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Effect of Quality Uncertainty, Regulatory Focus, and Promotional Strategies on Perceived Savings for Sustainable Marketing

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Abstract: Quality uncertainty is one of the major challenges for new products entering a market. Companies launching new products may consider price-related promotions to stimulate consumer purchases. Prior studies have investigated the impacts of quality uncertainty and price-related promotions on consumer behavior. However, studies that consider quality uncertainty and price-related promotions on consumers' perceived savings based on regulatory focus are rare. Therefore, this study aims at investigating the impacts of price-related promotions (price discount and value-added promotion), quality uncertainty (high vs. low), and regulatory focus (promotion vs. prevention) on perceived savings. Survey studies were conducted, and results were analyzed. The results indicate that when quality uncertainty level is high, perceived savings for price discount and value-added promotions are higher for promotion-focused consumers compared with prevention-focused consumers. By contrast, when quality uncertainty level is low, perceived savings for price discount and value-added promotions are higher for prevention-focused consumers compared with promotion-focused consumers. The results of this study are expected to assist companies in introducing new products to develop sustainable price-related promotions.

Keywords: quality uncertainty; regulatory focus; price-related promotions; perceived savings

1. Introduction

It is truly believed that new products provide an important opportunity for business expansion and market entry for existing and new firms, respectively. Therefore, it is important for firms to develop new products that meet consumers' desires for sustainable business. Consumers with different demographic characteristics have diverse desires that quickly change [1]. As a result, countless new products are released into the market, and competition becomes fiercer. However, new products' failure rate is considered high. A total of 40% of new products fail at the introduction stage, and only 10 to 15% are considered commercially successful [2]. Therefore, it is important for firms to develop effective promotion strategies to survive in the highly competitive market.

Quality uncertainty may be one of the major challenges facing new products entering a market. The challenge can be greater for new firms due to less brand awareness. Insufficient information can be the main cause of product quality uncertainty that significantly influences the consumer decision-making process [3,4]. Consumers without sufficient information about the new product may hesitate to purchase. Thus, when firms release a new product, they should provide external stimuli, such as advertising and other promotional activities, to stimulate initial consumer purchases, which subsequently influence consumer demand through positive word of mouth [5,6].

Price promotion activities influence consumers' expectation and purchasing attitude [7–9]. Firms can expect increased sales performance by conducting price-related promotions as it can

reduce customer sacrifice [10–12]. Therefore, firms should consider price-related promotions when launching a new product with quality uncertainty. However, price-related promotions have various negative effects. Repeated promotional pricing can degrade price, reducing the lowest price that consumers are willing to pay for a given product, reduce the product's perceived value, and change consumers' demand pattern leading forward buying [13]. In addition, various price-related promotions impact consumer behavior depending on consumers' personality, such as the regulatory focus [14–17]. Therefore, firms must choose price-related promotions with significant positive effects on sustainable marketing management.

In addition, numerous studies have investigated the impacts of quality uncertainty and price-related promotions on consumer behavior [11,18–20]. However, studies that simultaneously consider the impacts of quality uncertainty and type of price-related promotions (direct price discount and value-added promotion) on consumers' perceived savings that depend on the regulatory focus are rare. Price-related promotions can be perceived as either a reduced loss or an increased gain. Given that consumers' motivation can be aimed at either loss avoidance or gain pursuit, depending on the regulatory focus, a difference in value perception and attitude toward price-related promotions can occur [16,21,22]. Therefore, although many variables, such as involvement, knowledge, confidence level, etc., significantly affect consumer purchasing decisions, regulatory focus is considered a significant variable of those actively used in the recent literature on consumer behavior and pricing [23]. Thus, this study aims to investigate how consumers' perceived savings for direct price discount and value-added promotion vary based on product quality uncertainty level and the regulatory focus.

Firms launching new products in a market face the major challenge of quality uncertainty as consumers may hesitate to purchase products with uncertain quality. Firms cannot sustain in the market without sales. Business sustainability is defined as “the ability of firms to respond to their short-term financial needs without compromising their ability to meet their future needs” [24]. Effective price-related promotions can create initial consumer demand during a product's introduction stage by compensating for quality uncertainty risks, and they can subsequently provide opportunities to create long-term business value. To maximize the effect of price-related promotions, the impact of such promotions on consumer behavior as well as how the effect varies among consumer characteristics must be determined. Therefore, the results of this study are expected to assist firms launching new products in developing price-related promotional strategies and enabling business sustainability.

This paper is comprised of five sections. Section 1 introduces the background and significance of the research. Section 2 provides a comprehensive review on existing studies of regulatory focus theory, quality uncertainty, price-related promotions, and consumer behavior and develops research hypotheses. Section 3 presents the research methodology and results of study 1 that investigates the effect of price discount on perceived savings based on regulatory focus and quality uncertainty. Section 4 presents the research methodology and results of study 2 by investigating the effect of value-added promotions on perceived savings based on regulatory focus and quality uncertainty. Finally, Section 5 draws the conclusions of this paper, including theoretical and practical implications and limitations.

