

**MANAGERIAL ACCOUNTING TEACHING TECHNIQUE TO AID STUDENT IN  
UNDERSTANDING THE DIFFERENCE BETWEEN ABSORPTION COSTING AND  
VARIABLE COSTING**

James M. Emig, Ph.D., CPA  
Associate Professor Accountancy, Villanova University  
Villanova, Pennsylvania  
Email: james.emig@villanova.edu

Robert P. Derstine, Ph.D., CPA  
Professor of Accounting, West Chester University  
West Chester, Pennsylvania  
Email: rderstine@wcupa.edu

Thomas J. Grant, Sr., M.B.A., CMA  
Associate Professor of Accounting, Kutztown University  
Kutztown, Pennsylvania 19530.  
Email: grant@kutztown.edu

## INTRODUCTION

To help students truly understand (rather than memorize), we have used our combined 100+ years of teaching experience to develop some ‘tricks and techniques’ for the Variable Costing topic in Managerial Accounting courses. We have found it effective to initially present material in a ‘simplified manner’, along with some visual props, designed to help students understand the concepts and proceed from that basis to the more difficult material later in the course.

For faculty, our illustrations and visual aids may seem obvious and almost childish to do in a college classroom. However, for many students, they were less than enamored with their financial accounting course, so if we can get them engaged in any fashion in managerial we are closer to them understanding how they can utilize the topics in their future courses (Marketing, Management, etc.).

## BACKGROUND

It should be noted that we present the topic of variable costing approximately one-third of the way through our managerial course. Variable costing is covered after students have mastered –

1 - cost of goods manufactured (CGM) – they understand the components of raw material (RM), direct labor (DL), and manufacturing overhead (MOH)

2 – product and period costs – they understand how product costs appear first on the balance sheet (inventory) and then on the income statement (cost of good sold), while period costs go directly to the income statement as operating expenses

3 – cost behavior – they understand that variable costs are proportional to activity while fixed costs are constant in total.

We begin our discussion with a review of absorption costing from financial accounting. While most students do not recall that their financial course assumed the use of absorption costing, this simply entails a review of a very simplified income statement -

Sales	Beginning Inventory
<u>Cost of goods sold</u>	<u>+ Cost of Goods Manufactured</u>
Gross Profit	Goods Available for Sale
<u>Operating Expenses</u>	<u>- Ending Inventory</u>
Operating Income	Cost of Goods Sold

We remind the students that they learned through earlier work on CGM that CGS is comprised of RM, DL and MOH, and that costs either behave in a variable or fixed nature. This is the point at which we are ready to ‘show’ and explain the difference in the two costing methods.

## Basic Difference Between Variable Costing And Absorption Costing – Period 1

As the students are considering the fact that there are three product costs and two cost behaviors, we explain that by combining them would mean we could have six cost components which we refer to as pieces of a pie to be combined to find the cost of a unit. We then bring out our ‘prop’ that they will be able to relate these topics – we show them our right hand. At this point the students are somewhat confused as to how we are making a connection to this topic! We explain to them very simply that there could not be six components as we only have four fingers (and the thumb) on a hand. The discussion then is to remind the students that both RM and DL are ‘purely variable’ cost components, while MOH has both variable (VOH) and fixed (FOH) cost components, so we are really talking about just four costs – aka the four fingers we are holding up on our right hand. Our approach is then simple – we assign the RM, DL, VOH and FOH to the index through the pinkie and have the absorption cost of a unit shown by the right hand!

At this point it is time to use a numerical example. We utilize the following product costs and just one example each for variable and fixed period costs –

	<b>Period 1</b>	<b>Period 2</b>
Raw Material Used	\$1,000	\$1,100
Direct Labor	\$2,000	\$1,500
Variable Overhead	\$3,000	\$3,700
Fixed Overhead	\$4,000	\$4,600
Sales commissions	\$2.00/unit	\$2.00/unit
Administrative Salaries	\$5,000	\$5,250
Selling Price	\$200	\$200
Production	100 units	100 units
Sales	92 units	107 units

We then find the product costs per unit for Period 1 to be \$10 (RM), \$20 (DL), \$30 (VOH), and \$40 (FOH) for a total of \$100 per unit. We could also show them the CGM statement where we would assume no beginning or ending Work in Process balances for sake of simplicity so CGM for the 100 units would be \$10,000. We then complete the following Absorption Income Statement for Period 1 –

	<b>Period 1</b>	calculations
Sales	18,400	92 x 200
Cost of Goods Sold	9,200	92 x 100
Gross Profit	9,200	
Operating Expenses	5,184	(92x2)+5,000
Operating Income	4,016	
Ending Inventory	800	8 x 100

We now move to variable costing and explain THE DIFFERENCE BETWEEN ABSORPTION COSTING AND VARIABLE COSTING IS THE TREATMENT OF FIXED MANUFACTURING OVERHEAD – a theme and comment that is made often throughout the discussion.

