



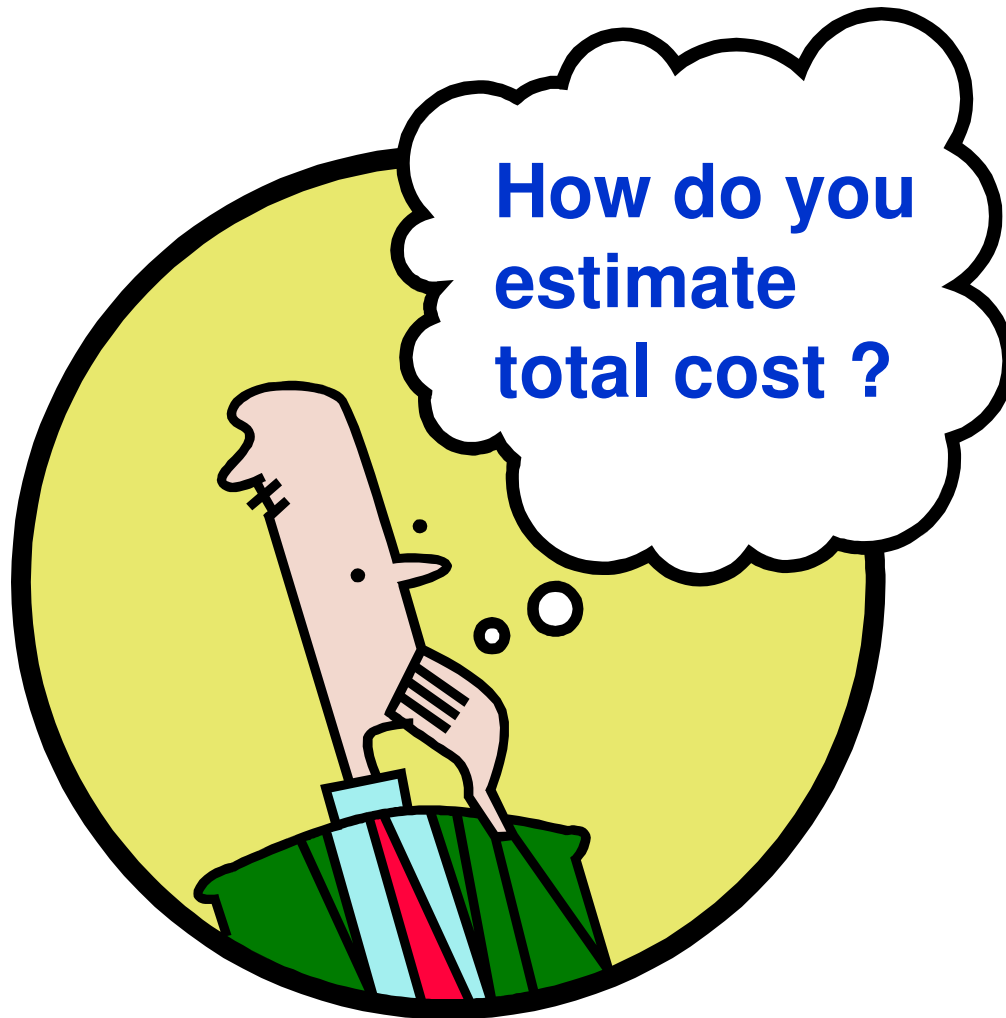
Topic 3

Cost Estimation

Session Objectives

- Use high/low analysis to separate the fixed and variable elements of total costs including situations involving stepped fixed costs and changes in the variable cost per unit
- Explain the structure of linear functions and equations





Cost Estimation Methods

- High-low method
- Linear regression analysis (*Covered under Business Mathematics*)

Separating Fixed Cost and Variable Cost

- Fixed costs and variable costs can be separated by using the HIGH LOW Method



High-Low Method

- Step 1: Take the cost information for the highest activity level and for the lowest activity level from the data available
- Step 2: Calculate the variable cost. Since fixed costs are the same for both the levels, the difference is due to the variable cost

High-Low Method

- Step 3: Calculate variable cost per unit. This can be applied to the low cost or the high cost data to arrive at the fixed costs

Assumptions of High Low Method

- Cost under consideration is potentially semi-variable
- The linear model of cost behaviour is valid i.e. $y = a + bx$

