MICROECONOMICS 3 **2/12/2011**
CLASS #8

GENERAL EQUILIBRIUM – ROBINSON CRUSOE'S ECONOMY contd.

Problem #7

Starbonia is a country where all markets are purely competitive. Services (s) and goods (g) corresponding to point "O" in Figure 1 are produced and consumed in this country. Equilibrium prices of goods and services are identical and equal 1 PLN *per* unit. Starbonia exercises a protective policy in foreign trade but the government is planning to depart from protectionism. The world prices that will then influence the economy are (*per* unit): 0.90 PLN for goods and 1.20 PLN for services.

a) Assume that the consumption and production levels of goods and services in Starbonia adjust to the new price ratio. Illustrate this in Figure 1. Explain how this adjustment of Starbonia's economy to the liberalization of trade takes place (*i.e.* describe the mechanism in a few words – you can refer to the appropriate formulas). Provide your answer to the question, whether Starbonia will profit from departing from protectionism (and in what sense).

b) In Starbonia there are 2 factors of production: Young and Old Employees. Point "O" in Figure 2 corresponds to such an allocation of these factors between the production of goods and services, which is a general equilibrium under the protectionist conditions (point "O" from Figure 1). The wages of the Young and Old Employees were identical before the departure from protectionism. The line "E_s" shows the changes in factor relations corresponding to the increase in production of services (assuming the equality of wages) and line "E_g" presents this change for the increase in the production of goods. Is it true that trade liberalization causes an increase of the relative wage of the Young Employees? In justifying your answer refer to Figure 2.

Figure 1. Production possibilities frontier (transformation curve)

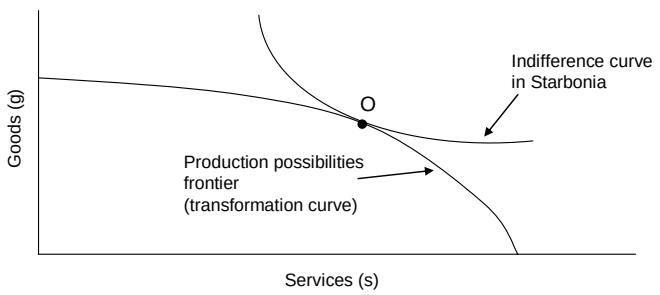
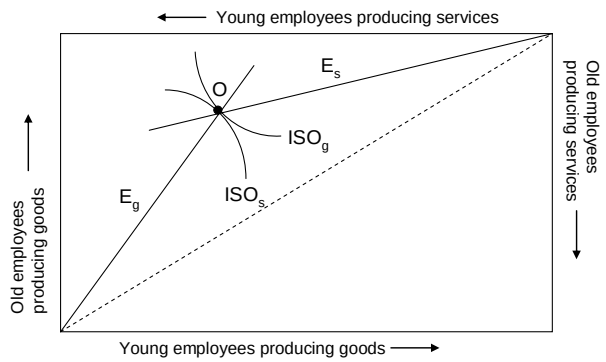


Figure 2. Factor allocation



EXTERNALITIES

Problem #1

A beekeeper owns an apiary [i.e. a shed containing a number of beehives] located in the neighborhood of an orchard. The marginal cost of its operation equals MC(q) = 10 + 2q, where q is the number of beehives. Each beehive brings him honey that he can sell in the market for the price of 20 PLN. The owner of the orchard obtains significant benefits from the apiary located nearby. One beehive pollinates *ca.* 1 acre of his apple orchard. The profits resulting from this for the owner of the orchard are "free". The number of beehives is, however, insufficient for the pollination of the entire apple orchard. For this reason its owner supplements the pollination process artificially and this costs him 10 PLN *per* acre.

a) How many beehives will the beekeeper be willing to maintain?

b) How may beehives maintained by the beekeeper would be efficient from the social point of view?

Problem #2

A student of chemistry varnishes tin containers in his apartment during the summer. Purchasing unvarnished containers costs him 200 cents *per* unit. The marginal cost of varnishing is $MC(q) = 150 - 10q + q^2$ cents, where q stands for the amount of containers. The unpleasant odor of the varnish bothers the student's neighbors. For avoiding this trouble they would altogether pay $5q^2$ cents. The student sells varnished containers in a competitive market for souvenirs at a price of 450 cents *per* unit. Find the socially efficient amount of containers that should be varnished by the student.