

**Solution Manual for Managerial Accounting 16th Edition Garrison
Noreen Brewer 1260153134 9781260153132**

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I. Appendix 2B: The Predetermined Overhead Rate and Capacity (Slide #1 is a title slide)

2 { *Learning Objective 6: Understand the implications of basing the predetermined overhead rate on activity at capacity rather than on estimated activity for the period.*

A. Calculating predetermined overhead rates using an estimated, or budgeted amount of the allocation base

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- i. There two methods of computing predetermined overhead rates:
 1. The first method bases the **denominator volume** for overhead rates on the **estimated, or budgeted, amount of the allocation base** for the upcoming period.
 2. The second method bases the **denominator volume** for overhead rates on the **estimated total amount of the allocation base at capacity**.

B. Traditional absorption costing

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- i. Two important limitations from a managerial accounting standpoint:
 1. If predetermined overhead rates are based on budgeted activity and overhead includes significant fixed costs, then the unit product costs will fluctuate depending on the budgeted level of activity for the period.

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- a. This in turn makes it appear as though the cost of producing the product has increased, which may tempt managers to raise prices at the worst possible time—just as demand is falling.
- 2. It charges products for resources that they don't use.
 - a. When the fixed costs of capacity are spread over estimated activity, the units that are produced must shoulder the costs of any unused capacity.
 - b. If the level of activity falls, a company's shrinking output of products must absorb a growing share of idle capacity cost that is above and beyond their actual production cost.

C. Capacity-based overhead rates

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- i. The limitations of traditional absorption costing can be overcome by using “estimated total amount of the allocation base **at capacity**” in the denominator of the predetermined overhead rate calculation (rather than the “estimated total units in the allocation base” in the denominator).

ii. The following example will help distinguish between these two approaches.

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1. Assume that a company leases a piece of equipment for **\$100,000** per year. If run at full capacity, the machine can produce **50,000** units per year.
 2. The company estimates that **40,000** units will be produced and sold next year.
 3. The predetermined overhead rate, if based on the estimated number of units that will be produced and sold, is **\$2.50 per unit**.
 4. The predetermined overhead rate, if based on capacity, is **\$2.00**.

7 { **D. Cost of unused capacity**

- i. Whenever a company operates at **less than full capacity** and allocates fixed overhead costs using a capacity-based denominator volume it will report some amount of unused capacity cost.
 1. **Cost of unused capacity** = (Amount of the allocation base at capacity – Actual amount of the allocation base) x Predetermined overhead rate
 2. Extending the example, since the company is operating below capacity, the company's cost of unused capacity is **\$20,000**.

8 { **E. Income statement preparation**

- i. The **cost of unused capacity** should be **disclosed** on the income statement prepared for internal purposes.
 1. Rather than treating it as a product cost (as is done in the absorption approach), the capacity-based approach would treat this cost as a **period expense** that is reported **below the gross margin**.
 - a. The need to effectively manage capacity is then **highlighted** for the company's managers.
 - b. Managers should respond by:

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- (1). Seeking new business opportunities that consume the capacity
- (2). Cutting costs and shrinking the amount of available capacity.