ℹ Candidate instructions

ECON4415 - International Trade

This is some important information about the written exam in ECON4415. Please read this carefully before you start answering the exam.

Date of exam: Wednesday, December 12, 2018

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

The problem set: The problem set consists of three questions, with eight sub-questions. They count as indicated.

Sketches: You may use sketches on all questions. You are to use the sketching sheets handed to you. You can use more than one sketching sheet per question. See instructions for filling out sketching sheets on your desk. It is very important that you make sure to allocate time to fill in the headings (the code for each problem, candidate number, course code, date etc.) on the sheets that you will use to add to your answer. You will find the code for each problem under the problem text. You will NOT be given extra time to fill out the "general information" on the sketching sheets (task codes, candidate number etc.).

Access: You will not have access to your exam right after submission. The reason is that the sketches must be scanned in to your exam. You will get access to your exam within 2-3 days.

Resources allowed: Candidates who have submitted the non-compulsory term paper, will have their answer delivered before the exam as an aid. Otherwise no written or printed resources - or calculator - is allowed (except if you have been granted use of a dictionary from the Faculty of Social Sciences).

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

Grades are given: Friday 4 January 2019.

ℹ Question 1

Trade and migration (3 points)

Read the attached Vox column. The authors use an Heckscher-Ohlin (HO) model to predict the effects of trade liberalization and migration policy on US districts. They consider two factors, skilled and unskilled labor. The US overall is abundant in skilled labor (and some districts are more than others) and the rest of the world is abundant in unskilled labor.

1.1 Question 1.1 (1 point)

First focus on trade. Their first prediction is that legislators are more likely to support trade liberalization in districts with more skilled workers. Explain why (assume that political leaders only care about the welfare of the population of their district). Your answer should be based on the mechanisms and predictions of the HO model, which you need to explain carefully.

Fill in your answer here and/or on sketches

Maximum marks: 1

1.2 Question 1.2 (1 point)

Now, turn to migration. Now we ignore the differences across districts within the US, and focus on country level predictions (this is equivalent to assuming free movement of goods and labor within a country).

In class when discussing the HO model we have assumed that factors were immobile across countries. Now assume both types of labor can migrate. Explain what predictions you would expect the HO theory to deliver in terms of the migration patterns of each type of labor in each of the following cases.

      (i) If the countries cannot trade;

(ii) If trade is fully liberalized (free trade, zero trade costs).

Explain carefully.

Fill in your answer here and/or on sketches

Maximum marks: 1

1.3   Question 1.3 (1 point)

The authors find support for their hypotheses: legislators from districts with a larger share of skilled workers are more likely to vote pro-trade and pro-unskilled labor migration policies. They interpret this as evidence supporting a HO-type of explanation. Can you imagine alternative mechanisms which would generate such as pattern?

Fill in your answer here and/or on sketches

Maximum marks: 1

2.1   Question 2.1 (1.75 points)

The US and Mexico have signed a free trade agreement in 1994. Explain what this agreement should have implied in both countries in terms of:

(i) Trade specialization (provide you answer based on HO and Ricardian Theories).
(ii) The geography of economic activities (provide your answer based on the New Economic Geography models).
(iii) The number of producers and exporters (provide your answer based on the Melitz model).

Now consider the agreement between the US and Honduras in 2004 (think that Honduras is similar to Mexico, but smaller in terms of country size). What would be the main differences?

Fill in your answer here and/or on sketches

Maximum marks: 1.75

2.2   Question 2.2 (1.75 points)

Consider the two following hypothetical free trade agreements: EU-US and EU-Brazil.

(i) Using the HO theory seen in class, discuss its hypothetical effects on wage inequality in the EU, US, and Brazil.
(ii) Suppose more productive firm hires more skilled worker; what does the Heterogeneous Firm theories predict the wage inequality in these three countries?

Fill in your answer here and/or on sketches

Maximum marks: 1.75

3   Exports versus FDI in the Melitz model (3.5 points)

Note: In problem 3 you can assume that the two countries are symmetric, i.e., $L = L^*$ and $P^{1-\sigma} = (P^*)^{1-\sigma}$.

Consider a Melitz model with two countries, Home and Foreign (labelled with a "*"). Each country produces differentiated goods w under monopolistic competition and increasing returns to scale, and a freely traded homogenous good under perfect competition and constant returns to scale. The labor endowment at Home and Foreign are L, L^*, respectively. Labor can freely move across sectors, and wages are assumed to be equal to 1 in both countries. Consumers spend a fixed share of their income μ in the differentiated good sector, and preferences over differentiated goods are CES:

$$Q = (\sum_{w \in \Omega} q(w)^{\frac{\sigma-1}{\sigma}} dw)^{\frac{\sigma}{\sigma-1}} \tag{1}$$

which yields the following demand function:

$$q(w) = (\frac{p(w)}{P})^{-\sigma} \frac{\mu L}{P}, \tag{2}$$

where $P = (\sum_{w \in \Omega} p(w)^{1-\sigma} dw)^{\frac{1}{1-\sigma}}$. Similar demand function applies to the Foreign.
Firms use $1/\varphi$ unit labor to produce one unit of differentiated goods, and firms differ in their productivity, φ. Now consider firms in the Home country. As in the standard Melitz model, they have to pay a fixed cost to produce and sell on their domestic market (labelled F_D), an additional fixed cost to expoirt (labelled F_X), and a variable "iceberg" trade cost τ on each unit they ship to the foreign country. *In addition*, firms can avoid paying τ by doing Foreign Direct Investment (FDI), i.e. produce and sell directly in the foreign country. In this case they pay a fixed cost F_I without incurring further trade costs. We assume that $F_D < \tau^{\sigma-1} F_X < F_I$

Question 3.1 (1.25 points)

Write down mathematical expression of
  (i) the domestic profit of a Home firm;
  (ii) the export profit of a Home firm;
  (iii) the FDI profit of a Home firm.

Fill in your answer here and/or on sketches

Maximum marks: 1.25

Question 3.2 (1.25 points)

Plot each profit curve as a function of $\varphi^{\sigma-1}$, where φ is the firm's productivity. How many cutoffs of productivity are there? What do the most productive firms do? What is the intuition?

Fill in your answer here and/or on sketches

Maximum marks: 1.25

Question 3.3 (1 point)

Note: In subproblem 3, you can take it as given that the decrease in F_I does not change the order of fixed costs given in the question.

Assume a decrease in F_I in both countries (e.g. government-sponsored FDI). What happens to the number of firms at Home that

      (i) produce domestically and

      (ii) export?

What would be the effect on trade flows? (You can show that graphically, but explain carefully)

Fill in your answer here and/or on sketches

Maximum marks: 1