NeoPrice®

By Jaxworks

Pricing Your Product or Service

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We strongly suggest you print and read this worksheet in its entirety. There are many complex formulas that do not require understanding. However, the concepts in this worksheet are important to your understanding.

You will not find another pricing system like NeoPrice™. It is designed for all businesses regardless of size and complexity. Shaded cells contain formulas and are protected.

Be very carefull in unprotected state, errors can occur with the wrong alteration of cells.

Pricing by the Retailer

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When developing an integrated pricing strategy the retailer must first consider the customer. The retailer must prove the price charged for a product or service is consistent with the utility gained from it. Further, the retailor must prove to the customer that the value received relative, to the price paid, is greater than the value/price ratio of its competitors'. Unless this image of value, in the customer's mind, is achieved, adequate volume to sustain the business cannot be maintained. Every retailer knows the one key factor to success is moving merchandise. Competitive pricing policies must accomplish this. Also, without an efficient operation, the retailer cannot offer competitive prices, quality goods and services. In short, *value.*

Practical Retail Pricing Concepts

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Markup: The basic premise of a successful business is selling goods or services for more than it costs to produce. The difference between the cost and its selling price is called markup (or markon). Markup can be expressed in dollars as a percentage of either cost or selling price.

Dollar markup = retail price - cost of the merchandise

Percentage (of retail price) markup = dollar markup / retail price

Percentage (of Cost) markup = dollar markup / by cost of unit

For example, if a man's shirt costs $15, and the manager plans to sell it for $25, markup would be as follows.

Dollar markup	$25 - $15 = $10	$	25.00	Desired Sell Price
		$	15.00	Cost
		$	10.00	
Percentage (or retail price) markups $10 / $25 =			40.00%	
Percentage (of cost) markup is $10 / $15=			66.67%	

Initial Markup

The cost of merchandise used in computing markup includes not only the wholesale price of the merchandise but also any incidental costs (e.g., selling or transportation charges) the retailer incurs and a profit minus any discounts (quantity, cash) the wholesaler offers.

Most retailers compute markup as a percentage of the retail price of merchandise because most of the operating records the business owner prepares are expressed as a percentage of sales. All operating expenses, (cost of goods sold, and profits,etc.) are expressed as a percentage of total sales, not of the cost of the merchandise being sold.

Once the owner develops a financial plan, including sales estimates and anticipated expenses, they can compute the initial markup. The initial markup is the average markup required on all merchandise to cover the cost of all items, all incidental expenses, and a reasonable profit.

Initial dollar markup = operating expenses + reductions + profits / net sales + reductions:

Operating expenses are the cost of doing business, (rent, utilities, depreciation, and reductions which include employee and customer discounts, markdowns, special sales, and the cost of stockouts).

Example: a retailer forecasts sales of $380,000, expenses of $140,000, and $24,000 in reductions, and a profit of $38,000, the initial markup percentage would be as follows:

Initial markup percentage = (140,000 + 24,000 + 38,000) / (380,000 + 24,000)

Forecasted Sales	$380,000
Expenses	$140,000
Reductions	$24,000
Expected Profit	$38,000
Markup	50%

The retailer knows that a markup of 50 percent is required on the average to cover costs and generate an adequate profit.

A standard markup technique is usually used in retail stores carrying related products. Although it is somewhat inflexible in its applications, a standard markup is practical for specialty outlets. For example, jewelry stores commonly use a standard markup of 50 percent, doubling the cost of the merchandise.

Most stores find it much more practical to employ a flexible markup. A flexible markup uses various markup percentages for a number of different types of products. Because of the wide variety of prices and types of merchandise sold, department stores frequently rely on a flexible markup. It would be impractical for them to use a standard markup on all items because they have such a divergent cost and volume range. For instance, the markup percentage for socks is not likely to be suitable as a markup for washing machines.

Generally, highly speculative merchandise and slow-moving goods carry a higher markup than the initial markup percentages discussed in the last section. For example, shoes, furniture, and large appliances tend to have low turnover rates and typically have higher markups than the average item. Other factors contributing to above-average markups include: popular faddish items at their peaks; bulky items with high selling and transportation costs; items requiring large reductions due to spoilage or obsolescence; items requiring the extra expense of delivery, alteration, or installation.

