Research on the Influencing Factors of the Return and Exchange Rate of E-commerce Live Broadcast

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Abstract. With the rapid popularization of the Internet, live broadcast has become an increasingly popular e-commerce promotion and marketing strategy. Article 25 of the Consumer Protection Law stipulates that live broadcast with goods as a new online shopping method provides a seven-day service of goods return and exchange without reason. Therefore, it is of great importance to study the return and exchange service of live broadcast e-commerce. This paper analyzes the impact of live broadcast e-commerce return service on sales data from the perspective of merchants and consumers, and helps e-commerce with high return rate to find the reason.

1. Introduction

With the rapid development of Internet technology and the increasing popularity of intelligent devices, live broadcast e-commerce has flourished in recent years. After the outbreak of the COVID-19 in 2020, the epidemic control led to the depression of offline stores and further promoted the development of "live broadcast".

"Live broadcast with goods" is a new e-commerce model, which is similar to the traditional e-commerce model. Compared with offline store consumption, consumers need to face many uncertain factors, and consumers' "risk aversion" is not conducive to e-commerce sales. In order to alleviate such problems, e-commerce platform has launched a return and exchange service. [1]But at the same time, businesses should control the actual benefits and increased costs brought by the return and exchange service.

This paper will analyze the impact of return and exchange services on sales data from the perspective of business behavior and consumer behavior. In terms of businesses, providing consumers with products that do not meet their consumption expectations will lead to higher costs. On the consumer side, the vicious purchase behavior of using the product within the return and exchange period and returning the product upon expiration will also increase the cost in the transaction.

However, many businesses only pay attention to the positive data brought by the live return and exchange service, reduce the viewing time of consumers, dispel their concerns, improve the order quantity of goods, but they ignore the negative data. Consumers consider the actual demand or the return behavior of goods that do not meet expectations, which increases the return rate of goods.

Therefore, in the context of the rapid development of live broadcast with goods, this article starts with the impact of e-commerce return and exchange services on businesses, so that businesses can realize the benefits of return and exchange services will also bring some disadvantages, helping businesses analyze sales data from more dimensions, thus optimizing e-commerce marketing strategies and promoting e-commerce development.

2. Theory and Hypothesis

The e-commerce return and exchange service is conducive to reducing consumers' purchase concerns and promoting consumers to increase impulsive consumption, including "return freight insurance", "7 days to return without reason", "rapid refund", "collection delivery return", "guaranteed return for damage", "automatic return after expiration" and so on.

In 2011, Shen Chenglin and other scholars proposed that the defect-free return model provided by businesses not only improved customer satisfaction and improved the competitiveness of enterprises, but also increased the cost of businesses, resulting in the loss of some profits. [2]Yang Peng and other scholars used the New sboy model to study the problem of a large number of defect-free returns in e-commerce, regarded the additional costs incurred by the company for customer returns as promotional expenses, and proposed that a proper proportion of the costs shared by businesses can improve the revenue of businesses and optimize the performance of the supply chain. It can be seen that it is reasonable for businesses to provide return and exchange services.[3]

Therefore, this paper puts forward the following assumptions.

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2.1. E-commerce return service and purchase rate

The return policy of online retailers can be divided into loose return policy and strict return policy according to the requirements of each dimension. The loose return policy is composed of a long return period, low effort level and high refund guarantee. The strict return policy is composed of a shorter return period, high effort level and restrictive refund. According to the signal theory, a loose return policy will send a higher quality signal to consumers, thus increasing consumers' willingness to buy. At the same time, based on the risk theory, the loose return policy will reduce the cost for consumers to change their failed decisions, increase the reversibility and flexibility of their decisions, and thus increase consumers' willingness to buy. Therefore, the loose return policy will send a signal of high-quality products to consumers, and at the same time reduce their purchase risk, thus increasing consumers' willingness to buy.(Shao Bingjia, He Weixun, Jiang Fei)[4]

Therefore, this paper puts forward the following assumptions：

H1: E-commerce return and exchange service improves e-commerce purchase rate

2.2. Purchase rate and return rate

In the context of online shopping, in order to reduce the losses caused by their own decision-making mistakes, consumers often increase the return and exchange behavior to compensate for the regret tendency caused by irrational shopping behavior. The behavior of returning a product to a merchant after purchasing a product is called return behavior, which is affected by the subjective return intention. When consumers subjectively believe that they can choose to return or exchange goods, the level of self-control perception of consumers becomes the main factor affecting the willingness to return or exchange goods, so they are more willing to make a return choice.(Wu Guoying)[5]

Therefore, this paper puts forward the following assumptions：

H2: E-commerce purchase rate increases the return rate of e-commerce

2.3. The increase in the purchasing rate of e-commerce and the number of samples will lead to a corresponding increase in the return rate.

