Firms, costs, growth and competition

Edexcel IAL Economics WEC13 sections 3.3.1-3.3.3 full package

Firms, costs, growth and competition

- classify businesses and explain how and why they grow, or stay small;
- compare business objectives, including **profit** and **revenue maximisation** and the **principal–agent problem**;
- calculate revenue, costs and profit, and apply the shutdown and break-even rules;

Firms, costs, growth and competition (2)

- explain economies and **diseconomies of scale** and the four kinds of **efficiency**;
- analyse **perfect competition**, monopolistic competition, oligopoly, monopoly, monopsony and contestable markets.

Types, sizes and growth of businesses

- **private-sector** firms owned by shareholders or a sole owner, usually for **profit**;
- **public-sector** organisations such as **state-owned enterprises** 国有企业 (State Grid, China's national power network);
- **not-for-profit** organisations, which reinvest any surplus instead of paying it to owners (Wikipedia, many hospitals and charities);

Types, sizes and growth of businesses (2)

- **co-operatives 合作社**, owned by their members with one vote each (Spain's Mondragon group employs about 70,000 people, most of them member-owners);
- **joint ventures 合资企业**, where two firms share a project, its risk and its control (SAIC-Volkswagen, founded in Shanghai in 1985).
- **horizontal integration 横向整合**: buying a rival at the same stage, as when Didi and Kuaidi merged in 2015, and Didi then bought Uber China;

Types, sizes and growth of businesses (3)

- **backward vertical integration 后向纵向整合**: buying a supplier. BYD makes its own batteries for its electric cars;
- **forward vertical integration 前向纵向整合**: buying a customer stage, such as a brewer buying pubs or a phone maker opening its own shops;
- **conglomerate integration 混合整合**: buying an unrelated business to spread risk, as India's Tata Group owns steel, cars, tea and software firms.

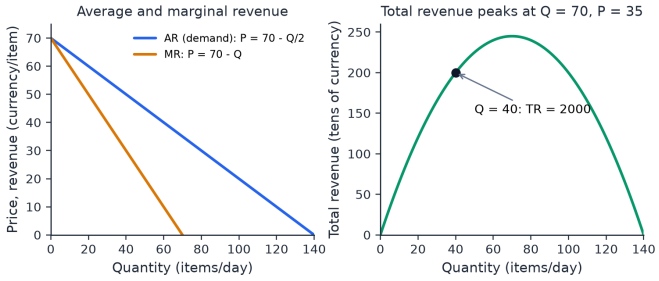
Business objectives

- **profit maximisation 利润最大化**: 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 收入最大化**: produce where $MR = 0$, because then one more unit adds nothing to revenue;
- **sales volume maximisation 销量最大化**: the largest output that still covers costs, where average revenue equals average total cost ($AR = ATC$);

Business objectives (2)

- **satisficing 满意化**: 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.

Figure: Business objectives



- AR and MR on the model: MR is twice as steep as AR, and revenue peaks where MR $= 0$ at Q $= 70$
- Match each part of the diagram to the text.

Revenue, costs and profits

- $TC = TFC + TVC$ (total fixed plus total **variable cost**)
- $ATC = TC/Q$, $AVC = TVC/Q$, $MC = \Delta TC/\Delta Q$
- MC (the change in TVC) is 5, 4, 3, 2, 3, 4, 5, 6, 7: falling, then rising once diminishing returns set in.

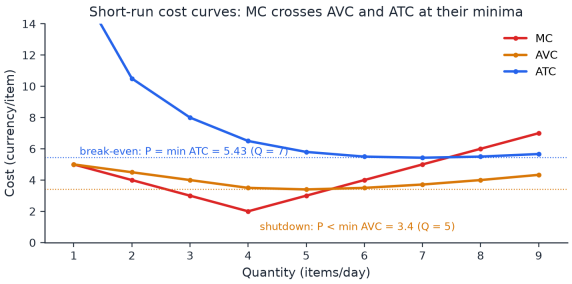
Revenue, costs and profits (2)

- AVC is lowest at $Q = 5$: $17/5 = 3.4$.
- ATC is lowest at $Q = 7$: $(12 + 26)/7 = 5.43$.
- MC cuts both AVC and ATC at their lowest points.

