

The Framing of Sales Promotions: Effects on Reference Price Change

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ABSTRACT

A rationale for a difference in the framing of monetary and nonmonetary sales promotions is presented. Price promotions are most likely to be framed as reduced losses. They will be integrated with the purchase price and affect reference price. Nonmonetary promotions are likely to be framed as gains segregated from the purchase price and will not affect reference price. Experimental results supported this hypothesis.

Assimilation-contrast theory is more consistent with the experimental data than the anchoring and adjustment heuristic. Subjects either heavily weighted discounted prices or ignored them to form reference prices.

INTRODUCTION

Reference price is one of the central constructs in psychological discussions of pricing. Generally, reference prices are the amounts consumers expect to pay or are willing to pay for a product or brand. Recent research has shown that sale prices often decrease the reference price of a product (Liefeld and Heslop, 1985). Moreover, reference price is related to perceived product quality (Monroe and Chapman, 1987). Several writers have hypothesized that sales promotions decrease the positive feelings toward the brand, known as brand equity and consumer brand franchise (Prentice, 1975; Sawyer and Dickson, 1984; Strang, 1976). One of the ways that promotions may decrease these positive feelings is the erosion of reference price.

We hypothesize that some types of promotions affect reference price more than others. By choosing the proper promotions, one might provide short term purchase incentives without destroying the positive feelings toward the brand over the long term.

This paper will first present three theories used to describe the effects of promotions on reference price. These theories make different predictions about how consumers integrate promotions with other pricing information. Secondly, we will review several recent papers presenting definitions of reference price, and recent work relating framing and reference price. The paper's third task is to present a classification of sales promotions derived from a theory of the framing of sales promotions. Once the classification is elaborated, it is straightforward to hypothesize which sales promotions will most affect reference price. Finally, the paper presents and discusses an experiment testing the hypothesized effects of different sales promotions on reference price.

General Theories of Reference Price Change

The most widely used theory of reference price change is Helson's (1964) adaptation-level theory. In the pricing literature, a person's adaptation-level is referred to as his reference price (Klein and Oglethorpe, 1987). The theory posits that the

consumer forms an adaptation-level by integrating all previous presentations of prices of the brand, prices of its competitors, and comparison stimuli such as suggested retail price. A specific price is evaluated by comparison with the reference price.

Helson presented formulas for predicting adaptation-level from the previously presented information. The constants in these formulas may vary depending on the specifics of the experimental situation. The theory is not invalidated if the equations predicting adaptation-level in two similar situations have different weights (Helson 1964, p. 187). However, it is reasonable to look for reasons why the weights are different.

Assimilation-contrast theory (Sherif and Hovland, 1961) is best known for its application to the domain of persuasive communication. This theory has also been applied to the integration of pricing information by Sherif (1963) and Monroe (Monroe and Venkatesan, 1969; Monroe 1971, 1977; Monroe and Petroschius, 1981). Consumers are said to form a latitude of acceptance around a reference price. A low price within the consumer's latitude of acceptance should be assimilated, and thus integrated with other pricing information to revise the reference price downward. The greatest change to reference price should be made when a very low price, at the edge of the latitude of acceptance, is assimilated. If a price is too low, it will be outside the latitude of acceptance, and should neither lower the reference price nor be acceptable to the consumer.

The anchoring and adjustment heuristic (Tversky and Kahneman, 1974) provides a third theoretical approach to the modification of reference price. The heuristic is applied by using a prominent piece of information or early data in a series to make a first estimate of a mathematical result, and adjusting this estimate in the direction of other information. This heuristic may lead to biased processing because the adjustment is often insufficient compared to the adjustment made if all of the data were given equal weight. Nonpromotional prices may be the anchor which is adjusted in the direction of promotional prices to form a reference price.

