How consumers respond to missing a quantity discount with multiple price breaks

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ABSTRACT

This study investigates how consumers evaluate and respond to different discount schemes (i.e., one versus multiple price breaks) in the wake of a missed quantity discount. Two field experiments are conducted. The results demonstrate that promotions with multiple price breaks (e.g., 2 for 30% off and 3 for 40% off) will result in a higher likelihood of purchasing one item at the regular price than promotions with only a single price break (e.g., 2 for 30% off) when a quantity discount is missed. The results of Experiment 2 reveal that increasing the number of price breaks (i.e., from two to three) can strengthen the assimilation of the advertised regular price into consumers’ internal reference price range when there is a greater interval between the two price breaks (e.g., 2 for 30% off, 5 for 40% off, and 8 for 50% off) and that subsequently raises consumers’ purchase likelihood if they are not able to take advantage of the promotional price. Finally, the effect of the discount scheme on purchase likelihood is shown to be mediated by the internal reference price. These observations have important implications for retailers. Copyright © 2016 John Wiley & Sons, Ltd.

The offering of a quantity discount is a fundamental pricing strategy in marketing. This occurs when the unit price is lowered with the purchase of larger quantities. For example, UNIQLO, a fashion apparel retailer, offers a “2 for 30% off” promotion (a quantity discount with a single price break) for their $25 shirts. ZARA, another popular clothing retailer, makes the following offer for a purchase of shirts at $25: “2 for 30% off and 3 for 40% off” (a quantity discount with two price breaks). The price break occurs when there is a change in the price offered (Benton, 1985). Retailers offer quantity discounts with one or multiple price breaks in an attempt to influence the consumers’ perceptions of the price and thereby entice them to purchase at least two, instead of one single unit of a product (Benton and Park, 1996). From the retailer’s perspective, the additional purchase will not only compensate for the lower profit margin because of the price discount, but will also serve to increase overall profit as a consequence of increasing the sales volume (Teng, 2009).

Although quantity discounts have been shown to be effective in terms of increasing sales volume, the outcome is not always positive (Wansink et al., 1998; Foubert and Gijsbrechts, 2007; Manning and Sprott, 2007). Several studies have examined the adverse effects of quantity discounts on the consumer side (Gu and Yang, 2010; Yoon and Vargas, 2010; Wu et al., 2012). Yoon and Vargas (2010), for example, found that consumers may experience frustration and feel worse when their expectation of receiving a quantity discount is not met. Wu et al. (2012) demonstrated that consumers who fail to receive a quantity discount reported the highest perceptions of unfairness and negative emotions. In another study, Gu and Yang (2010), after examining scanner panel data related to purchases of two major brands of light beer, concluded that quantity-discount-induced losses have a significant impact on consumer buying behavior.

Obviously, the quantity discount can be a double-edged sword. Consumers may perceive it as a gain when buying larger package sizes with lower unit prices, or as a loss when buying smaller package sizes with higher unit prices (Gu and Yang, 2010). Although the adverse effects of quantity discounts have been highlighted in several studies (Gu and Yang, 2010; Yoon and Vargas, 2010; Wu et al., 2012), the contextual influences that govern how consumers react in the wake of a missed quantity discount have not been systematically studied. More importantly, the best way for retailers to communicate price promotions so as to lessen the detrimental impact of quantity discounts on the consumers’ purchase decisions has not yet been investigated.

There is much evidence showing that consumer evaluations of price offers are heavily influenced by the decision context and situational cues (Aggarwal and Vaidyanathan, 2003; Rondan-Cataluña and Martin-Ruiz, 2011; Yoon and Vargas, 2011; Huang and Yang, 2015). This suggests that the form in which the quantity discount is expressed may change the consumers’ price estimates and subsequent consumption decisions. Accordingly, the objective of this study is to investigate whether and how the form of the quantity discount scheme (one versus multiple price breaks) plays a role in determining consumers’ buying decisions when the discount mentioned in the promotion is missed because the minimum purchase requirement is out of reach. The aim is to explore conditions that may diminish the negative influence of a quantity discount when a reduced price is missed and to examine the underlying mechanisms for this phenomenon.

