Promotion in the Marketing Mix: What Works, Where and Why

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WHEN DO PRICE PROMOTIONS MAKE SENSE

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ABSTRACT

Price promotions are frequently used to increase the sales volume of a product. However, it is not always true that price promotions increase profits. This paper summarizes key factors that make price promotions profitable for retailers and manufacturers. There can be some significant problems with the implementation of effective price promotion policies due to conflicting incentives of manufacturers and retailers. The conditions under which promotions are the most attractive to the manufacturers are often the conditions in which retailers are least likely to provide support for the promotion, and vice versa.

Introduction

Throughout the eighties and the early part of the nineties there was a rapid increase in promotional activity. Between the mid-eighties and the early nineties, the fraction of the marketing budget that was devoted to trade promotions grew dramatically. However, in the past two years there has been a trend toward reducing the emphasis on trade price promotions (Hume 1993). This trend is reflected in the fact that a number of companies, such as Procter and Gamble and Campbell's Soup, have abandoned their policies of frequent promotions in favor of price schedules that feature "Everyday Low Prices." Some grocery store chains, such as Lucky's Stores Inc. have also adopted policies that deemphasize price promotions in favor of regular low prices. The growth in the popularity of warehouse stores also suggests that many consumers prefer regular low prices rather than higher regular prices with relatively deep price promotions.

Clearly a policy of frequent price promotions has both benefits and costs. Suppliers and retailers have different reasons for periodic price promotions. Retailers often offer price promotions to consumers in hopes of generating store traffic or increase the sales volume on items generating greater margins than those that would have been chosen in the absence of the promotion. In contrast, suppliers offer price promotions to retailers in hopes of increasing the volume of the promoted brand. Generally these trade deals will only be successful if the retailers cooperate with these promotions either by passing through some of the price savings to the consumers or by featuring the promoted product in the store or in the store's advertising. As such, a promotion policy only makes sense to a supplier if it is designed in such a way that it allows increased profits for both the retailer and the supplier.

This paper reviews the factors that influence the effectiveness of price promotions for both retailer and manufacturers. It will only look at price promotions that take the form of price reductions by either the retailer or the manufacturer and we will not consider the potential for offering price discounts through coupons or rebates. The next section reviews rationales for a retailer to offer a price promotion on a particular brand. The third section looks at reasons a manufacturer can increase profits by a policy of price promotions relative to the policy of "everyday low prices." The final section summarizes the key insights provided by the paper and the resulting implications for retailers or product managers who are designing price promotion policies.

Price Promotions by Retailers

A promotion on a brand may have many impacts on a consumer's purchase behavior. An obvious effect of a promotion is an increase in the likelihood that some consumers will purchase the promoted brand. However, a retailer also should consider the indirect impacts of the promotion. The increase in sales could come from a decision to purchase in the product category that would not have taken place in the absence of the promotion, an increase in the quantity purchased in the product category, or switching brands. When evaluating the impact of a promotion on a retailer's profits, it is important to consider the source of the incremental sales of the promoted brand and the long-term impact on the sales of all of the products the retailer carries.

Store and Brand Choice

Most retailers earn profits from products that are supplied by a variety of firms. Since a promotion may increase the sales of some of the products while reducing the sales of others, a retailer will want to consider a promotion's profit impact on all of the products it sells, not just the profits from the brand being promoted. Promotions may influence a consumer's store choice. When a promotion on a brand influences a consumer's store choice, it may be an effective tool in building store traffic or may be required to avoid a loss in traffic to a competitor who is promoting the brand. As a result, the retailer may earn profits on other product categories that are unrelated to the brand being promoted. Because store choice is more likely to be influenced by a promotion on a well- known brand, one would expect the retailer's profits to be greater for promotions on a well-known brand than for those on a weaker brand. Promotions on unbranded products (such as produce) may also be effective traffic-builders if the promotions are significant and consumers regularly purchase in the product category.

When evaluating the attractiveness of a price promotion, a retailer will want to consider the sales interrelationships among all of the products it carries. Economists often characterize these interactions using the cross-price elasticity of demand: the percent change in the unit sales of one brand that is associated with a percent change in the price of another. If this cross-elasticity is positive, products are viewed as substitutes and some of the sales increase of a promoted brand will come at the expense of the substitute brands. In such a case, a price promotion will only increase the retailer's profits if there is a sufficiently large increase in category volume or the margins obtained from the brand while on promotion are greater than the margins obtained from the non-promoted substitutes.

A price promotion also may stimulate purchases of other products carried by a retailer. If the promoted brand has one or more complementary products associated with it, the price promotion may increase the sale of other products. As discussed previously, a promotion may increase the sales of other products by influencing the store choice of consumers who will buy other products in addition to the brand being promoted. As a result, products that do not appear to be complementary to the promoted brand may actually experience an increase in sales as a result of the promotion. For example a promotion on apples may increase the sales of personal care products if the promotion succeeds in building traffic. A promotion on a brand also may increase the sales of related products, even in the absence of its ability to generate store traffic. Consider a price promotion on a popular brand of hot dogs. This promotion will tend to increase the sales of the promoted brand of hot dogs but will reduce the sales of the other brands of hot dogs. If the promotion increases the total sales of hot dogs, it also will stimulate the sale of hot dog buns and the condiments served with hot dogs. There still may be subtle negative impacts of the increase in hot dog sales. When the promotion causes consumers to switch from more expensive foods, such as steak, the retailer may still lose as a result of the promotion, even with the increased sales of complementary products.

