Theme 2: Managing business activities

Chapter 31 and 32 – February, 2017

Sales, revenue and costs

Sales volume

- What units to use for measuring sales levels?

Type of business	How sales volume is measured
Cereal farmer	Tonnes of wheat sold
Car manufacturer	Number of cars sold
Airline	Number of passengers carried
Oil company	Barrels of oil sold
Haulage business	Number of miles travelled
Hotel	Number of rooms let
Driving instructor	Number of hourly lessons given
Insurance company	Number of policies sold
Music tutor	Number of hourly lessons given
Dairy farmer	Litres of milk sold
Power generator	Megawatt hours sold

Sales, revenue and costs

Sales revenue

- *sales revenue*: value of output sold by a business

$$\text{sales revenue} = \text{price} \times \text{quantity of output}$$

Sales, revenue and costs

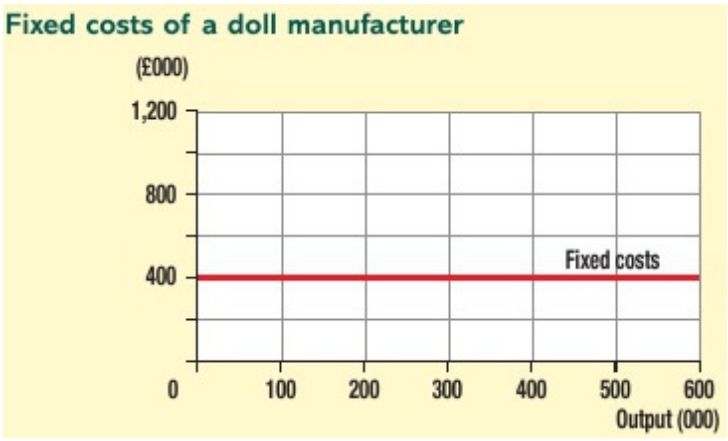
Business costs

- *short-run* vs. *long run* costs
  - in the *short-run*: at least one factor of production is fixed
  - in the *long-run*: all factors of production are variable

Sales, revenue and costs

Fixed costs

- *fixed cost*: costs that remain the same for any level of output
- Examples: rent, insurance, heating bills
- Note: Fixed costs will occur even if the business does not produce!



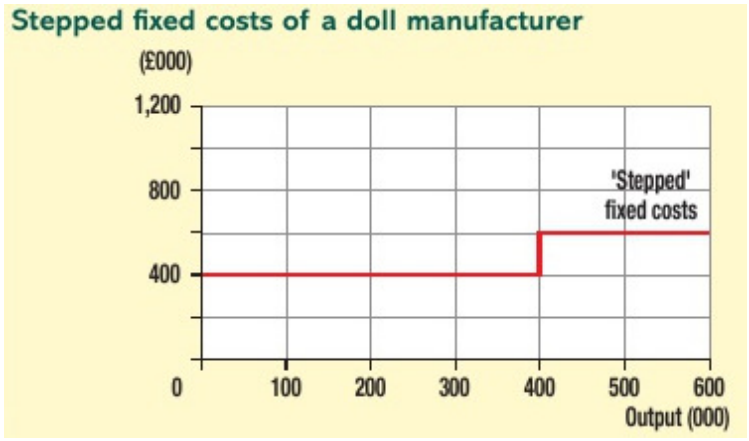


Figure : *Fixed costs* and *stepped fixed costs*

Sales, revenue and costs

Variable costs

- *variable cost*: costs that increase as output/production increases
- Example: fuel, packages, flour (bakery)
- Note: Variable costs will be zero if output is zero.

