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**CONSUMER RESPONSE TO UNIT PRICE
INCREASE: THE ROLE OF PRICING
TACTICS AND CONSUMER KNOWLEDGE**

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Abstract: The study investigates how consumers react to unit price increases framed in an overt vs covert way (total price increase vs product downsizing). Using experimental data, covert (vs overt) unit price increase is proved to lead to a more positive consumer response in the short term when consumers have no access to external information and can rely only on their internal knowledge on covert pricing tactics usage. In the long term, when consumers have access to external information on covert pricing tactics usage, the effect of covert (vs overt) pricing tactics tends to become less favorable for companies: there is a deterioration of product attitude and producer trust judgements, acceleration of price unfairness perception, and lower purchase intention. The long-term effect is moderated by the source of consumer knowledge on pricing covert tactics usage: consumers who managed to internally invoke the knowledge on pricing tactics usage react differently to covert unit price increase in the long term than those whose knowledge on pricing tactics usage was externally invoked.

The paper reports the results of a pilot study conducted in frame of the PhD dissertation.

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Introduction

Price increases are a widespread phenomenon in a variety of markets. Such increases can be driven by market factors or by a desire of the company to increase profit margins. Regardless of the purpose of price increases, consumers usually negatively react to them as they has a detrimental effect on their wellbeing. Under the unfavorable economic circumstances, when consumer behavior is characterized by the accelerating rationalization, economizing and the weakening of brand loyalty, the consumer response to price increases can be extremely harsh. To mitigate the negative consumer response to a price increase, companies can manage the way a price increase is presented to the market. Instead of raising the price for a product, the company can decrease the quantity/size of a product and remain the price of the product item unchanged. On the one hand, it allows keeping the product available for consumers; on the other hand, it makes hard to compare prices directly, which could be potentially perceived by consumers as unfair or deceptive (Zaltman, 1978; Hardesty, Bearden, Carlson, 2007).

The motivation of marketers behind using pricing tactics that can mislead consumer from making an optimal choice is the possibility to get additional benefits. Marketers may not necessarily be trying to deceive consumers, but they are often affected nonetheless (Manning et al. 1998; Sprott et al. 2003). When describing their lives as consumers, people point out “the confusing, stressful, insensitive, and manipulative marketplace in which they feel trapped and victimized” (Fournier, Dobscha, Mick, 1998). Similarly McGraw and Tetlock (2005) reason: “Consumers who have been gulled into thinking of themselves as part of a corporate family or partnership may feel especially bitter when they discover that the other party was treating them along purely as objects of monetary calculation”. Thus, misleading marketing practices once successfully implemented can become a source of consumer dissatisfaction over time, as consumers learn and develop their marketing expertise together with marketers. Getting financial benefits at the expense of consumers’ welfare due to consumer’s inattention or limited knowledge in something can bring significant losses to the company, once consumers gain persuasion knowledge in the field.

The questions the study intends to answer are the following: What are the potential and lost benefits, if any, for companies that use covert pricing tactics as compared to overt pricing tactics? What are the impacts, if any, of covert pricing tactics, both on the short-term and long-term relationships between a company and its consumers? How do the impacts of covert pricing tactics differ among consumers who possess the different kinds of knowledge on the usage of such pricing tactics in the marketplace?

Theoretical Background

1.1. The Framing of Price Increases: Total Price Increase vs Product Downsizing

The price and its impact on consumers has always been a focal point in the economic and management disciplines. The schools of economic thought united under the aegis of neoclassical economics put the price on one of the central places in their research agenda. They focus on how price changes affect consumer demand for a good, but avoid scrutinizing the underlying psychological processes that lead the consumer to a buying or rejecting decision. Rather, neoclassical economics regards the consumer as a rational agent who is capable to make a precise and unbiased decision to maximize his own wellbeing. The blooming of positive economics armed with the psychological methods expands the narrow neoclassical focus. The consumer is not viewed as a purely rational agent anymore. Indeed, positive economics directs its research efforts towards revealing the real consumer behavior and the circumstances under which the predictions of neoclassical economics fail.

In particular, traditional economic models treat price as the monetary sacrifice a consumer makes to acquire a product or service (Stigler, 1987) and assume that an individual

should make the same choice when faced with equivalent decision problems. Although these principles have been usefully applied to a variety of marketing problems, recent research on the psychological aspects of pricing suggests that the role of price might be more complex than anticipated by standard economic principles. In particular, a number of studies demonstrated that the way price information is presented, termed price framing (Tversky, Kahneman, 1981), often significantly influences perceptions of deal value.

The nature of framing appears to differentially affect consumer perceptions of deals that are equivalent on a unit-cost basis but worded or presented differently (Sinha, Smith, 2000).

