

COST BEHAVIOR AND ESTIMATION

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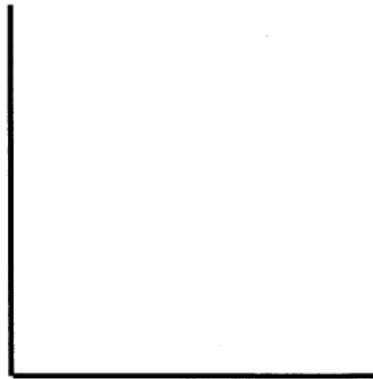
Types of Cost Behavior Patterns

| Summary of Variable and Fixed Cost Behavior | | |
|---|--|--|
| | | |
| | | |
| | | |

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Total Variable Cost Example

Your total long distance telephone bill is based on how many minutes you talk.



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Variable Cost Per Unit Example

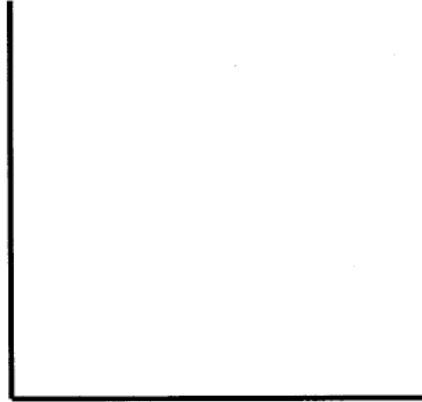
The cost per minute talked is
For example, 10 cents per minute.



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Total Fixed Cost Example

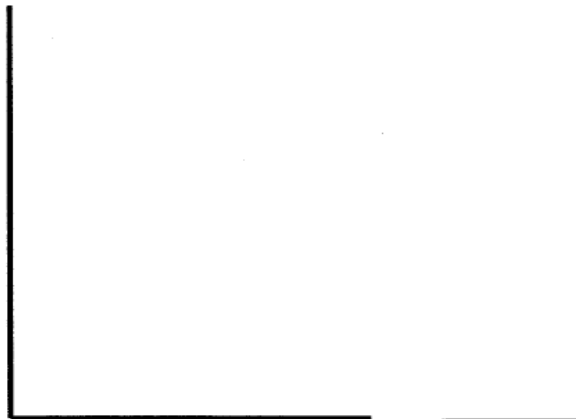
Your monthly basic telephone bill is probably _____ and does not change when you make more local calls.



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Fixed Cost Per Unit Example

The fixed cost per local call decreases as more local calls are made.



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EXAMPLES OF COSTS THAT ARE NORMALLY
VARIABLE WITH RESPECT TO OUTPUT VOLUME

Merchandising company

Costs of goods (merchandise) sold

Manufacturing company

Direct materials

Direct labor*

Variable elements of MOH:

Indirect materials

Lubricants

Supplies

Power

Both merchandising and manufacturing companies

Variable elements of selling and administrative costs:

Commissions

Shipping costs

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TYPES OF FIXED COSTS

- Committed fixed costs relate to investment in plant, equipment, and basic administrative structure. It is difficult to reduce these fixed costs in the short-term. Examples include:
 - Equipment depreciation.
 - Real estate taxes.
 - Salaries of key operating personnel.
- Discretionary fixed costs arise from annual decisions by management to spend in certain areas. These costs can often be reduced in the short-term. Examples include:
 - Advertising.
 - Research.
 - Public relations.
 - Management development programs.

TREND TOWARD FIXED COSTS

The trend is toward greater fixed costs relative to variable costs. The reasons for this trend are:

- Increased automation of business processes.
- Shift from laborers paid by the hour to salaried knowledge workers.

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Mixed Costs

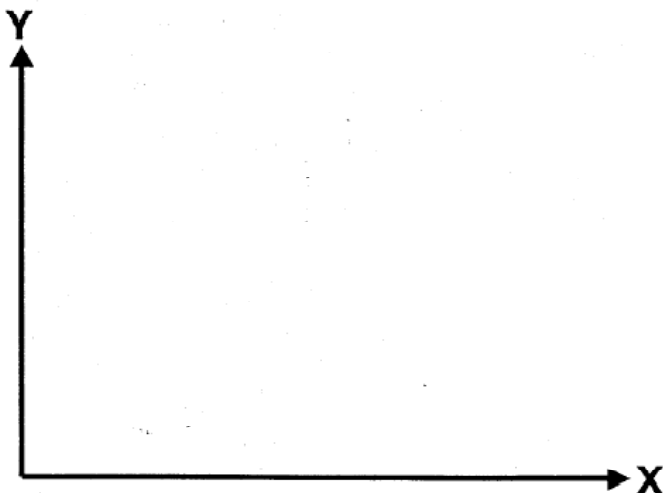
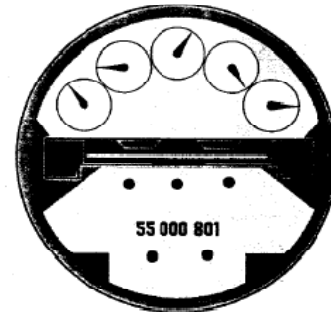
A mixed cost has both fixed and variable components.



