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# Perfect Competition

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Economics  
Note 8 • Leaving Cert • 5<sup>th</sup> Year

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## **MARKET STRUCTURES**

There are four market structures on the Leaving Cert course. They are

- 1) Perfect Competition
- 2) Imperfect Competition
- 3) Oligopoly
- 4) Monopoly

They differ on the basis of

- 1) Price charged to the consumer
- 2) The number of firms in the industry
- 3) The amount of Market Power enjoyed by each firm
- 4) The efficiency of their operations
- 5) The profits earned by the firm in the Long Run

There are many assumptions used to define and describe each market structure and these must be learned off and entirely understood in order to answer any question on a market structure.

## PERFECT COMPETITION

**Perfectly Competitive Market:** is a market where identical goods are provided by a large amount of small sellers who are price takers to a large number of buyers.

### Assumptions

- 1) **There are a large numbers of both buyers and sellers in the market:** This means that no single seller or buyer can influence the price of the good being sold by their own actions.
- 2) **The product that each firm produces is homogenous:** This means that the goods being produced/sold by each firm is identical to the goods being produced/sold by each firm in the industry. Therefore the output of one supplier is a perfect substitute for the output of any other supplier.

The implication of the first two assumptions is that each firm in a Perfectly Competitive market is a Price Taker. This means that the individual firm must accept the price as it is set on the market.

**Price Taker:** This means that the individual firm must accept the price that is set by the market as each firm supplies such a tiny fraction of the market it cannot influence the market price.

- 3) **There is full knowledge of both profits and costs:** This means that everybody both inside and outside the industry knows what each firm in the industry is earning as revenue and paying out as costs.
- 4) **There is freedom of entry and exit into and out of the industry:** This means that there are no barriers to entry and the cost of entering or exiting the industry are close to or equal to zero.

Assumptions 3 and 4 imply that no firm in a perfectly competitive industry can earn supernormal profit in the longrun. This is because when firms when firms outside the industry see that firms inside the industry are earning supernormal profit (full knowledge of profits and costs) they will enter the industry (freedom of entry and exit) in order to

earn some of that supernormal profit for themselves and as such the SNP is competed away.

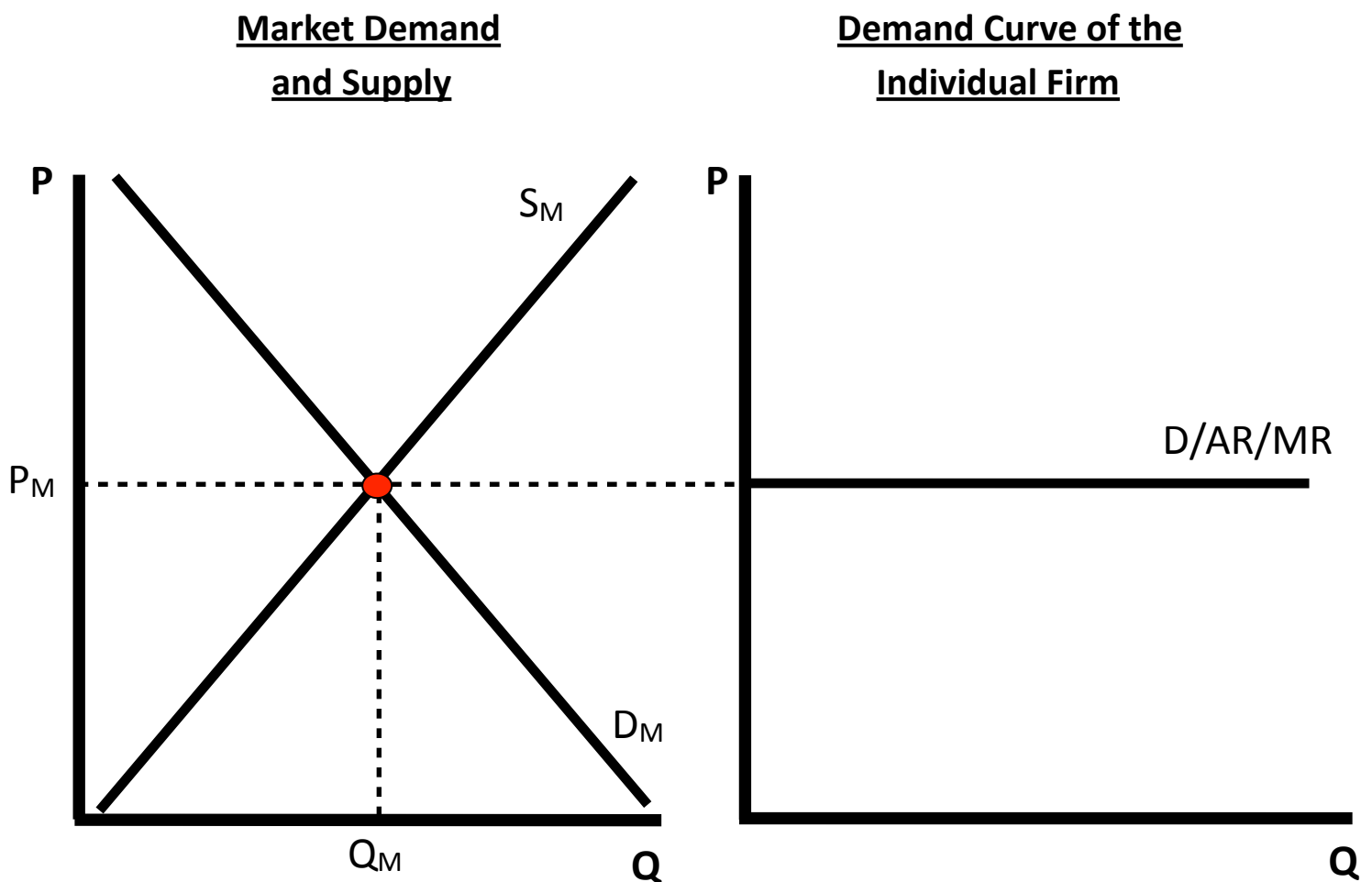
- 5) **Firms are profit maximisers:** Firms produce at the quantity of output where  $MC = MR$ . (Marginal Cost = Marginal Revenue)
- 6) **Firms face a Perfectly Elastic Supply of Factors of Production:** If a firm wishes to increase output, it can acquire the necessary factors of production at the existing price. I.e. An increase in the demand for factors of production, in Perfect Competition, does not cause an increase in their price.
- 7) **No Collusion Exists on the Market:** No collusion exists between buyers or sellers of the good. Buyers do not group together with other buyers or sellers in order to influence the price at which the good is sold.

