; that is, compute the quantities produced (and consumed), the total amount of labor employed, wages, and prices in each sector.
- ii) Draw the world PPF and determine **graphically** the world production and consumption under free trade, the free trade price ratio, the pattern of specialization of the two countries.