These three general theories, adaptation-level theory, assimilation-contrast theory and the anchoring and adjustment heuristic can be used to make different predictions about the modification of reference price by low promotional prices. Adaptation-level theory predicts that all equally salient prices will be weighted equally. If promotional prices are more salient than other prices, adaptation-level theory predicts that they will be given extra weight in the integration process. (Promotional prices probably will not be less salient than other prices.) Assimilation-contrast theory predicts that if low promotional prices are within a subject's latitude of acceptance, they will be given great weight in the modification of reference price. If they are not in the latitude of acceptance, they will

receive zero weight. The anchoring and adjustment heuristic predicts that if consumers use promotional prices to adjust the anchor provided by unpromoted pricing information, the promotional prices should receive less than equal weight in the estimation of the new reference price.

Recent Discussions of Reference Price

Several recent papers on reference price focus on two issues. First, these papers advance specific definitions of reference price. The second issue is the relationship between the framing of purchasing information and the formation of reference prices.

Monroe and Petroschius (1981) work from adaptation-level theory to propose that reference price is what consumers are accustomed to paying. Other related definitions they suggest are "the range of prices last paid" or the current market price.

Jacoby and Olson (1977) examine how individuals psychologically encode O-prices (objective pricing information) into P-prices (psychological prices). They assert that adaptation-level or reference price is an important standard for the evaluation of whether a particular O-price is high or low. Jacoby and Olson note the disagreement among researchers about the meaning of adaptation-level for price. Some of the contrasting definitions they present are "fair price", "price most recently charged", "price last paid" and "price normally paid".

Klein and Oglethorpe (1987) propose that there are 3 types of reference prices: aspiration prices, market prices, and historical prices. The operationalizations of these alternative definitions probably produce highly similar results. Yet it is clear that this need not be the case. For instance, aspiration prices, such as "the most you are willing to pay", may be based on other information besides market and historical prices. Thaler (1985) presented the best known example of non-price information affecting the amount customers are willing to pay. If beer is to be purchased at a luxury hotel (but consumed on the beach), potential customers are willing to pay more than they will pay for the same beer at a dilapidated convenience store.

We might condense all of the definitions of reference price into two broad categories: those definitions which depend only on previous pricing information (such as average price paid and price last paid), and those definitions which incorporate other information (such as fair price, and the most you would pay for a product).

The second central idea in several recent articles on reference price is the concept of framing. Framing constitutes part of prospect theory (Kahneman and Tversky, 1979). Recent prospect theory research (Kahneman and Tversky, 1984; Thaler, 1985; Puto, 1987) clearly shows that alternatives presented as gains (outcomes above a person's reference point) affect choice, judgment, and risk taking differently than the same alternatives presented as losses (outcomes below the reference point).

Thaler (1985) and Klein and Oglethorpe (1987) use prospect theory's value function to predict that promotions which are perceived as decreased losses

will be less preferable than equivalent promotions perceived as separate (segregated) gains. Thaler presents automobile rebates as a case where a promotion presented as physically separate from the purchase price (in the form of a rebate check) is perceived as a separate (segregated) gain rather than a mere reduction of the loss of money due to purchasing the product. An equivalent saving resulting from a sale offer should be seen as a reduced loss rather than a gain. The discount should therefore be less desirable than the rebate.

Klein and Oglethorpe point out that different product attributes have different metrics and reference points, and that it is difficult to integrate the gains and losses when one evaluates multiattribute stimuli. For instance, it is difficult to know whether the gains provided by a package of automotive options compensate for a somewhat higher purchase price.

A Criterion for Categorizing Promotions

There are several ways of predicting whether a particular promotion will be framed as a gain or as a reduced loss. Thaler and Johnson (1986) hypothesized that gains would be either segregated from or integrated with losses depending on which form would produce the most happiness. Because a promotion is generally a small gain presented in the context of a larger loss (the purchase price), the most happiness would be produced by segregating the gain from the purchase price. This approach predicts that all sales promotions will be seen as gains rather than as reduced losses. Unfortunately, this principle does not distinguish different sales promotions.

A second approach to predicting framing utilizes a "cost/benefit principle" (Beach and Mitchell, 1978; Payne, 1982). Beach and Mitchell posit that decision makers are motivated to choose the strategy which requires the least investment to achieve a satisfactory solution. The "cost/benefit" approach to predicting framing stems from the different amount of effort necessary to integrate gains with losses in different situations.

