

36 Contribution

What is contribution?

Craig Eckert sells second-hand cars. His last sale was £990 for a Golf GTI. He bought the Golf at a car auction for £890. The difference between what he paid for the car and the price he sold it for is £100 (£990 - £890). This difference is called the CONTRIBUTION. It is not profit because Craig has fixed costs to pay such as rent, insurance and administration expenses. Contribution is the difference between selling price and variable costs. In this case the selling price was £990 and the variable cost was £890. The £100 will contribute to the total fixed costs of the business and the profit.

Contribution per unit and total contribution

A business might calculate the contribution on the sale of a single unit, or the sale of a larger quantity, such as a whole year's output.

Unit contribution In the above example the unit contribution was calculated. It was the contribution on the sale of one unit, a single car. The formula for calculating the unit contribution is:

$$\begin{aligned} \text{Contribution per unit} &= \text{selling price} - \text{variable cost} \\ &= £990 - £890 \\ &= £100 \end{aligned}$$

Total contribution When more than one unit is sold the total contribution can be calculated. For example, a textile company receives an order for 1,000 pairs of trousers. The variable costs are £7.50 a pair and they will be sold for £9.00 a pair. The total contribution made by the order is:

$$\begin{aligned} \text{Total contribution} &= \text{total revenue} - \text{total variable cost} \\ &= (£9.00 \times 1,000) - (£7.50 \times 1,000) \\ &= £9,000 - £7,500 \\ &= £1,500 \end{aligned}$$

Table 1: Variable cost and selling price of cars in January

Description	Variable cost	Selling price	Contribution (£)
Nissan Micra	900	1,100	200
VW Polo	1,100	1,450	350
Fiat Tipo	780	900	120
Volvo 740 SE	1,400	1,700	300
Seat Ibiza	670	700	30
Astra Auto	2,300	2,700	400
Nissan Primera	3,100	3,600	500
BMW 318i	6,900	8,000	1,100
Escort estate	560	620	60
Golf GTI	890	990	100
Total	18,600	21,760	3,160

The £1,500 in this example will contribute to the textile company's fixed costs and profit. The total contribution can also be calculated by multiplying the unit contribution by the number of units sold.

$$\begin{aligned} \text{Total contribution} &= \text{unit contribution} \times \text{number of units sold} \\ &= (£9.00 - £7.50) \times 1,000 \\ &= £1.50 \times 1,000 \\ &= £1,500 \end{aligned}$$

Contribution and profit

Contribution can be used to calculate profit. Take the example again of Craig Eckert the car salesperson. He wants to calculate the profit his business makes in January. Table 1 shows the variable cost and selling price of cars in January.

The fixed costs of the business in the same month are also shown in Table 2.

The total contribution from car sales in January was £3,160. This is calculated by subtracting the total variable costs, ie the cost of purchasing the cars, from the total revenue (£21,760 - £18,600). Total revenue is the amount of money received from the sale of the 10 cars during January. The profit for January 2007 is:

$$\begin{aligned} \text{Profit} &= \text{total contribution} - \text{fixed costs} \\ &= £3,160 - £1,160 \\ &= £2,000 \end{aligned}$$

So the business made £2,000 profit in January.

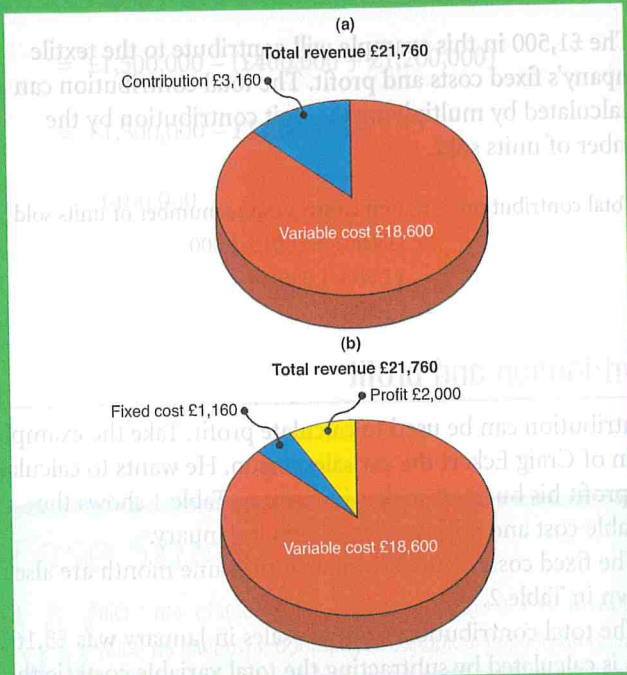
Profit can be calculated by subtracting total costs from total revenue. If this method is used here, the profit made by Craig Eckert's business in January is:

$$\begin{aligned} \text{Profit} &= \text{total revenue} - \text{total cost} \\ &= \text{total revenue} - (\text{fixed cost} + \text{variable cost}) \\ &= £21,760 - (£1,160 + £18,600) \\ &= £21,760 - £19,760 \\ &= £2,000 \end{aligned}$$

Table 2: Monthly fixed costs for Craig Eckert

Description	(£)
Office rent	700
Insurance	60
Telephone	100
Administrative expenses	300
	1,160

Figure 1: The relationship between fixed costs, variable costs, profit and contribution for Craig Eckert's business in January



The answer is the same as before, £2,000. However, the contribution method can often be quicker than this method because there is slightly less calculation.

Fixed costs, variable costs, contribution and profit

The relationship between fixed costs, variable costs, profit and contribution is shown in Figure 1. The pie charts show information from Craig Eckert's business in January.

Figure 1(a) shows how the total revenue of £21,760 is divided between the variable cost (£18,600) and contribution (£3,160). Figure 1(b) shows how total revenue of £21,760 is divided between variable cost (£18,600), fixed costs (£1,160) and profit (£2,000). Note that the value of contribution (£3,160) is equal to the value of fixed cost (£1,160) and profit (£2,000) added together.

Contribution costing

How can a business make use of contribution calculations? Calculating the contribution to fixed costs and profit that a product makes might help a business in decision making. This is known as contribution costing. For example, say that a design business has limited time and resources. It has been approached by two clients who want a new corporate logo and image designing this week. The prices and variable costs and contribution are shown below.

- Design 1 – Price £3,000, variable costs £2,500, contribution per unit £500 (£3,000 - £2,500)
- Design 2 – Price £3,000, variable costs £800, contribution per unit £2,200 (£3,000 - £800)

So the business might choose the second design as it contributes more to fixed costs and profit.

Contribution pricing

Some businesses use contribution when setting their price. This approach involves setting a price for orders or individual products which exceeds the variable cost. This means that a particular order or product will always make a contribution when sold. This approach ignores fixed costs since a single order or product may not generate enough contribution to cover fixed cost. This approach needs to be used with caution. Obviously, to make a profit fixed costs have to be covered. Contribution pricing is most likely to be used when fixed costs are low or when a business knows through experience that fixed costs will be covered.

Table 4 shows some financial information for R G Edwards, an engineering company, that receives four big orders in a particular month. The table shows the price charged, the variable cost and contribution for each order. The total contribution is £35,500. Through experience R G Edwards knows that these prices will cover fixed costs. Fixed costs are £10,000 per month. Therefore the profit for the month is £25,500 (£35,500 - £10,000).

Contribution can be used to calculate the break-even output of a business. This is covered in the next unit.

Contribution pricing is also a useful approach for multi-product firms. Some businesses produce such a wide range of products that standard pricing is inappropriate. Therefore, for each product or order they charge a price that exceeds variable costs. Obviously, such an approach can only be used if the business is confident that all costs will be covered and a profit is generated. The use of contribution to help businesses choose viable products and make decisions is sometimes called contribution analysis.

Question 1.

AblePrint Ltd is a medium-sized printing company based in Worcester. It offers professional quality-controlled printing with a clear and competitive pricing policy. Examples of its services include the printing of business cards, compliment slips, brochures and price lists. AblePrint Ltd has received an order from a local tour operator. It wants 1,000 brochures printed to supply travel agents. The business has agreed a price of £540 for the job.