Conversely, fast-moving merchandise with low carrying costs normally employs a lower markup than the average item. For instance, shirts, ties, and many grocery items carry low markup percentages because their turnover rates tend to be high. Products which face intense competition, or those that consumers are most likely to shop around for, should have low markups.

Once the desired markup percentage is determined, the appropriate retail price can be established. For example: Knowing that the markup of a particular item represents 40 percent of the retail price:

Cost = retail price - markup

= 100% - 40%

= 60% of retail price

and assuming that the cost of the item is $18.00, the retailer can rearrange the percentage (of retail price) markup formula.

Retail price = dollar cost / percentage cost

Solving for retail price, the retailer computes a price of the following.

Retail price = $18.00 / 0.60 = $30.00

Thus, a retail price of $30.00 for the item using a 40 percent markup is determined.

Finally, the retailer must verify that the computed retail price is consistent with the planned initial markup percentages.

1. Will it cover costs and generate the desired profit?
2. Is it congruent with the firm's overall price image?
3. Is the final price in line with other store policies?
4. Is it within an acceptable price range?
5. How does it compare to the prices charged by competitors?
6. And, perhaps most important, are customers willing and able to pay this price?

Pricing by the Manufacturer

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For the manufacturer, pricing decisions require the support of accurate and timely accounting records. The most commonly used pricing technique for manufacturers is cost-plus pricing. Using this method, the manufacturer establishes a price composed of direct materials, direct labor, factory overhead, selling and administrative costs, plus the desired profit margin.

The primary advantage of the cost-plus pricing method is its simplicity. Given the proper cost accounting data, computing a product's final selling price is relatively easy. Also, because it adds a profit onto the top of the firm's costs, the manufacturer is guaranteed a desired profit margin. This process, however, does not encourage the manufacturer to use their resources efficiently. Yet, even if the company fails to employ its resources in the most effective manner, it still earns its designed profit margin. Thus, with the cost-pricing technique, there is no motivation to conserve resources in the manufacturing process. Finally, because manufacturers' cost structures vary so greatly, cost-plus pricing fails to consider competition appropriately. Despite its drawbacks, the cost-plus method of establishing prices remains prominent in many industries such as construction and printing.

Direct Costing and Price Formulation:

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A manufacturing operations cost structure and required profit margin establish the minimum floor for its prices, while its market creates the maximum price. Within this range, the manufacturer must determine a reasonable price for their product. One requisite for a successful pricing policy in manufacturing is a reliable cost accounting system that can generate timely reports to determine the costs involved in processing raw materials into finished goods. "Unless [your prices] reflect the true costs of running your operation, and unless you maintain proper cash flow, you could be out of business before your customer base expands enough to become consistently profitable," says one small business owner."

The traditional method of product costing is called ***absorption costing***, because all manufacturing and overhead costs are absorbed into the finished product. Absorption costing includes direct materials, direct labor, plus a portion of fixed and variable factory overhead in each unit manufactured. Full-absorption financial statements are used in published annual and tax reports and are very useful in performing financial analysis. But full absorption statements are of little help to the manufacturer IN determining prices or the impact of price changes.

A more useful technique, for managerial decision-making, is ***variable (or direct, or contribution) costing***, when the cost of the products manufactured includes only those costs that vary directly with the volume produced. In other words, variable costing assigns direct materials, direct labor, and factory overhead costs that vary with the level of the firm's output of finished goods. Those factory overhead costs that are fixed (rent, depreciation, insurance, taxes, interest, officers salaries) are not included in the costs of finished items. Instead, they are considered to be expenses of the period.

The manufacturer's goal in establishing prices is to discover (1) the cost combination of selling price vs. sales volume that will cover the variable costs of producing a product and (2) contribute toward covering fixed costs and (3) earn a profit. The problem with using full-absorption costing for this is that it clouds the true relationships among price, volume, and costs by including fixed expenses in unit cost. Using a direct costing basis yields constant unit cost for the product no matter what volume of production. The result is a clearer picture of the price-volume-costs relationship. "Make sure you know and understand the true relationships between fixed and variable costs and how they affect your pricing and profitability," says one business owner.