Payne presents evidence that decision makers tend to use simpler decision strategies for more complex tasks. It is clear that tasks are more complex when different pieces of information about an alternative are in different units which may not be commensurable (Abelson and Levi, 1985). Klein and Oglethorpe (1987) suggest that it should be more difficult to integrate multiple attributes of purchases if these attributes are in different metrics.

Adapting this to the domain of sales promotions, it seems reasonable to hypothesize that when promotions are in the same units as the reference price, they will be more easily integrated with the reference price. The promotion is likely to be seen as a reduced price, and framed as a reduced loss. Conversely, when promotions are in other units than money, they will be more difficult to integrate with the reference price. In an everyday shopping situation, the consumer should not expend the effort to integrate these noncommensurable attributes. Thus the promotion should be more often considered as a separate gain and not influence reference price.

It is therefore clear that a dichotomy used by Sawyer and Dickson (1984) has theoretical grounds for influencing framing. Price-off promotions (including rebates) are in the same units as the reference price. These promotions are more likely to be framed as reduced losses. "Value added" (nonmonetary) promotions, which include extra amounts of the purchased product as well as premiums, are in different units than price. These promotions should be framed as gains. Diamond (1988) presents evidence that promotions incorporating extra amounts of product or a premium product are more likely to be framed as gains than price promotions.

HYPOTHESIS

If promotions incorporating premiums or extra amounts of product are most likely to be framed as gains, these promotions are less likely to be considered in conjunction with other pricing information. Therefore, regardless of the definition of reference price, monetary promotions are hypothesized to affect the reference price of the product more than "value added" (nonmonetary) promotions.

METHOD

The subjects were 103 students in marketing classes at a college in the northeast. The product chosen for the study was laundry detergent. This product is heavily promoted and prices vary substantially. Most students do buy this product.

Subjects were given a pricing information packet containing 20 "weeks" of pricing information about one brand of laundry detergent. Each "week" was presented on a separate page of the experimental forms, and subjects were instructed not to return to earlier pages once they had turned to later pages of the form. In this way, reference prices would have to be made by integrating each piece of new information with information stored in memory. Each "week" of pricing information was presented as a drawing of the product with the pricing information as well as any promotional information clearly marked on the label.

The objective prices (O-prices), in the unpromoted control condition, were generated to be normally distributed. The mean price was \$3.46. The range of these prices was from \$3.30 to \$3.62.

Experimental Manipulations

The study was designed as a one by four between subjects experimental design. The manipulated factor was the type of promotion presented every third "week" to the subject. The four experimental conditions were: discount, extra amounts of product, premium product, and control. Pictures of the stimuli in the third week are presented in Figure 1.

Every third "week", in the discount condition, the picture of the stimulus product had a large notice on the label which stated "\$1.00 off Retail Price". In this condition, the price marked on the label was \$1.00 less than that of the control condition.

The corresponding pictures in the extra product condition had a large notice which read "28% more free, \$1.00 value". The bottle of detergent was drawn

larger than usual, and read "82 fl. oz" instead of the regular 64 ounces. The price of the product was the same as that of the control condition.

Every third "week", the picture of the product in the premium condition had a large notice which read "Free Fabric Softener, Value \$1.00". Attached to the bottle was a box labelled "Fabric Softener Sheets". The price of the product was the same as that of the control condition.

Dependent Measures

After the subjects had been exposed to 20 "weeks" of pricing information, they were instructed not to refer back to the pricing information packet while they answered a few questions. These questions included measures of reference price which depended solely on previous pricing information (average price and most frequent price), and measures which might depend on other information (expected price, fair price and most you would pay). The questions were worded as follows:

"If you were to purchase a bottle of Brand A next week, how much would you expect to pay?"

"What is the average price of Brand A over the twenty weeks?"

"What is the most frequent price charged for Brand A?"

"What is the most you would pay for Brand A?"

"What is a 'fair' price for a 64 ounce bottle of liquid detergent?"

Subjects also rated the relative expensiveness and perceived quality of Brand A on 7 point scales.

