
Chapter 8

Flexible Budgets, Variances, and Management Control: II

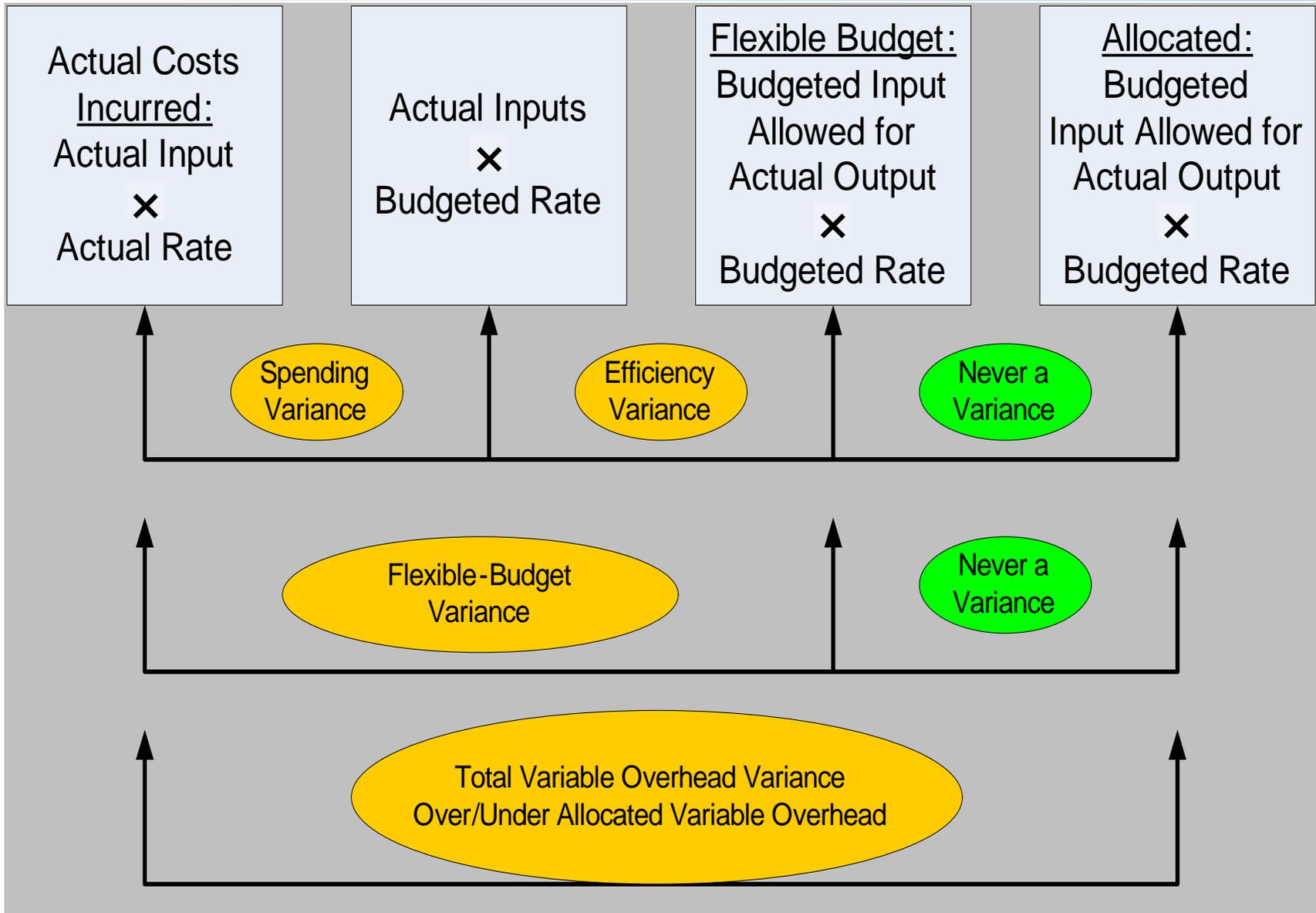
Planning of Variable and Fixed Overhead Costs

- **Effective** planning of overhead costs requires undertaking only “value-added” activities
 - s i.e. activities that **add value for customers** using the product or service
- (Opinion of CAM-I (Computer-Aided Manufacturing – International Inc.))
 - s But: Why exclude overhead activities that save more costs of “value-added” activities than their own costs?
 - s **Bad maintenance of machines** increases direct costs.
 - s Effective even if customer value remains unaffected
- Effective planning of **fixed** overhead costs involves planning to undertake only **essential** activities and then planning to be **efficient** in that undertaking.

