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How Evaluations of Double Discount Are Influenced by Discount Level: The Role of Anchoring and Systematic Computational Error

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Abstract

Double discount is an effective format for promoting purchase decisions comparing to single discount (economically equivalent). However, previous studies have overlooked how the discount level applied affects consumers' processing. This study details how consumers evaluate double discount and use different processes according to discount level (low, medium and high), this study extends understanding of computational error and anchoring & Adjustment processes: Low discount leads consumers to anchor on the first piece of information. Medium and high discount instead induces computational error. This paper reveals better ways for managers to present double discounts in markets. Finally, the paper concludes with a present implications, limitations, and directions for future research.

Keywords: Pricing, Double Discount, Single Discount, Deal Evaluation, Discount Level.

Introduction

Price promotion is a very common marketing strategy to attract consumers by providing an extra value or incentive, which boost consumers to purchase the promoted products immediately (Grewal et al., 1998). Extant literature showed that choices could be influenced by the framing of decision alternatives (Kahneman & Tversky, 1974; Thaler, 1985). For instance, framing studies have confirm that different ways of price promoting can influence behavioral intention, (Levin & Gaeth, 1988) found that consumers' intention of purchasing ground beef was higher when the ground beef was described in terms of its percent lean more than its percent fat. Similarly, (Chen et al., 1998 ; Kim and Kramer, 2006 ; Krishna et al., 2002 ; Chen et al., 2012) have found that consumers evaluate their deals differently relying on how the promotion offer has been presented. (e.g., discount location, price discounts, bonus packs, price presentation dollars-off, percentage-off). However, such researches have mostly focused on single discount scenarios.

This paper uses a relatively form of price promotion on a single product verse double discount. A double discount is defined as two discounts offered simultaneously that can be combined to create a bigger discount than any of the single discount equal in percentage (Ammar & Alleil, 2019). For example, if a product X has a regular price of \$300, and a consumer gets a discount of 20% plus additional discount 10%, the double discounts may be perceived as 30 %

because the consumer does not realize that the first percentage change shifted the base price. To determine the value of double discounts such as “an additional discount of 10% on top of an original discount of 20%,” the overall discount is $1 - (1 - 20\%) * (1 - 10\%) = 1 - 72\% = 28\%$.

Literature Review

Price Framing

Price framing: is how the offer price is communicated to consumers (Chen et al, 1998). While “Framing effect” refer to the finding that subjects often respond differently to different descriptions of the same problem (Frisch, 1993). Researchers (Kahneman and Tversky, 1979; Thaler, 1985) have confirmed that the message framing of decision promotion problems can affect consumers’ decision making and cognitive judgments. Many studies have been focused to the framing of promotion discounts in consumption behaviors, for example (Hardesty and Bearden, 2003) found that for small and medium-sized promotions, consumers were indifferent between price discounts and bonus packs, but for large promotions, they preferred price discounts. (Chen et al., 1998) compared the (Percentage off Vs dollar off). They found that for high priced product consumers will see a price reduction framed in dollar terms as more significant savings than when it is expressed in percentage terms, and that the opposite would be true for low priced products.

Double Discount

Previous research on double discounts has been scarce. But (Chen and Rao, 2007) present preliminary insights into the double discounts effect. They argued that Double discounts engorge consumers’ perception of promotion offer and purchase intentions compared to an economically equivalent single discount, and they referred to Systematic Computational Error, where participants added percentages without recognizing that the first percentage have changed the base price. Similarly, (Schley, 2013) confirmed that double discounts enhance consumers’ purchase intentions compared to not economically equivalent single discount and referred to “Perceived rarity of the discount”, where Consumers get attracted to the double discounts without engage in task calculation. On contrast (Davis and Bagchi, 2018) found that double discount leads consumers to anchor on the first discount presented to them and insufficiently adjust the evaluation based on the second discount, which Predicts lower Perception of deal evaluation associated with double discounts.