RESULTS

The mean values of each of the measures of reference prices, by experimental condition, are presented in Table 1. Three planned orthogonal contrasts were used to evaluate differences in the means. The major hypothesis of the study was that reference prices would be lowered by discounts, but not by "value added" (nonmonetary) forms of promotions. The first two contrasts were used to test this hypothesis. First, each mean reference price in the discount condition was contrasted with the average of the reference prices in the other three conditions. Secondly, the means of the two "value added" promotions were compared with the mean of the control condition. A third contrast tested differences in the means of reference prices in the two "value added" conditions. To provide the most support for the hypothesis, the first contrast would have to show significant differences, and the others would have to show no effects.

The multivariate effect for the first contrast was significant ($F(5,94)=24.6, p<.001$). All of the univariate tests of this contrast also showed significant differences except for the "fair price"

FIGURE 1

Promotional Offers in the Four Conditions

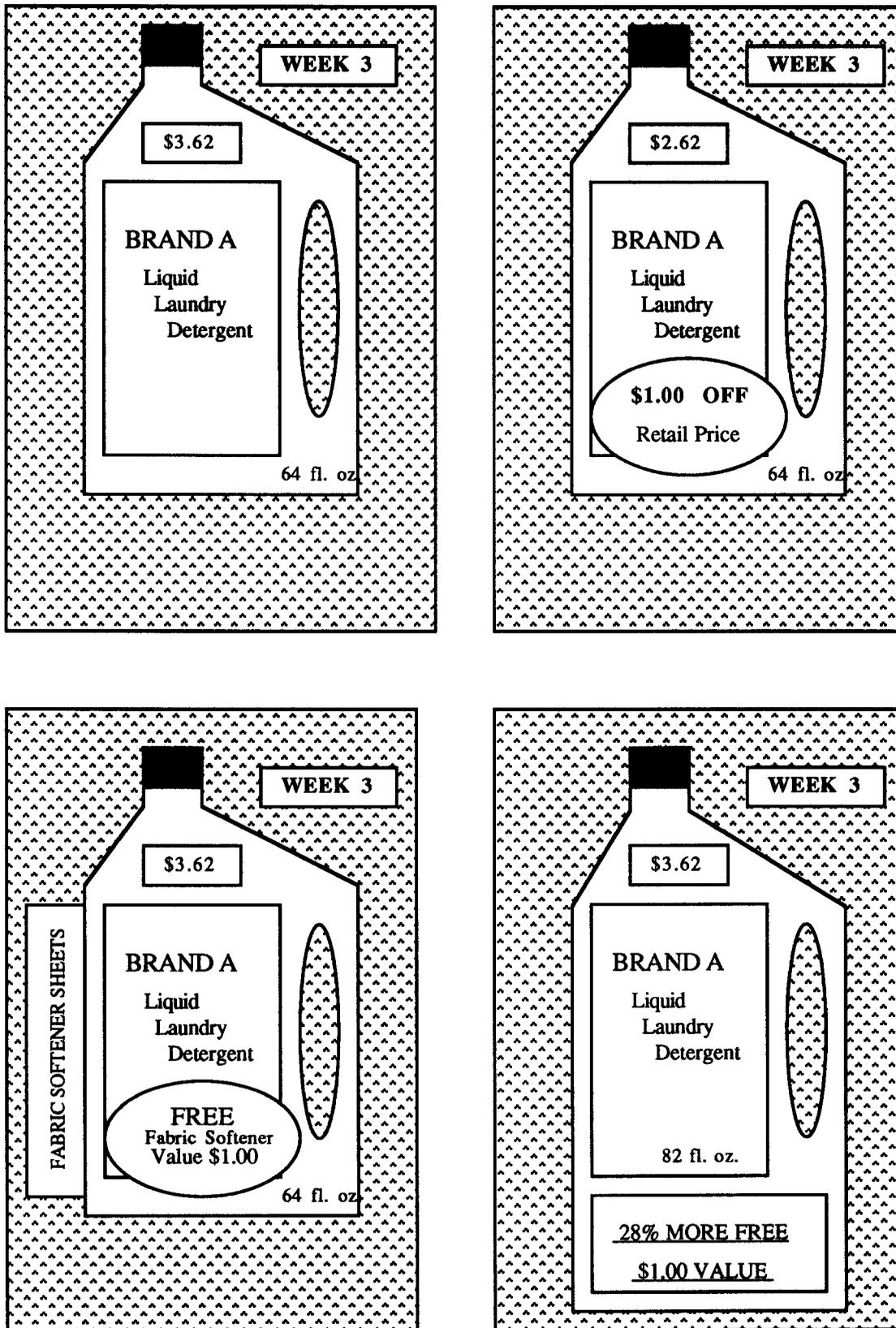


TABLE 1
Mean Values of Dependent Measures.

