

Research on the Influence of e-commerce Discount Promotion on Consumer's Psychological Gap

Liang-ru Yu¹, Jing Liu², Jing Chen³ and Cui Zhou⁴

¹School of Economics and Management
Chongqing University of Posts and Telecommunications
Chongqing – 400065, Chongqing, China. E-mail: yuliangru@qq.com

²Information and Library Center
Chongqing Medical and Pharmaceutical College
Chongqing – 401331, Chongqing, China. E-mail: 717139038@qq.com

³School of Economics and Management
Chongqing University of Posts and Telecommunications
Chongqing – 400065, Chongqing, China. E-mail: chenjing@cqupt.edu.cn

⁴School of Economics and Management
Chongqing University of Posts and Telecommunications
Chongqing – 400065, Chongqing, China. E-mail: 761140229@qq.com

²Corresponding author

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Abstract. This paper is based on the situation of whether there is a psychological gap (degree of regret and claim willingness) between different types of products (high price or low price) and price discount promotion. This paper uses empirical research to understand the consumer's reaction and make corresponding conclusions, and then gives marketing Suggestions. The results show that the interaction between income and discount presents a significant negative correlation between the two dimensions of the psychological gap (degree of regret and claim willingness).

Keywords: discount range; product type; psychological gap; degree of regret; claim willingness

AMS Mathematics Subject Classification (2010): 62P25

1. Introduction

With the rapid development of the Internet in China, the number of online shoppers has increased dramatically. According to the 43rd "Statistical Reports on Internet Development in China" issued by CNNIC, as of December 2018, the number of Chinese netizens reached 829 million, and the Internet penetration rate was 59.6%. The development of the network has led to the expansion of e-commerce. In order to attract users and increase website traffic, e-commerce promotions are often seen on the e-commerce platforms. Kolter divides the sales method into gifts, discounts, coupons, return ticket, etc. [1]. When researching the impact of promotion methods on consumer

purchases, scholars believe that discount promotions can promote consumer purchases, which is also the most commonly used promotion tool in e-commerce platforms. However, such practices are sometimes not all beneficial. Consumers may also have a “reverse psychology” in such large-scale promotions because some consumers may have a psychological gap after the price cut, and thus may lead to a negative impact on brand evaluation. Therefore, it is necessary to conduct a separate study on the factors affecting the consumer's psychological gap.

In the e-commerce environment, the information involved in online promotion is delivered online, providing a basis for consumer decision-making [2]. However, due to the easy query of online news and the fact that sellers will encounter more informed and sophisticated consumers [3], e-commerce promotions are more difficult to perform than offline promotions. Chiang and Dholakia et al. found that most consumers would look for price information when shopping online, and the price of online purchase is undoubtedly one of the most important factors [4]. Price discount promotions affect consumer purchasing behavior [5]. Therefore, we believe that the type of product (high or low price) and discount range are very attractive to consumers' online shopping decisions.

Related literatures found that in online shopping, promotion has an impact on consumers' perceived value [6], cognition, affection, and conation [7]. However, there is no specific literature on whether different price products and different discounts will cause consumers' psychological gaps and even affect consumers' shopping psychology. This paper is based on the situation of whether there is a psychological gap (degree of regret and claim willingness) between different types of products (high price or low price) and price discount promotion. This paper uses empirical research to understand the consumer's reaction and make corresponding conclusions, and then gives marketing Suggestions. The research framework of this paper is shown in Figure 1.

