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International Trade 2006
Final exam

1) [15 points] Consider a two-country two-good Ricardian model with labor input requirements

	unit labor requirement	
	Food	cloth
US	$a_{food}^u = 1$	$a_{cloth}^u = 1$
Canada	$a_{food}^c = 3$	$a_{cloth}^c = 6$

Table 1, Labor requirements

The US has 100 units of labor and Canada has 60 units of labor. See Figure 1 for the world production possibility frontier. Consumers in both countries have the same Leontief utility function (0 substitutability): at all prices they consume in fixed proportions, at x units of cloth for every 1 units of food, where $x > 0$ is a parameter.

a) Give a sufficient condition for the value of x under which both countries benefit from trade.

b) Is this condition necessary and sufficient? Explain briefly.

2) [15 points] There are two commodities, food and cloth. Food is the numeraire. The relative world price of cloth is p . Home, a small country, imports food. (Remember that a "unit" tax or subsidy means that the tax or subsidy is on each unit of the item. In contrast, an ad valorem tax or subsidy is calculated as a percentage of the price.) **Fill in the blanks**

a) Home uses a unit export subsidy of s , The relative price of cloth for domestic consumers is _____ . and the relative price of cloth for domestic producers is _____ .

b) Home uses (only) a unit production tax of t on cloth. The relative price of cloth for consumers is _____ and the relative price of cloth for producers is _____ .

c) Home uses (only) a unit import tariff of τ . The relative price of cloth for domestic consumers is _____ and the relative price for producers is _____ .

2) [30 points] A small country with a strictly concave production function produces food and cloth and exports cloth. (See figure 2.) Food is the numeraire good, and p is the world relative price of cloth.

a) Use the figure to identify the production point (call it A) and consumption point (call it B) in the absence of government intervention.

b) Suppose now that the government imposes a *unit* tax on the consumption of cloth and returns the tax revenue in a lump sum to consumers. Identify the production and consumption point on the figure. (Call the consumption point D .) Use the coordinates of these points to obtain an algebraic expression for the value of the tax revenue. (For example, if you identify a point as A , then call the cloth coordinate of this point A_C and the food coordinate A_F .)

c) Demonstrate algebraically that if the value of expenditures equals the value of income, then trade is balanced under this tax.

d) Now suppose that the tax revenue is thrown into the sea. Use the figure to identify the production and consumption points. (Call the consumption point E .) Is trade balanced, or does the country run a surplus or a deficit? Obtain an algebraic expression for the value of the tax revenue.

e) What is the comparison between the amount of tax revenue in parts (b) and (d) (i.e., which is larger)? Briefly explain.

4) [40 points] Consider a two-country (Home and Foreign) two factor (capital and labor) and two commodity (food and cloth) trade model. Both (large) countries are incompletely specialized, and they both have constant returns to scale production functions (with no factor intensity reversal). However, the two countries have different technologies. There is free trade but (initially) no trade in factors. Let food be the numeraire commodity and p equal the relative price of cloth. Make the following assumptions:

i) At the initial equilibrium trade price home exports cloth.

ii) Cloth is relatively capital intensive in Home and relatively labor intensive in Foreign.

iii) At the initial equilibrium trade price, the rental rate of capital is higher in Home than in Foreign.

a) [10 out of 40 points] Using the two panels in Figure 3, draw the relation between relative commodity price, p , and relative factor prices (w/r , the ratio of the wage to the rental rate of capital).

b) [30 out of 40 points] Now suppose that international capital markets are liberalized, permitting capital to flow from one nation to another. (Some cost of moving capital may remain, so you need not assume that the return on capital is equalized across the two nations.) Using your answer to part (a), describe the effect of the capital market liberalization on

- A) capital flows
- B) trade flows
- B) the equilibrium relative price, p ,
- D) welfare for owners of capital and labor.

(Name any assumptions or theorems that you use.) Can you tell whether “real national income”¹ increases in either or both nation? (Briefly explain.)

¹You can assume that workers and capitalists in each country have identical homothetic preferences, or you can define real national income as the welfare using a social welfare function – just as we did in class.

