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## Perfect Competition

- \* theoretical market form of such a nature that no individual participant (buyer or seller) in the economic process can have any influence on the market price because his/her contribution is too small compared with the market as a whole.
- \* Market price is determined by the interaction between demand + supply and all the participants must accept the market price.
- \* In a perfectly competitive market, all the participants are price takers → they have to accept the price as given and can only decide what quantities they will offer or request at that price.
- \* Perfect competition is impersonal in nature, in terms of which individual participants act completely independently of one another.  
→ in a perfect competition market the firm only takes into consideration the market price and its own cost structure to determine its output quantity and take no notice whatsoever of its competitors or be influenced by them.
- \* Market form characterized by a total lack of competition between individual firms - not in respect of price, quality, packaging or any other aspect
- \* competition does not exist and because there are so many firms in the market and individual firms only supply a small portion to the demand. - No firm regards the other as a threat. Selling products is not a problem either.

## Characteristics of Perfect Competition

Perfect competition exists only if the following is met:

- \* So many buyers + sellers that each market participant is insignificantly small in relation to the market  $\therefore$  no individual buyer/seller can influence the market
- \* All goods sold are homogeneous (identical) - makes no difference to the buyer who he buys from.
- \* All production factors are completely mobile (can be moved from one area to the other)
- \* All buyers/sellers have complete knowledge of market conditions eg. firm increase ~~the~~ price to sell - all buyers know + buy from other sellers at lower rate. Firms will never drop below market price where they can sell as much as it likes)
- \* total freedom of entry or exit. No constraints of entry in the form of legal, financial, technical or any other obstacles that restrict the movement of buyers/sellers.
- \* No Government intervention to influence buyers/sellers
- \* No collusion between sellers - Each seller acts independently.

very few examples: foreign exchange market  $\rightarrow$  individual farmers.

## Applicability

- difficult to find an example of perfect competition.
- Perfect competition is a good point of departure for any analysis of the determinants of prices/output
- useful analytical tool.

Demand for product → perfectly competitive firm,

- \* price determined by interaction between market demand / supply
- \* firm has no influence on price → firm must accept price as given.
- \* firm can offer any quantity to the market + sell at the prevailing market price.
- \* demand curve for the product of perfectly competitive firm runs horizontal to the market price  
∴ Perfectly elastic.
- \* Receives same price for all the units it sells  
∴ firm's average revenue AR = the market price  
OP and the demand curve also represents the average revenue curve.  
any revenue from additional product sold →  
marginal revenue (MR) is also equal to the OP (market price)

$$\therefore \text{Price} = \text{Average Revenue} = \text{Marginal Revenue}$$
$$P = AR = MR$$

Total Revenue, average Revenue + Marginal Revenue.

Firms Total Revenue will increase by a constant amount for each additional unit/product sold.

Total Revenue is the sale of products sold = Quantity of Product sold  $\times$  Price

$$\rightarrow TR = P \times Q.$$

$$\begin{aligned}\rightarrow AR &= \frac{TR}{Q} \\ &= \frac{PQ}{Q} \\ &= P.\end{aligned}$$

$$\text{Average Revenue} = \frac{\text{Total Revenue}}{\text{Quantity of Product sold}}$$

$$\therefore AR = P.$$

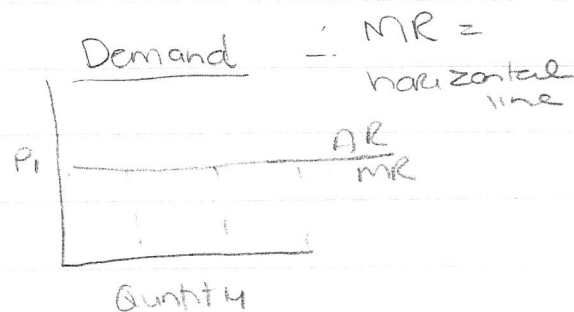
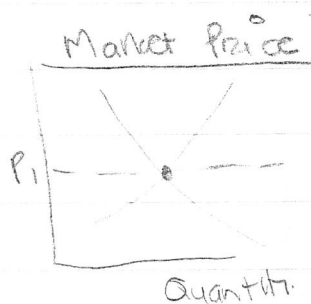
$$\begin{aligned}\rightarrow MR &= \frac{\Delta TR}{\Delta Q} \\ &= \frac{\Delta(PQ)}{\Delta Q} \\ &= P\end{aligned}$$

Average Revenue = revenue per unit

Marginal Revenue = increase in total revenue of the sale of an additional unit will also equal the price of that product.

