

International Trade (Economics 6700)  
Spring 2010  
Professor Leo Kahane

Homework #2, due in class on June 3, 2010. (Make a copy of your answers for studying purposes)

I. This question is related to the increasing returns to scale model for trade in chapter 6 of your textbook:

Suppose that fixed costs (F) for a firm in the automobile industry are \$5 billion and that variable costs are equal to \$17,000 per finished automobile, (i.e. average variable cost = 17,000). Because more firms increase competition in the market, the market price falls as more firms enter an automobile market, or specifically  $P = 17000 + (150/n)$ , where  $n$  represents the number of firms in the market. Assume that the initial size of the U.S. ( $S_{US}$ ) and the European ( $S_E$ ) automobile markets are 300 million and 533 million, respectively.

- a. Calculate the equilibrium number of firms and price per automobile in the U.S. and in Europe in the case of no trade (i.e. under *autarky*).
- b. Suppose free trade opens between the U.S. and Europe in automobiles. Calculate the equilibrium number of firms and price per automobile in a combined U.S. and European market for this free trade case.
- c. Discuss the welfare effects of free trade on consumers and producers.

II. Suppose that the demand and supply curves for corn for the Home economy are given as,

$$Q_D = 100 - 20P \quad \text{and} \quad Q_S = 20 + 20P$$

Using the above information,

- a. Derive the Home country's import demand curve. What would be the price of corn in the case of autarky?
- b. Suppose now we have the following information for the Foreign economy,

$$Q_D^* = 80 - 20P \quad \text{and} \quad Q_S^* = 40 + 20P$$

Use this information to derive the Foreign country's export supply curve. What would be the price of wheat in the Foreign country in the absence of trade?

- c. Suppose now free trade develops between Home and Foreign. Determine and graph the free trade equilibrium. Include in your answer the computed volume of trade and the new world price. (Assume that transportation costs are negligible.)
- d. Now suppose Home, due to internal pressures from the import-competing sector, implements a specific tariff of 0.5 on corn imports. Determine numerically and graph the effects for:
  - i. The price of corn in each country.
  - ii. The quantity of corn supplied and demanded in each country
  - iii. The volume of trade.
- e. Compute the effect of the tariff on the welfare of each of the following groups:
  - i. Home import-competing producers.
  - ii. Home consumers.
  - iii. Home's government.
- f. Show graphically and compute for Home the following as a result of the tariff,
  - i. The terms of trade gain.
  - ii. The efficiency loss.
  - iii. The net effect on welfare.