In theory, a retailer should consider the impact of the promotion on the long term sales of all of the products that may be influenced by the promotion. In practice, coming up with reliable estimates of the promotion's long term impacts on the sales various products is quite difficult and, as yet, there is a lack of research that provides a comprehensive methodology for doing so. Deriving accurate estimates also is likely to be quite costly and time consuming. However, a retailer should try to identify a promotion candidate's potential for attracting customers to the store, its substitutes and complements, and determine the relevant profit margins. Doing so should assist the manager in determining a set of conditions under which a price promotion will be profitable.

Purchase Timing and Stockpiling

Often a promotion will influence the long run purchasing behavior of consumers. One source of this impact comes from the tendency of consumers to stockpile a product when it is on sale. A second influence comes from the influence of promotions on consumer beliefs about a product. Among the beliefs that may be influenced by promotions are the perception of the product's quality and the price they will expect to pay for the product in the future. Promotions may also have an impact on a retailer's costs. When a product is promoted, the sales rate increases. This increase requires a larger inventory of the product and reduces the space available for other products. However, a promotion may reduce inventory holding costs if the retailer has excess stock of the product prior to the promotion.

An obvious concern is the impact of the price promotion on the sales of the brand being promoted. Price promotions can be attractive because of their potential to increase the volume of the product being promoted. Price promotions may be preferred to a permanent price reduction because of the potential for price discrimination by charging price-sensitive consumers a lower average price than brand loyal consumers (Jeuland and Narasimhan 1985). The reasoning behind this notion is that brand loyal consumers purchase their favored brand even when it is sold at full price. However, price sensitive consumers who prefer the brand will tend to postpone their purchases until the brand is

promoted then they will stockpile to tide them over during the time that the brand is sold at full price. Consider a simple illustration in which there are two market segments. One segment consists of consumers who are loyal to the brand and are willing to purchase the product at the regular price (P_L) while the second segment consists of price sensitive consumers who will only purchase the product at a discounted price (P_S). Assume that the number of consumers in each segment who wish to purchase is N_L and N_S respectively and that each consumer will purchase one unit per week. We will denote the amount of the price reduction from the regular price that would be required to induce purchase by the price sensitive segment the price discount needed to sell to the price sensitive segment (P_L-P_S) as D. Everything else equal, a retailer will find it profitable to charge the high price P_L if the ratio of price insensitive consumers to sensitive consumers (N_L/N_S) and D are large. In such a case, the additional volume generated by the price reduction is not sufficient to offset the margins that could have been earned by charging the regular price and selling only to the price insensitive consumers as illustrated in Figure 1a. In contrast, if (N_L/N_S) and D are small, as in Figure 1b, the retailer would earn greater profits by charging the discounted price and selling to both market segments. When these conditions hold, a policy of "everyday low prices" usually is preferred to a pattern of periodic price promotions.

Clearly if the demand for the product and the wholesale price, W, remain constant over time, the retailer will always charge a single price, either P_L or P_S, whichever yields the greatest profits. For price promotions to be an effective price discrimination tool, either the wholesale price or the demand for the product must change over time. Similarly, if demand and unit costs remain constant over time, a supplier will not have an incentive to change its wholesale price. Therefore, for price promotions to make sense, demand must change over time.

The presence of price promotions may cause the changes in demand that may make promotions profitable. There are several reasons why price promotions may cause such changes. When the regular price is charged, the price sensitive consumers will choose not to purchase the product. Some of these consumers will leave the market by purchasing an

Figure 1a: High Price Most Profitable

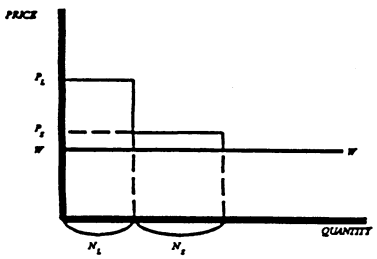

Figure 1b: Low Price Most Profitable

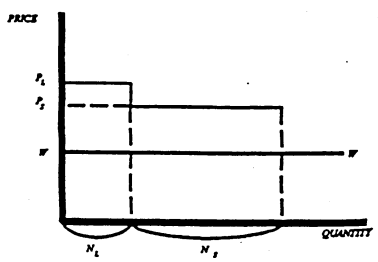

Figure 1: Price Setting with Heterogeneous Consumers

alternative product, making do with existing products, further depleting inventories, or discontinuing their search of the product category. However, others will return on a subsequent occasion to see if the price has been reduced to an acceptable level. Let the fraction of price sensitive consumers who will return to purchase the preferred brand when the price is too high during the previous purchase occasion be f. The pent up demand from the price sensitive consumers who have postponed their purchases is

$$B(T) = N_S \sum_{t=1}^{T} f^t ,$$

where T is the number of weeks between promotions. The effective size of the price sensitive segment is equal to the sum of the pent up demand, $B(T)$, plus the N_S price sensitive consumers who would have arrived during the current period. Given this type of behavior, a retailer may find it advantageous to periodically offer a price promotion to satisfy the pent up demand.

