CPA BEC - STUDY UNIT 18
Cost Behavior and Definitions:
Core Concepts

A. Cost Measurement Terminology

1. Manufacturing vs. Nonmanufacturing

a. The costs of manufacturing a product can be classified as one of three types: direct materials, direct labor, and manufacturing overhead (indirect materials, indirect labor, and factory operating costs).

b. Prime cost equals direct materials plus direct labor. Conversion cost equals direct labor plus manufacturing overhead.

2. Product vs. Period

a. The costs that are capitalized as part of finished goods inventory are referred to as product, or inventoriable, costs. They eventually become a component of cost of goods sold. Those costs not capitalized in finished goods inventory are termed period costs and are excluded from cost of goods sold.

b. Under GAAP, all manufacturing costs must be treated as product costs. For internal reporting, a manufacturer has other options.

3. Direct vs. Indirect

a. A direct cost is one that can be associated with a particular cost object in an economically feasible way, i.e., traced to that object. An indirect cost is one that cannot be associated with a cost object in an economically feasible way and thus must be allocated to that cost object.

4. Fixed vs. Variable

a. Fixed costs in total remain unchanged in the short run regardless of production level, e.g., the amount paid for an assembly line is the same even if production is halted entirely. Fixed cost per unit, however, varies indirectly with the activity level.

b. Variable costs in total vary directly and proportionally with changes in volume, e.g., direct materials. Variable cost per unit, however, remains constant in the short run regardless of changes in activity.

c. Mixed (semivariable) costs combine fixed and variable elements, e.g., rental on a car that carries a flat fee per month plus an additional fee for each mile driven.

d. The relevant range defines the limits within which the cost and revenue relationships remain linear and fixed costs are not changeable. The relevant range is established by the efficiency of a company's current manufacturing plant, its agreements with labor unions and suppliers, etc.

5. Explicit vs. Implicit

a. The accounting concept of costs includes explicit costs, i.e., those that represent actual outlays of cash, the allocation of outlays of cash, or commitments to pay cash. Examples include the incurrence of payables, the satisfaction of payables, and the recognition of depreciation.

b. The economic concept of costs includes both explicit and implicit costs. Implicit in any business decision is opportunity cost, defined as "the contribution to income that is forgone by not using a limited resource in its best alternative use."

6. Relevant vs. Sunk

a. Relevant costs are those expected future costs that vary with the action taken. All other costs are assumed to be constant and thus have no effect on (are irrelevant to) the decision.

    b. They are contrasted with sunk costs, which are past costs or costs that the entity has irrevocably committed to incur. Because they are unavoidable and will therefore not vary with the option chosen, they are not relevant to future decisions.

B. Cost-Volume-Profit (CVP) Analysis

1. **Cost-volume-profit (CVP) analysis** (also called breakeven analysis) is a tool for understanding the interaction of revenues with fixed and variable costs. It illuminates how changes in assumptions about cost behavior and the relevant ranges in which those assumptions are valid may affect the relationships among revenues, variable costs, and fixed costs at various production levels.
2. The **breakeven point** is the level of output at which total revenues equal total expenses, that is, the point at which operating income is zero.

   \$0 = Sales - Variable costs - Fixed costs

   a. A simpler calculation is to divide fixed costs by the unit contribution margin (the unit selling price minus the unit variable cost. It is the contribution from the sale of one unit to cover fixed costs.

   $$\text{Breakeven point in units} = \frac{\text{Fixed costs}}{\text{Unit contribution margin}}$$

   b. Every unit sold contributes a certain percentage of its sales revenue to covering fixed costs. Once fixed costs are fully covered, all additional revenue becomes profit.

   c. An amount of operating income, called target operating income, either in dollars or as a percentage of sales, is frequently required.
3. Multiple products (or services) may be involved in calculating a breakeven point.

C. Absorption (Full) vs. Variable (Direct) Costing

1. Under **absorption costing** (sometimes called full or full absorption costing), the fixed portion of manufacturing overhead is "absorbed" into the cost of each product.
   a. Product cost thus includes all manufacturing costs, both fixed and variable. Absorption-basis cost of goods sold is subtracted from sales to arrive at gross margin. Total selling and administrative expenses (i.e., fixed and variable) are then subtracted from gross margin to arrive at operating income.
2. **Variable costing** (sometimes called direct costing) is more appropriate for internal reporting.
   a. Product cost includes only variable manufacturing costs. Variable cost of goods sold and the variable portion of selling and administrative expenses are subtracted from gross margin to arrive at contribution margin.
3. As production and sales levels change, the two methods have varying impacts on **operating income**.
   a. When production and sales are equal for a period, the two methods report the same operating income. When production and sales are not equal for a period, the two methods report different operating income. Under absorption costing, operating income behaves erratically and sometimes moves in the opposite direction from sales.

   b. Under variable costing, operating income always moves in the same direction as sales volume.