

A close-up photograph of a computer screen displaying a spreadsheet. The spreadsheet contains several rows of data. A cell contains the value '100,000'. Below it, two cells each contain '10,000'. Further down, a cell contains '75,000'. A larger cell, possibly a sum or total, contains '\$205,000'. To the right of these values, there are some faint, partially legible numbers like '100,000' and '10,000'. The spreadsheet is overlaid on a blurred background of a green field.

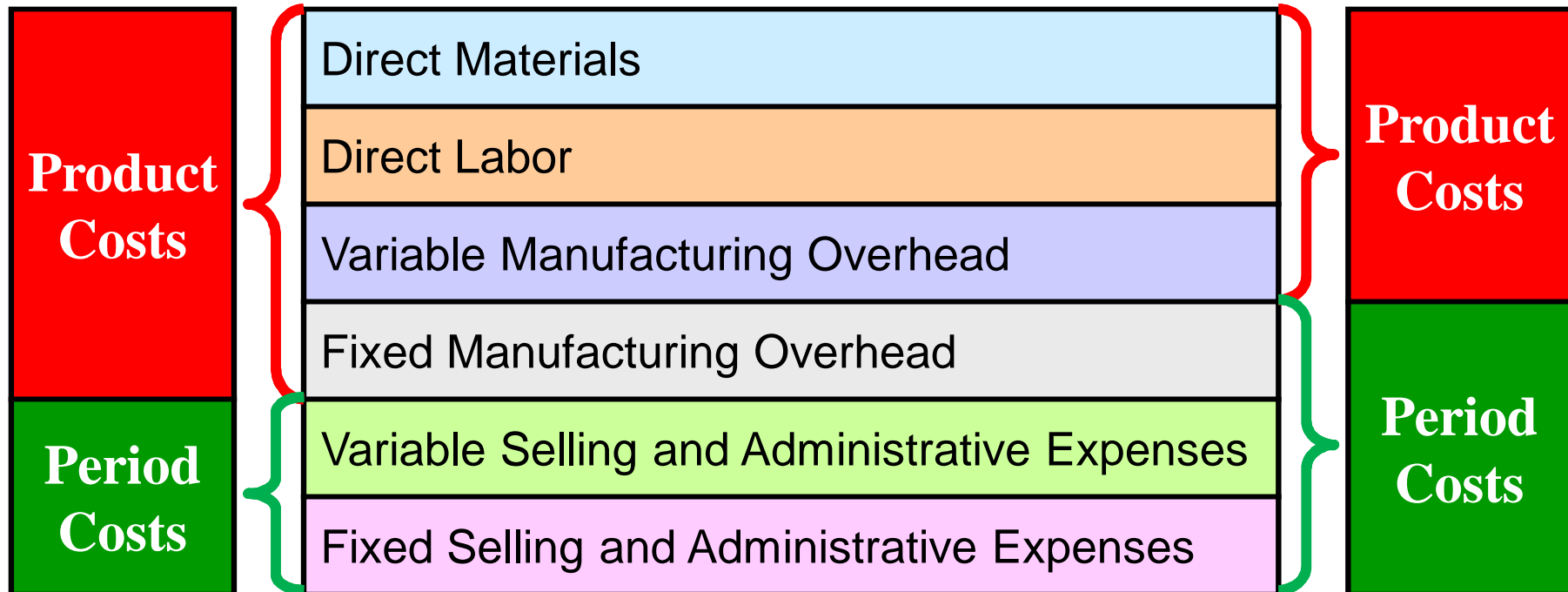
Variable Costing: A Tool for Management

Chapter 7

Overview of Absorption and Variable Costing

Absorption Costing

Variable Costing



Unit Cost Computations

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

Number of units produced annually	25,000
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Variable costs per unit:

Direct materials, direct labor, and variable mfg. overhead	\$ 10
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Selling & administrative expenses	\$ 3
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Fixed costs per year:

Manufacturing overhead	\$ 150,000
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Selling & administrative expenses	\$ 100,000
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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	<u>\$ 16</u>	<u>\$ 10</u>

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.

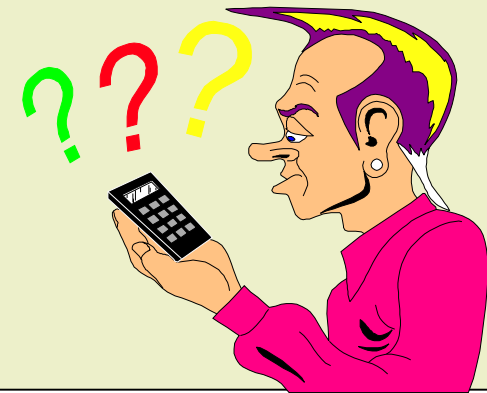


Income Comparison of Absorption and Variable Costing

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	<u>400,000</u>	
Ending inventory (5,000 × \$16)	80,000	<u>320,000</u>
Gross margin		<u>280,000</u>
Less selling & admin. exp.		
Variable (20,000 × \$3)	\$ 60,000	
Fixed	100,000	160,000
Net operating income		<u><u>\$ 120,000</u></u>

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	260,000
Contribution margin		340,000
Less fixed expenses:		
Manufacturing overhead	\$ 150,000	
Selling & administrative expenses	100,000	250,000
Net operating income		<u><u>\$ 90,000</u></u>

Variable manufacturing costs only.

All fixed manufacturing overhead is expensed.

