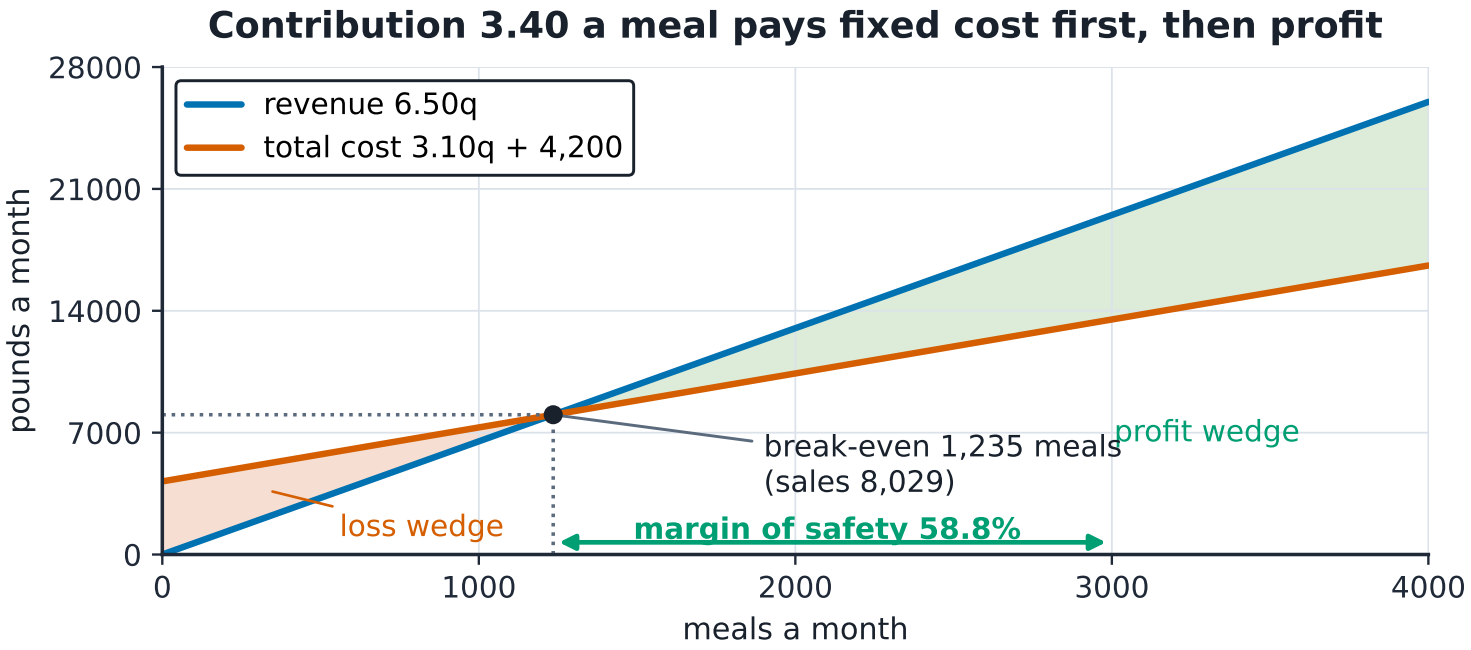
Exercise walk-through

6.2
Cost-volume-profit analysis

University Business

CVP: the flight simulator

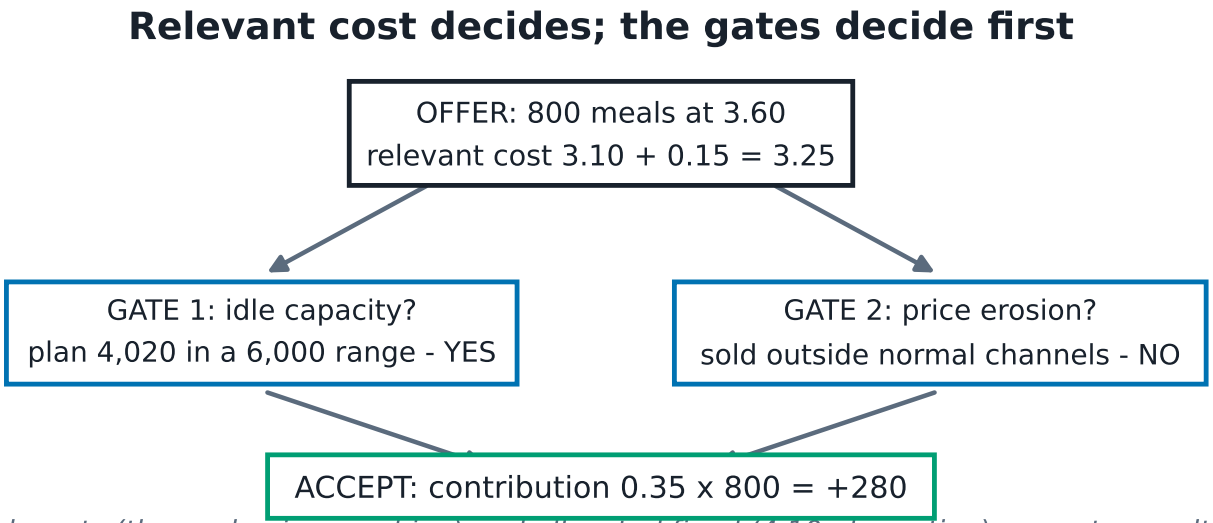


Contribution 3.40 a meal: break-even at 1,235 meals, safety margin 58.8%.

CVP in action: tax, mix, sensitivity

1. **Tax** 6,000 after 25% tax: pre-tax 8,000, volume $(4{,}200 + 8{,}000)/3.40 = 3{,}588.2$, so 3,589 meals - inside the range.
2. **Mix** 60:40 bundle CM 2.28, break-even 1,842 bundles; 50:50 falls to 2.20 - Beta drags it.
3. **Price** A 5% price cut takes CM to 3.075 and break-even up 11%; a 5% variable-cost rise (CM 3.245) raises it only 5%.

Relevant costs: only changes get a vote



Pass both gates, then **relevant cost** 3.25 against 3.60 earns +280.

Exercises 2.1·2.2

2.1 Compute the CM per cup, the CM ratio, and break-even in cups and pounds. [4]

2.2 Target profit £1,800: how many cups? And if the target is £1,500 AFTER a 25% tax? [4]

Exercises 2.1·2.2

2.1 Compute the CM per cup, the CM ratio, and break-even in cups and pounds. [4]

2.1

- $CM = 3.20 - 1.40 = £1.80$.
- Ratio $= 1.80/3.20 = 56.25\%$.
- Break-even $= 2{,}250/1.80 = 1{,}250$ cups.
- $= £4{,}000$ of sales.

2.2 Target profit £1,800: how many cups? And if the target is £1,500 AFTER a 25% tax? [4]

2.2

- £1,800: $(2{,}250 + 1{,}800)/1.80 = 2{,}250$ cups.
- £1,500 after tax: pre-tax $1{,}500/0.75 = £2{,}000$.
- $q = (2{,}250 + 2{,}000)/1.80 = 2{,}361$ cups.

