

Course MGMT 440

Module 6

Costs
Break-Even Point (BEP)
Cost Analysis
Should Cost
Financial Analysis

Costs

Categories of Cost

- Fixed Costs
- Variable Costs
- Semi-Variable Costs
- Total Costs
- Direct Costs
- Indirect Costs

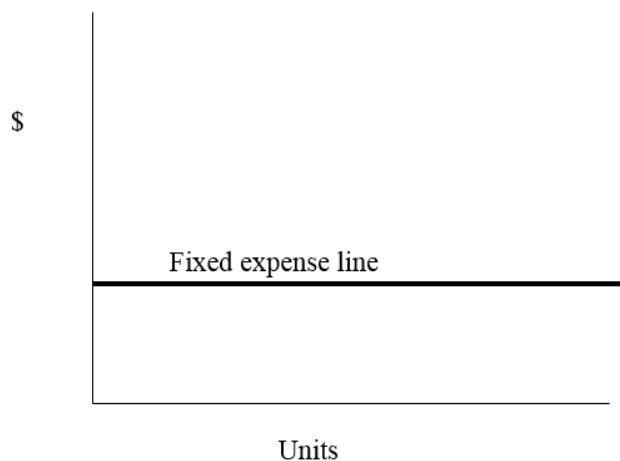
Fixed Costs

- Are costs that remain fixed or constant for a given period of time
- Are costs which are incurred regardless of output
 - Business is temporarily closed
 - No production
- Remain constant regardless of operations

Fixed Costs Examples

- Rent or lease
- Property taxes
- Utility and water fees
- Administrative salary
- Interest
- Insurance (fire, liability, etc.,)
- Security

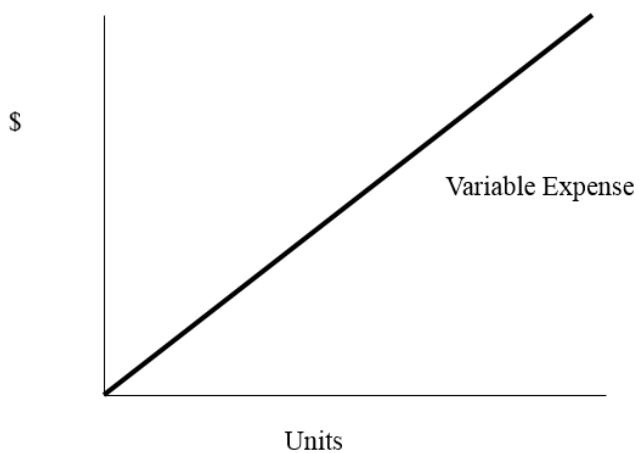
Fixed Costs



Variable Costs

- Are costs which are in relation to the quantity of units produced or services produced
- Change in relation to output
- The units may be
 - Labor-hours worked
 - Units repaired
 - Or some other measure of volume
- Examples
 - Material costs
 - Direct wages

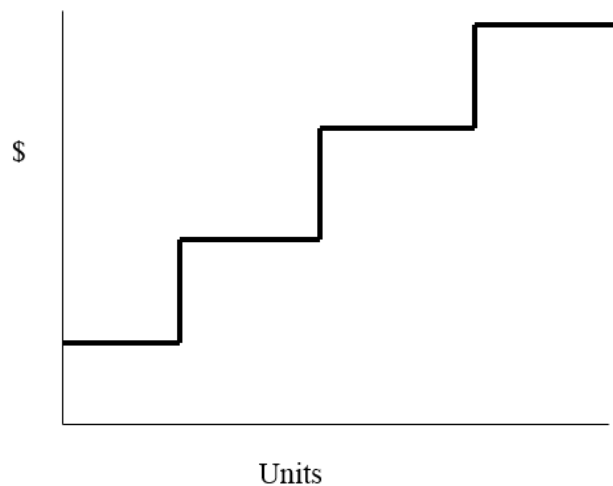
Variable Costs



Semi-Variable Costs

- Are those costs that display both fixed and variable characteristics
- Are costs that vary with changes in volume but don't vary in direct proportion
- Also called mixed cost
- Examples
 - Utilities (not otherwise classified as fixed)
 - Rental of a given machine

Semi-Variable Costs



Total Cost

- Is the sum of the variable, fixed, and semi-variable costs

Learning Curve

- Method to determine labor costs or work change as a result of practice
- Used in repetitive operations
- Charts and different slopes are available for each type of industry
- Can use mathematical formulas

Simple Example of Learning Curve

- Given a learning curve slope of 90%, a unit has a manufacturing time of 200 hours. What is the manufacturing time of the 4th unit?

$$1 = 200 \text{ hours}$$

$$2 = 90\%(200) = 180$$

$$\underline{4 = 90\%(180) = 162}$$

- Every time we double the units we experience learning curve
- Up to the point of saturation then learning stops

Direct Costs

- Are any costs specifically related to an effort
- Are costs that are traced to or caused by a specific project or production effort
- 2 examples
 - Direct Labor
 - Project team members
 - Contractors
 - Direct Material
 - Raw materials
 - Work in Process (WIP)
 - Parts or Finished Goods

Indirect Costs

- Are costs identified with the operations of the whole company
- Are costs that are considered
 - Overhead
 - General and Administrative (G&A)

Overhead

- Also called burden
- Not directly traceable to a specific job
- Broken down into overhead pools
 - Material
 - Engineering
 - Manufacturing, etc.
- Is a percentage times a base number (or application base)
 - Engineering overhead = (Engineering cost)(%)
- Check with the accounting department on proper %

General and Administrative (G&A)

- Is for general management and administrative
- Consists of
 - Office space
 - Executive compensation
 - Staff salaries
 - Other general miscellaneous expenses
 - Etc.,
- Check with the accounting department on proper %