2. Literature Review and Hypotheses

2.1. Regulatory Focus Theory

Higgins [21,25] suggested that the regulatory focus is basically founded on the idea that people pursue pleasure and avoid pain to achieve their goals. However, people do not simply pursue pleasure and avoid pains but rather control their motivation to pursue pleasure and thus avoid pain. The concept of regulatory focus theory classifies people into promotion- and prevention-focused based on how they control their motivation. Promotion-focused people pursue pleasure by focusing on the affirmative outcomes that they can achieve. They take active and positive behavior to achieve positive outcomes with strong ideals and hopes when solving a problem, keep the right answers they

perceive, and experience pleasant emotions if successful outcomes are achieved. They aim for progress, achievement, and pleasure and have an active and challenging attitude toward goal accomplishment. On the contrary, prevention-focused people emphasize safety, responsibility, and duty among others by preventing risks and avoiding negative outcomes. They tend to behave passively to avoid risks by emphasizing the absence of negative outcomes when solving a problem and prevent errors [25].

It is argued that consumers' problem-solving approaches and emotional responses vary, depending on their regulatory focus [15,16]. Prior studies have found that consumer responses to commercial messages (e.g., price-related promotions, advertising messages) can also vary, depending on regulatory focus. For promotion-focused consumers, a gain-oriented message that directs them toward an ideal situation is effective. By contrast, for prevention-focused consumers, messages that focus on loss avoidance are more effective due to the larger psychological mechanism that is needed to avoid a poor outcome [15,22,23]. Although there have been numerous studies related to price-related promotions, the role of consumer motivation in the effect of such promotion had received little attention to date. There is recently increasing interest in the role of consumer motivation (i.e., regulatory focus) on the effect of marketing strategies [16].

2.2. Quality Uncertainty

Uncertain quality that consumers perceive before their purchase is related to insufficient information [3]. A certain product's quality uncertainty increases when consumers have insufficient information or lack experience of using the product [26,27]. Consumers value the perceived risk that may occur after purchasing their desired product because they recognize quality uncertainty [28]. Therefore, consumers naturally feel anxious in uncertain circumstances and thus reduce quality uncertainty for products by accessing various pieces of information. Quality uncertainty is an important factor to consider at the purchase stage of consumers [29].

Quality uncertainty, which consumers may perceive in the purchase decision-making process, refers to when they either lack knowledge about the product or are unsure of the purchase outcome. A high level of quality uncertainty has a significant influence on purchasing behavior [20]. In general, consumers tend to avoid quality uncertainty, and consumers with a high tendency to avoid quality uncertainty may postpone their purchasing decision at the point of purchase. Therefore, quality uncertainty can be a barrier to completing purchasing decisions [15]. Before purchasing the product that consumers have never experienced, they reduce quality uncertainty for such a product through accessing sufficient information. Consumers can gather information in a much easier and faster way than before through the Internet; thus, they can check information about product reviews of other consumers, thereby reducing the risk for quality uncertainty [23,30].

2.3. Price-Related Promotions

Price rapidly obtains consumer response compared with other marketing activities. Price is a concept that opposes benefits that companies provide to consumers and monetary costs, a factor that requires customer sacrifice [10,11]. Therefore, if price decreases, the required customer sacrifice to obtain the product reduces. As a result, market demand increases, resulting in rapid rise in sales. However, as mentioned above, companies should carefully develop promotional pricing because price reduction leads to negative effects [13]. Price-related promotions can be classified into direct price discount and value-added promotion [31]. Direct price discount is a strategy that allows consumers to recognize the purchase costs reduced by temporarily lowering the original price to increase consumer demand and sales [31–33]. Direct price discount refers to providing price discounts based on the original price at the time of purchase, for example, 30% and 50% discounts from the original price for a certain period [31].

In contrast, value-added promotion is an indirect price discount that provides benefits to consumers through additional value at the same price. Examples of value-added promotion are free-gift, bonus pack, and buy one, get one free, etc. [31]. Direct price discount provides monetary

benefits, whereas value-added promotion provides non-monetary benefits that focus on the additional value that consumers obtain [33]. When a monetary discount is provided, consumers perceive the promotion as reduced loss, whereas when a non-monetary discount, such as value-added promotion, is provided, consumers perceive the promotion as increased benefits [33]. Prior studies found that consumers prefer direct price discount compared with value-added promotion [34,35] as people are more sensitive to losses than gains [36]. If the price-related promotion period is short, then the effect of direct price discount is higher than that of value-added promotion. However, if the promotion period extends, then the product's value can be negatively affected. Therefore, if the promotion period is long or if companies conduct a promotion repeatedly, the negative effects of value-added promotion reduce compared with direct price discount [13,31].

2.4. Prior Studies on the Effects of Quality Uncertainty, Price-Related Promotions, and Regulatory Focus on Consumer Behavior

Prior studies on the effects of quality uncertainty, price-related promotions, and regulatory focus on consumer behavior are available. Earlier studies [11,18,37] suggested that when consumers have insufficient product quality information, they tend to perceive high prices, which indicate high product quality. Consumers with limited product information use price as an important determinant of product quality. Snoj, Korda, and Mumel [19] investigated the relationship between perceived quality, value, and risk. They found that perceived quality positively affects perceived value, and perceived risk decreases as perceived value increases. Nguyen, Jeong, and Chung [20] studied how price, price discount rate, and quality uncertainty influence consumers' purchase intention. They found that if consumers' perceived quality uncertainty is low, their purchase intention is high, and when price discount rate is high and the price is low. On the contrary, if consumers' perceived quality uncertainty is high, their purchase intention is high when the price discount rate is low and the price is high.