Revenue, costs and profits (3)

- **Short-run shutdown**: produce nothing if $P < \min AVC$ (3.4 here). Below that price, revenue does not even cover the variable costs. Between AVC and ATC, the firm keeps trading at a loss, because its fixed costs must be paid anyway.
- **Long-run exit**: leave the industry if $P < \min ATC$ (5.43 here).

Figure: Revenue, costs and profits



- The cost table plotted: MC cuts AVC at its minimum (3.4 at Q = 5) and ATC at its minimum (5.43 at Q = 7)
- Read the axes and units first.

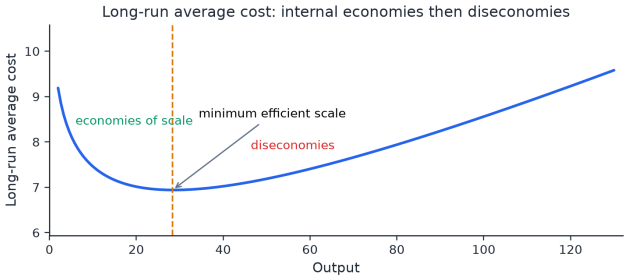
Economies and diseconomies of scale

- **technical**: bigger machines are cheaper per unit of output. Maersk's Triple-E container ships of 2013 each carried about 18,000 containers, with much lower fuel and crew cost per container than older ships;
- **purchasing**: bulk discounts;
- **financial**: large firms borrow more cheaply;

Economies and diseconomies of scale (2)

- **managerial**: specialist managers;
- **marketing**: advertising costs spread over more sales;
- **risk-bearing**: a range of products spreads risk.

Figure: Economies and diseconomies of scale

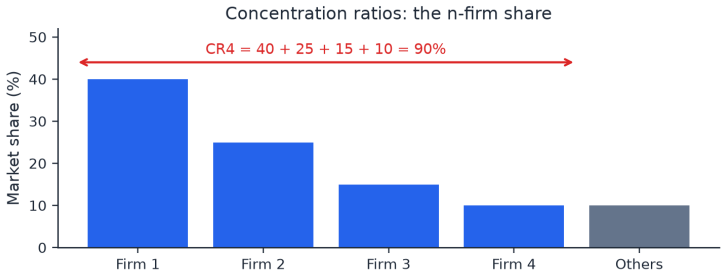


- LRAC falls with **economies of scale** until the **minimum efficient scale**, then rises with diseconomies
- Match each part of the diagram to the text.

Efficiency and concentration

- **allocative efficiency** 配置效率: $P = MC$; the price buyers pay equals the cost of the last unit, so the right amount is produced;
- **productive efficiency** 生产效率: output at the lowest point of ATC;
- **dynamic efficiency** 动态效率: investment and innovation over time, often paid for by profits;
- **X-inefficiency**: producing above the lowest possible cost.

Figure: Efficiency and concentration



- Five firms with shares 40, 25, 15, 10 and 10: the four-firm **concentration ratio** is 90%
- Match each part of the diagram to the text.

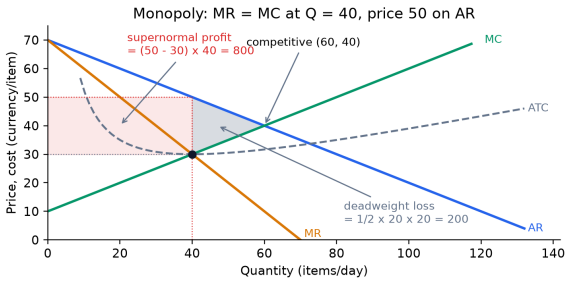
Market structures: competition to monopoly

- Demand (AR) is $P = 70 - Q/2$, so $MR = 70 - Q$. Marginal cost is $MC = 10 + Q/2$.
- Set $MR = MC$: $70 - Q = 10 + Q/2$, so $Q_m = 40$.
- Price from the demand curve: $P_m = 70 - 20 = 50$.