## Price Determination

As stated in the assumptions, Perfectly Competitive firms are Price Takers, but what determines the price that they take?

The answer lies in the intersection of the Market Demand and Market Supply curves. The equilibrium, found by the intersection of these curves, determines the price charged by each individual firm. It also derives the demand curve faced by each firm

### Demand Curve of a Perfectly Competitive Firm



There are many important points to note about the demand curve for a Perfectly Competitive firm.

- 1) The Perfectly Competitive firm's demand curve is Perfectly Elastic. Therefore, if a Perfectly Competitive firm changes its price i.e. above that of the market price, its demand will drop to zero. This is due to the fact that there are many sellers in the industry and the goods being sold are homogenous. Therefore, a consumer will see

that the firm is charging a higher price than other firms in the industry, and go to a different firm to buy the exact same good.

2) The demand curve faced by the firm is a horizontal line. This means that the firm can sell all the output it wants at the market price. Because of this no firm will lower price as it can sell infinite quantity at the market price resulting in no incentive for the firm to lower price.

3) The firms Demand Curve is equal to its Marginal Revenue Curve.

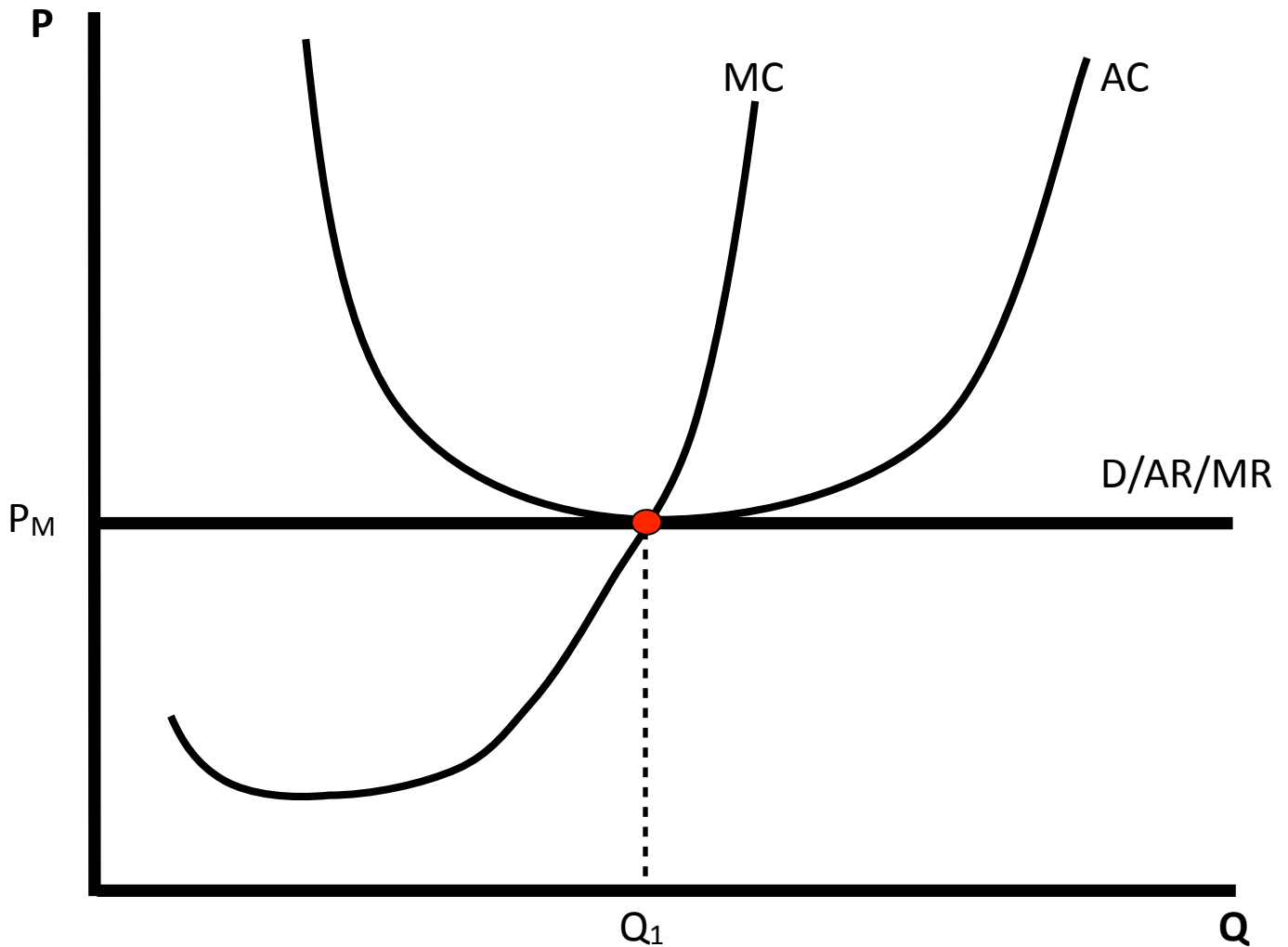
I.e. they are the exact same line, and as such  $MR = P$ .

