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Cost Accounting

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Agenda

- Importance of cost allocation
- Client example
- Definitions
  - direct vs. indirect, fixed vs. variable
  - breakeven volume
- Exercises
  - cost allocation
  - breakeven volume
- Key takeaways

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Why Allocate Costs?

It is critical to have accurate and complete cost data to make sound strategic and tactical management decisions.

- Which products are profitable?
- What is the breakeven volume by product?
- Which products require cost reduction efforts?
- How should we price our products?
- Which customer segments are most profitable?

Why Costs Are Often Not Allocated Correctly

Most companies lack accurate cost data by product.

- Historically, only 20% of manufacturing costs were “shared” across product lines. Today, typically 50% of costs are “shared” across products. Shared costs might include rent, freight, and administrative costs.
- For simplicity, accounting tracks costs by function (e.g., materials, salaries, benefits) rather than by the activity devoted to product lines (e.g., maintenance of product A, freight for product B)
- For costs that are not easily assigned to individual product lines, companies normally select the most convenient way to assign them, not necessarily the best way
  - for example, companies tend to allocate rent costs based on something that is easy to measure, such as direct labor dollars for each product line. A better allocation method, however, might be the actual space resource demands of each product line

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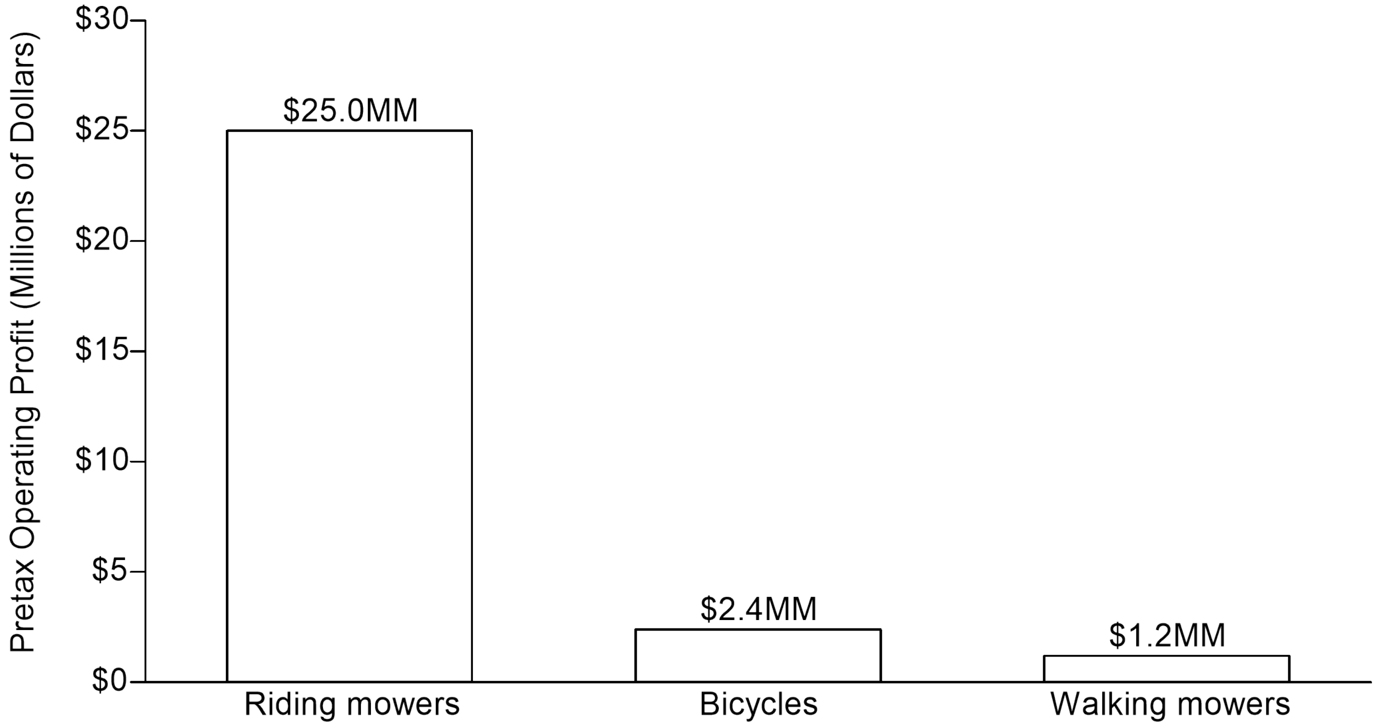
Middle America Manufacturing - Estimated Profitability

