

**Relevant Costs: Add or Droop products**

Sometimes when a business sees that a product, department, or location is losing money, the first reaction is to shut it down. In deciding whether to add a new product line or drop an existing one, the management must consider relevant benefits and costs. And as a rule, product lines or business segments should be evaluated based on traceable revenues and costs.

When deciding to keep or drop a part of the company, the first thing to do is to create an income statement broken into segments. For example, if a product or segment are unprofitable, create a product line income statement. Use a contribution margin income statement to separate variable costs from fixed costs.

**Allocated fixed costs (indirect) should be removed** from the analysis of income since the company will incur in the entire amount with or without the product line or segment.

*Example 1:* XYZ Company has three product lines. The company is considering dropping Product 2 because it has been operating at a loss. The following summarizes the income of the three product lines.

	Product 1	Product 2	Product 3	Total
Sales	\$15,000	\$22,000	\$37,000	\$74,000
Less: Variable Costs	9,000	10,000	19,000	\$38,000
Contribution Margin	\$ 6,000	\$12,000	\$18,000	\$36,000
Less: Traceable Fixed Costs	3,000	10,000	6,000	\$19,000
Less: Allocated (indirect)	\$ 1,000	\$ 3,500	\$ 5,000	\$9,500
<b>Net income</b>	<b>\$2,000</b>	<b>(\$1500)</b>	<b>\$7,000</b>	<b>\$7,500</b>

**Required/ Should the company drop or keep product 2? Why?**

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### *Solution:*

The allocated fixed costs should be removed when analyzing segment income.

Hence, Product 2 should not be dropped since it has a positive segment margin.

	<b>Product 1</b>	<b>Product 2</b>	<b>Product 3</b>
Sales	\$15,000	\$22,000	\$37,000
Less: Variable Costs	9,000	10,000	19,000
Contribution Margin	\$ 6,000	\$12,000	\$18,000
Less: Traceable Fixed Costs	3,000	10,000	6,000
<b>Segment Income</b>	<b>\$ 3,000</b>	<b>\$ 2,000</b>	<b>\$ 12,000</b>

Why are we removing the allocated fixed costs in our analysis? Because the company would still incur the entire allocated fixed costs with or without Product 2. A portion of these costs is actually absorbed by Product 2's segment income. If Product 2 is dropped, it will result in lesser overall profits.

	<b>With Product 2</b>	<b>Without Product 2</b>
Sales	\$74,000	\$52,000
Less: Variable Costs	38,000	28,000
Contribution Margin	\$ 36,000	\$24,000
Less: Traceable Fixed Costs	19,000	9,000
Less: Allocated	<b>\$ 9,500</b>	<b>\$ 9,500</b>
Net income	\$7,500	\$5,500

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The allocated fixed costs are unavoidable costs. The entire **\$9,500** would be incurred with or without Product 2. If Product 2 is dropped, it will result in lower overall net income.

Hence, the product line should not be dropped.

Let's look at a grocery store example 2. Suppose Morrie's Grocery have five flavors of ice cream in the freezer, but would like to determine how to best utilize the freezer space. It's accounting department gives them the following information regarding revenues and costs for ice cream freezer capacity:

### Morrie's Grocery: Ice Cream Cooler—What Should We Stock?

	Vanilla	Chocolate	Strawberry	Latte	ButterPecan
<b>Sales</b>	\$ 1000	\$ 1200	\$ 900	\$ 700	\$ 1050
<b>Variable Costs</b>	400	720	270	490	577.5
<b><u>Contribution Margin</u></b>	<b><u>600</u></b>	<b><u>480</u></b>	<b><u>630</u></b>	<b><u>210</u></b>	<b><u>472.5</u></b>
<b>Direct Fixed Costs</b>	100	180	90	105	105
<b>Allocated Fixed Costs indirect</b>	150	180	135	140	157.5
<b><u>Net Income</u></b>	<b><u>\$ 350</u></b>	<b><u>\$ 120</u></b>	<b><u>\$ 405</u></b>	<b><u>\$ -35</u></b>	<b><u>\$ 210</u></b>

From this spreadsheet, dropping the **Latte** would be a good idea, right?

Let's look a little closer at this situation to determine if that is the right decision. So, if we get rid of the Neapolitan flavor, what expenses will be relevant to our decision?

Variable costs would go away, as that cost is directly related. Direct fixed costs would also go away, as those costs are directly attributed to that flavor too. But what happens to the

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allocated fixed costs? Those costs would need to be distributed among the remaining flavors. Remember things like rent and utilities will occur regardless of what products we carry.

### Drop the Latte ?

<b>Variable Costs Avoided (save)</b>	490	
<b>Direct Fixed Costs Avoided (save)</b>	<u>105</u>	595
<b>Less: Sales Revenue Lost</b>		<u>700</u>
<b>Decrease in Net Income</b>		<u><u>\$105</u></u>

The variable costs and direct fixed costs are called avoidable costs. These are the costs that would go away by eliminating this flavor.

