ECO 101: Introduction to Microeconomics

Lecture-7

ELASTICITY

- By now, we know when SUPPLY increases, equilibrium PRICE falls QUANTITY increases

But have you wondered, if the Quantity increase is big or small with the change in Price and Vice Versa.

PRICE ELASTICITY OF DEMAND [PED]

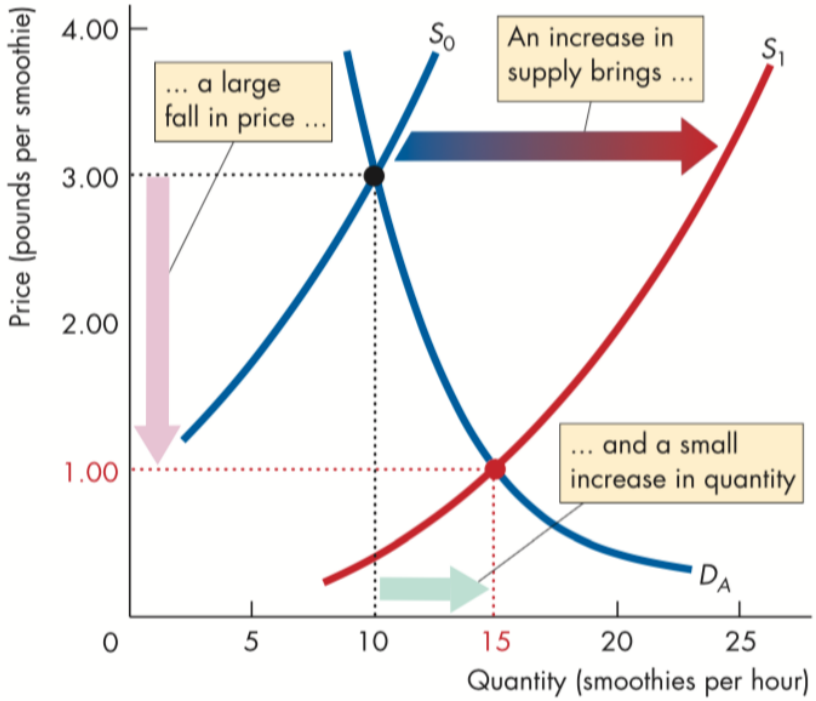
- The answer depends on the responsiveness of the Quantity demanded to a change in Price

- Elasticity- Is a measure of a variable's sensitivity to a change in another variable

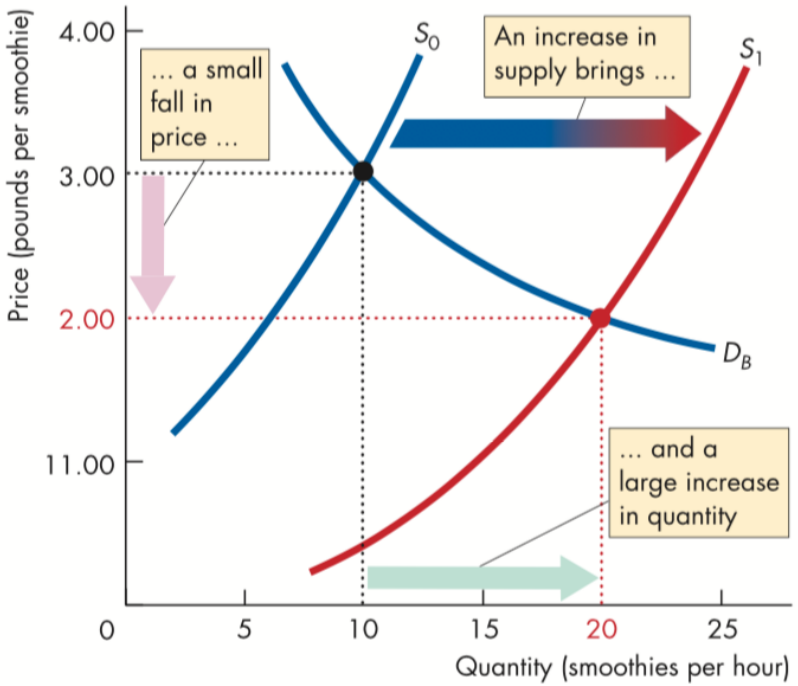
- **Price Elasticity of Demand (PED)**: A measure of the responsiveness of the quantity demanded of a good to a change in its price, when all other influences on buyers' plans remain the same.