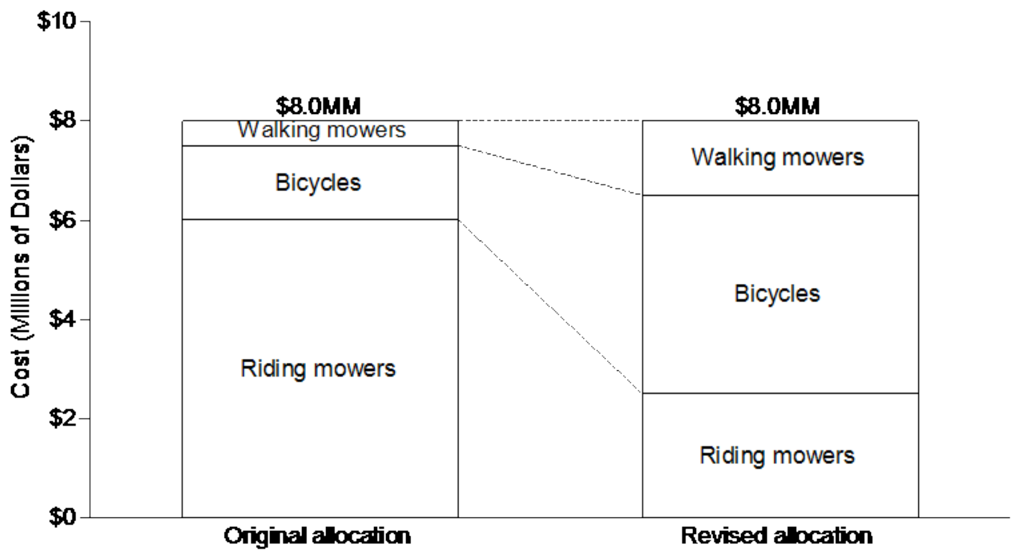
Middle America Manufacturing, a Bain client, believed that all three of its product lines were profitable.



	Riding mowers	Bicycles	Walking mowers
Sales:	$250MM	$100MM	$75MM
Return on sales:	10.0%	2.4%	1.6%

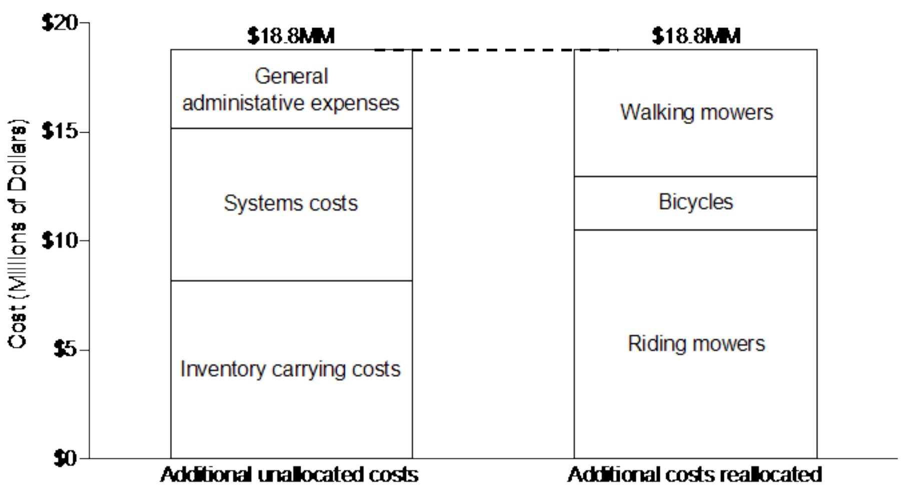
Middle America Manufacturing - Cost Allocation

After a thorough evaluation, the Bain team found that $8.0MM in costs had been allocated incorrectly among the three products.



