

Homework 1

Problem 1: Let Germany have a labor force of 80 and France of 60. Suppose both countries produce wine and cars according to the following unit labor requirements:

| | Germany | France |
|------|-------------|--------------|
| wine | $a_w^G = 2$ | $a_w^F = 1$ |
| cars | $a_c^G = 8$ | $a_c^F = 10$ |

Further suppose that the representative German as well as the representative Frenchman both have the utility function $U^i(Q_w^i, Q_c^i) = Q_w^i Q_c^i$ where $i = G, F$.

- Depict the PPF for both countries and label the intercepts as well as the slope (include their exact values, pls). Which country has the comparative advantage in producing wine/cars?
- Suppose each country wanted to go it alone. What would be the quantities produced (= consumed) and the utility levels obtained under autarky? (A little help: recall from micro that in the consumption optimum $MRS = U_{Q_c}/U_{Q_w} = p_c/p_w$.)
- Now consider free trade. Depict the world's relative supply function (again, pls label and provide numbers). What is the world's free trade equilibrium relative price? What quantities does each country produce, how much do they import/export? What are the utility levels obtained? How high are their respective wages?
- Consider a third country: Spain, which has a labor force of 45 and unit labor requirements $a_w^S = 1$ and $a_c^S = 15$. Repeat c) for all three countries. Does Spain gain from trade? What about the other two?

Problem 2:

- List the four main results of the Heckscher–Ohlin model and state each in your own words.
- Derive the Heckscher–Ohlin result graphically. Provide two real world examples of this result (if you cannot find any feel free to provide counter examples).
- In your diagram(s) from b) describe what happens once one country becomes completely specialized. Which of the four results from a) no longer holds in this case?
- Show the gains from trade in the context of the H–O model. How do you reconcile this finding with Stolper–Samuelson's result that one factor gains but the other loses?

Problem 3: The two countries Hightechnia and Bananarepublic produce computers C and bananas B. Unskilled labor U is mobile between both sectors whereas skilled labor S is specific to computers and land L to bananas. Hightechnia is abundant in skilled labor while Bananarepublic is abundant in land. Both countries have identical (and homothetic) preferences. Initially they do not trade.

- a) Derive each country's PPF, emphasizing their difference. How will their autarky price ratios p_C/p_B differ? In which direction will these price ratios change as they move from autarky to free trade?
- b) How does the move to free trade affect the real incomes in terms of bananas and computers of U, S, and L in Hightechnia? What can you say about consumption possibilities of the country as a whole?
- c) Repeat b) for Bananarepublic.
- d) U will shift between sectors as a result of trade? How? Please use a diagram.