

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.

- ▶ A firm is under equilibrium at that point where it maximizes its profits.
- ▶ Profit depends upon two factors
 - Revenue Structure
 - Cost Structure

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.

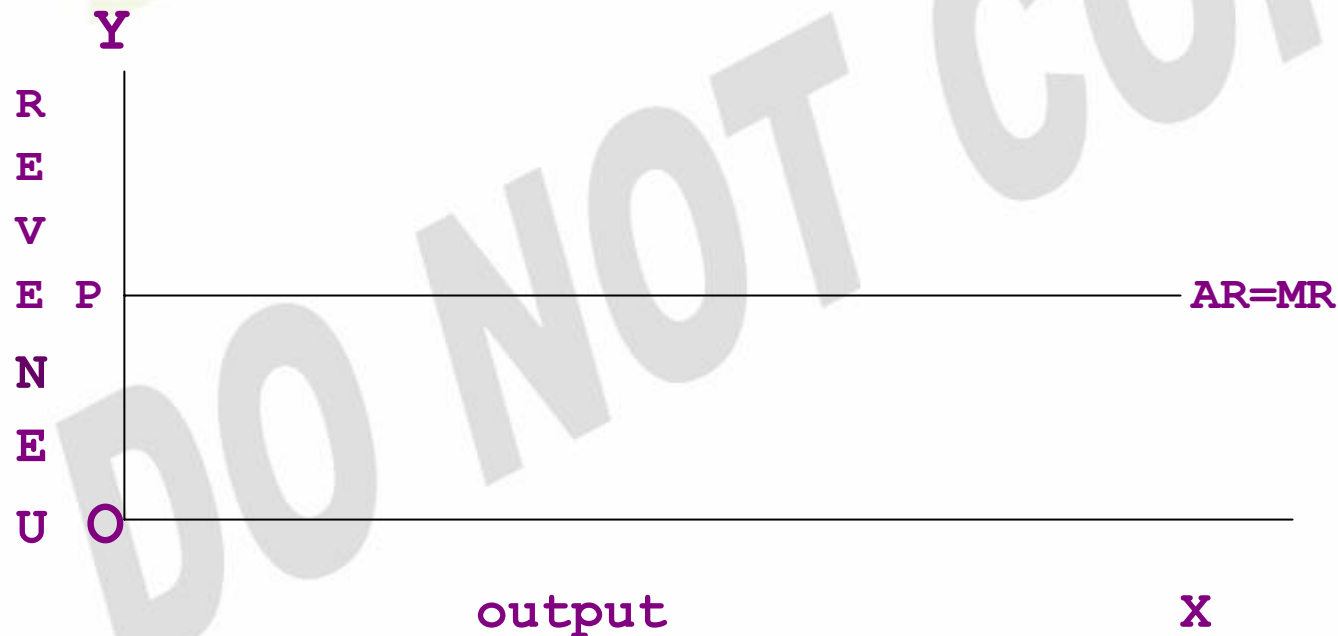
■ Revenue Structure

- ▶ The average revenue curve under perfect competition is a horizontal line, as each firm is a price taker.
- ▶ The marginal revenue curve coincides with the average revenue curve.

$$AR = MR.$$

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.



■ Revenue Structure

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.

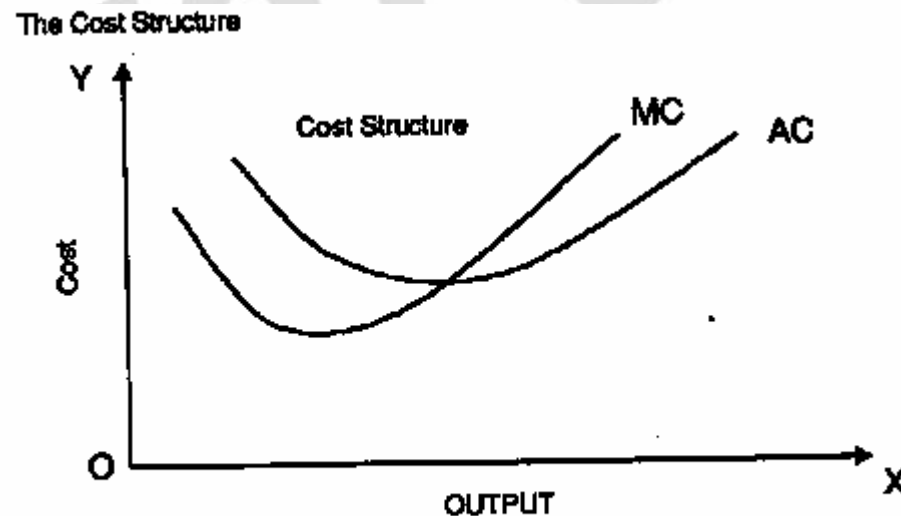
■ Cost Structure

- ▶ Cost structure is represented by U-shaped average cost curve.
- ▶ The marginal cost curve cuts the average cost curve at the lowest point of the AC curve.

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.