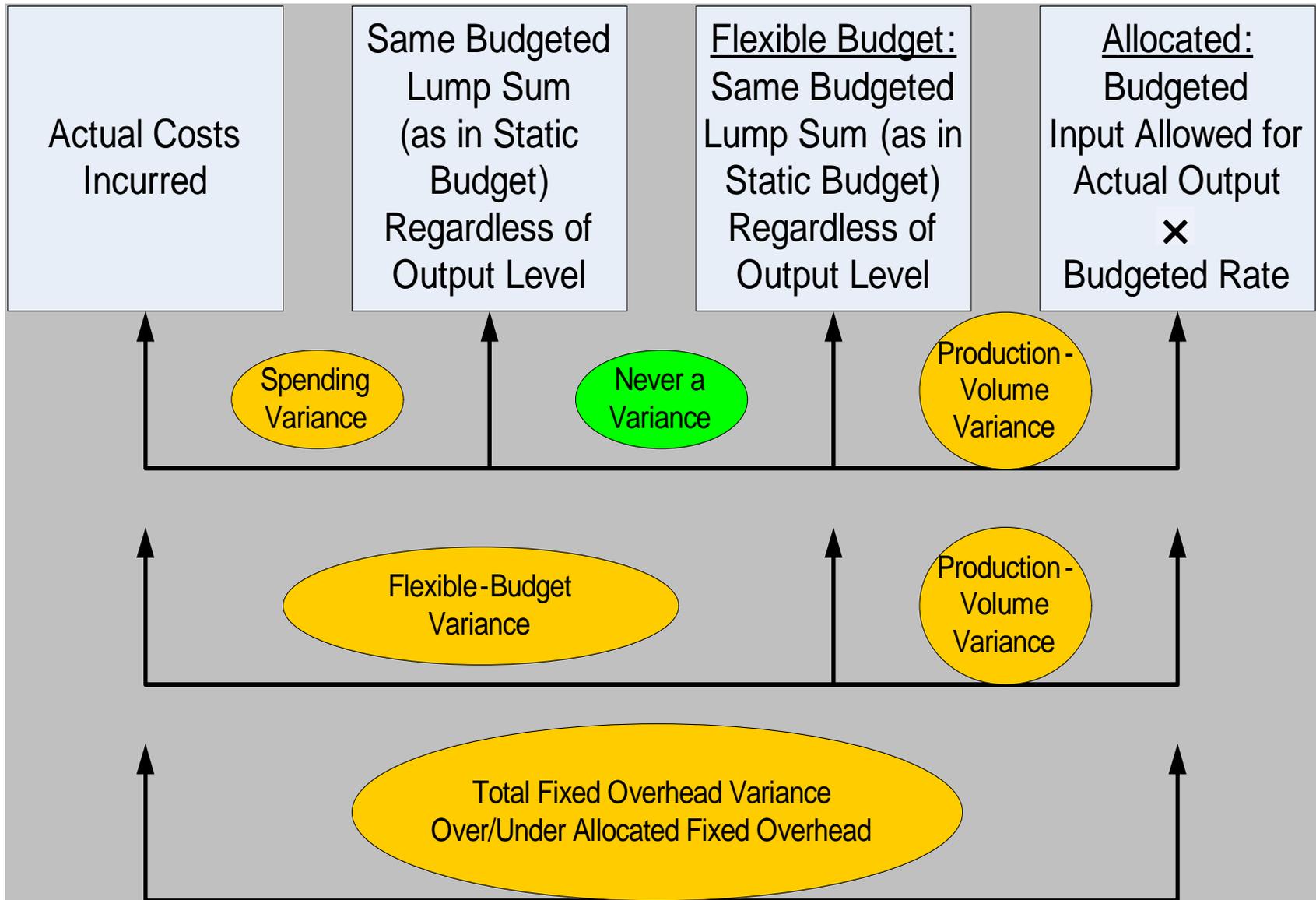
Standard Costing

- traces direct costs to output by multiplying the **standard prices or rates** by the **standard quantities** of inputs allowed for actual outputs produced
- allocates overhead costs on the basis of the **standard overhead-cost rates** times the **standard quantities of the allocation bases** allowed for the actual outputs produced
- **Developing Budgeted Variable Overhead Cost Rates**
 1. Choose the **period** to be used for the budget
 2. Select the **cost-allocation bases** to be used in allocating variable overhead costs to output produced
 3. Identify the variable overhead costs associated with each cost-allocation base
 4. Compute the **rate per unit** of each cost-allocation base used to allocate variable overhead costs to output produced

