Exercise walk-through

5.1
Firms, costs, growth and competition

Pearson Edexcel · International A-Level · Economics

Business objectives

- **profit maximisation** : produce where **marginal revenue equals marginal cost** ($MR = MC$). If one more unit adds more to revenue than to cost, make it; if it adds more to cost, do not;
- **revenue maximisation** : produce where $MR = 0$, because then one more unit adds nothing to revenue;
- **sales volume maximisation** : the largest output that still covers costs, where average revenue equals average total cost ($AR = ATC$);

Business objectives (2)

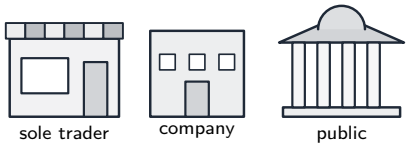
- **satisficing** : in Herbert Simon's theory, managers aim for a result that is "good enough" for all the groups they must keep happy, not the maximum.
- The firm's demand (average revenue) is $P = 70 - Q/2$, so $TR = 70Q - Q^2/2$ and $MR = 70 - Q$. For a straight-line demand curve, MR is twice as steep as AR.
- At $Q = 40$: $P = 50$, $TR = 2000$ and $MR = 30$, still positive.
- Revenue is greatest where $MR = 0$: $Q = 70$, $P = 35$, $TR = 2450$ — the point where PED is -1, as in Unit 1.

Monopsony and contestability

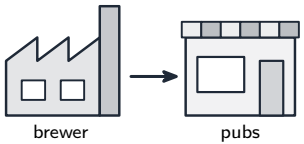
- A **monopsony** is a single buyer facing many sellers, such as the only large employer in a town, or the UK's National Health Service as the main employer of nurses.
- A **monopsony** can push the price it pays below the competitive level.
- The firm gains from lower costs and higher profits; suppliers and workers lose from lower prices and wages, and fewer of them are hired.
- Consumers may gain if the cost savings are passed on in lower prices.

Exercises 2.1·2.2

2.1 Name the five business types in the specification. [2]

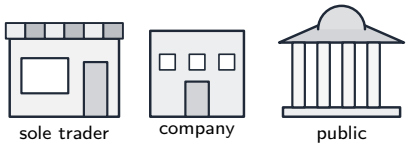


2.2 A brewer buys a chain of pubs. Name the integration type and give one advantage and one disadvantage. [3]



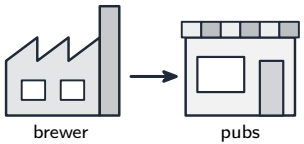
Exercises 2.1·2.2

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2.1 Private sector organisations; state-owned enterprises; for-profit and not-for-profit organisations; co-operatives; joint ventures.

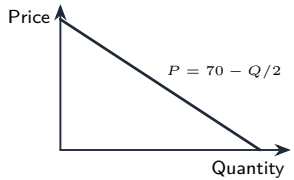
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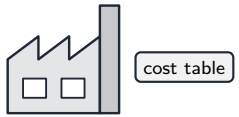
2.2 Forward vertical integration (buying the customer stage). Advantage: secures an outlet for its output (internalises the pub's margin). Disadvantage: costly and takes the firm outside its expertise, or invites coordination problems.

Exercises 2.3·2.4

2.3 On AR $P = 70 - Q/2$, calculate TR and MR at $Q = 40$ (price 50). [3]

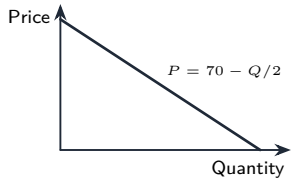


2.4 From the cost table, calculate ATC and AVC at $Q = 7$, and MC between $Q = 6$ and $Q = 8$. [3]



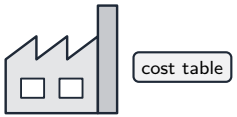
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2.3 TR $= P \times Q = 50 \times 40 = 2000$; MR $= 70 - Q = 30$ (or from TR $= 70Q - Q^2/2$, MR $= 70 - Q$).

