



EXAMPLES AND PRACTICES

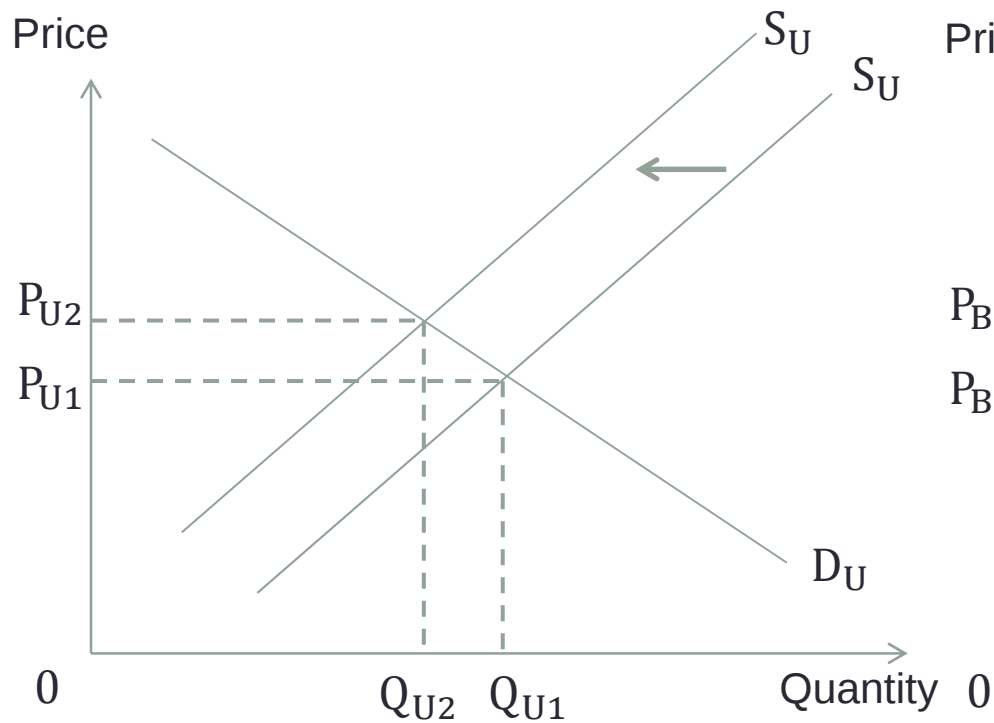
Topic 3

Example-Cross price elasticity

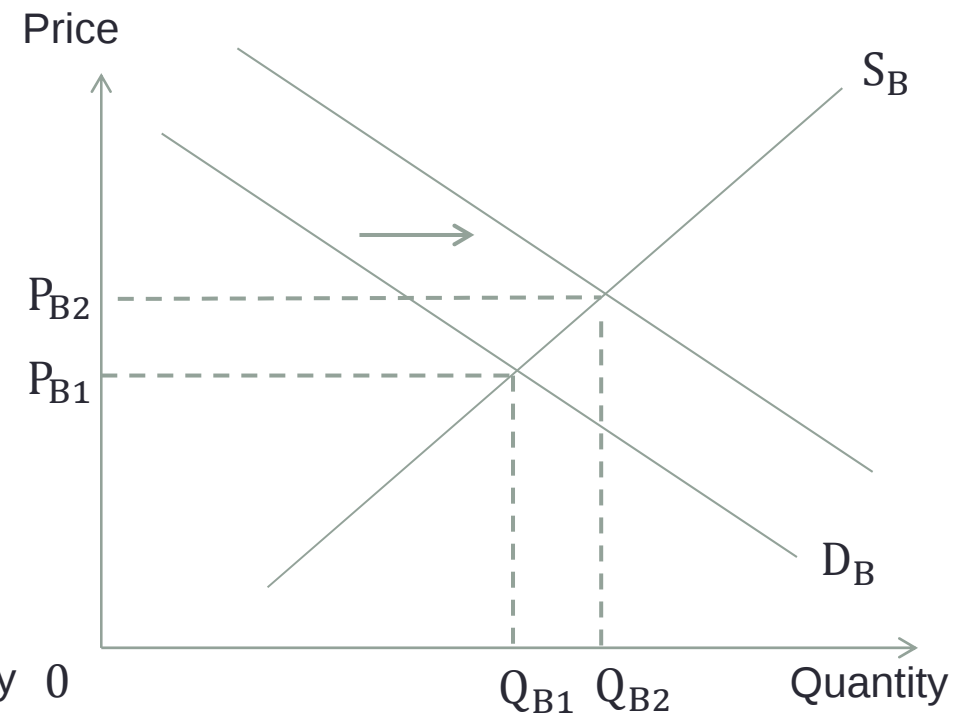
- The reduction in the subsidy paid to underground operators effectively representing an increase in costs