A Roadmap: Variable Overhead variances



A Roadmap: Fixed Overhead variances



Details: Variable Overhead Variances

- Variable Overhead **Flexible-Budget Variance** measures the difference between actual variable overhead costs incurred and flexible-budget variable overhead amounts

$$\text{Variable Overhead flexible-budget variance} = \text{Actual Costs incurred} - \text{Flexible-budget amount}$$

- Variable Overhead **Efficiency Variance** is the difference between actual quantity of the cost-allocation base used and budgeted quantity of the cost per unit of the cost-allocation base

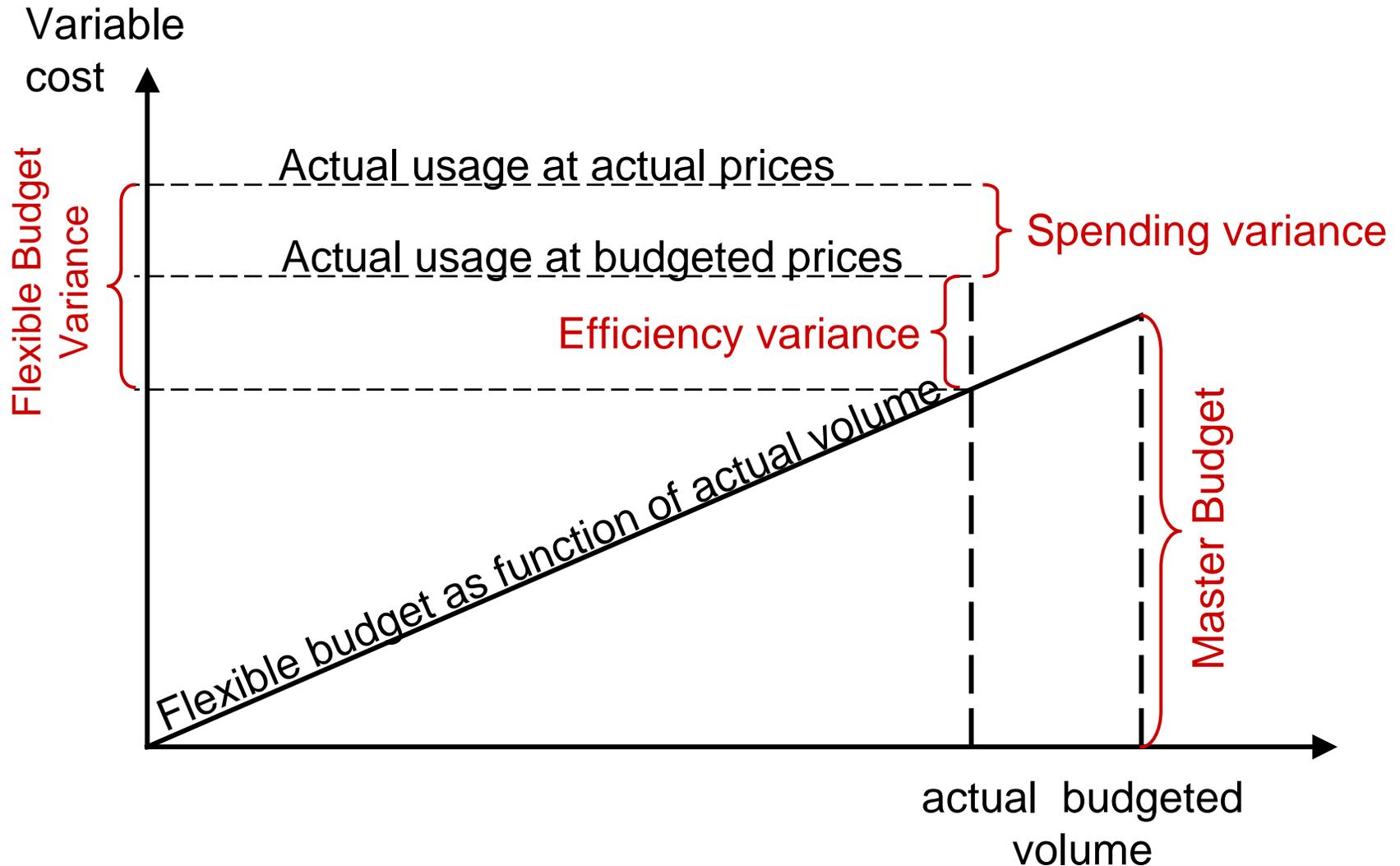
$$\text{Variable Overhead Efficiency Variance} = \left\{ \text{Actual quantity of variable overhead cost-allocation base used for actual output} - \text{Budgeted quantity of variable overhead cost-allocation base allowed for actual output} \right\} \times \text{Budgeted variable overhead cost per unit of cost-allocation base}$$