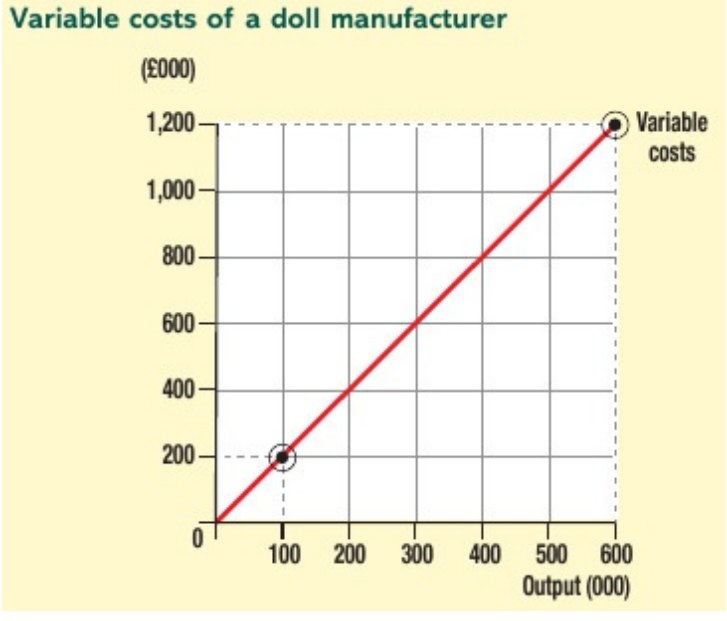


Figure : *Variable costs* (linear case)

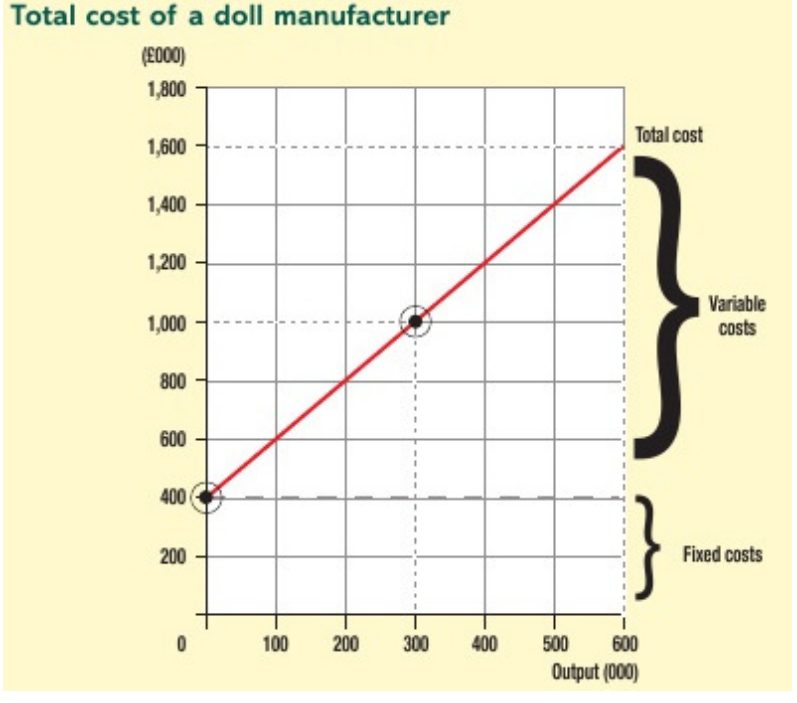
Sales, revenue and costs

Total costs

- *total cost*: cost of producing any given level of output

$$\begin{aligned} \text{total cost} &= \text{fixed cost} + \text{variable cost} \\ TC &= FC + VC \end{aligned}$$

- Note: It may not be straightforward to classify costs as *fixed* or *variable* costs (*semi-variable costs*)



Sales, revenue and costs

Direct costs vs. indirect costs

- *direct costs*: costs that can be identified with a particular *product* or *process* (i.e., raw materials, packaging, direct labour)
- *indirect costs*: costs that result from the whole business and therefore cannot be associated with a particular product (i.e., rent insurance, audit fees)
- *in general*:
  - indirect costs $\rightarrow$ fixed costs
  - direct costs $\rightarrow$ variable costs

Sales, revenue and costs

Average cost or unit cost

- *average costs* or *unit cost*: cost per unit of production

$$\text{average cost} = \frac{\text{total cost}}{\text{output}}$$

Sales, revenue and costs

Profit and loss

- *Profit*:

$$\text{profit} = \text{total revenue} - \text{total costs}$$

- if total revenue $>$ total costs then there is *profit*
- if total revenue $<$ total costs then there is *loss*

Sales, revenue and costs

Case study: Razia Malik

- Calculate the
  - *sales revenue*
  - *variable costs*
  - *total costs*
  - *profit made*

  in 2013?

