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Chapter - 5

INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG	Department of Business Administration Course Outline Managerial Accounting

Absorption & Variable Costing

(Go through the reference books for details)

❖ Introduction (Managerial Accounting, Garrison, 10th edition, p. 280)

Two general approaches are used for costing products for the purposes of valuing inventories and cost of goods sold, one approach is absorption costing and another is variable costing. Absorption costing is generally used for external financial reports and variable costing is preferred by some managers for internal decision making and must be used when an income statement is prepared in the contribution format. Absorption costing and variable costing produce different figures for net operating income, and the difference can be quite large.

❖ Absorption Costing (Managerial Accounting, Garrison, 10th edition, p. 280)

Absorption costing treats all costs of production as product costs, regardless of whether they are variable or fixed. The cost of unit of product under the absorption costing method therefore consists of direct materials, direct labor, and both variable and fixed overhead. Thus, absorption costing allocates a portion of fixed manufacturing overhead cost to each unit of product, along with the variable manufacturing costs. Because absorption costing includes all costs of production as product costs, it is frequently referred to as the **full cost** method.

Under the absorption costing:

1. **Product costs** = Direct Materials + Direct Labor + Variable Manufacturing Overhead + Fixed Manufacturing Overhead
2. **Period Costs** = Variable Selling and Administrative Expenses + Fixed Selling and Administrative Expenses

❖ Variable Costing (Managerial Accounting, Garrison, 10th edition, p. 280)

Under the variable costing, only those costs of production that vary with output are treated as product costs. This would usually include direct materials, direct labor, and the variable portion of manufacturing overhead. Fixed manufacturing overhead is not treated as a product cost under this method. Rather, fixed manufacturing overhead is treated as a period cost and, like selling and administrative expenses, it is charged off in its entirely against revenue each period. Consequently, the cost of a unit of product in inventory or in cost of goods sold under the variable costing method does not contain any fixed overhead cost. Variable costing is sometimes referred to as **direct costing** or **marginal costing**.

Under the variable costing:

1. **Product costs** = Direct Materials + Direct Labor + Variable Manufacturing Overhead
2. **Period Costs** = Fixed Manufacturing Overhead + Variable Selling and Administrative Expenses + Fixed Selling and Administrative Expenses

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❖ Unit Cost Computation and Net Operating Income determination (Garrison, p. 281)

The following are the information of Boley Company relating a single product.

Units in beginning inventory		0
Number of units produced each year		6000
Units Sold		5000
Units in ending inventory	1000	
Selling Price per unit		Tk. 20
Variable cost per unit		
Direct Materials		Tk. 2
Direct Labor		Tk. 4
Variable Manufacturing Overhead		Tk. 1
Variable Selling and Administrative Expenses		Tk. 3
Fixed Cost Per year:		
Fixed manufacturing overhead		Tk. 30000
Fixed selling and administrative Expenses		Tk. 10000

Required:

1. Compute unit product cost under absorption costing and variable costing
2. Compute net operating income under absorption costing and variable costing
3. Reconcile the absorption costing and variable costing net operating income

❖ Solution to Illustration

Req. 1

	Absorption Costing	Variable Costing
Direct Materials	Tk. 2	Tk. 2
Direct Labor	Tk. 4	Tk. 4
Variable Manufacturing Overhead	Tk. 1	Tk. 1
Total variable product cost	**Tk. 7**	**Tk. 7**
Fixed manufacturing overhead (Tk. 30000÷6000)	Tk. 5	0
Unit product cost	**Tk. 12**	**Tk. 7**

Req. 2

Absorption Costing	Taka	Taka
Sales (5000 unit x Tk. 20)		**100000**
Less, Cost of good sold:		
Beginning inventory	0	
Add, Cost of good manufactured (6000 x 12)	72000	
Cost of good available for sale	**72000**	
Less, Ending inventory (1000 x 12)	12000	
Cost of good sold		**60000**
Gross Margin		**40000**
Less, Selling and Administrative expenses:		
Variable Selling and Administrative expenses (5000 x 3)	15000	
Fixed Selling and Administrative expenses	10000	
Total Selling and Administrative expenses		**25000**
Net Operating Income		**15000**

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Variable Costing		
Sales (5000 unit x Tk. 20)		100000
Less, Variable expenses:		
Variable Cost of good sold:		
Beginning inventory	0	
Add, Variable manufacturing cost (6000 x 7)	42000	
Cost of good available for sale	**42000**	
Less, Ending inventory (1000 x 7)	7000	
Variable Cost of good sold	**35000**	
Variable Selling and Administrative expenses (5000 x 3)	15000	
Total Variable expenses		**50000**
Contribution Margin		**50000**
Less, Fixed Expenses:		
Fixed Manufacturing overhead	30000	
Fixed Selling and Administrative expenses	10000	
Total Fixed expenses		**40000**
Net Operating Income		**10000**

Req. 3

Variable costing net operating income	Tk. 10000
Add fixed manufacturing overhead costs deferred in inventory under absorption costing (1000 units x Tk. 5)	5000
Absorption costing net operating income	Tk. 15000

❖ Effect of Change in Inventory on Net Operating Income (Garrison, p. 287)

Relationship between Production and Sales	Effect on Inventories	Relationship between Absorption and Variable costing net operating income
Production = Sales	No change in inventories	Absorption costing net operating income = Variable costing net operating income
Production > Sales	Inventories increase	Absorption costing net operating income > Variable costing net operating income
Production < Sales	Inventories decrease	Absorption costing net operating income < Variable costing net operating income

❖ Effect of Change in Production on Net Operating Income (Garrison, p. 288)

1. **Variable costing**

Net operating income is not affected by changes in production under variable costing. A change in production has no impact on net income when variable costing is used.

