12/12

Elasticity Quiz **Name:** Maggie

1. The market for ketchup can be described as follows:

Price/bottle	Quantity Supplied	Quantity Demanded
$1.00	10	90
$1.10	20	80
$1.20	30	70
$1.30	40	60
$1.40	50	50
$1.50	60	40
$1.60	70	30
$1.70	80	20

a) Calculate the price elasticity of demand for a price change from $1.30 to $1.40.

$$PED = \frac{\% \Delta Q_d}{\% \Delta P} = \frac{\frac{Q_1 - Q_2}{\frac{Q_1+Q_2}{2}}}{\frac{P_1 - P_2}{\frac{P_1+P_2}{2}}} = \frac{\frac{60-50}{\frac{60+50}{2}}}{\frac{1.30-1.40}{\frac{1.30+1.40}{2}}} = \frac{\frac{10}{55}}{\frac{-0.10}{1.35}}$$

$$= -2.5$$

$$\boxed{2.5}$$

b) Calculate the price elasticity of supply for a price change from $1.30 to $1.40.

$$PES = \frac{\% \Delta Q_s}{\% \Delta P} = \frac{\frac{50-40}{45}}{\frac{0.10}{1.35}} = \boxed{3}$$

c) Which is more elastic with respect to price at this interval, demand or supply?

As the numerical value for PES > PED, Qs changes more than Qd w.r.t change in price, supply is more responsive and thus more elastic.

2. The economy is slipping into recession, and people's incomes are falling. The income elasticity of demand for product A is -0.8 and the income elasticity of demand for product B is +0.7.

a) Which product should my company seek to sell during this time and why?

Product A. Because YED for A is negative and YED for B is positive, which means that as people's income decreases, Demand for A will increase, demand for B will decrease.

b) What might the product actually be (ie give an example of a real product with that YED)? (according to definition)

Product A: second-hand car / old clothes.

Product B: Clothes / housing / food / etc.

3. State the formula for Cross Price Elasticity of Demand

$$XED = \frac{\text{\% change in Demand for good A}}{\text{\% change in price for good B}}$$

$$= \frac{\% \Delta Q_A}{\% \Delta P_B} = \frac{\frac{Q_1 - Q_2}{\frac{Q_1+Q_2}{2}} \times 100\%}{\frac{P_1 - P_2}{\frac{P_1+P_2}{2}} \times 100\%}$$

ex. ~~Coke~~ Coco-Cola & Pepsi

i.e. serve similar purpose

4. If Good X and Good Y have a cross price elasticity of demand that is positive, what can we conclude about the relationship between these two goods?

These two goods are substitutes. Because positive XED means that the price ~~the~~ increase in one good will lead to the quantity demanded increase in the other. which is the case of substitutes. because when the price of one good increases, consumers will switch to goods that serve similar purpose, lead to the increase in Qd.

5. If Good X and Good Y have a cross price elasticity of demand that is negative, what can we conclude about the relationship between these two goods?

ex Tennis rackets & Tennis bag

These two goods are complements. ~~i.e. the consumption of one goo~~ i.e. two goods are jointly supplied. Because XED is negative, it means that the price increase in one good lead to the decrease in quantity demanded for the other. which is the case of complementary goods.

6. List three determinants of Price Elasticity of Demand

1. length of time.
2. ~~Propor~~ portion of income spent
3. number and closeness of substitutes.
4. Degree of necessity.

7. What else do you know about Elasticity that you want me to know you know?

Determinants of PES.

1. length of time.
2. Ability to store stock.
3. Mobility of factors of product.
4. Unused capacity.

Application for PED.

WOW!

1. Total revenue for firms.
   PED <1, inelastic → As price ↑, TR↑.
   PED >1 . elastic → As price ↑, TR↓.
   ⇒ firms will go to PED = 1.
2. Tax.
   PED <1 . → tax collected ↑. but not much impact on Qd.
   PED > 1 → tax collected ↓, but greater impact on Qd.

Application of XED

Substitutes:
1. Substitutes produced by a single firm. ex. Coco-cola & Sprite.
2. Subsitutes produced by rival firms ex. Coca-cola & Pepsi.
3. Merger

Complements:
4. collaboration between firms for complements.
5. tax impact on complements.

Application for YED.

1. For suppliers to predict & plan future production as income ↑ / ↓.
2. Explain the change in economic structure w/in a country.