In the field of pricing research, different frames of the equivalent price deals were compared: multiple vs single price changes (Mazumdar, Jun, 1993; Tsiros, Hardesty, 2013), absolute vs percentage price change formats (DeVecchio, Krishnan, Smith, 2007), product price vs product size changes (Chen, Marmorstein, Tsiros, Rao, 2013; Gourville, Koehler, 2004; Kachersky, 2011), all-inclusive vs partitioned price presentations (Bambauer, Gierl, 2008), etc.

The frames of product price vs product size changes to present an equivalent unit-cost change has received their attention in the studies of both price decreases (often for promotional purposes) and price increases. Nevertheless, while the examination of promotion types started relatively earlier and generated more research because of their popularity in the marketplace, the opposite problem has relatively recently entered the scholarly domain. The framing of price increases in an overt (total price increase) or covert way (product downsizing i.e. reducing the volume of product per package without a proportional decrease in package price) leads to different consumer responses to changes that are equivalent on the unit-price basis.

In a range of articles that compare the consumer demand sensitivity to an equivalent price increase and product downsizing, it is demonstrated that consumers are more sensitive to price over quantity/size changes because of either their unawareness of product size, inattention to unit prices, or relative uncommonness of product downsizing in the marketplace (Gourville, Koehler, 2004; Cakir, Balagtas, 2014). However, some studies does not prove that the differential sensitivity to differently framed price increases exists (Imai, Watanabe, 2014).

Presumably, the difference in the response to overt vs covert unit price increase can be found not only at the level of behavioral achievements, but also at the level of consumer perceptions of alternatives. Numerous studies have shown that consumers' acceptance of a price, particularly a price increase, depends on considering it "fair" (Kahneman, Knetsch, Thaler, 1986). Packaging, size, or feature differences that make it hard to compare prices directly could be potentially perceived by consumers as unfair or deceptive (Zaltman, 1978).

Price fairness judgments involve a comparison of a price or procedure with a pertinent standard, reference, or norm (Xia, Monroe, Cox, 2004). In case of pricing, the overt raise of price per product could be regarded as such a fair standard, because such a way to increase price is clear and does not demand additional cognitive costs to evaluate the extent of price increase. On the contrary, product downsizing can be regarded by consumers as a manipulative intent of the company to mislead consumers from an optimal choice and thereby gain from consumer limited attention or unawareness.

1.2. Consumer Knowledge on Pricing Tactics Usage

Pricing tactics include marketers' efforts to generate favorable price perceptions regarding their brands, stores, and offerings (Hardesty, Bearden, Carlson, 2007). Marketers use a variety of tactics to attract customers and persuade them to buy the product. Some pricing practices mislead consumers leading to a suboptimal choice. For instance, quantity surcharges implies that unit price of a product packaged in a larger quantity is higher than the unit price of the same product and brand packaged in a smaller quantity, which is contrary to

a widespread consumer belief that the unit price of goods packaged in larger quantities is less (Palla, Boutsouki, Zotos, 2010). Obviously, when consumers rely on their beliefs about pricing practice that contradict the actual pricing practice, they burden themselves with additional financial load and decrease their wellbeing.

When faced with the practice in routine life the consumer can be unaware of practice usage. The understanding of practice nature can be gained with experience. Consumers are more likely to accurately learn about the persuasive intent behind pricing tactics upon greater exposure to them in the marketplace (Carlson, Bearden, Hardesty, 2007). “Over time consumers develop personal knowledge about the tactics used in these persuasion attempts” (Friestad, Wright, 1994). Friestad and Wright (1994) introduced the Persuasion Knowledge Model (PKM) that describes how people's persuasion knowledge influences their responses to persuasion attempts, in particular, how people use their persuasion knowledge to refine their attitudes toward products and marketers. Persuasion knowledge guides consumers' attention to aspects of an advertising campaign or price presentation, providing inferences about possible background conditions that caused the agent to construct the attempt in that way (Friestad, Wright, 1994). When choosing a pricing tactic, producers are per se trying to find a persuading pricing message that will appeal to consumers in a better way. It considers the marketer to be the agent of persuasion, the consumer to be the target of persuasion, and the pricing tactic to reflect the persuasion attempt. Pricing tactic persuasion knowledge (PTPK) represents a form of domain-specific knowledge gained through experience (Hardesty, Bearden, Carlson, 2007).