Prior studies have investigated consumer behavior influenced by regulatory focus. Aaker and Lee [14] investigated the impacts of regulatory focus on consumers' perceptions of promotional strategies. They found that when consumers are promotion-focused, advertising messages that emphasize product benefits (i.e., gain) are more effective than those that emphasize loss prevention. Conversely, when consumers are prevention-focused, advertising messages that emphasize loss prevention have more positive effects on brand attitude than those that emphasize product benefits. Similarly, Ramanathan and Dhar [38] found an interaction effect between saving message and regulatory focus, that is, promotion-focused consumers are more sensitive to "get" whereas prevention-focused consumers are more sensitive to "save." Promotional messages relating to gain are more persuasive to promotion-focused consumers, whereas messages relating to loss are more persuasive to prevention-focused consumers [39]. Kim and Cheong [15] investigated the impacts of the type of advertising message and quality uncertainty on promotional effects. They found that value-added promotion has higher purchase intention when the advertising message is gain-focused. By contrast, direct price discount has higher purchase intention when the advertising message is loss prevention-focused. In addition, when quality uncertainty is low, consumers express higher purchase intention for value-added promotion. In contrast, when quality uncertainty is high, consumers show higher purchase intention for direct price discount. Their research structure is similar to that of this study. However, they used advertising message direction (promotion vs. prevention) as a moderating variable, while consumers' regulatory focus was not used as a variable.

Kim and Ryu [16] studied the effects of tensile pricing strategy and regulatory focus on consumers' perceived savings. They compared maximal (e.g., up to 40%) and minimal price claims (e.g., at least 10%) and found that promotion-focused consumers expressed higher perceived savings for maximal price claims, whereas prevention-focused consumers showed higher perceived savings for minimal price claims. Although uncertainty and risk are high, promotion-focused consumers prefer maximal price claims because of potentially large success [40]. Furthermore, the effect of promotion-based process can be influenced by consumers' regulatory focus. Promotion-focused consumers showed

higher purchase intention for partitioned pricing compared with all-in-one pricing. Conversely, prevention-focused consumers showed higher purchase intention for all-in-one pricing compared with partitioned pricing [41]. Nam, Kim, and Suh [42] found that purchase intentions for private brand (PB) and national brand (NB) are higher for promotion-focused and prevention-focused consumers, respectively. The higher the price discount rate of PB, the higher the purchase intention of promotion-focused consumers compared with prevention-focused consumers. Quality uncertainty can be higher for PB compared with NB. Therefore, when quality uncertainty is high and as discount rate increases, promotion-focused consumers show higher purchase intention. Ryu [22] found that consumers are more likely to prefer price discount to value-added promotion. The study found that purchase attitude for value-added promotion is higher for promotion-focused consumers than prevention-focused consumers. However, consumers' purchase attitude for direct-price discount was not influenced by their regulatory focus.

As discussed, product quality uncertainty and consumer personality, such as regulatory focus, affect consumers' reactions to promotional strategies. Consumer perception for product quality uncertainty may be higher when insufficient information is provided or when they have no experience of using the product [27]. When consumers' perception for quality uncertainty is high due to insufficient product information, price-related promotions, such as price discount and value-added promotion, may stimulate consumer purchases [10,11]. This condition can be achieved because price-related promotions can reduce consumer sacrifice and risk, hence increasing demand [33]. The positive impacts of price-related promotions vary depending on consumers' regulatory focus [14,16]. When consumers have insufficient product knowledge (i.e., uncertainty is high), they tend to judge the product based on price [18]. According to regulatory focus theory, prevention-focused consumers tend to emphasize safety, prevent loss and risk, and avoid negative results [21,25]. On the contrary, promotion-focused consumers seek pleasure by focusing on positive results that they can achieve [21,25]. Therefore, when product quality uncertainty is high, prevention-focused consumers would feel suspicious about price-related promotions. They may perceive that pricing promotions are unnecessary if the company is confident about the product's quality. Conversely, promotion-focused consumers would seek positive outcomes through price-related promotions by challenging the risks associated with product quality uncertainty. This effect may be applied to direct price discount and value-added promotions.