Two field experiments are carried out. In the first experiment we establish whether consumers who cannot take advantage of the quantity discount are more likely to purchase one product unit at the regular price when the offer involves multiple price breaks (e.g., 2 for 30% off and 3 for 40% off) than only a single price break (e.g., 2 for 30% off).
In the second experiment we examine whether increasing the number of price breaks will enhance the purchase likelihood of the consumer who has missed out on the quantity discount when the purchase quantities between the two price breaks (i.e., the interval size) are larger rather than smaller (e.g., a “2 for 30% off, 5 for 40% off, and 8 for 50% off” promotion). Finally, we test whether the effect of the discount scheme on purchase likelihood is mediated by the consumer’s internal reference price. The results should not only assist retailers in designing better promotional communication strategies but also make a broader contribution to the marketing literature by providing insight into the contextual influences that govern how consumers respond to the retailer’s quantity discount advertising when they fail to receive a lower promotional price.

THEORETICAL BACKGROUND

In a quantity discount advertisement (e.g., “Regularly $25. Now 2 for 30% off”), consumers are generally exposed to the pairing of an advertised regular price ($25) with a sale price (30% off) in an attempt to make the sale price more attractive and to lure consumers to purchase larger quantities during a single shopping trip. However, intensively highlighting information about the sale price can have negative effects. One such negative effect could be that providing people with information about a price reduction will lead to a decrease in the consumers’ internal reference price and, consequently, reduce their likelihood of purchasing an item at the regular price when they cannot take advantage of the quantity discount (Bambauer-Sachse and Dupuy, 2012).

To the consumers, the reduced price is an external cue notifying them that the retailer can afford to offer a lower price. Although consumers do not usually know the retailer’s cost structure, the disclosure of the price discrepancy provides a clue that leads them to infer the retailer’s cost structure, the disclosure of the price discrepancy, and, consequently, reduce their likelihood of purchasing an item at the regular price when they cannot take advantage of the quantity discount (Wu et al., 2012). In other words, the lower sale price affects the consumers’ beliefs as to what the product is worth to them. For example, when encountering a quantity discount promotion such as “Regularly $25. Now 2 for 30% off”, they may infer that this price covers product costs and that the profit margin is greater than 30%. This expectation leads them to negatively evaluate the full price when the quantity discount is retracted and ultimately results in a reduction in sales.

This is an unintended consequence of offering quantity discounts with one single price break. Although it is reasonable to offer lower prices for larger quantities and higher prices for smaller orders, consumers who miss out on a quantity discount seem unaware that they ought to pay a higher price because they are purchasing fewer than the quantity specified. In this study we propose a novel strategy to weaken the negative impact of quantity discounts on consumers’ purchase decisions, namely, to offer quantity discounts with multiple price breaks such as “2 for 30% off and 3 for 40% off” instead of one price break. Multiple price breaks can serve as a contextual cue, an interpretive frame that reminds the consumers of the real meaning of a quantity discount—that is, different quantities will result in different prices. Thus, even if the consumers miss out on the quantity discount, the regular price for a single product item will be considered plausible and thus accepted and assimilated into the internal expected price range, which in turn will encourage them to purchase. Adaptation-level and assimilation-contrast theories offer some insight into this process.

Strength of assimilative processes

In adaptation-level theory (Helson, 1964) it is assumed that the consumers judge the stimuli, such as the quantity discount, in relation to their own internal reference price. An internal reference price is a weighted average of prior product prices that can be retrieved from memory or constructed using retrieved and currently available information (Kan et al., 2014). According to adaptation-level theory, the consumers’ internal reference price represents adaptation to three classes of cues: focal cues are those cues to which a consumer responds directly, contextual cues are all other stimuli within which the focal cue functions, and organic cues which pertain to the inner physiological and psychological processes that affect behavior (Monroe, 1990). In a quantity discount context, the advertised regular price and sale price are focal cues, whereas the wording “Regularly ___. Now N for ___” is the contextual cue.

