

Answer all the questions:

1. 8pts. Are the following statements true, false, or uncertain? Explain why.
  - a. If a 5 percent increase in price leads to a 2 percent decrease in quantity demanded, then the price elasticity is -2.5 and demand is inelastic.

*FALSE.*

- *Elasticity is  $\% \Delta Q / \% \Delta P = -2/5 = -.4$  (not -2.5).*
- *Demand is inelastic, however (because elasticity is  $> -1$ ; because demand goes down only a little bit for a relatively large change in P).*
- *At -2.5, demand would be elastic, not inelastic.*

Grading breakdown:

*Full credit for saying 1) elasticity is not correctly calculated and telling how to correctly calculate it and 2) saying demand is inelastic.*

*.75 points for saying elasticity is not correctly calculated and telling how to correctly calculate it without mentioning whether it's elastic or inelastic demand.*

*.5 for saying that elasticity of -2.5 is elastic.*

*Some deviations from these points—extra for having included something else correct in your answer, fewer for including something else incorrect.*

- b. If there are three goods, two of them can be inferior, but all three can't.**

*TRUE (assuming there are only three goods in the economy.*

- *An inferior good is a good that we buy in smaller quantities when income goes up.*
- ***If there are only 3 goods:** If income goes up and we are buying less of two of the goods, we must be buying more of something (because we can't possibly be buying less of everything when we have more money). Thus we must be buying more of the third good.*
- ***If there are more than three goods** in the economy, then all three may be inferior goods.*

Grading breakdown

*1 point for a complete answer that mentions income going up and something about the fact that we can't buy less of everything.*

*.5 for defining an inferior good*

*.25 for most other cases where at least something in the answer was correct*

*Some deviations from these points—extra for having included something else correct in your answer, fewer for including something else incorrect.*

**c. It is always better to purchase goods when there are deals like two dollars for the first one and one dollar for each additional unit.**

*FALSE.*

- *Sometimes this type of sale is a way for producers to sell the first few units at a higher price than the last few units rather than selling all goods at the “sale” price of one dollar per unit.*
- *This “sale” takes advantage of the fact that people are willing to pay more for the first few units than they are for additional units when they already have some.*
- *Thus it allows producers to make more money and reduces consumer surplus).*

*Grading Breakdown*

*1 for anything that mentions the producer selling the first units at more than without the sale /consumer surplus*

*.75 for saying something about it depending on the non-sale price/ anything about getting your WTP*

*.5 for saying something about how the consumer may not want more than 1 unit of a good/ some consumer may want only one unit/ depends on consumer preferences*

*.25 for saying you might buy more than you wanted. Note that this cannot happen in basic economic theory. If one chose to buy extra units, it's because it makes the person happier than not buying (otherwise they would not have bought extra items). Since, in reality, we think people may make rash decisions when they see a sale, I gave a little bit of credit to those answers. But remember: under our assumptions, people don't get tricked into buying more than they want! They are either willing to pay a certain price or they are not.*

*No points for saying that more is always better and the sale is saving you money.*

**d. If there are two consumers and one consumes more of each good than the other consumer does, then we can be sure that the consumer who gets more is happier than the other consumer.**

*FALSE.*

- *We cannot compare happiness levels across people. We can only compare happiness levels across one individual.*

- *If one person were to consume more of each good than he/she did before, then we could say this person is “happier” than before (using our economics definition of happiness).*

Grading breakdown:

*Full credit for saying we can't compare happiness/ utility across individuals and something that indicates that more of everything for one person does not necessarily mean they are happier.*

*.75 for saying something about not being able to compare across people but not providing a complete explanation/ getting something wrong in your answer.*

*.5 for saying something about people having different preferences but then getting the explanation wrong (for example, saying that one consumer may choose to purchase less of one good and more of another...this misses the point).*