PED

Responsiveness ⟷ Slope



(a) Large price change and small quantity change



(b) Small price change and large quantity change

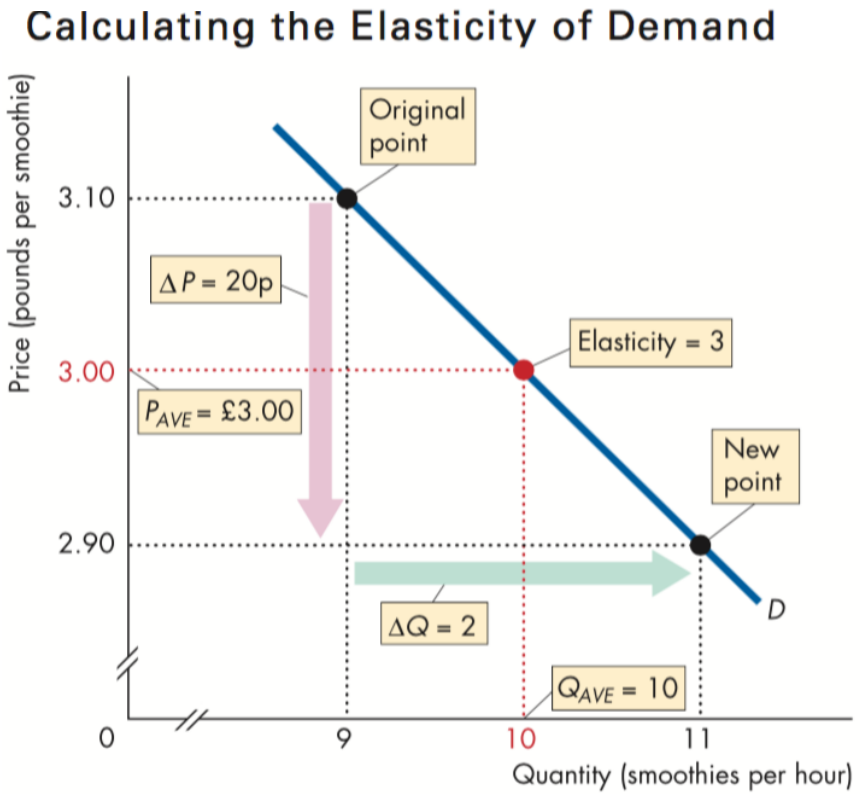
CALCULATING PED

$$\text{Price elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

$$= \frac{\%\Delta Q}{\%\Delta P}$$

$$= \frac{\Delta Q / Q_{AVE}}{\Delta P / P_{AVE}}$$

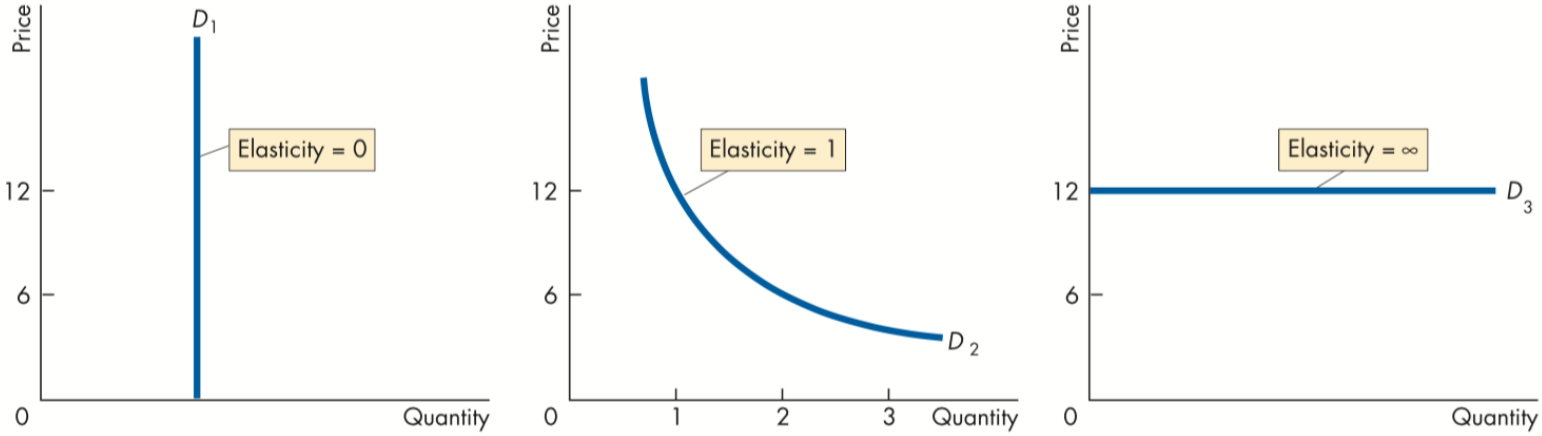
Example:



PROPERTIES OF PED

- Average Price & Quantity: It gives the most precise measurement of elasticity – midway between the original and new point
- It's a Unit-free measure: Percentage change in each variable is independent of the units. And the ratio of the two percentages is a number without units
- Minus sign and Elasticity: When the price of a good *rises*, the quantity demanded *decreases* along the demand curve. A *positive* change in price brings a *negative* change in the quantity demanded, the price elasticity of demand is a negative number. But it is the magnitude, or ***absolute value***, of the price elasticity of demand that tells us how responsive – how elastic – demand is.

ELASTIC & INELASTIC DEMAND



(a) Perfectly inelastic demand **(b) Unit elastic demand** **(c) Perfectly elastic demand**

A. Perfectly Inelastic demand: PED=0 when Quantity demanded remains constant even when Price changes

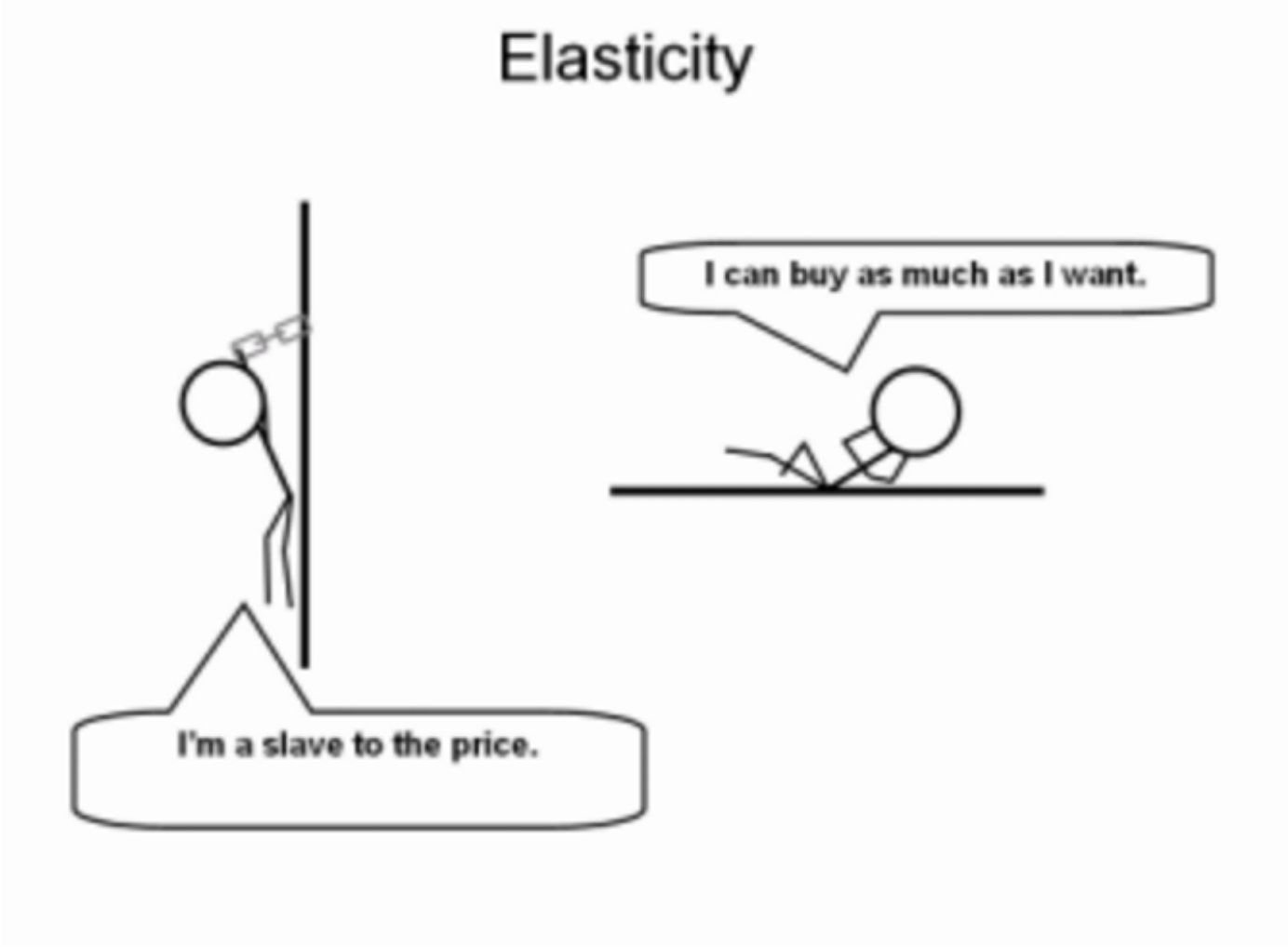
B. Unit Elastic Demand: PED=1 when Quantity demanded equals percentage change in Price

