

On the motivating impact of price and online recommendations at the point-of- online-purchase

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Abstract

Do online recommendations have the same motivating impact as price at the point-of-online-purchase? The results (n=273) of an conjoint study show that: (1) when the price is low or high relatively to market price, it has the strongest impact (positive and negative) on the likelihood of an online purchase of an mp3 player, (2) when the price is average to market price, online recommendation and price are equal in their impact at the point-of-online-purchase, and, (3) the relative impact from price increases when online shopping frequencies increases. The implications these results give are that online retailers should be aware that online recommendations are not as influential as a good offer when consumers purchase electronics online. However, other customer recommendations have a stronger impact on novice online shoppers than towards those consumers that shop more frequently online.

Keywords: Point-of-online-purchase, price, online recommendations, motivating impact, conjoint analysis

Introduction

On one occasion, an anonymous consumer had to find a hotel in London. He used the web shop Hotels.com, which at that time was new to him. He decided to use this web shop because colleagues had told him that it had good offers. After searching and evaluating several hotels he opted for one located in the desired area which had an acceptable price. After verifying that the hotel had an available room in the current period, he decided to book online. In the confirming order stage of the booking process, he suddenly became aware that the web shop contained reviews from former guests. When he realized that the selected hotel was badly rated (two out of five stars), he stopped the booking immediately and left the web shop.

In this context, there has been a growing interest for studying the impact that other customers' ratings and reviews online have on online shopping in general (Chatterjee, 2001; Dellarocas, 2003; Godes & Mayzlin, 2004; Senecal & Nantel, 2004). Dellarocas (2003), for instance, states that online customer review systems are one of the most powerful channels to generate online word-of-mouth. The author argues that through the Internet, not only can organizations reach audiences of exceptional scale at a low cost, but also, individuals can make their personal thoughts, reactions, and opinions easily accessible to the global community of Internet users (Dellarocas, 2003). A number of studies have investigated the impact of online recommendation in specific product categories or different contexts to this end. Studies of the effect of recommendations have been done on movie sales (Dellarocas, Zhang, & Awad, 2007; Duan, Gu, & Whinston, 2008), on the impact on box office revenue (Liu, 2006), and on the effect of book reviews on sales (Sorensen & Rasmussen, 2004), on the general effect of negative reviews on retailer evaluation (Chatterjee, 2001).

Price is another stimulus that for most consumers has a high impact on the online purchase. According to Reibstein (2002), price is an important stimulus to attract customers to online stores, while a study by Bruce et al. (2004) on the seller rating effect on price demonstrated that higher ratings translate into higher prices in online auctions. In a study by Smith and Hantula (2003) the authors find that in online shopping, price overshadows some other customer satisfaction variables. There is, however, currently little work studying the relative motivating impact from price and online recommendation on approach/avoidance behavior. Studies on the motivating impact from price and online recommendations jointly could expand our understanding of consumers' behavior at the point-of-online-purchase. Moreover, by better understanding the relative motivating impact that these two important stimuli have on approach/avoidance behavior, retailers could reduce escape behavior and consequently increase benefits and economic earnings from their web shop. Even small improvements in conversion rates can have a huge influence on online sale.

The purpose of the present paper is to expand our understanding of point-of-online-purchase behavior by examining the relative motivating impact of price and online recommendation. This paper is structured as follows: in the first part the chosen framework of motivation is presented together with a discussion regarding the motivating impact of price and online recommendation. Secondly, a conjoint model is developed to investigate the motivating impact of price versus online recommendation. Thirdly, the results of the conjoint analysis are reported. The final section discusses the conceptual and managerial implications of these findings.

Motivating stimuli at the point-of-online-purchase

Monsuwé et al. (2004) define online shopping as the use of online stores by consumers up to the transactional stage of purchasing and logistics. It is not unusual that research on online shopping ends before the stage of actual purchase. This is confirmed by Limayem et al. (2004) who conclude from a meta-analysis that research on online shopping can be placed in three categories: (1) attitude toward online shopping, (2) intention to shop online and (3) actual online shopping behavior. Research has, according to Limayem et al. (2004), mainly been accomplished within the two first categories, attitude toward online shopping and intention to shop online, of which investigating the actual online shopping behavior has been less frequent.