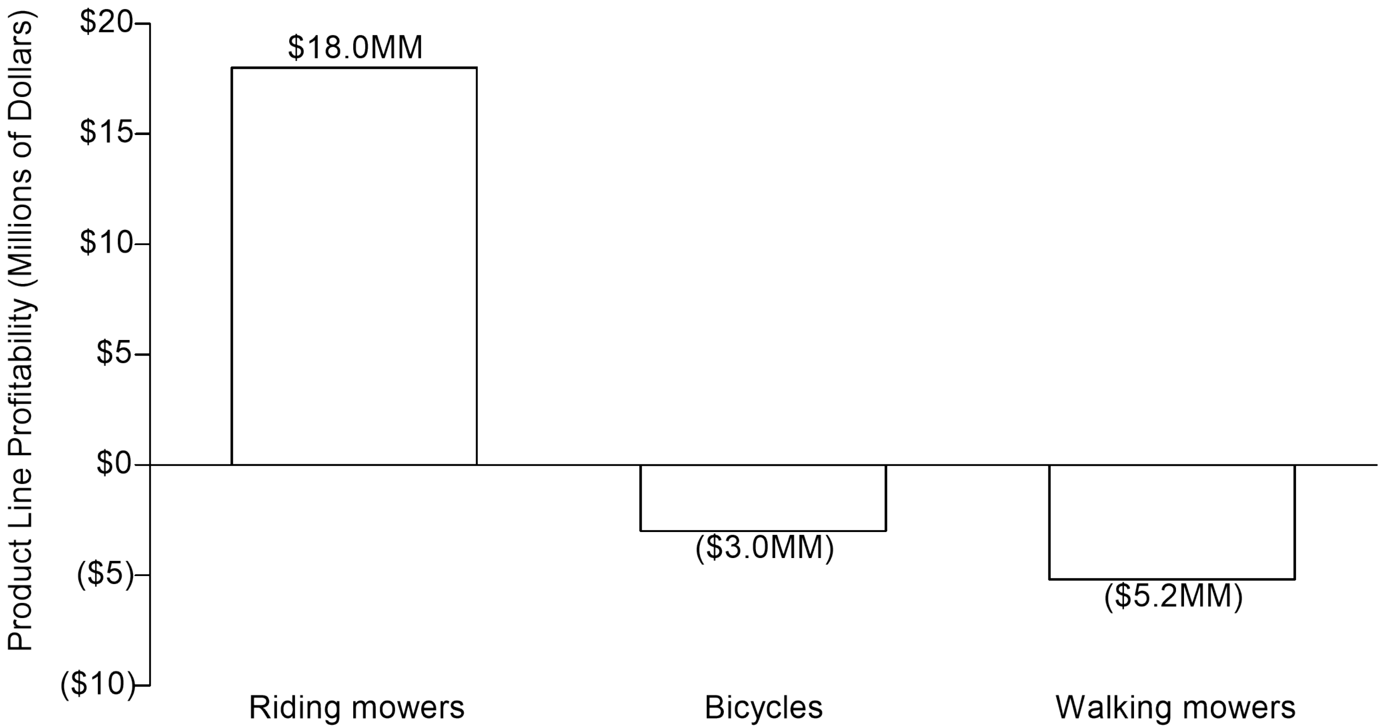
Middle America Manufacturing - Additional Costs

The Bain team also determined that an additional $18.8MM in costs should be allocated to the three products.



Middle America Manufacturing - Actual Profitability

Bain's analysis indicated that both bicycles and walking mowers were unprofitable. Middle America then began to investigate whether to exit or fix these two businesses.



	Riding mowers	Bicycles	Walking mowers
Sales:	$250MM	$100MM	$75MM
Return on sales:	7.2%	(3.0%)	(6.9%)

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Types of Costs

All costs can be broken down along two dimensions.

