

UNIVERSITY OF OSLO
DEPARTMENT OF ECONOMICS

Exam: **ECON4415 – International trade**

Date of exam: Wednesday, December 2, 2015 **Grades are given: December 22, 2015**

Time for exam: 09.00 a.m. – 12.00 noon

The problem set covers 4 pages (incl. cover sheet)

Resources allowed:

- No resources allowed (except if you have been granted use of a dictionary from the Faculty of Social Sciences)

The grades given: A-F, with A as the best and E as the weakest passing grade. F is fail.

Problem 1: (20 points)

Consider an industry in a given country. The industry is characterized by monopolistic competition and increasing returns to scale. Firms produce differentiated goods and have heterogeneous productivity.

- a) The country moves from a situation of autarky to free trade. What is the impact on the firms in the industry. Explain and illustrate your results graphically.
- b) What happens to average productivity in the industry as we move from autarky to free trade and why? Explain.

Problem 2: (30 points)

Consider an economy (*Home*) with two factors of production, labor and capital. Production and markets are characterized by constant returns to scale and perfect competition respectively. A government is considering opening the country to free immigration.

- a) Under what circumstances will the country experience immigration? Under what circumstances will the country experience emigration?
- b) Describe the nature of the short run equilibrium with immigration. Explain and illustrate your answer graphically.
- c) In the short run, what groups will gain and what groups will lose from immigration?
- d) Describe the transition to, and the nature of, the long run equilibrium with immigration. Explain and illustrate your answer graphically.
- e) In the long run, what groups will gain and what groups will lose from immigration?
- f) Assume instead that the world is characterized by imperfect competition and increasing returns to scale. Discuss the impact of free immigration on the welfare of different groups.

Problem 3: (20 points)

Consider two economies of sizes L and L^* respectively, where $L > L^*$. All resources in both economies are employed in the monopolistic competitive sector. Equilibrium number of varieties in each economy is n and n^* . Assume that they can trade with iceberg costs of $\tau > 1$. In the monopolistic competitive sector demand for any product j is given as:

$$q_j = \frac{p_j^{-\sigma}}{P^{1-\sigma}} Y$$

Each firm has monopoly power over a single variety j . Assume that in order to operate, a firm must pay a fixed cost f and a variable cost bx_j , and that we can write profits as

$$\pi_j = p_j x_j - w(bx_j + f)$$

- a) Explain the meaning of each of the variables p_j , P and Y .
- b) q_j constitutes the demand for a domestically produced variety. State the expression for demand for an imported variety and explain the difference between the two.
- c) Does welfare differ for residents of the two countries? Explain.

Problem 4: (30 points)

Consider two economies of sizes L and L^* respectively, where $L = L^*$. Assume that the countries can trade with iceberg costs of $\tau > 1$. Let us assume that each economy may potentially be active in two sectors, one sector is characterized by constant returns to scale (agriculture) and one sector is characterized by monopolistic competition (manufacturing). Workers move between sectors but not between countries. Consumers spend γ share of their income on manufacturing products. Firms spend μ share of their costs on intermediates produced in the manufacturing sector and $1 - \mu$ on labor.

- a) Describe the possible equilibria and industrial structures. Explain and illustrate your answer graphically.

- b) Assume that trade is liberalized gradually over a longer period. Does trade liberalization lead to factor price equalization? Explain and illustrate your answer graphically.