eLearneconomics: Cross elasticity of demand (1)

Student response

(a) Define 'cross elasticity of demand'.

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(b) What is the purpose of calculating cross elasticity of demand?

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(c) Using the mid-point method to calculate cross elasticity of demand and indicate if the products are substitutes or complements.

    (i) The consumption for X rose 20% when the price of Y fell by 5%.

        Ecross = _____

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    (ii) The quantity of good C fell from 120 to 100 as a result of a fall in price of good D from \$15 to \$12.

        Ecross = _____

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(d) Complete the table by placing a tick (✓) in the column to indicate if the products are substitutes or complements.

Situation	Substitutes	Complements
(i) A rise in the price of one good causes a fall in the quantity of the other good.		
(ii) A rise in the price of one good causes a rise in the quantity of the other good.		
(iii) A fall in the price of one good causes a fall in the quantity of the other good.		

eLearneconomics: Cross-elasticity of demand (1a)
Solution

(a) Define 'cross elasticity of demand'.

Measures the responsiveness of quantity demanded of one good to changes in price of another good.

(b) What is the purpose of calculating cross elasticity of demand?

Cross elasticity can be used to understand and classify the relationship between goods or services, it can determine if products are substitutes or complements.

(c) Using the mid-point method to calculate cross elasticity of demand and indicate if the products are substitutes or complements.

(i) The consumption for X rose 20% when the price of Y fell by 5%.

$$E_{cross} = \frac{\left(\dfrac{20\%}{-5\%}\right)}{} = -4.00 \quad \text{complements}$$

(ii) The quantity of good C fell from 120 to 100 as a result of a fall in price of good D from $15 to $12.

$$E_{cross} = \frac{\left(\dfrac{-20}{110}\right)}{\left(\dfrac{-3}{13.5}\right)} = +0.82 \quad \text{substitutes}$$

(d) Complete the table by placing a tick (✓) in the column to indicate if the products are substitutes or complements.

Situation	Substitutes	Complements
(i) A rise in the price of one good causes a fall in the quantity of the other good.		✓
(ii) A rise in the price of one good causes a rise in the quantity of the other good.	✓	
(iii) A fall in the price of one good causes a fall in the quantity of the other good.	✓	