

# Price Elasticity of Demand

defn - measures the degree to which the qty of a PRODUCT DEMANDED responds to a change in price

GR - law of demand (downward-sloping) states that - ALL OTHER FACTORS REMAINING CONSTANT THE QTY DEMANDED INCREASES AS PRICE DECREASES

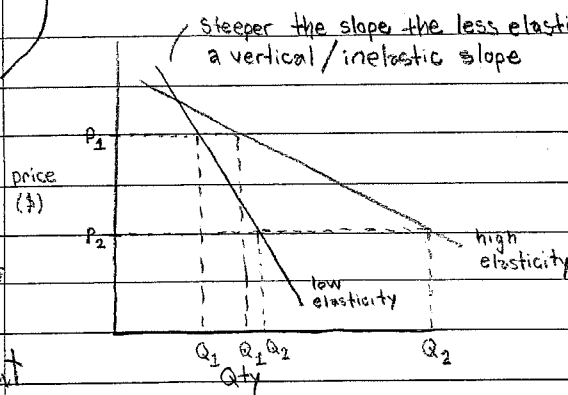
demand curves for different products w different degrees of elasticity are all downward sloping BUT SHAPES ARE DIFFERENT

Exceptions / other Factors - Price changes for different products affect consumers / consumption in different ways

↳ NECESSITY OF PRODUCT

the exact shape of demand curves / consumer response to price changes OF SIGNIFICANT INTEREST TO SUPPLY SIDE OF MKT / SELLERS

↓  
i.e. nature of relationship between price & quantity demanded different between products



ELASTIC DEMAND = is one in which a PRICE CHANGE brings about a GREATER THAN PROPORTIONAL CHANGE in the quantity demanded by consumers

↳ i.e. small price change is likely to have a large impact on qty demanded

INELASTIC DEMAND = PRICE CHANGES have little effect on Qty demanded

↳ i.e. small price change likely to have little or no impact on qty demanded

FORMULA - used to determine whether a product has an OR ① elastic demand or ② inelastic demand

$$\text{price elasticity of demand (E}_d\text{)} = \frac{\% \Delta Q_d}{\% \Delta P}$$

↳ if coefficient ( $E_d$ ) is greater than 1 then demand is ELASTIC

↳ if less than 1 then demand is INELASTIC

↳ if equal to 1 then demand is UNITARY ELASTIC

Characteristics that determine elasticity -

① Luxury or necessity - GR necessary products have inelastic demand

b/c demanded regardless of price

- luxury visa versa

② Number/availability of close substitutes

↳ GR = the more close substitutes the more elastic demand

as  $\uparrow$  price yields several alternatives

③ Percentage of income/budget available to spend on product

↳ GR = small % of income/budget means price changes <sup>are not</sup> likely to greatly

impact Qty demanded - i.e. INELASTIC  $\rightarrow$  e.g. organic fair trade shaded coffee

④ Length of time since price change

↳ short-term - unlikely to impact demand thus inelastic b/c/perhaps no close substitutes in mkt - INELASTIC

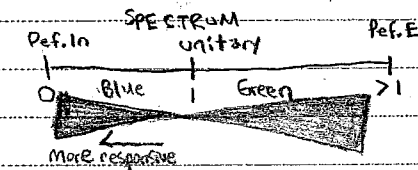
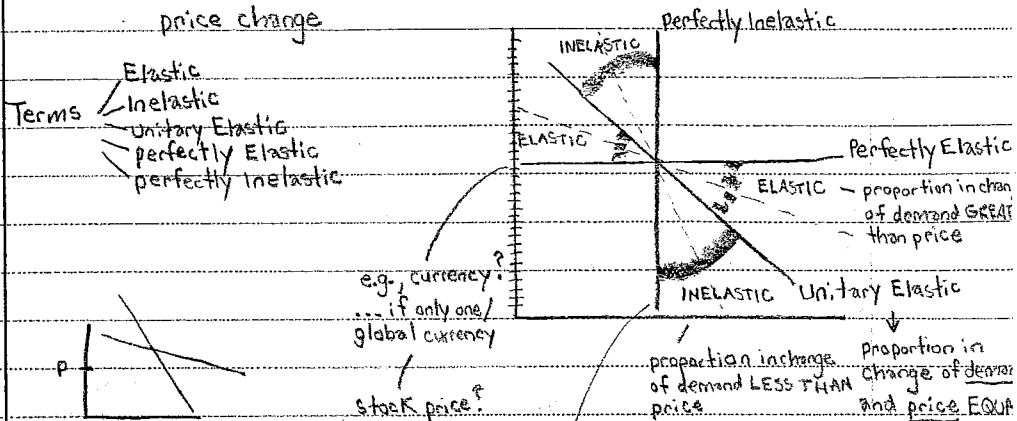
↳ long-term - time for mkt to respond/increase in substitutes/buying patterns adjust - MORE ELASTIC AS TIME PASSES