C. Perfectly Elastic Demand: PED= ∞ when the Quantity demanded changes by an infinitely large percentage in response to a tiny Price change

D. (Relatively) Inelastic Demand: PED= $0<e<1$ change in Quantity demanded is less than the change in Price.

E. (Relatively) Elastic Demand: PED> 1 change in Quantity demanded is greater than the change in Price

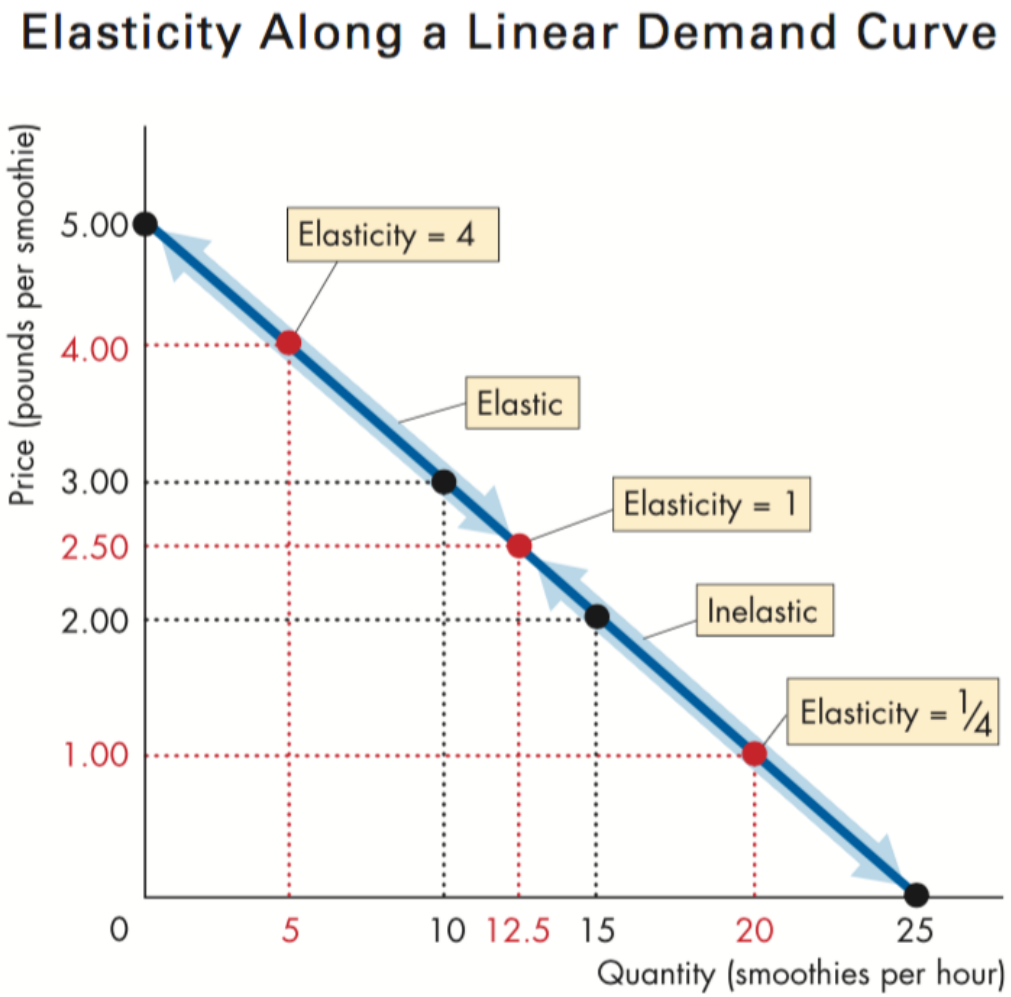
A GOOD WAY TO REMEMBER PED



ELASTICITY ALONG A LINEAR DEMAND CURVE

- On a linear demand curve Elasticity decreases as P ↑ and Q ↓

- On this graph here, with the prices ABOVE the mid-point demand is Elastic; & BELOW the mid-point demand is Inelastic