As an answer to the lack of research on actual online shopping behavior, consumer behavior analysis is chosen as a framework to investigate the relative motivating impact price and online recommendation has on approach/avoidance behavior online. Consumer behavior analysis is based on behavioral psychology and behavioral economics to further understanding of the nature of consumer behavior in the context of the contemporary market-oriented economy (Foxall, 2002). Researches within this discipline range from traditional retailing to online retailing and consumer behavior. Consumer behavior analysis has studied the effects of price on consumer choice with panel data and in-store experiments (Foxall & James, 2001; Foxall, Oliveira-Castro, & Schrezenmaier, 2004; Sigurdsson, Foxall, & Saevarsson, 2010). Recommendations at the point-of-purchase; an in store experiment (Sigurdsson, Engilbertsson, & Foxall, 2010). Pricing in retailing and the impact on point-of-purchase (Oliveira-Castro, Ferreira, Foxall, & Schrezenmaier, 2005; Sigurdsson, Foxall, et al., 2010). The focus from the consumer behavior analysis stance is to seek the understanding of consumer behavior in its relationship to its context.

When a consumer buys a product online, his or her behavior is reinforced by the satisfaction produced by buying, owning and consuming economic goods. Simultaneously, that behavior is punished by the surrender of money, forgoing alternative products, waiting time, and so on. From a behavior analytic standpoint, purchase behavior in a shopping situation is the result of conflicting behaviors (Alhadeff, 1982; see also Foxall, 2007). Thus, the inherent conflict in purchase behavior is between two incompatible behaviors – approach and avoidance. According to Alhadeff (1982), the outcome of this behavioral conflict is determined by the relative strengths of reinforcers and punishers in the specific purchase situation. What influences the strengths of reinforcers and punishers is, however, not well understood in consumer research in general, and online consumer research especially.

There have been a number of exciting theoretical advances in the field of behavior analysis (Roche, 1999). Among these is the concept of motivating operations (MO), a behavioral psychological formulation of motivation developed by Michael (Laraway, Snyckerski, Michael, & Poling, 2003; Michael, 1982, 1993, 2000). MO is defined as (Michael, 1993), an environmental event that firstly establishes (or abolishes) the reinforcing or punishing effect of another event and secondly, evokes (or abates) behaviors associated with that event. The first effect is related to the consequences of responding (value-altering effect) and the second is the effect of the responses related to those consequences (behavior altering effect). The MO concept has made an important contribution to both basic and applied behavior analysis, inspiring new research and leading to innovative intervention strategies (see e.g., Iwata, Smith, & Michael, 2000). The arguments for introducing the concept of MO to online consumer research is that it offers a comprehensive framework for functional analysis of approach and avoidance behavior by investigating antecedent stimuli (independent variables) that alter the values of consequences of

responding in the purchasing setting, and alter the responses (dependent variable) related to those consequences (Fagerstrøm, 2010).

Then, how can price and online recommendation function as MOs at the online purchase situation? Price is, from a consumer behavior analytic perspective, an antecedent stimulus that signals loss of a conditioned reinforcer and/or increased work effort (Alhadeff, 1982). Price is, when it's above market price, a "worsening" on the web shop that establishes its own termination as a reinforcer and evokes avoidance responses associated with termination (e.g., leave the web shop). However, when the price is below market price (e.g., an offer is given) it may abolish its own termination as a reinforcer and abates avoidance responses associated with termination (e.g., leave the web shop). The following assumption was made about the motivating impact of price (independent variable): above market price for an item on a web shop has a reinforcing establishing effect on the consequences of leaving the web shop, while simultaneously this evokes responses associated with avoidance. The result is a decreased likelihood of online purchase. Below market price for an item on a web shop has a reinforcing abolishing effect on the consequences of leaving the web shop: simultaneously this abates responses associated with avoidance. The result is increased likelihood of online purchase.