Measure	Control	Discount	Premium Attached	Extra Product
Expect ¹	\$3.44	\$3.04	\$3.46	\$3.45
Average ²	\$3.44	\$3.10	\$3.44	\$3.46
Most Freq. ³	\$3.47	\$3.37	\$3.45	\$3.47
Most Pay ⁴	\$3.53	\$3.32	\$3.51	\$3.56
Fair ⁵	\$3.44	\$3.21	\$3.44	\$3.32
Expensive ⁶	4.5	4.3	4.2	4.1
Quality ⁷	4.3	4.2	4.1	4.0

¹ If you were to purchase a bottle of Brand A next week, how much would you expect to pay?

² What is the average price of Brand A over the twenty weeks?

³ What is the most frequent price charged for Brand A?

⁴ What is the most you would pay for Brand A?

⁵ What is a "fair" price for a 64 oz bottle of liquid detergent?

⁶ Please rate the expensiveness of Brand A.

⁷ Please rate the quality of Brand A.

measure of reference price. Here, after the bonferroni adjustment of significance levels, the difference between the discount condition and the other conditions approached statistical significance ($F(1,95) = 4.87$, adjusted $p < .10$). These results indicate that discounts yield a lower reference price than other forms of promotion.

Looking at Table 1, one can see that the means on the reference price measures are nearly identical for the two value added promotions and for the control group. Neither the second contrast nor the third contrast yielded significant differences on multivariate or univariate contrasts.

The means of the two additional dependent measures are also presented in Table 1. The differences in these means were tested with the same contrasts discussed above. These differences are not significant, either on the preplanned contrasts nor using a regular one way ANOVA.

The earlier discussion of adaptation-level theory suggested that it would be interesting to test whether the constants in Helson's equations were the same in different situations. In situations without an explicit comparison stimulus, the following equation applies:

$$\log (AL+y) = 1/n \sum \log X_i$$

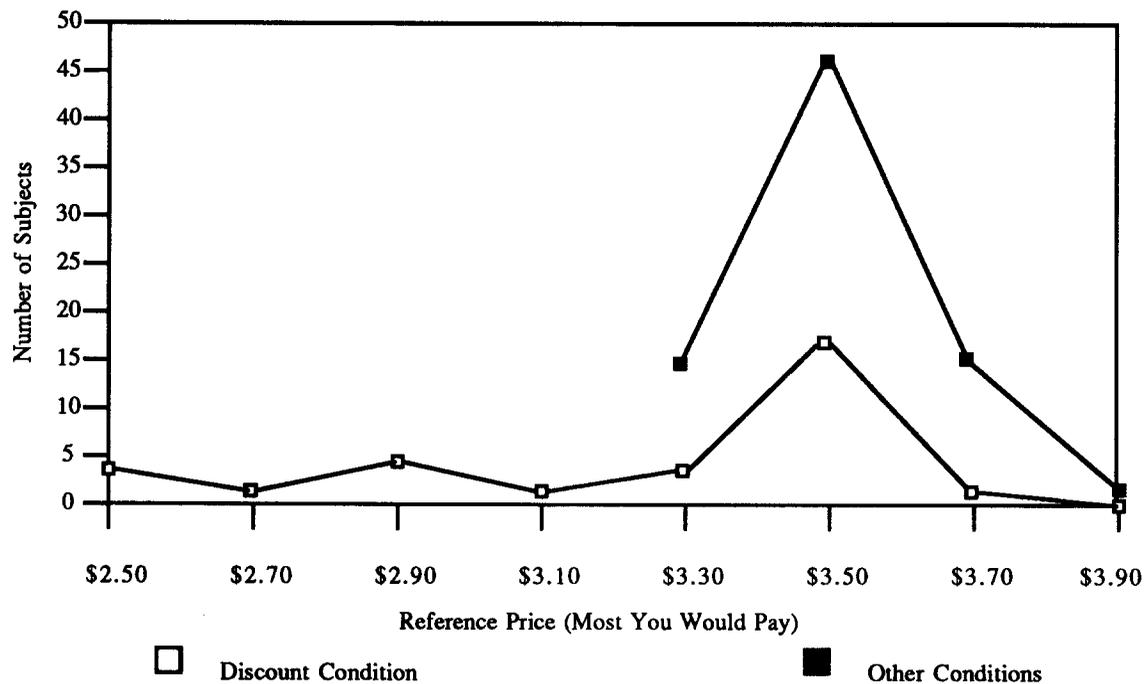
where the X_i 's are the individual prices shown to the subjects and AL is the adaptation-level (the reported reference price). Taking a specific definition of reference price, we can solve for y for each subject.

