Study on the Influencing Factors of Zhengda Youxian Users

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Abstract. The purpose of this study is to explore the factors, service satisfaction and importance of users using online fresh platforms in the context of the rise of Internet technology and e-commerce. Through the binary selection model, four-gram model and analysis of comprehensive evaluation model of user behavior mode and service demand, the results show that users pay more attention to product type, quality and safety. It is suggested that enterprises improve distribution service and after-sales satisfaction, and focus on improving product quality and safety, so as to promote the development of the industry.

Keywords: logistic regression model; research on influencing factors of satisfaction; four-plot model; survey and analysis; mathematical modeling

1 Introduction

With the rise of internet technology and e-commerce, online fresh food platforms have gained significant attention. This study aims to explore the factors influencing users' adoption of online fresh food platforms and analyze their satisfaction and importance regarding services and products[1]. Through the analysis of binary choice models, quadrant analysis models, and comprehensive evaluation models, it reveals user behavior patterns and service demands, providing guidance for the e-commerce industry to promote its development and innovation. Therefore, this research contributes to optimizing products and services for e-commerce enterprises, enhancing user experience, and driving the sustainable development of the online fresh food industry.[2]

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2 Model Preparation

This survey collects data through a questionnaire survey in Chengdu. The questionnaire questions used in this study include as follows 1Table 1:

Table 1. 2 The questionnaire questions used in the study

Questionnaire questions			
sex	Satisfaction with the integrity of the goods preservation	Product quality satisfaction	Promotion frequency satisfaction
age	Importance of preservation integrity of goods	Importance of product quality	Importance of promotional frequency
work	Distribution range attitude satisfaction	Safety satisfaction of the product source	Picture physical consistency degree of satisfaction
income	Importance of delivery service attitude	Importance of product source safety	The importance of the physical consistency of the pictures
Fresh cost	Fresh price satisfaction	Delivery speed satisfaction	App safety satisfaction
Whether it is a yo over the fresh platform	The importance of fresh prices	Importance of delivery speed	Security importance of the app
Variety of rich satisfaction	Satisfaction with the intensity of promotional activities	Satisfaction with the pickup distance	After-sales service satisfaction
Variety is of great importance	The importance of promotional activities	Importance of the pickup distance	Importance of after-sales service

This survey is conducted through two stages of pre-investigation and formal investigation. The formal survey collected 1050 samples. The survey data all passed the reliability and validity tests.[3]

3 Study on the Influencing Factors of User use based on the Binary Selection Model

3.1 Establishment of the BINARY SELECTION MODEL

Using dummy variables for fitting and simplifying the model based on statistically standard practices due to the large amount of classified data and the nature of disordered multi-categorical variables like occupation[4].

The specific modeling process is described as follows:

We have the following variables:

y: Represents whether the fresh platform, with a value of 0 or 1.

$X_1, X_2, \ldots, X_p$: Represents an independent variable, which may include monthly fresh consumption expenditure, occupation and other information.

The basic form of the logistic regression model can be expressed as follows:

$$P(y = 1|X_1, X_2, \ldots, X_p) = \frac{1}{1+e^{-(\beta_0+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_p X_p)}} \quad (1)$$

$\beta_0, \beta_1, \ldots, \beta_p$Where, are the parameters of the model, also known as the regression coefficient. They represent the degree to which the independent variables affect whether to use the fresh platform[5].

3.2 Research on the Use of Group Characteristics of Online Fresh Platforms

Base class is usually the last option; if it's "other" or chosen less than 30 times, the one before becomes base. Using backward screening, variables insignificantly affecting were removed with significance level 0.1[6].

After multiple rounds of screening and excluding non-significant variables, the regression results were obtained as follows 3Table 2:

Table 2. 4 The variables in Eq

	B	standard error	Wald	conspicuousness	Exp(B)
sex	-.300	.126	5.677	.017	.741
Under the age of 19	.155	.126	.193	.061	.946
Step 1aBusiness, the service industry staff	-.472	.202	5.457	.019	.623
At about 500 to 1,000 yuan	.213	.291	.535	.065	1.237
constant	.367	.115	10.140	.001	1.444

The results of the model show that young age, engaged in business and services, and low monthly fresh consumption level are important factors affecting users' use of online fresh platforms.