Marketing-literate consumers and those who are not armed with enough marketing knowledge and experience react differently to tactics employed by marketers. After conducting a series of experiments (Hardesty, Bearden, Carlson, 2007) identified that less knowledgeable consumers are more susceptible to such marketing practices as quantity surcharges and tensile claim offers and to making suboptimal decisions. (Kachersky, 2011) investigates consumer reactions to the practice of increasing unit prices of products by either reducing product content or increasing total prices. According to results, higher levels of PTPK lead consumers to infer different motives behind the two types of unit price increases, with content reductions being attributed to firm motives to increase profit margins and total price increases being attributed to firm motives to maintain profit margins in the face of situational factors such as cost inflation. Second, higher levels of PTPK lead consumers to look less favorably on product brands when the product content is reduced compared to when the total price is increased, and that this outcome is driven by inferred motives. Third, in contrast to high PTPK consumers, lower levels of PTPK lead consumers to alter their evaluations not of the product brand but of the retailer.

Hypotheses Development

When studying the behavior of consumers in the marketplace, the actual behavioral achievements are actually considered to be a consequence of psychological stances of the consumer. The theory of planned behavior proposes that a behavioral intention is formed based on the attitude towards the behavior (Ajzen, 1991), and if projecting the theory into the domain of consumer behavior, a buying intention can depend on such variables as consumer attitude to the product and trust to the producer of the product. The former construct has long been given a crucial role in bringing customer satisfaction, and gaining his loyalty (Olshavsky, Miller, 1972). Similarly, there are studies that describes consumer trust as a pivotal cornerstone and a key factor in the establishment of the relational commitment between firm and consumers (Reichheld, Scheffer, 2000).

Taking into account the possible misleading effect of the pricing tactic under review, it is possible to include the variables related to consumer fairness perceptions and judgments into the consumer response set. Price fairness being a buyer's judgment of a seller's price can

significantly affect consumer behavior. Price fairness is a consumer's assessment and associated emotions of whether the difference (or lack of difference) between a seller's price and the price of a comparative other party is reasonable, acceptable, or justifiable (Xia et al, 2004). Price fairness judgments may be based on previous prices, competitor prices, and profits (Bolton et al., 2003). In this case, the social norms are the rules that the community agrees sellers should follow when setting prices (Garbarino and Maxwell, 2010). Although consumers are able to quickly identify unfair situations, it is conversely more difficult for consumers to assess whether a policy is fair – that is why some studies use the concept of price unfairness instead (Bolton et al., 2003). Whether or not a pricing scheme improves the firm's profit, the attribution of a negative motive to it will cause the perception of price unfairness (Campbell, 1999).

Thus, three theoretically and managerially relevant antecedents of purchase intentions are identified for the analysis: product attitude, producer trust, and price unfairness. When proceeding with the hypothesis development, a more favorable effect of price increase on the specified variables is considered to have higher product attitude and producer trust evaluations, lower price unfairness evaluations, and higher purchase intention scores.

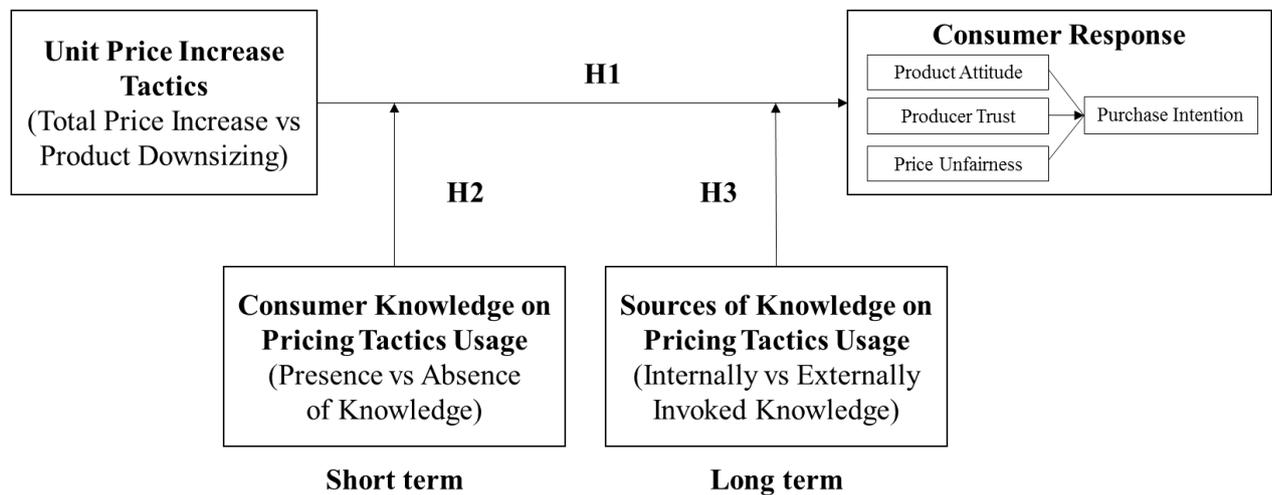
In previous studies which compare the demand sensitivity to total price increase vs product downsizing, product downsizing is often proclaimed to be more effective (Gourville, Koehler, 2004; Cakir, Balagtas, 2013; Snir, Levy, 2011); however, there is also an evidence that the effect of these alternative practices could be the same (Imai, Watanabe, 2014). After closer examination of articles that produced the different conclusions, the contradiction can be attributed to (1) firstly, heterogeneity of consumers: consumers in different markets can have different apriori knowledge on pricing tactics used in the market and, thus, are different in terms of their ability to notice the product downsizing and validly evaluate the unit price change; (2) secondly, the time span covered by the analysis: superior effect of product downsizing is observed in the articles that investigate short-term effect of this pricing tactics, while the article that equates the effectiveness of total price increase and product downsizing covers a relatively longer time span.