■ Cost Structure



Equilibrium of the Firm Under Different Market Categories

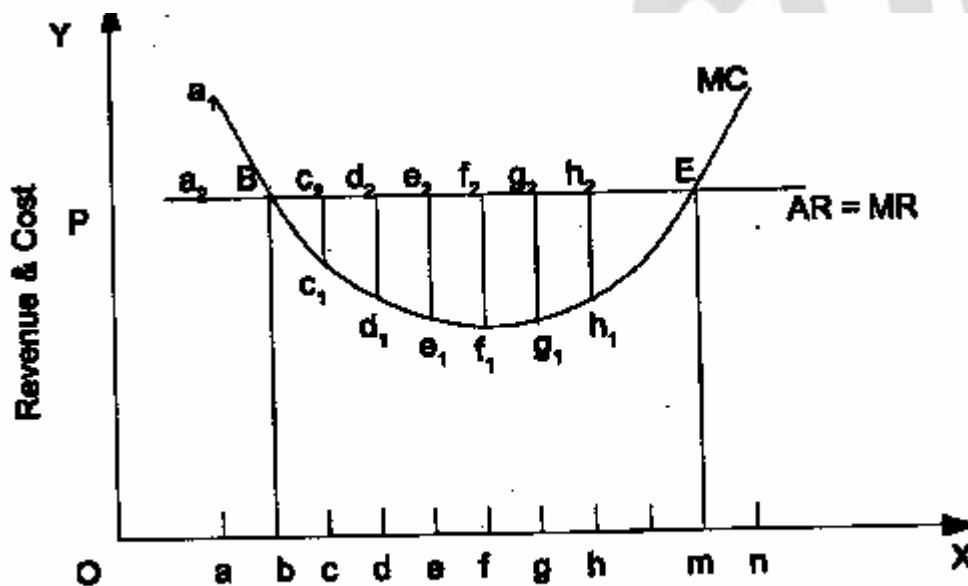
Equilibrium of a firm under perfect competition in the short-run.

Necessary condition for equilibrium of a firm under perfect competition in the short run is

$$MR = MC$$

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.



output

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the short-run.

It is observed that $MR = MC$ at point B and point E.

But at point B, the firm has not made any profit so that cannot be the point of profit maximization.

Hence the firm is at equilibrium when it produces output OM.

Condition for equilibrium is $MR=MC$

Sufficient condition is $MR = \text{Rising } MC$.

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the long-run.

Point E, in the next diagram is the point of equilibrium as $MR = \text{rising } MC$.

Let price increase from OP to OP_1 .

New revenue structure is $AR_1 + MR_1$.

T is the new point of equilibrium as $MR_1 = \text{rising } MC$.

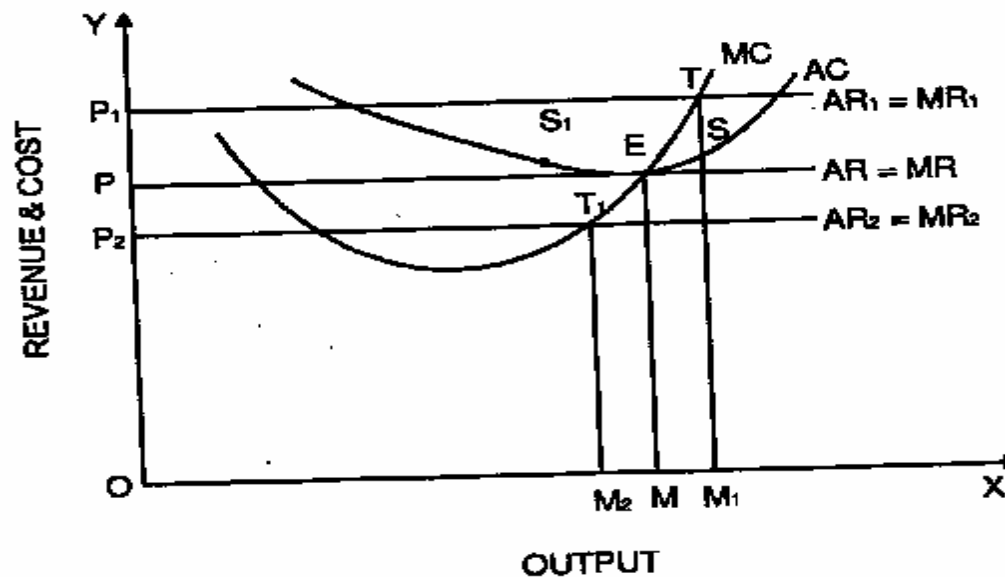
At this point firm enjoys super-normal profit of $M_1T - M_1S$.

This extra profit attracts new entrants, supply increases, price falls & equilibrium is restored at point E.

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the long-run.

Point E, in the diagram below is the point of equilibrium as $MR = \text{rising } MC$.



Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the long-run.

Point E, in the earlier diagram is the point of equilibrium as $MR = \text{rising } MC$.

Let price decrease from OP to OP_2 .

New revenue structure is $AR_2 + MR_2$.

T_1 is the new point of equilibrium as $MR_2 = \text{rising } MC$.

At this point firm suffers a loss of $M_2S_1 - M_2T_1$.

This loss forces a firm to exit, supply decreases, price goes up & equilibrium is restored at point E.

Equilibrium of the Firm Under Different Market Categories

Equilibrium of a firm under perfect competition in the long-run.

Point E, in the earlier diagram is the point of equilibrium as $MR = \text{rising } MC$.

Thus we see that at point E -

$$AR = MR = \uparrow MC = \text{Min } AC$$

Hence equilibrium is restored at the point E.

Equilibrium of the Firm Under Different Market Categories

The shut down point of a firm.

Will a firm take an exit as soon as it incurs loss?

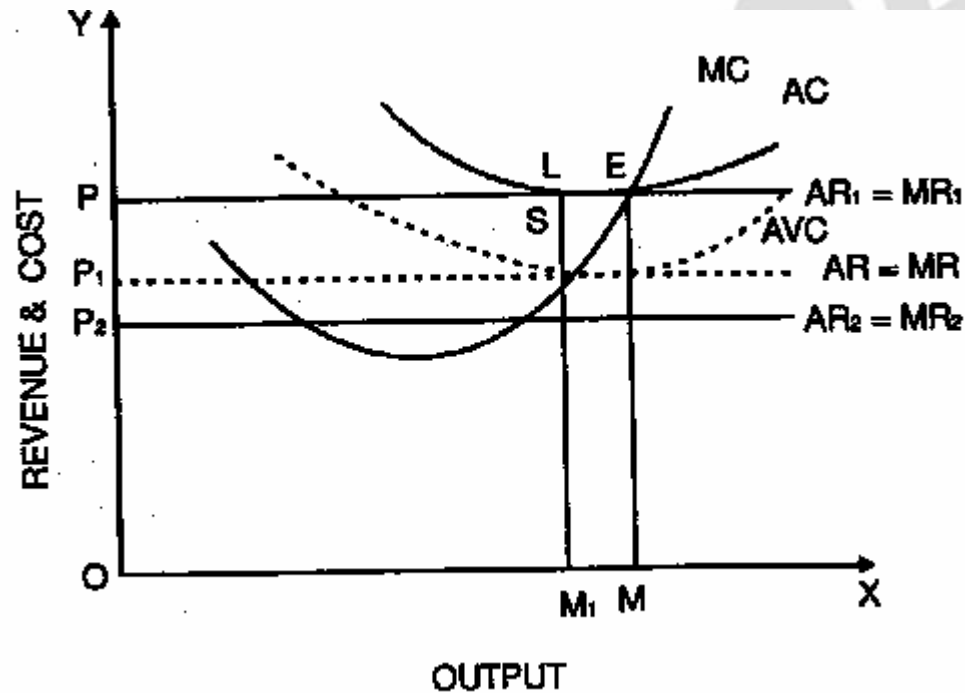
Answer is no, instead it will try to minimize loss.

