

Answer key for HW Assignment 2

1a. Substitutability is one of the determinants of price elasticity of demand. A broadly defined good will have less substitutability than a narrowly defined good. In this case, gasoline is a broad category and therefore has less substitutability than the gasoline that comes from a particular brand of gasoline station. With less substitutability, we would expect more inelastic demand for the broadly defined good and more elastic demand for the narrowly defined good.

(REMINDE: Determinants that influence price elasticity of demand:

- (1) luxury or necessity: luxury tends to have higher price elasticity of demand
- (2) price to income ratio: the goods that has higher price-income ratio tends to have higher price elasticity of demand
- (3) substitution: the goods that has more substitutes tends to have higher price elasticity of demand
- (4) time horizon: the longer time is, the higher price elasticity of demand will be.)

1b. The positive cross-price elasticity of demand for cell phones and DVDs suggests these goods are substitutes. The negative cross-price elasticity of demand for iPods and DVDs suggests these goods are complements.

1c. To begin, we use the demand equation to solve for the quantity given the own price, income and cross-price information provided.

$$Q = 10 - 2 * 10 + 0.1 * 100 + 10 = 20$$

Then we can either solve for price in terms of quantity, or just use “-2” (i.e. the coefficient in front of own price in the demand equation) to compute Ed.

$$E_d = |-2| * \frac{10}{20} = 1 \text{ (unit elasticity)}$$

$$E_{fp,rb} = 1 * \frac{20}{20} = 1 \text{ (substitutes)}$$

$$E_I = 0.1 * \frac{20}{100} = 0.02 \text{ (necessity)}$$

2a. The utility maximizing combination is 8 units of coke and 5 units of pizza. $MRS = 10/20 = 0.5$.

2b. The utility maximizing combination is 5 units of coke and 6 units of pizza.

(This deviates from the principle of rational choice to some extent, because the budget can't be used up based on that principle. You need to compare with another combination that makes you spend all your budget and then choose the one that gives you higher total utility.)

2c. If price of coke increases to \$1.00, the consumer will choose the units of coke such that

$$\frac{MU_{coke}}{P_{coke}} = \frac{MU_{pizza}}{P_{pizza}}$$

Since

$$\frac{MU_{\text{pizza}}}{P_{\text{pizza}}} = 20$$

for 5 units of pizza. Therefore, the new MRS equals to $20/20 = 1$.

3a. Similar to Question 1a, you need to use determinants of price elasticity of demand to explain. The people on vacation has less time to think what kinds of food and necessities to buy than the local residents, thus the time horizon for travelers is shorter than that of the local residents. The longer time is, the higher price elasticity of demand will be. Therefore, the local residents will have higher price elasticity of demand than the travelers. In other words, the travelers are less sensitive on food and necessities than local residents, thereby they tend to spend more on them.

3b. It depends on price elasticity of demand of this airline. If it is elastic, then to decrease the airfare will increase revenue. However, if it is inelastic, then to increase the airfare will increase revenue.

Specific to this problem, if there are most likely alternative airlines between these 2 major cities, then the price elasticity of demand is likely to be elastic and revenue will increase if price goes down. Otherwise, customers would switch to another airline to avoid paying more. If the majority of customers are business travelers who respond in an inelastic fashion in general, then revenue will increase if price goes up.

4. If demand is inelastic this means that increases in tuition would bring college more money as quantity will not drop by enough to offset the price increases. This suggests that tuition at prestigious schools will continue to rise in the future as the universities could earn more money through it.

The students that is more eager to attend school will receive less financial aid because for them the demand for the school is inelastic, the desire to attend the school is strong enough that they are willing to spend more to go. The university would attempt to figure out those that might not attend when they raise the price and give them financial aid to make the price seem the same as it previously was.

5a. You would purchase 2 John Doe CD and 4 Jane Doe CD.

5b. You would purchase 3 John Doe CD and 1 Jane Doe CD.

5c. By principle of rational choice, the consumer will choose the consumption bundles such that

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y}$$

If the price of good x increases, ceteris paribus, consumer will choose a new consumption bundle of good x that satisfies the equality above with a higher MU_x . By the principle of diminishing return in utility, increasing its marginal utility will decrease the quantity demanded. Therefore, increase in price of good x leads to decrease in the quantity demanded, which is the law of demand.

5(a) and 5(b) is an example of the mechanism.