The other stream of studies of consumer reaction to misleading pricing tactics were focused on the question of what happens once consumers notice the unit price increase (Kachersky, 2011). However, it is reasonable to repeatedly suggest that at the point of purchase some consumers are able to activate their internal knowledge to detect the pricing tactics usage, while the others are not. When the pricing tactics usage leaves undetected, consumers will tend to underestimate the price change; thus, consumer reaction to a deal will likely differ as compared to those who are able to detect the pricing tactics usage. Nevertheless, consumers are permanently engaged in information exchanges with other market agents such as companies, consumers or media entities that can provide them with information on pricing tactics usage. Thus, the knowledge on pricing tactics usage can be gained through external sources after the interaction with a product whose price changed has already been accomplished. Such externally invoked knowledge can lead to the modification of consumer response to unit price increase during consequent interactions with the product. It can be supposed that if consumers do not notice the tactic at the point of purchase, they do not modify their response towards the product, but they may have especially harsh reactions if they discover the tactic via a fellow consumer or the media (Kachersky, 2011).

To address the existing research gaps and contradictions, there is introduced a conceptual framework that incorporates the consumer heterogeneity and variability over time (Figure 1). Later on, we will refer to the short term as a period when consumers have no external information on the pricing tactics used in the marketplace and can rely only their personal internally invoked knowledge, while in the long term the consumer knowledge on pricing tactics usage can be externally invoked.

According to the framework, the presence or absence of consumer knowledge on pricing tactics usage will moderate the consumer response in the short term, while the source of consumer knowledge (externally or internally invoked) will affect the consumer response in the long term when consumers can get additional external information on the pricing tactics usage. Taking into account the specified moderating effects, the marginal effectiveness of product downsizing vs total price increase is expected to be higher in the short term than in the long term.

Figure 1. Conceptual Framework



Based on the conceptual framework, the following hypotheses are formulated:

H1. The marginal benefit of product downsizing vs total price increase on consumer response is higher in the short term than in the long term.

H2. The presence or absence of consumer knowledge on pricing tactics usage moderates the consumer response in the short term.

H3. The source of consumer knowledge moderates the consumer response in the long term.

Research Design

3.1 Method

To test the specified hypotheses, the study uses an experimental method. Web-experiment including both within-subject and between-subject designs is employed to compare the behavioral and psychological responses of different consumers to overt vs covert price increases over time. The survey structure is represented in Table 1.

Table 1. Survey structure

Time	Description of Interaction
Time 1	– All respondents are provided with a concise description of the market situation and the picture of the product with a price (see Appendix 1 (a)): «The Russian company Ostankino sells milk under the brand name "36 cents" on the Russian market. Picture and description of the product are given. Please indicate whether you agree with the following statements»
Time 2	– Respondents are randomly assigned to one of the two conditions (product downsizing vs equivalent overt price increase) in the proportion 60/40. Respondents are still provided with a concise description of the market situation (the same for all respondents) and the picture of the product with a price (different pictures depending on the assigned condition (see Appendix

	<p>1 (b) and (c) for product downsizing and overt price increase conditions): <i>«The company decided to implement some changes to the product and adjust its price. Prices of other milk brands have not changed. Picture and description of the product, taking into account the changes are given. Please indicate whether you agree with the following statements»</i></p> <ul style="list-style-type: none"> – All respondents are asked to evaluate the extent of price change by choosing one of the given options with different percentage changes. – The respondents exposed to product downsizing are asked whether they have noticed the size change. Depending on the answer they are divided in the two groups: Treatment 1 – those who detected the size change, and Treatment 2 - those who did not detected the sized change.
Time 3	<ul style="list-style-type: none"> – All respondents regardless of their previous answers are provided with the information on the extent of price increase. The respondents exposed to product downsizing are also informed that the price increase was partly accomplished through the reduction of the product quantity from 990 to 900 ml: <i>«Price per 1 liter increased by 13.6%. This was achieved by reducing product packaging from 990 to 900 ml (only for product downsizing condition). Have you changed your attitude to the product and the manufacturer after receiving this information? To answer this question, please indicate whether you agree with the following statements».</i>