A price promotion should be scheduled when the rate at which the number of price sensitive consumers increases over time becomes sufficiently small that it does not pay to extend the length of time between promotions. Consider the numerical example described in Table 1. Given the wholesale price and the reservation prices of the market segments, we can see that the optimal time period between promotions is four weeks. After the fourth week, the rate at which the number of price sensitive consumers increases with time is sufficiently small that the retailer finds that it is more profitable to promote than wait for the increase in the effective size of the price sensitive segment that occurs by waiting for another week. Another important impact of the promotion may be to adjust the purchase timing of the brand loyal consumers if they expect a promotion in the near future. They may postpone purchases if they think a price promotion is imminent. To the extent that brand loyal consumers adjust their purchase timing to take advantage of a promotion, frequent promotions become less attractive.

A similar effect might arise when consumers stockpile the product brand when it is promoted. Stockpiling has the effect of increasing the sizes of the segments doing the stockpiling during the promotion period, but it decreases the sizes of those segments in the subsequent periods in which promotions do not take place. Thus, the effect of stockpiling is analogous to the effect of delaying purchases in the illustration above. When stockpiling is possible, the price insensitive segment and the price sensitive segment may both stockpile. Everything else being equal, price promotions are a profitable price discrimination technique if the rate at which the price sensitive consumers stockpile is greater than the rate at which price insensitive consumers stockpile. If it is not the case, the long-term losses in full price sales will exceed the long term gains from the sales during the promotion and the seller would be able to increase profits by adopting a uniform pricing policy.

An empirical study of the coffee market by Grover and Srinivasan (1992) identified market segments with different degrees of brand preference and observed that the carryover effect of a price promotion was larger for brand loyal consumers than for brand switchers. Such behavior seems to make economic sense from the consumer's perspective. Brand loyal consumers by definition are those who obtain substantially more value from purchasing their preferred brand. As such, they would also receive the greatest benefits from the price promotion and would tend to be willing to incur the additional

Table 1. An Illustration of Promotion Timing Alternatives with Pent Up Demand

$N_L = 100$ $N_S = 120$	$P_L = 16$ $P_S = 12$	$W = 10$ $f = .5$	Weekly profits from selling at the price $P_L = 600$		
Weeks between Promotions (A)	Number of Price Insensitive Consumers Served per Promotion Cycle	Number of Price Sensitive Consumers Served per Promotion Cycle (rounded)	Cumulative Profits from Non-Promotion Weeks (D)	Profits from the Promotion Week (E)	Average Profit per Week ((D+E)/(A+1))
0	100	120	$0	$440.00	$440.00
1	200	180	$600	$560.00	$580.00
2	300	210	$1,200	$620.00	$606.67
3	400	225	$1,800	$650.00	$612.50
4	500	233	$2,400	$665.00	$613.00
5	600	236	$3,000	$672.50	$612.08
6	700	238	$3,600	676.25	$610.89

storage cost associated with stockpiling the brand. However, if the brand loyal consumers generally place less value on the price savings offered by a price promotion relative to the cost of stockpiling the product, one might see relatively less stockpiling on their part.

When consumers stockpile during a price promotion, not all of the stockpiled purchases result in reduced long-term sales. One effect of stockpiling is to increase the quantity of the product held by consumers at any given time. The result often is an increase in the consumption rate since the product is readily available and consumers do not worry as much about depleting their stock. Thus, while some stockpiled purchases may come at the expense of future full-priced sales, part of that stockpiled amount is likely to represent incremental sales of the brand. It is important to compare the incremental sales with the cannibalized full-price sales when determining whether to offer a price promotion on a brand (Larson 1993).

A second effect of stockpiling during a price promotion is to ensure that consumers make the equivalent of a repeat purchase of the brand from the retailer. In the absence of the promotion, consumers may have decided to purchase a different brand or purchase from another retailer during the subsequent purchase occasions. If consumers regularly switch stores, there is a chance that they would have made their next purchase in the product category from another retailer. However, when consumers stock up on a product during a promotion, the effect is essentially the same as their making repeat purchases at the same time as their initial purchase. A retailer may prefer to sell multiple units on promotion than to sell a single unit and take his chances on getting purchases in the future. A retailer also will prefer selling additional units of a particular brand during a promotion to selling units of another brand at full price in the long run if the margins earned on the brand when promoted are greater than the margins earned on the brand that would have been chosen after the promotion.

The retailer will also need to consider the impact of stockpiling the promoted brand by regular buyers of other brands. For example, if a promotion provides an opportunity for price- sensitive consumers to purchase a more expensive preferred brand, they may also take the opportunity to stockpile it. The result will be reduced future sales of both the substitute brands and the promoted brand. The stockpiling by brand switchers may be

profitable if the margins from the promoted brand are greater than the margins on the non-promoted brands or if the promotion stimulates a sufficient increase in the rate of consumption. Generally, a retailer will not find it profitable to offer price promotions on low-priced brands because they tend to have smaller margins than better-known brands and substantial price reductions will be required to induce brand loyal consumers to switch.