	Fixed	vs.	Variable	Direct	vs.	Indirect
Definitions:	• Costs that do not vary directly with changes in output		• Costs that vary directly with changes in output	• Costs incurred directly in the production or delivery of a firm's product or service. These costs can easily be identified with, or assigned to, a particular product		• Costs generally incurred by the firm outside of the production process. These costs cannot easily be identified with, or assigned to, a particular product
Examples:	• Equipment depreciation • Rent • Advertising		• Raw materials • Production labor • Delivery costs	• Direct labor • Dedicated equipment • Raw materials		• SG&A • Office supplies • Plant manager
Rule of thumb:	**If a particular cost changes when production increases or decreases, the cost is variable.**			**If a particular cost "goes away" when a product is dropped from the product line, the cost is direct.**		

Fixed vs. Variable

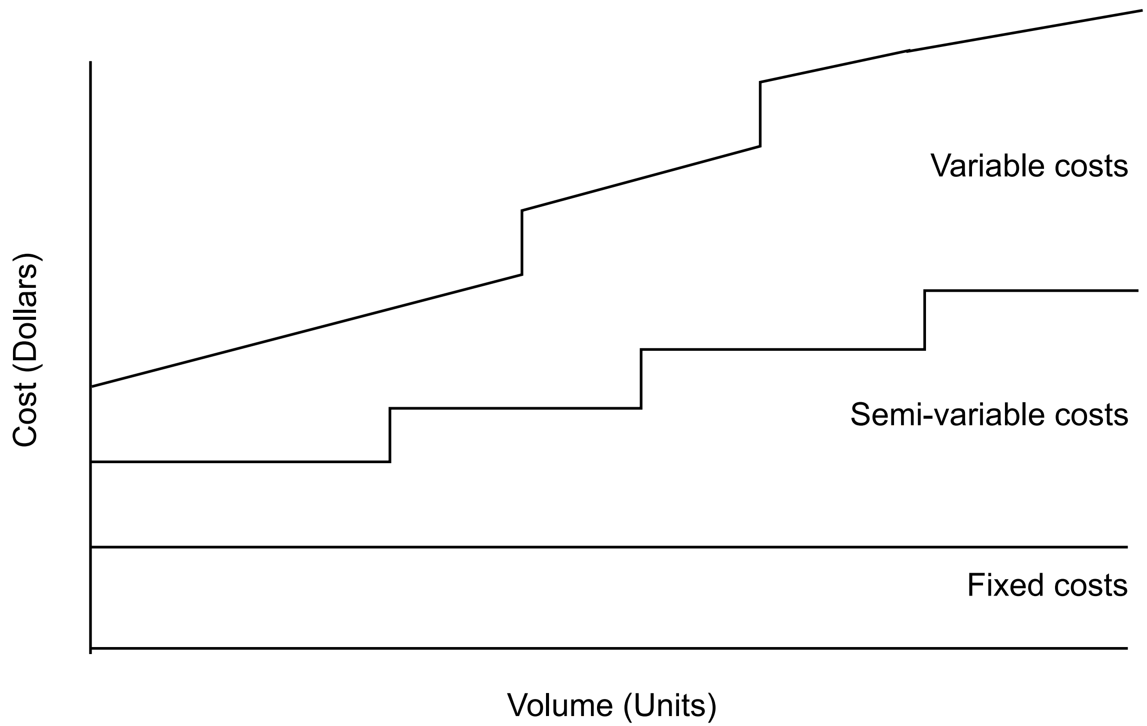
Defining the appropriate time horizon for the analysis is important.

- All costs are variable over a very long time horizon (i.e., for very large increases in volume)
  - Costs to run and maintain a computer system that tracks product orders are clearly fixed for a small change in volume, such as that associated with a slightly busy month. However, they are variable for a large change in volume, such as that associated with a new plant.
- Most costs are semi-variable (i.e., they tend to be added in lumps as volume increases)
  - Supervisory labor tends to be considered fixed because it is unlikely that additional supervisors would have to be added to handle a small increase, say 10%, in volume. But the workforce can only increase so much before an additional supervisor is needed.
  - In theory, production labor is variable. However, in many client situations, restraints placed by unions and difficulty in hiring and firing people in response to short-term volume fluctuations make it, in practice, semi-variable.