*.25 for having something right in the answer*

*0 points for saying “yes, more is better”*

**e. If the supply of anchovies increases, then the demand for beef will also increase.**

*UNCERTAIN. If anchovies and beef are complements this would be true. If they are substitutes, this would be false. If anchovies are either an input to beef or a substitute for an input to beef, then this would be false.*

- *Larger supply of anchovies (supply curve shift out) will decrease the price of anchovies as consumers move along the demand curve to the new equilibrium.*
- ***If anchovies and beef are complements** (because for example, people eat a lot of a delicious spaghetti sauce that uses both anchovies and meatballs), then the lower price of anchovies (a complement), will result in higher demand for beef too. (In which case this would be true).*
- *If, on the other hand, **they are substitutes** (for example, as pizza toppings), the decrease in anchovy price will lower demand for beef. (In which case this statement would be false)*
- ***If anchovies are an input to beef**, the lower price of anchovies will lower the cost of producing cows, but this would increase beef **supply**, not beef demand.*
- *Finally, if the increase in anchovy somehow affects an input into beef production (in the first problem set, for example, soy was a protein substitute for anchovies and also was used as cattle feed) then the lower price of anchovies will decrease demand for soy (the anchovy alternative). Lower demand for soy will lower the price of soy and thus lower the cost of feeding cows. This would, in turn, increases cow **supply** (not demand).*

*Grading Breakdown:*

*Full credit for:*

*-Saying this would be true if/because the goods are complements.*

*-Saying it's false, naming one possible relationship between and explaining what would happen in beef market in that case.*

*Saying that it depends on the relationship between the 2 goods and explaining one possible relationship.*

*.9 for answering correctly and mixing up supply/demand or Q demanded and demand in your explanation*

*.75 for answering correctly but providing incorrect explanations of how markets are affected (for example, stating that demand for anchovies will increase as a result of the change in price or stating the price of anchovies will increase instead of decrease).*

*.5 for saying it depends on relationship and using the words "complement" & "substitute" and/or input.*

*.25 for stating a relationship and getting it wrong*

*.25 for saying it depends on the relationship without any explanation*

**f. The food stamp program is exactly equivalent to giving consumers cash.**

*FALSE/ UNCERTAIN.*

- *It is equivalent only for people who are better off from participating in the program (and, incidentally, those people who choose to participate).*
- *People who have very strong preferences for wine could be made worse off by participating in the food stamp program and so for them food stamps are certainly not equivalent to giving them cash.*

*Grading breakdown*

*Full credit for any answer saying that it restricts consumption on certain goods but not others*

*.5 for correctly saying there are limits to what it can be used on but saying that it is equivalent to cash*

*.5 for saying that it is not equivalent to cash but explaining why wrong*

*Some deviations from these points—extra for having included something else correct in your answer, fewer for including something else incorrect.*

**g. The US subsidizes ethanol for cars, which raises the cost of corn, which makes people in the third world hungry. This is an example of an externality**

*Acceptable answers:*

*TRUE.*

- *An externality is a cost or benefit that is external to the market transaction taking place.*

- *Hunger in poor countries resulting from higher corn prices is an effect external to the ethanol subsidization.*
- *Ethanol producers, consumers and the US government are not taking into account (or paying for) the negative effects in third world food markets when making their decision to make/buy/ subsidize ethanol.*

*FALSE*

- *An externality is a cost not captured by producers or consumers because it is outside the market system.*

*Grading Breakdown*

*Full credit for correct answer (which includes some mention of how a third party/ someone outside of the transaction is affected)*

*.75 for answers with a correct definition of an externality*

*.5 for saying it's a non-Pareto optimal outcome*

*.5 for fully explaining how the subsidy translates into corn market but without discussing/ defining externalities*

*Some deviations from these points—extra for having included something else correct in your answer, fewer for including something else incorrect.*

**h. Public goods are oversupplied by the market and so should be taxed.**

*FALSE.*

- *Public goods are often undersupplied because people are able to enjoy the benefits of public goods without paying for them.*
- *Taxes would further discourage good provision/production*
- *Public goods should perhaps be subsidized but not taxed.*