We can summarize the cost to the retailer of consumer stockpiling *(CRSP)* for one purchase interval in the following equation:

$CRSP =$ *(The probability that consumers will make subsequent purchases of the brand at full price from the same retailer the margins earned from the brand at full price the number of units that would have been purchased)+*
(The probability that consumers will make subsequent purchases of another brand from the same retailer the margins earned from the alternate brand the number of units of the brand that would have been purchased) -
(The increased quantity consumed during the purchase interval because of the consumer's increased stock on hand the margins earned from the brand on deal).

The first two terms in the equation describe the losses due to cannibalized long-run sales that the retailer expects given the consumer's shopping behavior. The third term reflects the value of the sales that are attributable to the increased use stimulated by the promotion. When consumers have the tendency to stockpile, promoting will be more attractive when the *CRSP* is small or negative.

Impacts on Consumer Beliefs and Expectations

Promotions also may modify behavior by their impact on consumer beliefs. One potential impact is on consumer perceptions of product quality. Empirical studies based on purchase data have observed that the fraction of consumers who repeat their purchase of a chosen brand decrease after the brand has been promoted (e.g. Guagdani and Little 1983). One possible explanation for this phenomenon is that the promotion has a negative impact on consumer brand evaluations (Dodson, et. al. 1978). Based on Self-Perception Theory (Bem 1972), when consumers evaluate the quality of a brand purchased on promotion, they attribute their purchase to the fact that the brand was on promotion rather than the brand's quality. In contrast, when the brand is purchased at full price, consumers are more likely to attribute their purchase to the brand's quality. Thus, according to this hypothesis, promotions reduce the likelihood of attributing their purchase to the brand's quality, thereby reducing the consumer's evaluation of the brand.

An alternate explanation for the reduced likelihood of repeat purchase is the fact that promotions attract price or deal sensitive consumers (Neslin and Shoemaker 1988). These consumers only purchase a brand when it has a low price or is on sale. As a result these consumers will not repurchase when the brand is at full price, implying a lower fraction of repeat purchases following a promotion. Recent empirical studies that control for brand preference (e.g., Srinivasan and Kiberian 1991 and Tellis 1990) observe that there is not a significant drop in repeat purchases following a promotion among consumers who prefer the brand and would normally purchase the brand at full price.

An experimental study by Davis, Inman, and McAlister (1992), attempted to directly

measure the impact of promotions on brand evaluations. Brand evaluations were elicited from patrons of a college campus store following a semester in which no promotions were run. After selected brands were promoted during the following semester, brand evaluations were again collected. They found that there was no drop in brand evaluation ratings following the promotion. In fact, based on the direction of the changes in valuations, they observed that the brands that were promoted received higher evaluations following the promotion and that there was a lower evaluation of the brands that were not promoted if competing brands were promoted. While the design of their experiment would not allow for a statistically significant sign test of this relationship (due to an insufficient number of brands tested), their study suggests that there may be a weak positive effect of price promotions on brand evaluations.

A possible explanation for this effect is that when the brand was purchased on promotion, consumers had an opportunity to become more familiar with the brand. As they became more familiar with the brand, the strength of their beliefs about some of its features increased. Smith and Swinyard (1983) argue that an individual's evaluation of a brand depends on the strength of their beliefs about its features. This point can be illustrated by postulating a linear utility function of the form:

$$U_{ij} = \sum_{k=1}^{K} b_{ijk} w_{ik} a_{jk}$$

where

U_{ij} = The utility individual i expects from brand j,
b_{ijk} = The strength of individual i's belief that brand j possesses attribute k,
w_{ik} = The importance of attribute k to individual i, and
a_{jk} = The amount of attribute k possessed by brand j.

Experience strengthens the beliefs about the presence of some of a brand's attributes. If a price promotion stimulates trial and thereby more experience with the brand, the b_{ijk} becomes larger. If the features experienced are favorable, the promotion would likely result in an improved evaluation of the brand. If this effect exists, it is likely to be strongest for high quality brands with which the consumer is relatively unfamiliar. Thus, offering a price promotion on a high quality product that is new or unfamiliar to members of a household may encourage trial, build familiarity with the brand, and increase the likelihood of future purchases.

As observed above, promotions may influence consumer beliefs about the likelihood of a promotion in the future. If consumers observe a regular pattern of promotions, they may form expectations about the timing of the next promotion. When this is the case, they will tend to adjust their purchase quantities and purchase timing to take maximum advantage of the price promotions. If consumers come to expect to purchase the brand on promotion, they will respond more negatively to occasions in which the brand is not promoted than they would have without those expectations. Prospect Theory (Kahneman and Tversky 1979) suggests that an individual's evaluation of an outcome is influenced by their expectations or reference point. One implication of their theory is that if an outcome is worse than their reference point, it would be evaluated more negatively than it would have been if no reference point existed. If consumers regularly observe a brand on promotion, they use the promotion as a reference point and view the regular price less

favorably than they would have in the absence of promotions. Thus, even though price promotions may result in a more favorable view of a brand, they may reduce full-priced purchases due to their effect on purchase timing and their attitude toward purchasing the product at full price.