NOTE: The demand curve is labeled D/MR/AR. AR = Average Revenue. It is calculated by dividing Total Revenue by the Quantity.

$$AR = \frac{TR}{Q}$$

From now on, think of the Demand curve as the Average Revenue curve. The Average Revenue curve is the exact same as the demand curve, it's just a different name.

### The Longrun Equilibrium Position of a Perfectly Competitive Firm



In the Longrun

- 1) The firm produces where  $MC = MR$ . From the assumptions we know that Perfectly Competitive firms are profit maximisers and as such produce at the profit maximizing level of output where

**$MC = MR$  (and MC is rising)**

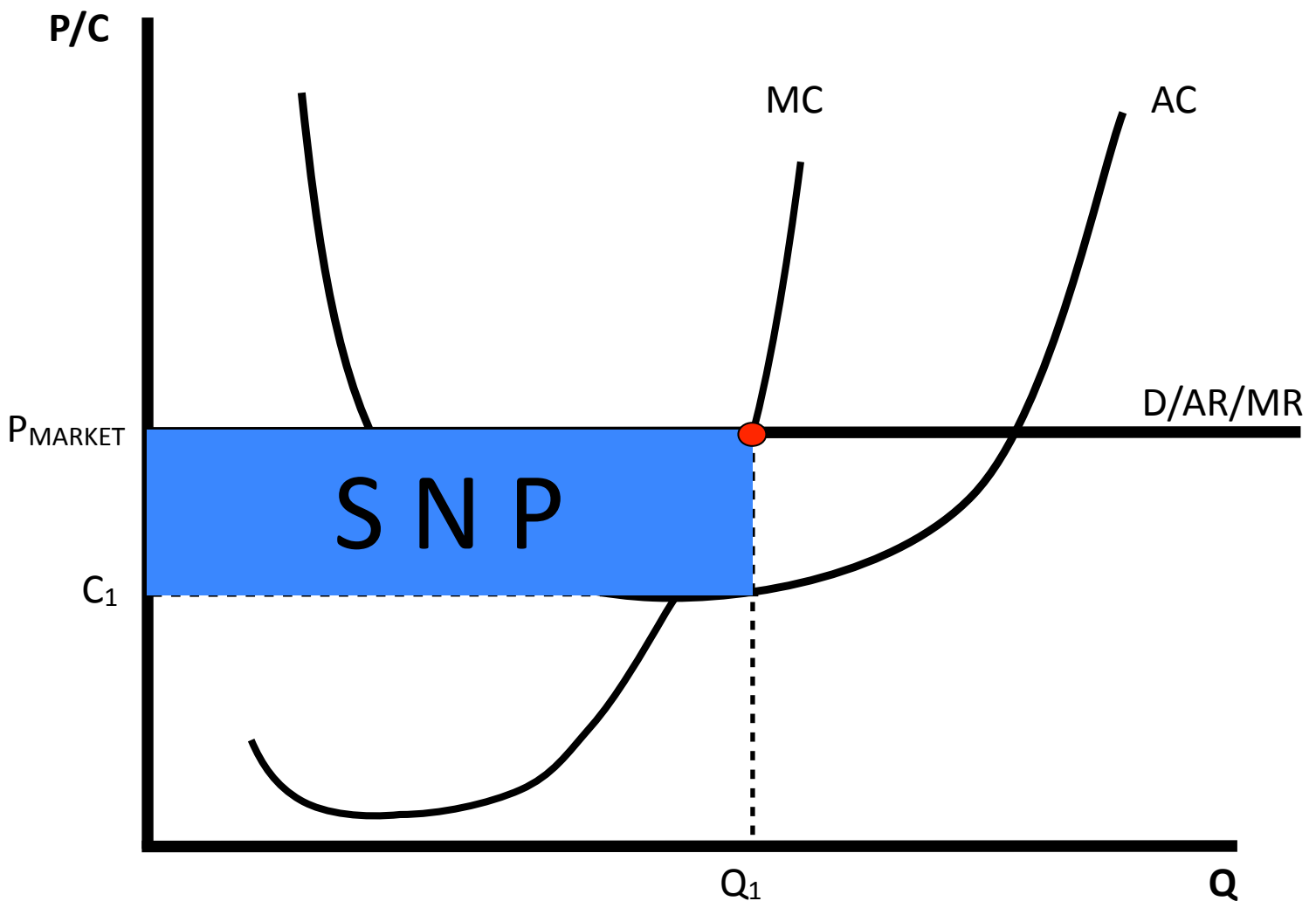
- 2) The firm produces units of goods and charges the market price of  $P_M$ .
- 3) At  $Q_1$  units of output, the firm is producing where  $AR = AC$  and as such is earning normal profit. A perfectly competitive firm can only earn Normal Profit in the longrun.
- 4) The firm is producing at the minimum point of the AC curve. This is considered to be the most efficient scale of production as it is not wasteful of resources.

- 5) The good is being sold at its lowest possible price where  $P = MC$ .  
This means that the cost of producing one extra unit of a good is the exact cost to the consumer of buying that good.
- 6) The Longrun equilibrium position of a Perfectly Competitive firm is where

$$MC = MR = AC = AR$$

Now that we know the Longrun equilibrium position of a Perfectly Competitive firm, we will look at how the firm arrives at this position.