Online recommendations are, in the present study, based on other customers' reviews of the online company's ability to deliver the item. Online recommendation of this sort is most probably a MO on the web shop that signals uncertainty ("worsening") related to waiting time before ownership and consumption (Fagerstrøm, 2010). Online recommendations of the online company's ability to deliver the item are antecedent stimuli that, when correlated with "worsening", establishes their own termination as a reinforcer and evoke responses associated with termination (e.g., leave the web shop). Based on these arguments, the following assumption

was made regarding the independent variable online recommendations: a satisfactory review from other customers has a reinforcing abolishing effect on the consequences of leaving the web shop, simultaneously this will abate responses associated with avoidance. The result is an increased likelihood of online purchase. Unsatisfactory reviews from other customers have a reinforcing establishing effect on the consequences of leaving the web shop, simultaneously this evoke responses associated avoidance. The result is decreased likelihood of online purchase.

Method

Conjoint analysis is, in the present study, used for testing the impact of price versus other customers' reviews at the point-of-online-purchase.

Participants

A student population was chosen as they are a key target market for Internet retailers and a key target market for the stimuli product that is used in the study. Participants were recruited in one group gathered from a seminar room. The sample for the study comprised 273 undergraduate students at BI Norwegian School of Management. Respondents' ages were measured in five categories (age < 18, 18-22, 23-30, 31-45 and > 45). Overall, one respondent was in the < 18 age category, 215 of the respondents were in the age 18-22 categories, 51 in age categories 23-30, five in age categories 31-45, and one from the age categories > 45. The distribution by gender was 110 males and 163 females. The average Internet use per week for the sample was 16 hours. Two hundred and fifty-seven out of 273 respondents reported that they had bought a product or service on the Internet before, and the average amount of products or services bought in the last six months was 4 (Internet banking was not included).

Design

Price and customers' reviews were operationalized at five levels. The levels for Price was calculated based on a price agent search (Kelkoo™); whereof average market price was “Kr. 1 674,-“, “Kr. 1 820,-“ and “Kr. 1 949,-“ above average market price, and, “Kr. 1 523,-“ and “Kr. 1 411,-“ below average market price. Customer review levels were made based on the assumption that medium review would be around 85 on a scale from 0 to 100. The rationale for this assumption is based on a study by Ahluwalia and Shiv (1997) which shows that negative information was weigh more than positive information in evaluation and decision-making tasks. The different levels for each stimulus are assumed to have varying impact at the point-of-purchase. Table 1 is a summary of the stimuli and their levels considered in this study.

 Insert Table 1 about here

In designing and implementing the conjoint analysis, it was assumed that interaction effects were not likely to occur, and it was decided to estimate a main effects model. The main effects model assumes that the respondent simply adds up the values for each stimulus to get the total value for a combination of stimuli (Hair, Black, Babin, Anderson, & Tatham, 2006). The full profile method (Green & Srinivasan, 1978) was selected as the data collection method. Under this method, respondents are asked to evaluate a set of experimentally varied stimuli, where all stimuli are included in the study. Table 2 shows the full factorial design plan that was used to synthesize the 25 stimulus cards.

 Insert Table 2 about here

Apparatus

It was decided that it was appropriate to use visual stimuli in this study as suggested by Holbrook and Moor (1981) instead of the more traditional method of using verbal descriptions of the products and their attributes. The 25 stimulus cards were made in Adobe Photoshop™ using the levels dictated by the full factorial design (see Table 2). The dependent variable was defined by measuring the respondent's likelihood of purchasing an item from an online retailer.

Procedure

The evaluation task was defined as a scenario which assumed that the respondents were going to purchase an mp3 player (Apple iPod Nano™ 8GB) on a retailer online. To get an impression of the market price for the item the respondents were given information from the price agent search (Kelkoo™). The price agent search showed eight offers, including the highest and lowest price at the time the survey was accomplished. The respondents were told that they would evaluate 25 shopping situations online (stimulus cards). To ensure a common frame of reference or state of mind (Wright & Kriewall, 1980), all evaluations were elicited in terms of the same scenario. They were presented with two visual pictures of each of the 25 stimulus cards, and were then asked to evaluate them in relation to how likely it was that they would purchase the item from the retailer. The descriptive anchors of the scale ranged from “not at all likely to purchase” (coded 0) to “certainly would purchase” (coded 10). The respondents were first presented with the scenario. The Appendix describes the evaluation scenario and illustrations of how the stimulus cards and questions appeared. Before the evaluation of the 25 shopping situations online, an example was presented in which the stimuli that should be evaluated were marked. After the respondents had evaluated the 25 shopping situations, they were asked to

provide demographic information. The study instrument was administered using a Microsoft Power Point™ presentation for the respondents in an auditorium together with a questionnaire.

