Economics 181: International Trade

Assignment #2

Due Thursday, September 28, beginning of class

Professor Harrison, Fall 2006

1. Specific Factors and Trade

Finland is capital abundant relative to potential trading partners in the rest of the world. Telecommunications is a capital intensive industry relative to the business services industry. Businesses in Finland have made investments in both industries, creating stocks of capital that are devoted to either telecommunications or business services.

- a) Suppose that Finland is not trading. Draw the specific factors diagram for Finland, indicating how labor is divided between the two industries, and showing the prevailing wage w_0 .
- b) Modify your diagram to show how Finland's labor allocation and wage change when it opens trade with the rest of the world.
- c) How does the opening of trade affect capital owners in Finland's telecommunications industry? Describe and show on your graph.
- d) Are Finnish workers likely to benefit or lose from the opening of trade?
- e) Suppose Finnish workers consume as much telecommunications as they can, while they buy very few business services. How does this affect the magnitude of worker gains or losses?
- 2. The HO Framework.
- a) Mexico produces two goods, GM cars and corn. There are two factors of production, labor and capital. Total available hours of labor and capital are 100 labor and 100 capital. The unit labor requirements for the production of each good are given below. What does the production possibility frontier look like?

	Labor Requirement (Hours)	Capital Requirement (Hours)
GM Cars	5	20
Corn	10	5

- b) Following NAFTA, Mexico receives an influx of foreign direct investment from the United States, raising the available pool of capital from 100 to 200. What happens to the relative production of GM cars and corn? Please show graphically.
- c) What is likely to happen to the pattern of exports in Mexico (of cars versus corn)? How is this related to the Heckscher-Ohlin Theorem?
- d) If the United States continues to lose capital to Mexico, what will happen to its pattern of exports?
- e) Assume Mexico has 100 labor and 200 capital. Using your knowledge of Stolper-Samuleson, what will happen to the returns to wages and capital in Mexico after trade liberalization? What if the endowment of labor and capital is reversed?

3. More on the Specific-Sector Model and Trade.

Home can produce machinery and flowers in bundles of 1000. The production functions of the two industries are given by $Qm = K^{1/2}L_m^{1/2}$ and $Qf = T^{1/2}L_f^{1/2}$. K is capital, T is land, and L is labor, Prices of machinery Pm and of food Pf are both equal to 1. Factor supply is Lm + Lf = 100 and T=K=100.

- (a) Derive the marginal products of labor MPLm and MPLf for the two industries.
- (b) Autarky wage: graph the labor demand curves in the machiner and flower sectors, and calculate the equilibrium wage rate in autarky.
- (c) The pattern of trade: after opening up to free trade, home faces a relative price of Pm/Pf = 2. How do the allocation of labor and wages change?
- (d) Using the general labor demand relationships for the two sectors, show that the production possibility frontier is given by -MPLf/MPLm = -Pm/Pf
- (e) Draw the production possibility frontier. How does the change in relative prices after trade affect production? Depict the gains from trade.
- 4. The HO Framework.

We are given the following input requirements to produce food and computers:

	Labor To produce One Unit	Capital to Produce One Unit
Food	$a_{\rm LF} = 6$	$a_{KF} = 3$
Computers	$a_{LC} = 4$	a _{KC} = 10

Chile is well endowed with labor, and consequently has a comparative advantage in labor-intensive goods. Chile is considering joining a free trade area with the United States. Prior to joining the free trade area, the price of food (Pf) is 15 and the price of computers (Pc) is 42. After joining the free trade area, the price of food is 21 and the price of computers in Chile is 30.

- (a) What happens to the returns to labor and capital in Chile after it joins the free trade area? Calculate exactly using equations please, not just diagrams or qualitative answers.
- (b) Which theorem is consistent with this result? Why or why not?