2. **Absorption Costing**

Net operating income is affected by changes in production under absorption costing. Under absorption costing net operating income goes up with increase in production and goes down with the drop in production. Net operating income goes up and down between two years even though the same number of units is sold in each year. The reason for this effect can be traced to fixed manufacturing overhead costs that shift between periods under the absorption costing method as a result of changes in inventory.

❖ Advantages of Variable Costing and the Contribution Approach (p. 295)

1. The data that are required for CVP analysis can be taken directly from a contribution margin format income statement. These data are not available on a conventional income statement based on absorption costing
2. Under variable costing, the net operating income for a period is not affected by changes in inventories
3. Managers often assume that unit product costs are variable costs. This is a problem under absorption costing.
4. The impact of fixed costs on profits is emphasized under the variable costing.
5. Variable costing data make it easier to estimate the profitability of products, customers, and other segments of the business.
6. Variable costing ties in with cost control methods such as standard costs and flexible budgets
7. Variable costing net operating income is closer to net cash flow than absorption costing net operating income

❖ Problem 1

Dexter Company produces and sells a single product. Selected cost and operating data relating to the product for two years are given below:

Selling Price per unit	Tk. 50
Manufacturing Costs:	
Variable cost for per unit produced:	
Direct Materials	11
Direct Labor	6
Variable Overhead	3
Fixed Cost per year	120000
Selling and Administrative costs:	
Variable per unit sold	5
Fixed per year	70000

	Year 1	Year 2
Units in beginning inventory	0	2000
Units produced during the year	10000	6000
Units sold during the year	8000	8000
Units in ending inventory	2000	0

Required

1. Assume that the company uses absorption costing
   a. Compute the unit product cost in each year
   b. Prepare an income statement for each year
2. Assume that the company uses Variable costing
   a. Compute the unit product cost in each year
   b. Prepare an income statement for each year
3. Reconcile the variable costing and absorption costing net operating incomes
4. Show the effect on total net operating income after two years

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❖ **Problem 2**

Maxwell Company manufactures and sells a single product. The following costs were incurred during the company's first year of operation:

Variable cost for per unit produced:	
Direct Materials	Tk. 18
Direct Labor	7
Variable Overhead	2
Variable selling and administrative	5
Fixed Cost per year:	
Fixed manufacturing overhead	160000
Fixed selling and administrative expenses'	110000

During the year, the company produced 20000 units and sold 16000 units. The selling price of the company's product is Tk. 50 per unit.

Required

1. Assume that the company uses absorption costing
   c. Compute the unit product cost
   d. Prepare an income statement for the year
2. Assume that the company uses Variable costing
   c. Compute the unit product cost
   d. Prepare an income statement for the year
3. Reconcile the variable costing and absorption costing net operating incomes

❖ **Problem 3**

	Taka	Taka
Sales (40000 unit x Tk. 33.75)		**1350000**
Less, Cost of good sold:		
Beginning inventory	0	
Add, Cost of good manufactured (50000 x 21)	1050000	
Cost of good available for sale	**1050000**	
Less, Ending inventory (10000 x 21)	210000	
Cost of good sold		**840000**
Gross Margin		**510000**
Less, Selling and Administrative expenses		420000
Net Operating Income		**90000**

The company's selling and administrative expenses consist of Tk. 300000 per year in fixed expenses and Tk. 3 per unit sold in variable expenses. The company's Tk. 21 unit product cost given above is computed as follows:

Di.ect Materials	Tk. 10
Direct Labor	4
Variable manufacturing overhead	2
Fixed manufacturing overhead (Tk. 250000÷50000 Units)	5
Unit product cost	Tk. 21

Required

1. Redo the income statement using variable costing
2. Reconcile the variable costing and absorption costing net operating incomes

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❖ Problem 4

Shastri Bicycle produces an inexpensive bicycle for use on the city's crowded streets that it sells for Tk. 500. Selected data for the company' operations last year follow:

Units in beginning inventory	0
Units produced during the year	10000
Units sold during the year	8000
Units in ending inventory	2000
Variable cost for per unit produced:	
Direct Materials	Tk. 120
Direct Labor	140
Variable Manufacturing Overhead	50
Variable Selling and Administrative	20
Fixed Costs:	
Fixed Manufacturing overhead	Tk. 600000
Fixed Selling and Administrative	400000

Required

1. Compute the unit product cost for one bicycle under absorption costing and variable costing
2. Prepare an income statement using absorption costing