At the second interaction (Time 2) the design of the product was slightly changed. It was done to distract consumer attention from the price change. The same redesign was accomplished for both product downsizing and overt price increase conditions. This practice is often used by marketers in the real market settings. Moreover, the general dynamics of the survey resemble the real-world flow of actions: as the prices on the market goes up, consumers modify their market behavior as a response to a price change depending on their personal judgments and perceptions (Time2), and afterwards consumers are provided with the exact information on the market price change that can go from either the official statistical sources, the media or the fellows (Time 3).

At each interaction consumers are offered to evaluate whether they agree with particular statements which are intended to measure several conceptual constructs: purchase intention product attitude, producer trust, and price unfairness. The constructs are the same throughout the interaction timeline. Both unidimensional and multidimensional constructs are used. The reliability of multidimensional constructs are quite high at each time (see Table 2).

Table 2. Construct indicators, measurement items, and reliability of measures

Measures	Items	Time 1 (α)	Time 2 (α)	Time 3 (α)
Purchase intention	I am ready to pay the stated price for the product.			
	I would purchase this product in the store.	.86	.89	.88
	I could buy this product on the next visit to the store.			
Product attitude	I find this product interesting.	.78	.84	.92
	I like this product.			
Producer trust	I trust the producer of this product.	-	-	-
Price unfairness	I consider the stated price of the product acceptable.			
	The price of the product is unreasonably high.	.88	.88	.88
	I think this price is unfair to consumers.			

Note. – All items are measured using 7-point Likert scale with the points labeled as 1 = strongly disagree; 2 = moderately disagree; 3 = slightly disagree; 4 = neutral; 5 = slightly agree; 6 = moderately agree; and 7 = strongly agree. The reliability of multi-items scales is measured using Cronbach's alpha.

Considering all the above consumer response variables, it is hypothesized the variables will behave differently in consumer groups exposed to different treatments (overt price increase vs product downsizing) over the consumer-product interaction trajectory. In addition, the different responses are expected among those consumers who detected the product downsizing vs those who did not detect that. Thus, three consumer groups are identified in the study: a) Control group (respondents who are randomly assigned to the total price increase condition); b) Treatment 1 (respondents who are randomly assigned to the product downsizing condition and detected the product downsizing); c) Treatment 2 (respondents who are randomly assigned to the product downsizing condition and did not detect the product downsizing).

3.2 Sample and Context

The experiment embraced 71 respondents of whom 48 respondents submitted a questionnaire via a social network in March 2015 and 23 respondents submitted the questionnaire in a printed format in April 2015. The purpose of the study is to investigate how the consumer response changes as a reaction to a unit price change. Consumers who initially gave maximum or minimum scores are deprived of a possibility to further change their opinion in a more positive or negative directions respectively, which can confound the results. To eliminate a possible confounding effect, only overlapping observations were taken for the analysis, while the observations with extremely low and high values at the pretest intervention were excluded. Following this logic, 8 observations were excluded from the analysis (4 observations from the Control group; 2 – from the Treatment 1 group, and 2 – from the Treatment 2 group). The analyses proceeds with 63 observations: 19 observations in the Control group, 22 observations in the Treatment 1 group, and 22 observations in the Treatment 2 group.

The questionnaire was provided in Russian and all responded were the residents of Russia. The context of Russia as an emerging market contributes to the research in several ways. Firstly, emerging markets are characterized with high consumer heterogeneity. The diversity with respect to access to products and services tends to be enormous between urban and rural households (Sheth, 2011). Many consumers have no brand or product knowledge. Often, they do not even know how markets operate. Thus, the topicality of the consumer knowledge proves to be very high and managerially relevant. Secondly, the economic turbulence and market changes that take place in Russia in the current time leads to the high price volatility, which put pressure on manufactures, on the one side, and endanger consumers, on the other side. Manufactures have to optimize their market strategies and often raise prices to compensate a high uncertainty. While consumers, in the face of lowering incomes, rationalize their behavior and put a special attention to price-related issues.

Results

4.1 ANOVA

To test hypotheses the repeated-measures ANOVA is used as a method appropriate to longitudinal experiments in the marketing literature, in general, and exact research questions under investigation, in particular.

Prior to running repeated-measures ANOVA, the data was checked for the existence of significant between-group differences at the baseline level (Time 1) using between-group ANOVA. The analysis revealed that there are no baseline differences among groups for all dependent variables: purchase intention ($F(2,60) = 0.51, p = 0.60$), product attitude ($F(2,60) = 0.90, p = 0.41$), producer trust ($F(2,60) = 0.06, p = 0.94$), and price unfairness ($F(2,60) = 2.23, p = 0.12$). As the analysis does not reveal any differences among groups at the pretest interaction (Time 1), any differences among groups at the following interactions can be attributed to the treatment and moderation effects.