H3：E-commerce return and exchange service will improve e-commerce return rate

3 Research Method

This paper mainly adopts the method of literature

3.1.Sample determination

The data used in this paper is based on the research of Wu Guoying and Yan Jiangang in 2020. They took 1000 consumers who watched the live broadcast of e-commerce and bought products as the research object. A total of 1000 questionnaires were collected, including 500 online questionnaires and 500 offline questionnaires, with an effective recovery rate of 84.24%. In terms of gender, female live shopping accounted for 58.58%. In terms of age, more than 80% of the subjects were under 30 years old. In terms of educational background, more than 70% of the research objects are university (college) degree or above. In terms of the average monthly consumption level of online shopping, 88.77% of the respondents concentrated within 4000 yuan.[5]

This paper also cites the research data of Shao Bingjia, He Weixun and Jiang Fei in 2017, and takes college students, one of the main forces of online shopping, as the experimental objects. After ensuring the effective control and measurement of variables, the questionnaires are distributed and recycled on the well-known online survey platform. By preparing a formal questionnaire on a well-known online survey platform and generating a link, and then sending the experimental link to each subject through QQ and WeChat, they are required to complete the experiment on their own online. A total of 240 people participated in the formal experiment, of which 47 people did not correctly judge the return period of the shopping website in the experimental situation so they are eliminated. Finally, 193 valid questionnaires were actually received, and the effective questionnaire recovery rate was 80.4% . The experimental group of this study is designed as 2 (return policy: strict vs. loose) × 2 (website name familiarity: high vs. low), thus forming four different experimental scenarios.[4]

3.2. Data collection and processing

This study drew lessons from several mature scales on the measured variables, and then determined the final scale through exploratory factor analysis and related tests.[5] In addition, in order to make the scale design easier to understand, the research scale design introduced live broadcast e-commerce related scenarios, and modified relevant issues to better meet the research needs. The results show that the overall KMO value is 0.912, the KMO value of the characteristics of the return service of live broadcast e-commerce is 0.874, the KMO value of consumer psychological perception is 0.832, the KMO value of consumer behavior is 0.857, all of the above values are greater than 0.6, and the P value is 0.000, which is suitable for factor analysis. The load factor of each measurement item is greater than 0.6, and the cumulative variance contribution rate is 72.44%, which shows that the scale design meets the statistical requirements and can be formally investigated.

This study uses SPSS22.0 software to conduct Cronbach's α reliability test, the reliability test of each variable is greater than 0.7, and the result of reliability test is relatively good. The load factor coefficient,

average variance extraction (AVE value) and combined reliability (CR value) were used to test the validity. The results showed that the load factor of each measurement item was greater than 0.6, the AVE value was greater than 0.5, and the CR value was greater than 0.7, indicating that the convergent validity was relatively good. The fitting test shows that the CMIN/DF value of the fitting model in this study is 2.128 ＜ 3, the GFI value is 0.904 ＞ 0.9, the CFI value is 0.914 ＞ 0.9, the IFI value is 0.907 ＞ 0.9, and the RMSEA value is 0.073 ＜ 0.08. Therefore, it meets the statistical requirements of the fitting model, and the fitting effect is relatively good. Through the differentiated validity test of the live broadcast return service, perceived value, expected inaction regret, impulsive purchase behavior, return and exchange behavior and sense of power, according to the fitting index test of the multi-factor fitting model, the six-factor model has the best fitting index compared with other factor models. It can be seen that the discriminant validity of the scale is good, and the hypothesis test can be carried out.

In order to ensure effective manipulation, a pretest experiment was conducted, and the measurement results of 20 valid samples showed that α among the coefficients are greater than 0.7. At 95% confidence level, they all passed the independent sample T test, and the operation was successful.

This paper conducts exploratory factor analysis and confirmatory factor analysis on the collected scales. SPSS20.0 software is used for reliability test.

As shown in Table 1, all constructs of Cronbach's α are all above 0.937 and more than 0.7, indicating that the internal consistency of each construct is high. Through the factor load value in the confirmatory factor analysis, it can be calculated that the combined reliability (CR) of each potential variable is above 0.96, far exceeding the recommended benchmark value of 0.7, and the average variance extraction value (AVE) of each variable is also greater than 0.88, indicating that the combined reliability of all constructs is very high. The construct validity is mainly evaluated by convergent validity and differential validity. As shown in Table 2, the factor load of all constructs is greater than 0.5, indicating that the convergence validity is high. Besides, all AVE values are higher than 0.50, and the square root of AVE values of all constructs is greater than its correlation coefficient with other constructs, indicating that the differential validity is good. To sum up, the data of this study has good reliability and validity, and it is suitable for further test and analysis.