	2013	2014
Car lease per annum	5,000	5,000
Insurance per annum	1,000	1,200
Other fixed costs per annum	2,000	2,800
Special promotion	0	3,000
Room hire fees per course	150	200
Refreshment costs per course	150	180
Training materials per course	50	50
Other variable costs per course	50	70
Price per course	600	800

Figure : *Financial information*

Sales, revenue and costs

Case study: Razia Malik

- sales revenue = price x quantity sold
- variable costs = output x cost per unit
- total costs = fixed cost + variable cost
- profit = total revenue - total cost

Sales, revenue and costs

Case study: Razia Malik

- Assess the extent to which Razia achieved her objective by raising the price of the courses from £600 to £800.
- Submit by Friday (3/3/2017)!

Sales, revenue and costs

Key terms

- average cost or unit cost:
- fixed cost:
- long run:
- profit:
- sales revenue:
- sales volume:
- semi-variable cost:
- short run:
- total cost:
- total revenue:
- variable cost:

Break-even

Contribution

- *contribution*: difference between selling price and the variable cost
- this difference will *contribute* to the total fixed costs of the business and the profit

Break-even

Contribution per unit and total contribution

- *unit* contribution:

$$\text{contribution per unit} = \text{selling price} - \text{variable cost}$$

- *total* contribution: is calculated if more than one unit is sold

$$\text{total contribution} = \text{total revenue} - \text{total variable cost}$$

Break-even

- *break-even point*: point where *total cost* = *total revenue*
- *break-even output*: output where *total cost* = *total revenue*

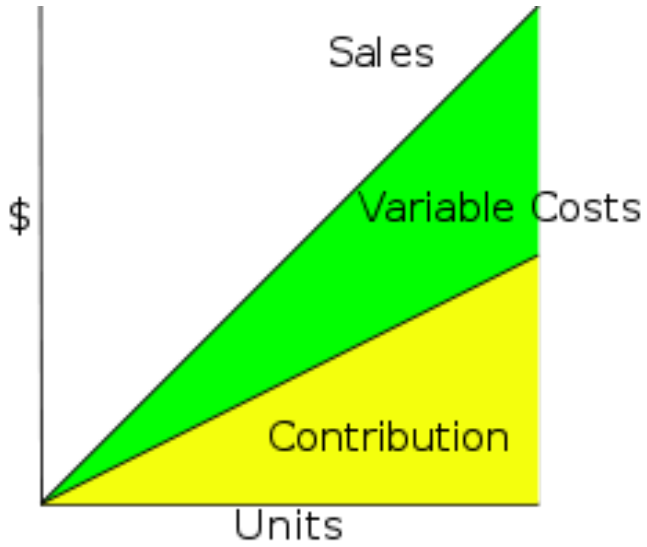
$\rightarrow$

Break-even

Calculating break-even using contribution

Contribution: portion of sales revenue that is not consumed by variable costs and so contributes to the coverage of fixed costs.