Cross price elasticity of demand, substitutes

Market for Underground Services



Market for Bus Services



- The Cross-Price Elasticity of Demand Between Goods A and B:

$$= \frac{\% \text{ change in quantity of A demanded}}{\% \text{ change in price of B}}$$

- Cross price elasticity of demand between bus and underground is 0.50

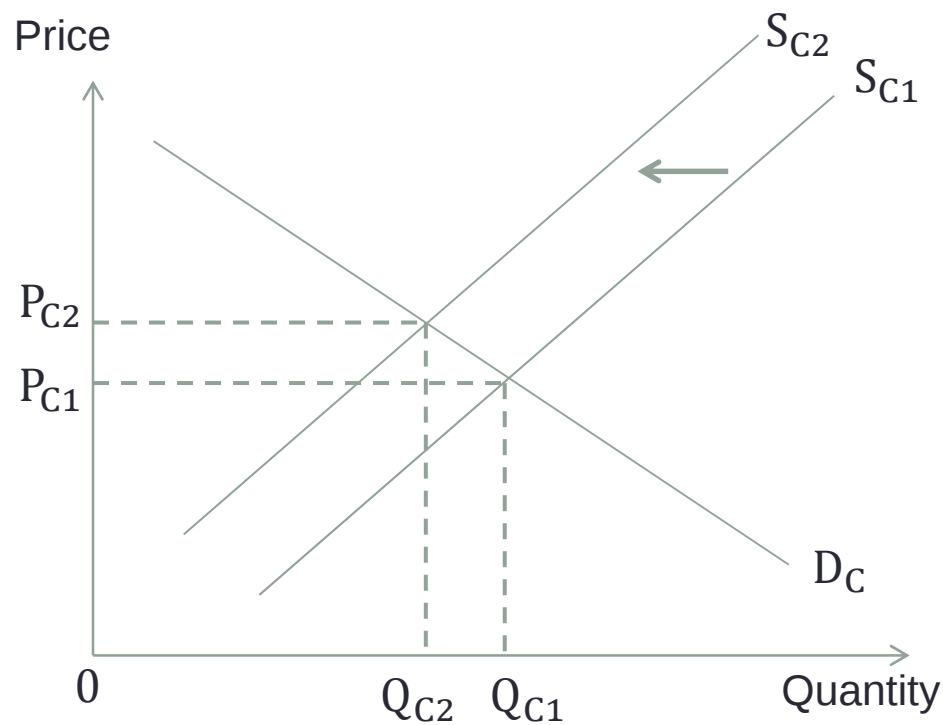
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- Substitute transport services, cross price elasticity will be positive
 - As the price of one service rises, demand for the alternative service also rises and vice-versa
 - The greater the degree of substitutability between the two services being compared, then the higher the value cross price elasticity will be