Comparing the Two Methods

	<u>Cost of Goods Sold</u>	<u>Ending Inventory</u>	<u>Period Expense</u>	<u>Total</u>
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)	30,000
Absorption costing net operating income	<u><u>\$ 120,000</u></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	\$ 16	\$ 10

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	<u>480,000</u>	
Less ending inventory	-	<u>480,000</u>
Gross margin		<u>420,000</u>
Less selling & admin. exp.		
Variable (30,000 × \$3)	\$ 90,000	
Fixed	<u>100,000</u>	<u>190,000</u>
Net operating income		<u><u>\$ 230,000</u></u>

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	<u>300,000</u>	
Less ending inventory	-	
Variable cost of goods sold	<u>300,000</u>	
Variable selling & administrative expenses (30,000 × \$3)	90,000	
Contribution margin		<u>390,000</u> 510,000
Less fixed expenses:		
Manufacturing overhead	\$ 150,000	
Selling & administrative expenses	<u>100,000</u>	<u>250,000</u>
Net operating income		<u><u>\$ 260,000</u></u>

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	<u><u>\$ 230,000</u></u>

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



Comparing the Two Methods

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



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

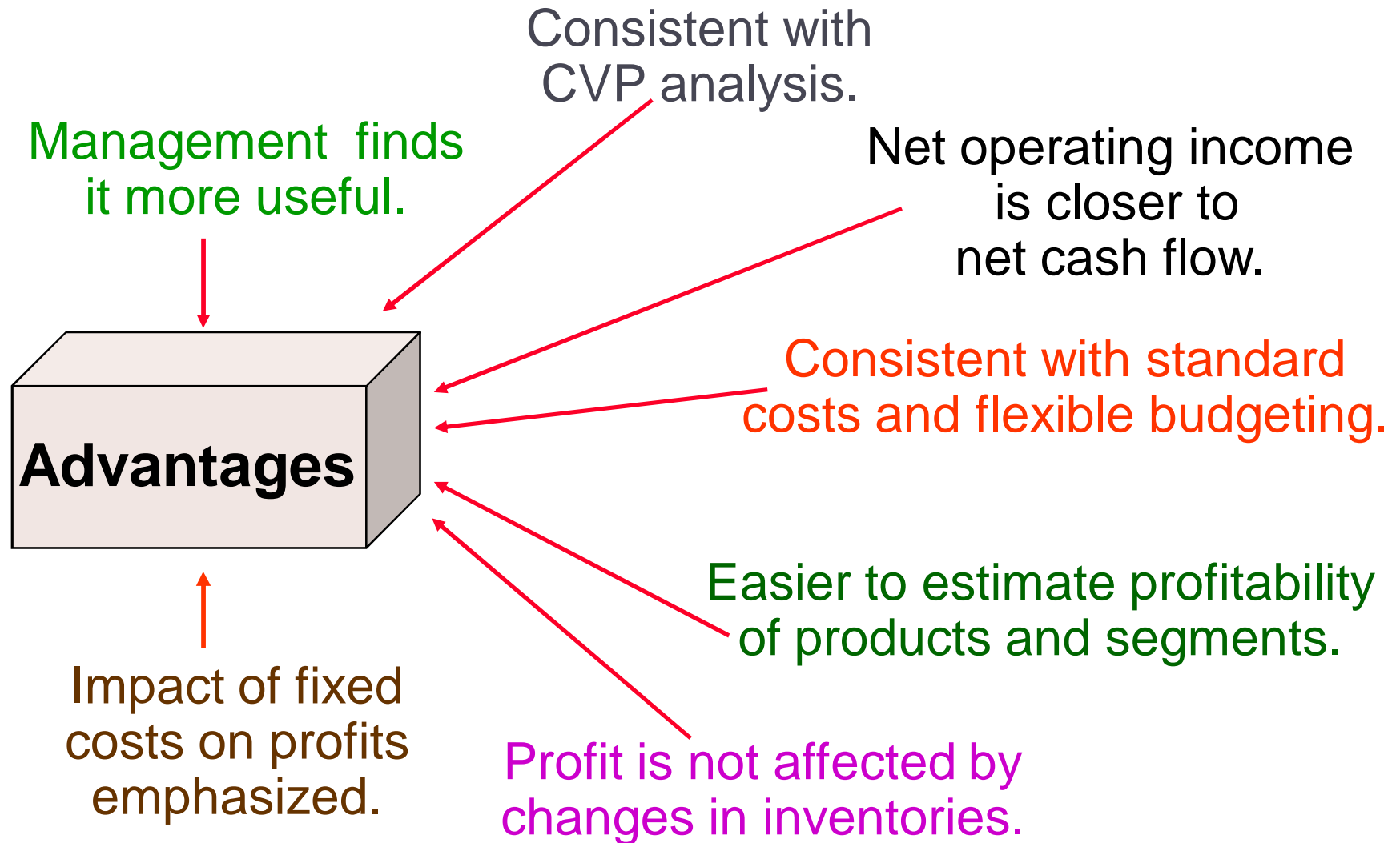
To conform to GAAP requirements, absorption costing must be used for external financial reports in the United States.

Under the Tax Reform Act of 1986, 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.

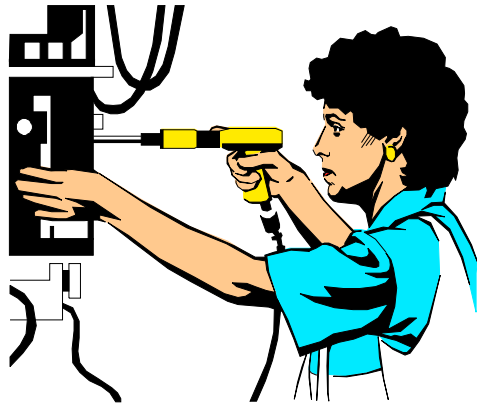


Advantages of Variable Costing and the Contribution Approach



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.**



End of Chapter 7