Results

Table 3 is a summary of the total sample results. Column one shows stimuli and levels. Column two represents the impact estimate, and, column three, the relative importance of price and customers' review. Column four represents the importance ranking of the two stimuli. The constant is the base impact, and the other stimuli values' contrast with that value (in this case 4.668) in a positive or negative direction.

 Insert Table 3 about here

There are correlations between the observed and estimated preferences (Pearson's $R = 0.982$, significance = 0.000 and Kendall's tau = 0.933, significance = 0.000).

Price versus customers review

Figure 1 shows the average impact for the two stimuli; price and customers' reviews. This figure shows the relative impact (in percentage) that the two stimuli have when the participants were evaluating their likelihood of purchasing the mp3 player. It is apparent that price was the most important stimulus with an average impact score of 62.922%. Other customers' reviews had an average score of 37.078%.

 Insert Figure 1 about here

Figure 2 shows the summary impact scores of the stimulus levels for price and customers' reviews. This figure shows that the levels for each of the two stimuli are found to have a varying impact on the respondents' likelihood of purchasing. From Figure 2, it can be seen that the stimulus levels "Kr. 1411" and "Kr. 1523" have a high positive impact on the likelihood of purchase online with a score of respectively 3.210 and 1.204. The stimulus level "Kr. 1674" has an impact score of 0.159, and has therefore a very small positive impact. The stimuli levels "Kr. 1820" and "Kr. 1949" have a very negative impact on the likelihood of purchase with a score of respectively -1.690 and -2.883.

Insert Figure 2 about here

From the summary impact scores for customers' reviews (see Figure 2), it can be seen that the stimulus level "99 points out of 100 points on delivery" and "95 points out of 100 points on delivery" has some positive impact on the likelihood of purchase online. These two stimulus levels have an impact score of 1.452 and 1.027, respectively. The stimulus level "85 points out of 100 points on delivery" has a very small impact on the likelihood of purchase online with a score of 0.239. The stimulus levels "70 points out of 100 points on delivery" and "50 points out of 100 points on delivery" has a negative impact on the likelihood of purchase online with a score of -0.802 and -1.914, respectively.

When price and other customers' review are compared (see Figure 2) it shows that a low price ("Kr. 1411") has a higher positive impact relative to a very good customers review ("99 points out of 100 points on delivery") on the likelihood of purchase online. When the price is high ("Kr. 1820" and "Kr. 1949") it has a lower negative impact relative to a unsatisfactory

customer review (“70 points out of 100 points on delivery” and “50 points out of 100 points on delivery”). Relative to online reviews, price is a stimulus that has a stronger impact (both positive and negative) on the likelihood of purchase online. However, the impact from price relative to customer reviews is higher when the prices are low than when prices are high. Figure 2 also shows that the impact from price and online recommendation are approximately equal when the market price is median (“Kr. 1674”) and at one level below market price (“Kr. 1523”).

Diverse impact in different customer segments

In order to investigate to what extent price and customers’ review impacted on different customer segments the respondents were categorized in relation to shopping frequency. The 16 respondents that had not shopped on the Internet were excluded, and the following analysis is therefore based on 257 respondents. Based on the average amount of products or services bought in the last six months, analysis shows that the median was 3. Respondents were categorized in three segments: light shoppers (0-1 product or services bought in the last six months), medium shoppers (2-4 product or services bought in the last six months) and heavy shoppers (5 and more product or services bought in the last six months). Figure 3 shows the relative impact of price versus customers’ review in the three segments.

 Insert Figure 3 about here

Figure 3 show that price has a higher relative impact score (in percentage) in all three segments. However, the relative impact of price increases when shopping frequencies increase. At the other end of the spectrum, customers’ reviews had more of an impact on light shoppers,

although still relatively less important than the price. ANOVA shows that the variation between segments was statistically significant ($p = 0.002$).