∴ Under Perfect competition

$$\text{Price} = AR = MR$$



## Short Run Equilibrium

\* Equilibrium (profit maximization) of firm in the short run

→ firm wants to maximize profit

Profit is total Revenue - Total Cost

$$\text{Profit} = \text{TR} - \text{TC}$$

normal profit is part of production costs → Return would be on resources the company uses.

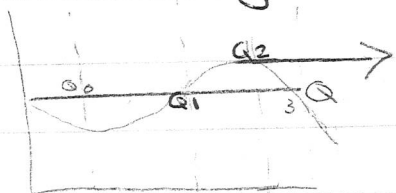
Equilibrium → firm produces the output that maximizes the difference between total revenue + total cost  
i.e. maximizes profit.

Equilibrium according to the total approach (total revenue / total cost)

TR = will rise according to its sale. firm is a price taker + can sell any quantity to the market at the market price.

The slope of the TR curve indicates MR which is constant and equal to the prevailing market price

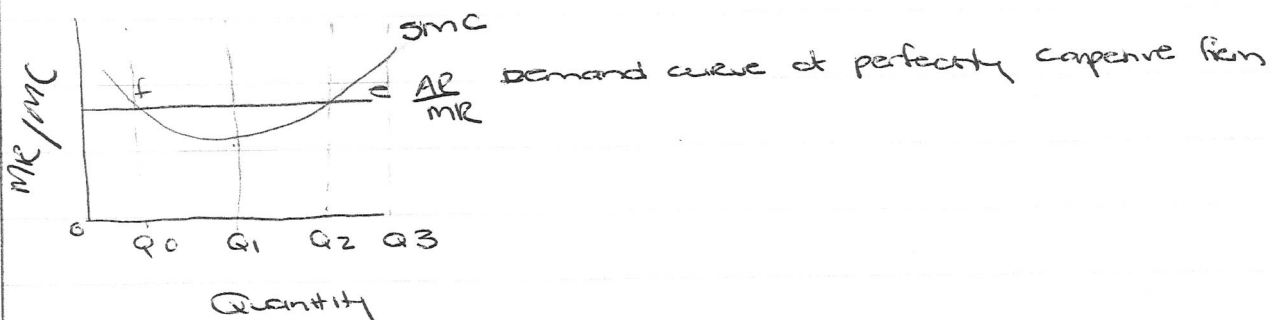
The firm will maximize profit at a level of production where the difference between the TR and the STC for a given level of production is the greatest.



$Q_2$  . MR = SMC (short run Marginal cost)

$Q_1$  = cost = production  
 $Q_3$  / normal profit is made.

## Equilibrium according to the marginal approach (Marginal Revenue Marginal Cost)



Short Run Marginal Cost is U shaped which reflects the law of diminishing returns which applies in the short run.

The demand curve of the perfectly competitive firm is horizontal

Firm is in equilibrium where MC/MR curve intersect Point E

- \* To left of E  $\Rightarrow$  profit is not yet maximized because each unit left of  $Q_2$  ensures revenue for the firm that is greater than MR cost)
- \* Right of E production cost is greater than the revenue it can earn if its sold SMC is higher than selling price

$\therefore$  When  $MC < MR$  total profit is NOT maximized + firm will benefit by expanding

when  $MC > MR$  total profit is reduced + the company will benefit by producing less

if  $MR = MC$ , short run profit is maximized + firm is in equilibrium.

To be in equilibrium must have a <sup>①</sup> positive slope upwards (only at e not f)

②  $MR = MC$  in both e + f but only e has a positive curve

$\therefore$  F is not an equilibrium point.

## Normal Profit | economic profit or loss

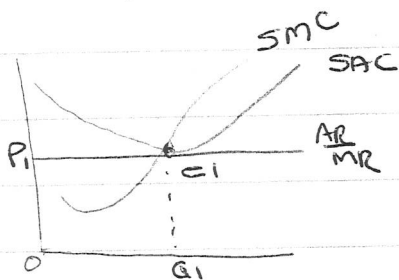
SAC = Short Run average cost

SMC = Short Run marginal cost

MR = marginal Revenue

### Normal profit

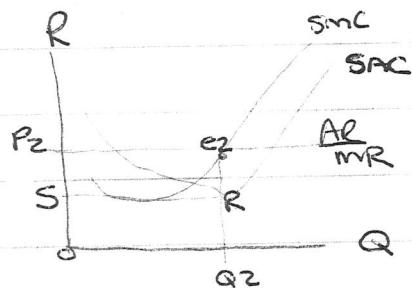
ACost  
MC  
MR revenue



equilibrium at point  $e_1$  and will normal profit there.