4. Research Results

In order to test the main effect of the loose degree of return policy on the purchase intention and perceived fairness of the independent variable, this study uses one-way ANOVA to input the purchase intention and perceived fairness as dependent variables, and the loose degree of return policy as a fixed factor. When the return policy is loose, consumers' purchase intention is significantly higher than that when the return policy is strict. That is, the main effect of loose return policy on purchase intention is significant, in which M strict=3 45, M loose=4 91; F(1，191) = 46. 308，P = 0. 000 ＜ 0. 001. In other words, compared with the strict return policy of online retailers, consumers' purchase intention is higher under the loose return policy, assumption H1 is verified. (Shao Bingjia)[4]

This study uses the method of hierarchical regression test to test the regulatory effect, taking impulsive purchase behavior as the independent variable, sense of power as the regulatory variable, regret behavior (return and exchange behavior) as the dependent variable, and sex, age, occupation, education, and average monthly consumption level of online shopping as the control variable, so as to obtain the results of the hierarchical regression model, as shown in Table 3. According to the data in Table 4, impulsive buying behavior has a positive impact on consumer’s return and exchange behavior （β = 0.195, p<0.001), H2 established.(Wu Guoying）[5]

Table 1. Reliability analysis of measurement table[4]

Construct	Item	Factor loading	CR	AVE
Loose degree of return policy Cronbach‘s α =0.946	Compared with the return policies of other shopping websites, this return policy is very loose	0.95	0.9613	0.8613
	Compared with the return policy of other shopping websites, this return policy has few restrictions	0.951		
	The return time limit of this return policy is very long	0.901		
	This return policy makes it very convenient for me to return goods	0.907		

Table 2. Average value and standard deviation load correlation coefficient of each variable（N=193）[5]

	1	2	3	4
1. Loose degree of return policy	0.9281			
2. Perceived fairness	0.737**	0.9433		
3. Purchase intention	0.541**	0.742**	0.9543	
4. Familiarity of website name	0.163*	0.345**	0.614**	0.9784
Mean value	4.7845	4.2943	4.0487	3.7420

Standard deviation	1.741	1.483	1.207	2.458

Table 3. Intermediary effect test[5]

Variable			Effect	BootSE	95% confidence interval		Proportion of relative effect （%）
Independent variable	Intermediary variable	Dependent variable			BootLLCI	BootULCI	
interactive quality	Perceived value	Impulsive purchase behavior	0.172	0.067	0.124	0.352	26.58
	expected inaction regret		0.392	0.072	0.083	0.263	60.59
Direct effect			0.083*	0.057	0.025	0.243	12.83
Total effect			0.647	0.062	0.143	0.365	100.00
Supportability	Perceived value	Impulsive purchase behavior	0.153	0.041	0.126	0.275	24.02
	expected inaction regret		0.412	0.065	0.135	0.368	64.68
Direct effect			0.072**	0.053	0.064	0.135	11.30
Total effect			0.637	0.072	0.234	0.374	100.00
effectiveness	Perceived value	Impulsive purchase behavior	0.167	0.053	0.092	0.292	25.34
	expected inaction regret		0.423	0.053	0.165	0.482	64.19
Direct effect			0.069*	0.068	0.062	0.183	10.47
Total effect			0.659	0.074	0.239	0.422	100.00
Looseness	Perceived value	Impulsive purchase behavior	0.157	0.067	0.044	0.201	27.69
	expected inaction regret		0.342	0.071	0.121	0.382	60.32
Direct effect			0.068***	0.063	0.073	0.165	11.99
Total effect			0.567	0.069	0.238	0.452	100.00

Table 4. Hierarchical regression model[4]

Variable	Regret behavior (return and exchange behavior)		
	Model1	Model2	Model3
Sexual distinction	0.125	0.273	0.241*
Age	0.089	-0.062*	-0.058*
Occupation	0.176*	0.131*	0.165*
Education Background	0.121*	0.096	0.212
Average monthly consumption level	-0.017*	0.009**	0.012**
Impulsive purchase behavior	——	0.195***	——
Sense of power	——	0.429***	——
Impulsive purchase behavior × Sense of power	——	——	0.128*
R2	0.065	0.413	0.452
△R2	0.051	0.372	0.063
F	5.824	31.207	27.412

5. Conclusion

This paper studies the relationship between e-commerce return rate and e-commerce return service. The conclusions are as follows. E-commerce return and exchange service improves e-commerce purchase rate, e-commerce purchase rate increases e-commerce return rate, and e-commerce return and exchange service improves e-commerce return rate. First of all, the previous research in this paper did not combine the return and exchange rate with e-commerce return and exchange services. This paper studies e-commerce return and exchange services by combining different research results. Secondly, in the context of the rapid development of e-commerce, it is necessary to study the impact of return and exchange services on e-commerce sales data. This paper also has certain limitations. Firstly, the data used in this paper is relatively old, which may lead to certain errors, and the research on data is not sufficient. Secondly, more research is needed on e-commerce return and exchange services to improve e-commerce return and exchange services so as to improve e-commerce purchase rate and reduce e-commerce return rate.

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