Repeated-measures ANOVA was run on each of the consumer response indicators. Means and standard deviations across groups over time are provided in Table 3. Table 4 presents the test statistics of main effects.

Table 3. Descriptive Statistics on Consumer Response Measures (Means and Standard Deviations)

Dependent variables	Control group (n = 19)		Treatment 1 (n = 22)		Treatment 2 (n = 22)	
	Mean	SD	Mean	SD	Mean	SD
Purchase intention:						
Time 1	3.51	(0.98)	3.86	(1.02)	3.73	(1.27)
Time 2	2.96	(1.30)	3.61	(0.99)	3.64	(1.13)
Time 3	2.93	(1.23)	3.42	(1.02)	2.98	(1.13)
Product attitude:						
Time 1	4.37	(0.86)	4.11	(1.02)	3.93	(1.13)
Time 2	3.82	(1.45)	3.64	(1.01)	3.84	(0.99)
Time 3	3.71	(1.36)	3.50	(0.88)	3.48	(1.10)
Producer trust:						
Time 1	4.21	(1.40)	4.09	(0.90)	4.14	(1.01)
Time 2	4.05	(1.28)	4.00	(0.95)	4.14	(1.01)
Time 3	4.11	(1.17)	3.77	(1.20)	3.36	(1.33)
Price unfairness:						
Time 1	4.30	(1.37)	3.71	(1.19)	4.45	(1.00)
Time 2	5.19	(1.25)	4.53	(1.05)	4.52	(1.15)
Time 3	5.26	(0.96)	4.56	(1.20)	5.05	(1.03)

Table 4. Results of Repeated Measures ANOVA

Dependent variables	Between-group effect	Within-group effect	Interaction effect
Purchase intention	F(2,60) = 1.14, p = 0.33	F(2,120) = 17.44, p = 0.00	F(4,120) = 2.02, p = 0.09
Product attitude	F(2,60) = 0.30, p = 0.74	F(2,120) = 14.58, p = 0.00	F(4,120) = 0.89, p = 0.47
Producer trust	F(2,60) = 0.30, p = 0.74	F(2,120) = 5.57, p = 0.00	F(4,120) = 2.08, p = 0.09
Price unfairness	F(2,60) = 2.02, p = 0.44	F(2,120) = 28.65, p = 0.00	F(4,120) = 3.00, p = 0.02

The results of repeated measures ANOVA indicate that there is a statistically significant within-group effect for all dependent variables i.e. there is a tendency of all consumer response variables to change in the same direction over time within all experimental groups. In particular, there is observed a deterioration of product attitude and producer trust, and acceleration of price unfairness perceptions over time, which results in the reduction of purchase intention.

Between-group effect proved to be significant only as a part of interaction effect, which signifies that despite there is a common tendency within all experimental groups to react similarly in response to experimental interventions, the severity of consumer responses to interventions is different among groups.

4.2 Analysis of Mean Differences

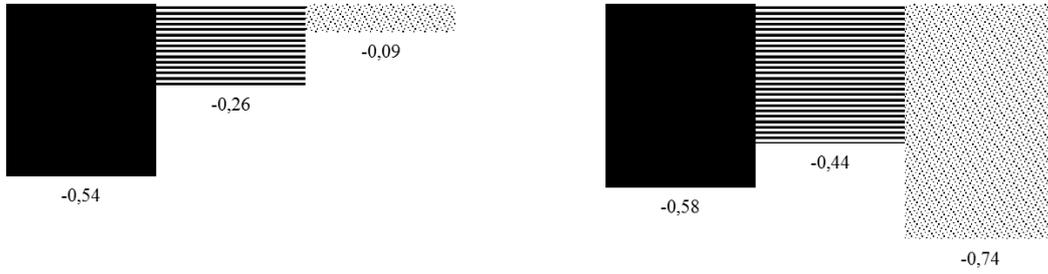
Since the treatment-by-time interaction is significant, there is a need to explain the interaction. For further insight into the hypotheses, the analysis of mean differences is undertaken. Mean differences of consumer response variables in the short term (Time 2 vs Time 1) and long term (Time 3 vs Time 1) in there experimental groups are depicted in the Figure 2. The statistical significance of mean differences among groups is presented in the Table 5.