Prospect theory also implies that there may be a greater purchase response to a given price when it is a discount than would be observed without the promotion. This effect might be observed because purchasing brand at its regular price may serve as a reference and consumers may attach additional value to their belief that they are getting a special deal on the product. As a result consumers may be more likely to purchase the brand at a given low price when they believe that the price is a temporary promotion than they would if they thought that the low price was always charged for the product. Inman, McAlister, and Hoyer (1990) have found that consumers may believe that a featured price is a promotional price even though it may not be. Inman and McAlister (1994) found that very little price discount is necessary to achieve substantial effects from the promotion. In such a situation, a price promotion may increase the total sales of a brand even if few units are sold at the regular price. If the amount of the required price promotion is small, frequent promotions may be attractive.

Promotion Costs and Other Considerations

A retailer's promotion decision also should be influenced by the cost of ordering and inventorying a product. As Nagle (1987) observes, the relevant cost for a pricing decision is the replacement cost. If the product is going to be discontinued and will not be replaced, the unit variable cost of the product is zero even if it was purchased at a high price. As a result, the price should be reduced to reflect the replacement cost of zero. A retailer should also consider inventory holding costs when making their promotion decisions. If the retailer has excess stock of a brand, it is likely to occupy costly inventory space and reduce the funds that would be available for other funds. By increasing the sales rate, a promotion provides one way the retailer can reduce inventory holding costs. If there are high costs of placing and receiving an order or if the seller offers substantial quantity discounts, a retailer will find it profitable to place large orders and inventory the quantity that is not immediately sold. By offering a price promotion when the product is delivered, the retailer may be able to reduce his inventory holding costs.

There are many factors that a retailer should consider when making a price promotion decision on a given brand. These factors include the size of the promotion needed to stimulate increased purchase of the promoted brand, the margins of the promoted and related products, the potential impact of the promotion on the evaluation of the brands in the category, the impact of the promotion on purchases of other brands carried, the tendency of consumers to adjust their purchase timing in response to price promotions, and the potential for inventory holding cost savings. The conditions that make price promotions attractive to the retailer are summarized in Table 2.

Price Promotions by Manufacturers

When retailers offer price promotions, the sales volume of the promoted brands will increase. If the conditions for a profitable retail price promotion described in the previous section are satisfied, retailers may choose to promote without any added incentive by the

Table 2. Conditions for profitable price promotions by a retailer.

Characteristic	Conditions for Profitable Promotions
Price reduction needed for desired increment in purchases	If a large increment in sales can be obtained by a small price reduction, frequent promotions are attractive. If a retailer can achieve this increment on a regular basis, a permanent price reduction should be considered.
Impact of the promotion on brand evaluations	A promotion will increase the familiarity with the brand. If the product is of high quality but relatively unfamiliar to consumers (e.g. a new product), a promotion will tend to improve a consumer's evaluation of the brand. A possible result will be a long term increase in the sales of a high-margin brand.
Impact of the promotion on price evaluations	If consumers react more favorably to a price when it is announced as a promotional price than they would in the absence of the announcement, a promotion can stimulate an increase in sales volume.
Impact of the promotion on the sales of other brands	A promotion will be attractive if the margin on the brand while on promotion is greater than the margin from the substitute that would have been chosen without the promotion. A promotion will be attractive if it stimulates purchases of high-margin complementary products. A promotion that builds store traffic will generate increased sales of a variety of other products.
Impact of the promotion on purchase timing	A promotion will often cause stockpiling or the delay of purchases. The tendency of price-sensitive consumers to modify their purchase timing should be greater than that of brand loyal consumers or else the price promotion will primarily increase sales that replace future full-price sales. The shifts of purchase timing will generally be pronounced when consumers anticipate regular promotions. The gains to the retailer will be greater when store switching is common.
Cost of inventories and replacement	If inventory holding costs are high or the replacement cost of the brand has decreased, a price promotion is appropriate. If the replacement cost reduction is permanent, a permanent price reduction may be appropriate.

manufacturer. However, the manufacturer's gains from a price promotion do not coincide with those of the retailer and the retailer often will not adopt the price promotion policy that the manufacturer would prefer. Because manufacturers cannot force retailers to promote their products, a manufacturer may try to provide the retailer with the incentive to adopt a retail price promotion policy that would be more profitable for both parties. Offering periodic wholesale price reductions is one type of trade promotion that manufacturers use to do this.

When evaluating the effectiveness of price promotion policy, the manufacturer should compare the profitability of temporary price reductions with other activities that might

increase sales, such as advertising or consumer promotions (coupons, rebates, special packages, etc.). Keys to the effectiveness of a trade price promotion policy are how the promotion will affect (1) retailer buying behavior and (2) the retailer's support for the product. Manufacturers need to determine how a temporary price promotion can increase profits and whether it is the most effective way to achieve sales and profit objectives.

Retailer Pass-Through

When a manufacturer lowers the wholesale price to retailers, either through everyday low prices or through trade price promotions, retailers usually will respond by taking actions that will increase the sales of the brand. A retailer may respond by increasing the promotional support through retail advertising, improved displays, and increased incentives for the sales force. A second response would involve reducing the price of the product. First consider the policy of "everyday low pricing." If the wholesale price reduction is sufficiently large and permanent, the retailer may find that the most profitable response would be to permanently reduce the price of the product. As observed in the previous section, a lower wholesale price allows greater margins on the brand. When conditions summarized in Table 2 hold, retailers may find periodic price promotions to be the most profitable response. If it is important for the brand to maintain a quality image by maintaining a high "regular" price, the manufacturer should be careful to not lower the wholesale price to the extent that retailers would prefer permanently lower retail prices over maintaining a high price and increasing the promotional support for the product or offering periodic price promotions.