But if the revenue is not enough to cover its variable cost, the firm must take an honorable exit.

This point of exit is indicted by S on the next diagram.

Equilibrium of the Firm Under Different Market Categories

The shut down point of a firm.



This point of exit is indicted by S on diagram.

Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

- ▶ We have seen that a firm is under equilibrium at that point where it maximizes its profits.
- ▶ And profit depends upon two factors
 - ▣ Revenue Structure
 - ▣ Cost Structure

Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Revenue Structure

♠ In case of monopoly the average revenue curve slopes downwards from left to right and the marginal revenue curve lies below it.

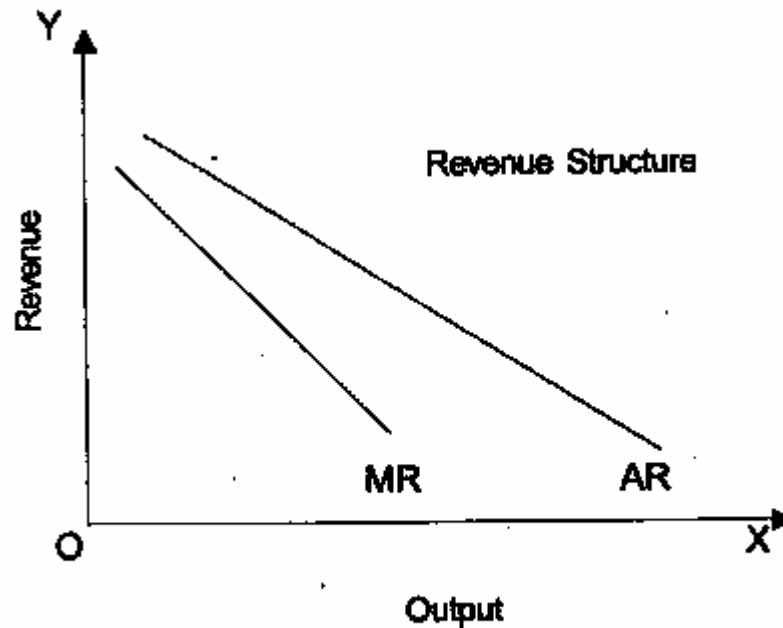
♠ This implies that monopolist can sell more only at lower price.

♠ Besides as the AR is falling, the MR falls faster than the AR.

Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Revenue Structure



Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Cost Structure

The cost structure under monopoly has no element of uniqueness. In the sense that just as under perfect competition the average cost curve under monopoly is also U-shaped in the short-run and the marginal cost curve cuts the AC at the lowest point of the AC curve.

Golden Rule for profit maximization

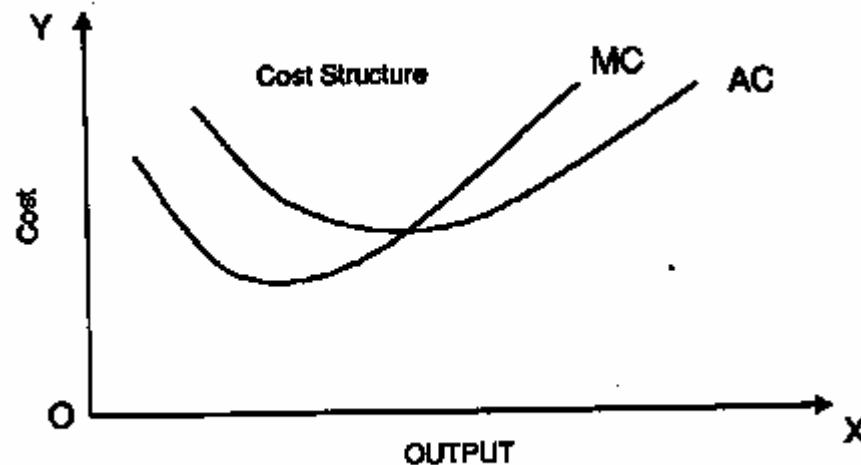
$$MR = MC$$

Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Cost Structure

The Cost Structure



Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Revenue & Cost Structure

Let us compare monopolist's MR curve with MC curve. Please see the next diagram

Until MR is above MC, for every additional unit sold, he earns more than the additional cost he incurs.