### Shortrun Equilibrium Position of a Perfectly Competitive Firm

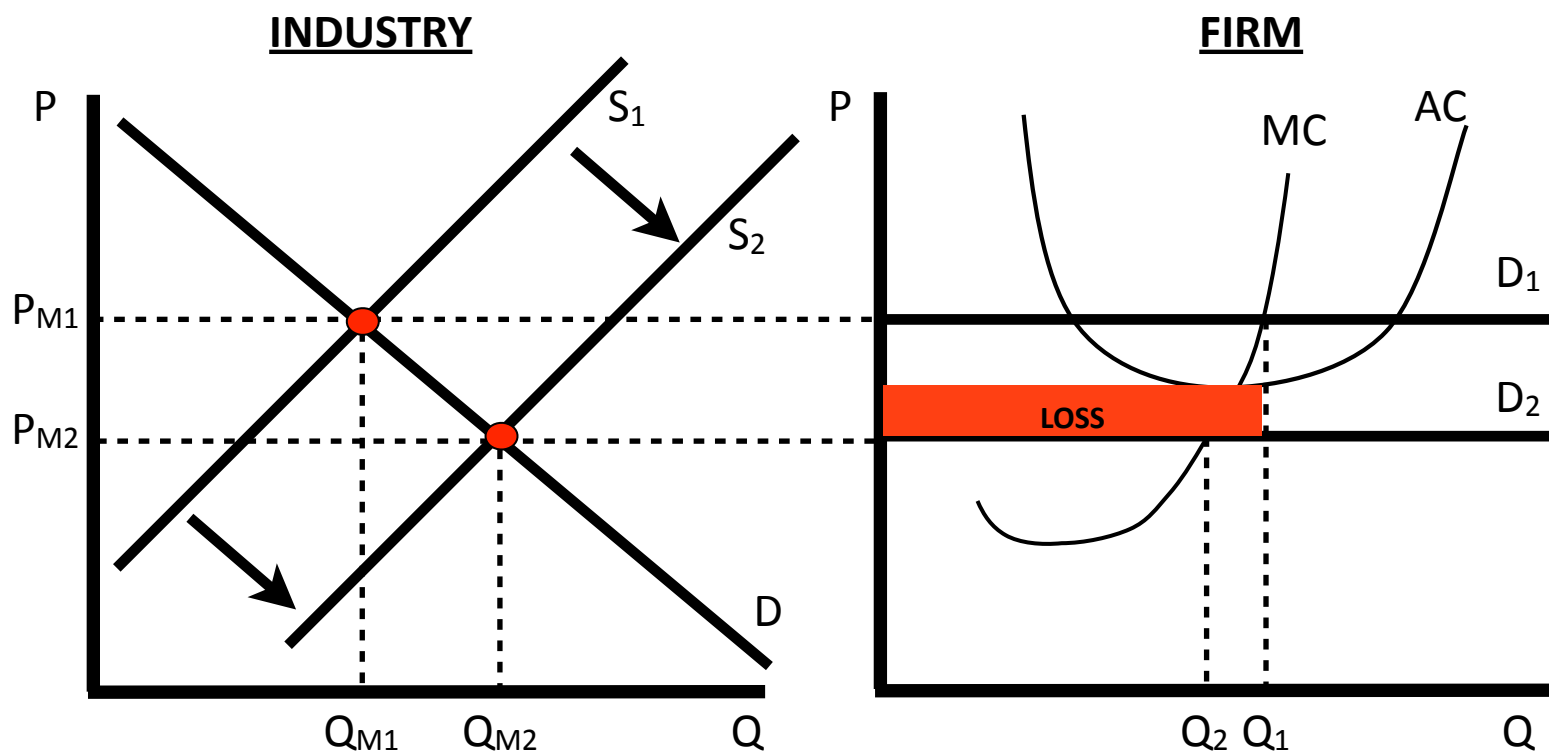


- 1) From the assumptions we know that a Perfectly Competitive firm is a Profit Maximiser. Therefore they produce at the profit maximizing output where

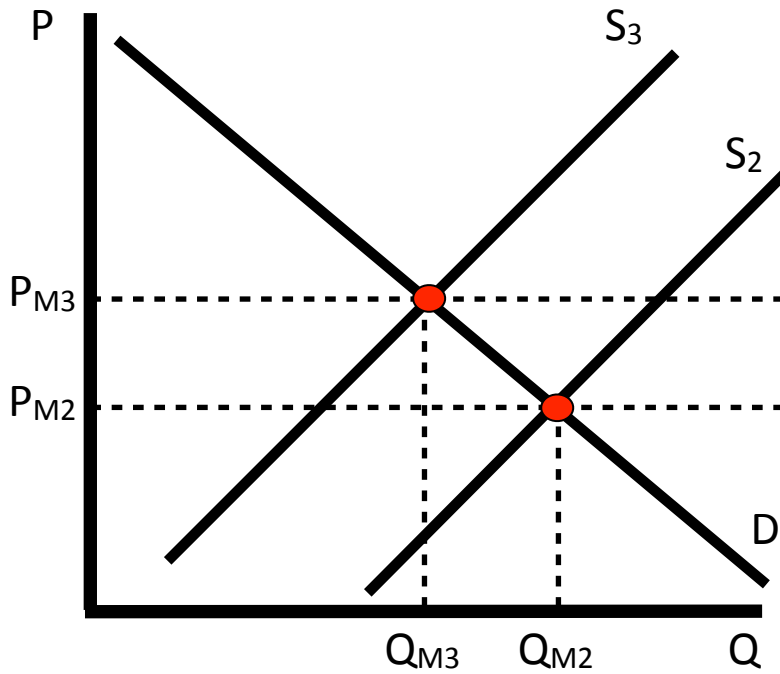
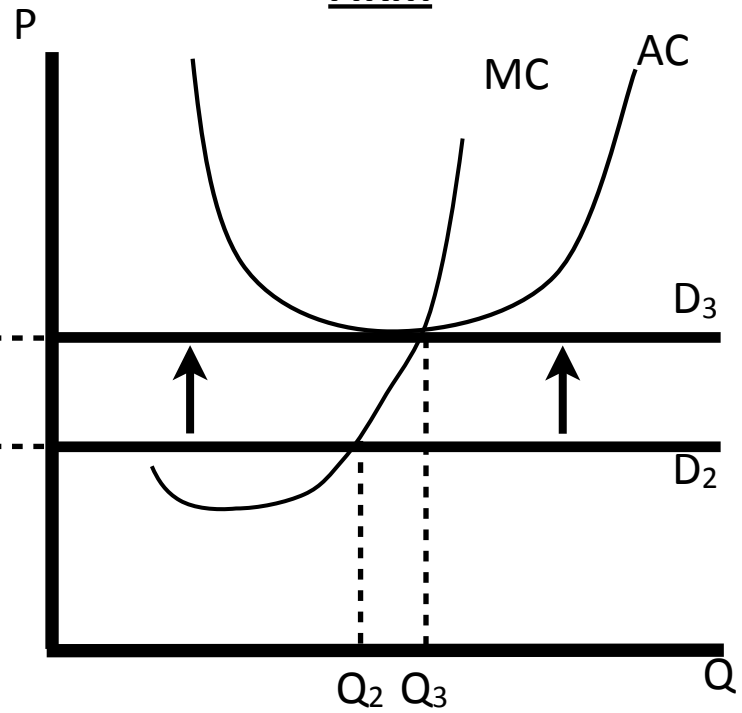
$$MC = MR \text{ (and MC is rising)}$$