$$\text{break-even output} = \frac{\text{fixed costs}}{\text{contribution}}$$



Break-even

Calculating break-even using contribution

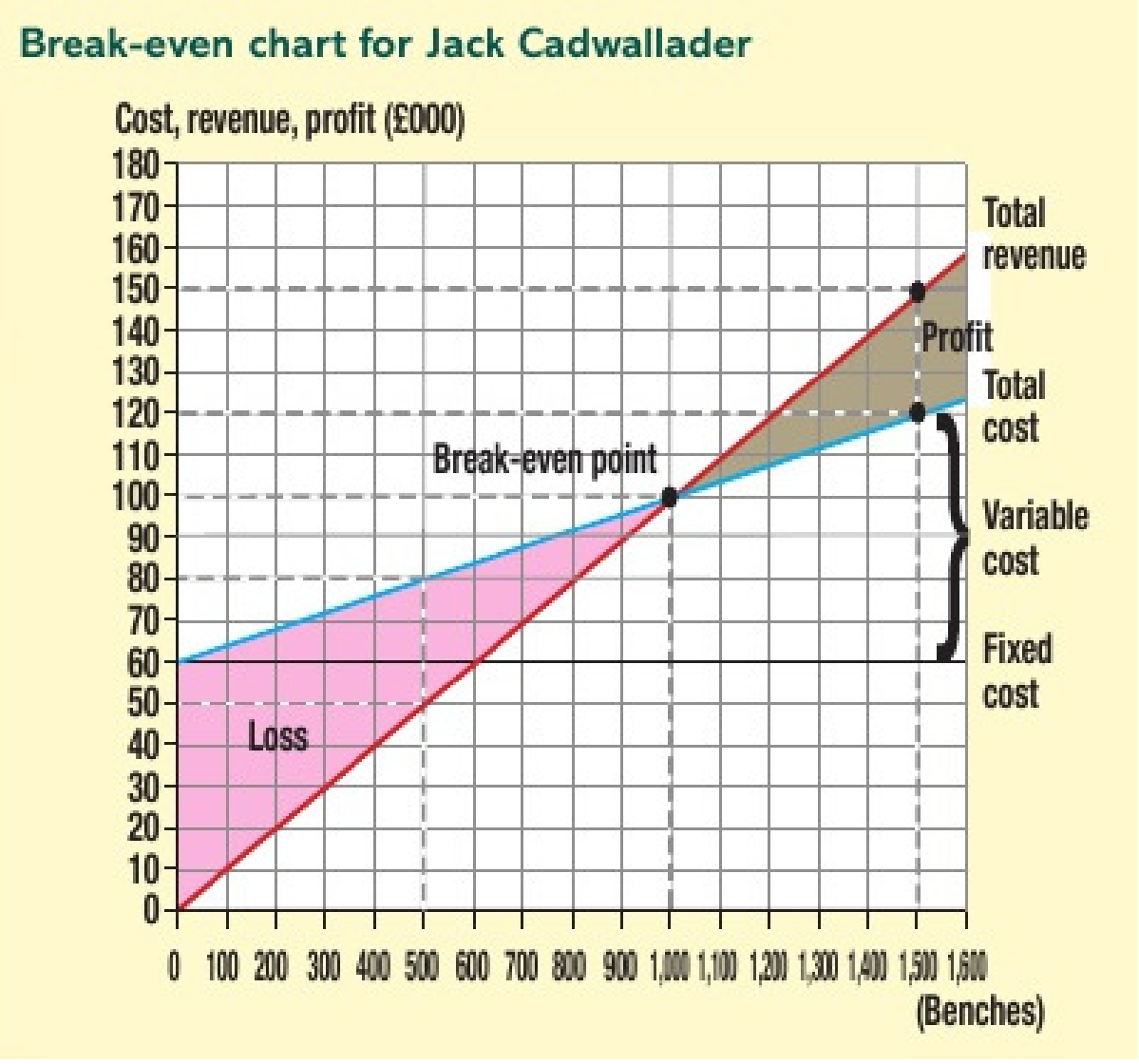
Jack Cadwallader makes wrought-iron park benches. His fixed costs (FC) are £60 000 and variable costs (VC) £ 40 per bench. He sells the benches to local authorities across the country for £ 100 each.