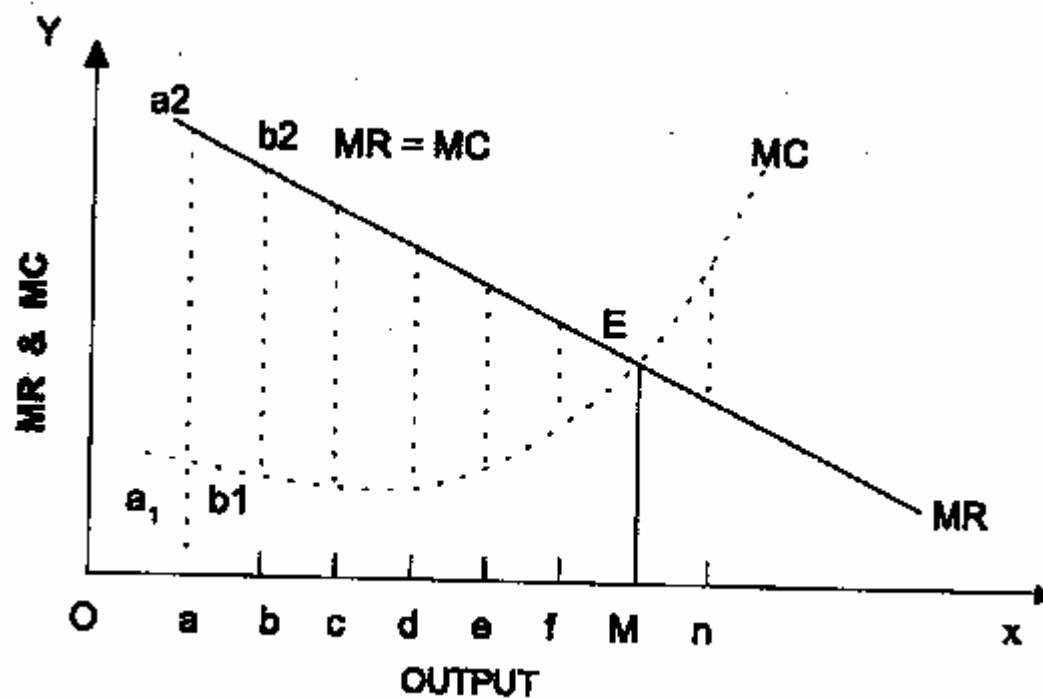
If produces additional nth unit after $MR = MC$, he earns less than, the additional cost he incurs; resulting in a loss for that unit.

He is in equilibrium at output OM

Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Revenue & Cost Structure



Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Revenue & Cost Structure

Now we introduce AR and AC curves in the next diagram.

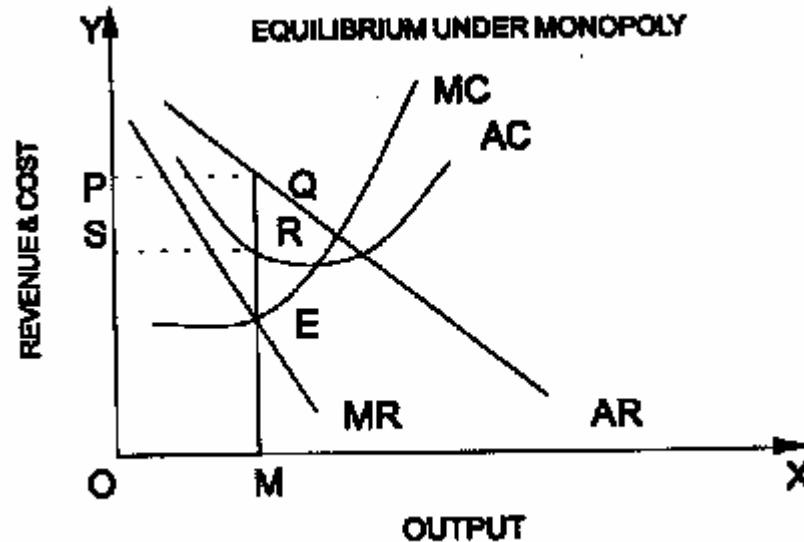
It is observed that E is the point of equilibrium at which $MR = MC$. At this point the monopolist produces OM output. His total earnings are MQ and cost is MR.

Difference between the two indicated by area PQRS is the monopolist's supernormal profit.

Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Revenue & Cost Structure



Equilibrium of the Firm Under Different Market Categories

Equilibrium under Monopoly.

■ Effect of Elasticity of Demand

It must be noted, that the monopolist will be in equilibrium if elasticity of demand is over 1 or equal to one.

But if elasticity is below 1, then marginal revenue becomes negative and the monopolist cannot be in equilibrium.

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Comparison between Perfect Competition and Monopoly.

We now compare Perfect Competition and Monopoly with respect to price, output, profit, revenue and cost considerations.

PRICE :

In monopoly a firm is a price maker, but in perfect competition it is a price taker.

Equilibrium of the Firm Under Different Market Categories

Comparison between Perfect Competition and Monopoly.

Output :

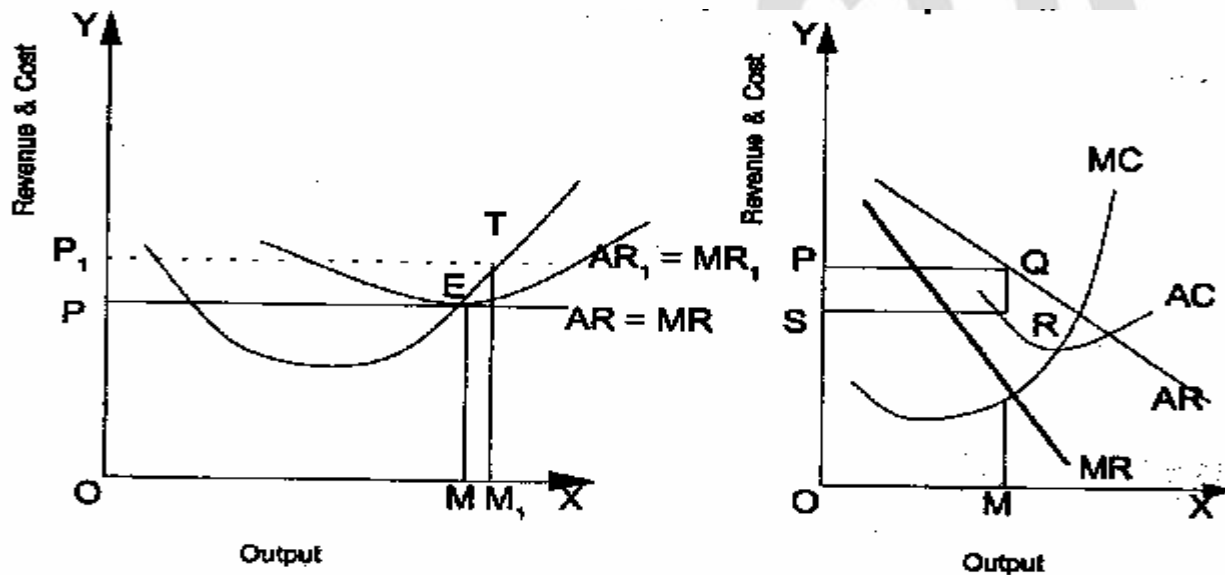
In perfect competition the firm produces that output at which its AC is the lowest. Please see next diagram.