\* not all factors required to determine a products elasticity - perhaps one may be sufficient - case by case

# Elasticity

## Demand Side Market

Elastic - use an elastic to demonstrate responsiveness (stretch) to a price change



assists in pricing decisions / decision-making

Price elasticity of demand formula =  $\frac{\text{Effect}}{\text{Cause}} = \frac{\% \Delta \text{ in } Q_d}{\% \Delta \text{ in } P}$

\* betw. 0 and 1 = inelastic ( $< 1$ ) smaller % change in Qty. demanded compared to % change in price  
 $> 1$  = elastic - given % change in price causes a greater % change in qty demanded  
 equal to 1 = unitary - given % change in price causes an equal % change in qty demanded

## Total Revenue Approach to Elasticity

- $TR = Q_d \times P$
- ↳ critical to know if TR will  $\uparrow$  or  $\downarrow$  when price change
- ↳ IF inelastic then  $\uparrow$  price will lead to  $\uparrow$  in TR
- ↳ IF elastic then  $\uparrow$  price will lead to  $\downarrow$  in TR
- ↳ IF unitary then  $\uparrow$  price will not affect TR / or  $\downarrow$  price

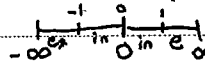
P	Q
7	20
5	40
100	100
119	91

TEMPLATE PRICE ELAS. OF D Students try to deduce first

Income elasticity - measures responsiveness of change in qty demanded to changing income levels

- negative income elasticity =  $\uparrow$  income  $\downarrow$  demand (inferior goods)

Cross-elasticity of demand - assist in identifying substitutes/complementary products



-  $+1$  value = 2 products substitutes  $\uparrow$  price prod. A leads to  $\uparrow$  in demand B  
 -  $-1$  value = 2 products complementary  $\uparrow$  price A leads to  $\downarrow$  in demand B  
 - close to 0 = lack of association

Advertising elasticity of demand - measures degree of responsiveness of demand to changes in level of advertising

- (+) value = positive impact
- $\frac{\% \Delta \text{ in Qty demanded}}{\% \Delta \text{ in advert. expenditure}}$

Research elasticity of supply - measures degree of responsiveness of supply to changes in research expenditures undertaken to produce product

Prosecco  
& sparkling wine

### Factors Affecting Demand Elasticity

- ① Availability of substitutes -  $\uparrow$  availability =  $\uparrow$  elasticity
- ② Nature of Item - luxury vs necessity  
 $\hookrightarrow$  more inelastic
- ③ Fraction of Income spent on Item - expensive/significant goods = elastic  
- insignificant = inelastic
- ④ Amount of time available / length of time since price change  
 $\hookrightarrow$  products become more elastic as time lapses as ability to locate substitutes (long-term vs. short term) - mkt. response

used to determine elasticity (slope)

general demand for product may be inelastic

questions 97

Elasticity of Supply & questions 101

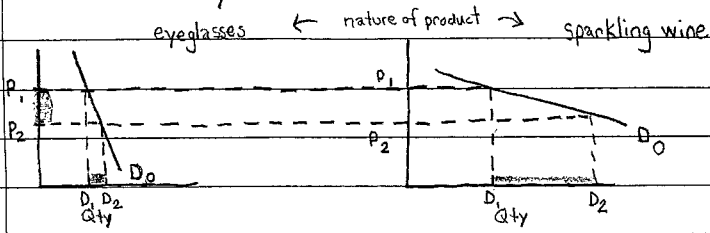
Solidify understanding

$\rightarrow$  Students Independently Work on ---

- ① Factors Affecting Elasticity of Demand - pull out (GR) (97)
- ② Definition of Elasticity of Supply - similar language
- ③ Sketch supply curves - elastic/inelastic
- ④ Factors Affecting Elasticity of Supply - pull out (GR)