Details: Variable Overhead Variances (cont'd)

- Variable Overhead **Spending Variance** is the difference between actual and budgeted variable overhead **cost per unit** of the cost-allocation base, multiplied by actual quantity of variable overhead cost-allocation base used for actual output

$$\text{Variable Overhead Spending Variance} = \left\{ \begin{array}{l} \text{Actual variable} \\ \text{overhead cost} \\ \text{per unit of} \\ \text{cost-allocation base} \end{array} - \begin{array}{l} \text{Budgeted variable} \\ \text{overhead cost} \\ \text{per unit of} \\ \text{cost-allocation base} \end{array} \right\} \times \text{Actual quantity of} \\ \text{variable overhead} \\ \text{cost-allocation base} \\ \text{used for actual output}$$

Geometrical Visualization



Fixed Overhead Cost Variances

- **The flexible budget amount for a fixed cost item is the amount included in the static budget prepared at the start of the period.**
- **No adjustment is required for differences between the actual output and the budgeted output for fixed costs.**
- **Fixed costs are unaffected by changes in the level of output.**
- **There will be, however, a spending variance: the difference between actual and budgeted amounts of fixed cost**

Planning of Variable and Fixed Overhead Costs

- The key challenge with planning fixed overhead is choosing the appropriate level of **capacity** or **investment** that will benefit the company over an extended time period.
- Most of the **key decisions** that determine the level of **fixed overhead costs** to be incurred are made at the start of a budget period.
- **Day-to-day**, ongoing operating **decisions** play a large role in determining the level of **variable overhead costs** incurred in the budget period.

Developing Budgeted Fixed Overhead Cost Rates

- 1. Choose the period to be used for the budget**
- 2. Select the cost-allocation bases to use in allocating fixed overhead costs to output produced**
- 3. Identify the fixed overhead costs associated with each cost-allocation base**
- 4. Compute the rate per unit of each cost-allocation base used to allocate fixed overhead costs to output produced**

Details: Fixed Overhead Variances

- **Fixed Overhead Flexible-Budget Variance is the difference between actual fixed overhead costs and fixed overhead costs in the flexible budget**
- **This is the same amount for the Fixed Overhead Spending Variance**

$$\begin{array}{l} \text{Fixed Overhead} \\ \text{flexible-budget variance} \end{array} = \begin{array}{l} \text{Actual Costs} \\ \text{incurred} \end{array} - \begin{array}{l} \text{Flexible-budget} \\ \text{amount} \end{array}$$

$$= \text{Fixed Overhead Spending Variance}$$

Details: Fixed Overhead Variances

- Production-Volume Variance is the difference between **budgeted** fixed overhead and fixed overhead **allocated** on the basis of actual output produced
- This variance is also known as the Denominator-Level Variance or the Output-Level Overhead Variance

$$\text{Production-Volume Variance} = \text{Budgeted Fixed Overhead} - \text{Fixed Overhead allocated using budgeted input allowed for actual output units produced}$$