Exercises 2.3·2.4

2.3 At a 2,000-cup month, compute the margin of safety and the operating leverage. [3]

2.4 The cart adds muffins: CM £1.10, sold one per two cups. What is the cup+muffin bundle CM, and the bundle break-even against the £2,250 fixed? [3]

Exercises 2.3·2.4

2.3 At a 2,000-cup month, compute the margin of safety and the operating leverage. [3]

2.3

- $MoS = (2{,}000 - 1{,}250)/2{,}000 = 37.5\%$.
- Leverage $= (1.80 \times 2{,}000)/(1.80 \times 2{,}000 - 2{,}250) = 3{,}600/1{,}350 = 2.67$.

2.4 The cart adds muffins: CM £1.10, sold one per two cups. What is the cup+muffin bundle CM, and the bundle break-even against the £2,250 fixed? [3]

2.4

- Bundle (2 cups + 1 muffin): $2 \times 1.80 + 1.10 = £4.70$.
- Per "customer unit": £4.70.
- Bundle break-even $= 2{,}250/4.70 = 479$ customer units (958 cups + 479 muffins).

Exercise 2.5

2.5 The price falls 5% with no cost change. In two lines: what happens to break-even, and why does a 5% price cut hurt more than a 5% variable-cost rise? [3]

Exercise 2.5

2.5 The price falls 5% with no cost change. In two lines: what happens to break-even, and why does a 5% price cut hurt more than a 5% variable-cost rise? [3]

2.5

- New CM = 3.04 − 1.40 = £1.64; break-even = 2,250/1.64 = 1,372 cups, up 10%.
- The price cut hits the WHOLE margin; the cost rise hits only the variable share – margin changes are always bigger than their percentages suggest.