FOOD

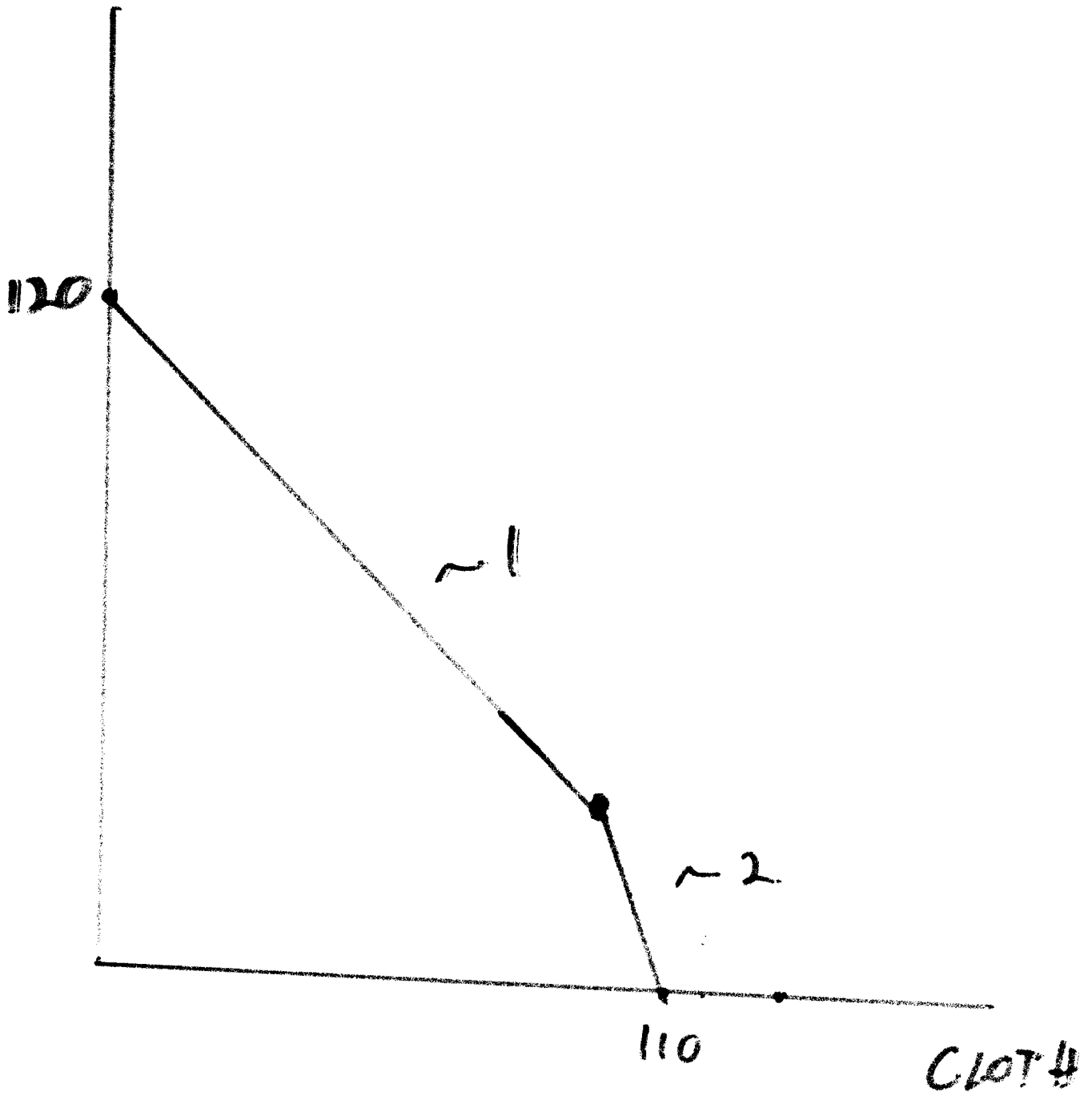
