

The Parable of Red Pens and Blue Pens*

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Once upon a time a little firm made two products, red pens and blue pens. Each pen used 15¢ worth of labor and raw materials. Each pen was run through a machine, the daily cost of which was \$1000 regardless of how many pens were run through or their colors. The firm could sell the first 5000 red pens it made each day at 30¢ each; additional red pens, however, were sold at 20¢ per pen. The firm could sell all the blue pens it wanted at 25¢ per pen. The firm, however, could make no more than 8000 pens a day and it could not expand over its relevant decision-making horizon. The little firm chose to manufacture 5000 red pens and 3000 blue pens a day for a daily profit of \$50 ($= 5000 \times (.30 - .15) + 3000 \times (.25 - .15) - 1000$). Since this was greater than \$0, the little firm was happy to produce.

One day an evil accountant came along and said the little firm should adopt an accounting system that allocated shared overhead (e.g., the \$1000 for the aforementioned machine). Being naïve, the little firm went along. The accountant chose to allocate the shared overhead on the basis of output—thus, the red-pen line was billed \$625, which is five eighths of \$1000,¹ and the blue-pen line was billed the remaining \$375. The new accounting is shown in Table 1.

	Pens	Revenue	Direct Cost	Shared Overhead	Total Expense	Profit
Red Pens	5000	\$1500	\$750	\$625	\$1375	\$125
Blue Pens	3000	\$750	\$450	\$375	\$825	-\$75
Total	8000	\$2250	\$1200	\$1000	\$2200	\$50

Table 1: The Evil Accountant’s New Accounting

Upon examining the accounting data, the evil accountant remarked, “Aha! Your blue-pen line is unprofitable—you should shut it down.” Dutifully, the naïve little firm shut down its blue-pen line and switched over to producing nothing but red pens. Now the firm’s revenues were \$2100 ($= 5000 \times .3 + 3000 \times .2$). Since the blue-pen line was shut, the \$1000 cost of the machine was fully allocated to the red-pen line. Its new accounting is shown in Table 2.

Upon examining the accounting data, the evil accountant chortled, “Aha!

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¹Allocating on the basis of output means taking the output of the red-pen line, 5000 pens, and dividing it by total output, 8000 pens, to get the red-pen line’s share. Similarly, the blue-pen line’s share would be $3000/8000$ or $\frac{3}{8}$.

		Direct	Shared	Total		
	Pens	Revenue	Cost	Overhead	Expense	Profit
Red Pens	8000	\$2100	\$1200	\$1000	\$2200	-\$100
Blue Pens	0	\$0	\$0	\$0	\$825	0
Total	8000	\$2100	\$1200	\$1000	\$2200	-\$100

Table 2: New Accounting After Blue-Pen Line Shut

Your entire company is unprofitable—you should shut down completely.” Duffily, the naïve little firm did, shutting its doors forever. So thanks to the evil accountant, the little firm went from making a tidy profit of \$50 a day to going out of business!

Moral of the story: *Don't allocate shared overhead, it can only lead to dopey decisions.*