

Written Resit Exam for the M.Sc. in Economics Winter 2015–16

Advanced International Trade

3-hour closed-book exam

February 18 2016

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. That is, 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.

This exam consists of 4 pages in total.

Problem 1:

Consider a small Heckscher-Ohlin economy producing two tradable goods using workers L and capital K . Let industry 1 be labor-intensive ($\frac{L_1}{L} > \frac{K_1}{K}$), and let a_{fj} denote the required input of f to produce one unit of good $j = \{1, 2\}$.

1. Write up the full-employment conditions.
2. Suppose immigration increases the size of the labor force ($\hat{L} > 0$) but immigrants do not bring any capital ($\hat{K} = 0$). What happens to production of the two goods?
3. What would happen if immigrants bring capital with them in the same proportion as natives have capital ($\hat{L} = \hat{K} > 0$)?

Problem 2:

Consider an economy with one monopolistically competitive industry. In this industry, each firm produces one unique variety of a differentiated product. There are N varieties available in the economy and each of the L consumers has the following utility function:

$$U = \sum_{n=1}^N c_n^\theta, \quad 0 < \theta < 1 \quad (1)$$

where c_n denotes the quantity consumed of good n .

Aggregate demand, d_n is defined as:

$$d_n = Lc_n = p_n^{1/(\theta-1)} \frac{wL}{P} \quad (2)$$

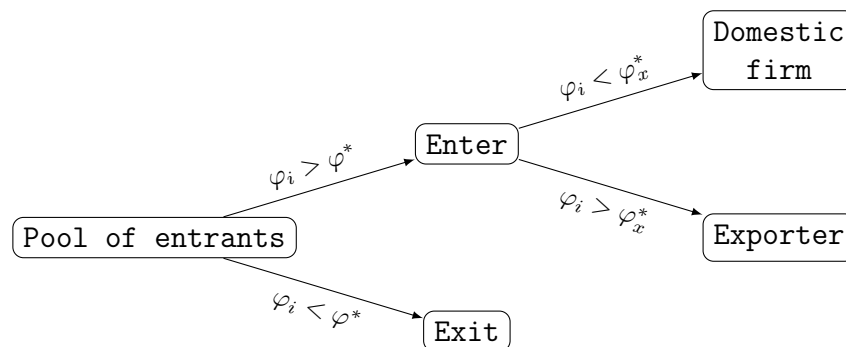
where $P = \sum_{m=1}^N p_m^{\frac{\theta}{\theta-1}}$ denotes an aggregate price index. The economy is assumed to be large in the sense that each firm takes P as exogeneously given.

Firms require $l_n = \alpha + \beta x_n$ workers to produce x_n units of output. Each consumer is endowed with one unit of labor which is inelastically supplied to the economy at wage, w . In equilibrium, supply must meet demand (that is, $x_n = d_n$).

1. Write down an expression for a firm's profits. Show that the firm's optimal price is $p_n = \theta^{-1} \beta w \forall n = 1, \dots, N$. Why do firms set the same price for their products in this economy? Why do firms set a lower price for higher values of θ ?
2. Firms enter the economy whenever profits are positive. In equilibrium, profits must be zero due to free entry. Write down the zero-profit condition. Show that the output of each firm is:

$$x_n = \frac{\theta}{1-\theta} \frac{\alpha}{\beta} \quad (3)$$

3. All workers are employed in production. Write down an expression for N using the full-employment condition. How does the number of firms, N , depend on θ ?
4. Suppose the economy opens up to trade with another country. Assume the two countries are identical in terms of preferences, technology and endowments. What happens to production and the number of firms in the home economy once it opens up to international trade? Are there gains from trade? How do the gains from trade compare to the results in Krugman (1979)?
5. The economy has so far been characterized by love-of-variety preferences, increasing returns to scale technology and firms setting prices as a constant markup over marginal cost. Following Melitz (2003), assume now that firms are heterogeneous in terms of productivity, φ_i . Discuss why some firms export and others do not on the basis of the figure below. Note that you are not required to derive any statements formally in your answer.



6. Suppose the economy from the previous question opens up to trade with another country. Assume the two countries are identical. What happens to production and the number of firms in the home economy, as it transitions from a closed economy to an open economy? Are there gains from trade? How do the gains from trade compare to the situation with homogeneous firms?

Problem 3:

Answer True or False to each of the statements below. Briefly explain your answer.

1. In Dornbusch, Fischer and Samuelson (1977), countries gain from international trade because product variety increases.
2. The Gravity Equation can only be derived from models with complete specialization across countries.
3. Offshoring the production of some intermediates previously produced by domestic low-skilled workers makes domestic workers worse off.

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4. The overall openness to trade of the exporting and the importing country affect the bilateral trade flow, controlling for the bilateral trade cost.
5. The intensive margin of exports is the (average) price at which goods are being exported.