Assimilation-contrast theory postulates that consumers have a latitude of acceptance in their beliefs concerning price (Sherif and Hovland, 1961; Sherif, 1963). Retailer-supplied reference prices (e.g., advertised regular price and sale price) that fall within this latitude are considered reasonable and thus assimilated, and the internal reference price is adjusted toward the retailer-supplied reference prices. On the other hand, retailer-supplied reference prices falling outside the latitude are considered implausible (i.e., not believable) and are thus contrasted. A contrast effect has little impact on the internal price range. According to this theory, contextual factors influence the acceptance of the retailer-supplied reference prices as valid by setting the circumstances in which consumers perceive reference prices (Lichtenstein et al., 1991).

The implication derived from adaptation-level and assimilation-contrast theories is that although a sale price may cause the consumer to adjust their internal reference price downward or even replace it, the ability of the regular price to increase the internal expected price range depends on contextual cues. In other words, changing the description of “Regularly ___. Now N for ___” (i.e., the contextual cue) in a quantity discount advertisement may strengthen the influence of the regular price on the internal reference price when the lower sale price is missed. However, the question arises as to what kind of changes should be made to strengthen the degree of assimilation so that the consumers’ internal reference price will be adjusted toward a higher regular price?

The literature on assimilation effects shows that judgments about an ambiguous target stimulus (internal
reference price) are more likely to assimilated to a contextual cue when the cue acts as an interpretive frame, rather than a comparison standard (Bless and Schwarz, 2010). When a contextual cue is used as an interpretive frame, it suggests values for missing information about the target, giving rise to assimilation effects. When a contextual cue is used as a comparison standard, it anchors the scale to evaluate the target, giving rise to contrast effects (Can et al., 2014). Stapel et al. (1998), for example, investigated the effects of different types of priming on evaluations of restaurants and clothing stores. Their results showed that “when the context elicits an abstract product attribute, this information is used as an interpretation frame and product evaluations may be assimilated toward the activated information. On the other hand, when concrete and comparable exemplar information is activated, this information can be used as a comparison standard and target product evaluations are likely to be contrasted with the activated information” (p. 2). In short, contextual information is used to construct mental representations of the target, which results in assimilation effects. Accordingly, changes can be made to strengthen the contextual cue’s assimilation effect by offering the cue as an interpretive frame in quantity discount advertising.

A quantity discount with multiple price breaks (e.g., “2 for 30% off; 3 for 40% off”) can be considered an interpretive frame. This is because through repeatedly illustrating the relationship between purchase quantities and discounted prices, the contextual cue activates associations that can be used to interpret the meaning of a subsequently presented price (Bless and Schwarz, 2010). Consequently, consumers may note that different discounts are given for the same price, leading to an assimilation effect that will help the consumer discount is missed.

H1: Consumers missing out on the quantity discount will show greater willingness to purchase one item at the regular price under a multi-price break discount scheme than a one-price break discount scheme.

H2: The effect of the discount scheme on purchase likelihood is mediated by the internal reference price (i.e., a consumer’s expected price) when a quantity discount is missed.

EXPERIMENT 1

The objective of Experiment 1 is to explore the basic pattern of consumer purchase of one product at the regular price after losing out on a quantity discount with two price breaks in comparison a single price break. To establish the actual consumption context we provided a selection of 20 different designer t-shirts for sale at a fictitious online clothing store (www.MyTees.com.tw), with one- and two-price break versions of the quantity discount scheme offered on alternating days, and measured the sales volume each day. A fictitious e-shop was used in order to control for the possible confounding effect of website reputation. Online apparel shopping was selected for several reasons (Huang and Yang, 2015): (i) quantity discounts are a commonly used promotional strategy among clothing retailers, and a single-unit price and multiple-unit price are easily comparable by consumers. More importantly, the policy of the retailer is to not allow the consumers to obtain the discount when less than the designated amount is purchased; (ii) the probability of not meeting the minimum purchase requirement and thus failing to obtain the quantity discount is high in this industry, because the styles, colors, or sizes of interest to the consumers are often out of stock; (iii) undergraduate students are real-life consumers who purchase their own clothes at such online stores; (iv) it is easier to control the experimental setting (e.g., stock situation) in an e-shop than it would be in a brick and mortar shop. We expect that consumers who fail to receive a quantity discount will be more likely to purchase one product item at the full price when the promotion has two price breaks than when it has a single price break.

