Theory

1. Nicholson 15.1, 15.5, 15.8, 16.2, 17.5, 17.6

2. A popular children's nursery rhyme reads, "Jack Sprat can eat no fat and his wife can eat no lean." Construct an Edgeworth Box diagram for Mr. and Ms. Sprat with appropriately labeled axes. Draw their indifference curves and show the set of Pareto optimal allocations. What is the competitive equilibrium allocation? Explain.

3. Suppose that a country (Home) has identical consumers with utility functions $U(X,Y) = X^{0.5}Y^{0.5}$. The production possibility frontier (PPF) is given by $X^2 + 2Y^2 = 128$. For each of these parts, illustrate your result graphically.

   (a) Solve for the competitive equilibrium in a closed economy. That is, suppose that consumers and producers take prices as given and maximize utility and profits. What price ratio is such that supply equals demand? Briefly explain why this is efficient.

   (b) Suppose that the country is small and can trade with the rest of the world (ROW) at price ratio $R_{row} = Px_{row}/Py_{row} = 1$. For which good does this country have a comparative advantage? Which good should the country import and which good should the country export?

   (c) What are the free-trade consumption and production choices? Write out each condition that determines equilibrium and a one sentence interpretation. Note that in the following equations, subscript C stands for consumption and subscript P stands for production. The conditions are: (1) $MRS(X_c, Y_c) = R_{row}$; (2) $RPT(X_p, Y_p) = R_{row}$; (3) $R_{row} = -(Y_p - Y_c)/(X_p - X_c)$; and (4) solve for (X_p, Y_p) on the PPF.

   (d) What is the gain in consumer utility in moving from autarky (no trade) to free trade?

   (e) Would there also be a gain in consumer utility in moving from autarky to trade if Home had a comparative advantage in the other good (i.e., opposite of what you determined in B)? Please answer Yes or No and explain in a sentence (no math).

   (f) What would be the gain in consumer utility in moving from autarky to trade if Home had the price ratio under autarky of $Px_{home}/Py_{home} = 1$? (Hint: you don't need any math to solve this problem.)

Applications

1. Briefly critique the following statements:

(a) The First Welfare Theorem demonstrates that a free market in equilibrium is Pareto efficient. We therefore know that the distribution of goods in equilibrium is fair.

(b) The Second Welfare Theorem demonstrates that any Pareto Efficient allocation of resources can be maintained by the free market system. Hence, what we need to do for purposes of *efficient* public policy is to tax people until we get the desired allocation. (For example: by taxing shelter so that it becomes more expensive relative to food and using the tax revenues to buy shelter for the poor.)

(c) Trade makes a country better off only if its trading partners engage in "fair" trade, for example by setting their price ratios equal to the price ratio of the home country.

(d) Since free trade always results in a Pareto efficient allocation of resources, we can be confident that everyone is a winner. There is no reason for anyone to concern him or herself about the impacts of trade.

(e) (Related to Krugman, "Competitiveness: A Dangerous Obsession" in your reading packet): Asking whether the United States is competitive in the world market is no different in principle from asking whether General Motors is competitive in the North American minivan market. The more products the U.S. sells, the more the U.S. wins and its competitors lose.