Examples of Mixed Costs

Telephone expense:

Fixed Component   Varaible Component

cost of the system,   cost of calls
cost of the equipment
rental

Examples of Mixed Costs (cont.)

Automobile lease:

Fixed Component   Varaible Component

fixed cost per day   additional cost per
                         mile for miles driven

Examples of Mixed Costs (cont.)

Maintenance expense:

Fixed Component   Varaible Component

minimum expense   additional expense
required to keep   required with rising
property open and   occupancy
functional

Examples of Mixed Costs (cont.)

Therefore, you can decompose mixed cost into its fixed and variable elements, this is useful and necessary especially when costs must be forecasted into the future.

Graphical Depiction of Costs

- Fixed cost is presented as a line parallel to the x-axis.
- Variable cost is an upward-sloping straight line.
- Total cost is a combination of the characteristics of fixed and variable costs. It originates at a point on the y-axis corresponding to the fixed cost, and then slopes upwards to the right.

The Algebraic Equation for Total Cost

Total cost = fixed cost + variable cost is presented as,

$$Y = a + bX \text{ where,}$$

Y = total cost (dependent variable)
X = units sold (independent variable)
a = fixed cost (intercept term)
b = variable cost per unit (slope of line)

High/Low Two-Point Method Steps (cont.)

- Divide the mixed cost difference by the activity difference to determine the variable cost per activity unit.
- Multiply the variable cost per activity unit by the total activity for the lowest (or highest) period to arrive at the total variable cost for the period with the lowest (or highest) activity.

High/Low Two-Point Method Steps (cont.)

- Subtract the above result from the total mixed cost to arrive at fixed cost for that period.

The two points selected are assumed to be a fair reflection of the high and low points for the entire period.

Operational Decisions (cont)

2) Scatter diagram - read on your own (page 257).

3) Regression analysis

Using the equation for a straight line:

$$Y = a + bX,$$

Operational Decisions (cont)

The formula for determining the intercept term is:

$$a = \frac{(\Sigma y)(\Sigma x^2) - (\Sigma x)(\Sigma xy)}{n(\Sigma x^2) - (\Sigma x)^2}$$

Calculating Fixed Costs

Calculate the total fixed cost for the year (period) by multiplying the above by 12. Then, from the total annual mixed cost subtract the total fixed cost to obtain the total variable cost for the year (period).

Calculating Fixed Costs (cont)

Use the equation for a straight line to calculate the variable cost per unit:

Total mixed cost =
total fixed cost + b(total units)

Cost

Another way cost is defined is whether or not it directly affects an operated or income-generating department.

Allocation Bases

- Square footage
- Revenue ratio
- Number of employees
- Benefits received
- Responsibility for incurrence

Allocation Base Selection

In selecting an allocation base, choose a base that is a cost driver of the indirect cost. A cost driver is a factor that causes indirect costs, eg. machine hours, beds occupied, number of customers, computer time, or flight hours etc.

Allocation Base Selection (cont.)

If a base is used that does not "drive" indirect costs then cost allocations will be distorted along with distortions in departmental profit margins.
Therefore, it is possible to have different allocation bases for different indirect costs.

Allocation Examples

In manufacturing industries direct labor hours or direct labor cost is the most popular basis for allocating indirect cost.

• U.S.: 62% - 74% of manufacturing companies use direct labor hours as primary or secondary allocation base.

12 % use machine hours.

14% - 26% use a variety of different allocation bases

Decision-making After Indirect Cost Allocation

Sometimes when the performance of a department is unsatisfactory after cost allocation analysis is complete, management may wonder whether to close the department down.

Decision-making After Indirect Cost Allocation (cont.)

Assuming the allocation basis is reasonable, then four factors to consider:

- The size of the department's income before undistributed operating costs.

- Whether the indirect costs are mostly fixed charges or they have more variable component to them.

Decision-making After Indirect Cost Allocation (cont.)

- Whether the presence and performance of the under-performing department affects other profit-centers.

- Operating alternatives for the under-performing department.

Additional Concepts

** Read about the following in pages 267 – 270

- differential costs
- relevant costs
- sunk costs
- opportunity cost
- standard cost.