- 2) In the shortrun the firm will be in equilibrium producing quantity  $Q_1$  and charging price  $P_{\text{MARKET}}$ .
- 3) There are Supernormal Profits being earned represented by the blue box.
- 4) From the assumptions we know that there is perfect knowledge and there is freedom of entry and exit (assumptions 3 and 4). Therefore firms outside the industry are aware that SNP is being earned and enter the industry in order to earn this SNP.
- 5) As other firms enter the industry, this causes an increase in market supply resulting in an outward shift in the market supply curve.



- 6) As each firm is a price taker, it must charge the price governed by the intersection of Market Demand and Market Supply curves.
- 7) With the Market Supply curve shifting to the right, this results in a lower price faced by each individual firm.
- 8) At price  $P_2$ , this firm is making a loss as  $AC > AR$ , represented by the red box.
- 9) In the Longrun firms must cover all of its costs and as such many firms will have no option but to leave the industry. This means that only the most efficient firms survive and remain in the industry.
- 10) As the inefficient firms leave the industry, there is a reduction in Market Supply causing an inward shift in the Market Supply curve.

**INDUSTRY****FIRM**

11) The remaining firms will adjust their output and supply (as this is where ) and charge the market price .

12) The firm is now in its Longrun equilibrium position where

**Points to note:**

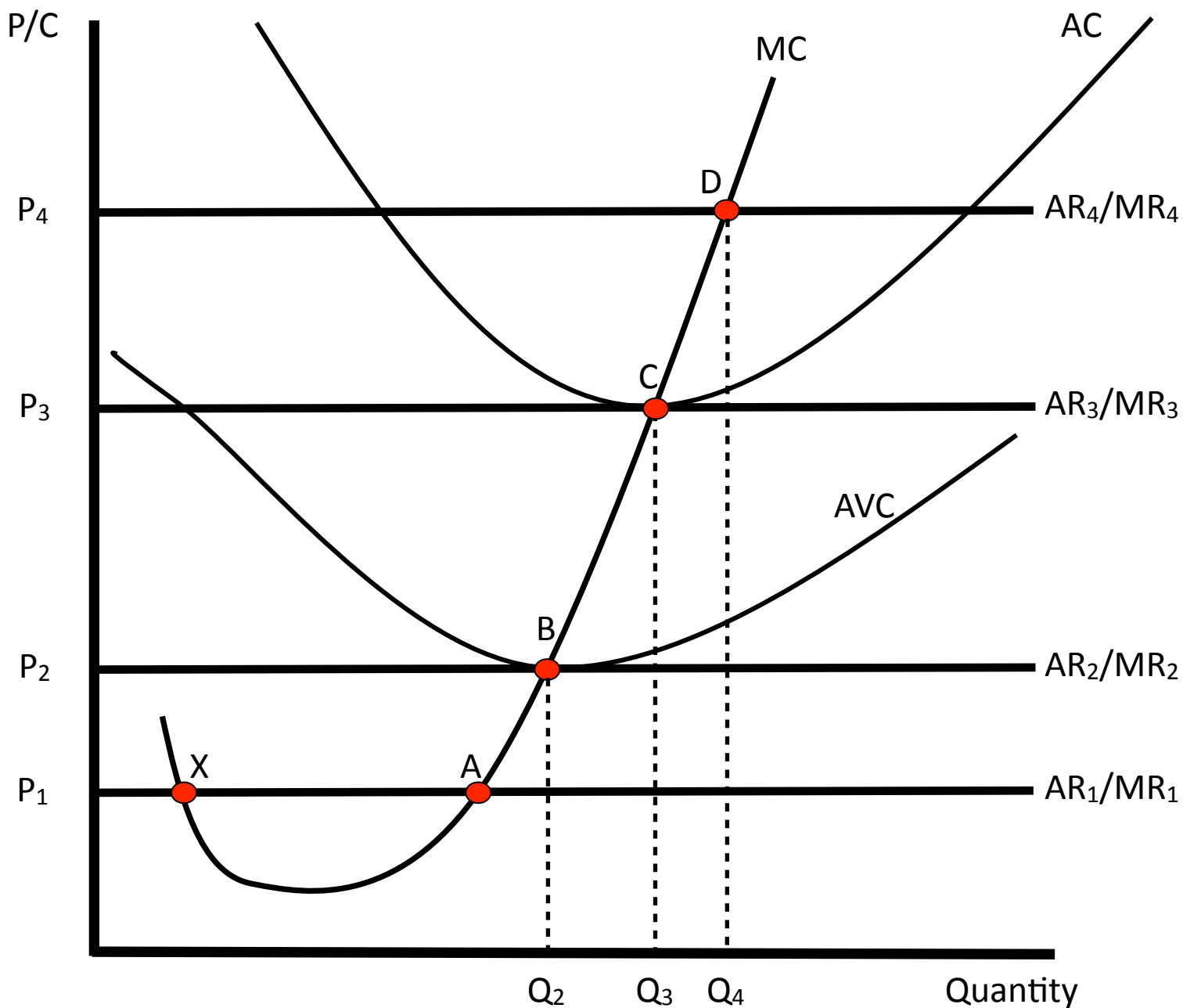
- 1) The absence of SNP in the Longrun means that there is no incentive for new firms to enter the industry.
- 2) The fact that the efficient firms that stayed in the industry are earning normal profit means that they will continue to stay in the industry.
- 3) The entry and exit of firms is the mechanism by which the Longrun industry equilibrium is reached.
 