The manufacturer can also increase retail support for its product by offering temporary price promotions to the retailer. A manufacturer may attach conditions to the promotion, such as featuring the brand in advertising or special displays. Often enforcing performance on these requirements is difficult, costly, and may strain the manufacturer's relationship with the retailers. Retailers may find that they are better off when they support the manufacturer's trade promotion, even in the absence of enforcement. When the price reduction is temporary, retailers will want to purchase more units than they plan to sell during the deal period. If inventory costs are low and there is no substantial reduction in performance when the product is stored (such as spoilage), forward buying may account for a large fraction of a retailer's purchases during a trade promotion. In such a case, there will be a substantial drop in sales following the promotion period. Since few units will be sold at full price, the effect of the promotion on revenues will be similar to a permanent price reduction. The key differences between a trade price promotion and a permanent price reduction is purchase timing and the greater opportunity to stimulate retail support.

The retailer will probably not choose to permanently reduce the price of the product in response to a temporary price reduction unless the trade promotions are expected to be sufficiently frequent that it can place all of its orders on deal. However, a retailer may have an incentive to offer price promotions in response to price-off trade deals. When a policy of temporary retail price promotions is profitable for the retailer, a temporary reduction in wholesale price can increase the retailer's incentive to offer a price promotion on the brand or encourage the retailer to offer price promotions more frequently.

For example, if there is potential to increase the channel's profits by using retail price

promotions as a price discrimination tool, the manufacturer may be able to increase its profits by adopting a policy of temporary wholesale price reductions. A retailer will find offering a retail promotion will be relatively more attractive when there is a trade deal. Consider the example presented in Table 1. If the manufacturer were to lower the price from $10.00 to $9.80 every four weeks (three weeks between promotions), the retailer would earn an average profit of $620.63 by offering a four dollar retail price promotion every four weeks. This compares with the average profit of $612.50 that it would earn by promoting every fourth week without the trade deal. Without a trade deal the retailer would have offered a price promotion every fifth week and would have earned an average profit of $613.00. As a result, offering the trade deal will stimulate more frequent retail price promotions. Furthermore, in this example, the amount of the price promotion will be greater than the amount of the trade deal. This result is consistent with the empirical finding of Armstrong et. al. (1994) that retailers may pass through more than the amount of the trade discount. Such a result would be expected if a discount larger than the one offered by the manufacturer is required to encourage consumers to switch stores or purchase a more profitable premium brand.

A trade promotion may also increase sales even if retailers do not pass the price reduction through to consumers. A temporary wholesale price reduction also provides the incentive for the retailer to forward-buy, increasing the level inventories they hold. As a result, retailers will have an incentive to increase the selling effort they provide in support of the brand until inventories are drawn down to more desirable levels. Retail promotional support can be particularly effective in stimulating sales when consumers rely on information provided by the retailer when making their purchase decision. This is especially likely to be true for products that are expensive, complex, and differ in the features they provide. Retail support can also be valuable for discretionary or impulse products because the favorable positioning or displays stimulated by a promotion can have a noticeable impact on sales.

Trade Deals and Retail Purchase Behavior

A primary difference between a permanent price reduction and a price promotion with substantial forward buying is in the order size and purchase timing. Retailers will tend to place large orders toward the end of the promotion period in order to avoid having to purchase the product at full price following the promotion. Most large retail chains use some form of an EOQ (economic order quantity) model which trades off inventory storage costs, the financial holding cost, and labor costs with the savings from buying the product at a discount. The number of weeks of supply forward purchased also will depend on the average sales volume of the item. In some cases, a retailer will not need to purchase the quantity implied by the model because the manufacturer is likely to offer another trade promotion before the quantity can be sold at the regular price. The impact on the average price in such a situation is essentially the same as a permanent price cut since no units will be purchased at full price. However, because retailers have greater inventories when they forward buy under a promotion, they may increase their selling effort or promotional support to clear their excess inventories.

A manufacturer needs to consider the cost impact of trade price promotions on order sizes and purchase timing. The resulting shift in purchase timing may have both positive and negative impacts on the manufacturer's costs. When a retailer places a large order, the number of orders taken decreases. Since the cost per unit of filling an order generally

decreases when the size of the order increases, a policy of temporary price reductions is likely to reduce the cost of taking and filling orders. The manufacturer may be able to achieve further cost savings when the retailer forward buys because the retailer is forced to bear the inventory holding costs. This shifting of inventory holding costs can increase profits if retailers have lower inventory holding costs or if they can easily reduce their inventories by modest increases in their sales and promotion efforts.

