

## Chapter 2 - Supply + demand.

### Markets

- institution or mechanism which brings together buyers (demanders) with sellers (suppliers) of goods + services
- contact can be limited
- vary in size + operation
- all markets consists of seller + buyers → some with agents / middlemen

~~then~~

### Assumption of perfect competition

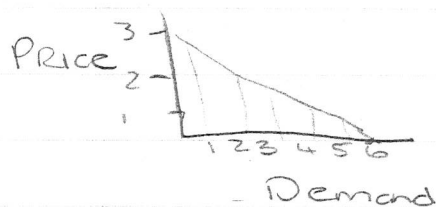
- large number of buyers + seller + none of them has the ability to influence the price significantly
- assume markets are perfectly competitive, which means no individual buyer or seller can influence the price.
- only the interaction between demand + supply determines the market price
- products are identical
- factors of production are perfectly mobile
- buyers + seller have perfect knowledge of about market conditions.

## Demand side of the Market.

### Market demand curve.

→ table showing number of products purchased at a specific price

→ law of demand  $\Rightarrow$  the higher the price of the product, the lower the quantity demanded and vice versa provided that all other things remain constant *ceteris paribus*



Market demand is downward sloping from left  $\rightarrow$  right  
any demand curve reflects a certain time period.  
length of period has an effect on the curve.

→ Shift of the demand curve.

\* tastes of consumers change.

→ more demanded shifts  $\rightarrow$  Right

→ don't want any more  $\leftarrow$  shifts left.

B Shift  $\rightarrow$  demand movement  $\Rightarrow$  price change.

\* income level ~~set~~ of consumers.

\* price level of other goods eg beef to expensive substitute with chicken

\* size of population. bigger  $\rightarrow$  greater demand.

\* redistribution of income

eg income from high to low

good purchased with by low income will increase in demand, goods purchased by high income groups will decrease.

\* Expectations  $\rightarrow$  consumers expect price to become cheaper they will be inclined to reduce their demand, + prefer to wait until price is reduced

$\rightarrow$  ~~prices will/can increase if consumers~~ expected price increase will lead to a higher present demand.

NB change in quantity demanded follows a price change, there is a movement along the demand curve.

$\rightarrow$  change in demand means the demand curve shifts as a result of factors such as changes in consumer tastes, income, price of other goods (i.e. any factor other than the price of the particular product)  $\rightarrow$  non price factors

price factors

\* Any change in the price of the product would result in a mere movement along the demand curve + a change in quantity demanded.

- expressed in relative changes  
in quantity demanded + price

## Price elasticity of demand

- different shapes of demand for each market / product
- market demand differ in sensitivity of quantity

\* Price elasticity of demand  $\rightarrow$  sensitivity of quantity demanded to a price change.

$\rightarrow$  need to know effects of change especially in the price of the product, as well as changes in the prices of other products

$\rightarrow$  no business knows what the demand curve (demand for its product) is going to look like + will not be able to calculate exact numerical value of demand elasticity.

$\rightarrow$  most relevant aspect of elasticity is the relationship between price elasticity + total revenue

$\rightarrow$  most businesses/governments decide for themselves what the price will be + that price determination seldom occurs according to the theory of perfect competition.

\* Cross elasticity  $\rightarrow$  effect of change in the price of one product on another product. (substitute + complementary goods)

\*  $\rightarrow$  Income elasticity  $\rightarrow$  products divided into categories on the basis of the value of income elasticity

Demand elasticity  $\rightarrow$  the percentage change in the quantity caused by 1% change in price

$\rightarrow$  different effects on different products eg.

small change huge effect on demand or vice

versa: eg. gas drop in price more demand

$\rightarrow$  expressed in terms of relative changes (percentage changes) in price + quantity demanded NOT absolute changes. Reason: change in price is monetary while units is the absolute change in quantity - % change does NOT affect the units in which price/quantity is measured.

Always calculate elasticity before arriving ~~at~~ <sup>at</sup> any conclusions about price sensitivity.

$\Delta P$  = very small % change in price of products

$\Delta Q_d$  = change in quantity demanded (as a result of change in price)

Point elasticity of demand

$$ed = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}} \neq$$

$$= \frac{\Delta Q_d}{Q_d} \div \frac{\Delta P}{P}$$

$Q_d$  = Quantity demanded

Price.

$\Delta$  = difference between 2 points

Arc elasticity of demand = when ~~same~~<sup>diff.</sup> in elasticity is huge

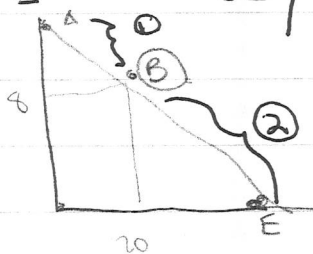
$$ed = \frac{\Delta Q_d}{(Q_{d1} + Q_{d2})/2} \div \frac{\Delta P}{(P_1 + P_2)/2}$$
$$= \frac{\Delta Q_d (P_1 + P_2)}{\Delta P (Q_{d1} + Q_{d2})}$$

### Marshall's Method (Page 26)

→ demand ~~line~~<sup>curve</sup> is a straight line.

price elasticity is calculated at a point by calculating the Ratio

Ratio =  $\frac{BE}{AB}$  ② = difference between point to end  
① = difference between start + point



Midpoint = 1

above midpoint = greater than 1

below midpoint = smaller than 1

~~Price elasticity of supply shall increase in time~~

## Price Elasticity + total revenue

Product demand is elastic if demand elasticity is greater than 1

if less than 1 = ~~is~~ inelastic

if = to 1 = unitary

- \* if the demand for a product is elastic, then if the price is reduced, the % increase in the quantity demanded will be greater than the % decrease in the price.