Monopolist does not go to that output. He stops at the output where his $MR = MC$. If he produces more to reach the lowest AC, earnings from additional units (MR) are less than their MC, resulting in a loss.

Equilibrium of the Firm Under Different Market Categories

Comparison between Perfect Competition and Monopoly.

Output :



Hence under monopoly the output is restricted, while under competition it is optimum.

Comparison between Perfect Competition and Monopoly.

A firm under perfect competition enjoys only normal profits in the long run.

But a monopolist normally enjoys super normal profits, even in the long-run.

Equilibrium of the Firm Under Different Market Categories

Comparison between Perfect Competition and Monopoly.

Revenue :

A firm under perfect competition faces a horizontal revenue curve. Hence its $AR = MR$.

But in case of monopoly the AR curve is downward sloping and MR curve falls faster than the AR curve.

Comparison between Perfect Competition and Monopoly.

A firm under perfect competition cannot be in equilibrium under falling costs. It is in equilibrium only under lowest cost.

But in case of monopoly a firm can be in equilibrium under falling, rising or constant costs.

Equilibrium of the Firm Under Different Market Categories

Price Discrimination or Discriminating Monopoly.

Price discrimination is defined as the act of selling the same article, produced under a single control, at different prices to different buyers.

The firm practicing it is called Discriminating Monopolist.

Equilibrium of the Firm Under Different Market Categories

Price Discrimination or Discriminating Monopoly.

Types of Price Discrimination

- ♠ Personal- different prices charged to different buyers (may be on their ability to pay).
- ♠ Regional — different prices charged in different local markets.
- ♠ Trade — different prices charged to buyers for use of product for different purposes. (industrial or domestic)

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Conditions under which Price Discrimination is Possible

♠ Imperfect Competition:

under perfect competition there are several sellers, buyers have perfect knowledge, & firms are price takers, hence only one price prevails. For price discrimination imperfect competition is required.

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Conditions under which Price Discrimination is Possible

♠ Absence of re-sale possibility :

If such possibility existed, buyers offered lower price would buy and sell product at higher price.

Equilibrium of the Firm Under Different Market Categories

Conditions under which Price Discrimination is Possible

- ♠ Differences in Elasticity of Demand :
If submarkets are arranged in ascending order of their elasticities, the highest price can be charged in the least elastic market and the lowest price in the most elastic market.

Equilibrium of the Firm Under Different Market Categories

Conditions under which Price Discrimination is Possible

♠ Consumer's Peculiarities:

Buyers need to be ignorant of prices charged to other buyers or at other locations.

They tend to be indifferent to minor changes in prices.

They often carry illusion that high price normally means better quality.

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Conditions under which Price Discrimination is Possible

♠ Personal Services:

Doctors, Lawyers, Hair Dressers can charge higher prices as they provide personal service.

Equilibrium of the Firm Under Different Market Categories

Conditions under which Price Discrimination is Possible

♠ Regional Distances & Frontier Barriers:

Transport costs, tariffs and duty differentials allow firms to charge higher prices.

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Profit maximization under Price Discrimination.

The aim of discriminating monopolist is to maximize profits. We can thus derive the condition of profit maximization under price discrimination by extending the normal theory of the firm to a case where there are two or more markets instead of just one market.

The study makes following assumptions:-

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

we need following assumptions:-

- ♠ There are two markets (A & B)
- ♠ The aim of monopolist is to maximize profits
- ♠ He enjoys monopoly in both markets.
- ♠ Elasticity of demand for his product is different in two markets. (if it was identical, he could not have two different prices in markets)
- ♠ Monopolist can have two prices in two markets.
- ♠ Buyers in one market are not able to trade in the other market.

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

With these assumptions we shall see –

- ♠ How does monopolist decide the size of the output?
- ♠ How is output distributed over two markets?
- ♠ What price will he charge in each market?
- ♠ How is the profit maximized?

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

- ♠ How does monopolist decide the size of the output?

The condition for profit maximization is $MR = MC$. The monopolist uses the given marginal cost curve, aggregates the marginal revenue from Market A & B; and produces the output up to the point where combined $MR = MC$.

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

♠ How is output distributed over two markets?

He distributes the output in two markets in such a way that marginal revenue from both markets is same.

If MR in market A was more, he would have shifted output from market B to A. This will continue till MR in both markets is equal.

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

♠ What price will he charge in each market?

Once the output gets distributed in the two markets so that MR from each market is equal, the AR curve of each market indicates the price prevailing in each market.

Price is higher in the market with low elasticity of demand and low in relatively elastic market.

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

♠ How is the profit maximized?