*Grading Breakdown*

*Full credit for saying public goods are under-supplied and should not be taxed/ should be subsidized*

*.9 for saying they are under-supplied and tax revenues sometimes can help pay for them (equivalent to a subsidy)*

*.8 for saying they are under-supplied and a tax would be ineffective because public goods are non-exclusionary*

*.75 for just saying public good are under-supplied*

*.5 for full definition of a public good without mentioning they are under-supplied or for defining non-exclusionary element of public good and explaining that this characteristic would making taxing them difficult/ ineffective/ impossible*

*.25 for a partial definition of public goods (i.e. defining one of their two characteristics correctly)*

# Quiz 1 Solution

## Question 2 & 3

### 1 Question 2

a), b), c). Using the target price deficiency program, the government guarantees that the farmer will receive at least the target price. In detail, the government gives the farmers a payment equal to the difference between the support price and the competitive equilibrium price for every unit sold so that farmers receive the support price on their entire crop. Refer to the figure below, the government set the target price at  $\bar{P}$ , which is the price faced by the producer, so the quantity produced should be  $\bar{Q}_{s1}$ , given the supply, the consumer price is the corresponding point on the demand curve, which is  $P_1^d$ . The money that the government must pay is the shaded area, which is  $\bar{Q}_{s1} * (\bar{P} - P_1^d)$ .

d) If the government ask farmers to set 10% of their land aside, the supply curve will shift to  $S'$ . At each price, the quantity produced should decrease by 10%. The quantity produced is  $\bar{Q}_{s2}$ , the consumer price increases from  $P_1^d$  to  $P_2^d$ .

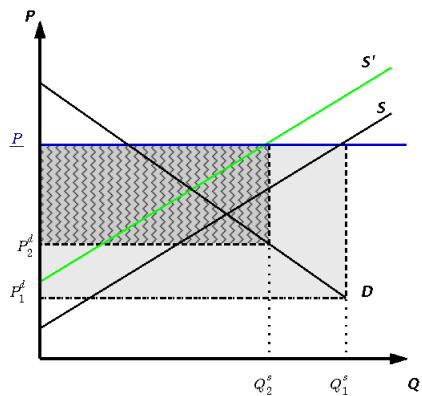


Figure 1: Question 2

e) In the sense that the target price program made the producer price higher than the competitive equilibrium price and the consumer price lower than the competitive equilibrium price, it is similar to the negative tax program. The target price program made the producer's price higher than the competitive equilibrium price and the consumer price lower than the competitive equilibrium price, whereas a tax typically makes the producer price lower and the consumer price higher than the competitive equilibrium. Whereas with a tax, producers (or consumers) pay the government the difference between consumer and producer price, with a target price program the government pays producers the difference between producer and consumer price. Whereas a tax often discourages production, this policy encourages production.

If agriculture produces pollution, then there is a negative externality to agriculture, which means that even without a subsidy there may be too much agricultural production. If this is the case, we may want to tax production and we will not want to encourage further production (and pollution) by subsidizing agriculture.

## 2 Question 3

a) Budget constraint I:

$$P_{wine} = 1000/50 = 20;$$

$$P_{bread} = 1000/20 = 50.$$

Budget constraint 2:

$$P_{wine} = 1000/50 = 20;$$

$$P_{bread} = 1000/25 = 40.$$

b) approximately (10, 25).

c) This is tangent point between the indifference curve and the budget line. It gives the consumer the most preferred combination of goods. This bundle

puts the consumer on the highest possible indifference curve given their budget constraint. At that point, the marginal benefit is equal to the marginal cost.

d) (10, 50) and (12.5, 40).

e) If income has increased to \$1,200, the two budget line will shift out. Two consumption bundle can be found by drawing two indifference curves tangent to the new budget lines respectively. If bread is a normal good, at both prices, its consumption will become larger. So the demand curve will shift out.