Example II

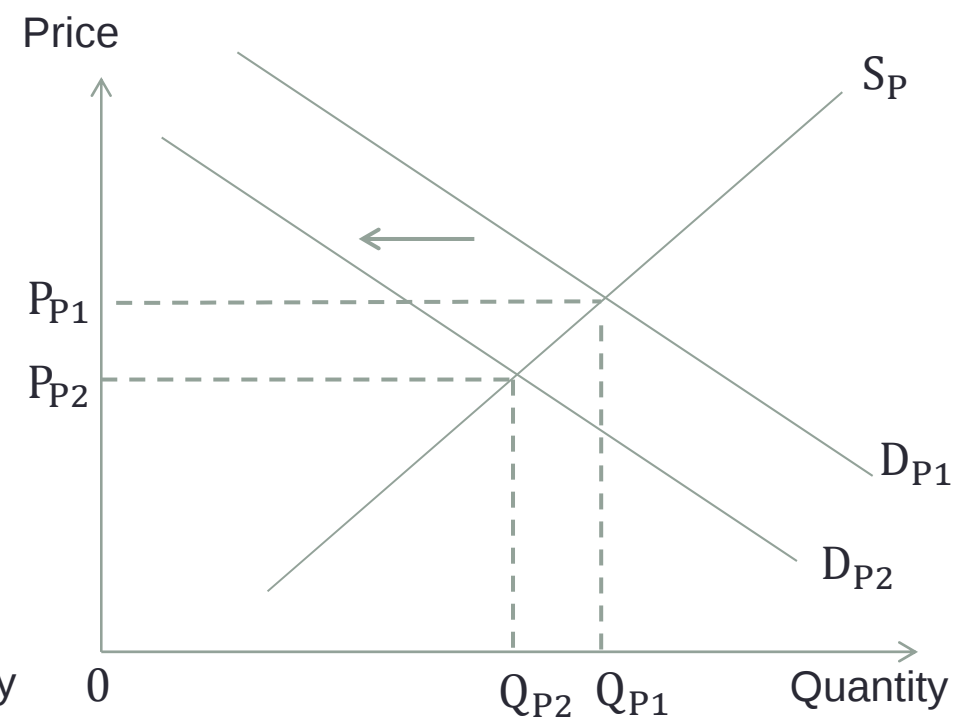
- The price of cars and the market for petrol
- If the cost of manufacturing motor cars was to rise, then this would cause an increase in the price of cars and a reduction in the level of quantity demanded
- If there are less cars on the road, then petrol will be required, hence there will be a decrease in demand for petrol

Cross price elasticity of demand, complements

Market for Road Cars



Market for Petrol



- The Cross-Price Elasticity of Demand Between Goods A and B:

$$= \frac{\% \text{ change in quantity of A demanded}}{\% \text{ change in price of B}}$$

- Cross price elasticity of demand between petrol and car is -0.20

- The increase in the cost of manufacturing motor cars shown by a shift to the left of the supply curve and resulting in an increase in the price
- As cars and petrol are consumed at the same time, this increase in the price of cars changes the market conditions for petrol, causing a decrease in demand
- For complementary transport services, cross price elasticity will always be negative

Example: Inferior good Bus income elasticities

Journeys	Short run	Long run
National data	0.00	-0.45 to -0.80
Regional data	0.00 to -0.29	-0.64 to -1.13
Country data	-0.30 to -0.40	-0.60 to -0.70
PTE data	-0.70	-1.60

Source: Dargay and Hanly (1999)

Example: Normal good

South East Britain income rail elasticities (2002)

Area	Income elasticity
South East to London	2.07
London to South East	1.90
South East Non London	0.89
Non London	0.11

Source: ATOC (2002)

Practice 1

You have the following information about good X and good Y

- Income elasticity of demand for good X : -3
- Cross price elasticity of demand for good X with respect to the price of good Y: 2

Would an increase income and a decrease in the price of good Y unambiguously decrease the demand for good X? Why or why not?



Yes, an increase in income would decrease the demand for good X because the income elasticity is less than zero, indicating that good X is an inferior good.



A decrease in the price of good Y will decrease the demand for good X because the two goods are substitutes (as indicated by a cross-price elasticity that is greater than zero)

Example – Price elasticity of supply

Suppose that an increase in the price of milk from \$2.85 to \$3.15 a gallon raises the amount that dairy farmers produce from 9,000 to 11,000 gallons per month.

Using the midpoint method, calculate the price elasticity of supply.

Percentage change in price

$$\frac{(3.15-2.85)}{(3.15+2.85)/2} \times 100 = 10\%$$

Percentage change in quantity supplied

$$\frac{(11,000-9,000)}{(11,000+9,000)/2} \times 100 = 20\%$$

Price elasticity of supply

$$\frac{20\%}{10\%} = 2$$

The quantity supplied changes proportionately twice as much as the price

Practice 2

- You are the curator of a museum. The museum is running short of funds, so you decide to increase revenue. Should you increase or decrease the price of admission? Explain.



In order to determine whether you should raise or lower the price of admissions, you need to know if the demand is elastic or inelastic.

If demand is elastic, a decline in the price of admissions will increase total revenue.

If demand is inelastic, an increase in the price of admissions will cause total revenue to rise.