Figure 2. Mean Differences of Consumer Response Variables across Time

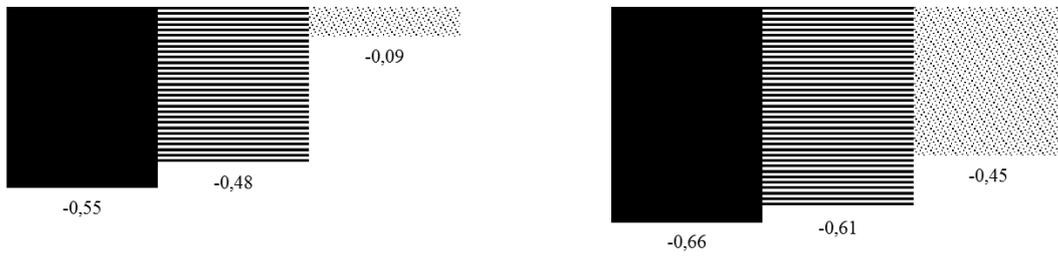
**Short-Term Effect
(Time 2 vs Time 1)**

**Long-Term Effect
(Time 3 vs Time 1)**

Purchase Intention



Product Attitude



Producer Trust



Price Unfairness



- Total Price Increase
- ≡ Product Downsizing, Internally Invoked Knowledge
- ⊛ Product Downsizing, Externally Invoked Knowledge

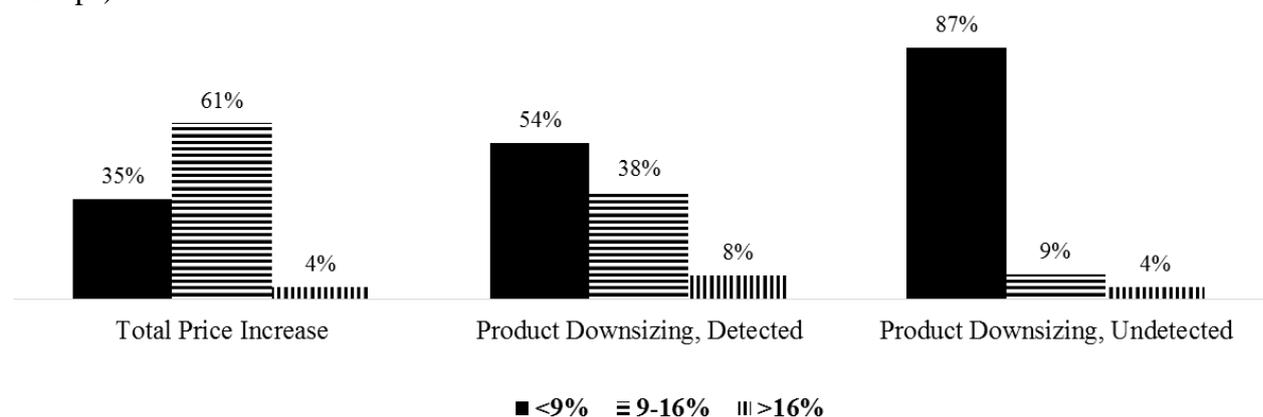
Table 5. Results of Post-Hoc Analysis of Mean Differences

Dependent variables	Control group (Total price increase)	Treatment 1 (Product downsizing, Internally Invoked Knowledge)	Treatment 2 (Product downsizing, Externally Invoked Knowledge)
Purchase intention			
Time 2 vs Time 1	-0.54 ***	-0.26	-0.09
Time 3 vs Time 1	-0.58 ***	-0.44 ***	-0.74 ***
Product attitude			
Time 2 vs Time 1	-0.55 ***	-0.48 ***	-0.09
Time 3 vs Time 1	-0.66 ***	-0.61 ***	-0.45 **
Producer trust			
Time 2 vs Time 1	-0.16	-0.09	0.00
Time 3 vs Time 1	-0.11	-0.32	-0.77 ***
Price unfairness			
Time 2 vs Time 1	0.89 ***	0.82 ***	0.07
Time 3 vs Time 1	0.96 ***	0.85 ***	0.60 ***

Note. – The significance of mean differences is tested using t-statistics. The asterisks signify the following significance levels: * $p < .10$; ** $p < .05$; *** $p < .01$.

The analysis of mean differences indicates that in the short run a statistically significant reduction in purchase intention in response to price increase is observed only when consumers are exposed to total price increase, while product downsizing does not lead to a significant reduction in purchase intention for both treatment groups. The short-term stability of purchase intention for the Treatment 2 group is explained by the unchanged antecedents of purchase intention (product attitude, producer trust, and price unfairness). On the contrary, the rapid shrinkage of purchase intention for the Control group is driven by the movement of antecedents (product attitude and price unfairness) to a less favorable direction. Despite the same trajectory of intention antecedents is observed in the Treatment 1 group, the intention does not change in the short run analogously to the Control group. The possible explanation of such a contradiction is that even when consumers are able to detect the product downsizing, they tend to err in their judgments regarding the price change and underestimate the scope of price increase (see Figure 3).