The starting point for establishing product prices is the direct cost income statement. The direct cost statement yields the same net profit as the full-absorption income statement. The only difference between the two statements is the format. The full-absorption statement allocates costs such as advertising, rent, and utilities according to the activity that caused them, but the direct cost income statement separates expenses into fixed and variable categories. Fixed expenses remain constant regardless of the production level, but variable expenses fluctuate according to production volume.

When variable costs are subtracted from total revenues, the result is the manufacturer's contribution margin-the amount remaining that contributes to covering fixed expenses and earning a profit. Expressing this contribution margin as a percentage of total revenue yields the firm's contribution percentage. Computing the contribution percentage is a critical step in establishing prices through the direct costing method.

ABSORPTION COSTING

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Production (units)	10,000
Sales (units)	6,500
Price/unit	$110.00
Variable production cost per unit	$43
Variable sales expense per unit	$18
Fixed production costs	$140,000
Fixed sales expense	$200,000
Income statement, **Absorption Costing**	
Sales	$715,000
Cost of goods sold	$370,500
Gross profit	$344,500
Sales expenses (fixed plus variable)	$317,000
Income from operations	$27,500

CONTRIBUTION COSTING

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Production (units)	10,000
Sales (units)	6,500
Price/unit	$110.00
Variable production cost per unit	$43
Variable sales expense per unit	$18
Fixed production costs	$140,000
Fixed sales expense	$200,000
Income statement, **Contribution Costing**	
Sales	$715,000
Cost of goods sold	$279,500
Variable Sales Expenses	$117,000
Contribution Margin	$318,500
Fixed sales expenses	$200,000
Fixed production costs	$140,000
Income from operations	($21,500)

The contribution approach isolates the effect of changes in sales quantities and pricing on income from operations.

Notice in this contribution analysis that the operating income from this product is negative. When you deduct the entire amount of the fixed production costs ($140,000) from the contribution margin-instead of allocating the fixed production costs in part to the ending inventory-the net income becomes a loss of $21,500.

Computing Break-Even Selling Price:

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Example 1

To focus solely on sales price, use Excel's Goal Seek function to determine the break-even point for sales.

To do so using the contribution cost example above:

1. Select cell D173.

2. Choose Tools, Goal Seek. In the Goal Seek dialog box, the Set Cell edit box is selected and contains D173.

3. Click in the To value edit box, and enter 0 (zero).

4. Click in the By changing cell edit box, and click in cell D159 on the worksheet.

5. Choose OK.

Cell D173, Income from operations, will now equal $0-on your computer, it may display as ($0) due to an infinitesimal error of rounding. Cell D159 (Price2) will now equal $113.31. This is the price that you must charge to arrive at a break-even point.

To increase sales, from operations, beyond the break-even point, and to allow both price and sales quantities to fluctuate, use the Solver rather than the Goal Seek function. The Solver is able to modify several inputs simultaneously, whereas Goal Seek is restricted to one input variable (in this example, sales price).

Example 2

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The contribution percentage tells what portion of total revenue remains after covering variable costs that contributes toward meeting fixed expenses and profit. This manufacturer's contribution percentage is 36.5 percent. This means that variable costs absorb 63.5 percent of total revenue. In other words, variable costs is 63.5 percent (1.00 - 0.365 = 0.635) of the product's selling price. Suppose the manufacturer's variable costs include the following.

Material	$2.08/unit
Direct labor	$4.12/unit
Variable factory overhead	$0.78/unit
Variable cost	$6.98/unit

Variable Cost Calculator

Material/Unit	$2.08
Direct labor/Unit	$4.12
Variable factory overhead/Unit	$0.78
Variable cost/Unit	$6.98

The minimum price the manufacturer would sell the item for is $6.98. Any price below this ***would not*** cover variable costs. To compute the ***break-even*** selling price for this product, you must solve for selling price using the following equation.

$$\frac{\text{Profit} = (\text{selling price} \times \text{quantity produced}) + (\text{variable cost per unit} \times \text{quantity produced}) + \text{total fixed cost}}{\text{quantity produced}}$$

which becomes:

$$\frac{\text{break-even selling price} = \text{profit} + (\text{variable cost per unit} \times \text{quantity produced}) + \text{total fixed cost}}{\text{quantity produced}}$$