Regulatory focus theory states that prevention-focused consumers tend to avoid negative results [21,23,30]. When the quality uncertainty is low, consumers' suspicions about a product can be reduced, leading to more confidence in the product. With a low level of quality uncertainty, prevention-focused consumers may perceive price-related promotions as extra savings that further reduce their sacrifices due to the low risk. Conversely, promotion-focused consumers have active and challenging attitudes, which lead to creative thinking and may lead to a high tendency to solve problems via their feelings [21,23,30]. Quality uncertainty can be reduced by having more information about a product, such as consumer reviews. Therefore, the lower the quality uncertainty, the easier it is to judge the results based on other people's opinions rather than actively predicting the results based on creative thinking. Therefore, it is predicted that, when quality uncertainty is low, promotion-focused consumers may show less interest in price-related promotions compared to prevention-focused consumers. Thus, this study hypothesizes as follows:

Hypothesis 1. *When product quality uncertainty is high, perceived savings for price discount are higher for promotion-focused consumers compared with prevention-focused consumers.*

Hypothesis 2. *When product quality uncertainty is low, perceived savings for price discount are higher for prevention-focused consumers compared with promotion-focused consumers.*

Hypothesis 3. *When product quality uncertainty is high, perceived savings for value-added promotion are higher for promotion-focused consumers compared with prevention-focused consumers.*

Hypothesis 4. *When product quality uncertainty is low, perceived savings for value-added promotion are higher for prevention-focused consumers compared with promotion-focused consumers.*

Two studies were conducted to verify hypotheses 1 and 2 and hypotheses 3 and 4, respectively. A laptop and juice products were chosen as sample products for study 1 and 2, respectively. A laptop is considered a high-involvement product that consumers sensitively react to perceive risk due to product purchase. Therefore, the product's importance is high and thus a careful purchase approach is necessary. In contrast, a juice product is considered a low-involvement product in which consumers are likely to be less sensitive to product purchase risks and importance is lower [43]. Prior studies have shown that consumers' perception of price promotions vary depending on products' involvement level. For high-involvement product, acceptance of prices, and perceived price reductions were higher when a high discount rate is proposed [43,44]. However, this high discount reduces high-involvement products' perceived value and increases perceived risk. Contrarily, a high discount increases low-involvement products' perceived value and reduces consumers' perceived sacrifice [43]. For high-involvement products, consumers are more enthusiastic about information search activities compared with low-involvement products [43,45]. Therefore, exploring whether results vary depending on promotion types and involvement level is helpful for this study.

3. Study 1: The Effect of Price Discount on Perceived Savings Based on Regulatory Focus and Quality Uncertainty

3.1. Research Method

3.1.1. Survey Design and Participants

Study 1 aims to verify hypotheses 1 and 2, which examine the effect of price discount on perceived savings depending on regulatory focus and product quality uncertainty. Questionnaire-based surveys were conducted for data collection, and analyses of variance (ANOVA) were used to generate the results. Survey study is the most widely used data collection method for consumer attitudes, preferences, and purchasing behavior. The major advantage of survey study is its flexibility in addressing any marketing questions in different situations [1]. Hypotheses 1 and 2 explore how consumers' perceived savings differ based product quality uncertainty level and regulatory focus. For this, a 2×2 factorial design was conducted to verify this relationship. Product quality uncertainty level (high vs. low) and consumers' regulatory focus (promotion-focused vs. prevention-focused) were used as independent variables.

A total of 204 responses were obtained to test hypotheses 1 and 2. Data were collected using a Google online survey in May 2020. After removing unusable responses, 197 responses were used for analyses. Students of Kookmin University in South Korea mainly participated in the survey. A laptop can be a high-interest product for university students. In addition, it is reported that firms frequently consider cutting initial prices for computers to increase their share in the market [1]. Therefore, a new laptop that is not a well-known brand can be a suitable product for a price discount at the introduction stage to stimulate initial purchases.

The purpose of this study was explained during the class, and they were asked to participate in one of the questionnaires. Questions regarding demographic characteristics, such as age and gender, were asked at the end of the questionnaire. The results indicate that the average age of the survey respondents was 26 years; 90 and 107 participants were male (45.7%) and female (54.3%), respectively.

3.1.2. Variables and Measurements

A five-point Likert scale was used to measure all variables: 1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree."

(1) Quality Uncertainty Level

Two sets of questionnaires were prepared for study 1. Figure 1 shows an advertising for an imaginary laptop, which represents a new product, created as an experimental stimulus. This advertising was shown to the participants for questionnaire 1, whereas the same advertising and five positive consumer reviews were shown to participants for questionnaire 2 to manipulate the difference in perceived quality uncertainty. Then, modified measurements of a prior study were used to check the manipulation [3,20] as follows: (1) *Sufficient information was available to judge the product quality.* (2) *Much useful information regarding product quality is available.* (3) *I can assess the product quality.*



Figure 1. Experimental Stimulus for Study 1.

Thirty percent discount was applied to study 1 based on the following grounds. If companies need a repeated promotion, then the negative effect of direct price discount can be stronger than that of value-added promotion [13,31]. However, a laptop is a high involvement good that does not normally have repeated discount price; the price may be discounted when a brand new product is launched. A prior study used 20% and 40% as examples of low and high discount rates, respectively [44]. This study does not verify the effects of varying discount rates. Thus, this present study selected a medium-level discount of 30%.

(2) Perceived Savings

Three questions were used to measure perceived savings. Perceived savings measure consumer perception on how much they can save through price-related promotions, which were used as dependent variable in prior studies on price-related promotions [16,17,46,47]. Questions used in prior studies were modified as follows. (1) *The offered price discount can help generate high savings.* (2) *The offered price discount allows consumers to have high savings.* (3) *The offered price discount rate is extremely high.*

(3) Regulatory Focus

To measure the participants' regulatory focus, questions used in prior studies were modified [21,23,25,48]. Eleven questions were used to measure the participants' level of being independent, forward-looking, and careful.

