

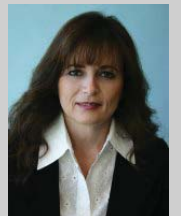
# Price Optimization and the Retail Grocer

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## Abstract

Retail grocers face consistently thin margins, competitive pressures, and many challenges in running their day-to-day operations. One of the most important strategic issues facing the retail grocer is pricing. Pricing is a complex and difficult process that can make the difference between profitability and insolvency. Multiple software packages are available to assist grocers with their pricing. These systems fall into two categories: Rules-based price management systems and recently introduced price optimization systems. Distinguishing between the two can be difficult. This paper compares the different pricing processes and various tools that assist with pricing.

*“Reflexive pricing leaves retail grocers with pricing that fails to steer consumer purchases to the most profitable items.”*

## Pricing in Retail Grocery: Current Practices

Pricing in the retail industry today is a manual process; pricing experts use their intuition and experience to determine the price for every product in every store. For most retail grocers, the pricing methodologies in place today are based on target margin, not on maximizing profit while maintaining customer loyalty. Retail grocers have not had the capability to determine which items they could raise the price on without decreasing unit sales, and on which items they could lower the price to increase unit sales – the key to higher profits. Lacking this information, grocers have been using simple decision rules. For most products, they established a price long ago, and adjusted that price based on cost increases or movement in their competitors' price.

Current pricing methods have left many retail grocers playing a game of “follow the leader” behind the large chains. This pattern of reflexive pricing leaves retail grocers with pricing that fails to steer consumer purchases to the most profitable items. Well-known national brands are often priced in such a way that they do not capture the value associated with their brand names, Private label products are haphazardly priced, often failing to encourage switching to more profitable alternatives.

When it comes to setting prices, retail grocers find themselves facing an increasingly important yet increasingly difficult and complex task. With competitive pressures increasing, pricing is more important than ever in order to maintain or grow slim profit margins and to retain customer loyalty. Using today's prevalent pricing methods, retailers have great difficulty finding the optimal mix of maximizing profit while retaining customer loyalty. The result is an entire industry segment with persistently low margins and inadequate time and resources to address the problem.

## What Is Price Optimization?

### History

- Before 2000: Rules-based systems automate margin controls and competitive goals. Software packages replace manual policies already in stores, but add no new analytics or intelligence. For example, if a grocer was pricing HABA at a 35% margin, the system would simply do the arithmetic and automatically calculate a 35% margin based on price.
- 2000: Price optimization software packages introduced to large retail grocery chains. Software is designed, built, and priced for large chains, requiring large capital investments, long startup times, and dedicated information technology staff.
- 2002: Large chain adoption of price optimization software begins in earnest; Long's Drugs, Winn Dixie, ShopKo, and Safeway UK purchase price optimization software and services.
- 2003: Albertson's and HEB purchase price optimization software and services.
- 2004: Price optimization software available to retail grocers.

**Today**

Retail grocers now find price optimization within reach due to improved communications and computing systems, widespread adoption of PCs and back-end systems, and new scientific optimization techniques. The limitations of first-generation price optimization systems have been eliminated. These limitations included high costs, maintenance of large and complex technical infrastructures, and extensive training times and learning curves. Price optimization is now available to any grocer with a PC and Internet access.

## Rules-Based Systems vs. Optimization Systems: Efficiency vs. Effectiveness

### Rules-Based Systems: Increased Efficiency

A number of price management systems are now available to the retail grocer. Many of these systems include a component that allows the grocer to identify rules for pricing different products in different categories. Some of these systems are marketed as price optimization systems, but they actually don't perform the analytics necessary for optimization. They only implement static rules determined by the grocer. These rule-based systems are useful, in that they automate a laborious and time-consuming process, but they lack sophisticated analytical capabilities. Therefore, they do not take advantage of available sales information to adjust prices for maximum profitability. As Patrick A. McGuire writes in his article "The Analytics Divide":

*"Price optimization goes well beyond the standard rules of thumb; for example, a store should price some items low to get customers into the store and then make money on higher-margin items. Optimization programs look at all products, especially those in the middle, and recommend price tweaks, both up and down – sometimes as little as a nickel an item in a grocery store."*

*"Some systems are marketed as price optimization systems, but they actually don't perform the analytics necessary for optimization."*

Rules-based systems take the general pricing policies of a grocer and apply them across categories, generating prices in an automated fashion. For example, a rules-based system might contain rules like these:

- Mark up all products in FROZEN FOODS by 35%
- If KEY ITEM, set price relative to competition
- Price PRIVATE LABEL PRODUCTS in HABA at 25% below national brand
- Adjust all prices in GROCERY to have a "9" as the last digit

By linking a rules-based system with the grocer's master item file, the grocer's pricing process can be made more efficient in terms of speed, but because the pricing method hasn't changed, the pricing can actually be less effective. The grocer has merely automated a general methodology across a category, without specific knowledge of the gain or loss that will result.

### Price Optimization Systems: Increased Efficiency and Effectiveness

Rules-based systems automate the application of retailer-supplied pricing rules. In contrast, price optimization systems use the vast array of historical price, sales, cost, promotion, and competitive price data to generate prices that best achieve a retailer's goals and objectives. These systems dramatically increase profits while maintaining customer loyalty. Price optimization systems identify opportunities for adjusting prices to both increase individual product profits and encourage the migration of consumer purchases from low margin products to high margin products.

