

Exam 3 (Total Points:90)

(I)

Consider two countries (1 and 2) and two firms. Firm 1 produces in country 1 and Firm 2 produces in country 2. Both firms produce a homogenous product that can be sold in both countries. The demand for the product is identical in the two countries and the marginal cost of production is **zero** for both firms (there are no fixed costs).

Transporting the good from one country to another is costly (τ is the per unit transport cost between countries). The demand functions and the transport costs are:

$p_1 = 36 - Q_1$, where p_1 and Q_1 are price and total output sold in country 1 respectively.

$p_2 = 36 - Q_2$, where p_2 and Q_2 are price and total output sold in country 2 respectively.

$\tau = 3$

You will want to use the handout to answer questions (1) and (3).

(1)(9 pts) Suppose there is **free trade** between the two countries and firms compete in a **Cournot** fashion.

Calculate the profit maximizing levels of output at home and abroad for each firm. Calculate the market price in each country.

Are firms “dumping” their product in the foreign country’s market? Justify.

(2) (6 pts) Suppose there is **free trade** between the two countries and firms compete in a **Bertrand** fashion.

What are the prices that will prevail in each country? How many units will each firm sell in each country?

(3) Suppose now that countries can trade, that firms maximize profits by choosing **quantities** and that country 1 imposes a quota of **two units** in country 2 exports (i.e. $q_2^F \leq 2$).

(i) (6 pts) What is the profit maximizing level of output for firm 1 in country 1? What is the market price in country 1?

(ii) (8 pts) Is country 1 better off or worse off than under free trade? You need to compare welfare under the quota regime and under free trade with Cournot competition (question (1)).

(II)

Consider the European market for specialty leather purses. There are only two producers in the world that compete in a **Cournot** fashion: one firm in Italy (the I firm) and one firm in Argentina (the A firm). The firms have constant marginal costs and no fixed costs.

The marginal costs are below. Those of the Italian firm are in Euros and those of the Argentinean one in pesos .

$MC_I = 4$ Euros

$MC_A = 12$ pesos

The European demand in Euros is: $p = 36 - q_I - q_A$

You will want to use the handout to answer the following questions.

(1) (6 pts) Suppose the exchange rate between the Euro and the peso is: 3 pesos = 1 Euro. What is the market price of the purses?

(2)(6 pts) Suppose the peso loses value and now the exchange rate is: 4 pesos = 1 Euro. How will the price of the purses change?

(3) (3 pts) Suppose now that the exchange rate is at its original value given in question (1)(i.e. 3 pesos= 1 Euro) and that the European Union tightens its environmental regulations so that the Italian factory has to install additional equipment to dispose of some leather dyes). Suppose this changes the MC_1 .

What do you think will happen to the market share of the Argentinean firm? No calculations needed, just a clear argument.

(III) Consider the Monopolistic Competition Model studied in class for the case of two countries: Home and Foreign (*). Assume consumers maximize the following utility function:

$$u(q_1, q_2, \dots) = \sum_{i=1}^{\infty} q_i^{\alpha} .$$

where $\alpha = 3/4$.

Firms in both countries have a marginal cost in labor units of $c = 1$ and some fixed costs (F and F^*) measured also in labor units.

The Home country has 60 consumers/workers with 8 hours of labor each (the labor endowment is then $L = 480$). The Foreign country has 30 consumers/workers with 8 hours of labor each (the labor endowment is $L^* = 240$) .

You will want to use the handout to answer the following questions.

(1) (8 pts) Assume the fixed costs are : $F = F^* = 2$. Calculate the autarky equilibrium for each country (you need to calculate the price of each good/variety, the quantity produced by each firm, the number of varieties produced and the quantity consumed by each consumer).

(2) (6 pts) Assume the fixed costs are : $F = F^* = 2$. Suppose that the two countries can not trade but that workers can move across countries. In which direction will workers move? Justify fully.

(3) (8 pts) Assume the fixed costs are : $F = F^* = 2$. Suppose the countries can trade freely but that workers can not move. Calculate the Free Trade equilibrium.

(4) (12 pts) Think now of the fixed cost as the cost of performing R&D essential to start production of any good. Assume now that the home country is more efficient than the Foreign country at performing R&D . Specifically , assume: $F = 2$, $F^* = 4$.

Firms in each country can decide to outsource R&D (i.e. they can buy R&D from the other country, in other words technology transfers are possible) . Calculate the Free Trade equilibrium when the Foreign country produces only goods and country H produces both goods and R&D.

(IV) Short Questions

(1) (4 pts) Identify the circumstances under which the US can impose an Antidumping Duty on a foreign firm.

(2) (4 pts) Briefly explain why an Antidumping Duty (AD) imposed by the US on Japanese firms can induce the EU to impose an AD on them.

(3) (4 pts) Give at least 3 reasons why an American firm may want to produce a commodity in another country.