

Economics 11; Weekly Assignment Sheet for Week 9 -- Equilibrium in Competitive Markets; General Equilibrium and Welfare Economics

A. Text and workbook

1. Text: Chapters 11&12; omit nothing.
2. Study guide: Chapters 11&12; omit nothing.
 - a. NOTE: The answers given in the back of the Study Guide to the following questions are wrong either in whole or in part (thus it is left to you, at least for now, to find the right answers!): p. 114, #s7,8,12; p. 117, #4 ("emerging" economies are emerging from Soviet-style communist socialism; this and perhaps other information is required to answer the question); p. 122, #3; p. 125; #20.

B. Reading(s)

1. Sketch the simple analytics of welfare maximization in the standard 2x2x2 case where all isoquants and indifference curves are "well-behaved."

C. Puzzles

1. An isolated village has relied on privately owned bakeries to supply the bread it needs. The demand for bread is known to be $Q_d = 400 - 5P$, where Q_d is the number of loaves demanded and P is price in cents per loaf. Existing technology and input prices allow each of the village's (identical) bakeries to produce with costs given by $C(q) = 200 + .5q^2$, where $C(q)$ is a bakery's total cost (in cents) of producing q loaves. [Note: for this total cost function, the marginal cost function is $MC(q) = q$.] Assume that the bakery industry is perfectly competitive.
 - a. What is the long run supply function for bread? How much bread will be produced, at what price; how many bakeries will there be?
 - b. Now suppose that the village government imposes a tax of 20 cents per loaf. After all of the adjustments to the imposition of the tax have taken place, how much bread will be produced, at what price; how many bakeries will there be?
 - c. Alternatively, suppose that the village government imposes a fixed business tax of \$6.00 per bakery (here the bakery's tax payment does not vary with the number of loaves sold). Again, after all of the adjustments to the imposition of the tax have taken place, how much bread will be produced, at what price; how many bakeries will there be?
 - d. From your answers to b and c, which tax -- if either -- is the better one from the consumers' view point? Why?
2. In a certain economy two consumers, Beth and Mary, use two goods, loaves and fishes, which are made with two factors of production, capital and labor. Beth would just barely be willing to give up two loaves if she could get one fish in return; Mary feels she is doing the best she can already, in view of the price of loaves, ten pieces of silver, and the price of fishes, twenty pieces of silver. In the local bakery, an added unit of labor would increase loaf output by ten loaves. One more fisherman would catch thirty fish. An added unit of capital in the bakery (say,

an oven) would increase output by five loaves; an added unit of capital in fishing (say, one net) would increase the fish catch by ten. Question: Under these circumstances, can Mary be paid (his welfare increased) without robbing Beth? If so, how?

NOTE: You are to assume that capital is “fungible;” that is, you are to assume that bakery ovens can be costlessly converted into fishing nets and vice versa.

3. "Jack Sprat can eat no fat, his wife can eat no lean." Assuming fixed quantities of "fat" and "lean" to be divided between the two, construct an Edgeworth-Bowley box diagram for this pair and indicate the contract curve.

4. Only two commodities -- food and textiles -- are produced in Exotica. Each is produced using the fixed factor proportions given below:

	<u>Input required per unit of output</u>	
	<u>Labor</u>	<u>Capital</u>
Food	1	2
Textiles	2	1

E.g., to produce one unit of food requires 1 unit of labor AND 2 units of capital.

There are 100 units of labor and 100 units of capital in Exotica.

a. In the appropriate "box" diagram having dimensions 100 units of labor in one direction and 100 units of capital in the other, draw several isoquants for each product.

b. Determine the efficient allocations of inputs to produce varying amounts of the two products.

HINT: efficiency does not necessarily imply full employment; there is only one allocation in which both factors are fully employed.

c. Use the information just obtained to draw Exotica's production possibility frontier.

d. Assume that all consumers in Exotica are alike, and that their marginal rate of substitution between food and textiles is 1.0 regardless of how much of either product they consume. If the economy is a competitive economy:

1. How many units of each product will be produced and consumed?

2. What is the equilibrium price of textiles in terms of food?

e. Now assume that Exotica is opened to world trade. On the world market, one unit of clothing can be exchanged for 3 units of food, i.e. the price of textiles in terms of food is 3. This price will not be affected by Exotica's trading behavior. Now, after Exotica is opened to trade, and assuming that it remains a competitive economy:

1. How many units of each product will be produced and consumed?

2. What is the equilibrium price of textiles in terms of food?