Method

Participants were approached individually at several places on a university campus (cafeteria, bookstore, library, etc.). They were given a flyer with an advertisement that stated that a new online t-shirt specialty shop is promoting designer t-shirts and anyone who is interested can receive a special offer from September 2 (Monday) to 29 (Sunday). There is no shipping charge for any size order. Over a period of 4 weeks, two forms of quantity discount advertisements were presented, alternating between one- and two-price break quantity discount schemes from day to day. In the one-price break condition, the quantity discount was described as “Sale! Regularly NT$329. Now 2 for 30% off!” (US $1 = NT$30); in the two-price break condition, the promotion was framed as “Sale! Regularly NT$329. Now 2 for 30% off and 3 for 40% off!” The regular price and sale price(s) in a quantity discount advertisement appeared in the same font.
size and were physically positioned in a vertical (columnar) format.

Unknown to participants, some styles, colors, or sizes were controlled, so there was only one or zero units, to ensure that they had a low chance of finding suitable choices to fulfill the retailer’s minimum purchase requirement to receive the quantity discount. We observed whether participants who could not obtain the quantity discount would still purchase one t-shirt at the full price (NT$329) for a one- versus two-price break promotion. At the end of the day, we calculated how many t-shirts were sold at the undiscounted price. In all, we obtained 14 measurements for the one-price break and 14 for the two-price break sales amounts. Finally, upon completion of the experiment, participants were informed and their assistance gratefully acknowledged in an e-mail about the study they had unknowingly participated in. In addition, they were later offered the benefit of the reduced price (NT$329 × 30% off = NT$99) if they had purchased a single item of the product at the full price.

RESULTS

The analysis of this study closely followed the methodology of Geier et al. (2006). We paired the actual sales amounts of single items with the regular price sold on corresponding days; that is, we compared the first Monday with the second Monday, the third Monday with the fourth Monday, and so on. We then computed the ratio of sales amount on each day of the week, generating fourteen ratios (i.e., two-price break sales amount divided by one-price break sales amount). If the discount scheme had no effect, the predicted ratio in a t-test would be 1.00. The mean ratio was 1.92, t(13) = 14.79, p < 0.001, and all 14 ratios were greater than 1.00 (p < 0.001, binomial). The results were consistent with our expectations that participants in the two-price break condition would be more likely to purchase a single item at the regular price than those in the one-price break condition after missing out on the quantity discount (Figure 1). Therefore, H1 was supported. We obtained initial support for the expected pattern of one-price versus two-price break sales in a field setting.

Discussion

The results from Experiment 1 demonstrate that offering a quantity discount with multiple price breaks can encourage more purchases at the regular price compared than offering one with a single price break to consumers who have failed to obtain the lower promotional price. The rationale behind this is that multiple price breaks serve an interpretive function, resulting in assimilation. Although these findings are consistent with the assimilation explanation, we have yet to provide direct evidence that multiple price breaks cause consumers to shift their internal reference prices or that such processes mediate the effect of the discount scheme on purchase decisions. This mediation analysis is employed in Experiment 2.

In this field experiment, we used an advertisement with two price breaks (e.g., 2/3 for 30/40% off) and then examined consumer responses to the missed quantity discount. The results were as hypothesized: multiple price breaks lessened the negative impact of the quantity discount when the reduced price was missed. Two questions arise from the results: Does increasing the number of price breaks enhance the assimilation effect (e.g., offering a three-price break quantity discount such as “2/3/4 for 30/40/50% off”)? Or is it necessary to increase the levels of purchase quantities between the two price breaks (i.e. the interval size) to enhance the effect (e.g., offering a “2/5 for 30/40% off” instead of “2/3 for 30/40% off”)? We propose that increasing the number of price breaks while simultaneously magnifying the purchase quantity interval will intensify the size of the assimilation effect and thus raise the likelihood of purchase for one product at the regular price when a reduced price is missed.

