

Unit 11

Segment reporting under variable costing

ILO1. Segmented Income Statements and the Contribution Approach

ILO2. Companywide and Segment Break Even Points

ILO3. Segmented Income Statements: Common Mistakes and External Perspective

ILO1. Segmented Income Statements and the Contribution Approach

We begin by defining a segment as a part of an organization, or an activity of an organization that can be quantified ie cost, revenue or profit data can be found. Within an organization this could be subdivisions, sales territories, stores, service centers, production plants, product lines, or even customers. To build a segmented income statement, two important keys are necessary.

The first step is to use the contribution format as it separates fixed costs from costs, and allows for the contribution margin. Secondly, fixed costs that can be isolated should be separated from common fixed costs to allow for the segment margin.

To expand on these details, we find a traceable fixed cost of a segment as one that takes place only as a result of that segment. If the segment was to disappear, the so to would the fixed costs. For example, the maintenance cost of the factory where Airbus A380's are manufactured is a traceable cost of the A380 business segment of Airbus. Likewise, a common fixed cost is a fixed cost that pertains to multiple segments but cannot be traced to any individual segment. For example, the salary of the CEO of Mercedes Benz is a common fixed cost of the multiple divisions of Mercedes Benz.

Managers need to be aware that traceable fixed costs of an individual segment may be a common fixed cost of another segment. For example, an airplane's landing fee paid to an airport can be traced to a certain flight but it is not allocated to solely first class, business class, or economy passengers.

We can then determine a segment margin by deducting the traceable fixed costs of a segment from the contribution margin. This segment margin is used to assess the long run profitability of a segment. Another trait is to allocate common costs to segments which reduces the value of the segment margin, which in turn acts as a guide to long run segment profitability.

If we consider a segmented income statement example, we assume our company Webber Inc. has two divisions; computers, and television. For our purposes, we have included the contribution format income statement for the television division, but with some notes.

- Cost of goods sold consists of variable manufacturing costs
- Fixed and variable costs are separated
- Contribution margin is calculated by sales minus variable costs
- Divisional segment margin represents the television division's contribution to company profit

Income Statement Contribution Margin Format Television Division	
Sales	\$ 300,000
Variable COGS	120,000
Other variable expenses	30,000
Total variable expenses	150,000
Contribution margin	150,000
Traceable fixed expenses	90,000
Division margin	\$ 60,000

Fig 11.1 Contribution Margin Income Statement

The television division's data can be added into Webber Inc's overall results as demonstrated. Notice the results of the television and computer division sum to the total shown for the whole company. In our example, the common costs for the company as a whole (\$25,000) are not allocated to the divisions.

Income Statement			
	Company	Television	Computer
Sales	\$ 500,000	\$ 300,000	\$ 200,000
Variable expenses	230,000	150,000	80,000
CM	270,000	150,000	120,000
Traceable FC	170,000	90,000	80,000
Division margin	100,000	\$ 60,000	\$ 40,000
Common expenses	25,000		
Net operating income	\$ 75,000		

Fig 11.2 Segmented Income Statement

Like most electronic manufacturers, the television division's results can be broken down into smaller segments; small screen, and large screen televisions. We can then make the following segment margins. Of the \$90,000 of fixed costs that were traced to the television division, \$80,000 (\$45,000 + \$35,000) is attributed to the two smaller segments, with the remaining \$10,000 a common cost.

Income Statement			
	Television Division	Regular	Big Screen
Sales	\$ 300,000	\$ 200,000	\$ 100,000
Variable expenses	150,000	95,000	55,000
CM	150,000	105,000	45,000
Traceable FC	80,000	45,000	35,000
Product line margin	70,000	\$ 60,000	\$ 10,000
Common expenses	10,000		
Divisional margin	\$ 60,000		

Fig 11.3 Traceable Fixed Costs

We can now take this segmented income statement a step further by analyzing the decision making process for breaking even. Webber suggests its television division spend an additional \$5,000 on advertisements, to increase sales of its small screen and big screen televisions by 5%. Webber can therefore calculate this profit from this case.

