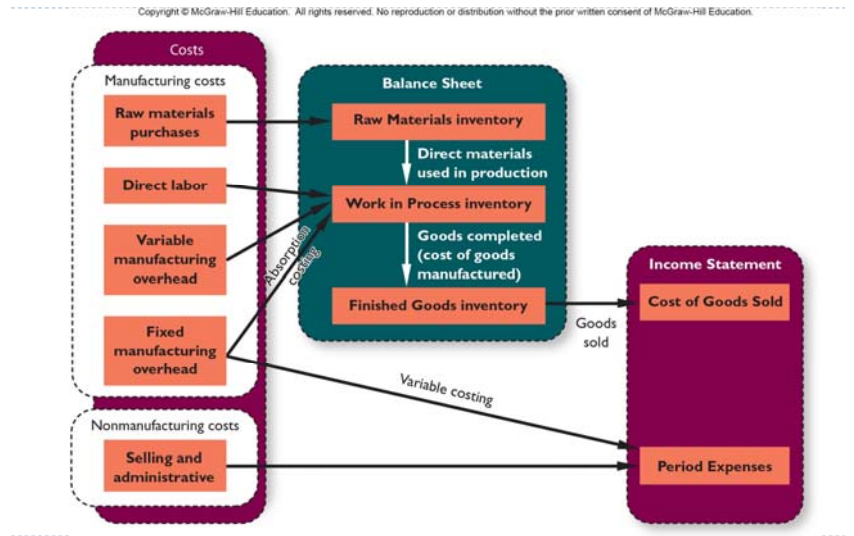




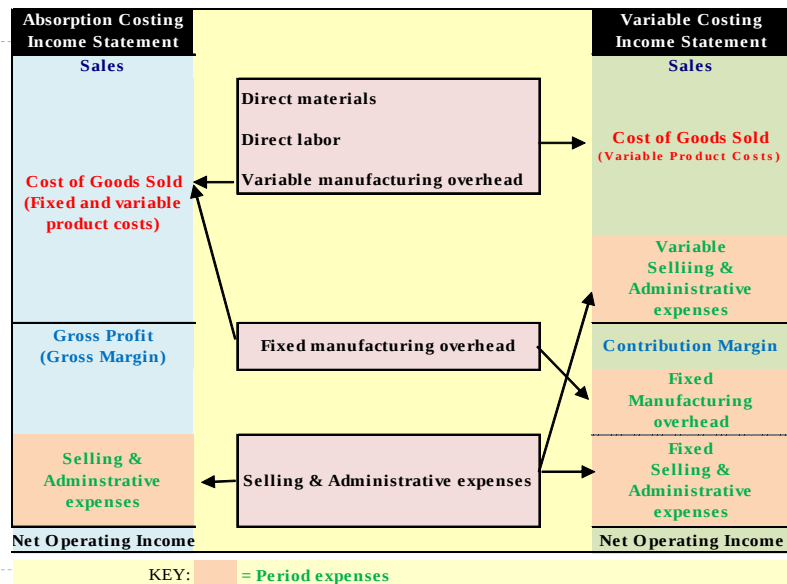
Absorption Costing and Variable Costing

Chapter 5

Overview of Absorption and Variable Costing



Overview of Absorption and Variable Costing



Unit Cost Computations

Harvey Company produces a single product with the following information available:

Number of units produced annually	25,000
Variable costs per unit:	
Direct materials, direct labor, and variable mfg. overhead	\$ 10
Selling & administrative expenses	\$ 3
Fixed costs per year:	
Manufacturing overhead	\$ 150,000
Selling & administrative expenses	\$ 100,000

Unit Cost Computations

Unit **product cost** is determined as follows:

	Absorption Costing	Variable Costing
Direct materials, direct labor, and variable mfg. overhead	\$ 10	\$ 10
Fixed mfg. overhead (\$150,000 ÷ 25,000 units)	6	-
Unit product cost	\$ 16	\$ 10

Under absorption costing, all production costs, variable and fixed, are included when determining unit product cost. Under variable costing, only the variable production costs are included in product costs.

Income Comparison of Absorption and Variable Costing

Let's assume the following additional information for Harvey Company.

- ▶ 20,000 units were sold during the year at a price of \$30 each.
- ▶ There is no beginning inventory.

Now, let's compute net operating income using both absorption and variable costing.



Absorption Costing

	Absorption Costing
Sales (20,000 × \$30)	\$ 600,000
Less cost of goods sold:	
Beginning inventory	\$ -
Add COGM (25,000 × \$16)	400,000
Goods available for sale	400,000
Ending inventory (5,000 × \$16)	80,000
Gross margin	280,000
Less selling & admin. exp.	
Variable (20,000 × \$3)	\$ 60,000
Fixed	100,000
Net operating income	\$ 120,000

Fixed manufacturing overhead deferred in inventory is 5,000 units × \$6 = \$30,000.