Enhancing multi-price break effectiveness

The number of price breaks represents the amount of purchase quantity-sale price descriptive statements. More price breaks offer more detailed purchase quantity-sale price descriptive information to the consumer (e.g., a “2/3/4 for 30/40/50% off” or “2/5/8 for 30/40/50% off” quantity discount). This information makes the retailer’s pricing policy more systematic and transparent so that the consumer can make a more diagnostic interpretative framework from which to construct an internal reference price (Kan et al., 2014). Schwarz and Bless (2007) argued that the size of the

Figure 1. T-shirts sold per day when the quantity discount was missed (Experiment 1).
assimilation effect increases with the amount of contextual information added to the representation of the target. Therefore, including extra purchase quantity-sale price statements may lead to a greater assimilation effect. Thus, a three-price break promotion is likely to be more effective in increasing the purchase likelihood than a two-price break promotion in the case of a missed quantity discount. However, as we will explain in the succeeding texts, this effect also depends on the interval size.

The interval size is the discrepancy in the purchase quantity between two price breaks. It helps consumers understand how many units a specific discount is worth. For example, a “2/3/4 for 30/40/50% off” (small interval) quantity discount implies that buying one extra unit is worth a 10% discount, while a 2/5/8 for 30/40/50% off (large interval) quantity discount indicates that purchasing three extra units are worth a 10% discount (i.e., one extra unit is about 10 ÷ 3 = 3.33% off). Based on this information, consumers can surmise the retailer’s cost structure and normal profit margins, which in turn will affect their price estimate for a single product item when a quantity discount is missed. Specifically, a large interval will lead to a lower discount level expectation than a small interval (e.g., 3.33% off versus 10% off). In other words, the interval size influences the magnitude of the internal reference price adjustment. Past studies have confirmed that consumers form an internal reference price based on logically relevant facts (Lichtenstein et al., 1988).

As mentioned previously, a three-price break quantity discount is expected to amplify the degree of assimilation more than a two-price break promotion will. However, this effect is found when the interval size is large rather than small. When the interval size is small, consumers in both of the two- and three-price break discount schemes report a similar internal reference price and purchase likelihood. This is because consumers in either a “2/3 for 30/40% off” (two-price break) or “2/3/4 for 30/40/50% off” (three-price break) quantity discount may figure out that a 10% discount is earned from buying one extra unit; therefore, 20% off should be given when purchasing a single unit product (from 2 to 1 unit is 30–10% = 20%). In contrast, when the interval size is large, the internal reference price and purchase likelihood will vary for different multi-price break conditions. Although a “2/5 for 30/40% off” (two-price break with large interval) quantity discount may also lead to an adjustment of the internal reference price toward the advertised regular price, the change will not be as intense as for a 2/5/8 for 30/40/50% off (three-price break with large interval) promotion. This is because the additional price break for a larger, more extreme order quantity (8 for 50% off) not only gives a more systematic and transparent rule regarding the retailer’s pricing policies but also emphasizes that the percentage discount is only provided to someone who can buy a high volume (Allenby et al., 2004). Therefore, when a quantity discount is not available, a higher advertised regular price for a single product appears more reasonable and credible to the consumer. Researchers have shown that assimilation effects increase with the extremity of the included contextual information (Schwarz and Bless, 2007). This assimilation process will heighten the consumers’ internal reference price and purchase likelihood. Put differently, a three-price break quantity discount is more influential when the purchase quantity interval is large rather than small. Accordingly, we hypothesize the following:

H3: Consumers who fail to receive a quantity discount with a large interval size will have a greater desire to purchase the product at the regular price when the discount scheme has three- rather than two-price breaks. However, there will be no difference in purchase likelihood between the three- and two-price break discount schemes when the interval size is small.

EXPERIMENT 2

Experimental design and stimuli

The hypotheses were investigated using a 2 (discount scheme: two- versus three-price break) × 2 (interval size: small versus large) + 1 (one-price break) between-subject experimental design. The two-price break discount scheme was described as “X for 30% off; Y for 40% off,” and the three-price break was described as “X for 30% off; Y for 40% off; Z for 50% off” (the prices were positioned in a vertical format as indicated in the succeeding texts). Three-price break was selected for experimental manipulation because this form of quantity discount is frequently utilized by clothing stores, followed by the two-price break. Four- or five-price break quantity discounts are rarely used by apparel shops; therefore, they were not considered in our experiment. This design mirrored a real-world setting.