Six questions were prepared for promotion-focused as follows. (1) *Compared with the others, I tend to get what I want.* (2) *I think I have accomplished my goals many times through hard work.* (3) *I often try various challenges and achieve them well.* (4) *When an important choice is given to me, I do not care about others'*

opinions and pursue what I think is most ideal. (5) I focus on my success. (6) I tend to do several extracurricular activities or hobbies with much effort.

In addition, five questions were prepared for prevention-focus as follows. (1) I do not often do things that people around me oppose. (2) I tend not to do several things that people around me worry about. (3) I tend to comply with the standards and norms established by people around me or society. (4) I tend not to contradict the people around me. (5) I am always careful in problem-solving.

The difference between the sum of responses of promotion-and prevention-focused questions was calculated to classify respondents into promotion- and prevention-focused consumers. The median value was 3.0; thus, responses equal to or greater than 3.0 were categorized as promotion-focused consumers and prevention-focused consumers otherwise.

3.2. Research Results

3.2.1. Reliability and Validity

The questionnaires used for testing hypotheses 1 and 2 consist of a set of questions. Thus, a reliability analysis was conducted to ensure the consistency of responses as shown in Table 1 below. In addition, Table 2 below shows a factor analysis with a varimax rotation to test the validity of the results. Cronbach's alpha coefficients were all greater than 0.7, and the factor analysis results indicate high validity level.

Table 1. Reliability analysis for study 1.

Variables	Number of Items	Cronbach's Alphas
Quality uncertainty	3	0.919
Perceived savings	3	0.926
Promotion focus	6	0.920
Prevention focus	5	0.931

Table 2. Factor analysis for study 1.

	Factor				Commonality
	1	2	3	4	
Quality uncertainty 1	0.063	0.178	0.157	0.893	0.857
Quality uncertainty 2	0.091	0.160	0.181	0.912	0.899
Quality uncertainty 3	0.050	0.078	0.132	0.899	0.835
Perceived savings 1	0.119	0.007	0.927	0.192	0.911
Perceived savings 2	0.106	0.052	0.927	0.153	0.897
Perceived savings 3	0.050	−0.047	0.896	0.114	0.821
Promotion focus 1	0.830	−0.224	0.102	0.057	0.753
Promotion focus 2	0.861	−0.196	0.050	0.099	0.792
Promotion focus 3	0.847	−0.239	0.100	0.065	0.788
Promotion focus 4	0.676	−0.371	0.056	0.018	0.599
Promotion focus 5	0.839	−0.188	0.051	0.063	0.746
Promotion focus 6	0.753	−0.312	0.053	−0.029	0.668
Prevention focus 1	−0.306	0.839	0.057	0.097	0.810
Prevention focus 2	−0.277	0.833	−0.042	0.078	0.779
Prevention focus 3	−0.252	0.840	−0.017	0.122	0.785
Prevention focus 4	−0.244	0.884	0.004	0.117	0.854
Prevention focus 5	−0.290	0.773	0.022	0.147	0.704
Eigen value	4.296	3.968	2.635	2.599	
Percentage variance	25.270	23.338	15.499	15.291	

3.2.2. Manipulation Check

Only the advertising in Figure 1 was included for questionnaire 1, whereas questionnaire 2 includes the advertising and five positive consumer reviews. Therefore, questionnaire 1 should represent high quality uncertainty level, whereas questionnaire 2 should represent low quality uncertainty level from the consumers' perspective. Three questions were used to check the quality uncertainty level. Quality uncertainty level was measured using three questions and averaged for the analysis. To ensure whether these questions were agreed upon by the respondents, a manipulation check was conducted using independent sample t-tests. The respondents showed higher certainty level on product quality for questionnaire 2 ($m = 3.86$) compared with questionnaire 1 ($m = 2.97$). Hence, a manipulation test was supported ($t(195) = -6.40; p < 0.01$).

3.2.3. Hypothesis Testing

A two-way analysis of variance (ANOVA) analysis was conducted to test hypotheses 1 and 2. The responses for the three questions about perceived savings were averaged and used for the analysis. Table 3 below indicates the ANOVA analysis results, whereas Table 4 indicates the descriptive statistics for perceived savings. Sekaran [49] states that each category requires a minimum sample size of 30 if samples are to be divided into subsamples. Subsamples in this study include quality uncertainty level (high vs. low) and regulatory focus (promotion-focused vs. prevention-focused). Table 4 indicates that sample sizes for all the categories are equal to or larger than 40. Therefore, the sample size is acceptable for analyses.

Table 3. ANOVA test results on perceived savings for study 1.

Source	F-Value	Significance
Quality uncertainty (high vs. low)	4.866	0.029
Regulatory focus (promotion vs. prevention)	0.061	0.805
Quality uncertainty \times regulatory focus	35.929	0.000

Table 4. Descriptive statistics on perceived savings for study 1.