- Interpretation: indicates deviations from budget in capacity utilization

Fixed costs: Production-Volume Variance

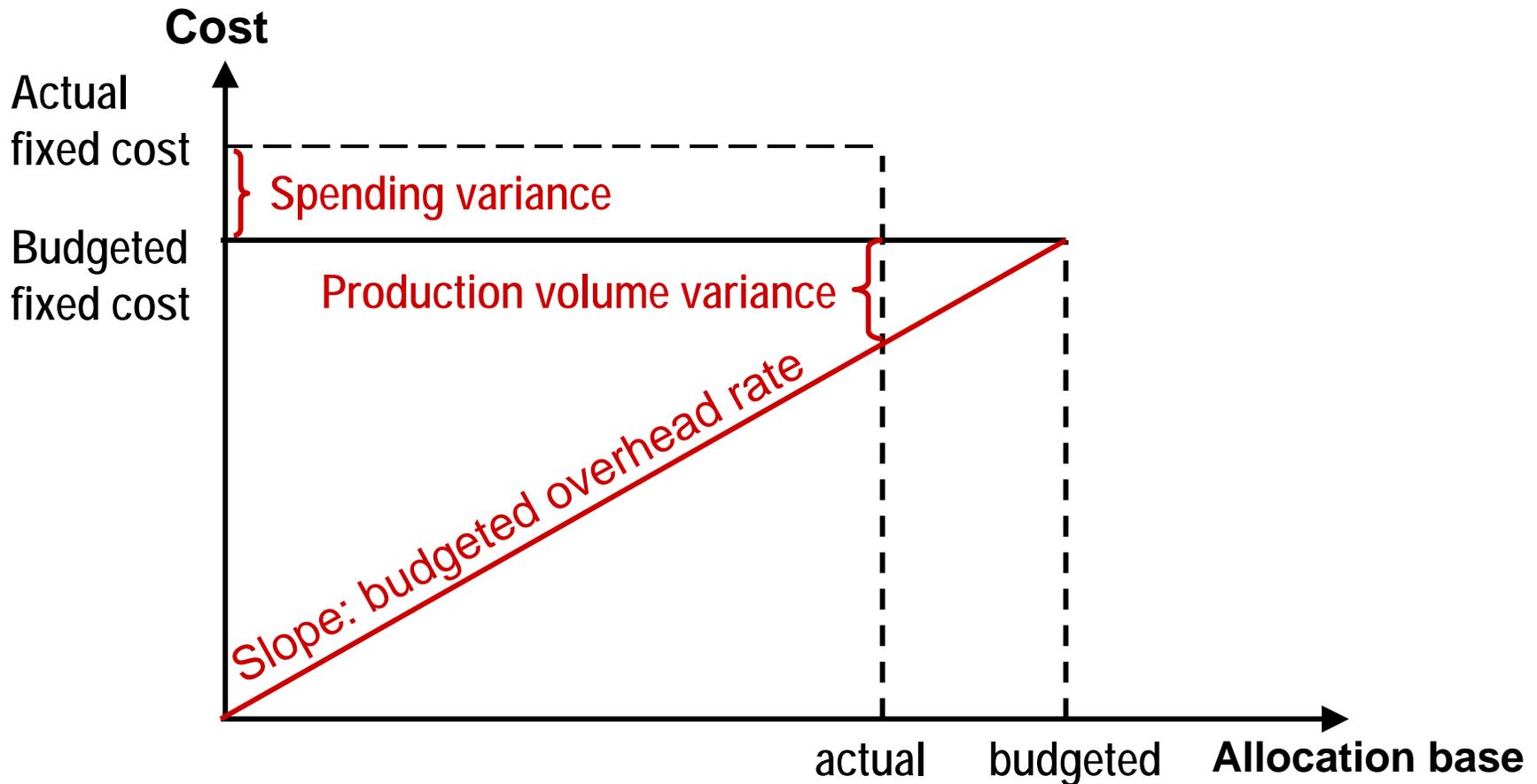
- **Fixed costs are by definition somewhat inflexible**
 - s While market conditions may cause production to flex up or down, the associated fixed costs remain the same
 - s Fixed costs may be set years in advance, and may be difficult to change quickly
 - s Management intervention is necessary to change fixed costs
 - s This comes usually at an additional (one-time) cost
 - s Fixed costs may be interpreted as capacity costs, costs of a fixed resource potential that can be utilized by current operations
- **Interpretation of fixed overhead production-volume variance:**

Cost of unused capacity, based on budgeted per unit cost of capacity

Interpreting the Production-Volume Variance

- **Lump-sum fixed costs represent resources sacrificed in acquiring capacity.**
 - s Plant
 - s Equipment leases
- **These costs cannot be decreased if the resources needed are less than the resources acquired.**
- **May indicate to consider capacity adaptation**

Fixed overhead variances



Interpreting the Production-Volume Variance

- Caution is appropriate before interpreting the production-volume variance as a measure of the economic cost of unused capacity.
 - One caveat is that management may have maintained some **extra capacity** to meet uncertain demand surges that are important to satisfy customer demands.
 - A second caveat is that the production-volume variance focuses only on costs. It does not take into account any **changes in sales prices** necessary to spur extra demand that would in turn make use of any idle capacity.
- Notice: Cost Accounting is a linear calculus: Any interdependencies are neglected!