Variable Costing

	Variable Costing
Sales (20,000 × \$30)	\$ 600,000
Less variable expenses:	
Beginning inventory	\$ -
Add COGM (25,000 × \$10)	250,000
Goods available for sale	250,000
Less ending inventory (5,000 × \$10)	50,000
Variable cost of goods sold	200,000
Variable selling & administrative expenses (20,000 × \$3)	60,000
Contribution margin	340,000
Less fixed expenses:	
Manufacturing overhead	\$ 150,000
Selling & administrative expenses	100,000
Net operating income	\$ 90,000

Variable manufacturing costs only.

All fixed manufacturing overhead is expensed.

Comparing the Two Methods

	Cost of Goods Sold	Ending Inventory	Period Expense	Total
Absorption costing				
Variable mfg. costs	\$ 200,000	\$ 50,000	\$ -	\$ 250,000
Fixed mfg. costs	120,000	30,000	-	150,000
	<u>\$ 320,000</u>	<u>\$ 80,000</u>	<u>\$ -</u>	<u>\$ 400,000</u>
Variable costing				
Variable mfg. costs	\$ 200,000	\$ 50,000	\$ -	\$ 250,000
Fixed mfg. costs	-	-	150,000	150,000
	<u>\$ 200,000</u>	<u>\$ 50,000</u>	<u>\$ 150,000</u>	<u>\$ 400,000</u>

Comparing the Two Methods

We can reconcile the difference between absorption and variable income as follows:

Variable costing net operating income	\$ 90,000
Add: Fixed mfg. overhead costs deferred in inventory (5,000 units × \$6 per unit)	<u>30,000</u>
Absorption costing net operating income	<u>\$ 120,000</u>

$$\frac{\text{Fixed mfg. overhead}}{\text{Units produced}} = \frac{\$150,000}{25,000 \text{ units}} = \$6 \text{ per unit}$$

Extended Comparisons of Income Data Harvey Company – Year Two

Number of units produced	25,000
Number of units sold	30,000
Units in beginning inventory	5,000
Unit sales price	\$ 30
Variable costs per unit:	
Direct materials, direct labor	
variable mfg. overhead	\$ 10
Selling & administrative expenses	\$ 3
Fixed costs per year:	
Manufacturing overhead	\$ 150,000
Selling & administrative expenses	\$ 100,000

Unit Cost Computations

	Absorption Costing	Variable Costing
Direct materials, direct labor, and variable mfg. overhead	\$ 10	\$ 10
Fixed mfg. overhead (\$150,000 ÷ 25,000 units)	6	-
Unit product cost	<u>\$ 16</u>	<u>\$ 10</u>

Since the variable costs per unit, total fixed costs, and the number of units produced remained unchanged, the unit cost computations also remain unchanged.

Absorption Costing

Unit product cost.

Absorption Costing		
Sales (30,000 × \$30)		\$ 900,000
Less cost of goods sold:		
Beg. inventory (5,000 × \$16)	\$ 80,000	
Add COGM (25,000 × \$16)	400,000	
Goods available for sale	480,000	
Less ending inventory	-	480,000
Gross margin		420,000
Less selling & admin. exp.		
Variable (30,000 × \$3)	\$ 90,000	
Fixed	100,000	190,000
Net operating income		\$ 230,000

Fixed manufacturing overhead released from inventory is 5,000 units × \$6 = \$30,000.

Variable Costing

Variable manufacturing costs only.

Variable Costing		
Sales (30,000 × \$30)		\$ 900,000
Less variable expenses:		
Beg. inventory (5,000 × \$10)	\$ 50,000	
Add COGM (25,000 × \$10)	250,000	
Goods available for sale	300,000	
Less ending inventory	-	300,000
Variable cost of goods sold		300,000
Variable selling & administrative expenses (30,000 × \$3)	90,000	390,000
Contribution margin		510,000
Less fixed expenses:		
Manufacturing overhead	\$ 150,000	
Selling & administrative expenses	100,000	250,000
Net operating income		\$ 260,000

All fixed manufacturing overhead is expensed.

Comparing the Two Methods

We can reconcile the difference between absorption and variable income as follows:

Variable costing net operating income	\$ 260,000
Deduct: Fixed manufacturing overhead costs released from inventory (5,000 units × \$6 per unit)	30,000
Absorption costing net operating income	\$ 230,000

$$\frac{\text{Fixed mfg. overhead}}{\text{Units produced}} = \frac{\$150,000}{25,000 \text{ units}} = \$6 \text{ per unit}$$

Comparing the Two Methods

Net Operating Income			
Costing Method	1st Period	2nd Period	Total
Absorption	\$ 120,000	\$ 230,000	\$ 350,000
Variable	90,000	260,000	350,000



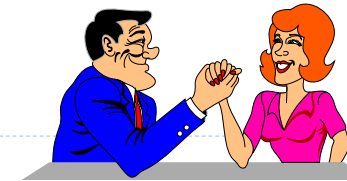
Summary of Key Insights

Relation between production and sales	Effect on inventories	Relation between variable and absorption income
Units produced = Units sold	No change in inventories	Absorption = Variable
Units produced > Units sold	Inventories Increase	Absorption > Variable
Units produced < Units sold	Inventories decrease	Absorption < Variable

Impact on the Manager

Opponents of absorption costing argue that shifting fixed manufacturing overhead costs between periods can lead to faulty decisions.