The interval size manipulation represents the difference in quantity between the two price breaks, in which consumers see a one-unit quantity difference between the two price breaks in the small interval condition (i.e., X = 2, Y = 3, and Z = 4) or a three-unit quantity difference in the large interval condition (i.e., X = 2, Y = 5, and Z = 8). In all cases the product’s regular price was included (NT$499 per shirt). Only one suitable shirt was found (because certain styles, colors, or sizes of interest were sold out), meaning the consumer did not qualify for the quantity discounts. For example, participants in the three-price break and large interval condition were asked to imagine the following scenario. This role-playing approach has been successfully used in a number of quantity discount studies (e.g., Manning and Sprott, 2007; Yoon and Vargas, 2010; Huang and Yang, 2015).

You are in a clothing store. The store is offering a seasonal promotion that includes various stylish shirts. These shirts are regularly priced at NT$499 and are now offered at

<table>
<thead>
<tr>
<th>Discount Level</th>
<th>Price</th>
<th>Margin</th>
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<tbody>
<tr>
<td>2 for 30% off</td>
<td>NT$3499</td>
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<tr>
<td>5 for 40% off</td>
<td>NT$3499</td>
<td>40%</td>
</tr>
<tr>
<td>8 for 50% off</td>
<td>NT$3499</td>
<td>50%</td>
</tr>
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</table>

After looking around the store you find one nice shirt, but because the discount is not available when purchasing less...
Sample and procedures
Consumers at a large-sized shopping center in Taiwan were recruited as volunteers. Advertisements were posted on bulletin boards at each entrance. Volunteers were offered a small gift (about NTS100 in value) for participating. The surveys were run on a Thursday, Friday, and Saturday, so that both weekday and weekend consumers could be polled. Each respondent was given a survey kit consisting of a questionnaire and a randomly chosen scenario. The instructions asked participants to imagine themselves as the consumer in the scenario.

A total of 200 individuals took part in the survey. Of these, 21 responses were eliminated from the analysis because of incomplete data. The 179 remaining responses were divided into five treatment groups, ranging in size from 35 to 37. The average age of participants was 36.9 years (SD = 8.7), and 58.7% were female. Of these participants, 67% reported that they had missed out on a quantity discount at a clothing store in a way that was very similar to that described in the scenarios.

Measures
After reading the scenario, participants were asked to indicate the likelihood that they would buy the undiscounted shirt on a 7-point scale ranging from 1 = very unlikely to 7 = very likely (Huang and Yang, 2015). Next, to collect information on the participant’s internal reference price, an open-ended question was used: “What price do you think is reasonable for this shirt? $____” (Wu et al., 2012).

In addition, responses about price perception (“The price of NTS100 that the clothing store is asking for the shirt is? 1 = low/acceptable and 7 = high/unacceptable”, r = 0.78, borrowed from Koukova et al., 2012), prior experience with missing quantity discounts at a clothing store (“How often have you found yourself missing quantity discounts at a clothing store? 1 = rarely and 7 = frequently), and average amount spent on clothing purchases (“How much do you generally spend on clothes monthly?”) were collected as possible covariates. At the end of the survey, participants were asked to complete some demographic information. As these covariates and demographic variables had no significant effect, they were excluded from further analysis.

RESULTS

Manipulation checks
To assess the discount scheme manipulation, participants were asked to indicate the number of different prices the clothing store offered for a discount when purchasing different quantities. The t-test results (Mtwo-price break = 2.03 versus Mthree-price break = 2.94, t(140) = −18.85, p < 0.001) showed that the manipulation was perceived as intended. To assess the interval size manipulation, participants were asked to indicate the perceived quantity difference between the two price breaks: “I think the quantity difference from one discount to the next discount is” 1 = low/easy to approach; 7 = high/difficult to approach (r = 0.91). The t-test results (Msmall interval = 3.92, Mlarge interval = 5.56, t(140) = −7.21, p < 0.001) revealed that the manipulation was effective.

Hypotheses testing
A two-way analysis of variance (ANOVA) on purchase likelihood with discount scheme and interval size as independent variables was conducted to test the hypotheses. As expected, the ANOVA results showed a significant main effect on the purchase likelihood, F(2, 176) = 6.20, p < 0.01. The Scheffé test results revealed significant differences between the one-price versus two-price break scheme (Mone-price break = 3.54 versus Mtwo-price break = 4.32, p < 0.05) and one-price versus three-price break scheme (Mone-price break = 3.54 versus Mthree-price break = 4.61, p < 0.01), such that participants in both the two-price and three-price break discount schemes scored higher levels of likelihood to purchase one product at the regular price than those in the one-price break condition. Therefore, H1 was supported.