However, neither paper attempted to understand the underlying process consumers go through when evaluating double discount. Are the discount level influence the way consumer process double discount?

Discount Level

Discounts signal at least two things to consumers, financial gain (price reduction) and potential risk (low quality, old model) the effect of price discount may vary depending on the level of discount. (Lichtenstein et al., 1993) found that semantic cues had a greater effect when the discount was approximately 33 % than when it was about 10 %. -Apparently, the focus or extent of consumers’ processing of this type of message is contingent on the magnitude of discount. Similarly, (Grewal et al., 1996) suggests that discount size may affect consumers' motivation to process the additional information contained in a price promotion. In another word, when the discount size is perceived to be low, consumers are unlikely to expend the cognitive effort needed to process additional information because the price

promotion is deemed to be of little value. But when the discount size is judged to be acceptably, consumers are expected to process additional information in the price promotion.

Double Discount Processing

The approaches used by consumers to process double discounts can vary relying on the different consumer characteristics and particular situations. E.g. cognitive skills, information overload, Time constraints (Dhar and Nowlis, 1999; Suri and Monroe, 2003) or even factors embedded in the decision context e.g. the nature of the numbers involved (Thomas & Morwitz, 2005) can lead to difficulty in performing the required computations. (Thomas & Morwitz, 2009). Showed that when computations are involved with pricing, consumers may rely on heuristic processing and the estimations of final price are often inaccurate and systematically distorted, they find that magnitude differences are judged smaller when computations are harder (e.g., $4.93 - 3.92 = 1.01$) versus easier (e.g., $4.00 - 3.00 = 1.00$) because harder computations are less fluent. In the context of double discounts consumers may depend on heuristic processing (Chaiken, 1980) such as processing strategies (Computational error, Anchoring and adjusting) which lead to estimations of final price are often inaccurate and distorted.

1- Systematic Computational Error

Consumers may perceive each discount to be independent of each other, therefore are likely to add the individual discounts together to estimate the overall discount. For example, if a product x has a regular price of \$300, and a consumer gets first discount of 15 % off plus additional discount 10% off, the double discounts may be perceived as 25% off because the consumer does not realize that the base price for the second discount has decreased. (Ammar & Alleil, 2019) demonstrated that consumers prefer double discount 25% & 20% over economically equivalent single discount 40%, because consumers tend to determine the actual final price using addition as a heuristic processing and results in an upward bias regarding the overall discount level. Similarly (Chen & Rao, 2007) found that a larger proportion of participants (59%) Erroneously added percentages without recognizing that the base price for the second discount has decreased. Similarly, (Chen et al., 2012) demonstrated that consumers may neglect the base values of percentages in their judgment for a variety of reasons (e.g. cognitive skills, information overload), which lead to upward bias regarding the overall discount level. Even though both (Ammar & Alleil, 2019; Chen & Rao, 2007) predicted larger Perceptions of offer with double discounts, this finding is not clear with different discount levels (low, medium).

2- Anchoring and Adjustment

Another heuristic process is for consumers to pay attention to the first discount just partial and ignore the second discount. For example, when consumers see the price promotions “get 20% discount off” and “an additional 15% off,” consumers may suspect the second discount or less attention due to some factors e.g., cognitive skills, information overload, Time pressure, motivation, etc (Suri and Monroe, 2003) Consequently, they would focus their attention on the first discount and ignore the second discount. If this happens, consumers conclude a smaller discount than an economically equivalent single discount. And, underestimation of the overall discount would result and consumers would perceive double discount offers less favorably. This underestimation may occur when some of the discounts provided within the double discounts offer are very small (5%) or consumers are mentally

taxed (Bettman, Johnson, and Payne, 1991) for example, in processing 15% plus additional discount 5% off, 15% would get attention. In contrast, 5% off looks trivial and might escape consumers' information processing entirely. (Tversky and Kahneman, 1974) illustrates these effects. When two groups of students estimated two numerical expressions (1, 2,3,4,5,6,7,8 vs. 8, 7, 6, 5, 4, 3, 2, 1). Participants anchor on the first piece of information as a "starting point" to make initial judgments, and then fail to update those judgments to account for subsequent information. (Davis & Bagchi, 2018) showed that participants anchor on the first discount (11%) and insufficient adjustment with the second discount (4%).