Quality Uncertainty Level	Regulatory Focus	Mean	Std. Deviation	N
High	Promotion	3.76	0.94	58
	Prevention	2.92	1.12	40
Low	Promotion	3.25	0.86	51
	Prevention	4.03	0.83	48

The ANOVA test results indicate that quality uncertainty level and regulatory focus had no significant effect on perceived savings. In other words, two main effects of quality uncertainty level and regulatory focus were not statistically significant, with $p > 0.01$. However, the interaction effects of quality uncertainty level and regulatory focus were significant, with $p < 0.01$ (see Figure 2).

As postulated, when quality uncertainty level is high, promotion-focused respondents showed higher level of perceived savings for price discount ($m = 3.76$) compared with prevention-focused respondents ($m = 2.92$, $F(1, 96) = 16.065$, $p < 0.01$). On the contrary, when quality uncertainty level is low, prevention-focused respondents showed higher level of perceived savings for price discount ($m = 4.03$) compared with promotion-focused respondents ($m = 3.25$, $F(1, 97) = 20.703$, $p < 0.01$). Thus, hypotheses 1 and 2 can be supported.

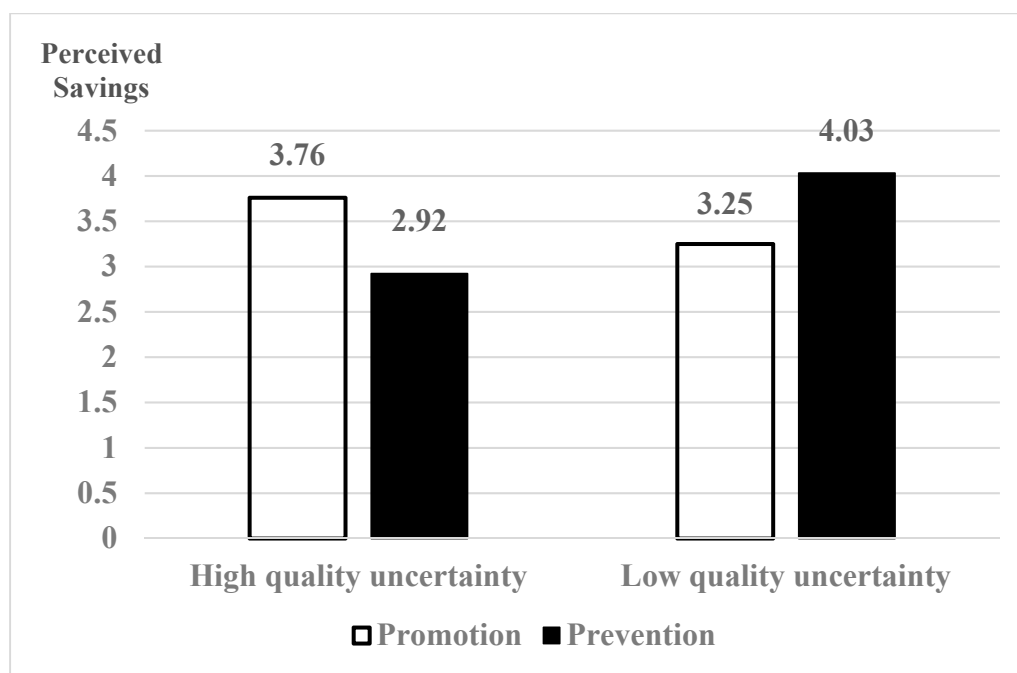


Figure 2. Interaction Effect of Quality Uncertainty and Regulatory Focus for Study 1.

4. Study 2: Effects of Value-Added Promotion on Perceived Savings Based on Regulatory Focus and Quality Uncertainty

4.1. Research Method

4.1.1. Survey Design and Participants

Study 2 aims to test hypotheses 3 and 4; which explore the effect of value-added promotion on perceived savings depending on regulatory focus and product quality uncertainty. Hypotheses 3 and 4 investigate how consumers' perceived savings vary based on quality uncertainty level and regulatory focus. A 2×2 factorial design was conducted to investigate this relationship.

A total of 204 responses were obtained to test hypotheses 1 and 2. After eliminating unusable responses, 195 responses were used for tests. A Google online survey was used to collect data in May 2020. Students from Kookmin University in South Korea mainly participated in the survey. A juice product is considered suitable for implementing value-added promotions. It has reported that value-added promotion is one of the most widely used promotion strategies for food products and one of the most preferred promotion types among consumers [50].

The purpose of this study was explained during the class, and they were asked to participate in one of the questionnaires. The average age of the survey respondents was 28 years; 94 and 101 participants were male (48.2%) and female (51.8%), respectively.

4.1.2. Variables and Measurements

A five-point Likert scale was used to measure all variables: 1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree."

Two questionnaires were prepared for study 2. An advertising campaign for an imaginary juice product, which represents a new product, was created as an experimental stimulus as shown in Figure 3. This advertising was shown to questionnaire 1 participants, whereas such advertising and five positive consumer reviews were shown to questionnaire 2 participants to reduce quality uncertainty. The questions in study 1 were used to check the manipulation of difference in quality uncertainty level. The negative effect of price-related promotion is less for value-added promotion

compared with direct price discount [13,31], and a juice product is a low involvement good with a short shelf life. Therefore, repeated promotions may be needed as the expiry date approaches. Following study 1, a value-added promotion with 30% more was chosen.