Interpreting the Production-Volume Variance

- Assume that in year 2004, Rockville's denominator level is exactly the capacity used for that budget period, but actual demand and production turns out to be 8% below the denominator level.
- Rockville would report an unfavorable production-volume variance.

Integrated Analysis

- A 4-Variance Analysis presents
 - s **spending** and
 - s **efficiency** variances for **variable overhead costs**
 - s and **spending** and
 - s **production-volume variances** for **fixed overhead costs**.
- Managers can reconcile the actual overhead costs with the overhead amounts allocated during the period.
- One-time expenses to adapt capacities (restructuring charges) must be accounted for in supplementary budgets
- The effect of price reductions to maintain sales volume needs to be included in the analysis

Different Purposes of Overhead Cost Analysis

- **Variable** manufacturing overhead costs are variable with respect to output units for both planning and control purposes and inventory costing purpose.
 - The greater the number of output units manufactured, the higher the budgeted total variable manufacturing overhead costs and the higher the total variable manufacturing overhead costs allocated to output units
- **Fixed overhead costs do not change within the relevant range.**
 - Management can do little to change the lump-sum fixed cost.
- Under generally accepted accounting principles, fixed manufacturing costs are **allocated as an inventoriable cost based on the level of output units produced.**

Financial and Nonfinancial Performance

- Overhead variances are examples of **financial** performance measures.
- Managers also find that **nonfinancial** measures provide useful information. Examples are:
 - 1 actual **labor time per suit**, relative to budgeted labor time per suit, and...
 - 2 actual **indirect materials usage per labor-hour**, relative to budgeted indirect materials usage per labor-hour.
- Nonfinancial performance measures are best viewed as attention directors, not as problem solvers.
 - they are in the focus of the Balanced Scorecard (see chapters 13 and 19 of the text book).

Activity-Based Costing and Variance Analysis

- **ABC systems classify costs of various activities into a cost hierarchy (output-unit level, batch level, product sustaining, and facility sustaining).**
- **The basic principles and concepts for variable and fixed manufacturing overhead costs can be extended to ABC systems.**
- **Flexible budgeting in activity-based costing systems enables insight into why actual activity costs differ from those budgeted.**
- **With well-defined output (cost driver) and input measures for an activity, a 4-variance analysis can be conducted.**

Quiz

Sebastian Company, which manufactures electrical switches, uses a standard cost system and carries all inventories at standard. The standard manufacturing overhead costs per switch are based on direct labor hours and are shown below:

• Variable overhead		
	(5 hours @ \$12 per direct manufacturing labor hour)	\$ 60
• Fixed overhead		
	(5 hours @ \$15* per direct manufacturing labor hour)	<u>75</u>
	Total overhead per switch	<u>\$135</u>

* Based on capacity of 200,000 direct manufacturing labor hours per month.

The following information is available for the month of December:

- 46,000 switches were produced although 40,000 switches were scheduled to be produced.
- 225,000 direct manufacturing labor hours were worked at a total cost of \$5,625,000.
- Variable manufacturing overhead costs were \$2,750,000.
- Fixed manufacturing overhead costs were \$3,050,000.

The variable overhead spending variance for December was

- a. \$50,000 U. b. \$350,000 U. c. \$10,000 F. d. \$60,000 F.

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The variable manufacturing overhead efficiency variance for December was

- a. \$50,000 U. b. \$350,000 U. c. \$10,000 F. d. \$60,000 F. 24

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The fixed manufacturing overhead spending variance for December was

- a. \$450,000 F. b. \$400,000 F. c. \$50,000 U. d. \$775,000 F.

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The fixed overhead production volume variance for December was

- a. \$450,000 F. b. \$400,000 F. c. \$50,000 U. d. \$775,000 F.

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The amount to be credited to the Allocated manufacturing overhead control is:

- a. \$6,210,000 b. \$5,800,000. c. \$5,760,000. d. \$5,700,000.

Quiz

1. Which of the following pertains primarily to the planning of fixed overhead costs?
 - a. A standard rate per output unit is developed.
 - b. Only essential activities are to be undertaken.
 - c. Activities are to be undertaken in the most efficient method.
 - d. Key decisions are made at the start of the budget period determining the level of costs.

2. A feature of a standard-costing system is that the costs of every product or service planned to be worked on during the period can be computed at the start of that period. This feature of standard costing makes it possible to
 - a. maintain actual costs as an integral part of the costing system.
 - b. use a simple recording system.
 - c. eliminate routine reports.
 - d. justify eliminating the budgeting process.