Homework Assignment 4

(based on Chapters 10 and 11)

Question 1 *Exercise 10.1 from textbook.*

Question 2

Joe is graduating from college and is currently faced with a decision of choosing between two competing job offers for the same position from equally reputable companies. The jobs are in two different cities A and B. If he chooses the job in City A then Joe's monthly salary will be $10,000 while the company is City B is offering him a monthly salary of $12,500. Joe looks for the best available rental apartment options in each city (he is not planning to buy a house). For renting similar one-bedroom apartments at a walking distance from his work place, Joe will have to pay a monthly rent of $6,000 in City A and $5,000 in City B.

Though the cities are very similar in almost all crucial characteristics, there is one main difference. City A is designed to be a bike-friendly city, while City B has no such facilities like bike-paths and bike-racks that are easily available in City A. [Note: For this example let us ignore the pollution-reducing effects of being bike-friendly. Also, Joe walks to work and hence transport for work is not important to this discussion. We will care only about the pleasure and convenience of biking as a leisure activity.]

a) Joe indirect utility function is given by

$$V(y, p, a) = y - p + \delta a$$

where y monthly salary, p is monthly rent, a takes value 100 if the amenity of a "bike-path" is available and 0 otherwise. Which city (and, resultantly, which job) will Joe choose for each of the cases listed below. Explain each case.

(i) $\delta = 0$ (ii) $\delta = 20$ (iii) $\delta = 35$ (iv) $\delta = 4$

Now, just consider the case where $\delta = 40$, to answer sub-parts (b) - (d):

b) Draw a diagram to show the determination of equilibrium income and rent in the two cities via the interaction of indifference curves and iso-cost curves.

c) Using lessons from the Roback Model, can you comment on the effect of the "bike-path" amenity on consumer utility? Can you intuitively justify why utility is likely to behave in such a manner with respect to the "bike-path" amenity described here?

d) Using lessons from the Roback Model, can you comment on the effect of the "bike-path" amenity on firm costs? Can you intuitively justify why a firm's production costs are likely to behave in such a manner with respect to the "bike-path" amenity described here?