- Small screen product contribution margin would increase by \$5,250
- Big screen product line contribution margin would increase by \$2,250
- Television division segment margin would increase by \$2,500

Income Statement			
	Television Division	Regular	Big Screen
Sales	\$ 315,000	\$ 210,000	\$ 105,000
Variable expenses	157,500	99,750	57,750
CM	157,500	110,250	47,250
Traceable FC	80,000	45,000	35,000
Product line margin	77,500	\$ 65,250	\$ 12,250
Common expenses	15,000		
Divisional margin	\$ 62,500		

Fig 11.4 Traceable Fixed Costs (5% Sales Increase)

ILO2. Companywide and Segment Break Even Points

To explain the companywide and segmented break even points, we will revisit the companywide income statement segmented into the television and computer divisions.

Income Statement			
	Company	Television	Computer
Sales	\$ 500,000	\$ 300,000	\$ 200,000
Variable expenses	230,000	150,000	80,000
CM	270,000	150,000	120,000
Traceable FC	170,000	90,000	80,000
Division margin	100,000	\$ 60,000	\$ 40,000
Common expenses	25,000		
Net operating income	\$ 75,000		

Fig 11.5 Webber's Income Statement

We begin by calculating the companywide break even point, by dividing the sum of the company's traceable fixed costs and common fixed costs, by the company's total contribution margin ratio.

$$\text{Break-even Point} = \frac{\$170,000 + \$25,000}{0.54} = \$361,111$$

$$\text{Contribution Margin Ratio} = \frac{\$270,000}{\$500,000} = 0.54$$

Fig 11.6 Webber's Break Even Point and Contribution Margin

The business segment's break even point is found by dividing the traceable fixed costs by its contribution margin ratio.

Television	Break-even Point	$= \frac{\$90,000}{0.50} = \$180,000$
	Contribution Margin Ratio	$= \frac{\$150,000}{\$300,000} = 0.50$

Fig 11.7 Break Even Analysis for Television Division

Computer	Break-even Point	$= \frac{\$80,000}{0.60} = \$133,333$
	Contribution Margin Ratio	$= \frac{\$120,000}{\$200,000} = 0.60$

Fig 11.8 Break Even Analysis for Computer Division

Companywide common fixed costs are omitted from the segment break-even process, due to common fixed costs not traceable to segments thereby void of any influence by segment level decisions.

ILO3. Segmented Income Statements: Common Mistakes and External Perspective

Managers should be alert to the conditions surrounding absorption costing, especially as it pertains to segment costs. When costs are assigned to a segment, it should comprise of all costs relating to that particular segment from the company's supply chain. As only manufacturing costs are included in product costs under the absorption system, when this method is used for segment reporting upstream and downstream costs are excluded. The upstream costs refer to research and development, and product design costs, whereas downstream costs is comprised of marketing, distribution and customer service costs.

We can also analyze cost traceability. Costs that be directly tied to specific segments should be excluded from other segments. For example, the rent of office space for a company should

charged specifically to the overseeing branch rather included in a companywide overhead pool.

Closely associated with this is an inappropriate allocation base. A number of companies allocate costs to segments by using arbitrary bases. Such costs should be allocated to segments to facilitate decision making purposes only under the circumstance when the allocation base drives the cost being allocated. For example, Sales are often employed to determine selling and administrative expenses to segments. This should only take place if sales drive these expenses.

We can also distinguish common costs between segments. Such common costs should not be allocated to segments purely out of necessity, the reasons for this are twofold. Firstly, a profitable segment may inadvertently appear unprofitable. If a segment is excluded its lost revenue may exceed the real traceable costs that could be avoided. Secondly, assigning common fixed costs obliges manager accountability for costs they cannot control.

The final area to expand upon is the companywide income statements. Under GAAP and IFRS of the United States requires absorption costing be used for all external reporting. Despite the advantages of the contribution system, absorption costing compliments better costs with revenue, but also that fixed manufacturing costs are just as relevant to manufacturing as are variable costs. Also, those in favour of variable costing see fixed manufacturing costs as capacity costs. They base their position that fixed manufacturing would exist regardless if any units were produced.

For segmented financial information, United States GAAP and IFRS require all publicly traded companies to include segmented financial data in their annual reports. The guidelines require companies be consistent with their preparation of segmented reports. By doing so, it encourages managers and accountants to avoid the contribution approach in favour of the absorption system. If they did not they would be obliged to share sensitive internal data with the public and therefore competitors.



References:

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3. Management accounting, Will Seal-Carsten Rohde-Ray Garrison-Eric Noreen - McGraw-Hill Education, 6ed. - 2019