In accordance with H3, there was a significant two-way interaction between discount scheme and interval size for purchase likelihood, F(1, 138) = 4.12, p < 0.05. None of the other findings were significant. The plot of the interaction for the likelihood of purchase (Figure 2) showed that under conditions with a large purchase quantity interval, participants in the three-price break group (i.e., 2/3/4 for 30/40/50% off) were more willing to buy one undiscounted product item than those in the two-price break group (i.e., 2/5 for 30/40% off) (Mtwo-price break = 4.25 versus Mthree-price break = 5.03, t(69) = −2.43, p < 0.05); whereas under conditions with a small purchase quantity interval, participants in the three-price (i.e., 2/3/4 for 30/40/50% off) and two-price break groups (i.e., 2/3 for 30/40% off) did not experience significantly different levels of purchase likelihood with discount scheme and interval size as independent variables was conducted to test the hypotheses.

Figure 2. Interaction between the discount scheme and interval size (Experiment 2).
Comparison standard, with which to construct a scale that is used to judge the internal reference price and thus giving rise to contrast. Our results add to current literature by showing that people can simultaneously consider multiple reference points (price breaks) in their price judgments after losing out on a quantity discount. Further, multiple reference points will reduce the impact of the missed discount as the reference point.

In Study 2, we extended the number of price breaks from two to three. Results again corroborated that consumers who fail to receive a quantity discount are more willing to buy one product at the regular price when the promotion has multiple (either two or three) price break points rather than one. Moreover, the data revealed that with three price breaks consumers reported higher levels of purchase likelihood than with two price breaks when the discrepancy in purchase quantity between the two price breaks (i.e., interval size) is large (e.g., 2/5/8 for 30/40/50% off vs. 2/5 for 30/40% off). However, when the interval size is small, there is no difference between three and two price breaks (e.g., “2/3/4 for 30/40/50% off” versus “2/3 for 30/40% off”). These findings contribute to our understanding of assimilation effects: the size of the assimilation effect increases with the amount and extremity of contextual information included in the representation of the target (Bless and Schwarz, 2010).

Finally, the statistical results demonstrate that the effect of the discount scheme on purchase likelihood is mediated by the consumers’ internal reference price. That is, the retailer’s quantity discount advertisement presented in the purchase environment offers contextual cues that lead consumers to infer the seller’s cost structure and adjust their internal reference price accordingly. This revised internal reference price is used as a reference against which they evaluate the actual offering of the product, which in turn alters purchase probability. Our results are consistent with previous findings in reference price research that consumers do not perceive retailer-supplied reference prices in isolation; perceptions of retailer-supplied reference prices also depend on the context in which perception occurs (Monroe, 1990; Lichtenstein et al., 1991; Rondan-Cataluña and Martin-Ruiz, 2011; Yoon and Vargas, 2011; Kan et al., 2014; Huang and Yang, 2015).

We can summarize our contributions to the current marketing literature as follows: First, this research examines and enhances our understanding of consumers’ actual purchase behavior when they lose out on a quantity discount, an important and under-investigated topic. Second, our results indicate that different quantity discount schemes (one versus multiple price breaks) influence consumers’ perceptions and behaviors in cases when they are unable to avail themselves of the promotional price. Third, we propose a novel strategy for weakening the negative impact of a missed quantity discount on consumers’ purchase decisions, namely, to offer quantity discounts with two-price or three-price breaks instead of one price break. Fourth, we demonstrate that there is an interaction between the number of price breaks and the interval size. Specifically, increasing the number of price breaks will exert a stronger influence on the internal reference price and purchase likelihood when the interval size is large but not when it is small. Finally, the evidence presented shows that the internal reference price

CONCLUSIONS

This paper explores how quantity discounts with one versus multiple price breaks influence the consumer’s internal reference price and purchase decisions in the wake of a missed quantity discount. Two field experiments are conducted. The results of Experiment 1 demonstrate that quantity discounts with two price breaks (e.g., “Regularly $25. Now 2 for 30% off and 3 for 40% off”) result in a higher likelihood of purchasing a product at the regular price than quantity discounts with a single price break (e.g., “Regularly $25. Now 2 for 30% off”). This finding is important as it shows that the number of price breaks in a quantity discount serves as a contextual cue that influences how consumers evaluate an advertised regular price ($25) and use it to adjust their internal reference price upward or downward when a reduced price is missed. Specifically, when the contextual information includes multiple price breaks, it is viewed as an interpretive frame, suggesting value for missing information about the internal reference price and thus giving rise to assimilation. In contrast, when the contextual information contains only one price break, it is viewed as a comparison standard, with which to construct a scale that is
mediates the effect of the discount scheme on purchase likelihood.

Managerial implications

Several implications for retailers can be drawn from the results. First, our findings indicate that consumers use the discount schemes as contextual cues for evaluating the advertised regular price when a quantity discount is missed, meaning that the number of price breaks as well as the interval size warrant the retailers’ careful consideration. The pattern of findings shows that it is easier for consumers to accept quantity discounts with multi-price breaks rather than one-price break after having to forgo a lower promotional price. Moreover, when the interval size is larger, increasing the number of price breaks will result in higher purchase likelihood as opposed to when the interval is small. Although Gu and Yang (2010) indicated that sellers do not consider quantity-discount effects when setting prices, our results suggest that properly determining how many price breaks and how their corresponding prices are offered, as well as the order quantity for each price break, will help to attract consumers even if they do not buy enough to qualify for the price reduction. Briefly, in the context of a missed quantity discount with multiple price breaks, the interval size may be viewed as an attempt by the retailer to communicate to the consumer where to locate their internal reference price (i.e., at what dollar amount), while the number of price breaks associated with the purchase quantity-sale price information represents an attempt to communicate to consumers why they should locate their internal reference price at that particular advertised regular price. By manipulating the number of price breaks and interval size, retailers can increase consumers’ internal reference price and thus purchase likelihood.

It is important to note that one of the main reason retailers use quantity discounts is to increase sales volume and profit. Retailers who become familiar with the results of our study may also want to know whether quantity discounts with multiple price breaks will have a more positive effect on sales volume and profit than those with one price break. Although this research was not designed to answer this question, Khouja’s (1995) study on the newsboy problem in the apparel industry did reveal that the multiple price-break quantity discount scheme provides higher expected profit than a single price-break quantity discount. Hence, it is beneficial to use multiple price breaks when offering quantity discounts as this strengthens the positive effect and minimizes the negative effect of quantity discounts.

It should also be noted that losing out on a quantity discount is not a special case. Nearly 70% of our participants have had such an experience (refer to data in Experiment 2). Although the existing research encourages the wide-spread use of quantity discounts, the retailer should be aware of the intense negative influences on consumer emotion and behavior when the reduced price is missed. To diminish the harmful impact of missing out on quantity discounts, we offer several suggestions to retailers. Not only the number of price breaks but also the interval size can be strategically managed. Our research results thus shed light on the best way to express a quantity discount.

Limitations and directions for further research

There are numerous opportunities for future research in this area, some of which arise from the limitations of this study. For example, across our experiments, only a single product category (clothes) is involved. Future research including other types of merchandise is needed to generalize our findings. Second, although the number of price breaks and interval size were selected based on the actual practice of clothing retailers (e.g., UNIQLO and ZARA), it is important in the future to replicate the findings with other values. For example, what would be the difference when the purchase quantity interval between two price breaks is regular versus irregular (e.g., 2/5/8 for 30/40/50% off versus “2/5/10 for 30/40/50% off”)? What would be the impact when the size of the discount for each price break is low versus high? Finally, there are many ways quantity discounts can be framed, but we focused on the percentage-off format (e.g., 2 for 30% off) commonly employed in the real world (DelVecchio et al., 2007). Future research could determine the influence of other forms of quantity discount framing such as the total-exchange (e.g., 2 for $35) and dollar-off formats (e.g., 2 for $15 off). Previous studies have shown that individuals’ internal reference price and behavioral reaction are affected by changes in how a price promotion is framed (DelVecchio et al., 2007; Bambauer-Sachse and Dupuy, 2012).

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