Advantages of High-Low Method

- Simple
- Easy to Use

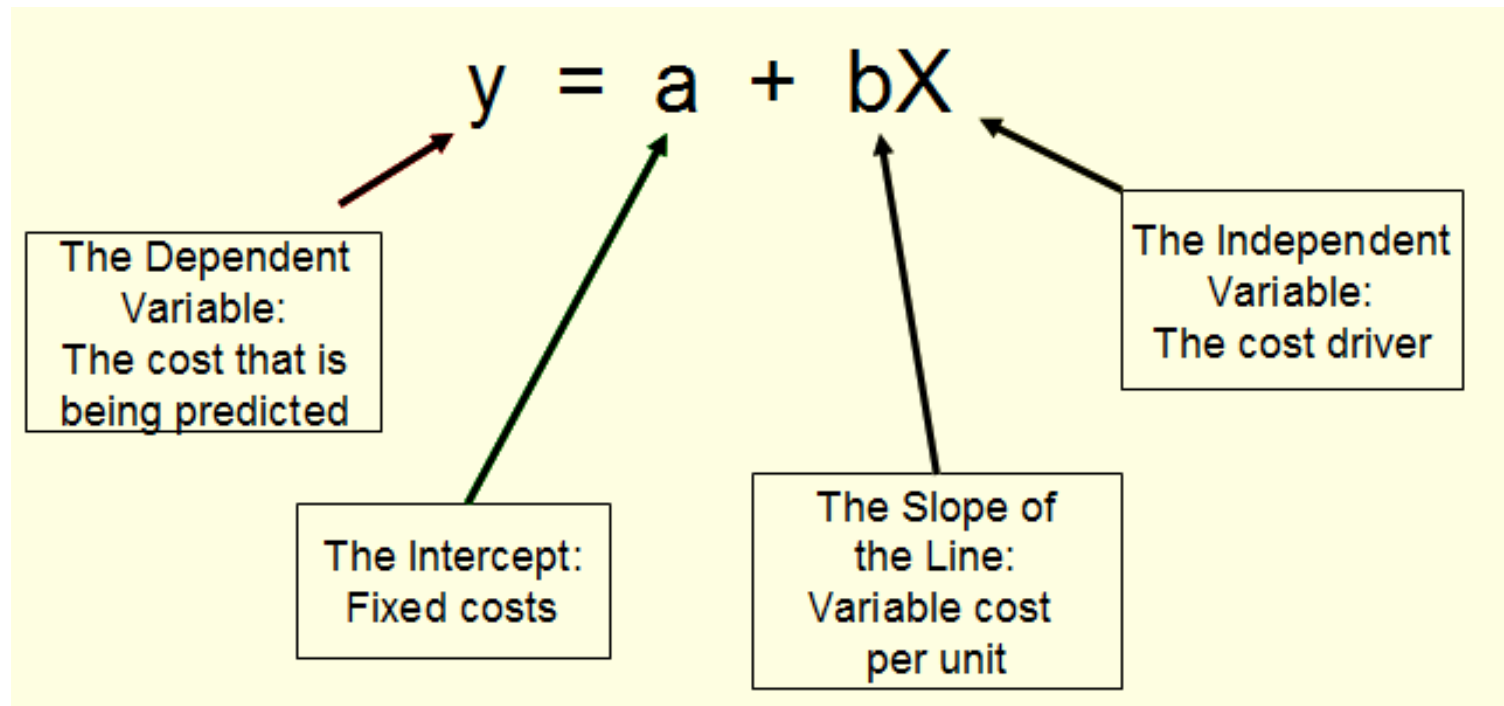


Limitations of High-Low Method

- Relies on historical data and assumes that historical costs reliably predict future costs
- Uses only two values
- Assumes that activity is the only factor affecting costs



Equation of a Straight Line and Cost Functions



Sample Exam Question

Frontal enterprises has the following total costs at two activity levels:

Activity level (units)	45,000	72,000
Total costs	£1,140,000	£1,410,000

Within the two activity ranges, the variable cost per unit is constant. However, there is a step-up of £54,000 if the number of units is more than 60,000. The total costs at an activity level of 54,000 units is _____

Answer

- Using the high low method:

Variable cost per unit

$$= [(\pounds 1,410,000 - \pounds 54,000) - \pounds 1,140,000] \div [72,000 - 45,000] = \pounds 8$$

Total fixed costs below 60,000 units (at 45,000 units) = $\pounds 1,140,000 - (45,000 \times \pounds 8) = \pounds 780,000$

Total costs for 54,000 units = $\pounds 780,000 + (54,000 \times 8) = \pounds 1,212,000$

Sample Exam Question

- Milton plc incurs telephone expenses of £3,000 for sales of 1,200,000 units and £3,600 for 2,400,000 units of Product A. What are the likely telephone expenses at 3,000,000 units?
 - A. £3,600
 - B. £3,900
 - C. £4,200
 - D. £4,500

Answer

B

Variable telephone expense per unit and fixed telephone expense can be calculated using high-low method

Difference in two given levels (in units) = 2,400,000 – 1,200,000 = 1,200,000

Difference in costs at the two levels = £3,600 – £3,000 = £600

Thus, variable cost per unit = $£600 \div 1,200,000 = 0.0005$

Using telephone expenses at 1,200,000 units, fixed telephone expense = $£3,000 - (0.0005 \times 1,200,000) = £2,400$

Thus, Total telephone expenses at 3,000,000 = $£0.0005 \times 3,000,000 + £2,400 = £3,900$