Based on the arguments discussed above, three hypotheses are assumed:

H1:

When double discounts are presented, consumer's deal evaluation lower with double discounts compared to an economically equivalent single discount, at discount level (low).

H2:

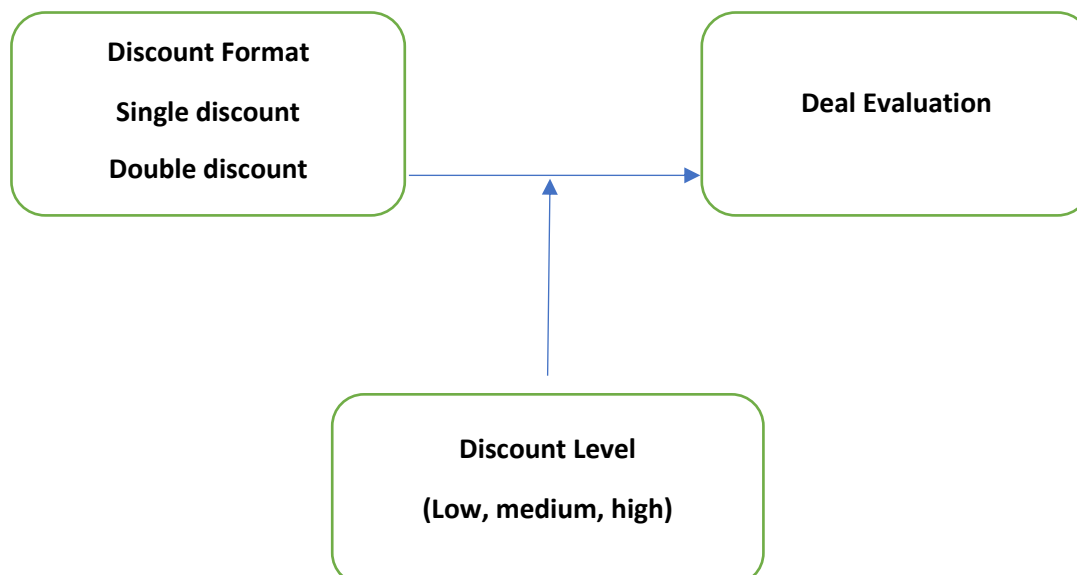
When double discounts are presented, consumer's deal evaluation higher with double discounts compared to an economically equivalent single discount, at discount level (medium).

H3:

When double discounts are presented, consumer's deal evaluation higher with double discounts compared to an economically equivalent single discount, at discount level (high).

Research Model and Variables

Figure 1: Hypothesized model of the Effect of Independent Variable on Dependent Variable, and the moderating role of discount level.



Methodology

This study examined whether the discount level in which the double discounts were presented influenced consumer's transaction value. Moderating variable that could affect consumer perceptions of price promotions in this study is the discount level. The discount level may motivate different evaluation processes of the price discounts. An experiment of 2

(discount format: single discount, double discounts) X 3(discount level: low, medium, high) between subjects design was used

Pretests

3 pretests were conducted to determine the product type, product Price and discount level to be used in the main study, Product type as stimuli (sport shoes), product price (SYP 25,000), and Three discount levels, and two discount formats (single discount vs. double discounts) at each discount level (low discounts: 10% vs. 6% +4%; medium discounts: 28% vs. 20%+10%; high discounts: 40% vs. 25%+20%). The data for the empirical study were obtained from a controlled experiment involving undergraduate and post graduate students.