If we do this, we find that for each measurement of reference price, the constant y is different in the discount condition than it is in the other conditions. For instance, using "What is the most you would pay for Brand A", as a measure of reference price, we find that the first contrast (discount vs all other conditions) is statistically significant ($t(99) = 2.54$, bonferroni adjusted $p < .05$). The other contrasts show no significant effects.

What is the meaning of different constants in the adaptation-level equation? To answer this, it helps to know that if the equation in the discount condition had the same constants as in the other conditions, the adaptation-level (reference price) would have been substantially lower than it actually was. For the "most you would pay" question, the observed reference price in the discount condition was \$3.32. If the constant "y" in the adaptation-level equation had been the same as in the other conditions, we would expect the value to be \$3.19.

FIGURE 2
DISTRIBUTION OF REFERENCE PRICES

Discounts vs. Other Conditions



Why is the average reference price in the discount condition higher than expected? This suggests that discounts are treated differently from other prices in the formation of adaptation levels or reference prices. Perhaps some subjects assimilate the discount offers to form very low reference prices while other subjects ignore the discounts to form reference prices. Or subjects may use the promotional prices to adjust the reference price downward. The \$3.32 reference price does seem to be a case of insufficient downward adjustment of an anchor.

This question may be answered to some degree by looking at the distribution of the "most you would pay" reference prices in the discount and other conditions. This is presented in Figure 2.

Figure 2 presents information which is more compatible with an assimilation-contrast explanation than an anchoring and adjustment explanation of the lowering of reference price. Except for a few subjects who indicate they will not buy the product unless it is substantially discounted, the reference prices of discount subjects are distributed similarly to subjects in the other conditions. This indicates that most subjects either assimilate the discount, and use it almost exclusively to form the reference price, or disregard the discount almost totally.

DISCUSSION

This paper has presented three theories of the modification of reference price: adaptation-level theory, assimilation-contrast theory and the anchoring and adjustment heuristic. We have also presented a theory which differentiates sales promotions: "value added" (nonmonetary) promotions are more likely to be framed as gains, whereas promotions presented in monetary units are more likely to be framed as reduced losses. This theory was used to generate the hypothesis that only price promotions would affect reference price, regardless of how reference price is measured.

The data generated in a simulation support this hypothesis. This result is not startling for the definitions of reference price which depend only on previously presented pricing information. However, price promotions still had a unique effect when reference price was defined as the most you would pay for the brand or the fair price of the product category. For these definitions, the effect is interesting and not obvious.

An assimilation-contrast explanation seems more appropriate than an anchoring and adjustment explanation of the effect of discounts on reference price. Subjects apparently weight the discounted

prices very heavily, or ignore them in forming their reference prices.

The simulation presented here should be considered as pilot work. This was not a true purchasing situation, and the prices of competing brands were not included in the information presented to subjects. Yet the patterns which emerge from the data suggest that it will be worthwhile to maintain the distinction between price promotions and "value added" promotions. Moreover, the results suggest that we should continue to research the differential effects of promotions on reference price and related constructs.

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