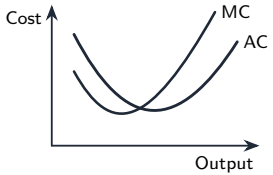
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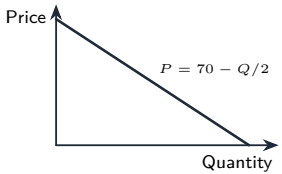
2.4 At $Q = 7$: TVC $= 26$, TC $= 38$, so AVC $= 26/7 \approx 3.71$ and ATC $= 38/7 \approx 5.43$. MC between 6 and 8: TVC rises from 21 to 32, so total MC over two units is 11, about 5.5 per unit (table MC values are 5 then 6).

Exercises 2.5·2.6

2.5 Using the cost table, state the short-run shutdown price and the break-even price for this firm. [2]

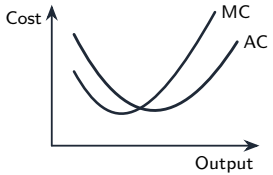


2.6 Where is revenue maximised on AR $P = 70 - Q/2$, and why? [3]



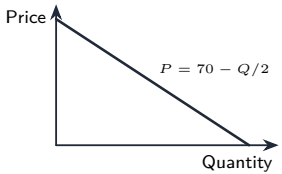
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2.5 Shutdown: $P < \min AVC = 3.4$. Break-even: $P = \min ATC = 5.43$.

2.6 Where is revenue maximised on AR $P = 70 - Q/2$, and why? [3]



2.6 Revenue is maximised where MR $= 0$: $70 - Q = 0$ gives $Q = 70$, $P = 35$, TR $= 2450$ – exactly where PED is unitary (topic 1): beyond it demand is inelastic and a further price cut lowers revenue.

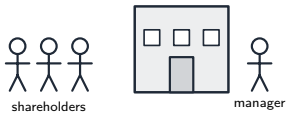
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Exercises 2.7·3.1

2.7 Distinguish normal profit from supernormal profit. [2]

normal profit supernormal profit

3.1 *(Original.)* Explain the principal-agent problem and how the divorce of ownership from control changes a firm's objectives. [4]



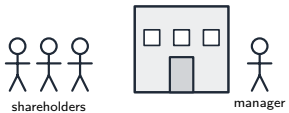
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normal profit supernormal profit

2.7 Normal profit is the minimum return that keeps the entrepreneur in the industry – an opportunity cost included in ATC; supernormal profit is profit above that, $P > ATC$.

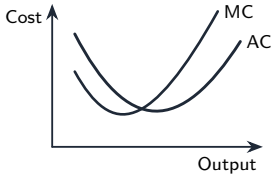
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3.1 Shareholders (principals) own the firm; salaried managers (agents) run it. Their objectives diverge: shareholders want maximum profit; managers may prefer growth, revenue or a quiet life, and know more about the business than the owners (asymmetric information). With ownership divorced from control, observed objectives (revenue max, satisficing) differ from profit maximisation; monitoring, incentives and share options narrow the gap.

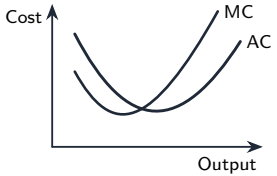
Exercise 3.2

3.2 *(Original.)* A firm's only fixed cost is 12 per day. At price 4 per item, the firm covers its variable costs exactly at $Q = 5$ (min AVC $= 3.4$) and its total costs at $Q = 7$ (min ATC $= 5.43$). Advise the firm what to do at prices 3.2, 4.5 and 6.0, with reasons. [6]



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3.2 At 3.2: below min AVC (3.4) – shut down immediately; revenue cannot even cover variable costs, and every unit sold deepens the loss beyond the fixed cost 12. At 4.5: above AVC but below ATC – produce in the short run: variable costs are covered and something towards the 12 fixed cost, so trading loses less than 12; exit in the long run unless conditions improve. At 6.0: above min ATC (5.43) – produce: supernormal profit at the profit-maximising output where MC = 6, between Q = 7 and 8; entry pressure would follow in a competitive market.

Local review guidance: table answers show the division or difference before the per-unit value; the shutdown advice names WHICH cost floor each price fails or clears; integration types use the stage (supplier, customer, rival, unrelated). This is authored classroom guidance.