Measures

Deal evaluation were measure by two items: “How good of a deal is this sport shoes?” “How good are these discounts?” (1=“ Not good at all”; 7=“ very good” for both); is based on (Davis & Bagchi, 2018).

Accuracy Measure Question: Based on (Chen et al, 2012) this question was used to reveal the processing approach in Percentage Changes (Computational error or anchoring and adjusting). What is the percentage discount you are getting?

- 20%
- 10%
- 30%
- 28%

Sample and Procedure

Data were collected from a 300-student sample at higher institute of Languages (Syria). Participants were randomly assigned between six conditions. 10 participants dropped from the final analysis, leaving 290 participants in the analyses.

Data Analysis and Evaluation

The data obtained during the study was analysed and interpreted using SPSS 24.0, Reliability analysis of deal evaluation scale (Cronbach's alpha=0.92), mean, frequency distribution and percentage for sample, the demographic data of the sample used in analysis is shown in Table (1).

Table (1) Demographic data of the sample

Demographics	Frequency	Percentage (%)
Gender	290	%100
Male	116	%40
Female	174	%60
Age		
Less than 18	9	%3
18-24	217	%75
25-30	52	%18
More than 30	12	%4
qualification		
Secondary/Institute	17	%6
college	261	%90
post graduate /Master	12	%4
post graduate /Ph.D.	-	-

Hypotheses Test

An analysis of variance (ANOVA) with deal evaluations as the dependent variable confirms the predicted two-way interaction ($F(5.793)$, $p < .05$). Contrast analysis showed that in the low discount condition single discounts was associated with larger perception of deal evaluation than double discounts but the results reversed in the discount level (medium, high), H1, H2, H3 are supported. Table 2 shows the means for dependent variable across conditions.

Table (2) The Effect of Discount Format and discount Level on Dependent Variable

Dependent variable	Discount format	Discount level					
		Low		Medium		High	
		Mean	SD	Mean	SD	Mean	SD
Deal Evaluation	Single	3.68	1.11	4.2813	1.13	5.31	1.19
	Double	3.17	1.11	4.8021	1.31	5.83	1.37
	Sig	.027		.041		.048	

*The mean difference is significant at the 0.05 level

Conclusion

Discussion

The results of Study provided tentative support for the hypotheses that (a) double discounts lower perception of deal evaluation compared to an economically equivalent single discount, the finding consistent with the anchoring and adjusting in that double discounts, which led to significantly reduced deal evaluation. Where a large proportion of participants 76% anchored on the first discount (6%) and ignored the second discount (4%). Similarly, (Davis & Bagchi, 2018) found that when two discounts appear simultaneously, consumers anchor on the first discount and insufficiently adjustment for second discount. In the discount level (medium, high) double discount higher perception of deal evaluation compared to an economically equivalent single discount, where a large proportion of participants 90% erroneously added percentages (25% & 20%) which led to higher perception in deal evaluation. Although (Chen and Rao, 2007) found that a larger proportion of participants

(59%) erroneously added percentages without recognizing that the first percentage has changed the base price.

Implications

We offer suggestions for how to communicate percentage value information, two sets of theories seemed to be at work. One is anchoring and adjustment that consumers tend to use especially when the discount level is low. The second is systematic computational error, which is more obvious with (medium, high) discount level.

One of the most interesting contributions of this research is that, deal evaluation is significantly higher in double discount over compared with economically equivalent single discount promotion at discount level (medium, high). Many firms may be unaware to the outcomes of using double discounts. That seek to encourage the purchase or sale of a product or service. From our findings, it is suggested that double discounts are better used at discount level (medium, high) than an economically equivalent single discount.

Limitations and Future Research

There are many ways to offer double discounts at the same time (Simultaneously) or temporally separated (sequentially), would the discount presentation mode influence the way consumer's process double discounts? Other variables may influence the way consumer's process double discounts (Perceived quality, Perceived Savings). what are the implications of such a message on price and quality perception? What roles do product features and consumer characteristics play in these situations? More research is needed to answer this question.

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