

Problem Set 3

(I) Consider the reciprocal dumping model presented in class. There are two countries (1 and 2) and two firms. Firm 1 has production facilities in country 1 and firm 2 has them in country 2. Both firms produce a homogeneous product that can be sold in either country. Therefore firms sell in their home market and in the foreign market. Demand for the product is identical across countries. There is free trade but transporting the good from one country to another is costly (τ is the per unit transport cost between countries). The firms have identical costs ($MC = 10$ and no fixed costs) and compete in a Cournot fashion.

Suppose the demand functions and transport cost are the ones given below:

$p_1 = 100 - Q_1$, where p_1 and Q_1 are price and total output sold in country 1 respectively.

$p_2 = 100 - Q_2$, where p_2 and Q_2 are price and total output sold in country 2 respectively.

$\tau = 5$

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

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

(II) Suppose now countries do not trade with each other (i.e. they are in autarky) so a single firm operates in each country as a monopolist.

(1) Calculate quantities sold in each country and market price.

(2) Compare World Welfare under autarky and free trade.