98 to 100

# Income Elasticity of Demand



\* income reflected in severity of slope

inelastic  $\rightarrow 0$

elastic  $\rightarrow 1 \text{ to } \infty$

RESPONSIVENESS

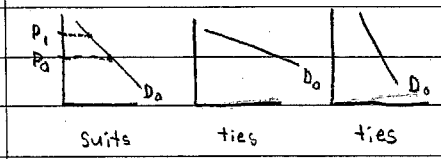
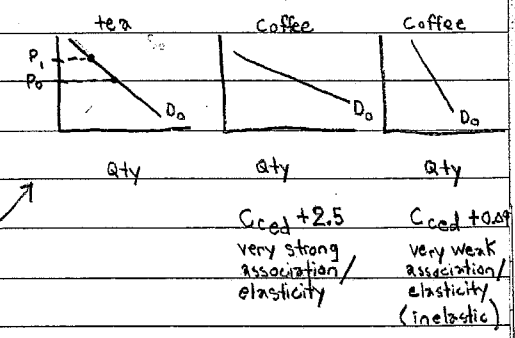
## Cross

weaker to stronger association

(+) value  $C_{ced}$  = substitute  $\rightarrow$  the more (+) / higher the coefficient the stronger the association

(-) value  $C_{ced}$  = complementary

(0) zero value = no association



## Advertising = $C_{Aed}$

unitary = %  $\Delta$  equal thus neutral effect / no  $\uparrow$  in demand relative to  $\uparrow$  in advert. #

Research E. Supply  $\rightarrow$  a producer's ability to  $\Delta$  levels of supply given mkt. signals on demand side / supply side

## demand

- elastic - opposite directions / prices fall / revenues rise
- inelastic - same directions / prices rise / revenue falls
- inelastic - same directions / prices rise / revenue rises
- inelastic - same directions / prices fall / revenue falls

# Elasticity of Supply

Supply side of market

GR = as prices  $\uparrow$  supply  $\uparrow$  (incentive to sell more  $\uparrow$  profits / enter mkt.)

$\hookrightarrow$  how easy is it to increase supply in the short-term?

GR = elasticity of supply measures how responsive the qty. supplied is to a change in price

$$\text{Coefficient of elasticity of supply} = \frac{\% \text{ change in qty supplied}}{\% \text{ change in price}}$$

$\hookrightarrow$  some general rules of demand coefficients apply to supply coefficients

$\hookrightarrow < 1$  = inelastic

$\hookrightarrow = 1$  = unitary

$\hookrightarrow > 1$  = elastic

when price increases by a certain percentage  
supplier able to increase qty supply at an even  
greater rate / percentage

i.e., ability to respond in short-term

## Factors Affecting Supply Elasticity

$\hookrightarrow$  3 key factors w/ STRONG effect

① TIME - GR = longer the time period to  $\uparrow$  production the more elastic  
supply will be

$\hookrightarrow$  short-term inelastic  $\rightarrow$  long-term elastic  
2 unless ability to respond quickly significant

② INVENTORY / EASE OF STORAGE - GR =  $\downarrow$  price and high ability to store then high supply elasticity

- two choices  $\downarrow$  price  $\nearrow$  ① sell at lower price  
② store & wait until price  $\uparrow$

Italy & fruit

$\downarrow$   
price taker  
but move all  
product &  
incl. "damaged"  
produce

③ COST FACTORS - GR = if  $\uparrow$  supply costly then price elasticity of supply inelastic

$\hookrightarrow$  supply more elastic in industries w/ lower input costs