### Economic profit

AC  
MR  
MR =



Firm is in equilibrium at  $e^2$   $MR = SMC$ , and produces a quantity of  $Q_2$  at market Price  $P_2$

Revenue exceeds cost  $TR > TC$

As was original point  $P_1$   $\therefore$  in area  $SR P_2 e_2$  company makes an economic profit.

### Loss

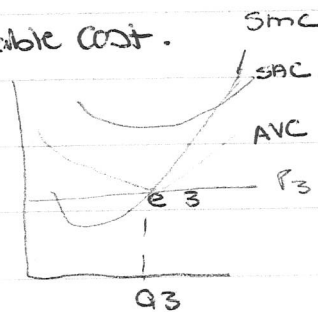
AVC = Average Variable Cost.

SAC is higher than  $P$

if Price falls below the AVC the firm will not even cover its variable costs

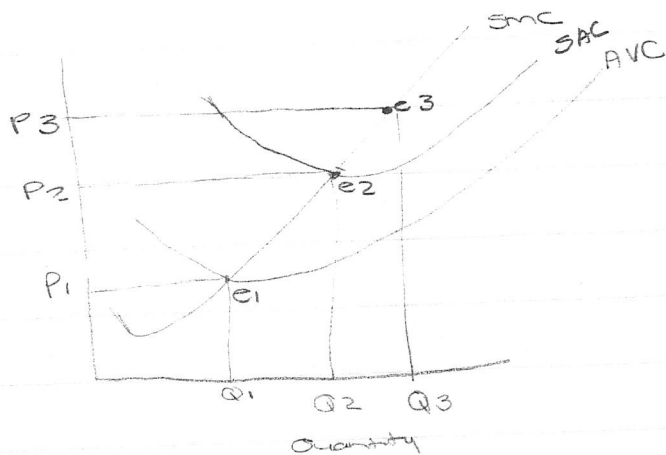
$\rightarrow$  production will stop.

Closing down  $\Rightarrow$  loss is the same whether it produces or not.



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## Short Run Supply Curve.



- \* Price increases from  $P_1 \rightarrow P_2 \rightarrow P_3$
- \* means the horizontal demand curve for the products move upwards  $\uparrow$
- \* Given the positive slope of the MC Curve, each higher demand curve will intersect with the SMC at a point that lies to the right of the previous point of intersection  $e_1, e_2, e_3$
- \* Means quantity produced increases as price increase.
- \* Below  $e_1$ , firm will not produce anything. (closing point)
- \* Below closing point firm will stop producing while production will increase above it.
- \* the short run supply curve of a firm : under perfect competition is represented by the section of the SMC curve above the variable cost curve (above closing point)

## Industry's Short Run Supply Curve. (Market Supply Curve)

- \* obtained by horizontally adding together the supply curves of all the individual firms in the industry, assuming price of production factors + technology remains unchanged.
- \* will be in equilibrium at the price that clears the market.
  - $\therefore$  the price that the demand is exactly equal to the supply.



## Long Run equilibrium.

\* Principle that the firm can modify its plant size in the long run + that firms can enter or leave an industry plays a vital role in determining the long run equilibrium of a firm.

- firm makes an economic profit if the market price ~~is~~ (demand curve) is higher than the minimum profit of its average cost curve.

- economic profit attracts new comers to the industry.

\* entry of newcomers will increase product supply + hence lead to a decrease in product price, but the entry of new firms will result in a greater demand for production factors.

\* Production factors will in turn become more expensive + lead to an upwards shift of the cost curves.

\* This process will continue until the LAC curves forms a tangent at its minimum point with the demand curve defined by the market price. - firm makes normal profit because it covers its total cost (includes normal profit)

\* in contrast if the firm makes losses in the long run (market price + the demand curve lie lower than the minimum point of average cost curve), they will leave the industry + cause prices to increase (due to smaller supply) and costs will decrease as the industry becomes smaller + the demand for production factors declines)

→ the process will continue until the LAC curve and the firms that remains in the industry just cover their total cost + make normal profit.

∴ In both cases (economic profit or loss), the firm achieves long-run equilibrium when it has adapted the size of its plant in such a way that production occurs at the minimum point of the LAC curve and this point forms a tangent with the horizontal demand curve. At the point of equilibrium in the long run a firm makes only normal profit.

The long run refers to a period that is so long that all ~~the~~ factors of production could be changed.

No distinction could be made between fixed + variable factors.

If the period is so long that the firm could change its production plant, then the period is also long enough to allow firms from the outside of the industry to enter or firms inside the industry to leave.

