

Exercise walk-through

Firms and production ■ 3.5

eXercise

You must be able to

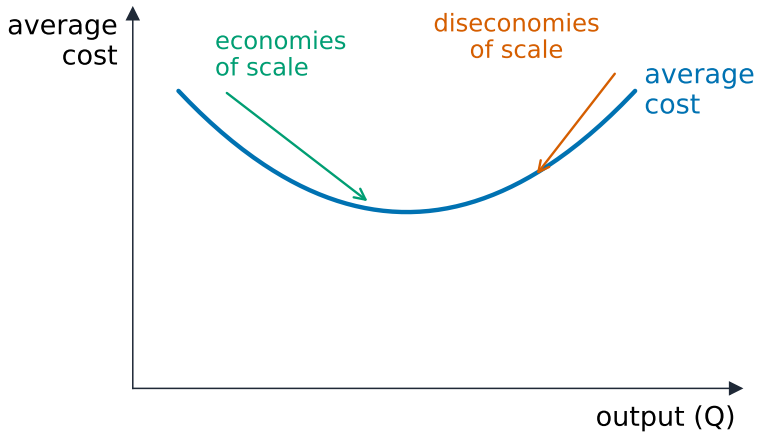
- distinguish labour-intensive from capital-intensive production
- explain productivity and how to raise it
- explain economies and diseconomies of scale

Method — Production and scale

- **Labour-intensive** 劳动密集型: mostly workers (hand-made crafts).
Capital-intensive 资本密集型: mostly machines (a car factory).
- **Productivity** 生产率: output per worker/machine; raise it by training, better machines, good management.
- **Economies of scale** 规模经济: average cost falls as output rises (bulk buying, big machines). **Diseconomies** raise it if too big (hard to manage).

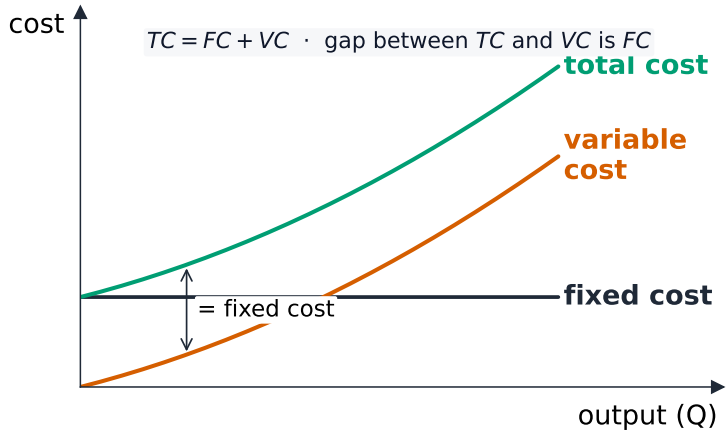
Answer shapes: $K + App + An + Ev$ (a justified judgement, for discuss questions).

Method — Production and scale



Average cost falls (economies of scale) then rises (diseconomies)

Method — Production and scale



Total cost is fixed cost plus variable cost

Practice 2.1 ■ 2 marks

State the difference between labour-intensive and capital-intensive production.

Solution 2.1

Method: Production and scale

Worked steps

labour-intensive production uses mostly labour (many workers, few machines);
capital-intensive uses mostly capital (many machines, few workers) (2 for a clear difference; 1 for a partial idea).

Practice 2.2 ■ 2 marks

Define the term *productivity*.

Solution 2.2

Worked steps

output per worker (or per machine) in a set time (2 for a clear definition; 1 for a partial idea).

Practice 2.3 ■ 2 marks

Define the term *economies of scale*.

Solution 2.3

Method: Production and scale

Worked steps

the fall in average cost per unit as a firm increases its output (2 for a clear definition; 1 for a partial idea).

Exam-style 3.1 ■ 1 mark

Economies of scale mean that, as a firm produces more, its:

A average cost per unit falls

B average cost per unit rises

C total cost falls

D revenue falls

Solution 3.1

Method: Production and scale

A average cost per unit falls



B average cost per unit rises

C total cost falls

D revenue falls

Worked steps

A. Economies of scale mean the average cost per unit falls.

Exam-style 3.2 ■ 4 marks

Explain two ways a firm could raise its productivity.

Solution 3.2

Method: Production and scale

Worked steps

[4] For **each** of two ways: $K \uparrow + A \uparrow$ — *training*: skilled workers make more and fewer mistakes $\rightarrow$ output per worker rises; *better machines*: modern equipment does more in the same time $\rightarrow$ output per worker rises.

Exam-style 3.3 ■ 6 marks

Analyse why a firm's average cost may fall and then rise as it grows larger.

Solution 3.3

Method: Production and scale

Worked steps

[6] $K/App/An$ — as a firm grows, it gains **economies of scale**: it buys materials in bulk more cheaply, uses large efficient machines, and borrows cheaply → average cost per unit falls. But if it grows *too* large, **diseconomies of scale** set in: it is hard to manage, messages travel slowly, and workers feel less important → average cost per unit rises again → so there is a lowest-cost size.