Our discussion now centers on the fact that while absorption costing capitalizes (inventories) any product cost, regardless of cost behavior, variable costing only inventories VARIABLE product cost – leaving out the FOH component. Here we use the statement VARIABLE COSTING TREATS ALL FIXED COSTS AS PERIOD COSTS, so we then proceed to hold up our left hand and place the RM, DL, and VOH on the index through the ring finger WITHOUT UTILIZING THE PINKIE. At this point we always describe absorption costing on the right hand and variable costing on the left – we consistently show the difference to be the cost on the right hand pinkie and describe it as “one little thing” that creates the difference in the two costing methods!

We then utilize our numerical data to prepare the student’s first variable costing income statement. Note – please recall that this topic is presented after students have dealt with cost behavior, so they understand the term contribution margin. We then complete the following Variable Income Statement for Period 1 –

	<b>Period 1</b>	Calculations	
Sales	18,400	92 x 200	
Variable Product	5,520	92 x 60	
Variable Period	184	92 x 2	
Contribution Margin	12,696		
Fixed Product	4,000	all is expensed – treated as period cost	
Fixed Period	5,000	all is expensed – true period cost	
Operating Income	3,696		
Ending Inventory	480	8 x 60	
Oper Inc – Absorption	4,016	End Inv – Absorption	800
Oper Inc - Variable	3,696	End Inv – Variable	480
Difference	320	Difference	320
(100 – 92) x 40		(100 – 92) x 40	

At this point we can discuss the difference in 3 unique ways, and we have consistently found the students to fully understand the difference at this point.

- 1 – difference in operating income = 320 (absorption is higher than variable)
- 2 - difference in ending inventory = 320 (absorption is higher than variable)
- 3 – difference is fact that while variable costing expensed all of the fixed manufacturing overhead, absorption costing capitalized (attached) 40/unit (4,000/100) to each unit, and since there were 8 units remaining in inventory (100 units built versus only 92 units sold), the difference ties together!

**Period 1 Ties Together, But What Of Period 2**

Our approach to Period 2 is identical to Period 1 – we focus on the cost assigned to each of our fingers! We remind students that the index finger through the ring finger (RM, DL, VOH) is handled the same between the two costing methods, and that the difference simply lies in how the pinkie (that one little thing!) is handled.

We again find the absorption costs per unit for Period 2, which are to be \$11 (RM), \$15 (DL), \$37 (VOH), and \$46 (FOH) for a total of \$109 per unit. We could also show them the CGM statement where we would assume no beginning or ending Work in Process balances for sake of simplicity so CGM for the 100 units would be \$10,900. We do, however, have to decide on a cost flow assumption – another topic the students mastered in financial accounting. We choose to start with FIFO and complete the following Absorption Income Statement for Period 2 –

	<b>Period 2</b>	calculations
Sales	21,400	107 x 200
Cost of Goods Sold	11,591	(8 x 100) + (99 x 109)
Gross Profit	9,809	
Operating Expenses	5,464	(107 x 2) + 5,250
Operating Income	4,345	
Ending Inventory	109	1 x 109

Note – we typically ask the students to redo Period 2 under the LIFO approach to see if they can tie the two periods together.

We then move to variable costing for Period 2 and again explain THE DIFFERENCE BETWEEN ABSORPTION COSTING AND VARIABLE COSTING IS THE TREATMENT OF FIXED MANUFACTURING OVERHEAD, and that VARIABLE COSTING TREATS ALL FIXED COSTS AS PERIOD COSTS. We again show the students the two hands, and simply make note that the amount assigned to the pinkie (FOH) is now 46 rather than 40 for Period 1. In addition, we remind students that period costs are only relevant in the period incurred so even if the commission had changed for Period 2, it would not be treated in the same fashion as the variable product costs (FIFO versus LIFO), so all units sold in Period 2 would have the same commission.

