FRAMING EFFECT OF PRICE PROMOTIONS ON CONSUMER CHOICE: EVIDENCE FROM BRAZIL

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Abstract

The objective of this study is to investigate whether consumers are responsive to price promotion framing effects, i.e., whether displaying a promotional discount as a percentage rather than an absolute monetary value would affect consumer choice. Applying the concept of framing (Tversky and Kahneman (1979, 1981, 1986) and Kahneman (2003a)), in the context of consumer behavior, this study attempts to identify what type of price promotions are more effective for high price and low price products in terms of their framing impacts. Employing survey data collected from a sample of 400 respondents in São Paulo, Brazil in 2013, we test the hypotheses that consumers would be indifferent to the promotion type for low price products while the absolute monetary value of a discount would be more effective than percentage in influencing consumer choice for high priced products. Implications for future research and managerial practice are discussed.

INTRODUCTION

In an increasingly competitive retail environment, price promotions have become a popular tool to attract customers and increase sales. Price promotions are variously advertised as "Buy 1, Get 1 Free", "Price slashed from $1,399 to $999", "15% discount", and so on. In order to understand which of these ways of expressing the promotional discount is most effective in influencing consumer choice favorably it is important to know the answer to the question: How do consumers perceive these different promotions?

But why should retailers at all be concerned with how consumers "perceive" a promotion? If consumers act rationally, a retailer simply needs to show the savings obtained with a promotion, obviating the need for the customer to make calculations to find out the final price of the product. The customer would then be able to logically decide if s/he wants to purchase the product at the discounted price or not. However, extant research suggests that given the same final price

after a discount, the purchase decision differs based on customer perception of the ways in which the discount is displayed (Krishna et al., 2002). For instance, discounts expressed in cash terms were hypothesized to be more effective than those shown in percentage terms when it involves high price products, and the opposite is true when it pertains to low price products. (Chen *et al.*, 1998). Understanding the effects of the presentation or "framing" of price promotions is therefore important to both retailers and brand managers.

The decision process preceding consumer behavior is influenced partly by the framing of the problem, and partly by norms, habits, and personal characteristics. Due to inherent flaws in human perception, the framing of a decision problem can affect the cognitive judgment, and thereby the preferences and final choice of the consumer (Kahneman and Tversky, 1979; Tversky and Kahneman, 1981; 1986; Kahneman, 2003a; Kahneman, 2003b). If people acted strictly in accordance with traditional economic theory and were rational, they would not exhibit different preferences to equivalent promotions articulated in different ways. However, due to imperfect or limited rationality, they are susceptible to the framing effect, and as a result evaluate equivalent promotions in different ways. Kahneman and Tversky explored systematic biases in decision making in the choices that an individual ought to make as a rational agent by incorporating the concept of bounded rationality into their research leading to important advances in the field of decision-making: heuristics of judgment, *Prospect Theory* and the framing effect concept.

Although the theoretical and practical significance of the framing effect is widely recognized (Gendall et al., 2006; Smith and Nagle, 1995), few studies have examined it in the context of Brazil. Figueiredo (2002) explored the influence of various forms of presenting a discount on the behavior of consumers of different levels of education. Queiroz (2007) studied the influence of the framing effect on the presentation of credit proposals in the financing decision. Knowledge about the framing effect of price promotions on consumer choices in Brazil needs to be developed further because extant research fails to incorporate several important variables that could impact the purchase decision. In an attempt to fill this gap, the current study attempts to identify what type of price promotions are more effective for high price and low price products in terms of their framing impacts, and to explore if demographic variables such as income and educational level moderate consumer choice.

THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

The conceptual basis of our study is founded on two notions: the decision-making process and the framing effect. First, we analyze the nature of the decision making process of individuals, summarizing the key elements associated with it including a the role of rationality and its limits. A logical corollary of this analysis is the framing effect, which is the second dimension to be considered.

This will be examined in greater depth and more specifically in relation to the choices made by consumers of goods and services. The decision-making process involves judgment and choices made after due deliberation. For instance, choosing a product for purchase or moving to a new job would require some degree of deliberation, while choosing to take one's hand off the fire does not (Connolly and Ordonez, 2003).

One of the premises of consumer behavior is that making a purchase is preceded by a decision process. Extant studies model this process as involving the following steps: existence of two or more alternative courses of action for an individual to consider; development of evaluation criteria that facilitate prediction of the consequences of each alternative vis-à-vis the consumer's goals; a decision rule or evaluation procedure that guides the alternative chosen; information gathered externally or retrieved from memory in order to to process and apply the decision rule (Olshavsky and Granbois, 1979). In recent years, behavioral, psychological and descriptive elements have been incorporated into the theory of the decision making process. However, its limits and other such concerns are still grounded in the theory of expected utility, made popular by Von Neumann and Morgenstern in 1947 (Hastie, 2001). In this view of decision making, it is assumed that consumers are rational beings. The model of perfect rationality assumes that the consumer obtains complete information on the available alternatives, derives a utility function for each alternative and selects the alternative that yields the greatest utility. Any limitations to the consumers' processing are ignored in this normative model (Bettman *et al*., 1991). For instance, one of the assumptions of this model is invariance, which postulates that preferences are not affected by variations of irrelevant characteristics of the options or results. That is, if two characterizations were viewed by the consumer as alternative descriptions of the same problem, they should lead to the same choice (Tversky and Kahneman, 1986).

However, Due to imperfections in human perception and decision making, changes in perspective may alter the relative attractiveness of options, and invariance may not be fully achieved (Tversky, and Kahneman, 1981; Kahneman, 2003a). An unrealistic implication of the rational behavior of the consumer is that the consumer makes choices in an environment that incorporates all relevant details of the situation, as well as the expectations about all future opportunities and risks (Kahneman, 2003a). Often, individuals must make decisions during times of uncertainty or when they do not have all the necessary information. Thus, rather than making fully rational decisions, these individuals try to do the best they can due to the limitations they are subject to (Simon, 1955). Modern theory of decision-making was conceived as a normative model of an idealized decision maker and not as a description of the actual behavior of people. As such, the normative model is not capable of explaining all behavioral nuances of individuals, but it serves as a reference to illustrate the deviations from rationality to which people are subject to when making decisions (Tversky

and Kahneman, 1986). "We are all far less rational than standard economic theory assumes. Our irrational behaviors are neither random nor senseless. They are instead systematic, we repeat them again, and as such, they are highly predictable" (Ariely, 2008)

Tversky and Kahneman (1979, 1981, 1986) and Kahneman (2003a) have demonstrated that the framing of decision problems may affect the cognitive judgments, and therefore, the preferences of individuals. The basic principle of framing consists in the passive acceptance of the framing as given. That is, people do not naturally process all options thoroughly. The brain mechanisms that support the comprehension of language have a substantial ability to strip the surface details in order to get to the meaning in an utterance, but this ability is limited as well (Kahneman, 2003a). Thus, the framing effect is a cognitive bias which moves individuals away from a purely rational choice. For example, in the mid-70s, credit-cards would not allow affiliated stores to charge higher prices from credit-card users. A bill to prohibit such agreements was presented to the U.S. Congress. When it seemed likely that the bill would be approved, the credit-card industry turned its attention to the form of presentation. That is, it preferred that any differences between cash and credit-card were labeled as cash-discount rather than credit-card surcharge. The two labels induced different reference points, the lowest and highest price. Because losses loom larger than gains, consumers are less willing to accept a surcharge than to forego a discount (Thaler, 1980; Tversky and Kahneman, 1981).

This bias has also been noticed in retail sales to the final consumer. Sales promotions are an important component of the marketing mix of a company. It can be defined as "a marketing-oriented event intended to have a direct impact on consumer behavior" (Blattberg and Neslin, 1990; Neslin, 2002). These promotions include price discounts, special displays, coupons, reward programs, sweepstakes, and such other benefits. Promotions can be categorized as monetary or non-monetary. Monetary promotios are those that directly involve cash discounts - for example, "10% discount", "save $100", etc. Non-monetary promotions include benefits, such as prizes, raffles, giveaways, and complimentary products. There are also mixed promotions, which are a combination of both types of promotion, such as, discount coupons with a gift (Deamond and Campbell, 1989; Leclerc, 1997). Thaler (1985) and Monroe and Chapman (1987) were among the earliest researchers to suggest that the perception of the buyer about the promotion in the form of ads, coupons, rebates and discounts affects their assessment of the product and thereby the propensity to buy the product. Levin and Gaeth (1988) found that people evaluate more positively a piece of meat labeled "75% fat-free" than "contains 25% fat". This shows that the form in which a promotion is expressed could alter the consumer's perception and in turn the purchase decision.

According to the "psychophysical heuristic of price" proposed by Grewal and Marmorstein (1996), the utility generated by the consumer when saving a fixed amount of money is inversely related to the product price. This heuristic implies that a $20 savings on a $100 jacket equivalent to 20% of the price will lead to greater psychological pleasure than a $20 savings on a $400 television equivalent to 5% of the price (Chen *et al.*,1998). Disounts shown in absolute or relative manner create different framing effects on price. The way consumers process price information, in absolute or relative terms, affects the perception of a price discount (Grewal and Marmorstein, 1994; Chen et al., 1998).

Depending on the price of the product, retailers may choose between cash or percentage. For example, a $1,000 discount on a $20,000 car seems significant in terms of saving money, but the equivalent 5% discount seems unattractive. In contrast, a 50% discount seems to be more significant in a soda can that costs $0.50 than the equivalent $0.25 savings. Thus, retailers may believe that it is more effective to show a price reduction in absolute monetary terms for products of higher value, but as a percentage of the price for products of lower value (Heath *et al.*, 1995).

Chen *et al*. (1998) found that for higher-value products, consumers perceive a price reduction presented in dollar terms as more significant than the same price reduction in percentage terms. For lower value products, people perceived a price reduction shown in percentage as more significant. Gendall *et al.* (2006) sought to test the hypothesis that a price reduction presented in dollar terms is more effective for high price items, while the reduction shown in percentage terms is more significant for low price goods. Unlike the study of Chen et al. (1998), the group of participants selected were shoppers in a mall in New Zealand rather than students. Potato chips and soda were chosen as low price items with a 10% discount while computers and radios exemplified high price items with a 15% discount. It was concluded that for the low price items the discount framing had little or no effect. For the high price items showing the price with discount in dollars was significantly more effective than showing the discount in percentage. In light of these inconsistent findings, we propose to test the following hypotheses:

Hypothesis 1A. *For low price products, consumers perceive price promotions presented as a percentage discount as no different from those shown as an absolute monetary value ($).*

Hypothesis 1B. *For high price products, consumers perceive price promotions presented as an absolute monetary value ($) as more attractive than those shown in percentage format.*

It has been shown that socioeconomic and demographic variables do not explain the preference of consumers to choose to purchase a product by paying in

installments. Queiroz (2007) presents evidence that the effect of presenting the payment in installments (framing effect) over the presentation of the cash value occurs in almost all groups. Thus, regardless of a consumers' socioeconomic profile, there is an effect from the presentation or framing of the payment method in the consumers' preference. LeBoeuf and Shafir (2003) show that individuals who tend to think more, that is, who are more rational show greater consistency in their choices. These are people who notice the relationship between the alternatives presented and are inclined to choose those configured similarly. However, this need for cognition did not prevent individuals from suffering from the influence of the framing effect.

Other studies have shown that knowledge or experience in a particular area does not necessarily prevent the operation of the framing effect. In one study, the participants had to choose between two types of therapies - surgery or radiation therapy. The problems were described in terms of survival rates and mortality rates. The formulation of the problem as survival rate led to a greater preference for surgery. This framing effect occurred both among patients and among physicians. In another survey, it was found that professionals who work with financial planning are just as susceptible as laypersons in relation to the framing of investment strategies. Therefore, most individuals, regardless of their professional experience or academic background, appear to be subject to the framing effect (McNeil et al., 1982; Kahneman, 2003a). Based on the aforementioned studies, it appears that the socioeconomic profile and the need for cognition or experience/background in an area, which could be a proxy for education, do not prevent the operation of the framing effect in the preferences of individuals during the process of the acquisition of some product. Based on this line of reasoning, we hypothesize as follows:

Hypothesis 2A. *Income has no effect on the framing effect of a promotion on consumer choice i.e., high income and low income consumers are equally responsive to the framing effect of price promotions.*

Hypothesis 2B. *Education has no effect on the framing effect of a promotion on consumer choice i.e., high and low educated consumers are equally responsive to the framing effect of price promotions.*

METHOD

In this study, we employed a survey questionnaire to collect the responses from a sample of 400 shoppers in the city of São Paulo in Brazil. The survey was administered during January - February 2013. The survey instrument consisted of two parts: preferences of respondents and questions about their socioeconomic antecedents. The first part included questions designed to elicit information on whether there are any differences in consumer choice in the type of promotion for high price and low price products. The second part of the survey included

queries to ascertain whether there are any differences in the preferences for the type of promotion based on education level and income group. The questionnaire was based on the instruments used in Chen et al. (1998) and Gendall *et al*. (2006).

For the first part of the survey, we selected two products: a low price product (stuffed chocolate cookie) and a high price product (PC laptop). The second part of the questionnaire includes questions of socio-economic nature, such as the income level, region, city, gender, age, marital status, social class derived from the Brazilian Economic Classification Criterion (CCEB) and the level of education. In the questionnaire there were images of three brands of the products selected, and for each of them, one of these three options appears: full price; full price crossed out with a promotion next to it saying "special offer" and "10% off" (for cookies) or "15% off" (for laptops); full price crossed out with a promotion next to it saying "special offer" and "From R$ x to R$ y." The sample consisted of equal proportions of men (50%) and women (50%). The respondents were over 25 years of age, lived in East zone (37%), earned 2.1 to 3 times the minimum wage, completed high school/incomplete higher education and belong to the "class B2". These respondents were approached in different regions of high traffic density in the city of São Paulo.

RESULTS

Hypothesis 1A states that for low price products, consumers perceive the price promotions presented as a discount in percentage terms as more advantageous than those shown in R$. Table 1 shows the choices made by type of presentation of the promotion. Note that the options presented with discount in R$ obtained most choices, with 35.4%, followed by the discount in percentage terms (34.8%).

TABLE 1
Number of Choices* and Confidence Interval by Type of Product Presentation for Cookies

Type of presentation	Number of choices	Percentage of choices (%)
Discount in R$	850	35.4
Discount in percentage	834	34.8
Full price	716	29.8
TOTAL	2,400	100

There is a statistical difference between the proportions of choices of promotions in cash (35.4%) and products without promotion (29.8%) (confidence interval: [2.4%, 8.8%]); and difference between the proportion of choices of products with promotion in percentage (34.8%) and products without promotion (29.8%) (confidence interval: [1.7%; 8.1%]). However, we cannot say that there is

statistical difference between the proportion of choices for promotions in percentage and the proportion of choices for products shown with the discount in R$, since the confidence interval is [-2.7%, 4.0%]. Thus, there is no difference in the impact of the forms of discount on consumer choice.

Although there is no differnce between the impact of discount expressed in percentage terms and in R$, either type of promotion is preferable to the option without the discount. This is not consitent with H1, which postulated that for low price products, consumers perceive the price promotions presented as a discount in percentage as more advantageous than that shown in R$. In the Brazilian context, for low price products, the consumer is apparently indifferent to the form of promotion.

Hypothesis 1B states that for high price products, consumers perceive the price promotions presented in R$ as more advantageous than those shown in percentage format. Table 2 shows the choices by type of presentation of the promotion. Again, a majority of the choices was for the discount in R$ (37.4%), followed by the discount in percentage terms (33.3%).

TABLE 2
Number of Choices* by Type of Product Presentation for Notebook

Type of presentation	Number of choices	Percentage of choices (%)
Discount in R$	897	37.4
Discount in percentage	799	33.3
Full price	704	29.3
TOTAL	2,400	100

When calculating the confidence interval for the difference between the sample proportions, there is a statistical difference between all the three options: proportion of choices for products with discount in percentage (33.3%) and R$ (37.4%) (confidence interval: [0.7%, 7.4%]); proportion of choices for products with discount in percentage (33.3%) and with no discount (29.3%) (confidence interval: [0.8%, 7.1%]); proportion of choices for products with discount in percentage (37.4%) and with no discount (29.3%) (confidence interval: [4.8%; 11.3%]).

In this case, the promotion in the format “From R$ x to R$ y” was more attractive than the promotion shown in percentage, which in turn was better than the product shown with the full price. This is not in line with H2, which states that for high price products, consumers perceive the price promotions presented in R$ as more advantageous than those shown in percentage terms.

Hypothesis 1C seeks to verify whether income affects the pattern of preference for promotion. The classification of social classes was made based on the criterion of PNAD/IBGE, with some additional cuts (from 5.1 to 8 minimum wages, from 10.1 to 15 and from 15.1 to 20). To perform the analysis, we chose to divide the respondents into two large groups, termed 'low income' and 'high income'. Following Prado (2008), we defined the "low income group" as individuals with incomes up to five times the minimum wage (monthly family income up to R$ 3,450) and included 287 people. The high income group refers individuals with income higher than R$ 3,451 per month, and included 74 respondents. For the low price product, the high income group made a greater number of choices for the product with discount (72.3%), as opposed to the 69.8% of choices made by the low income group. The high income group made most of their choices seeking discount in R$ (38.1%); and 34.2% of the options relating to the discount in percentage. The low income group preferred the discount in percentage (35.2%), followed by the discount in R$ (34.6%).

TABLE 3
Number of Choices* Made by Income And Type Of Discount For Cookies

		Low income	Low Income Percentage	High income	High Income Percentage
Presentation	In R$	596	34.6%	169	38.1%
	In percentage	606	35.2%	152	34.2%
	Without promotion	520	30.2%	123	27.7%
	TOTAL	1,722		444	

To check whether there is an association between how the product is presented and the household income, we conducted a chi-square test. We tested the independence of the variables "presentation of the discount" with "high income and low income group." The p-value (Pearson Chi-Square) found was 0.364, that is, it cannot be said that there is a relationship between the form of presentation of the product and the income level. Table 4 shows the confidence intervals of 95% calculated for the differences in the form of presentation of the products that were part of the relationship that integrated the questionnaire.

Within the low income group there is a difference in proportion between the choices for discount in percentage and product with full price; discount in R$ and full price. Both forms of discount stand out in relation to the product without discount, however, there is no distinction between them. For the high income group, only the discount in R$ differs from the product without promotion; the discount in percentage does not differ from the product without discount.

TABLE 4
Confidence Intervals Calculated for the Differences in Proportion of Choices By The Form Of Presentation Within The Sample For Cookies

	Low income	High income
Discount in R$ and in percentage		
Difference between proportions	-1%	4%
Confidence Interval (+) =	3%	12%
Confidence Interval (-) =	-5%	-4%
Discount in percentage and full price		
Difference between proportions	5%	7%
Confidence Interval (+) =	9%	14%
Confidence Interval (-) =	1%	-1%
Discount in R$ and full price		
Difference between proportions	4%	10%
Confidence Interval (+) =	8%	18%
Confidence Interval (-) =	1%	3%

For high price product, by analyzing Table 5, we note that both high income and low income groups showed similar behavior, preferring the discounts presented by the brands in R$. The chi-square test confirms that there is no association between income groups and the preference for the type of discount (p-value equal to 0.424).

TABLE 5
Number of Choices* Made by Income Level and Type of Discount for Notebook

		Low income	Low Income Percentage	High income	High Income Percentage
Presentation	In R$	634	36.8%	167	37.6%
	In percentage	570	33.1%	157	35.4%
	Without promotion	518	30.1%	120	27.0%
	TOTAL	1,722	100%	444	100%

Table 6 shows the confidence intervals of 95% calculated for the differences in the form of presentation. Note that within the high income group, there is a statistical difference between the proportion of choices for the form of

presentation of the product with discount in percentage versus the product without discount; and between the proportion of choices for the discount in R$ and the full price. We cannot state that there is statistical difference between the proportion of choices made for the discount in percentage and in R$. However, the options with discount clearly stand out with regard to the option of full price. The evaluation of the proportions within the low income group showed that there is statistical difference only between the proportion of choices made for the discount in R$ and full price. That is, the promotion in percentage does not differ from the presentation without promotion.

To evaluate the Hypothesis 2B , we used the organization of the respondents into two groups, called "incomplete higher education" (people who have concluded high school and/or incomplete higher education) and "complete higher education" (people who have completed higher education and/or postgraduation). In this study, the group of low level of education has 304 people and the group of high level of education has 96 individuals.

TABLE 6
Confidence Intervals Calculated for the Differences in Proportion of Choices by the Form of Presentation Within The Sample for Notebook

	Low income	High income
Discount in R$ and in percentage		
Difference between proportions	4%	2%
Confidence Interval (+) =	8%	10%
Confidence Interval (-) =	-0.2%	-6%
Discount in percentage and full price		
Difference between proportions	3%	8%
Confidence Interval (+) =	7%	16%
Confidence Interval (-) =	-1%	1%
Discount in R$ and full price		
Difference between proportions	7%	11%
Confidence Interval (+) =	11%	18%
Confidence Interval (-) =	3%	3%

For the low price product, by analyzing Table 7, we note that both groups had a very similar preference for the two types of promotional incentive: the amount of choices for the promotion in percentage is very close to the number of those who

chose the discount in R$. Table 7 shows the number of choices made based on the form of presentation organized by education group.

In fact, the chi-square test confirms that there is no relationship between the education group and the preference for the type of discount offered by the product announced (p-value equal to 0.785, higher than 0.05). Table 8 shows the confidence intervals of 95%, calculated for the differences of proportions of choices for the form of presentation, for the groups incomplete higher education and complete higher education.

Both groups had the same result in the test of difference in proportions. Both the discount in R$ and in percentage differentiate from the product without promotion, but there is no differentiation between the types of promotional incentive. In the case of high price products, by analyzing Table 9, we note that the groups had similar preferences regarding the type of promotion. In both cases there is a preference for the discount in R$, followed by the discount in percentage.

Table 7
Number of Choices* Level of Education and Type of Discount for Cookies

		Incomplete higher education	Percentage with incomplete higher education	Complete higher education	Percentage with complete higher education
Presentation	In R$	646	35.4%	204	35.4%
	In percentage	628	34.4%	206	35.8%
	Without promotion	550	30.2%	166	28.8%
	TOTAL	1,824	100%	576	100%

From Table 9, there appears to be no difference in preference for the type of discount for notebook. By making the chi-square test, it was found that the preference for the type of discount does not depend on the level of education (p-value equal to 0.619, higher than 0.05). Still regarding the sample related to the notebooks, Table 10 brings confidence intervals of 95% calculated for the differences in the form of presentation for both groups, with incomplete and complete higher education.Note that within the group of higher level education, only the discount in R$ differs from the full price, with no distinction between the proportion of choices for the discount in percentage or in R$. Also, there is no disparity between the proportion of choices of discount in percentage or full price. As for the group with lower level of education, we note that the discount in

R$ stands out both in relation to the product without discount and the product with discount in percentage.

TABLE 8
Confidence Intervals Calculated for the Differences in Proportion of Choices for the Form of Presentation Within the Sample for Cookies

	Incomplete higher education	Complete higher education
Discount in R$ and in percentage		
Difference between proportions	1%	0%
Confidence Interval (+) =	5%	7%
Confidence Interval (-) =	-3%	-7%
Discount in percentage and full price		
Difference between proportions	4%	7%
Confidence Interval (+) =	8%	13%
Confidence Interval (-) =	1%	0.4%
Discount in R$ and full price		
Difference between proportions	5%	7%
Confidence Interval (+) =	9%	13%
Confidence Interval (-) =	2%	0.1%

TABLE 9
Number of Choices* Level of Education and Type of Discount for Notebook

		Incomplete higher education	Percentage with incomplete higher education	Complete higher education	Percentage with complete higher education
Presentation	In R$	680	37.3%	217	37.7%
	In percentage	603	33.1%	196	34.0%
	Without promotion	541	29.7%	163	28.3%
	TOTAL	1.824	100%	576	100%

TABLE 10
Confidence Intervals Calculated for the Differences in Proportion of Choices for the Form of Presentation Within the Sample for Notebook

	Incomplete higher education	Complete higher education
Discount in R$ and in percentage		
Difference between proportions	4%	4%
Confidence Interval (+) =	8%	11%
Confidence Interval (-) =	0.4%	-3%
Discount in percentage and full price		
Difference between proportions	3%	6%
Confidence Interval (+) =	7%	12%
Confidence Interval (-) =	-0.2%	-0.7%
Discount in R$ and full price		
Difference between proportions	8%	9%
Confidence Interval (+) =	11%	16%
Confidence Interval (-) =	4%	3%

DISCUSSION

This paper seeks to understand the effect that the presentation of prices has on consumers. As previously explained by Smith and Nagle (1995), the determination of prices should involve not only the price level, but also how the price is shown to the consumer. Several studies have been conducted in the United States and Europe, but this subject remains relatively unexplored in Brazil.

Due to the bounded rationality, people are susceptible to the framing effect and evaluate equivalent promotions in different ways (in this case, percentage and R$). According to the statistical analysis performed, the promotion shown in R$ proved to be more attractive than the promotion shown as a percentage for the high price product. Possible explanations for such behavior are consumer aversion to processing low discounts and the greater difficulty associated with calculating percentage discounts.

Grewal *et al.* (1996) and Hardesty and Bearden (2003) suggest that consumers process information according to an inverted U curve of reaction to price promotions. This means that when the price discount is low, people are less likely to evaluate the information thoroughly since the price promotion has low

monetary value. Similarly, when the discount is high, they also tend to process less information because there is less uncertainty about the advantages of making the deal. However, in situations that present moderate discounts, there is a great amount of uncertainty about the deal, and therefore consumers are more likely to process the information in a more elaborate and careful manner. Since the study involved a low discount level (10% and 15%), it is possible that individuals did not receive enough stimulation to process this information and opted for the discount in R$ because it presented the final price of the product.

Another plausible explanation refers to the fact that the discount shown as a percentage requires a more complex processing than the discount in the cents-off format (which is similar to the R$ format used in this study, "from R$ x to R$ y"). According to Delvecchio *et al*. (2007), when consumers are exposed to a promotion, the probability that they will calculate a new price depends on the ease of the calculation.

To identify the new price resulting from a promotion in the cents-off form, the consumer needs to know the regular price and subtract the discount from it. Subtraction is a relatively easy calculation, and that results in great accuracy. On the other hand, a discount shown in the percentage-off format (equivalent to "10% off" in this study) requires an additional procedure for processing. The percentage must be multiplied by the base price in order to find out the discount amount. Additionally, the multiplication process is relatively difficult, which makes the percentage discount more difficult to calculate when compared to the discount in monetary terms. This difficulty could make individuals less likely to keep the revised price.

Consumers may be uncertain about the resulting price because they do not make the effort to perform the mental arithmetic required to transform the percentage format into a metric of price. Moreover, even if the new price is calculated, the added difficulty to evaluate the promotion as a percentage may result in lower confidence in the calculated price. The discount in R$ already shows the final price of the product, which eliminates this uncertainty in the calculation of the promotion as a percentage.

In the case of the low price product, there was no difference between the discount in R$ and the discount in percentage, which indicated very similar percentages of choice, with a difference of only 0.7% of preferences. A possible explanation is that for a low price product with a relatively low discount (only R$ 0.17), the preference for the brand was important to the choice and the discount had little effect. These findings are in line with the study of Gendal *et al*. (2006) which states that for low price products, a form of promotion is virtually irrelevant; and that for high price products, the form with greater preference would be for the discount in R$.

There is no significant difference in preference for the type of discount among the various income and education groups. Even though the differences in preference are not very significant, it is interesting to note that there may be some change in behavior for the different income groups. For the cookies, the high income group tends to prefer the discount in R$, while the low income group is indifferent about the type of promotion. For the high price product, both groups prefer the promotion in R$. However, in the high income group both discounts differ from the product without a promotion, and in the low income group only the option with the discount in R$ differs.

The chosen method has some limitations. Although it tries to simulate reality, the research does not replicate a real purchase situation. In practice, the brands with discounts may have different signaling in order to attract the consumer's attention to the price reduction, and people may react differently to different stimuli. Additionally, we chose a limited number of products, brands and forms of promotion. The actual shopping environment offers a much wider variety than the environment depicted in this study. It should also be taken into consideration that several factors not addressed in this study (payment methods, retailer, customer service, etc.) may change the consumer preferences at the time of purchase. Finally, we only interviewed people living in the city of São Paulo. This limits the generalization of the findings of this study.

This study makes several contributions to the understanding of the framing effect of promotions on consumers. However, future studies are required to better understand this subject. For instance, studies could analyze the effects of promotions on other types of products, such as comparing products that can be stored for a long period of time (e.g. sweet grocery) with perishable products; or analyzing different types of promotions, such as volume promotions ("buy 3 and get 1 free" or "500 ml extra") or promotions with free gifts. Other possibilities include varying the intensity of the discount by using greater values than between the range of 10% and 15%. The possibilities to extend the scope of our study are immense and worthy of fruitful pursuit.

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