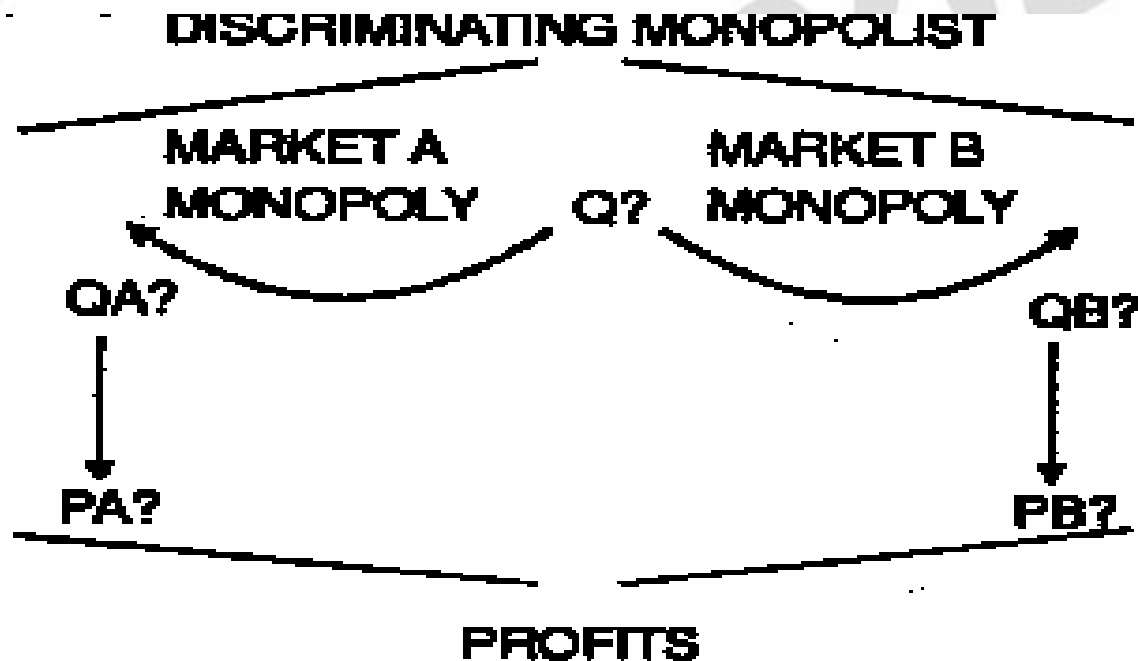
In the market where demand is relatively inelastic, monopolist can increase price and earn more as demand is insensitive to rise in price.

In the other market with elastic demand he can lower price, and earn more by transferring output into this market.

It is necessary that MR in both markets is the same and it is also equal to the MC.

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.



II Maximum where combined $MR = MC$

Equilibrium of the Firm Under Different Market Categories

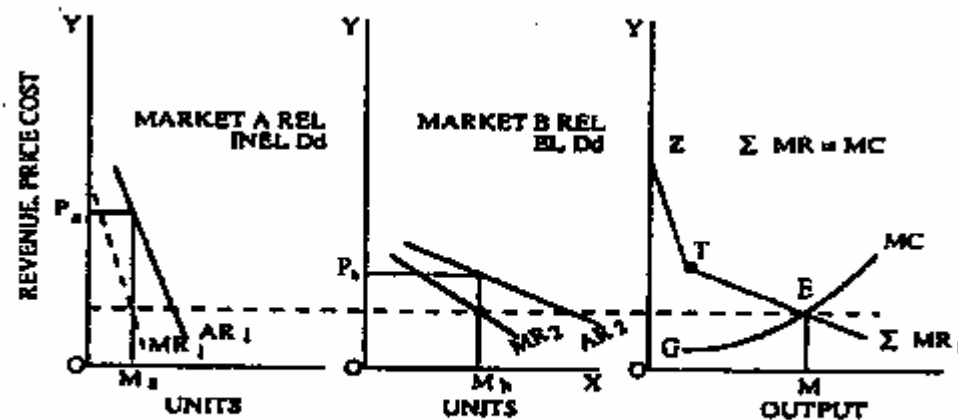
Profit maximization under Price Discrimination.

We can see this relationship again by drawing a diagram for market A where demand is relatively inelastic. Second one for the other market where demand is elastic.

In the third panel marginal revenue from the two markets is summed up.

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.



monopoly in both markets

Equilibrium of the Firm Under Different Market Categories

Profit maximization under Price Discrimination.

Monopolist produces output OM where combined $MR = MC$.

He sells quantity OM_a in market A & OM_b in market B.

He sells at price P_a in market A & at P_b in market B. Note the price P_a is higher in the market A where demand is inelastic.

Total profit earned is indicated by area ZTEG.

Equilibrium of the Firm Under Different Market Categories

Dumping.

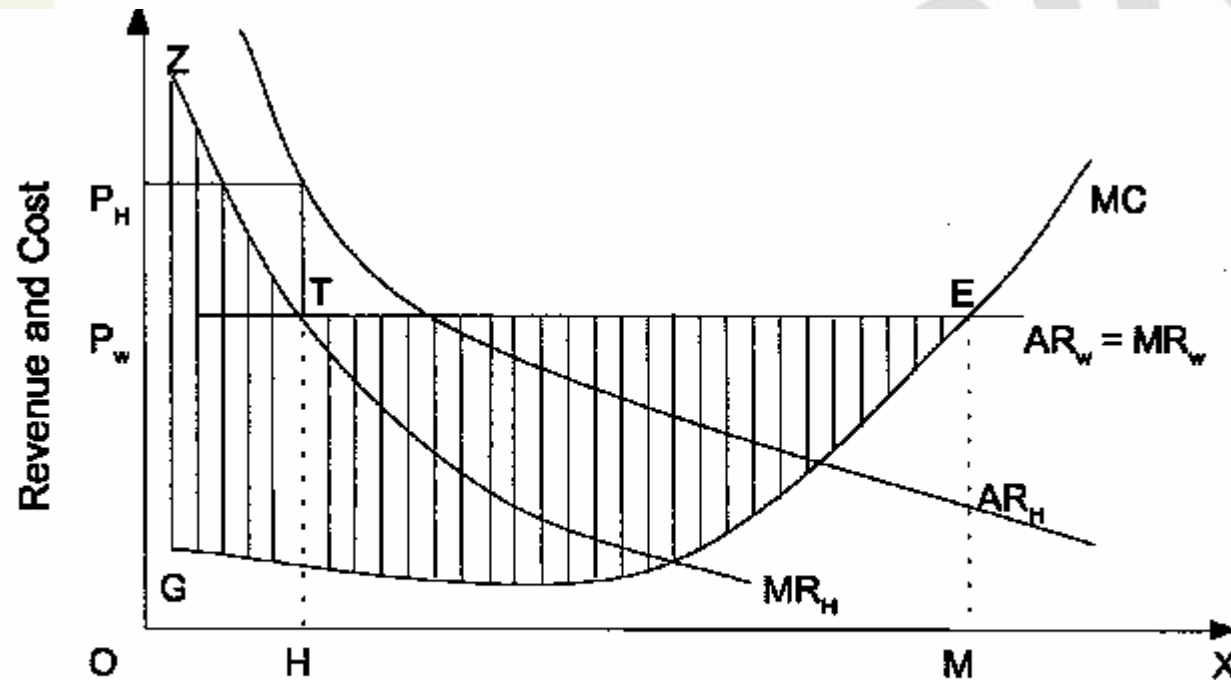
Dumping means selling a product in foreign market at a price lower than in the home market.

