

# International Economics

## ECON 4401

### Homework 2

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**Question 1. *Specific Factors Model.***

Consider a world where there are two economies, Home and Foreign. Each country produces two goods, computers and desks, using three factors of production: skilled labor (H), unskilled labor (L), and capital (K). Computers are produced using skilled labor and capital according to the production function

$$Q_c = H^{\frac{1}{2}} K_c^{\frac{1}{2}}$$

Desks, on the other hand, are produced with unskilled labor and capital with the following production function

$$Q_d = L^{\frac{1}{2}} K_d^{\frac{1}{2}}$$

The home country is endowed with the following factors:  $H = 9$ ,  $K = 20$ ,  $L = 4$ . The foreign country is endowed with  $H^* = 1$ ,  $K^* = 20$ ,  $L^* = 4$ .

- (a)[5] Given prices for computers and desks,  $p_c$  and  $p_d$ , find the allocation of capital to the production of goods in the home country in autarky.
- (b)[5] Given the allocation of capital you derived in part (a), what is the return to capital  $r_K$  in the home country?
- (c)[5] Given prices for computers and desks,  $p_c^*$  and  $p_d^*$ , find the allocation of capital to the production of goods in the foreign country in autarky.
- (d)[5] Given the allocation of capital you derived in part (c), what is the return to capital  $r_K^*$  in the foreign country?
- (e)[5] Consider an increase in the relative price  $\frac{p_c}{p_d}$  in the home country. What effect does this change have on the income of skilled workers at home? What about unskilled workers at home?

**Question 2. *Trade Policy.***

Consider a small open economy where the market for laptops is described by the following

demand and supply equations:

$$Q_D = \frac{512}{p}$$
$$Q_S = 2p$$

- (a) [5] What is the autarky price for laptops in this country?
- (b) [5] Suppose that the world price of laptops is  $p_W = 4$ . At this price, how much would the country produce? How much would it demand? How much would it import?
- (c) [5] Now suppose the country imposes a quota on laptop imports, such that only 48 laptops can be imported. What is the amount of laptops supplied and demanded given this policy?
- (d) [5] Now suppose instead that the country imposes a tariff of  $t$  dollars for laptop on all imports. Find the tariff that yields the exact number of imports implied by the quota in part (c).
- (e) [5] What can you say about welfare (as measured by consumption of laptops) under the four regimes (autarky, free trade, quota, tariff) considered above? What policy would you enact if you were the benevolent social planner?

**Question 3. *Trade and Growth.***

Does greater trade lead to higher growth? Consider Mexico and China during the period 1985-2010. Using data from the sites posted on the class webpage, collect and present empirical evidence that supports your answer to the following questions: (i) How has trade between these two countries and the rest of the world changed over time? (ii) How have their real GDP per worker numbers changed over the same time period? (iii) Based on your answers to the two questions above, what can you say about the relationship between trade and growth (as far as these two countries are concerned) [25]?

**Question 4. *Trade and Multinational Production.***

How much has trade and multinational production grown in the last two decades (1990-2010)? For these five countries: the US, Canada, Germany, Japan, and the United Kingdom, present the bilateral trade and multinational flows in the first and last years of the sampling period and compute the average yearly growth rate. Has trade grown more than foreign direct investment? Explain [25].