So you can see, that eliminating the Latte would have a negative effect on the net income. What if we drop chocolate?

### Drop the Chocolate?

<b>Variable Costs Avoided</b>	720	
<b>Direct Fixed Costs Avoided</b>	<u>180</u>	900
<b>Less: Sales Revenue Lost</b>		<u>1200</u>
<b>Decrease in Net Income</b>		<u><u>300</u></u>

**Example 3:**

	Product A	Product B	Total
Sales	245,000	532,000	777,000
Variable Costs	160,000	230,000	390,000
Contribution Margin	85,000	302,000	387,000
Fixed Costs			-
Direct Fixed Costs	90,000	202,000	292,000
Common Fixed Costs	33,000	66,000	99,000
Total Fixed Costs	123,000	268,000	391,000
Net Income	(38,000)	34,000	(4,000)

This is the kind of income statement that would make a company think about dropping a product. Overall, the company has a loss of \$4,000 and it appears that Product A has a \$38,000 loss. On the surface, it might look like dropping Product A and only producing Product B would result in a profit of \$34,000. But is that correct?

Here are some things to consider when evaluating if a company should keep or drop a segment (product, department, or location):

**1. Does the segment have a positive contribution margin?**

If we look at Product A, it does have a positive contribution margin. This is important because the product is covering all of its variable costs and it is contributing toward fixed costs. While the contribution margin is not high enough to cover all of the fixed costs, increasing sales of Product A would increase contribution margin and lower the loss.

**2. Can any of the fixed costs be avoided if the segment was discontinued?**

There are two types of fixed costs that should be considered, direct fixed costs and common fixed costs.

**Direct fixed costs** are fixed costs that can be directly traced to the segment. Just because a fixed cost is direct does not mean that it is avoidable. There may be depreciation that the company will not be able to cut even if the segment is discontinued.

**Common fixed costs** are organization sustaining fixed costs that are allocated to the segment. These fixed costs will continue even if the segment has been eliminated; they will just be allocated to the remaining segments.

Let's say, in our example, that none of the direct fixed costs are avoidable. What happens to the loss if Product A is discontinued?

	Product A	Product B	Total
Sales		532,000	532,000
Variable Costs		230,000	230,000
Contribution Margin	-	302,000	302,000
Fixed Costs			-
Direct Fixed Costs	90,000	202,000	292,000
Common Fixed Costs	33,000	66,000	99,000
Total Fixed Costs	123,000	268,000	391,000
Net Income	(123,000)	34,000	(89,000)

Since there are no longer sales from Product A, we eliminate the revenue and the variable costs from Product A. We also lose \$85,000 in contribution margin that was helping to offset some

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of the fixed costs. The loss increased by \$85,000 (the amount of contribution margin that was eliminated). What would happen if we could eliminate all of the direct fixed expenses?

	Product A	Product B	Total
Sales		532,000	532,000
Variable Costs		230,000	230,000
Contribution Margin	-	302,000	302,000
Fixed Costs			-
Direct Fixed Costs		202,000	202,000
Common Fixed Costs		99,000	99,000
Total Fixed Costs	-	301,000	301,000
Net Income	-	1,000	1,000

If all of the direct fixed costs could be eliminated, now we see positive results. Notice that the common fixed cost is still \$99,000.

### 3. Will discontinuing a segment have adverse effects on the sale of other products?

Let's say that we could eliminate all the direct fixed costs from Product A but sales of Product B would fall 15%. Should we drop Product A? If we remove Product A and it's direct fixed costs but lower the sales and variable costs of Product B by 15%, the results are not good.

	Product A	Product B	Total
Sales		452,200	452,200
Variable Costs		195,500	195,500
Contribution Margin	-	256,700	256,700
Fixed Costs			-
Direct Fixed Costs		202,000	202,000
Common Fixed Costs		99,000	99,000
Total Fixed Costs	-	301,000	301,000
Net Income	-	(44,300)	(44,300)

The loss is larger now than it was when the company was making Product A. The negative impact on sales of Product B outweighs the savings from discontinuing Product A.

**Homework**

All-Mart is a department store with three major departments: Housewares, Hardware, and Electronics. Company management is very concerned about the performance of the electronics department, noting that it seems to be a drag on the company based on its most recent fiscal quarter. A company-wide segmented income statement follows:

	Housewares	Hardware	Electronics	Total
Sales	\$150,000	\$220,000	\$200,000	\$570,000
Variable expenses	60,000	100,000	140,000	300,000
Contribution margin	90,000	120,000	60,000	270,000
Fixed expenses	50,000	100,000	90,000	240,000
Operating income (loss)	\$40,000	\$20,000	\$(30,000)	\$30,000

The company notes that if the electronics department were dropped, the other departments could expect a 10% decrease in foot traffic (VC) and sales. Also, \$20,000 of the electronics department's fixed costs are allocated and would continue even if the department was dropped. The company has no planned use for the space currently used by the electronics department.

***Required***

Compute the net dollar advantage or disadvantage of dropping the electronics department.