$$\begin{aligned} \text{contribution} &= \text{selling price} - \text{variable cost} \\ &= £\,100 - £\,40 \\ &= £\,60 \end{aligned}$$

$$\begin{aligned} \text{break-even output} &= \frac{\text{fixed costs}}{\text{contribution}} \\ &= \frac{£\,60000}{£\,60} \\ &= 1000 \text{ benches} \end{aligned}$$

Break-even

Break-even chart

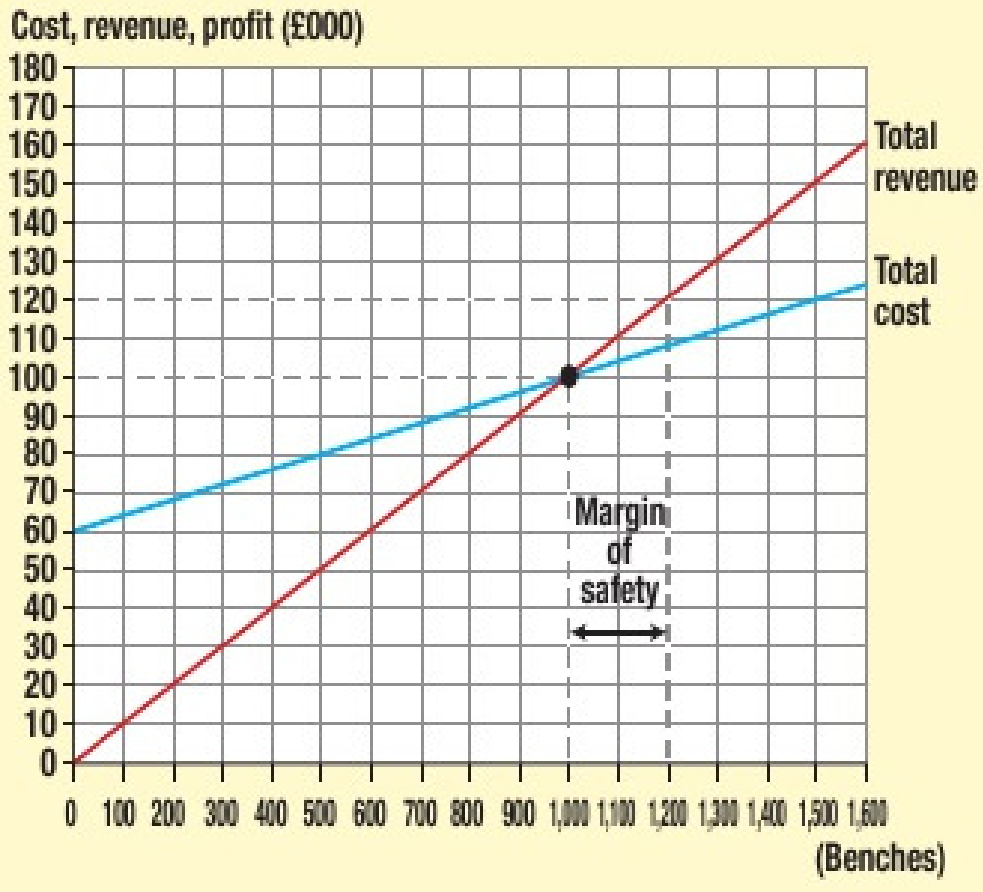


Break-even

Margin of safety

- if output is 1200 benches, then *margin of safety* is 200

Break-even chart showing the margin of safety for Jack Cadwallader's business



Break-even

Using break-even analysis

- *break-even analysis* = tool that allows to take decisions about the future
- break-even analysis is required in *business plans* (funding)

Break-even

Limitations of break-even analysis

- *output and stocks*: assumes that all output is sold (output = sales)
- *unchanging conditions*:
- *accuracy of data*:
- *non-linear relationships*:
- *multi-product businesses*:
- *stepped fixed costs*:

Break-even

Case study: Gowda Chanda ltd.

Break-even

Key terms

- break-even:
- break-even chart:
- break-even output:
- break-even point:
- contribution:
- margin of safety: