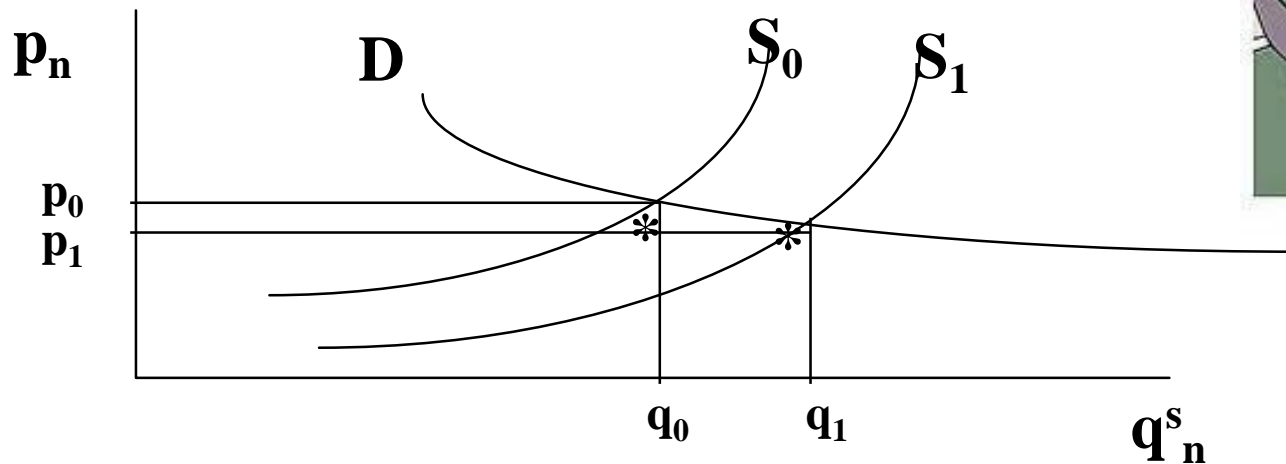
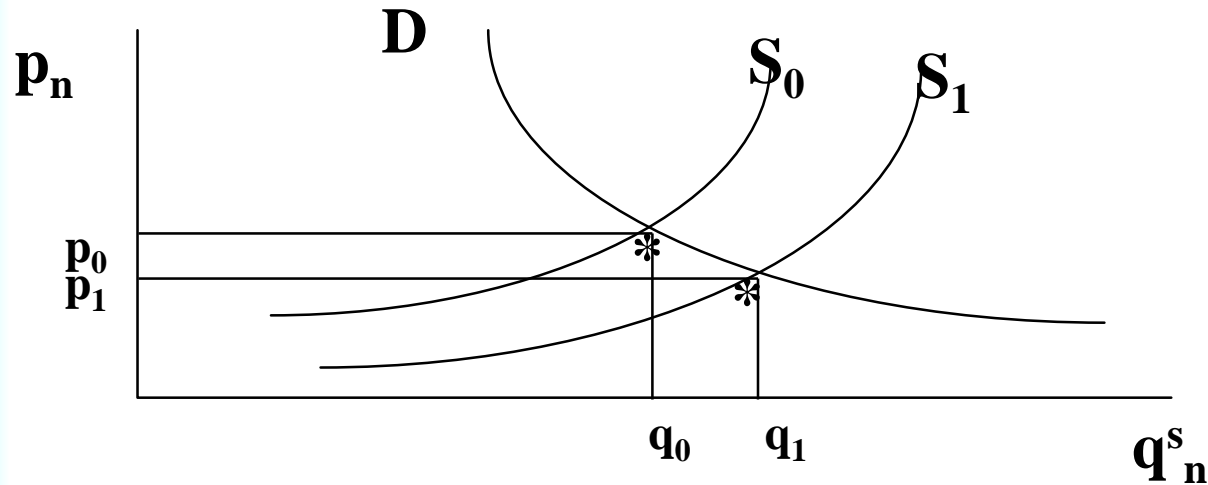


Price Elasticity of Demand



Price Elasticity of Demand (E_d)

- The price elasticity of demand (or price elasticity) measures how much the quantity demanded of a good changes when its price changes. (E_d negative → absolute value)
- Price elasticity is the **percentage change in quantity demanded** divided **by the percentage change in price**.

$$E_d = \text{Price_elasticity} = \frac{\%_change_in_Quantity_Demanded}{\%_change_in_Price}$$

$$E_d = \eta = \frac{\delta q_n^d / q_n^d}{\delta p_n / p_n} = \frac{\delta q_n^d / \delta p_n}{q_n^d / p_n}$$

- It mainly depends on:
 - Availability of substitutive goods (because Q_d will then depend a lot on price)



Price Elasticity of Demand (E_d)

$$\text{Price_elasticity} = E_d = \frac{\% \text{ change in Quantity Demanded}}{\% \text{ change in Price}}$$

- **Price-Elastic demand ($E_d > 1$)** : 1% change in price (P) leads to more than 1% change in quantity demanded (Q_d).
 - an increase of the price causes an even bigger decrease in demand, and then income falls too ($\uparrow \text{Price} \rightarrow \downarrow \text{Income}$)
 - a decrease of the price causes a bigger increase in demand, and then income increases too ($\downarrow P \rightarrow \uparrow I$)
- **Price-Inelastic demand ($E_d < 1$)** : 1% change in price (P) leads to less than 1% change in quantity demanded (Q_d).
 - an increase in price causes a “small” demand variation, and then we have nearly the same quantity with higher price. Incomes increase ($\uparrow P \rightarrow \uparrow I$)
 - a decrease in price causes a “small” demand variation, and then we have “nearly” the same quantity at lower price. Income decreases ($\downarrow P \rightarrow \downarrow I$)



Price Elasticity of Demand (E_d)

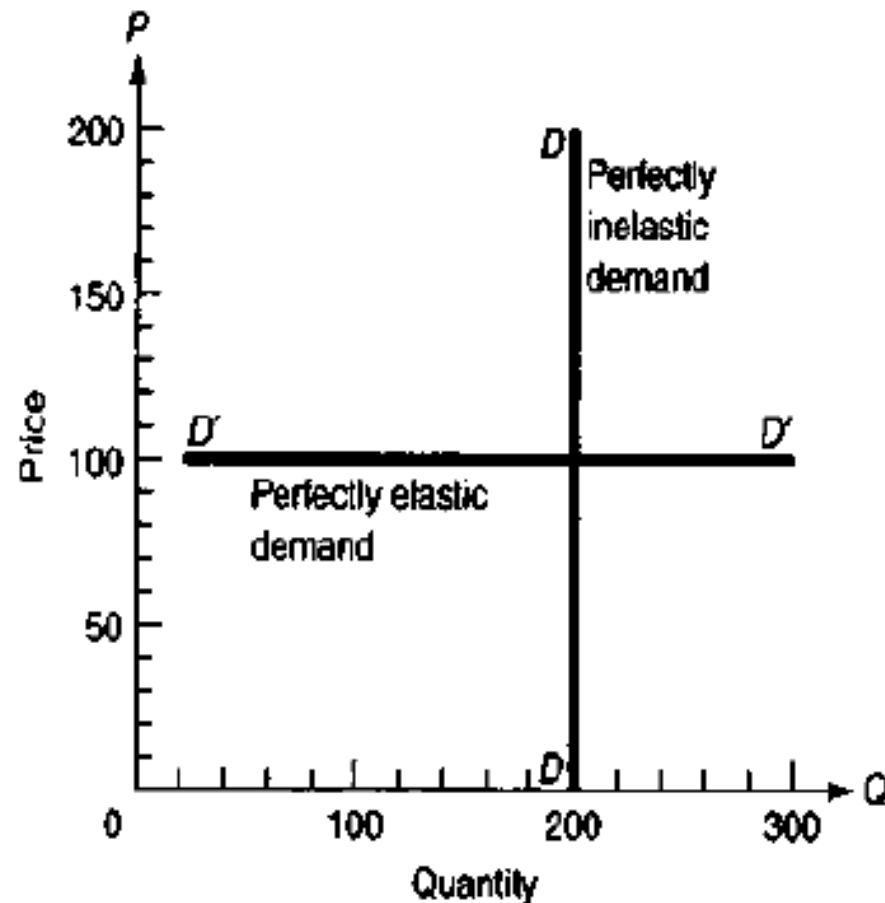
Unit-elastic ($E_d = 1$): a porcentual increase in price is compensated by an equivalent decrease in volume → Incomes do not change

- **Perfectly inelastic** $E_d = 0$

Quantity demanded does not respond to price changes.

- **Perfectly elastic:** $E_d = \infty$

A tiny change in price will lead to an indefinitely large change in quantity demanded.



Cross elasticity

➤ **Cross-elasticity of demand** is the interrelationship between the demand for a good and the changes in the prices of other goods. That is:

$\% \text{ change in the quantity demanded of good X} / \% \text{ change in price of good Y}$

➤ For **substitute** goods cross elasticity will be positive and for **complementary** will be negative

➤ If X and Y are complementary a drop in the price of X will produce an increase in the consumption of both. If they are substitutes, a decrease in the price of X increases the consumption of X, but decreases the consumption of Y.

❑ *Note: The greater the substitutability or complementarity, the greater the reaction to the amount of any change in price and viceversa.*