A policy of periodic price reductions also may have an impact on manufacturer's production and inventory costs. Temporary price promotions lead to instability in the quantities ordered. The manufacturer will need to provide a larger quantity during promotion periods than during periods in which the product is offered at full price. There are three basic approaches the manufacturer can adopt to satisfy the high demand during the promotion period. One approach involves producing a larger quantity than will be sold during the times when a promotion is not being offered. Over time the manufacturer's inventories will build up to a level that will allow it to satisfy the demand during the promotion. The manufacturer incurs the cost of holding inventories that it would not have been forced to hold in the absence of the price promotions. The second approach requires producing the extra quantity during (or just prior to) the promotion period. This approach may be profitable if a manufacturer can produce more efficiently by a few long production runs than by operating regularly at more moderate levels or if production has a seasonal component, as is the case for many types of produce. However producing large quantities for a limited time often requires the manufacturer to either hire temporary workers or have existing workers work extra hours, often at a higher hourly rate. Unless there are substantial cost reductions from long production runs, a policy of periodic price promotions will tend to increase the manufacturer's cost of producing and inventorying the product. Furthermore, the inefficiency in production timing is magnified by the fact that the retailer will also bear inventory holding costs that it would not have incurred without the forward buying induced by the promotion. A third approach that would allow more balanced production is to offer price promotions at different times in different geographical regions.

When retailers are able to forward-buy extensively, any gains from the price discrimination will primarily accrue to retailers. Blattberg and Levin (1987) have developed an empirical model to estimate the impact of a trade promotion on the buying behavior of retailers and consumers for a given brand. Their model estimates factory shipments, retail promotions, consumer sales, and retailer inventories. They found the following:

* Trade deals increase shipments to the retailers.

* Retailers forward buy which is reflected in a reduction in shipments following the deal period.

* Consumer sales increase, but not as much as the quantity forward-bought by retailers.

For the brand studied, nearly seventy percent of the annual sales volume was sold on a trade deal and yet there was very little measurable passthrough to consumers. They concluded that trade price promotions were rarely profitable for the brand studied. Their study did not account for a number of factors that may have influenced profitability. As discussed above, trade price promotions may increase selling effort, shelf space

allocations, or improve shelf positioning because of the incentive for retailers to avoid inventory holding costs. Thus, even though price discounts are not passed through to consumers, a trade discount may increase other types of promotional support provided by retailers. Their study also did not include the promotion's effects on production, shipping, and ordering costs.

Limiting Forward Buying

A price promotion will be most effective when the amount of the trade price reduction is large enough for the retailer to pass the price reduction through to consumers, but not so large that the retailer has the incentive to forward-buy in large quantities. If these two objectives cannot be met simultaneously, as may be the case if retailers have low inventory holding costs, the manufacturer may wish to implement a policy that will limit the quantity that can be ordered during a promotion. There are several tools that are available to limit the quantities that a retailer can purchase on deal.

One approach is *allocations* which impose limits on the quantity that can be purchased on deal. While this approach is relatively easy to implement in principle, it may be difficult to determine the appropriate limit. If the limit is set too low, the retailer has little incentive to pass through the promotion. For example, consider a limit that is set at the average sales level that occurs when the brand is not promoted. Retailers have no incentive to pass the promotion through to consumers since they must pay full price for all units sold above normal levels. Retailers are better off just pocketing the price discount and maintaining normal sales levels. To be effective, the limit should be set at the quantity that would be sold if the promotion were passed through to consumers. A slightly greater limit should be allowed if the incentive to avoid holding costs will help provide retailers with an incentive to pass the promotion through to consumers. As the size of the allocation increases, so does the retailer's incentive to pass the promotion through to consumers. A manufacturer may be able to use scanner data on previous retail price promotions to estimate the consumer response to the desired price discount. These estimates may be used to guide a policy that limits order size.

A second approach is a count-recount which estimates the quantity sold during the promotion period as the change in inventories plus the shipments. A price reduction (or a per unit refund) is allowed only on the estimated sales. With this method a manufacturer can limit the amount of forward buying to the amount of product in excess of regular stocks that can be shipped from the warehouse to the stores. However, this method generally requires more administration expense and may reduce the retailer's incentive to pass the promotion through to consumers because they no longer need to avoid substantial inventory holding costs.

A third technique is *bill-back allowances*. With bill-backs, the manufacturer refunds the cost of the promotion to the retailer when evidence of compliance is provided. Retail actions qualifying for an allowance include price discounts, displays and retailer advertising. This method also tends to be costly to administer for both the retailer and the manufacturer. The retailer is forced to collect evidence of the promotional activity and the manufacturer needs to verify the evidence and process the allowance. Retailers generally don't respond favorably to the latter two methods because of the greater effort required and the delays in receiving the benefits of the promotional activity.

Table 3. Conditions for profitable trade price promotions by a manufacturer or supplier.

