Costs of Production

(a) Why may firms in the same industry have different average costs of production? (12)

(b) In the long run, the price a firm charges for its product is determined by its production costs. Discuss (13)

Average cost = cost per unit of output.

Average total cost = total costs divided by output

In the short run we make a distinction between average variable cost and average fixed cost

It is perfectly possible for different firms to experience different costs of production in both the short and the long run.

In the short run the average variable costs of production depend on the cost of variable inputs used in the production process and also the productivity of variable inputs.

The average fixed cost depends on total fixed costs and the amount of output the firm is producing. The higher the output the lower the average fixed costs of production, since overhead costs are being spread over a greater volume of output.

The diagram above shows the standard short run cost curves for a firm with average total cost falling and then rising as output increases. The eventually increase in ATC reflects rising marginal (or variable) costs - because of falling marginal productivity of variable factors.

Why can firms have different costs of production?

In the short run the variations in cost will reflect

(a) The level of output - firms with a higher volume of output will have benefited from lower average fixed costs
(b) The productivity and cost of variable factor inputs - those businesses with the highest productivity will enjoy lower variable costs per unit of production.

In the long run - all factor inputs are variable - allowing a business to change the scale of production. Clearly this opens up the possibility of a firm exploiting economies of scale that allows it to reduce its long run average total cost.

Not all businesses within the same industry will exploit potential scale economies to the same degree. Those that do will move closer towards the minimum efficient scale of production in the long run - the output at which long run average total cost is minimised. Firms with the highest market share are best placed to reap the advantages of large-scale production.
The main internal **economies of scale** available in the long run should be mentioned - but not in too much detail. Some businesses may also gain to a lesser or greater extent from **external economies of scale**.

- Technical economies
- Financial economies
- Marketing economies
- Risk-bearing economies
- Economies of scope

Mention should also be made of **diseconomies of scale**. Cost differences between firms in the same industry might also arise because some businesses within the market have expanded beyond their optimum size and started to experience higher long run average costs. Some businesses may suffer from **x-inefficiencies** if they allow production costs to drift higher in the absence of effective competition in their own markets.

**Question B:** In the long run, the price a firm charges for its product is determined by its production costs. Discuss (13)

This part of the question encourages you to discuss how a firm determines its prices in the long run and the influences on the **pricing power** of a particular business in the longer term.

Start off by focusing on the **main objectives of a business**. Do we assume that the firm seeks to **maximise profits**? If so the long run equilibrium output for a firm will be where long run marginal cost = marginal revenue. However if a business is seeking to **maximise total revenue** it will price where marginal revenue = zero. There are other alternative objectives. A firm might decide to maximise market share and produce the highest output possible consistent with making at least **normal profits** in the long run. **Different objectives** imply **different pricing strategies**.

The diagram below shows the profit maximising price for a firm with monopoly pricing power in its market. At the profit maximising price and output, the firm enjoys supernormal profit. A change in long run costs will affect the profit maximising equilibrium position. The diagram shows how the exploitation of economies of scale leads to a fall in marginal and average total costs. This causes a rise in equilibrium output, a fall in the price (P1 to P2) and an increase in total profits (profits rise from Q1 (P1-AC1) to Q2 (P2-AC2)).
Clearly scale economies cause a fall in costs and a fall in market price. The reverse effects will be seen if production costs increase in the long run (for example due to a rise in input costs). In this sense the price is being driven by supply-side factors. Many firms do engage in "cost-plus" pricing strategies - adding a mark-up to their average total costs of production.

However other factors must also be taken into account

**The importance of demand and the elasticity of demand**

Shifts in demand for a firm's product will also affect their pricing decisions. The diagram below shows the effect of an outward shift in the demand curve. This reflects an increase in demand at each and every price and allows a profit maximising firm to raise both price and output - leading to a rise in total profits. Output rises from Q1 to Q2 and price hikes up from P1 to P2. An inward shift in demand (for example during an economic recession) would have the opposite effect on pricing behaviour. Firms would be expected to cut prices (because consumers are less willing and able to pay high prices) and contract output to lower levels.

The price elasticity of demand is also relevant to pricing decisions. If a firm has some degree of monopoly price setting power and can segment the market demand into different groups of consumers each of which has a different price elasticity of demand, then the firm can engage in **price discrimination** in a bid to raise extra revenue and profits.
**Pricing behaviour by other firms in the market**

For firms operating in oligopolistic markets, decisions on price are not taken independently of the other firms in the industry. Pricing behaviour is interdependent - meaning that pricing decisions have to taken with a view to the likely reactions of competitors in the market. There may also be a tendency for firms to engage in **collusive price agreements** in a bid to reduce market uncertainty and move towards **joint profit maximisation**.

**Degree of competition in the market**

In the long run the entry and exit of firms influence the pricing power of individual businesses. In markets that are **contestable** (i.e. where the sunk costs of entry and exit are low and where new businesses can come into the market through profits signals) we expect to see increasing levels of competition in the long run. This reduces the monopoly power of the existing firms in the market. Prices may fall even though the firm's costs remain broadly the same.

**Price regulation**

In many industries **regulators** exert a strong influence on business pricing decisions independent of a firm's production costs. Examples include the privatized utilities (gas, water, telecommunications, electricity) where the regulatory agencies have introduced **pricing formulae** that restrict the annual average change in prices within a specific industry.

**Concluding comments**

Undoubtedly the long run costs of production do have an effect on a firm's prices in the long run. If we assume that a firm must make at least normal profits to remain in a particular industry in the long run, then changes in long run costs will impact on pricing behaviour. However focusing only on costs ignores the reality that **demand-side factors** play an increasingly important role in pricing behaviour. Changes in both the level and price elasticity of demand change the price at which the firm is able to sell its output. Most businesses are multi-product companies - they focus on the demand for particular products when making decisions on prices across their product range.

Finally in markets whose market structure comes close to being an oligopoly, the pricing decisions of one firm in the long run must take into account the pricing behaviour of other firms. This point is worth stressing - because of its widespread application and relevance in many of today's leading industries and markets.

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17 April 2000