Consider the following electric utility example.

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Mixed Costs



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The total mixed cost line can be expressed as an equation:

Where: $Y =$

$a =$

$b =$

$X =$

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ANALYSIS OF MIXED COSTS: HIGH-LOW METHOD

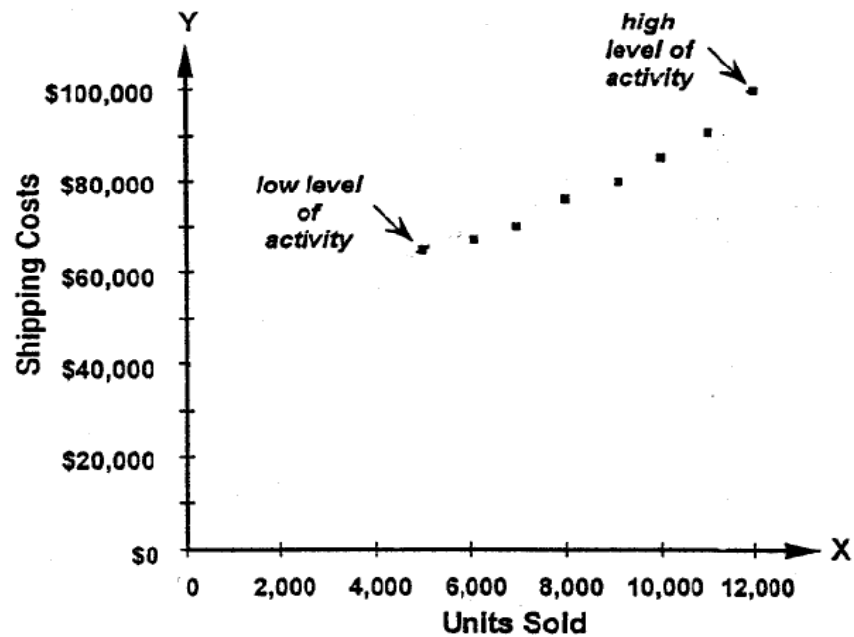
EXAMPLE: Kohlson Company has incurred the following shipping costs over the past eight months:

| | <i>Units Sold</i> | <i>Shipping Cost</i> |
|-------------|-----------------------|--------------------------|
| January... | 6,000 | \$66,000 |
| February. | 5,000 | \$65,000 |
| March | 7,000 | \$70,000 |
| April..... | 9,000 | \$80,000 |
| May..... | 8,000 | \$76,000 |
| June..... | 10,000 | \$85,000 |
| July..... | 12,000 | \$100,000 |
| August.... | 11,000 | \$87,000 |

With the high-low method, only the periods in which the lowest activity and the highest activity occurred are used to estimate the variable and fixed components of the mixed cost.

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EVALUATION OF THE HIGH-LOW METHOD



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The high-low method suffers from two major defects:

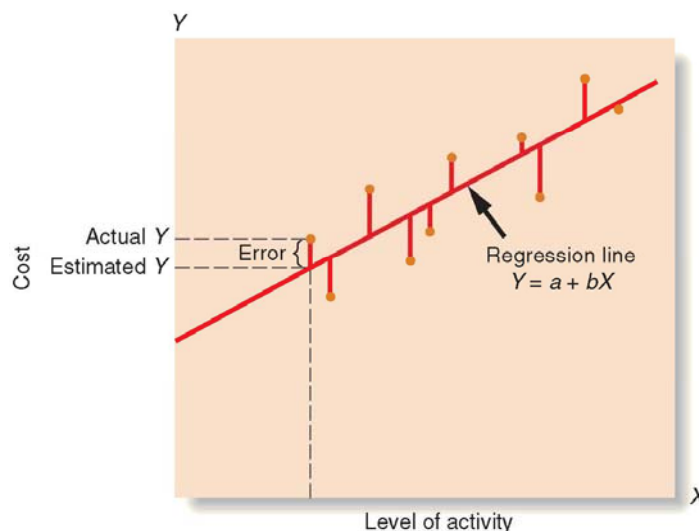
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LEAST-SQUARES REGRESSION METHOD

The least-squares regression method for analyzing mixed costs uses mathematical formulas to determine the regression line that minimizes the sum of the squared "errors."



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TRADITIONAL VERSUS CONTRIBUTION INCOME STATEMENT

| <i>Traditional Approach (costs organized by function)</i> | <i>Contribution Approach (costs organized by behavior)</i> |
|---|--|
| Sales | Sales |
| CGS* | Variable expenses: |
| Gross margin | Var. production |
| S & A expenses: | Var. selling..... |
| Selling* | Var. admin..... |
| Admin.* | Contribution margin..... |
| Net income | Fixed expenses: |
| | Fix. CGS |
| | Fix. selling |
| | Fix. Admin..... |
| | Net income |

* Contains both variable and fixed elements because this is the income statement for a manufacturing company. If this were a merchandising company, then the cost of goods sold would be entirely variable.

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