|                            |   |                          |
|----------------------------|---|--------------------------|
| If SNP is being earned     | = | Firms enter the industry |
| If losses are being earned | = | Firms leave the industry |
- 4) This process of entry and exit will continue until all SNP being earned in the industry has been competed away and only the most efficient firms remain in the industry

### The Supply Curve for a Perfectly Competitive Firm

The supply curve for a firm shows the quantity of a good or service that a firm is willing and able to sell at each price. From the assumptions we know that firms in Perfect Competition are profit maximisers and always produce where  $MC = MR$  and  $MC$  is rising.

From the costs handout, we remember that, for a firm to survive in the short run it has to cover its Variable Costs (VC) and make some contribution to its Fixed Costs (FC). Let's look at the graph below.



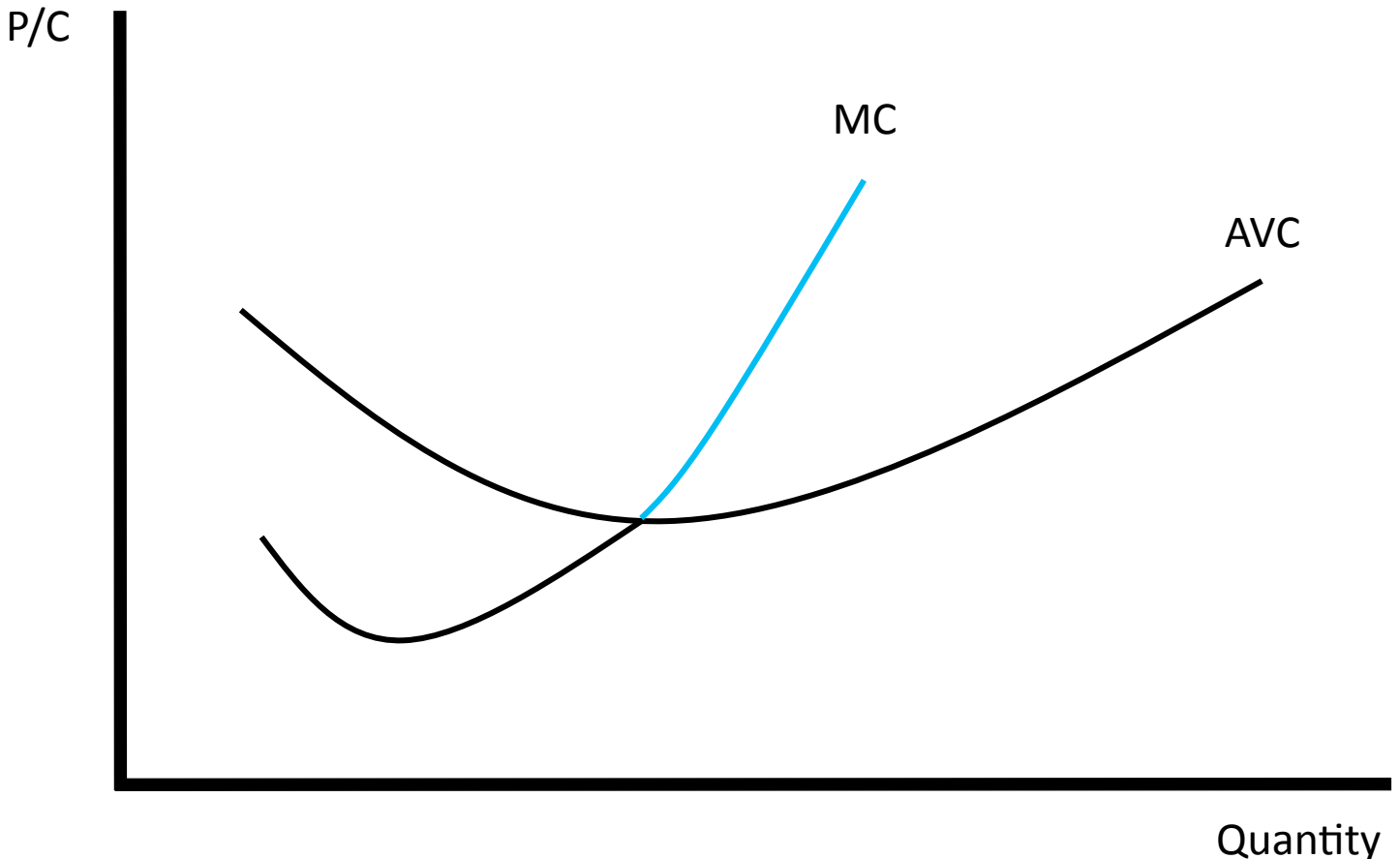
Remember, a firm in Perfect Competition produces where  $MC = MR$  and  $MC$  is rising.

