

Written exam for the B.Sc. or M. Sc. in Economics summer 2012

International Economics

Final Exam

June 29, 2012

3-hour closed book exam

All problems must be answered.

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by “eksamen på dansk” in brackets, you must write your exam paper in Danish.

If you are in doubt about which title you registered for, please see the print of your exam registration from the students’ self-service system.

PROBLEM 1

Determine if the following statements are true or false. Give a short explanation.

- 1.1 In the Heckscher-Ohlin model factor price equalization occurs because production factors are mobile across countries.
- 1.2 If a country has a higher share of a factor's world supply than its share of world income, then that country should be a net exporter of that factor.
- 1.3 China's economy has been growing with a bias towards goods that Denmark import. According to the Standard trade model this is worsening Denmark's welfare.
- 1.4 When firms differ in terms of productivity, economic integration forces the least productive firms to exit.
- 1.5 The losses from joining a fixed exchange rate area decrease with economic integration.
- 1.6 The effective rate of protection from an $X\%$ tariff on a final good is $X\%$ for domestic final good producers.
- 1.7 The European Union is a free trade area.

PROBLEM 2

Multinationals. There are two countries $i = 1, 2$, with total expenditures E_1 and E_2 in their markets for windmills. Four different types of firms operate in the windmill markets. Some firms (multinationals) operate a plant in both countries and a headquarter in one of the countries. Other firms (nationals) operate a plant and a headquarter in the same country and serve the other country by exporting. There is a fixed number of firms of each type: m_1 multinationals with headquarter in country 1, m_2 multinationals with headquarter in country 2, n_1 nationals in country 1, and n_2 nationals in country 2. All firms face a constant marginal cost of producing a windmill of c . Each firm produces its own differentiated windmill with perceived demand given by $x_i(p_i) = E_i p_i^{-\sigma}$, where $\sigma > 1$ is a constant demand elasticity. Trade costs are of the iceberg form, such that $\tau > 1$ units

must be shipped for one unit to arrive. An alternative way to express trade costs is to use the "trade freeness"-parameter $\varphi \leq 1$. This means that firms serving the windmill market in country i by exporting from country j have a market share equal to φs_i , where s_i is the market share of firms with a plant in country i . Finally, there are fixed costs of setting up a plant and a headquarter of cF and cH respectively.

2.1 Answer the following questions for each of the four firm types: What is the marginal cost of serving country 1 and country 2? What is the market share in country 1 and country 2? What is the total fixed costs?

2.2 State the market i operating profit of a windmill producer with a plant in country i , and find the profit maximizing price. Given this price, show also that the operating profit can be written $\pi_i = \frac{s_i E_i}{\sigma}$, where $s_i = \frac{p_i x_i}{E_i}$ is the market share of the firm.

Now suppose there are one firm of each type ($n_1 = n_2 = m_1 = m_2 = 1$). Assume also that $\sigma = 2$, $c = 1$, $E_1 = E_2 = 210$, $F = 5$, $H = 20$, and $\varphi = \frac{1}{2}$.

2.3 Find the market shares, s_1 and s_2 , and the total profit of each firm.

2.4 Is it profitable for the two national windmill producers to merge their companies into a multinational? What would happen if trade is restricted (φ falls) or building a headquarter becomes more expensive (H rises)? Explain.

2.5 Suppose there is now free entry and exit of firms such that the numbers of firms and market shares are determined endogenously by a zero profit condition. What type of firms will then exist in equilibrium?