Discussion

Studies on the motivating impact of online stimuli are often interpreted within a cognitive framework, focusing on the individual's information processing (Limayem, et al., 2004). For example, Sen and Larman (2007) studied the effect of positive and negative online recommendation based on attribution theory. Dwyer (2007) studied the value of electronic word-of-mouth and its impact in individual communities from Zaichokowsky's (1985) definition of involvement. Duan et al. (2008) examined the awareness and persuasive effect of online user reviews. The individual's information processing is from the cognitive framework seen as the main activity that influences his/her final decision. Important knowledge about the effect of online recommendation has been created from these structural studies in different contexts.

We want to provide a functional analysis of the relative impact that price and online recommendation have at the online point-of-purchase situation. The discussion in the present study is, therefore, anchored in consumer behavior analysis (Foxall, 1990/2004, 2007) focusing on understanding the impact that price and online recommendation have at the online point-of-purchase situation. The results from the present study show that price is, relatively to online recommendations, the most influential stimulus at the point-of-online-purchase in general as price is the stimulus that has the greatest impact (both positive and negative) on likelihood of online purchase. The results show that, when the price is low compared to market price it has a positive impact on the likelihood of purchase, and, when the price is high compared to market price it has a negative impact on the likelihood of purchase. A median market price has either a

positive or negative impact on the likelihood of purchase the product online. The results reveal that assumption about the motivating impact from price is confirmed.

According to recommendation from other customers, results show that a satisfactory online recommendation (“99 points out of 100 points on delivery” and “95 points out of 100 points on delivery”) has a positive impact on the likelihood of purchase online. An explanation could be that satisfactory online recommendations abolish termination as a reinforcer and abate responses associated with termination (e.g., leave the online retailer). Surprisingly, results show that the level “85 points out of 100 points on delivery” has no impact on the likelihood of purchase online, as one would expect that the no impact level (positive or negative) to be closer to “50 points out of 100 points on delivery”. Instead, both the stimulus levels “70 points out of 100 points on delivery” and “50 points out of 100 points on delivery” had a negative impact on the likelihood of purchase online. However, the assumption about the motivating impact from online recommendations is confirmed.

When price and customer reviews were analyzed relative to shopping frequencies segments, results showed that the relative impact from price increases when shopping frequencies increase. This result support findings by Hantula and Bryant (2005; see also Smith & Hantula, 2003) on the pricing effects on shopping in a simulated Internet shopping mall. They demonstrated that the more a consumer contacts or experiences a constraint such as price, the more sensitive their behavior will be to the constraint.

At first sight, one can argue that the results from the presents study are obvious, and the contribution to our knowledge about online shopping behavior is limited. There are, however, several contributions which this study makes. Firstly the knowledge creation on the relative motivation impact from two important antecedent stimuli online. Secondly, our explanation of

the motivating impact from price and online recommendation is without mentalistic constructs like for example attitude, intention and value. Mentalistic constructs are often uneconomical in scientific explanations, and, if not carefully handled they can lead to circularity in explanation of online behavior (Baum, 2005; Uttal, 2004). Thirdly, and important from a managerial point of view, our study demonstrates prediction and control of point-of-online-purchase behavior.

Conclusions

The objectives of the research reported in this paper were to analyse the relative motivating impact of price and online recommendation at the point-of-online-purchase, and to explore to what extent the tradeoff between online recommendation and price differs between segments. Findings from our study have demonstrated prediction and control of point-of-online-purchase behavior by the manipulation of two important online marketing activities; price and online recommendation.

Our study is not without limitations. Firstly, interpretation of these results should be tempered by the realization that participants were responding to a scenario, and were not actually spending their own money for the mp3 player. On the other hand, the use of scenarios in research does not necessarily weaken internal and external validity. Studies have reported substantial congruence between direct and simulation presentations (see e.g., Bateson & Hui, 1992; Bosselmann & Craik, 1987). Secondly, order effects occur in surveys whenever a list of stimuli is presented (Chrzan, 1994). Order effects will therefore occur in the present study because it is not reasonable to expect that respondents encounter stimuli in the real world in the same order as in this survey. Thirdly, a main effect only model was used in the percent conjoint study. This ignores the possible interaction effects among price and customers' reviews interaction (i.e., different customers' reviews may have different price sensitivities).