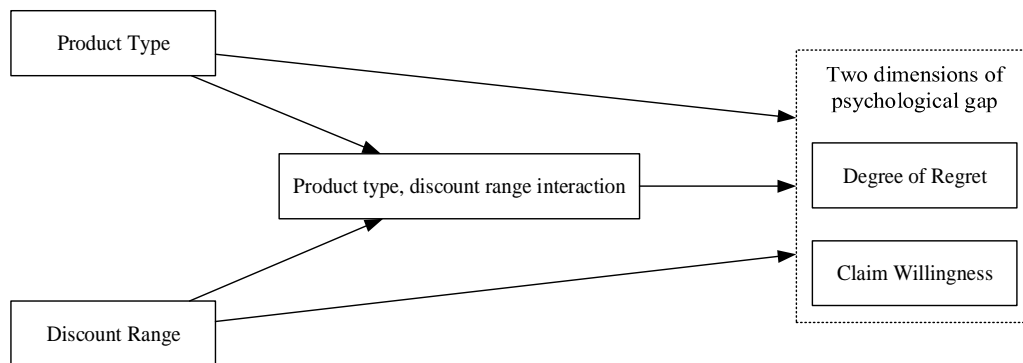


Figure 1: Research framework

2. Hypotheses

2.1. Degree of regret

Regret is a negative cognitive emotion that occurs when we realize or imagine that if we take different actions, our situation would be better [8]. After the actual purchase, consumer will conduct a post-purchase assessment, and the satisfaction of the post-purchase assessment is usually related to the consumer's previous expectations. Consumers will be satisfied if expectations are comparable to actual results or actual

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results are better. If there is a negative gap between the expected and actual results, there will be regrets. Pre-purchase behavior (information search and alternative evaluation) and post-purchase behavior (evaluation of product and service attributes) will affect the buyer's regret [9]. This paper argues that consumers will collect enough information when purchasing high-priced products to reduce the gap between actual and expected. For products with a large discount, consumers will have a higher tolerance. If the actual and expected gap is large, there will be no big regrets. Therefore, this paper proposes the following hypotheses:

H1: Product types and discount ranges have a negative impact on the degree of regret.

2.2. Claim willingness

In large-scale e-commerce promotional activities, consumers are often able to accept smaller psychological gaps. When there is a large psychological gap caused by e-commerce promotions, it will lead to negative emotions of consumers, resulting in some negative behavior, such as claims. This article believes that consumers will be more cautious when purchasing high-priced products, and have a certain understanding and acceptance of the negative results that will occur before purchase, so that the actual product will have greater acceptance which will reduce the willingness to claim. For the products with large discounts, consumers will be given a cheaper mentality, which will make consumers ignore the quality of the products. Therefore, this paper proposes the following hypotheses:

H2: Product types and discount ranges have a negative impact on the claim willingness.

2.3. Product type, discount range interaction

In network shopping, gender difference will lead to different decisions [10]. Product type and price are generally related to gender [11]. Therefore, we believe that men and women have different perceptions of product price and discount. Income can affect the price sensitivity of consumers [12], thus influencing consumers' attention to the price and discount of products. Such product type interaction and discount range interaction can also influence consumers' psychological gap (degree of regret and claim willingness). Therefore, this paper proposes the following hypothesis:

H2: Product types interaction and discount ranges interaction have a negative impact on the psychological gap.

3. Methods

3.1. Experimental design

From the common sales products of major e-commerce platforms, this experiment chooses two kinds of products which represent two different dimensions of high price and low price, and carries out price reduction of different discounts to observe the influence of this behavior on consumers. According to the data selected from the e-commerce platform, the experiment finally chose a USB flash drive (32G) worth 40 yuan and a mobile hard disk (1T) worth 400 yuan, and reduced them by 20% and 50%

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respectively. Under the circumstances of different value and price reduction of selected products, this paper observes and concludes the different behaviors of the consumers. The experimental product and discount grouping are shown in Figure 2:

	20% Price Reduction	50% Price Reduction
40-yuan USB flash drive	(1)40-yuan USB flash drive 20% off	(2)40-yuan USB flash drive 50% off
400-yuan mobile hard disk	(3)400-yuan mobile hard disk 20% off	(4)400-yuan mobile hard disk 50% off

Figure 2: Products and discount groups

3.2. Measures

In this experiment, 4 questionnaires were set up, and each questionnaire had 7 questions. The first 1-6 were single-choice questions, which were based on basic understanding of the tested consumers from the perspectives of gender, age, online shopping experience, frequency of online shopping, average monthly disposable income and average online shopping cost. The four questionnaires for this part are the same. The last question is the seventh question. The products in the title are replaced by a 40-yuan USB flash drive (32G) and a 400-yuan mobile hard disk (1T). The discount range in the title is replaced by 20 % and 50%. Design two dimensions (degree of regret and claim willingness) for a total of eight questions measured with Likert 5 Scale, and four questionnaires are not cross-filled.

Sampling through the cooperation of online survey companies, four links were distributed to different testers, male and female with different ages, from all over the country. A total of 192 valid questionnaires were collected from the four questionnaires, among which 45 USB flash drives with a price reduction of 20%, 41 USB flash drives with a price reduction of 50%, 55 mobile hard disks with a price reduction of 20%, and 51 mobile hard disks with a price reduction of 50%.