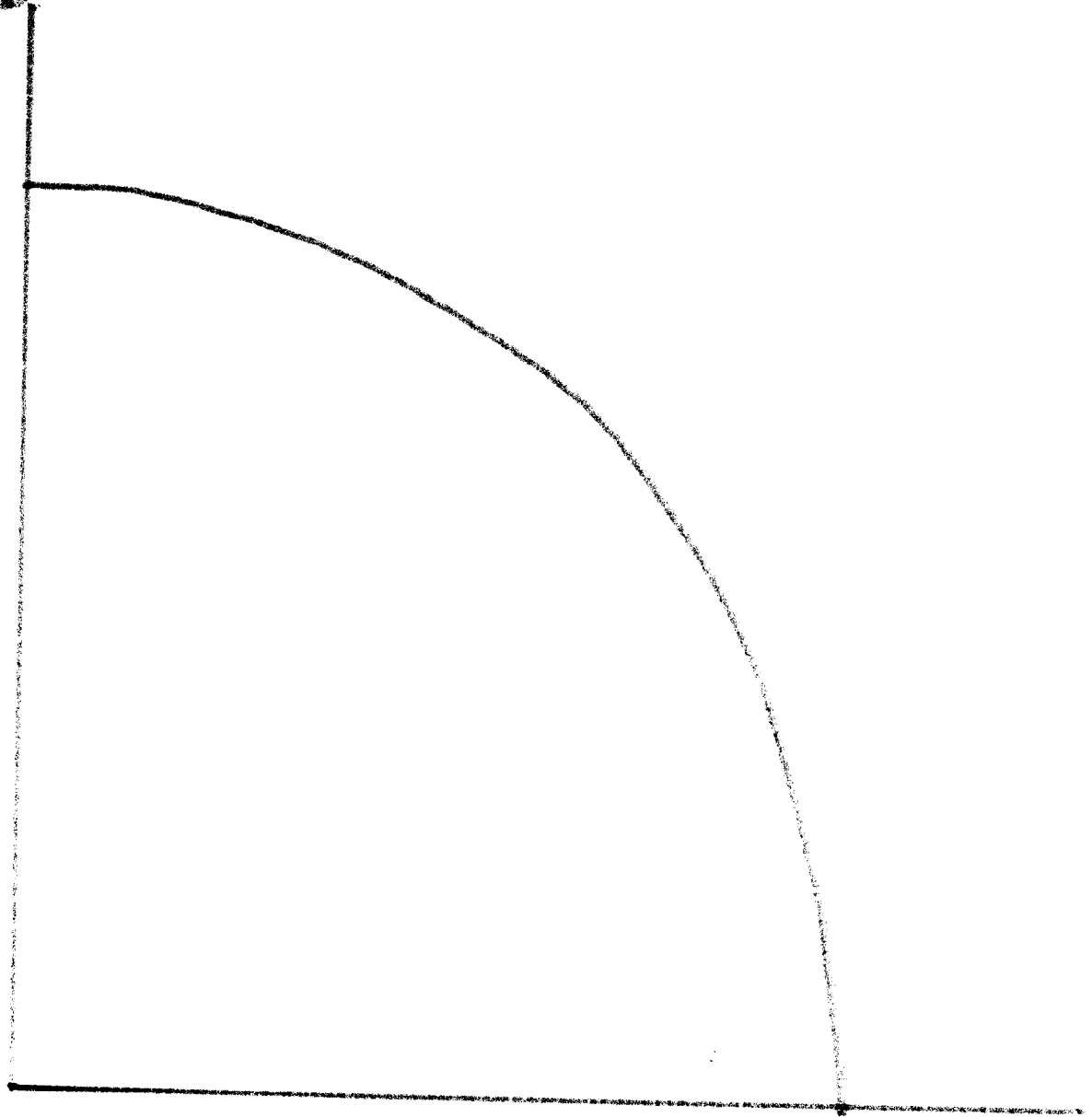