Long run ~~profit~~ profit maximisation takes place where

$$LMC = MR$$

The condition for long run profit maximisation is

$$P = MR = SMC = LMC$$

Long run ~~profit~~ equilibrium involves more than profit maximisation. Equilibrium indicates a condition of rest so that ~~the~~ no firm will enter or leave the industry.

Long run equilibrium refers to the situation in which each firm in the industry is making a normal profit. This is possible only when each firm produces at the minimum point on the LAC.

∴ Long run equilibrium condition

$$\text{Equilibrium: } P = MR = SMC = LMC = LAC = SAC$$

Perfectly competitive long run equilibrium means the firm is producing at minimum cost. This applies to all the firms in the industry because they all have identical cost structures since all have the same technology + pay identical prices for factors of production. The maximum output therefore takes place at a minimum cost to the consumer.

Optimal application of resources

→ under perfect competition in the long run the market mechanism will lead to an optimal application of production factors.

The following apply:

→ output is produced at the lowest possible cost (minimum point of LAC)

→ consumers pay the lowest possible price for product.

→ Price of product equals the opportunity cost to produce the product

→ All firms make only ~~profit~~ normal profit.

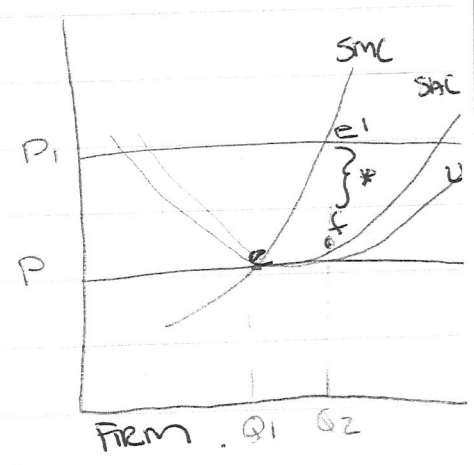
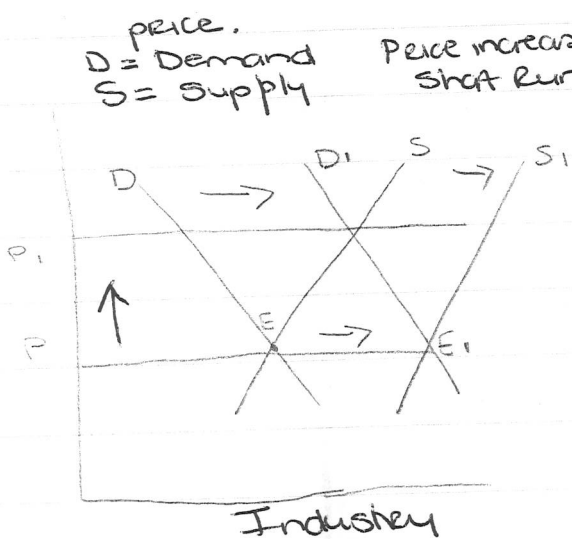
Derivation of long-run industry supply curve under conditions of perfect competition.

→ Constant Cost Industry.

if the industry expands the price of production factors remains constant. The long-run supply curve of the industry runs horizontally

- \* In the short run the company will expand ~~and~~ production in its existing plant + make economic profit.
- \* other firms become aware of the economic profit + in the long run enter the industry
- \* this behavior will increase the supply of products in the market (supply curve shifts right). If the price of production factors remain constant (although the growing industry requires more production factors) the market supply will increase until the original equilibrium price in the market is reached again
- \* The supply curve of the industry in the long run therefore runs horizontally (at the same level of the minimum of the LAC curve)
- \* Constant industry will in all probability use production factors that are reasonably freely available.
- \* industry's demand for production factors will also constitute only a small portion of the total quantity applied in economy - This enables the industry to use more production factors without an increase in their