In home market he is a monopolist, his AR_H is sloping downwards, but in the world market, he faces perfect competition so his AR is horizontal & equal to MR_w .

He sells the output OH in home market as MR_H he gets here, is higher than MR_w in the world market . Once his MR_w is more than MR_H , he starts selling in the world market until point E where his combined $MR = MC$.

Equilibrium of the Firm Under Different Market Categories

Dumping.



Dumping

Equilibrium of the Firm Under Different Market Categories

Dumping.

- ♠ It is observed that his price P_H in home market where he is a monopolist, is higher than the price P_w in the world market, where he is dumping his output.
- ♠ His total output is OM, and he sells OH in home market and HM overseas.
- ♠ His profit is shown by area ZTEG.

Equilibrium of the Firm Under Different Market Categories

Dumping.

Technical & Financial reasons for Dumping:-

- ♠ To maximize profits. He cuts short his sales in the home market to OH and sells balance HM in world market where his MR is more.
- ♠ To increase output to sell in the world market and thus enjoy economies of scale that bring down his costs.
- ♠ To penetrate into foreign markets.
- ♠ To capture foreign markets.

Equilibrium of the Firm Under Different Market Categories

Monopolistic Competition.

Monopolistic competition is that market category in which there is keen competition, though not perfect, among a group of monopolists producing same, though not identical product e.g. soaps, watches etc.

Equilibrium of the Firm Under Different Market Categories

Monopolistic Competition.

Features : -

- Large number of firms.
- Absence of interdependence.
- Freedom of Entry.
- Product Differentiation - this specialty of firms' products offers monopolistic advantage to them.
- Selling Costs- to create demand for firm's products.
- Concept of Group - producing differentiated products.

Equilibrium of the Firm Under Different Market Categories

Selling Costs

Selling costs are incurred in order to alter the position or shape of demand curve for the product.

Production Cost

Incurred in all markets.

To meet demand.

Influence Supply.

In proportion to output.

Considered essential.

Selling Cost

Peculiar to monopoly markets.

To create demand.

Influence Demand.

No relation to output.

Considered wasteful.

Equilibrium of the Firm Under Different Market Categories

Selling Costs

Are wasteful.

- ▶ Costs are incurred in retaliation.
- ▶ They result in rise in price.
- ▶ Mislead consumers.
- ▶ Customers spend on transport to buy from a specific market.
- ▶ Not effective

Are not a waste.

Are informative & persuasive.
Create large scale employment

Prices do not necessarily rise because of advertisements.

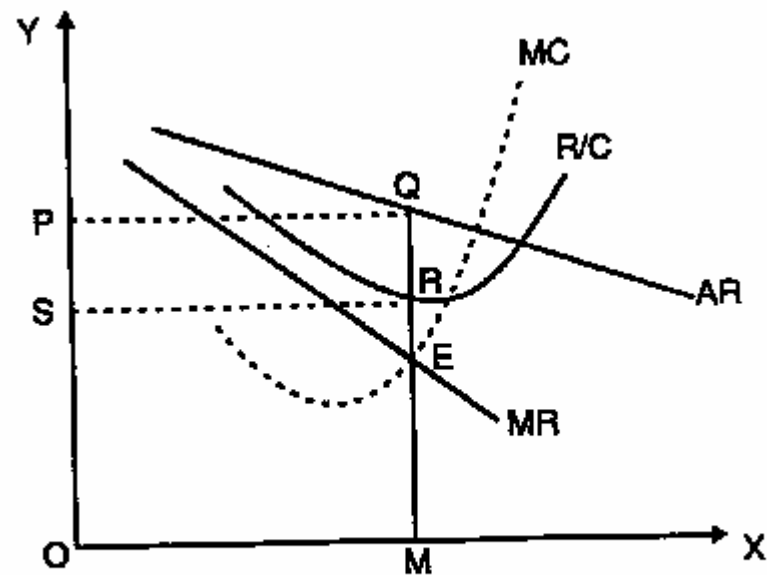
Equilibrium of the Firm Under Different Market Categories

Equilibrium under monopolistic competition

- ▶ Both AR & MR curves are downward sloping, & MR is below AR.
- ▶ The cost curve as before is U-shaped.
- ▶ Equilibrium is at point E, where $MR = MC$.
- ▶ Monopolist makes super normal profits PQRS in the short-run.

