50% Off or Buy One Get One Free? Frame Preference as a Function of Consumable Nature in Dairy Products

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ABSTRACT. Previous studies on how framing differentially affects consumer perceptions of value from equivalent deals indicate that perceptions of deal value from price-saving versus extra-product promotions are moderated by the stock-up characteristic of the category. In this study, the authors explored the relationship between stock-up characteristic and frame preference and the influence of the consumable nature of goods on frame preference. An experiment involving 223 student participants showed that consumable nature, but not stock-up characteristic, affected frame preference. The authors discuss the implications of this finding for the study of information framing and how it impacts consumer judgment and decision making.

Keywords: advertising, decision making, sales promotion

DIFFERENT REPRESENTATIONS of the same choice frequently do not yield the same preferences. This concept of framing originated from Savage’s (1954) and Raiffa’s (1968) analyses of the Allais problem, which describes how decision makers tend to place a disproportionate weight on outcomes that are certain over those that are only a possibility. Continuing in this line of research, Kahneman and Tversky (1979) showed that a choice between a certain option (a “sure thing”) and a risky option (a gamble) was affected by the wording of the options. Thaler (1980) found that it was easier for consumers to forgo a discount than to accept a surcharge, even when both decisions cost consumers the same amount. Levin

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In analyzing how framing affects decisions in a retail price promotion, Grewal and Marmorstein (1994) proposed the *psychophysics-of-price heuristic*. According to Grewal and Marmorstein, consumers show a “tendency to assess the utility of price savings as a proportion of the item’s price” (p. 453). However, researchers have proposed different theories to explain the effects of framing in other situations, such as windfall gains (Arkes, Joyner, & Pezzo, 1994) and risk preference. Kahneman and Tversky (1979) proposed that the effect of framing on risk preference could be depicted by an S-shaped value function that is concave for gains, convex for losses, and steeper for losses than for gains. More recently, Li (1998) and Li and Xie (2006) explained risk preference through their *equate-to-differentiate account*, which claims that the mechanism governing decision making in risky situations does not involve the maximization of some kind of mathematical expectation but, rather, relates to some generalization of dominance detection. According to the equate-to-differentiate model, framing influences choice by affecting how decision makers perceive differences between possible outcomes.

Research on price promotions typically falls into one of two streams. The first involves the consideration of consumer-background (or descriptor) variables as possible moderators of the effect of price promotions on consumer behavior. Research in this stream often correlates consumer background variables with choice of promoted items. For example, DelVecchio (2005) reported that deal-prone consumers were sensitive to the value of a promotion relative to other available promotions in a condition of high absolute-dollar savings. Shirai and Bettman (2005) demonstrated that both the expected length of time to the next deal and the perceived price difference deviating from a consumer’s internal reference price influenced price evaluations.

The second stream of research focuses on how different means of price promotion affect consumer behavior. A decision frame refers to a decision maker’s perception of the behaviors, outcomes, and contingencies associated with a particular choice. Chen, Monroe, and Lou (1998) found that, for high-priced items, consumers saw a price reduction framed in dollar terms as more significant than one expressed in percentage terms, and the opposite was true for low-priced products. Their rationale was that for a given percentage discount, the absolute value of the price reduction is higher for higher-priced products, whereas for a given absolute price discount, the relative percentage reduction is higher for lower-priced products.

Research on the promotional framing of prices, known as *deal semantics* (Berkowitz & Walton, 1980; Gourville, 1998; Grewal, Marmorstein, & Sharma, (1987) and Levin and Gaeth (1988) evaluated the associative effects of various ways of framing consumer information and showed that the consumers’ evaluations were more favorable toward beef labeled “75% lean” than that labeled “25% fat.” Ganzach and Karsahi (1995) reported that a negatively framed message about the loss incurred by using a check instead of a credit card produced higher credit card utilization and charges than did a positively framed message about the gains from using a credit card.
1996; Lichtenstein, Burton, & Karson, 1991; Liefeld & Heslop, 1985), can be classified under the second stream. In studying how consumers perceive the value of transactions when they are presented with deals that are equivalent on a unit-cost basis but worded differently, Sinha and Smith (2000) went beyond previous accounts by focusing on category-specific variables rather than the main effects of semantic cues on evaluations of equivalent deals. The stock-up characteristic of the category—whether or not it can be accumulated and stored— influenced how consumers in their study perceived the transaction value of price versus extra-product promotions. Sinha and Smith found that the nature of products influenced the perceived transaction value of two deal types—price promotions (e.g., 50% off) and extra-product promotions (e.g., buy one get one free)—and that straight price reductions (i.e., lowering the absolute price the consumer has to pay) generally work better at encouraging purchases than do bonus-pack offerings, particularly in non-stock-up categories.

Litvack, Calantone, and Warshaw (1985) developed a taxonomy of stock-up versus non-stock-up products, with items such as light bulbs and toothpaste falling in the former category and products such as vinegar and milk falling in the latter. A closer examination of the taxonomy suggests that consumable nature—how quickly an item is used up and/or needs to be replaced—may also serve as a moderator in the relationship between framing and consumers’ perceptions of prices. For example, a hammer falls into the stock-up category because it is not readily perishable and thus it is easily stockpiled. According to Litvack et al. and Sinha and Smith (2000), consumers are more likely to derive higher transaction value from extra-product promotions (e.g., buy one get one free) within stock-up categories than non-stock-up categories because they can always save the additional amount for the future. However, in the case of a durable, nonconsumable product such as a hammer, a price promotion (e.g., 50% off) could be much more attractive than an extra-product promotion because it is unlikely for a consumer to feel the need to possess (or purchase) more than one hammer simultaneously.

Guided by such thinking, we designed the following experiment to examine in further detail whether we could use stock-up characteristic and/or consumable nature to predict consumer preferences across differently framed, yet equivalent, promotions. We chose four products—powdered cheese, yogurt, powdered milk, and fresh milk—as experimental stimuli. We picked these particular products not only because they all fall under a single product category—dairy—but also because they represent all four potential variations of stock-up characteristic and consumption level (see Table 1).

On the basis of a pilot study, we selected, for the present study, fresh milk and yogurt to represent non-stock-up categories (because of the higher risk of perishability) and powdered milk and powdered cheese to represent stock-up categories. We considered powdered cheese and yogurt to have a low consumption level because in Singapore, induced buying of these products, such as through
sales, does not lead to a higher rate of usage. We considered powdered milk and fresh milk to have a high consumption level.

We proposed two hypotheses ($H$) for the present study.

$H_1$: The difference in consumer perceptions of the transaction value of price promotions versus extra-product promotions will be significantly higher for the non-stock-up items than for the stock-up items (see Sinha & Smith, 2000).

$H_2$: Consumable nature will moderate the difference in consumer perceptions of deal value from price versus extra-product promotions.

**Method**

**Participants**

Participants were 223 Singaporean students (125 women and 98 men) from various disciplines at Nanyang Technological University. All participants were volunteers.

**Materials and Procedure**

We prepared four hypothetical purchasing problems involving dairy-product promotions at two different supermarkets: Supermarket 1 offered an extra-product promotion (buy one get one free) and Supermarket 2 offered a price promotion (50% off). We presented two versions of the problems in questionnaire format (see Appendix). We randomly assigned 103 participants to respond to Version A of the questionnaire and 120 participants to respond to Version B. We asked participants to indicate their promotion preferences by circling a number on a 7-point Likert-type scale ranging from 1 (definitely buy from Supermarket 1) to 7 (definitely buy from Supermarket 2).

**Design**

The four dairy products in the above purchasing problems can be identified and distinguished from each other by crossing two variables: (a) consumption

<table>
<thead>
<tr>
<th>Consumption level</th>
<th>Stock-up characteristic</th>
<th>Non-stock-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>powdered milk</td>
<td>fresh milk</td>
</tr>
<tr>
<td>Low</td>
<td>powdered cheese</td>
<td>yogurt</td>
</tr>
</tbody>
</table>

TABLE 1. Classification by Consumption Level and Stock-Up Characteristic of the Four Dairy Products Chosen for the Study
level (low, powdered cheese and yogurt; high, powdered milk and fresh milk) and (b) stock-up characteristic (stock-up, powdered milk and powdered cheese; non-stock-up, fresh milk and yogurt). Thus, the experimental design was a 2 (Low Consumption Level vs. High Consumption Level) × 2 (Stock-Up Characteristic vs. Non-Stock-Up Characteristic) mixed design, with consumption level as the between-subjects factor and stock-up characteristic as the within-subjects factor.

Results

Figure 1 shows mean scores for promotion preferences (rated on the aforementioned 7-point Likert-type scale) as a function of the stock-up characteristic and consumable nature of the dairy products in this study. An analysis of variance (ANOVA) showed a main effect of the consumable nature on the rated preference, with participants more likely to choose the price promotion (50% off) for the low-consumption-level items (powdered cheese and yogurt) and the extra-product promotion (buy one get one free) for the high-consumption-level items (powdered milk and fresh milk), $F(1, 221) = 9.190, p < .01, \eta^2 = .04$. Participants’
preferences for the two deals did not vary between the stock-up and non-stock-up categories, $F(1, 221) = 0.943, p = .33, \eta^2 = .004$. Moreover, there was no significant two-way interaction, $F(1, 221) = 1.231, p = .27, \eta^2 = .006$.

**Discussion**

The results of the present study indicate that participants differentially perceived the two monetarily equivalent deals and that the cause of these differences was the consumable nature of the product category, not the stock-up characteristic. Thus, the results support $H_2$ but not $H_1$. In that we saw differences in participants’ choices between the two promotional framing conditions, our results contradict the principle of descriptive invariance (Tversky, Sattath, & Slovic, 1988), which holds that individuals’ decisions and preferences should not change solely because their options are described differently.

Retailers’ increased use of promotions in recent years (Promotion Marketing Association, 2004) makes the study of consumers’ perceptions of promotional framing of price more noteworthy. Sinha and Smith (2000) found that the nature of framing appears to differentially affect consumer perceptions of value from equivalent deals and that stock-up characteristics moderate consumer perceptions of deal value from price versus extra-product promotions. In the present study, we found, somewhat surprisingly, no support for the role of the stock-up characteristic in moderating perceptions of transaction value from different deal types. It is worth noting that Sinha and Smith’s experiment examined three types of promotional offers: (a) price promotions (e.g., 50% off), (b) volume or extra-product promotions (e.g., buy one get one free), and (c) mixed promotions involving a price discount on an extra product (e.g., buy two get 50% off). However, in the present experiment, we replicated a portion of Sinha and Smith’s design without examining the mixed promotion. We decided to omit the mixed promotion because although it is common in the United States, where Sinha and Smith conducted their study, it is not used by Singaporean supermarkets and thus may have sounded odd to our student subject pool.

Both price and extra-product promotions are frequently used to attract consumers and induce them to buy products. In particular, extra-product promotions speed up clearance sales (in terms of unit transactions) more than do price promotions. However, the marketing implication of the present finding is that extra-product promotions may not work better in selling off excess stock in certain circumstances. If the excess stock is of a low consumable nature (such as optical glasses and rubber bath mats), then adopting a 50% off promotion may help sell off excess stock faster than would adopting a buy one get one free promotion. If, however, the excess stock has a high usage rate (such as contact lenses and bath tissue), then using a buy one get one free promotion may work better in accelerating consumers’ purchase decisions. Thus, it is advisable that retailers take the consumable nature of goods into account when deciding what promotional deals to use.
Because extra-product promotions involve offering consumers an additional amount of the product for no additional price, other theories related to consumable nature, such as diffusion of innovations or psychology of waste, also may explain people’s differential preferences across equivalent promotions. Arkes (1996) proposed the concept of a psychology of waste to suggest that the appearance of wastefulness is sufficiently aversive to motivate people to make choices that are contrary to their own economic self-interest. Moreover, cultural differences in how people view waste or thrifty innovation (e.g., Lumpkin, Hawes, & Darden, 1986) may also factor into their decision-making processes. For example, Wu (1983) categorized the Chinese as hardworking, thrifty, self-reliant, and risk-taking. Such culture-rooted values may affect the role of deal framing on consumers’ responses. By considering how these variables relate to consumable nature, future researchers can further our understanding of how framing information influences the way in which people evaluate deals that are actually monetarily the same.

AUTHOR NOTES

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REFERENCES


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APPENDIX
Purchasing Problems Involving Dairy Product Promotions

Version A

Problem 1
Suppose you are buying 100% grated powdered cheese (250 g). Below are two promotions in two supermarkets:
- Supermarket 1: Buy a packet of powdered cheese (250 g), get another packet (250 g) free.
- Supermarket 2: 50% off a packet of powdered cheese (250 g).

Problem 2
Suppose you are buying yogurt (500 g). Below are two promotions in two supermarkets:
- Supermarket 1: Buy a carton (500 g), get another carton (500 g) free.
- Supermarket 2: 50% off a carton (500 g).

Version B

Problem 1
Suppose you are buying powdered milk. Below are two promotions in two supermarkets:
- Supermarket 1: Buy 1 tin of 1-kg powdered milk, get another 1-kg tin free.
- Supermarket 2: 50% off 1 tin of 1-kg powdered milk.

Problem 2
Suppose you are buying fresh milk. Below are two promotions in two supermarkets:
- Supermarket 1: Buy a 1-liter carton, get another 1-liter carton free.
- Supermarket 2: 50% off a 1-liter carton.

Note. Participants were asked to rate their purchasing preferences on a 7-point Likert-type scale ranging from 1 (definitely buy from Supermarket 1) to 7 (definitely buy from Supermarket 2).