These opponents argue that variable costing income statements are easier to understand because net operating income is only affected by changes in unit sales. This produces net operating income figures that are consistent with managers' expectations.



CVP Analysis, Decision Making and Absorption costing

Absorption costing does not dovetail with CVP analysis, nor does it support decision making. It treats fixed manufacturing overhead as a variable cost. It assigns per unit fixed manufacturing overhead costs to production.

Treating fixed manufacturing overhead as a variable cost can:

- Lead to faulty pricing decisions and faulty keep-or-drop decisions.

Assigning per unit fixed manufacturing overhead costs to production can:

- Potentially produce positive net operating income even when the number of units sold is less than the breakeven point.

External Reporting and Income Taxes

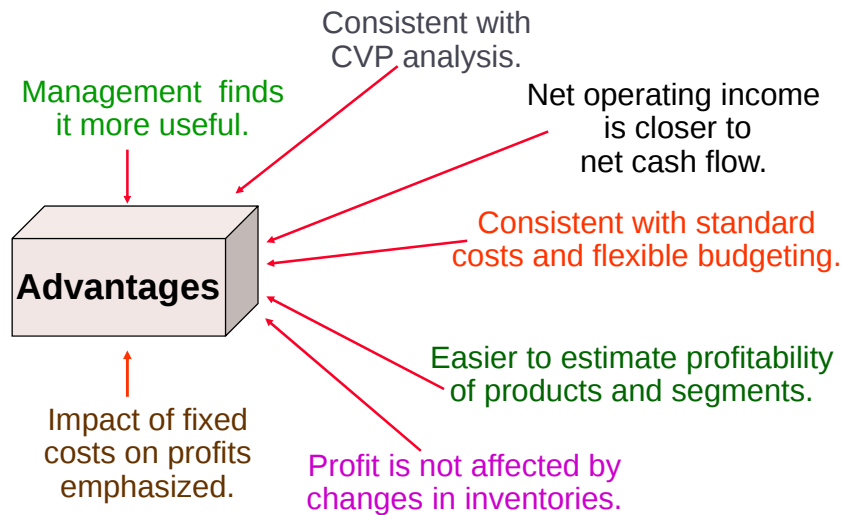
To conform to IFRS and US GAAP requirements, absorption costing must be used for external financial reports.

In many countries, including US, absorption costing must be used when filling out income tax returns.

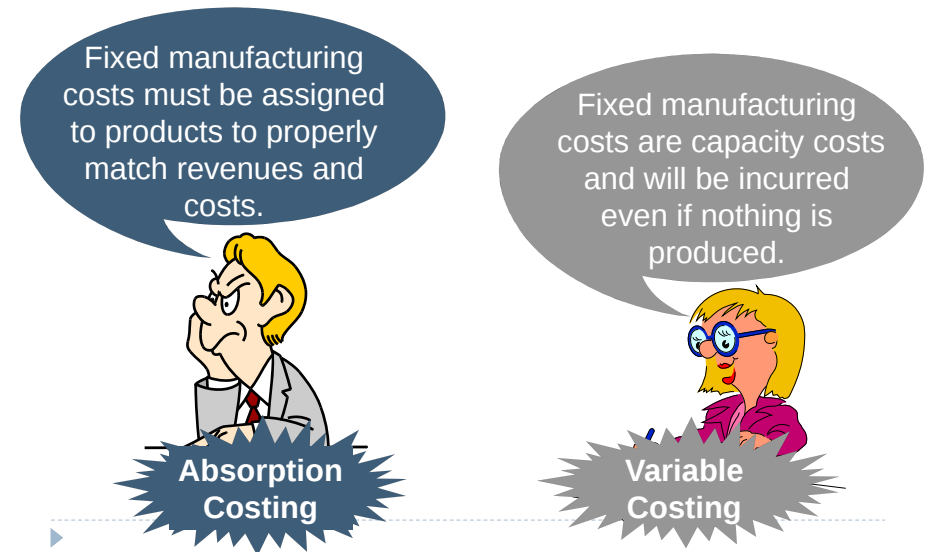
Since top executives are typically evaluated based on earnings reported to shareholders in external reports, they may feel that decisions should be based on absorption costing data.



Advantages of Variable Costing and the Contribution Approach

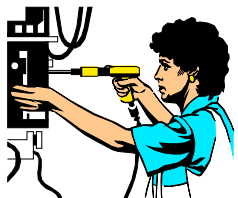


Variable versus Absorption Costing



Impact of Lean Production

When companies use Lean Production . . .



Production tends to equal sales . . .



So, the difference between variable and absorption income tends to disappear.