

### Problem Set 1

Due in Lecture on *Wednesday, February 12<sup>th</sup>, in lecture.*

1. Suppose that each worker in the Home country can produce three cars or two TVs. Assume that Home has four workers.
  - a. Graph the production possibilities frontier for the Home country.
  - b. What is the no-trade relative price of cars at Home?
2. Suppose that each worker in the Foreign country can produce two cars or three TVs. Assume that Foreign also has four workers.
  - a. Graph the production possibilities frontier for the Foreign country.
  - b. What is the no-trade relative price of cars in Foreign?
  - c. Using the information provided in Problem 2 regarding Home, in which good does Foreign have a comparative advantage and why?
3. Suppose that in the absence of trade, Home consumes nine cars and two TVs and Foreign consumes two cars and nine TVs. Add the indifference curve for each country to the figures in Problems 1 and 2. Label the production possibilities frontier (PPF), indifference curve ( $U_1$ ), and the no-trade equilibrium consumption and production for each country.
4. Now suppose the world relative price of cars is  $P_C/P_{TV} = 1$ .
  - a. In what good will each country specialize? Briefly explain why.
  - b. Graph the new world price line for each country in the figures in Problem 4 and add a new indifference curve ( $U_2$ ) for each country in the trade equilibrium.
  - c. Label the exports and imports for each country. How does the amount of Home exports compare with Foreign imports?
  - d. Does each country gain from trade? Briefly explain why or why not.
5. Answer the following question using the information given by the accompanying table.

	Home Country	Foreign Country	Absolute Advantage
Number of bicycles produced per hour	4	2	<i>Home/Foreign ratio</i> 2
Number of snowboards produced per hour	6	8	<i>Home/Foreign ratio</i> 3/4
Comparative advantage	$\frac{MPL_S}{MPL_B} = \frac{3}{2}$	$\frac{MPL_S^*}{MPL_B^*} = 4$	

- a. Complete the previous table in the same manner as Table 2-2.
  - b. Which country has an absolute advantage in the production of bicycles? Which country has an absolute advantage in the production of snowboards?
  - c. What is the opportunity cost of bicycles in terms of snowboards at Home? What is the opportunity cost of bicycles in terms of snowboards in Foreign?
  - d. Which product will Home export, and which product does Foreign export? Briefly explain why.
6. Answer Problems 6 using the chapter information for Home and Foreign.
- a. Suppose that the number of workers doubles in Home. What happens to the Home PPF and what happens to the no-trade relative price of wheat?
  - b. Suppose that there is technological progress in the wheat industry such that Home can produce more wheat with the same amount of labor. What happens to the Home PPF, and what happens to the relative price of wheat? Describe what would happen if a similar change occurred in industry.
7. Starting from equilibrium in the specific-factors model, suppose the price of manufactured goods falls so that wages fall from  $W'$  to  $W$  in Figure 3-5.
- a. Show that the percentage fall in the wage is less than the percentage fall in the price of manufacturing, so that the real wage of labor in terms of manufactured goods goes up.
  - b. What happens to the real wage of labor in terms of agriculture?
  - c. Are workers better off, worse off, or is the outcome ambiguous?