- 1) At price  $P_1$ ,  $MC = MR$  at point A and point X. However, at point X MC is falling and as such this is not a point of profit maximisation as the profit maximisation condition is  $MC = MR$  and **MC is rising**. Therefore, the firm would produce at point A, where MC is rising. At point A, the firm is not even covering its Variable Costs (VC) and as such the firm cannot stay in business even in the short run. Therefore the firm shuts down and no quantity is supplied.
- 2) At price  $P_2$ ,  $MC = MR$  at the point B. At point B, the firm is covering its Variable Costs (VC) and is about to make some contribution to its Fixed Costs (FC). At this position, the firm can stay in business in the short run but not the long run. The firm supplies quantity  $Q_2$ .
- 3) At price  $P_3$ ,  $MC = MR$  at point C. At point C, the firm is covering both Fixed Costs (FC) and Variable Costs (VC), [this is all of the firms' costs as  $Total\ Costs\ (TC) = (FC) + (VC)$ ] and is earning Normal Profit. Normal Profit is the minimum payment required to keep the entrepreneur in the industry in the long run. It is also the long run equilibrium position of a Perfectly Competitive firm and at this point the firm supplies quantity  $Q_3$ .
- 4) At price  $P_4$ ,  $MC = MR$  at the point D. At the point D, the firm is covering all of its costs and is earning Super Normal Profit (SNP). At this price, the firm supplies quantity  $Q_4$ . From the assumptions we know that there is full knowledge of profits and costs and freedom of entry and exit. If firms in the industry are earning SNP, other firms will enter the industry and the SNP is competed away. Therefore, point D is only short run equilibrium and not long run equilibrium.

The question is what do we take from this? The answer lies in the following definitions.

**The Short Run Supply Curve:** of a Perfectly Competitive firm is that part of its Marginal Cost curve which lies above the Average Variable cost curve (AVC).

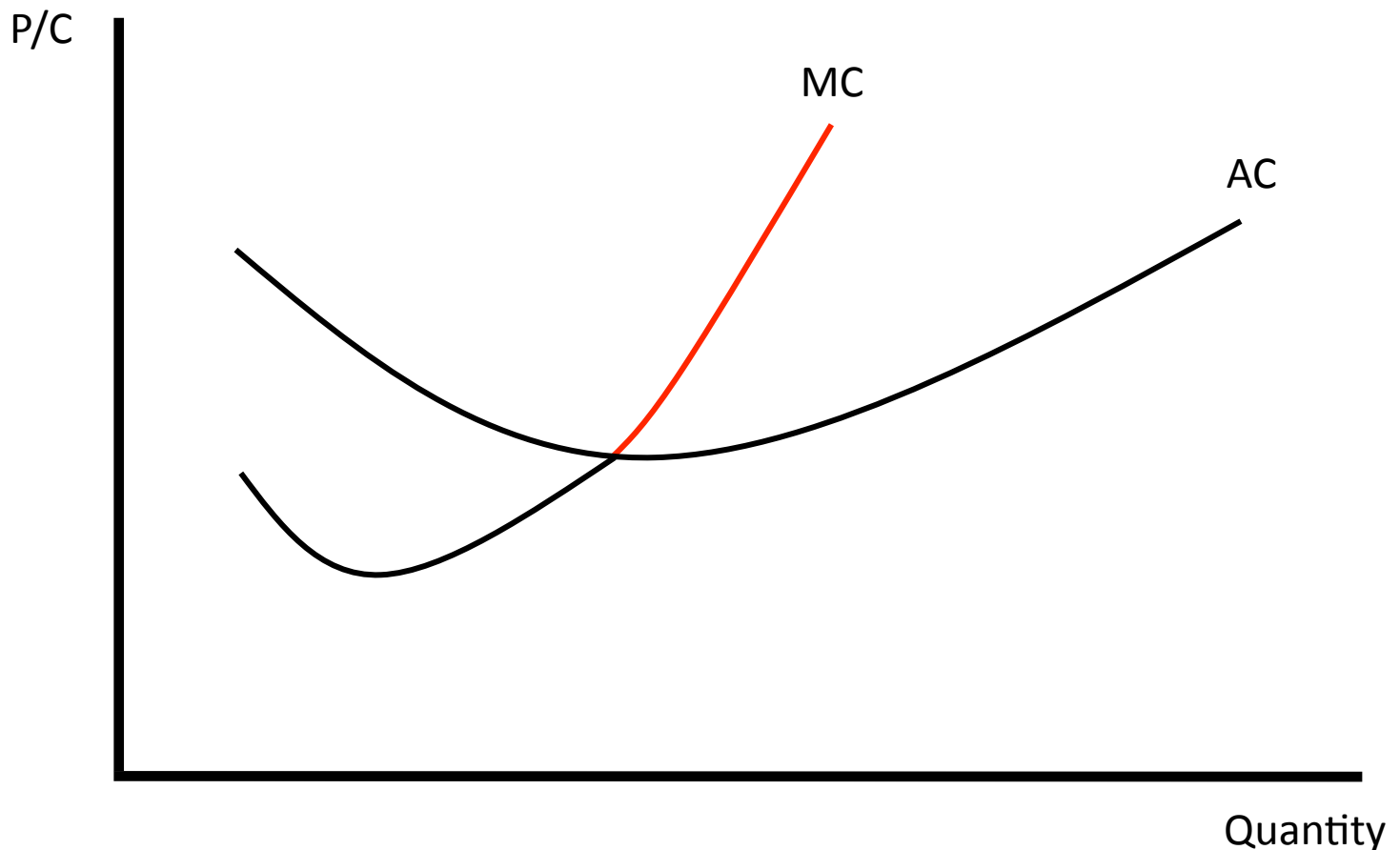
### Short Run Supply Curve for a Perfectly Competitive Firm



Again, we stress that in the short run a firm only has to cover its Variable Costs (VC) and make some contribution to its Fixed Costs (FC). If the market determines a price equal to or above a firm's Average Variable Costs (AVC) at any given quantity, then the firm will supply that quantity where  $MC=MR$  (and MC is rising). This is because the firm is a profit maximiser. As was said before, the price is determined by the market and the firm can't affect this price. The Demand Curve for a firm in Perfect Competition is simply a straight line across from the price set by the Market, and the price and marginal revenue are the same thing for a Perfectly Competitive firm. The quantity supplied is determined by the intersection of the MC and MR curves. As such the short run supply curve for a Perfectly Competitive firm is that part of its MC curve above the Average Variable Cost (AVC) curve.