\* shares them profit



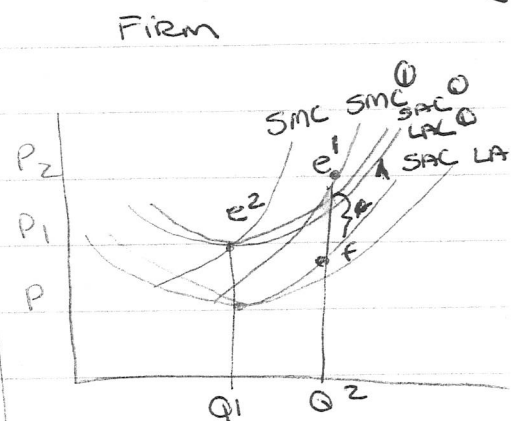
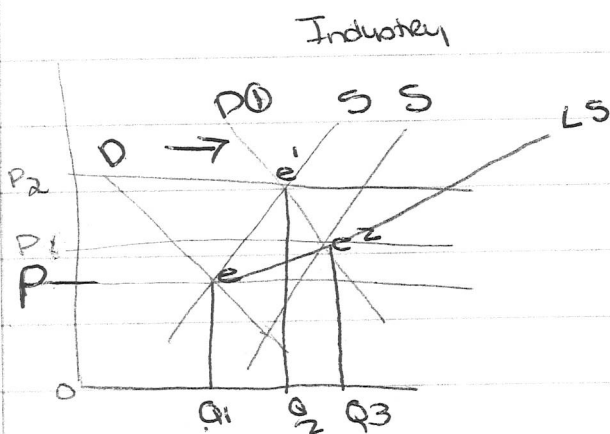
## Increasing cost industry

\* If the price of production factors increase when a firm enters a perfectly competitive industry in the long run and the total production of the industry increases known as increasing cost industry.

→ Long run supply curve will run upwards from left to right → in the long run greater quantities will only be supplied at higher prices.

\* will probably use specialised inputs - labor with a particular skill (lab technicians) or custom made machinery (eg oil drill at sea)

In this case the industry will probably have to pay the higher prices if it requires larger quantities of inputs - this will increase ~~cost~~ in an increasing cost industry



Short Run demand increase  $D \rightarrow D'$

leads to price increase  $P \rightarrow P_2$

Firms apply  $MR = MC$  at  $P_2$  + produce  $e'$

\* Price  $P_2$  make firm profit (economic profit) attracts new firms supply curve shifts.

LAC + SAC shifts upward

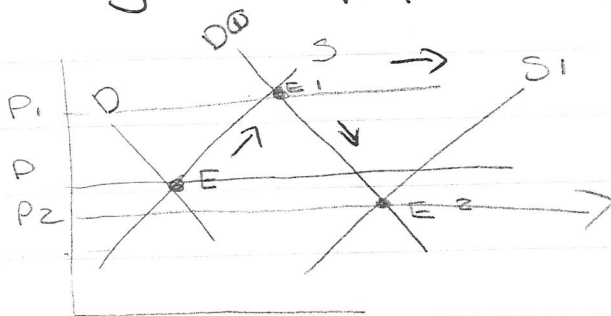
+ new equilibrium is reached at  $e'$

Price point  $P_1$

## Decreasing cost industry

- \* price of production factors ~~is~~ decreases as more inputs are required.
- \* larger quantities of the product will be provided in the long run at lower prices.
- \* downward shift of a firm's average cost curves, (because of a decrease in input prices) when the industry becomes larger is known as external economies of scale.
- upward shift of a firm's average cost curves (increase of input prices) when the industry becomes larger is known as external diseconomies of scale.

→ long run supply curve has a negative slope.



Supply  $S \rightarrow S_1$

new equilibrium price  $e^2$  at  $P_2$ .

→ increasing industries most common.

Decreasing costs in the growing industry may be caused by factors like

- the creation of training institutions to provide labor at a lower cost
- better equipment
- exploitation of cheaper resources.

## **CLUDING REMARKS** Chapter 5

This chapter provided an analysis of the theory of perfect competition. To sum up, the following may be said:

- The four primary conditions for perfect competition in a market are as follows: no participant in the market can influence the price; the product sold in the market is homogeneous; production factors can move around freely; and all buyers and sellers have full knowledge of all market conditions.
- A firm will maximise profit in the short run (or minimise losses) by producing that output where  $MR = MC$ . Under perfect competition  $MR = P$  - hence at the point of equilibrium,  $MR = MC = P$ . If the market price declines below the firm's average variable cost (AVC), the firm will minimise losses by stopping production. The firm's short-run supply curve is represented by the ascending part of the marginal cost curve (MC) above the AVC curve.
- The short-run price of a product is determined by the interaction between demand and supply in the market. The short-run supply curve of the industry is obtained by horizontally summing the supply curves of the firms in the industry. (The latter applies if the price of production factors and technology does not change.)
- In the short run, the equilibrium price is that price where the quantity supplied and the quantity demanded are the same in the short run. At the equilibrium price,  $MR = MC = P$ .
- In the long run, firms can change the size of their plants and enter or leave the industry. In the long run, the equilibrium price will be at the same level as the minimum point of the LAC.
- Industries can be divided into three groups: constant cost industries, increasing cost industries and decreasing cost industries. The long-run supply curves of the industries run horizontally, ascend from left to right, and slope downwards from left to right, respectively.