FIG 1

FOOD

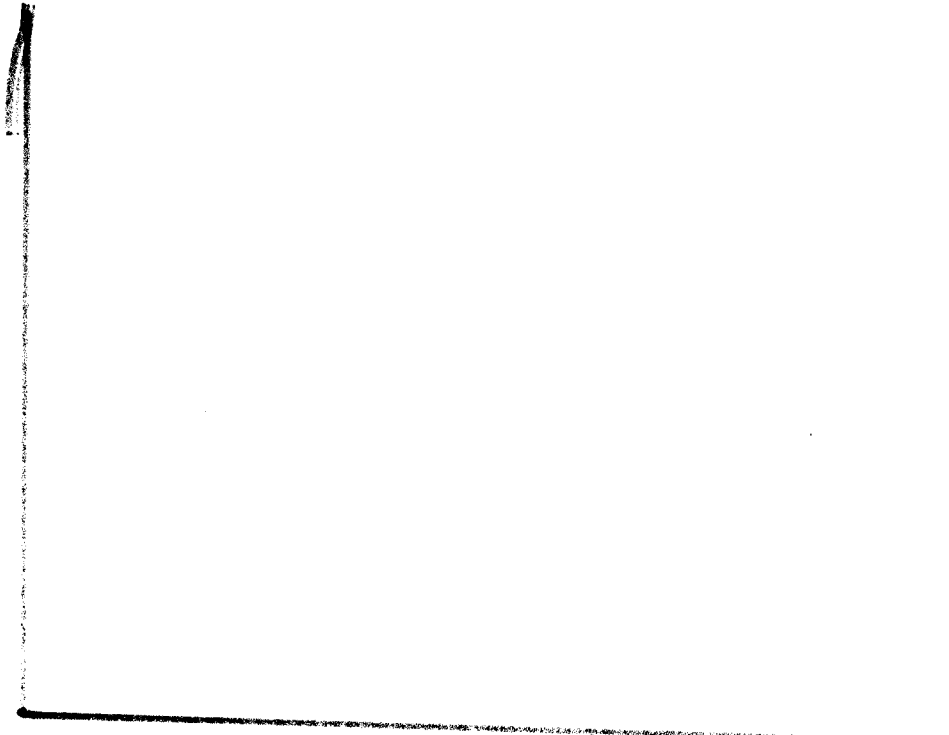


CLOTH

FIG 2

w/r

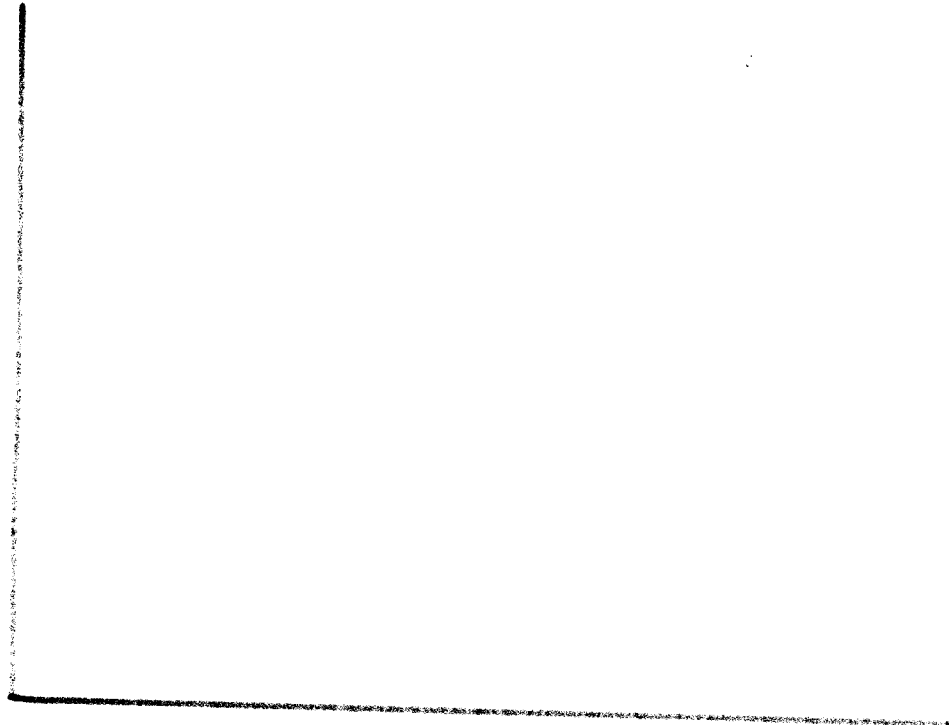
HOME



P

w/r

FOREIGN



P