Figure 3. Experimental Stimulus for Study 2.

The questions and method used in study 1 were applied to measure the participants' regulatory focus. To measure perceived saving, study 1 questions were modified as follows: (1) *The offered value-added promotion can help generate sufficient savings.* (2) *The offered value-added promotion allows consumers to generate sufficient savings.* (3) *The benefits of the offered value-added promotion is extremely high.*

4.2. Research Results

4.2.1. Reliability and Validity

Tables 5 and 6 show that the reliability and factor analysis results indicate high consistency of responses and high validity level.

4.2.2. Manipulation Check

Three questions were used to check product quality uncertainty level. To ensure that questionnaires 1 and 2 represent high- and low-quality uncertainty level, respectively, a manipulation check was conducted using independent sample t-tests. The independent sample t-test results indicate respondents' higher quality certainty level for questionnaire 2 ($m = 3.16$) compared with questionnaire 1 ($m = 2.66$). Therefore, the manipulation check is supported ($t(193) = -3.37, p < 0.01$).

Table 5. Reliability analysis for study 2.

Variables	Number of Items	Cronbach's Alphas
Quality uncertainty	3	0.921
Perceived savings	3	0.944
Promotion focus	6	0.933
Prevention focus	5	0.939

Table 6. Factor analysis for study 2.

	Factor				Commonality
	1	2	3	4	
Quality uncertainty 1	0.047	0.049	0.198	0.894	0.843
Quality uncertainty 2	0.024	0.030	0.184	0.929	0.898
Quality uncertainty 3	0.101	0.025	0.253	0.884	0.856
Perceived savings 1	0.023	0.093	0.933	0.201	0.920
Perceived savings 2	0.029	0.128	0.912	0.230	0.902
Perceived savings 3	−0.004	0.109	0.905	0.220	0.880
Promotion focus 1	0.890	−0.116	−0.032	0.051	0.809
Promotion focus 2	0.903	−0.132	0.047	0.021	0.836
Promotion focus 3	0.900	−0.123	0.002	−0.009	0.824
Promotion focus 4	0.774	−0.172	0.013	0.116	0.643
Promotion focus 5	0.877	−0.052	−0.005	0.007	0.772
Promotion focus 6	0.808	−0.097	0.034	0.031	0.665
Prevention focus 1	−0.187	0.878	0.089	0.018	0.813
Prevention focus 2	−0.185	0.897	0.090	0.018	0.848
Prevention focus 3	−0.065	0.897	0.062	0.037	0.814
Prevention focus 4	−0.110	0.913	0.103	−0.020	0.857
Prevention focus 5	−0.104	0.833	0.043	0.074	0.712
Eigen value	4.549	4.036	2.696	2.610	
Percentage variance	26.759	23.742	15.862	15.355	

4.2.3. Hypothesis Testing

A two-way ANOVA analysis was conducted to test hypotheses 1 and 2. The same methods in study 1 were used. Tables 7 and 8 show ANOVA analysis results and descriptive statistics for perceived savings, respectively. Table 8 indicates all categories' sample size is larger than 40. Therefore, the sample size is acceptable for analyses [49].

Table 7. Analysis of variance (ANOVA) test results on perceived savings for study 2.

Source	F-Value	Significance
Quality uncertainty (high vs. low)	2.848	0.093
Regulatory focus (promotion vs. prevention)	0.001	0.977
Quality uncertainty × regulatory focus	17.150	0.000

Table 8. Descriptive statistics on perceived savings for study 2.

Quality Uncertainty Level	Regulatory Focus	Mean	Std. Deviation	N
High	Promotion	3.33	1.09	49
	Prevention	2.72	0.85	43
Low	Promotion	2.97	1.01	56
	Prevention	3.57	1.07	47

The ANOVA test results indicate that quality uncertainty level and regulatory focus had no significant effect on perceived savings. The main effects of quality uncertainty and regulatory focus were not significant. The interaction effects of quality uncertainty level and regulatory focus were statistically significant (see Figure 4).

When quality uncertainty level is high, promotion-focused respondents expressed a high level of perceived savings for value-added promotion ($m = 3.33$) compared with prevention-focused respondents ($m = 2.72$, $F(1, 90) = 8.625$, $p < 0.01$). In contrast, when quality uncertainty level is low, prevention-focused respondents expressed a high level of perceived savings for value-added

promotion ($m = 3.57$) compared with promotion-focused respondents ($m = 2.97$, $F(1, 101) = 8.61$, $p < 0.01$). Therefore, hypotheses 3 and 4 can be supported.