For example, consider a rules-based system versus an optimization system, both working on the PEANUT BUTTER subcategory. The rules-based system is set up to price products within the subcategory so the margin is at least 35%, and the final digit of the price must be "9." The price optimization system uses available data to recommend prices, on a category-by-category basis, that best achieve the retailer's objectives, including profit, traffic generation, price image relative to competition, and category-specific margin goals. The grocer uses these recommendations as a basis for setting prices, while leaving the final decisions to the pricing manager. According to Mike Griswold, analyst for AMR Research:

Once deployed, retailers have seen benefits as a result of price optimization exercises as follows: Sales improvements of 1-3% of base price, and 1-12% improvements of promoted items. Gross margin improvements of 2-5% of base price, and 5-20% of promoted products.

The rules-based system simply looks at the cost of each item, applies the 35% margin at the direction of the grocer, and sets the last digit of the price to "9." The optimization system goes back through sales history and competitive price data, identifies the relationship of price to sales volume, checks several product attributes against other products in the category, and determines a price mix for the category designed to maximize profit without sacrificing sales volume or customer loyalty.

The rules-based system provides a margin of greater than 35% for each product in the category, but at the expense of significant sales and margin dollars across the subcategory. The price optimization system identifies the relative price inelasticity of national brand A, as well as the relative elasticity of national brand B, and the opportunity to move the price of the private label peanut butter up from the 35% margin level. This results in significantly greater revenue, margin percentage, and margin dollars from the subcategory as a whole. The optimization is performed based on the sales history for the individual store or zone. How do the customers respond to price changes for a product or subcategory? Is a product or subcategory particularly dependent on brand names? These calculations and hundreds of others go into the recommended prices for each product and subcategory. In contrast, the rules-based system is unable to take advantage of the unique nature of a store's loyal clientele.

The example provided here demonstrates the gains that a price optimization system can capture, and how it differs from a rules-based pricing management system. Implementations of price optimization systems have typically shown improvements on the order of 2-3% increase in revenue, with an additional 1% increase in profits.

For a retailer with gross revenue of \$30 million annually with a 1% profit margin, that means a typical gain of approximately \$300,000 per year.

## Summary

The process of pricing several thousand products across multiple stores is difficult, complex, and time consuming. Grocers can employ a computer-based system to assist them in handling their pricing decisions. Such pricing systems fall into two categories: rules-based price management systems, and integrated price optimization systems. Price optimization systems have the greatest potential for improving profitability because they base price recommendations on historical market data. Table 1 summarizes many of the key differences in the features and capabilities of these two types of systems.

*“Price optimization systems use the vast array of historical price, sales, cost, promotion, and competitive price data to generate prices that best achieve a retailer's goals and objectives.”*

Rules-based price management systems, though often marketed as price optimization systems, provide most of their benefit to the grocer through the automation of an otherwise lengthy and error-laden process. They do not actually optimize prices, but only implement the grocer's pricing policies at a general level across a category.

Price optimization systems provide the automation benefits of a rules-based system, while also generating prices that result in significantly higher profits, without sacrificing customer loyalty. They do this through a combination of elasticity determination and attribute evaluation and analysis, selecting the best products for price increases and decreases. By using a price optimization system, grocers can typically expect a gross revenue increase of approximately 2% and a bottom-line improvement of approximately 1%.

Price optimization systems designed for large chain retailers require significant upfront capital investments, several months of data analysis before price optimization can begin, IT staff resources dedicated to the price optimization system, and often a continued consulting presence from the vendor. New systems available for retail grocers have very low upfront costs, provide price recommendations within weeks, run on any Windows PC with an internet connection, require no continuing consultant presence, and are very attractively priced.

**Table 1**

Function/Attribute	Price Optimization System	Rules-Based Pricing System
Automates Pricing Process	Yes	Yes
Identifies Factors that Affect Sales	Yes	No
Reduction in Pricing Errors	Yes	Yes
Allows Grocer to Specify Decision Rules	Yes	Yes
Allows Grocer to Optimize Across Multiple Objectives	Yes	No
Propagates Ineffective Pricing Rules	No	Yes
Allows Grocer to Specify Goals (Profit/Traffic/Price Image, etc)	Yes	No
Recommends Variable Margins for Products Within Subcategory	Yes	No
Updates Price Recommendations based on profit and sales performance	Yes	No
Store/SKU elasticity Calculation	Yes	No
Seasonal Trend Calculation	Yes	No
Optimal Private Label Gap Determination	Yes	No
Optimal Price Per Unit Calculation	Yes	No
'What if' pricing scenario capability	Yes	No
Maintenance of grocer's price image	Yes	No
Provide category level competitive information	Yes	No

### Sources

1 McGuire, Patrick A.. "The Analytics Divide." National Retail Federation, (date unknown). <http://www.nrf.com>

2 Griswold, Mike. "Five Food-Retailing Technologies That Will Drive Value in 2008," AMR Research white paper: 3 March, 2008). <[http://www.reflexisinc.com/REFLEXIS/images/Five\\_Food-Retailing\\_Technologies\\_That\\_Will\\_Drive\\_Value\\_in\\_2008.pdf](http://www.reflexisinc.com/REFLEXIS/images/Five_Food-Retailing_Technologies_That_Will_Drive_Value_in_2008.pdf)>

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Revionics is a leading provider of full-lifecycle price and promotion optimization technology for retailers and distributors in the fast-moving consumer goods industry. The Revionics Advanced Pricing System (RAPS) generates increased sales and profits through sophisticated demand intelligence and proprietary pricing science. The system optimally determines base pricing, promotional and ad pricing, temporary price reductions (TPRs) and markdowns. The Revionics offering is available as a Software-as-a-Service (SaaS) subscription offering over the Internet. The service includes advanced price modeling, optimization on-demand, scenario forecasting, and advanced category analytics.