Profit

- = revenue - expenses
- Basic reward for risk taking
 - Higher the risk, the more profit
- The dollar amount over and above allowable costs
- Used to motivate performance

Generally Accepted Accounting Principles (GAAP)

- Are consistent accounting practices standards
 - Rules
 - Procedures
 - Conventions
 - Principles
- Are developed and updated by Financial Accounting Standards Board
- Used by profit and nonprofit businesses

Break-Even Point (BEP)

Break-Even Point (BEP)

- A point where costs equal revenue
 - No loss
 - No profit
- Is the volume of sales or revenue sufficient to cover all fixed and variable costs

- $$\text{BEP} = \frac{\text{TFC}}{\text{P}-\text{VC}}$$

TFC = Total Fixed Costs

VC = Variable Costs

P = Price

BEP Example

- A firm conducted market research on a new product and determined that at \$20 each it can sell 20,000 products. The company's total fixed costs are \$125,000 and its variable costs are \$10.00 per unit. What is the BEP for this product?

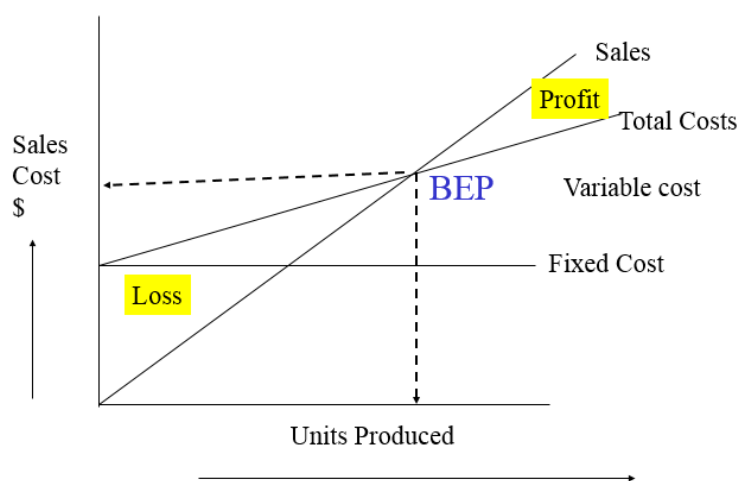
BEP Example

$$\text{BEP} = \frac{\text{TFC}}{\text{P}-\text{VC}}$$

$$\text{BEP} = \frac{\$125,000}{\$20 - 10} = \frac{125,000}{10} = 12,500 \text{ units}$$

The price a firm charges must cover its fixed and variable costs

Break Even Point (BEP)



Cost Analysis

Cost Analysis

- A way of life for the professional logistics manager
 - Life Cycle Cost analysis
 - Transportation mode analysis
 - Procurement or contracting cost analysis
 - Warehouse analysis
 - Costs of manufacturing
 - Quality costs
 - Etc.

Cost Analysis (Cont.)

- Step-by-step review of the cost elements and profit
- Detailed analysis of all elements
 - Material
 - Material overhead
 - Labor
 - Labor Overhead
 - Packaging
 - Transportation
 - General and Administrative (G&A)
 - Profit

Cost Analysis (Cont.)

- Spreadsheets are often used
- Always identify the source of the costs
 - Accounting department for indirects
 - Labor rates can be union contract or company rates (HR department)
 - Material (procurement department)
 - Profit depends upon risk

Should Cost

Should Cost

- Is a cost analysis method
- Used to justify sole source pricing
- Used to obtain budget authority
- Considered a price objective that is fair and reasonable
- Please see next slide for a should cost and an example of a cost analysis

Small Business Model for Should Cost					REMARKS
ELEMENT	Hours	\$ Rate/Hour	TOTAL		
Custodial Service					
MATERIAL			1,000		
MATERIAL OVERHEAD (15%)			150		
MATERIAL SUBTOTAL				1,150	
LABOR:					
Labor	300	12	3,600		
Labor O/H (150%)			5,400		
LABOR SUBTOTAL				9000	
TOTAL Material and Labor				10,150	
G&A (17%)				1,725.50	
TOTAL COST				11,875.50	
PROFIT (12%)				1,425.06	
TOTAL PRICE				13,300.56	

Financial Analysis

Financial Analysis

- A means of comparison between time periods
- Measurement of financial performance
- Provides yardsticks for performance measurement
- Comparison is a must
 - Last year's performance to this year
 - Company's performance to another company

Financial Analysis (Cont.)

- 2 Major Financial Statements
 - Income Statement or Profit and Loss
 - Balance Sheet
- Both are required when performing a financial analysis

Income Statement

- Summary of revenues and expenses for a period in time
- Also called Statement of Earnings or Statement of Operations
- Reports net income or net loss of the time period
 - Profit and Loss Statement

Income Statement

- Basic break down
 - Sales or revenue
 - Direct costs
 - Gross profit
 - Expenses
 - Net profit
 - Income taxes
 - After-tax profit

Balance Sheet

- A summary of assets, liabilities, and net worth at the end of a period
- Sum of all assets must balance with the sum of liabilities plus net worth
- Basic equation: $\text{assets} = \text{liabilities} + \text{owner's equity}$

Balance Sheet (Cont.)

- Assets
 - Current
 - Long term prepaid or deferred
 - Intangible
- Liabilities
 - Current
 - Long-term
 - Deferred credits
- Net worth
 - Retained earnings (in a corporation);
 - Owner's equity

Financial Analysis

- Has 2 basic tests
 - Profitability ratios
 - Return on Investment
 - Return on Sales
 - Inventory turnover
 - Financial health ratios
 - Current Ratio
 - Collection Periods
 - Debt Ratio

Questions