We then complete the following Variable Income Statement for Period 2 –

	<b>Period 2</b>	calculations
Sales	21,400	107 x 200
Variable Product	6,717	(8 x 60) + (99 x 63)
Variable Period	214	107 x 2
Contribution Margin	14,469	

Fixed Product	4,600	all is expensed – treated as period cost	
Fixed Period	5,250	all is expensed – true period cost	
Operating Income	4,619		
Ending Inventory	63	1 x 63	
Oper Inc – Absorption	4,345	End Inv – Absorption	109
Oper Inc - Variable	4,619	End Inv – Variable	63
Difference	<274>	Difference	46

We then remind the students that in Period 1 the differences were –

- 1 – difference in Operating Income – Absorption was 320 higher than Variable
- 2 – difference in Ending Inventory – Absorption was 320 higher than Variable
- 3 – difference could be shown to be the \$40 x 8 unit difference in sales and production

Period 2 the differences were –

- 1 – difference in Operating Income – Variable was 274 higher than Absorption
- 2 – difference in Ending Inventory – Absorption was 46 higher than Variable
- 3 – there was no reconciliation as found in Period 1

SO WHY IS THE SAME NOT SEEN IN PERIOD 2? Students are never happy when this occurs. Most students naturally assume that either (1) they made a mistake, or (2) Period 1 was a fluke.

Our discussion then moves to explain that the results of the two periods were found in identical fashions, so we ask them why it did not tie together as they expected. After coming up with both logical and illogical answers, many students decide that Period 1 was a fluke of how we set up the data. We proceed to explain that Period 2 is ‘affected’ by Period 1 due to the carryover of the 8 units from Period 1.

### **Reconciling Period 2 Similar To Period 1**

Our conversation now revolves around the difference in sales and production for the two periods. When asked, student agree that if all units produced were also sold, that the only difference on the income statements would be where the costs are shown as expense, BUT THAT THE OPERATING INCOMES WOULD BE IDENTICAL SINCE NOTHING WOULD BE REMAINING TO GO TO THE BALANCE SHEET. This is a critical point to make to ensure their understanding.

In Period 1 there were 8 units ‘left over’ to be shown on the balance sheet (produced 100 but only sold 92), so it also appears logical that any difference in cost assigned to those units is being deferred until the period in which the units are actually sold. Therefore, since there was an additional 320 of cost (8 x 40 FOH) put on the absorption balance sheet, there would be an additional 320 of cost put on the variable income statement. The result is higher income for absorption costing when production is greater than sales, and that the additional cost component – THE PINKIE – WOULD ALWAYS RESULT IN HIGHER INVENTORY VALUATION FOR ABSORPTION COSTING. But we are again left with the question of Period 2.

At this point we again make use of the hands! For the second period we simply reach our right hand behind our back, illustrating that we are bringing units (and thereby costs) from last period into this period. Since we are doing this to place these units on the income statement (sales in units is now greater than production in units for Period 2), we have four costs of a unit under absorption costing (RM, DL, VOH and FOH) coming into Period 2, while when we reach back with our left hand to get the units and costs we only bring three costs (RM, DL and VOH) – meaning that THE FIXED MANUFACTURING OVERHEAD WAS TREATED AS A PERIOD COST BACK IN PERIOD 1 AND CANNOT IMPACT PERIOD 2.

To reconcile the operating income figures we show the following calculations for the two periods combined -

	Absorption		Variable		Difference
Operating Period 1	4,016		3,696		320
Operating Period 2	4,345		4,619		<274>
Total Operating Income	8,361		8,315		46
Ending Inventory	109	63			46

We now see that the following –

1 – difference in Operating Income for the two periods – absorption costing was higher than variable costing by a total of 46

2 – difference in Ending Inventory at end of second period was absorption costing was higher than variable costing by 46

3 – sales for two periods was 199 (92 + 107) while production was 200 - the 1 unit ‘left over’ in inventory under FIFO is from Period 2 and was assigned 46 in FOH

STUDENTS ARE NOW VERY HAPPY WHEN EVERYTHING TIES TOGETHER AND THEY TEND TO UNDERSTAND THE DIFFERENCE BETWEEN ABSORPTION AND VARIABLE COSTING!

### SUMMARY

Our approach to teaching the difference in absorption costing versus variable costing may seem ‘silly’ to many instructors. Walking around a classroom with a pinkie up in the air stating “this is all there is to it” may make those instructors uncomfortable. Our advice is to consider this very simple approach if you want your students to see and understand how the treatment of fixed manufacturing overhead really does create this difference. We can tell you from over 100 years of experience teaching managerial accounting – our approach works!