Market structures: competition to monopoly (2)

- With $ATC = 30$ at this output, **supernormal profit** $= (50 - 30) \times 40 = 800$.
- A competitive market would produce where $P = MC$: $70 - Q/2 = 10 + Q/2$, so $Q_c = 60$ and $P_c = 40$.
- The **monopoly** charges 10 more, sells 20 fewer, and causes a **deadweight loss 无谓损失** of $\frac{1}{2} \times 20 \times (50 - 30) = 200$.

Figure: Market structures: competition to monopoly



- **Monopoly**: MR = MC at Q = 40; price 50 on AR; **profit** 800 shaded; **deadweight loss** 200 compared with the competitive 60 at 40
- Match each part of the diagram to the text.

Monopsony and contestability

- A **monopsony** 买方垄断 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.

Data-response practice (Section B style)

- (a) Using the table, calculate the three-firm **concentration ratio** and identify the market structure it suggests. [2]
- (b) Explain why Microsoft's purchase of Activision could be described as vertical integration. [4]
- (c) With the help of a diagram, explain why less competition could lead to higher prices for consumers. [6]

Data-response practice (Section B style) (2)

- (d) Examine **two** reasons why competition authorities investigate large **mergers**. [8]
- (e) Evaluate whether the CMA was right to approve the changed deal. [12]

Sources for this lesson

- Reports on Didi Chuxing's purchase of Uber China, August 2016 (Reuters, *Financial Times*).
- European Commission, decision on the trucks **cartel** (19 July 2016).
- UK Competition and Markets Authority, Microsoft/Activision Blizzard final reports (April and October 2023).

Sources for this lesson (2)

- H. A. Simon, "A Behavioral Model of Rational Choice", *Quarterly Journal of Economics* 69 (1955).
- Pearson Edexcel International A Level Economics specification (WEC13), Issue 2, sections 3.3.1–3.3.3.

Common errors

- Producing where MR = 0 when the question asks for **profit maximisation**. **Profit** is greatest where MR = MC.
- Reading the **monopoly** price off the MC or MR curve. Go up from Q_m to the demand (AR) curve.
- Forgetting that normal profit is included in costs, so "zero economic profit" still means the owner earns a normal return.

Common errors (2)

- Applying the long-run exit rule to the short run. In the short run a firm keeps trading while price covers AVC.
- Saying **monopolistic competition** has **barriers to entry**. Entry is free; products are **differentiated**.
- Writing that a concentration ratio proves collusion. It measures structure, not behaviour.

Key terms

- **MR = MC**: the profit-maximising output rule.
- **Diminishing returns**: in the short run, each extra unit of a variable factor adds less output.
- **Economies of scale**: falling **long-run average cost** as output rises.

Key terms (2)

- **Allocative / productive efficiency**: $P = MC$ / output at minimum ATC.
- **Concentration ratio**: the combined market share of the largest n firms.
- **Oligopoly**: a few **interdependent** firms behind **barriers to entry**.

Key terms (3)

- **Natural monopoly**: one firm supplies the market at the lowest **average cost**.
- **Contestable market**: entry and exit are cheap because **sunk costs** are low.

Check yourself

- 1.
- Classify each: a smartphone maker buys a chip designer; a hotel chain buys a rival chain; a bank buys a football club. 2.
- Explain why a firm might keep producing at a loss in the short run. 3.
- Using the cost table, calculate ATC at $Q = 6$ and MC of the 8th unit. 4.