Characteristic	Conditions for Profitable Promotions
Brand strength	When the brand is strong, they are more likely to influence store choice and increase purchases in the category. As a result retailers are more likely to increase their promotional support for the brand in response to a trade deal. For a temporary price reduction to be profitable relative to a permanent price reduction, manufacturers must be able to capture gains from price discrimination or the promotion activity must, in itself, stimulate an increase in the sales volume for the brand.
Brand familiarity	Trade promotions may be attractive for new brands, if they increase a retailer's support for the brand. If increased selling effort or retail price promotions increase trial and brand familiarity, a promotion has the potential for increasing long-run profits. Retailers must be convinced of the profitability of their promotional support of the brand or else they will have the incentive to pocket the promotional allowance and not pass it through to consumers.
The retailer's inventory holding cost	If the retailer has low inventory costs and the product is readily storable, the retailer will have a strong incentive to forward buy. This is desirable behavior from the manufacturer's perspective only if the manufacturer has excess inventories or if the cost of order taking and delivery is high. If forward buying is viewed as being excessive from the manufacturer's point of view, promotions may still be attractive if policies to limit forward buying can be implemented at a low cost.
Cost of providing quantities demanded during a promotion.	If the manufacturer has excess inventories or if it can reduce costs by having fewer, but longer, production runs, a promotion may make it possible to avoid inventory holding costs. If production levels can be adjusted at a low cost, or if the manufacturer's cost of inventory build-up during non-promotion periods is low, promotions will be relatively more attractive.

The manufacturer may announce the price promotion on the package. Announcements on the package such as "Price marked is *N* cents off the regular price" can encourage the retailer to reduce the price it charges to the consumer even though the price reduction is not monitored by the manufacturer. If all units sold on promotion have these announcements, the retailer will tend to sell all of the units purchased on deal at a reduced price, even if some of those units are forward-bought by the retailer. Even if the price reduction is not passed on to consumers, the announcement may be sufficient to get consumers to believe they are getting a special value. A drawback to this method is the increase in packaging costs due to printing, stocking and separating special packages for the units sold for promotion. Another potential drawback is the reminder to a consumer that the brand was purchased on promotion. Unless the package on which the

announcement was placed is disposable, consumers will be reminded that they purchased the brand at a reduced price. If self- perception theory has some degree of validity, the reminder could reduce their valuation of the brand (Dodson, et. al. 1978). This reminder also may increase their expectation of future price promotions and reduce their willingness to purchase the brand at full price in the future.

Manufacturers can gain from a policy of periodic trade price promotions in several ways. The conditions under which such a policy is likely to be effective are summarized in Table 3. If their brand has substantial strength in the category a manufacturer may be able to capture some gains from price discrimination. However, if brand loyal consumers stockpile extensively these potential gains will be limited. In order for the manufacturer to capture these price discrimination gains, the manufacturer must be sure that the retailers do not capture the channel's benefits of the trade promotion by extensive forward buying. A manufacturer may also find that price promotions may be a valuable tool for passing inventory holding costs on to the retailers if it has excess inventories or reducing costs if producing with a few long production runs is cost efficient. If the manufacturer is trying to build familiarity, say for a new brand, promotions by the retailer may stimulate trial. Although retail promotions can be stimulated by offering a trade price promotion, the manufacturer may need to allow the retailer to forward-buy if the promotion is to be passed through to consumers.

Summary and Managerial Implications

Price promotions are often practiced by both manufacturers and retailers. However, it is not always clear that promotions are the most effective way to increase profits. Retailers have several reasons for offering price promotions. These include building store traffic, stimulating increased sales of brands that provide larger margins, clearing excess inventories, and price discrimination. Manufacturers may also find that there are circumstances where trade price promotions may be profitable. Key motivations include clearing inventories, shifting the cost of inventories to retailers, and increasing retail promotions.

There can be some significant problems with the implementation of effective price promotion policies. The conditions under which promotions are the most attractive to the manufacturers are often the conditions in which retailers are least likely to provide support for the promotion, and vice versa. Manufacturers would prefer to promote weaker brands to encourage consumer trial and brand switching. Unfortunately for the manufacturer, it is promotions on weaker brands that are the least likely to stimulate support from retailers. Weak brands often are less likely to generate store traffic or result in switching from a low margin brand to a high margin brand. As a result, manufacturers may find that retailers are likely to pocket the price reduction on a weak brand and not pass the promotion through to consumers. A possible exception would be a promotion on a new high-quality product which could stimulate full-priced, high margin sales in the long run. In contrast, retailers would be inclined to pass price promotions on strong brands through to consumers. However, manufacturers are likely to find that promoting these brands will result in greater losses from foregone full-price sales than they will gain from the increased sales volume.

As such, there is an inherent conflict between manufacturers and retailers when it

comes to price promotions. The promotions on brands that can increase a manufacturer's profits are less likely to obtain retail pass-through, while the manufacturer will find it less profitable to promote the brands retailers would like to price promote. Thus, conflicting objectives in the channel relationship will limit the profitability of price promotions. If lower prices can increase profits, a manufacturer should consider the potential of a permanent wholesale price reduction when such conflicts are substantial. Such a reduction should motivate the retailer to either lower the retail price or give the brand greater promotional support.

There are still several conditions under which periodic price promotions may make sense for both manufacturers and retailers. Temporary price promotions provide an effective method for both retailers and manufacturers to clear inventories when they have become excessive. A manufacturer may find trade price promotions profitable if there was an unanticipated decrease in demand or if it produces more efficiently on a seasonal basis or with fewer long production runs. Trade price promotions also will be profitable to manufacturers if forward-buying by retailers encourages them to provide a higher average level of retail support than they would have provided with a permanent price reduction. Retailers are likely to find periodic price promotions on strong brands to be a profitable way of building store traffic and increasing the rate of use in the product category. The design of an effective price promotion policy requires understanding the behavior of other members of the channel as well as that of consumers.

ENDNOTES

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