

Solutions

Price Optimization

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In today's recessionary economy, PRICE is a much more critical element of the marketing mix than ever. Yet, there is but one price or rate card, in the case of a line of products, that maximizes profit. A lower price leads to higher demand but limited margins. A higher price leads to higher margins but limited demand. Both cases miss the mark in terms of maximizing profitability.

At Savitz Research Solutions, we have three pricing models proven to maximize profits.

I. Maximizes the profit for a single product which is already on the market or in the planning stage.

II. Maximizes the combined profit for a line of products which cannibalize each other and may actually recommend dropping one of the products out of the line to increase profits even further.

III. Examines alternate designs of the same product and determines the optimal product-price combination.

Here is an example of Model II where the client was able to determine the optimal rate card for a line of products that cannibalize each other.

TABLE A

Current Line of Mixers Offered

Model	Retail Price	Unit Profit
Sunbeam Hand Mixer	\$12.82	\$2.57
Hamilton Beach 5-speed	19.97	4.63
Black & Decker Spatula	21.92	3.93
Sunbeam Burst of Power	22.97	4.22
Sunbeam Professional	39.97	7.97
Kitchen Aid 3-speed	44.97	8.97
Kitchen Aid 5-speed Ultra	54.97	13.97

Case History¹

To understand the model, let's look at a case history. A well-known national department store chain sold a line of seven different mixers shown in Table A along with retail prices and unit profit margins for each model.

Data Collection

A random sample of the chain's customers who indicated they were likely to buy a mixer in the next year were pre-recruited to central locations. Respondents were shown a display of the mixers, similar to what they would see in the store, complete with descriptions but without any prices. They were asked to examine the line of mixers as if they were in the store shopping.

By simply optimizing the price, the client could increase the bottom-line by 33%!

¹ The data has been disguised for purposes of client confidentiality.

EXHIBIT 1

Sample Card

Model	Retail Price	Likelihood to Buy
Sunbeam Hand Mixer	\$12.82	_____ %
Hamilton Beach 5-speed	19.97	_____ %
Black & Decker Spatula	Model Not Available	<u>N/A</u> %
Sunbeam Burst of Power	25.27	_____ %
Sunbeam Professional	35.97	_____ %
Kitchen Aid 3-speed	49.47	_____ %
Kitchen Aid 5-speed Ultra	60.47	_____ %
Would Purchase Mixer Elsewhere		_____ %
		= 100%

The respondents were next shown a series of eight sample cards (similar to Exhibit 1). They were told that each card listed the mixers with particular prices. (We tested prices within +10% of the retail price.) Their task was to indicate how likely they would be to buy each model on each card so that their answers added to 100%.

They always had the option of choosing not to buy any of the models by assigning 100% to the slot "Would Purchase Mixer Elsewhere." In addition, they were told that some of the cards had one or more mixers marked "Model Not Available," which meant that model had been discontinued and they could not indicate any likelihood of buying it.

Current Line Price

The Pricing Optimization Model uses a special form of conjoint analysis (discrete choice) to determine the demand for each mixer, for any set of prices. Our first application of the model is to examine the demand and profit curves under the current pricing strategy.

After calibrating the model to match actual sales statistics, we found that 9.6% of the respondents would not buy any of the models and that the average profit was \$4.87 per shopper (Table B).

TABLE B

Current vs. Optimal Price

Model	Current Price		Optimal Price			
	Price	Unit Profit	Price	% Increase in Price	Unit Profit	% Increase in Profit
Sunbeam Hand Mixer	\$12.82	\$2.57	\$14.10	10.0%	\$3.85	49.8%
Hamilton Beach 5-speed	19.97	4.63	21.97	10.0	6.63	43.1
Black & Decker Spatula	21.92	3.93	24.12	10.0	6.13	56.0
Sunbeam Burst of Power	22.97	4.22	25.27	10.0	6.52	54.5
Sunbeam Professional	39.97	7.97	43.97	10.0	11.97	50.1
Kitchen Aid 3-speed	44.97	8.97	48.29	7.3	12.29	37.0
Kitchen Aid 5-speed Ultra	54.97	13.97	58.83	7.0	17.83	27.6
Buy Elsewhere		9.6%			11.1%	
PROFIT PER SHOPPER		\$4.87			\$6.50	33.3%

Current Line Price

We were also able to derive the optimal pricing strategy for the entire line of mixers; that is, the set of prices that would maximize profit across the entire line (Table B). We found that by increasing the prices 7% to 10%, the profit per shopper could be increased from \$4.87 to \$6.50 with little increase in the percentage who wouldn't buy (9.6% up to 11.1%).