In spite of the limitations, this study gives valuable knowledge about the impact of price versus online recommendation at the point-of-online-purchase. If you are an online retailer selling consumer electronics results from this study would seem to indicate that price is, relative to online recommendations, the most efficient stimulus towards all segments. Online retailers that are mostly dealing in segments that shop frequently should therefore focus on price. On the other hand, other customers' reviews seem to have some impact towards consumer segments that do not shop frequently online, although still relatively less effective than the price. So, if you are a retailer selling consumer electronics that dealing mostly in segments that do not shop frequently online, focusing on both price and online recommendations is of importance.

Studies in other areas of consumer behavior have found strong evidence that negative information has greater impact to the receiver of word-of-mouth communication than positive information. Consumers will therefore weigh negative information more than positive information in evaluation and decision-making tasks (Ahluwalia & Shiv, 1997; Skowronski & Carlston, 1987; Weinberger & Dillon, 1980). Results from the present study show that the change-over point from negative to positive impact from online recommendations is at the "85 points out of 100 points on delivery" level. This finding may support the opinion that negative information has a greater impact towards point-of-online-purchase behavior. However, our finding can also be attributed to the measurement scale that is used in the present study. Further clarification and investigation on this topic are required.

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Appendix: Sample stimulus cards

Assume that you are going to buy an Apple iPod Nano™ 8GB mp3 player. You want to buy the mp3 player on the Internet. To get an impression of the market price for the item you search information on a price agent, and then evaluate different online retailers. There will now be shown 25 different shopping situations online (2 pictures each), and you shall evaluate each of them on the accompanying scale that indicate how interested you might be in purchasing the mp3 player. The first shopping situation is an example. Stimuli that will vary between the 25 shopping situations are marked.

Stimulus card # Example

Picture 1: price agent search



Picture 2: online retailer



How likely is it that you would purchase the Apple iPod Nano™ on this web shop?

Not at all
likely to purchase

Certainly
would purchase

0 1 2 3 4 5 6 7 8 9 10

Stimulus card # 1

Picture 1: price agent search



Picture 2: online retailer



How likely is it that you would purchase the Apple iPod Nano™ on this web shop?