- Calculate the total contribution for the job.
- Calculate the profit from the job.

Table 3: Print costs

Fixed costs	£100
Variable costs	
Paper	15p per brochure
Ink	10p per brochure
Other variable costs	10p per brochure

Table 4: Financial information for R G Edwards

	Price	Variable cost	Contribution (£)
Order 1	45,000	32,000	13,000
Order 2	23,000	21,000	2,000
Order 3	49,000	39,500	9,500
Order 4	58,000	47,000	11,000
Total	175,000	139,500	35,500

KEYTERMS

Contribution – the amount of money left over after variable costs have been subtracted from revenue. The money contributes towards fixed costs and profit.

KNOWLEDGE

1. A product sells for £10 and the variable costs are £8.50. What is the contribution per unit?
2. A clothes retailer buys 240 jumpers for £27. The jumpers are sold for £39 each. What is the total contribution made by the jumpers?
3. What is the formula for calculating profit using contribution?
4. If the total contribution is £120,000 and fixed costs are £96,000, what is the profit?
5. If the total variable costs are £450,000 and contribution is £225,000, what is the total revenue?
6. State three ways in which contribution can be used by a business to help make decisions.

Question 2.

Laura Wooding runs a catering company. She provides dinner parties for people in their own homes. Laura has built up an excellent reputation in her local town and only has to work four nights a week to make a very comfortable living. Most of her costs are variable. These include the cost of food, wine, dining accessories such as table decorations and napkins and the hire of glassware and eating utensils if necessary. Laura uses her client's kitchen and cooking utensils when working. The fixed costs of the company are only £100 per week. Laura uses contribution pricing. The price is influenced by the number of diners and the choice of food. Table 5 shows some financial information for a typical week.

- (a) What is meant by contribution pricing?
- (b) Calculate the week's profit made by Laura's company using the information in Table 5.
- (c) Why should contribution pricing be used with caution?

Table 5: Financial information for Laura's company

	Price	Variable cost	Contribution (£)
Party 1	240	155	85
Party 2 (basic)	140	70	70
Party 2 (gourmet)	320	180	140
Party 3	200	60	140

Case Study: Timmings Ltd

Timmings Ltd is a family business set up in 2001 when Frank Timmings, a plastics factory manager, decided that he no longer wanted to work for someone else. Frank set up a small production facility to manufacture transparent plastic containers for storage of documents. He was surprised by the demand because he thought that most documents were stored electronically now. His main customers are office suppliers and large businesses.

Sales have grown from £1.1 million in 2003 to £3.64 million in

2006. Timmings Ltd is operating at almost full capacity. At the moment Frank has no plans to expand and is content with current profit levels. But Frank does have to turn work down. When faced with a choice of orders he only accepts those which make the largest contribution. One week in February 2007 he received the four orders outlined in Table 6. The factory can only meet the demands of two.

Table 6: Details of four orders for Timmings Ltd

	Butlers	A & P Ltd	VC Singh	VVD plc (£)
Number of units	20,000	30,000	25,000	20,000
Contract price per unit	£8.00	£8.50	£7.00	£10.50
Material costs per unit	£2.20	£2.00	£2.40	£3.00
Labour costs per unit	£3.40	£4.20	£2.10	£3.80
Other variable costs per unit	£1.00	£1.40	£1.20	£1.30
Fixed costs	£5,000	£5,000	£5,000	£5,000

- (a) State three possible fixed costs for Timmings Ltd. (3 marks)
- (b) Using the Butlers order as an example, explain the difference between unit contribution and total contribution. (6 marks)
- (c) Calculate the total contribution made by each of the four orders. (8 marks)
- (d) (i) Which two orders should Timmings accept? (2 marks)
(ii) Calculate the profit made by the two orders. (6 marks)
- (e) What might be the long-term effect on Timmings Ltd of selecting orders in this way? (8 marks)