This represents an increase of 33% on the bottom line!

Optimal Line, Optimal Price

Using the same model we were also able to determine the effect of dropping each one of the seven mixers out of the line, individually.

The average profit per shopper that would be realized as each mixer is dropped from the line is shown in Table C. For example, if the most expensive Kitchen Aid 5-speed Ultra is discontinued, the average profit per shopper will be \$5.87.

By discontinuing either the Black & Decker Spatula or the Sunbeam Hand Mixer, and optimizing the prices of the six-model line, the chain can achieve a higher profit than by maintaining the full line with optimal prices.

Clearly, the best strategy is to discontinue the cheapest model, the Sunbeam Hand Mixer, and the profit increases to \$7.07 under optimal pricing. This represents a 45% increase in profit over the full line of products at current prices.



Hail Sunbeam!

Indeed, Table D shows what happens when the Sunbeam Hand Mixer is discontinued. Since this is the cheapest model, one might expect those who would have bought this model if it were available, to buy the second cheapest model. Table D says otherwise. Apparently, people would switch to other Sunbeam models! Even though one of the three Sunbeam products is discontinued, Sunbeam's total share increased from 28.1% to 34.5%.

TABLE C

Effect of Eliminating One Model		
Model Eliminated	% Buying Elsewhere	Profit Per Shopper
Sunbeam Hand Mixer - Optimal Price	12.7%	\$7.07
Hamilton Beach 5-speed - Optimal Price	11.5	6.32
Black & Decker Spatula - Optimal Price	15.2	6.64
Sunbeam Burst of Power - Optimal Price	13.9	6.50
Sunbeam Professional - Optimal Price	12.4	6.05
Kitchen Aid 3-speed - Optimal Price	10.9	6.34
Kitchen Aid 5-speed Ultra - Optimal Price	11.1	5.87
None - Current Price	9.6	4.87
None - Optimal Price	11.1	6.50

By dropping the least expensive model out of the line and optimizing the pricing schedule, the client could increase profits by 45%!

TABLE D

Current vs. Optimal Price and Line							
Model	Current Price & Line			Optimal Price & Line			
	Price	Share	Unit Profit	Price	Share	Unit Profit	
Sunbeam Hand Mixer	\$12.82	12.0%	\$2.57	DISCONTINUED			
Hamilton Beach 5-speed	19.97	10.6	4.63	\$21.97	10.9%	\$6.63	
Black & Decker Spatula	21.92	34.8	3.93	24.12	30.4	6.13	
Sunbeam Burst of Power	22.97	11.3	4.22	25.27	24.1	6.52	
Sunbeam Professional	39.97	4.8	7.97	43.97	10.4	11.97	
Kitchen Aid 3-speed	44.97	10.3	8.97	47.92	3.6	11.92	
Kitchen Aid 5-speed Ultra	54.97	6.6	13.97	56.75	7.9	15.75	
BUY ELSEWHERE		9.6		12.7			
PER SHOPPER		100%	\$4.87		100%	\$7.07	
Sunbeam's Share		28.1%				34.5%	



Current Line Minus Two

We could have taken the analysis further and examined the profitability when two or three of the models are dropped from the line. However, our client felt that regardless of any positive financial impact of discontinuing more than one model, it would be inconsistent with the image of a retailer that offers a wide variety of brand name merchandise to the public. Therefore, we never examined this possibility.

SUMMARY

The three OPTIMAL PRICING models determine the price or rate card which maximizes profits from a single product or line of products in the marketplace or in concept form. In all studies we have completed to date, we have found that significant profits are being left on the table because firms charge prices other than the ones suggested by the pricing models.

If you would like to do research to determine the price/rate card that maximizes your profit, call us at Savitz Research Solutions. You, too, may be able to add 33% to 45% to your bottom line!

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