Not at all
likely to purchase

Certainly
would purchase

0 1 2 3 4 5 6 7 8 9 10

Figure captions

Figure 1. Impact score for price and customers' review

Figure 2. The impact of price versus customer review

Figure 3. Price versus customer review relative to shopping frequency

Figure 1

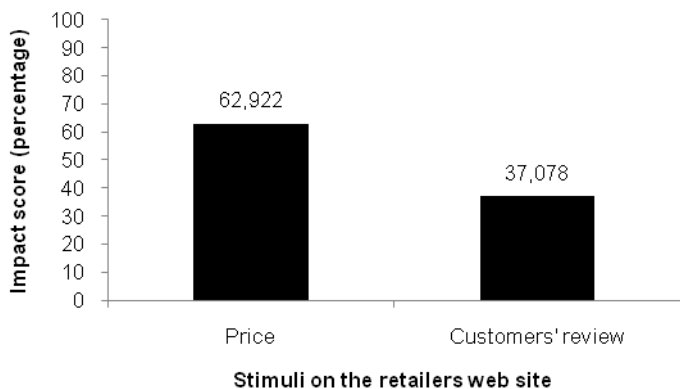


Figure 2

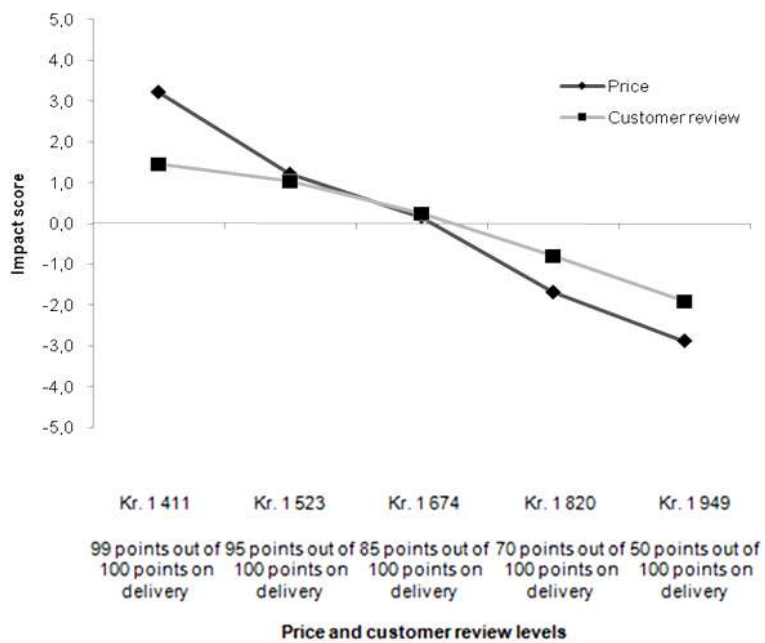


Figure 3

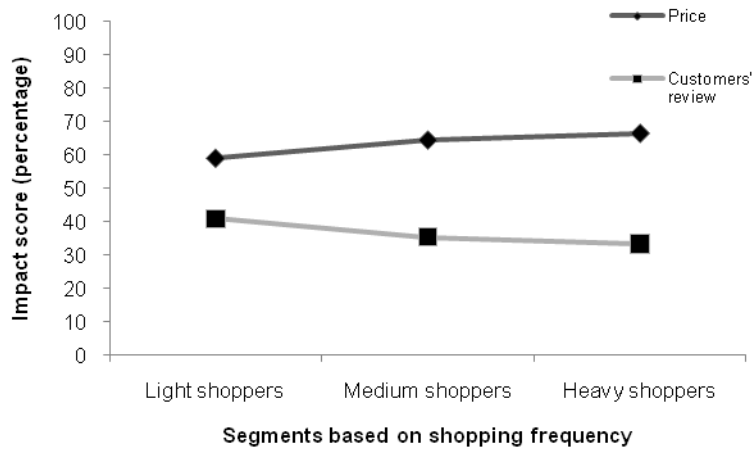


Table 1

Stimuli and levels considered in the study

Stimuli	Levels
Price ¹	<ol style="list-style-type: none"> 1. Kr. 1 411,- 2. Kr. 1 523,- 3. Kr. 1 674,- 4. Kr. 1 820,- 5. Kr. 1 949,-
Customers' reviews	<ol style="list-style-type: none"> 1. 99 points out of 100 points on delivery 2. 95 points out of 100 points on delivery 3. 85 points out of 100 points on delivery 4. 70 points out of 100 points on delivery 5. 50 points out of 100 points on delivery

¹ 100 Norwegian Kroner are approximately 18 US Dollar.

Table 2

Full factorial design used to synthesize stimulus cards

Stimulus cards	<i>Stimuli and levels for the sixteen profiles</i> (Stimuli and their levels correspond to Table 1)	
	Price	In-stock status
1	3	5
2	2	3
3	4	4
4	1	4
5	2	2
6	4	5
7	3	1
8	1	5
9	1	3
10	5	5
11	3	4
12	4	1
13	3	3
14	5	2
15	3	2
16	1	1
17	4	3
18	4	2
19	5	3
20	5	4
21	2	5
22	2	4
23	2	1
24	5	1
25	1	2

Table 3

Conjoint impact estimate and relative importance of price and customers' reviews

Stimuli and levels	Impact estimate	Importance values	Importance ranking ¹
Price		62.922	1
Kr. 1 411,-	3.210		
Kr. 1 523,-	1.204		
Kr. 1 678,-	0.159		
Kr. 1 820,-	-1.690		
Kr. 1 949,-	-2.883		
Customers' reviews		37.078	2
99 points out of 100 points on delivery	1.451		
95 points out of 100 points on delivery	1.027		
85 points out of 100 points on delivery	0.239		
70 points out of 100 points on delivery	-0.802		
50 points out of 100 points on delivery	-1.914		
(Constant)	4.668		

¹ Based on column three.