**The Long Run Supply Curve:** of a Perfectly Competitive firm is that part of its Marginal Cost curve which lies above the Average Total Cost curve (AC).

### Long Run Supply Curve for a Perfectly Competitive Firm



Again, we stress that in the long run a firm has to cover all of its costs, that is its Total Costs (TC). If the market determines a price equal to or above a firm's Average Costs (AC) at any given quantity, then the firm will supply that quantity where  $MC=MR$  (and MC is rising). This is because the firm is a profit maximiser. As was said before, the price is determined by the market and the firm can't affect this price. The Demand Curve for a firm in Perfect Competition is simply a straight line across from the price set by the Market, and the price and marginal revenue are the same thing for a Perfectly Competitive firm. The quantity supplied is determined by the intersection of the MC and MR curves. As such the long run supply curve for a Perfectly Competitive firm is that part of its MC curve above the Average Cost (AC) curve.

### **Advantages of Perfect Competition**

- 1) **Efficiency:** In the long run, a Perfectly Competitive firm produce's at the minimum point of the Average Cost (AC) curve. This is the most efficient level of production possible as each resource is being used to its full potential which ensures that resources are not being wasted. Also, Perfectly Competitive firms do not engage in competitive advertising, which in itself is wasteful of resources as it raises costs to the firm but it doesn't improve the product or lower the price to the consumer.
- 2) **Low Prices for the Consumer:** In the long run, Perfectly Competitive firms earn normal profit. This is the minimum payment required to keep the entrepreneur in the industry in the long run. The fact that SNP is not being earned in the long run ensures a lower price to the consumer. Also, Perfectly Competitive firms produce at the minimum point of the AC curve, thus keeping costs to as low as they can be. For these two reasons, the consumer faces a lower price in Perfect Competition than it would be charged under any other market structure by a firm facing the same costs.
- 3) **Quantity:** The quantity produced in a Perfectly Competitive market is greater than the quantity made available in a monopoly, ensuring a lower price (this is because supply is greater), as such ensuring a higher standard of living for everyone in society.

## **Perfect Competition and Advertising**

We stated earlier that Perfectly Competitive firms do not engage in competitive advertising. We will now look at why this is so.

**Competitive Advertising:** is advertising that promotes the features of an individual firm's product over those of competing firms.

- 1) **Products are Homogenous:** As the goods being sold by firms in a Perfectly Competitive market are the exact same, there is no point in claiming that one firm's produce is better than another's.
- 2) **Raise Market Sales rather than Individual Firm's Sales:** As the goods being sold one firm are the same as the goods being sold by all other firms in the industry, any firm that engaged in advertising would incur the costs of the advertising but raise the sales of all firms in the industry as these firms sell identical goods.
- 3) **Competitive Advertising increases Costs:** In the long run, Perfectively Competitive firms are efficient and do not waste resources. As we have already established, it would be wasteful of resources for a single firm to engage in competitive advertising. As such firms are not willing to waste money on competitive advertising.

Even though firms in Perfect Competition don't engage in competitive advertising, all the firms might pool their resources together and share the cost of generic advertising.

**Generic Advertising:** refers to advertisements that promote qualities/features of a product without naming a specific supplier of the product.

For Generic advertising, all the goods produced by all firms in an industry are promoted without any particular firm's goods being promoted. This benefits all firms in perfect competition because all goods produced are homogenous and as such this raises the demand for all goods in the industry while sharing the costs of advertising between each firm. E.g. "eat cheese", "drink milk".



**Why are firms in Perfect Competition known as Price Takers?**

In Perfect Competition, the individual firm's price is determined by the intersection of the Market Demand Curve and the Market Supply Curve. As the output produced by each individual firm is so small relative to market output, the individual firm cannot influence the Market Price. They must take the prevailing Market Price. As such they are known as Price Takers.

**In Perfect Competition, are Employees likely to receive Economic Rent?**

NO. In the Longrun, workers in Perfect Competition are not likely to receive Economic Rent. The assumptions of 1) Freedom of Entry and Exit and 2) Full Knowledge of Profits and Costs, ensure that firms can only earn Normal Profit and that costs are at a minimum, in the Longrun. Therefore, in the Longrun, Perfectly Competitive workers will only receive their supply price and no economic rent is earned.

**Why does Perfect Competition benefit the Economy?**

Perfect Competition benefits the economy because the economic resources of the country are being used in their most efficient manner possible. Perfectly Competitive firms produce at the minimum point of the AC curve and earn Normal Profit in the Longrun, ensuring that the Factors of Production in the economy are being used at their most efficient level and the consumer is not being over charged.

**Why does Perfect Competition benefit the Consumer?**

The Consumer benefits because prices are kept to a minimum. This achievement is accomplished for two reasons. Firstly, firms in Perfect Competition do not earn SNP in the Longrun as only Normal Profit is required to keep the entrepreneur in the industry in the Longrun. Secondly, firms in Perfect Competition produce at the most efficient level of production possible, the minimum point of the AC curve ensuring that these firms can sell their products to the consumer at lower prices. Also, market forces within Perfect Competition act to correct any temporary imbalances ensuring that consumers do not face any shortages or gluts.