A meaningful analysis will isolate the fixed cost and variable components of a particular cost

Fixed vs. Variable - Illustration

The following is an illustration of cost behavior for fixed, semi-variable, and variable costs:



Income Statement Terms

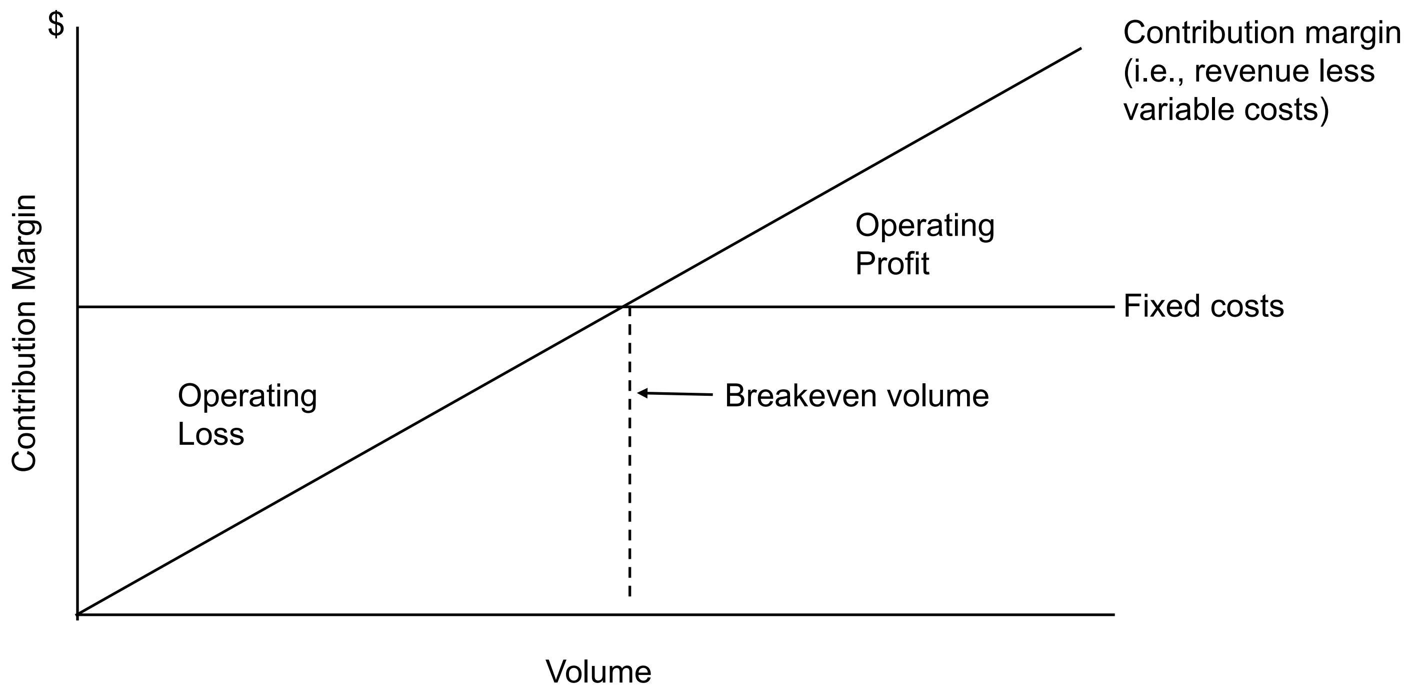
It is useful to know the following terms when doing cost analysis:

Simplified income statement:

Revenue	Revenue = Price per Unit x Volume
- Variable Cost	
Gross Margin	Gross margin is also called “Gross Profit,” or “Contribution Margin”
- Fixed Cost	
Operating Margin	Operating Margin is also called “Operating Profit”

Breakeven Volume

Breakeven volume is the volume at which the company covers its fixed costs. At breakeven volume, the operating profit is zero.



$$\text{Breakeven volume} = \frac{\text{Fixed costs}}{\text{Unit contribution}} = \frac{\text{Fixed costs}}{\text{Price per unit - Variable cost per unit}}$$