To break even, the manufacturer assumes $0 profit. Suppose that plans are to produce 50,000 units of the product and that $110,000 of fixed cost will be incurred. Break-even selling price would be as follows:

$$\frac{\text{Break-even selling price} = \$0 + (\$6.98 \times 50{,}000 \text{ units}) + \$110{,}000}{50{,}000 \text{ units}}$$

$$\frac{\$459{,}000}{50{,}000 \text{ units}}$$

$$= \$9.18/\text{unit}$$

Selling Price Calculator

Production Units Desired	50,000
Fixed Costs	$110,000
Variable cost/Unit	$6.98
Profit	$0.00
Break-even selling price	$9.18

Thus, $2.20 ($9.18/unit - $6.98/unit) of the $9.18 break-even price contributes to meeting fixed production costs. But suppose the manufacturer wants to earn a $50,000 profit. The selling price would be:

$$\frac{\text{Selling price} = \$50{,}000 + (\$6.98/\text{unit} \times 50{,}000 \text{ units}) + \$110{,}000}{50{,}000 \text{ units}}$$

$$\frac{\$509{,}000}{50{,}000 \text{ units}}$$

$$= \$10.18/\text{unit}$$

Profit Calculator

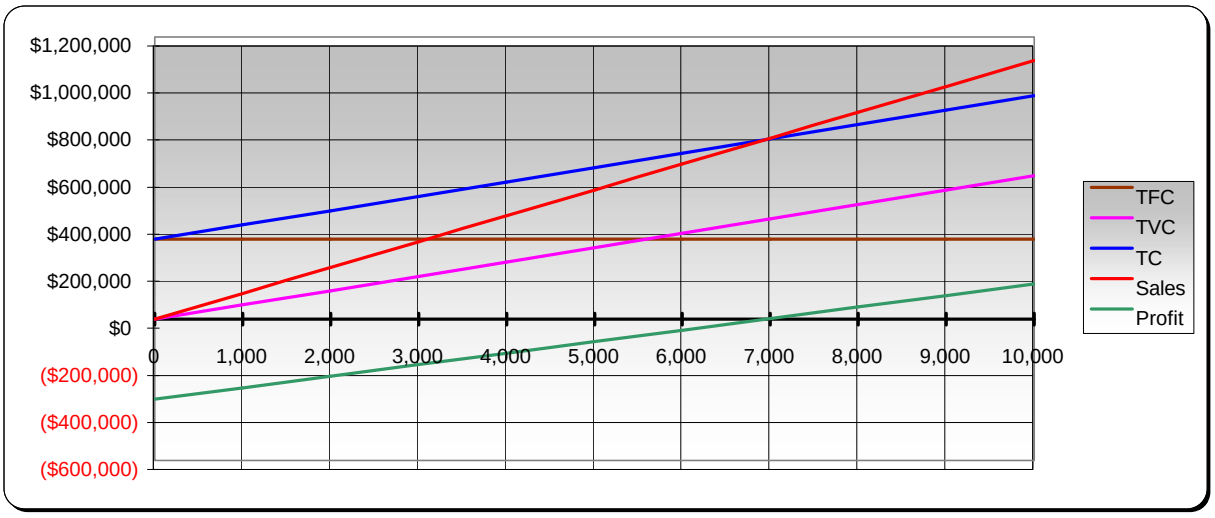
Profit Desired	$50,000
Production Units	50,000
Variable cost/Unit	$6.98
Fixed Costs	$110,000
Selling Price	$10.18

Now the manufacturer must decide if the market will purchase 50,000 units at $10.18. If not, they must produce a different, more profitable product or reduce the selling price. Any price above $9.18 will generate some profit, although less than the desired profit. In the short run, the manufacturer could sell the product for less than $9.18 if competitive factors so dictated, but not below $6.98 because this would not cover the variable cost of production.

Because the manufacturer's capacity in the short run is fixed, pricing decisions should be aimed at employing resources most efficiently. Fixed COSTS cannot be avoided, and variable costs can be eliminated only if the firm ceases production of the product. Therefore, THE selling price must be at least equal to the variable costs (per unit) of producing the product. Any price above this amount contributes toward covering fixed costs and providing a profit.

Of course, over the long run, the manufacturer cannot sell beneath total costs and survive. So, selling prices must cover total product cost- both fixed and variable-and generate profit.

