Instructions

Question	Question title	Marks	Question type
i	Candidate instructions		Document

Question	Question title	Marks	Question type
1	Problem 1	30	Essay
2	Problem 2	20	Essay
3(a)	Problem 3(a)	4	Essay
3(b)	Problem 3(b)	8	Essay
3(c)	Problem 3(c)	8	Essay
3(d)	Problem 3(d)	5	Essay
3(e)	Problem 3(e)	15	Essay
4	Problem 4	10	Essay

Candidate instructions

ECON4415

This is some important information about the exam in ECON4415. Please read this carefully before you start answering the exam. Be precise and concise.

Date of exam: Friday, November 22, 2019

Time for exam: 09.00 a.m. - 12.00 (3 hours)

The problem set: The problem set consists of 4 problems, with several sub-problems. 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 at the bottom of the exam. 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.

Access: You will not have access to your exam right after submission. The reason is that the sketches with equations and graphs 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, December 13, 2019

1 Problem 1

Brexit - consequences for trade and income distribution

In June 2016 a majority of the British population voted to leave the EU. Three years later, negotiations are still ongoing. Discuss the consequences for UK production, international trade, welfare, and income distribution if the country chooses to exit the EU. Your discussion should be drawing on international trade theory, and you should elaborate on two scenarios:

i. A soft Brexit: a scenario in which the UK introduces immigration restrictions, but keeps preferential access to the EU single market for goods i.e. tariffs are zero between the UK and the EU for goods and services.
ii. A hard Brexit: a scenario in which UK leaves the EU without a new trade deal, and trades under World Trade Organization (WTO) rules, and does not get any preferential access to the EU countries (the EU imposes positive tariffs on UK exports, and UK imposes positive tariffs on imports from EU).

Fill in your answer here and/or on sketching paper

Maximum marks: 30

Attaching sketches to this question?
Use the following code:

X X X X X X X

2

Problem 2

a. Explain the notion optimal tariff.
b. Consider a specific product market in a small open economy. Explain and show graphically the impact of a tariff on consumers, producers and the total economy.
c. If the economy had been large rather than small, would this have affected the answer of question b.? Explain why and to what extent.

Fill in your answer here and/or on sketching paper

Maximum marks: 20

Attaching sketches to this question?
Use the following code:

X X X X X X X

3(a)

Problem 3(a)

Consider a country H where each firm has monopoly power over a single variety j . A firm pays a fixed cost f and a variable cost b, so it hires labor according to $l_j = f + bq_j$, where q_j is the quantity of production.

Suppose the representative consumer has L_H units of labor for which he receives a wage w. The consumer has utility over N differentiated goods given by (note that $\sigma > 1$):

$$U = \left[\sum_{j=1}^{N} q_j^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{\sigma-1}}$$

Write the utility maximization problem of the consumer.

Fill in your answer here and/or on sketching paper

Maximum marks: 4

Attaching sketches to this question?
Use the following code:

X X X X X X X

3(b)

Problem 3(b)

Solving the utility maximization problem yields the demand for each variety j :

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

where $P^{1-\sigma} = \sum_{k=1}^{N} p_k^{1-\sigma}$. How does the demand for variety j change with an increase in w, L_H, P, and p_j, respectively? Explain why.

Fill in your answer here and/or on sketching paper

Maximum marks: 8

Attaching sketches to this question?
Use the following code:

X X X X X X X

3(c)

Problem 3(c)

Each firm choose the optimal price to maximize its profit. A firm's optimization problem is given by:

$$\max_{p_j} \pi_j = p_j q_j - b q_j w - w f$$

where q_j satisfies the demand function given in **(b)** . Solve the maximization problem, and show that the optimal price for each variety is given by $p_j = \frac{\sigma b w}{\sigma - 1}$.

Fill in your answer here and/or on sketching paper

Maximum marks: 8

Attaching sketches to this question?
Use the following code:

X X X X X X X

3(d)

Problem 3(d)

Suppose now that firms differ in their variable production cost. Now they hire labor according to

$$l_j = f + b_j q_j \ ,$$

i.e., the variable cost of production, b_j , differ across firms. Write down the optimal price of firm j with variable cost b_j . How does the price that a firm charges vary with its marginal cost of production? Comment briefly (hint: you can build on the answer to **(c)**).

Fill in your answer here and/or on sketching paper

Maximum marks: 5

Attaching sketches to this question?
Use the following code:

X X X X X X X

3(e)

Problem 3(e)

Based on the current setting, namely a model with monopolistic competition and international trade, we want to consider what happens if we move from autarky (no trade) to free trade (zero trade frictions):
(i) What happens to the number of firms in the Home country if firms are identical?
(ii) What happens to the number of firms in the Home country if firms differ in their variable costs (b_j)?
(iii) What are source(s) of gains from trade in case (i) and (ii), respectively?

Fill in your answer here and/or on sketching paper

Maximum marks: 15

Attaching sketches to this question?
Use the following code:

X X X X X X X

4 Problem 4

Head and Ries (1999) analyses the effects of tariffs based on a model of trade and imperfect competition, using the so called gravity equation. To the left you find their results.

Focus on the effect of Canadian Tariff and U.S. Tariff on log output per Canadian plant with all observations (first column, row 1-2). The tariffs are measured in fractional terms. For instance, if a tariff is 50% on leather shoes, it is measured as 0.5 (not logged).

a) Interpret the point estimates on Canadian Tariff (1.134) and U.S. Tariff (-1.638). Does the sign and magnitude make sense? Explain briefly.

b) Following the previous question, does the aggregate impact of tariff reduction (Canadian Tariff + U.S. Tariff reduction) on output per plant match the prediction of the Krugman model of international trade and imperfect competition? Explain briefly.

Fill in your answer here and/or on sketching paper

Maximum marks: 10

Attaching sketches to this question?
Use the following code:

X X X X X X X

Question 4.a
Attached

Table 3
Effects of tariffs on log output per plant (ln q)

	Sample:				
	All	Imp. Com.	IC + Free	IC + Fixed	All
Canadian Tariff	1.134[a]	1.247[a]	0.279	3.824[a]	4.928[a]
	(0.368)	(0.411)	(0.455)	(0.925)	(1.135)
U.S. Tariff	−1.638[a]	−2.227[a]	−0.937	−5.632[a]	−6.371[a]
	(0.596)	(0.716)	(0.828)	(1.403)	(2.078)
Cdn. Tariff					−17.952[a]
× Turnover					(5.489)
U.S. Tariff					20.131[c]
× Turnover					(10.289)
1994	0.179[a]	0.172[a]	0.117[a]	0.301[a]	0.186[a]
	(0.020)	(0.022)	(0.025)	(0.040)	(0.021)
R^2 (within)	0.175	0.173	0.129	0.338	0.191
Root MSE	0.149	0.152	0.149	0.154	0.149
No. of Obs.	1828	1628	1183	445	1693

Note: Fixed industry year effects are not reported except for 1994 which approximates the percent change from 1988. Standard errors in parentheses. [a], [b], [c] indicate significance in a two-tail test at the 1, 5 and 10 percent levels.