4. Results

This paper uses regression analysis and SPSS 23.0 to test the hypothesis. In the regression analysis, following the common method, we centralize the variables scores (subtracting the mean value of variables), before calculating interaction terms [13]. The results of the regression analysis are shown in Table 1. In the four models of Table 1, the variance inflation factor (VIF) of each variable is much less than 10, indicating that the multicollinearity is not serious and the analysis results are reliable.

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Table 1: Results of regression analysis

variable	Dependent variable: degree of regret		Dependent variable: claim willingness	
	Model 1	Model 2	Model 3	Model 4
(Constant)				
Gender	0.033	0.020	-0.070	-0.083
Online Shopping Frequency	0.143	0.187*	0.190*	0.230**
Spend less than 100 yuan	-0.284*	-0.340**	-0.182	-0.234*
Spend 100 to 300 yuan	-0.125	-0.169	-0.007	-0.046
Income	-0.026	-0.031	-0.136	-0.139
Product	-0.034	-0.039	-0.088	-0.092
Discount	-0.082	-0.090	-0.077	-0.085
Gender x Product		-0.136		-0.130
Gender x Discount		0.072		0.077
Income x Product		0.007		0.014
Income x Discount		-0.174*		-0.159*
R^2	0.085	0.131	0.088	0.129
F	2.433*	2.468**	2.541*	2.426**
ΔR^2	0.085	0.046	0.088	0.041
F of ΔR^2	2.433*	2.401	2.541*	2.116
Max VIF	1.904	1.981	1.904	1.981

Note. 1) coefficient had been standardized; 2)* indicates $P < 0.05$, ** indicates $P < 0.01$, *** indicates $P < 0.001$.

Model 1 only includes gender, online shopping frequency, average online shopping cost (divided into below 100 yuan, 100 to 300 yuan), income, products, and discounts. From Model 2, the results show that the cross-terms of income and discount have a

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significant negative impact on the degree of regret ($\beta=-0.174$, $p<0.05$). Mode 3 also includes only gender, online shopping frequency, average online shopping cost (divided into below 100 yuan, 100 to 300 yuan), income, products, and discounts. From Model 4, the cross-terms of income and discount have a significant negative impact on the degree of regret ($\beta=-0.159$, $p<0.05$). Therefore, H3 is supported; H1 and H2 are not supported. It can be concluded that the interaction between income and discount presents a significant negative correlation between the two dimensions of the psychological gap (degree of regret and claim willingness). That is to say, the high-income group has a low degree of regret and a low willingness to claim in the case of a high price discount (relative to a low-price discount). This shows that in the case of discount promotions, consumers of different income groups will show different attitudes when they view different price discount.

5. Conclusion

In recent years, science and technology development in China has driven the rapid development of network and online shopping. Major e-commerce companies have launched a series of competitions for customers. Among them, e-commerce promotion is applied to all aspects as the most common marketing behavior, but such behavior cannot stick to old customers or attract new customers for a long time, which may even have a negative impact on brand evaluation. This paper finds out this situation from the field of e-commerce promotion, and make the empirical analysis on whether there is a psychological gap (degree of regret and claim willingness) between different types of products (high price or low price) and price discount promotion. The results show that the interaction between income and discount has a significant negative correlation with the two dimensions of psychological gap (degree of regret and claim willingness).

The theoretical significance of this paper is to supplement and improve the theoretical research in the field of consumer online shopping, by revealing the impact of price discount promotion on the psychological gap of consumers after purchase. This paper can provide a reference for e-commerce companies on how to reduce the psychological gap of consumers.

The practical significance of this paper is to help e-commerce platform design marketing recommendations. Hierarchical pricing is also adopted for high-income and low-income people, because the high-income group has a low degree of regret and a low willingness to claim in the case of a high price discount (relative to a low-price discount). Specifically, it is possible to divide customers into high-income groups and low-income groups according to the amount of consumption and unit price, and to offer small-scale price reductions to low-income groups on a regular basis, or to issue freely denominations of corresponding brands for free. Different marketing schemes for different groups of people can better achieve the effect of e-commerce promotion and effectively avoid the negative evaluation brought by the promotion to consumers.

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