TOTAL REVENUE AND ELASTICITY

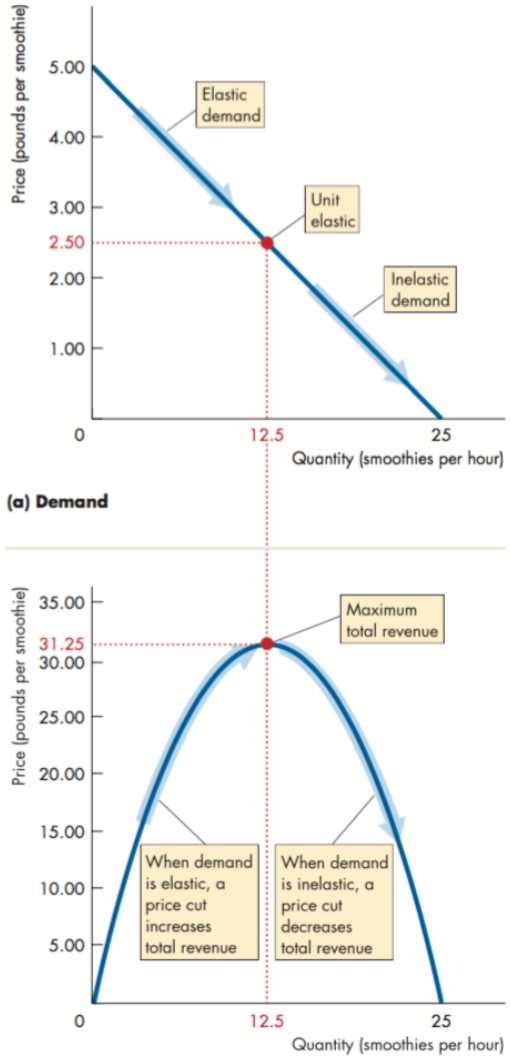
- Total Revenue- Price of a good multiplied by the quantity of a good
- When Price changes Total Revenue also changes, but it necessarily **doesn't** mean that Price rise will increase Total Revenue and therefore it depends upon Elasticity Demand:

1. If Demand Elastic- 1% price cut increases Quantity sold by **MORE** than 1% and so Total Revenue Increases
2. If Demand Inelastic- 1% price cut increases Quantity sold by **LESS** than 1% and so Total Revenue Decreases
3. If Demand Unit Elastic- 1% price cut increases Quantity sold by **SAME** 1% and so Total Revenue does not change

TOTAL REVENUE TEST

Total Revenue Test is a measure of estimating PED by observing the change in Total Revenue

- If Price cut increases Total Revenue, demand is ELASTIC
- If Price cut decreases Total Revenue, demand is INELASTIC
- If Price cut leaves Total Revenue Unchanged then demand is Unit Elastic



EXPENDITURE AND ELASTICITY

- Elastic Demand- 1% price cut increases Qd by **more than** 1% and hence Expenditure on that item increases
- Inelastic Demand- 1% price cut increases Qd by **less than** 1% and hence Expenditure on that item decreases
- Unit Elastic- 1% price cut increase by 1% and hence Expenditure remains the same

So if you spend more on an item when its price falls, your demand for that item is elastic; if you spend the same amount, your demand is unit elastic; and if you spend less, your demand is inelastic.

FACTORS INFLUENCING ELASTICITY OF DEMAND

- Closeness of Substitutes- The closer the substitutes for a good/service the more Elastic the demand.

Necessity Good- Less Substitutes so Inelastic demand
Luxury Good- More Substitutes so Elastic Demand

- Proportion of Income Spent- Greater the Income spent on a good the more Elastic the demand for that good
- Time elapsed after Price change- the longer the time has elapsed since a price change the more elastic the demand

ESSENTIAL READINGS FOR TODAY!

Economics. Parkin, Powell, Matthews.
8th Edition
Chapter- 4. pages- 84 to 90