

5.1 Businesses, revenue, costs and profits

Name: _____ Class: _____ Date: _____

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KEY WORDS law of diminishing returns • normal profit

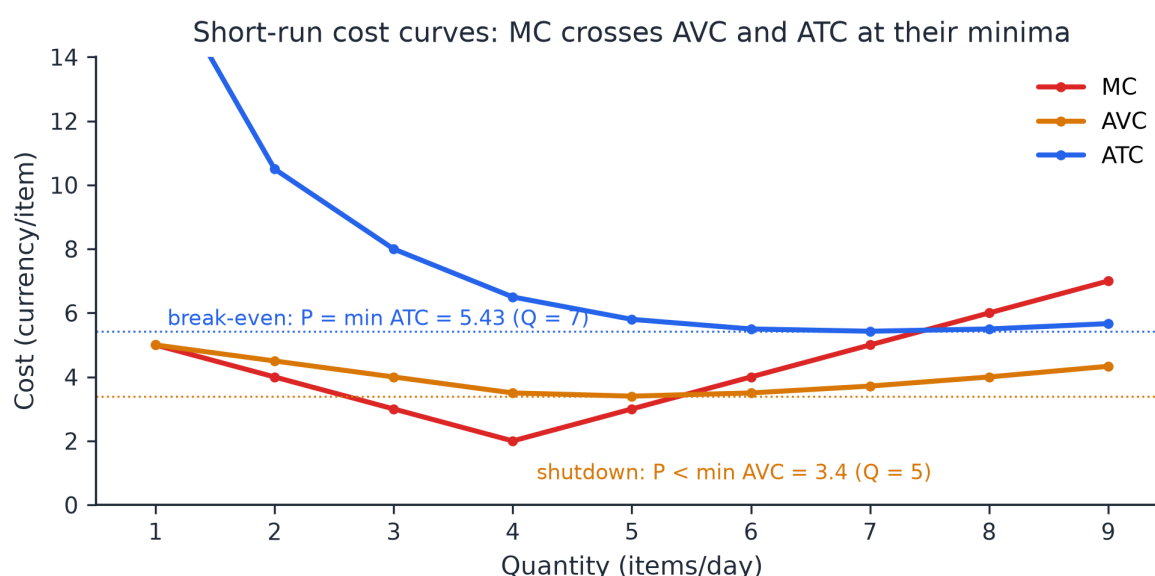
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Objective

Classify business types and growth routes, apply the business-objective formulae, and compute TR, AR, MR and the full cost family with the shutdown and break-even rules (spec 3.3.1–3.3.2). All data are the handout's shared model and cost table.

1 Key knowledge and worked examples

Revenue and costs. On AR $P = 70 - Q/2$: $MR = 70 - Q$ and TR peaks at $Q = 70$. The cost table (TFC = 12; TVC 5, 9, 12, 14, 17, 21, 26, 32, 39 for $Q = 1...9$) gives MC 5, 4, 3, 2, 3, 4, 5, 6, 7; AVC is minimised at 3.4 ($Q = 5$) – the shutdown price; ATC at 5.43 ($Q = 7$) – the break-even price. Profit max: $MR = MC$. Revenue max: $MR = 0$.



Original table plotted; the two minima carry the shutdown and break-even rules.

2 Practice

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]

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]

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]

2.7 Distinguish normal profit from supernormal profit.

[2]

3 Exam-style questions

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

[4]

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]

Solutions

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

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.

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

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).

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

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.

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, $P > ATC$.

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.

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.