Equilibrium of the Firm Under Different Market Categories

Equilibrium under monopolistic competition



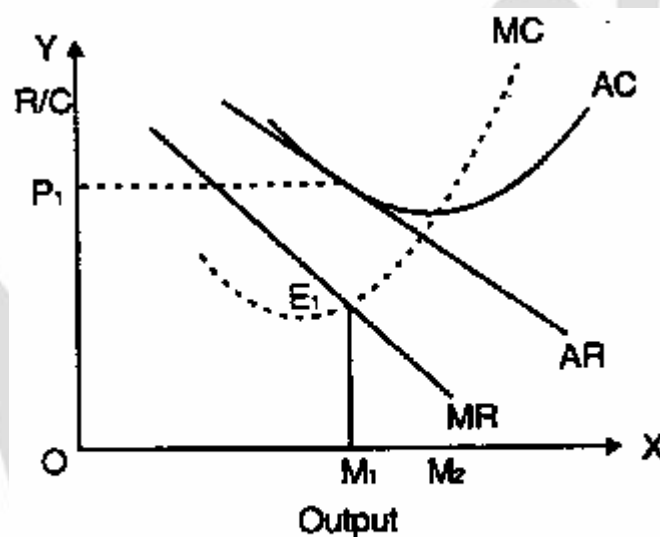
Equilibrium of the Firm Under Different Market Categories

Equilibrium under monopolistic competition

To determine equilibrium in the long run, it is assumed that costs will not change (a heroic assumption). Looking at super normal profits in the short-run, more firms will enter in the long-run. AR and MR will reduce and curves will move to the left until AC curve is tangent to AC curve at its minimum point. New equilibrium is at E_1 , where new $MR = MC$. And at OM_1 , $AR = AC$

Equilibrium of the Firm Under Different Market Categories

Equilibrium under monopolistic competition



There is only normal profit in the long run.

Equilibrium of the Firm Under Different Market Categories

Oligopoly

Competition among the few.

Oligopoly is that market structure in which a few sellers who clearly recognize their interdependence, produce bulk of the market output.

Equilibrium of the Firm Under Different Market Categories

Oligopoly

Classification :

- ♠ *Pure oligopoly* – a few sellers sell identical product while in *differentiated oligopoly* they sell different products.
- ♠ *Open oligopoly* – firms are free to enter the market, not so in *closed oligopoly*.
- ♠ *Partial oligopoly* has a price leader, while in *full oligopoly* there is no leader, no follower.
- ♠ *Collusive oligopoly*- there is agreement on price to be charged; not so in *non-collusive*.

Equilibrium of the Firm Under Different Market Categories

Oligopoly

Characteristics:

- Competition among few.
- Interdependence among rival firms.
- Possibility of collusion by price agreement.
- Rigidity in pricing.
- Barriers to entry of new firms.
- Excessive expense on advertising.
- Indeterminateness – agreements may not hold good, cooperation may give way to fight until death of a rival.

Equilibrium of the Firm Under Different Market Categories

Oligopoly

- The kinky demand curve. A peculiar characteristic of oligopoly.

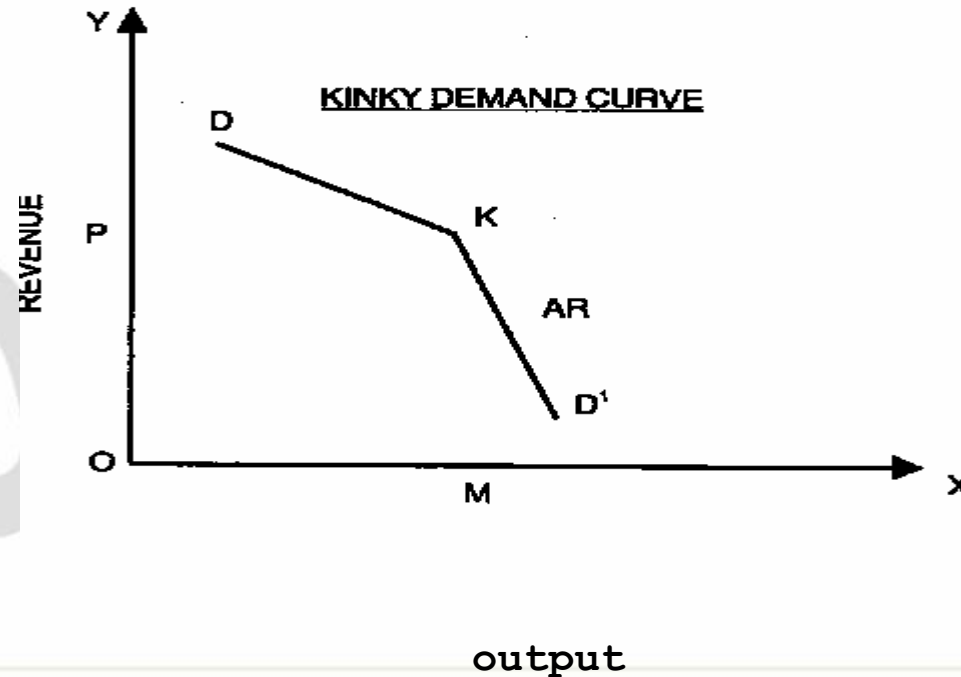
In oligopoly action of a firm depends on reaction of consumers as well as that of its rivals. This lends typical shape to its demand curve. When a firm lowers the price, if rivals also lower price, the demand for the firm's products will not rise substantially. This is shown by relatively inelastic curve KD^1 .

Now when the firm raises price but rivals do not raise their prices, demand for firm's products will fall sharply shown by KD .

Equilibrium of the Firm Under Different Market Categories

Oligopoly

- This sudden bend in the curve results in kinky demand curve in oligopoly.



Equilibrium of the Firm Under Different Market Categories

Oligopoly

- The kinky demand curve. A peculiar characteristic of oligopoly.

How does MR curve appear in the diagram?

For the first part up to kink, MR will be halfway between KD & Y axis. KD will meet Y axis at point T, and TEG emerges as MR curve.

After the kink, KD^1 is the AR curve, it meets Y axis at point L. LDF which is halfway, therefore, is the MR curve after the kink. HF on this curve is the MR after TEG, seen above, indicating that MR has become discontinuous.

Equilibrium of the Firm Under Different Market Categories

Oligopoly

- Thus where average revenue has a kink, the marginal revenue becomes discontinuous.

