Homework 1

due: 01/22/03

Problem 1: Consider two planets: Mars and Venus. You are given the following information about their labor endowments and their unit labor requirements for the production of food and cars:

	Mars	Venus
labor	$L^M = 120$	$L^V = 90$
food	$a_f^M = 10$	$a_f^V = 3$
cars	$a_c^M = 2$	$a_c^V = 6$

Somewhat surprisingly, both the representative Martian as well as the representative Venusian have the same utility function, namely $U(Q_f, Q_c) = min(Q_f, Q_c)$.

a) Depict the PPF for both planets and label the intercepts as well as the slope (include their exact values, pls). Which planet has the comparative advantage in producing food/cars?

b) Suppose spacecraft have not yet been invented. What will be the quantities produced/consumed and the utility levels obtained under autarky?

c) Now un(wo)manned spacecraft are available to ship goods back and forth between the two planets. Depict the universe's relative supply function (again, pls label and provide numbers). What is the free trade equilibrium relative price? What quantities does each planet produce, how much do they import/export? Who gains from trade?

d) Spacetravel becomes reality. That is, Martians can now move to Venus and vice versa. Determine the relative wage? In which direction will migration take place? How many Martians or Venusians will move?

Problem 2:

a) State the four main results of the Heckscher-Ohlin model in your own words. Then categorize them in terms of prices vs. quantities and local vs. global.

b) Derive the Stolper-Samuelson result graphically and explain the magnification effect. What does it imply about the effect of trade on the real rewards of the two factors?

c) Suppose you observe that factor price equalization is violated in the real world. Explain to what extent this finding invalidates the Heckscher-Ohlin model.

d) Write down a detailed recipe of how one would test the Heckscher-Ohlin result proper.

Problem 3: Consider the ivory tower "economy" with its two sectors fuzzy and techy. Each has its specific factor, fuzzy and techy field professors. The mobile factor are the students who can work in either field.

a) In an appropriate diagram, show how many students work in each field. Also indicate what areas in your diagram represent the rents to each of the groups involved.

b) The price of techy research decreases because of the general economic malaise. How does this affect the real income of the professors (fuzzy and techy types) and in particular of the students?

c) Suppose students face a fixed cost of switching sectors. How does this change your answer to part b)?

d) Is Economics part of the fuzzy or the techy sector?