Break-Even Chart Analysis



Break-Even Point (units) = 6,939

Break-Even Point ($'s) = $763,265

Pricing by Service Firms

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The typical service firm can also benefit from effective pricing techniques. Too often, small service firms simply charge the going rate, or they set a price deemed appropriate for a specific set of circumstances. Prices for identical services often vary substantially in the same geographical region. Service firms, relying on such volatile pricing policies, run the risk of alienating customers.

The service firm must establish a price based on the materials used, the labor employed, an allowance for overhead, and profit. As in the manufacturing operation, the service firm must have a reliable, accurate and timely accounting system to tally the total costs of providing the service. Most firms charge for services on an hourly basis, usually the actual number of hours required to perform the service. However, some companies base their fees on a standard number of hours, determined by the average number of hours needed to perform the service. For most firms, labor and materials comprise the largest portion of the cost of the service. To establish a profitable price for service, the business owner must identify the cost of materials, direct labor, and overhead involved in each unit of service. Using these basic cost data and desired profit margin, the firm can determine an appropriate price for its service.

Example: Consider pricing a service-television repair shop. Fred's Repair Shop uses the **Direct Costing** method to prepare an income statement for exercising managerial control. Fred estimates that he and his employees spent about 12,800 hours in the actual production of television service. So total cost per productive hour for Fred's Repair Shop comes to the following:

FRED'S DIRECT COST INCOME STATEMENT

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Sales Revenue		$199,000
Variable Expenses:		
Materials	40,500	
Direct labor	52,000	
Variable factory overhead	11,500	
Total Variable Costs (63.54%)	104,000	
Contribution Margin (36.46%)		
Fixed Costs		
Rent	2,500	
Salaries	38,500	
Fixed Overhead	27,000	
Total	68,000	
Total Costs		172,000
Net Profit (before taxes)		$27,000

$172,000 = $13.44/hour

12,800 hours

Now Fred must add in an amount for his desired profit. Fred expects a net operating profit of **18 percent** on sales. To compute the final price he uses the following equation.

$$\text{Price per hour} = \text{total cost per productive hour} \times \frac{1.00}{1.00 - \text{net profit as \% of sales}}$$

= 13.44 X 1.219

= $16.38/hour

Service Pricing Calculator

Total Costs	$172,000
Total Production Hours	12,800
Cost Per Productive Hour	$13.44
Expected Profit	0.18
Final Price Per Hour	$16.38

A price of $16.38 per hour would cover Fred's costs and generate the desired profit. A wise service shop owner will compute cost per production hour at regular intervals throughout the year. Rapidly rising labor costs and material prices dictate that the price per hour be computed even more frequently. As in the case of the retailer and the manufacturer, Fred must evaluate the pricing policies of competitors, and decide if his price is consistent with the firm's image.

Of course, the price of $16.38 per hour assumes that each job requires the same amount of materials. If this is not a valid assumption, Fred must recompute the price per hour without including the cost of materials.

$$\text{Cost per productive hour} = \frac{\$172{,}000 - \$40{,}500}{12{,}800 \text{ hours}}$$

= $10.27/hour

Adding in the desired 18 percent net operating profit on sales:

$$\text{Price per hour} = \frac{\$10.27/\text{hour} \times 1.00}{1.0 - 0.18}$$

= $10.27/hour X 1.219

= $12.52/hour

Service Pricing Update Without Materials Calculator

Total Costs	$172,000
Materials	40,500
Total Production Hours	12,800
Cost Per Productive Hour	$10.27
Price Per Hour	$12.52

Service Pricing Update With Materials Calculator

Job Hours	4
Price Per Hour	$12.52
Cost of Job less Materials	$50.08
Cost of Materials	$21.00
Markup on Material %	10%
Markup on Material $	$2.10
Total Price	$73.18

Under these conditions Fred would charge $12.52 per hour plus the actual cost of material used and any markup on the cost of material. A repair job, which takes four hours to complete, would have a price of the following.

Cost of service (4 hours X 12.52/hour)	$50.08
Cost of materials	$21.00
Markup on material (10%)	$2.10
Total price	$73.18

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We would like to thank **Michael Lewis, Strategic Profit Systems, Winter Park, FL,** for lending his extraordinary expertise to editing and critiquing this worksheet.