Figure 3. Distributions of Consumer Evaluations of Perceived Unit Price Increase (by Groups)



Note. –The multiple-choice question “How would you estimate the extent of unit price change?” was asked after consumers were presented with an increased price. The actual unit price increase accounted to 13.6%. No information on actual price increase was provided to consumers at that moment.

The differences in consumer response to product downsizing depending on the presence or absence of consumer knowledge in the short run support the hypothesis 2 (H2): consumers who detect product downsizing change their product attitude and price unfairness judgements

in the short run, while those who does not detect product downsizing keep all consumer response variables unchanged.

In the long run all experimental groups demonstrated a significant shrinkage of purchase intention. However, the Treatment 2 group underwent the most rapid reduction of purchase intention mostly driven by the deterioration of producer trust judgements, which supports the hypothesis 3 (H3) according to that the source of consumer knowledge moderates the consumer response in the long term.

Such variability of consumer response to product downsizing over time supports the hypothesis 1 (H1) according to that the marginal benefit of product downsizing vs total price increase on consumer response is higher in the short term than in the long term.

Conclusion

The study can contribute to the existing research in several ways. Firstly, it interprets the existing research contradictions through the introduction of several moderating variables related to consumer knowledge. Secondly, it tries to go beyond the investigation of short-term effect of covert vs overt pricing tactics by simulating the long-term development trajectory of consumer-product relationships.

The analysis revealed that even when consumers are able to detect the product downsizing, they tend to err in their judgments regarding the price change and underestimate the scope of price increase. That could be driven by the limited abilities to conduct valid mathematical calculations when both the nominator and denominator (that is, product size and total package price) change. Even in the absence of product downsizing, consumers did not provide a valid evaluation of price change scope, and product downsizing being a more mentally challenging way to frame a price change accelerates the tendency to make mistakes among consumers. Based on such mental limitations, covert (vs overt) unit price increase is proved to lead to a more positive consumer response in the short term when consumers have no access to external information and can rely only on their internal knowledge on covert pricing tactics usage.

In the long term, when consumers have access to external information on covert pricing tactics usage, the effect of covert (vs overt) pricing tactics tends to become less favorable for companies. The long-term effect is moderated by the source of consumer knowledge on pricing covert tactics usage: consumers who managed to internally invoke the knowledge on pricing tactics usage react differently to covert unit price increase in the long term than those whose knowledge on pricing tactics usage was externally invoked.

The narrow scope of the study in terms of analyzed sample and product categories being a limitation for the generalization of results becomes an alarm for future research with more broad and representative empirical data.

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Appendix 1. Experimental stimulus

(a) Stimulus 1



Description:
 Milk 3,2% fat pasteurized
 Shelf life is 7 days
 Storage temperature +2°C +6°C.
 Volume 990 ml
 Calories per 100 grams: 59 cal.
 Protein 2.8 per 100 gr; Fat 3.2 per 100 gr; Carbohydrates 4.7 per 100 gr.
 Content: normalized milk
 Ready to use
 Producer: Ostankinsky molochny zavod OAO
 Country of origin: Russia

Price: 58⁰⁰ RUB

(b) Stimulus 2(a)



Description:
 Milk 3,2% fat pasteurized
 Shelf life is 7 days
 Storage temperature +2°C +6°C.
 Volume 900 ml
 Calories per 100 grams: 59 cal.
 Protein 2.8 per 100 gr; Fat 3.2 per 100 gr; Carbohydrates 4.7 per 100 gr.
 Content: normalized milk
 Ready to use
 Producer: Ostankinsky molochny zavod OAO
 Country of origin: Russia

Price: 59⁹⁰ RUB

(c) Stimulus 2(b)



Description:
 Milk 3,2% fat pasteurized
 Shelf life is 7 days
 Storage temperature +2°C +6°C.
 Volume 990 ml
 Calories per 100 grams: 59 cal.
 Protein 2.8 per 100 gr; Fat 3.2 per 100 gr; Carbohydrates 4.7 per 100 gr.
 Content: normalized milk
 Ready to use
 Producer: Ostankinsky molochny zavod OAO
 Country of origin: Russia

Price: 65⁹⁰ RUB

Comments (not presented to respondents):

Volume – 990 ml
 Price per 1 liter – 58.60 RUB
 (Initial baseline level)

Volume – 900 ml
 Price per 1 liter – 66.50 RUB
 (+13.6% to the baseline – product downsizing)

Volume – 990 ml
 Price per 1 liter – 66.50 RUB
 (+13.6% to the baseline – overt price increase)