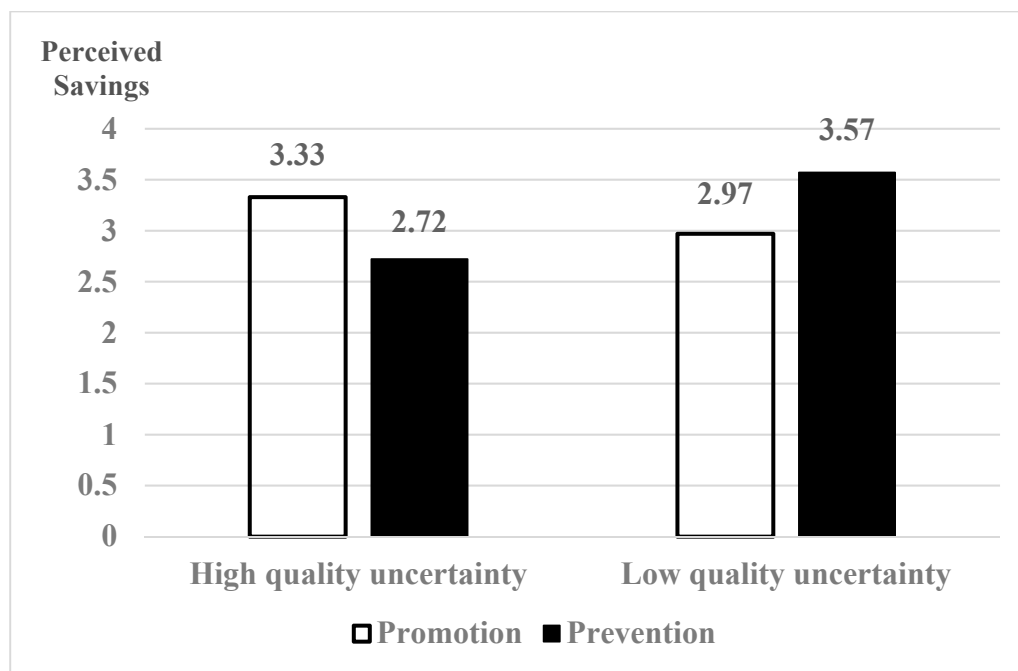


Figure 4. Interaction Effect of Quality Uncertainty and Regulatory Focus for Study 2.

5. Conclusions

This study aimed to investigate the effects of product quality uncertainty and regulatory focus on consumers' perceived savings for price-related promotional activities. Two survey studies were conducted to investigate these issues, and the results were statistically analyzed using ANOVA tests through SPSS software. This study found that when quality uncertainty level is high, consumers' perceived savings for price discount and value-added promotion are higher for promotion-focused consumers compared with prevention-focused ones. On the contrary, when quality uncertainty level is low, consumers' perceived savings for price discount and value-added promotion are higher for prevention-focused consumers compared with promotion-focused ones.

The study results provide the following theoretical contributions. This study showed the interaction effect of quality uncertainty and regulatory focus on perceived savings for price-related promotional activities. Extensive studies on quality uncertainty, price-related promotion, and regulatory focus are available. However, they focused on the effects of quality uncertainty on consumer behavior for price-related promotions [11,18–20] and the effects of price-related promotion on consumer behavior based on their personality, such as regulatory focus [14–17]. Showing the interaction effects of quality uncertainty (high vs. low) and regulatory focus (promotion vs. prevention) would provide better insights for firms launching new products to develop sustainable promotional activities.

Furthermore, this study provided following significant practical implications. When firms launch new products and their brands are not well-known in the market (i.e., high quality uncertainty), they can expect higher positive impacts from price-related promotions for promotion-focused consumers. On the contrary, when they launch new products and their brands are well-known in the market or when sufficient information, such as consumer reviews, is accessible (i.e., low quality uncertainty), they can expect higher positive impacts from price-related promotions for prevention-focused consumers. The results of this study indicate that these implications are valid when implementing direct price discount of high-involvement products (e.g., electronic devices) and value-added promotion of low-involvement products (e.g., food products). The effectiveness of price-related promotions varies

depending on consumers' regulatory focus. Thus, sales managers should grasp the regulatory focus of their consumers. For example, they can add few questions to check regulatory focus at the time of registering at the website and online shop or their purchase history. In addition, depending on the nature of the product, consumers behavior can vary based on regulatory focus. For example, promotion-focused consumers may be more likely to prefer whitening toothpaste than tooth decay prevention toothpaste. By contrast, prevention-focused consumers may be more likely to prefer tooth decay prevention toothpaste than whitening toothpaste [16].

Despite the significant findings, this study has limitations. This study showed two-way interactions only and did not show how the impacts vary depending on price-related promotion level (high vs. low). Consumers may react differently depending on the price discount level. Therefore, further studies should consider three-way interactions to provide a better understanding of these relationships: quality uncertainty level (high vs. low) \times regulatory focus (promotion vs. prevention) \times price-related promotion level (high vs. low). This study did not consider attitude toward product and purchase intention, which are important in evaluating the effectiveness of price-related promotions. This study used a questionnaire-based survey to collect data. However, the survey study has limitations as respondents may answer the questions even though they are not interested in the products or have never considered purchasing the products. These limitations may reduce the accuracy of analyses [1]. The market has various product types, and survey studies have to focus on specific product types such as laptop and juice products for this study. Hence, consumer responses may vary depending on product types. Therefore, further studies using qualitative approaches, such as in-depth interviews or focus group interviews, would provide deeper insights as interaction between participants is encouraged [51]. In addition, only university students participated in this study. However, consumers with different demographic backgrounds may have different perceptions about the questions asked in this study. Therefore, additional samples from other backgrounds could help improve the accuracy and generalizability of the results.

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