Price decrease will lead to increase in revenue.

Price increase will lead to decrease in revenue.

- \* if demand for a product is inelastic (less than 1) the % increase in quantity demanded will be less than the % decrease of price.

~~price~~ price decrease will lead to decrease in revenue

Price increase will lead to increase in revenue.

NB for firm to know if product demand is elastic or not so that they could adjust prices accordingly.

if demand curve is a rectangular hyperbola ( $=1$ ) - price increase or decrease will NOT affect total revenue. - This is a highly exceptional instance.

## Income elasticity of demand

- consumer increase income  $\rightarrow$  quantity demanded should increase.

$$e_y = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in consumer's income}}$$

income elasticity can be positive or negative

$\uparrow$  income  $\rightarrow \uparrow$  demand = normal products  $\rightarrow$  positive income elasticity  
 $\uparrow$  income  $\rightarrow \downarrow$  demand = inferior goods  $\rightarrow$  negative income elasticity

Normal Goods  $\begin{cases} \rightarrow$  necessities  
 $\rightarrow$  luxury goods

Important to know  $\rightarrow$  if incomes increase what will happen to the demand of their products.

Cross elasticity of demand.

Quantity demanded also depends <sup>on</sup> the price of related products such as substitutes + complements.

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

2 products not related to each other eg. computers / shoes = cross elasticity is  $\phi$

substitutes like coffee / tea = positive cross elasticity demand  
price of coffee  $\uparrow$  demand for tea  $\uparrow$  (Cheaper) ceteris paribus

complements car + gas - cross elasticity is negative.

Price of cars  $\downarrow$  more gas will be demanded ~~also~~ as more cars will be demanded. (leads to a change in the opposite direction of complementary products's demand)



## Supply side of the Market.

↳ each market has a supply / demand side

Quantity supplied increases with price increases

Market supply curve is a horizontal summation of individual supply curves.

- x Technological change - new machines etc - becomes cheaper to produce / manufacture products - often causes a rightward shift <sup>supply curve</sup> →
- x decrease in factors of production costs (labor, capital, land) makes it cheaper to produce  
allows companies to offer product at lower ~~cost~~ price than before

Drop in price factors will also cause a rightward shift of supply curve

increase in price can cause the supply curve to shift leftwards

↳ If only the price change there will only be a movement along the supply curve.

Technological + Drop in price factors (factors of production) will cause a shift of the supply curve.

## Price elasticity of supply (Supply elasticity)

$$e_s = \frac{\% \text{ change in quantity supplied}}{\% \text{ change in price}} = \frac{\Delta Q_s}{Q_s} \div \frac{\Delta P}{P}$$

differs from one point on the supply curve from another.  
demand higher / lower at different price points.

Price elasticity of supply should increase over time.

## Arc elasticity of demand

$$e_d = \frac{\Delta Q_d}{(Q_1 + Q_2) / 2} \div \frac{\Delta P}{(P_1 + P_2) / 2}$$

$$= \frac{\Delta Q_d (P_1 + P_2)}{\Delta P (Q_1 + Q_2)}$$

## Price determination.

equilibrium price - may change if the market forces change  
any change in price will be of short duration as the market will force the price back to the equilibrium price.

\* Price that can be maintained

\* no tendency towards change

each price point has a supply + demand

supply higher at high prices

demand higher at lower prices

} Equilibrium = where they balance each other out.

## Prices in Practice.

Market forces change  $\rightarrow$  may lead to a change in demand.  
 $\rightarrow$  shift of demand curve  $\rightarrow$  effect on equilibrium price.

Change in Supply  $\rightarrow$  market force changes  $\rightarrow$  shift supply curve  $\rightarrow$  effect on equilibrium price

Change in supply does not have the same causes as a change in demand, but can occur simultaneously, and have different effects on equilibrium price + quantity.

### effect of change of demand

Demand increases  $\rightarrow$  shortage  $\rightarrow$  price increase  $\rightarrow$  demand decrease  $\rightarrow$  price decrease  $\Rightarrow$  = new equilibrium price.

a general rightward shift of the demand curve will lead to an increase in the equilibrium price  $\rightarrow$   
shift leftwards leads to a decrease in price

### effect of change in supply.

$\hookrightarrow$  Shift in right of supply curve will lead to a drop in equilibrium price

$\hookrightarrow$  Shift to left <sup>increase.</sup> drop in equilibrium price.