4 Analysis of Online Fresh Factors based on the Telogram Model

552 satisfaction questionnaires and 1028 importance questionnaires were collected through surveys. Scores were assigned on a 1-5 scale, and based on these, research results were derived[7].

among:

Satisfaction score = satisfaction score * weight;

Importance score = Importance score * weight;

Weight = number of scores / number of valid questionnaires.

As show in figure 1.

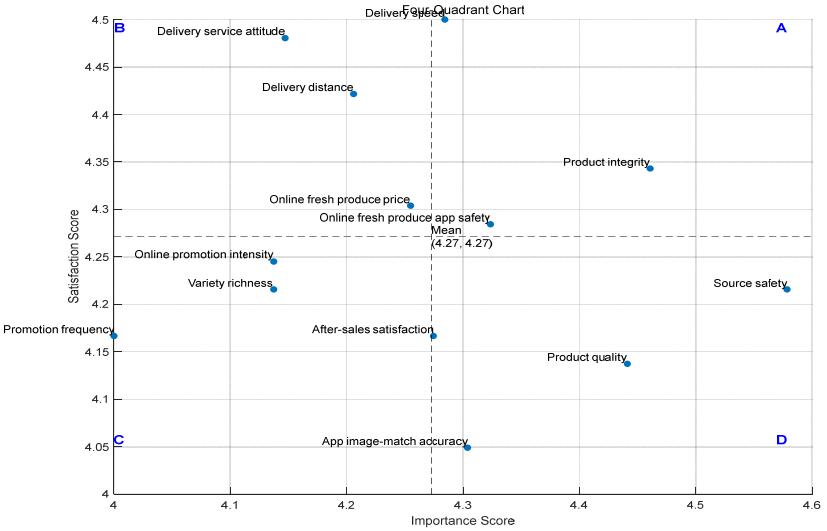

Fig. 1. is a telogram based on satisfaction and importance

According to the importance of user experience, enterprises should focus on Zone D, improve product quality, App physical consistency, product source safety and after-sales service satisfaction, while maintaining the advantages of Zone A and Zone B C, gradually optimize Zone C to enhance customer satisfaction and competitiveness, and promote the development of the industry.

5 Entropy Right-TOPSIS Method for Fresh Industry Satisfaction Evaluation

Here are the main steps of the entropy right-TOPSIS method[8]:

1. Data standardization:

The raw data matrix X was normalized to Z.

2. Entropy right calculation:

For each index j, its information entropy and entropy weights are calculated.

3. Calculate the weighted standardization matrix:

The entropy weight was multiplied by the normalized data matrix to obtain the weighted normalized matrix Y:

$$Y_{ij} = W_j \cdot Z_{ij} \tag{2}$$

4. Determine the ideal solutions and the negative ideal solutions:

$$A_j^* = m_{i=1}^{m} Y_{ij} \tag{3}$$

$$A_j^- = m_{i=1}^m Y_{ij} \quad (4)$$

5. Calculate the distance between each solution to the ideal solution and the negative ideal solution:

$$D_i^+ = \sqrt{\sum_{j=1}^n (Y_{ij} - A_j^*)^2} \quad (5)$$

$$D_i^- = \sqrt{\sum_{j=1}^n (Y_{ij} - A_j^-)^2} \quad (6)$$

6. Calculate the comprehensive score[9]:

$$S_i = \frac{D_i^-}{D_i^+ + D_i^-} \quad (7)$$

Based on the above principle, the weight of each satisfaction index is obtained as follows table 3:

Table 3. Weight results of entropy weight method

Item	Information entropy value e	Information utility value d	weight (%)
Variety and richness of online fresh food	0.983	0.017	7.845
Online fresh product quality	0.983	0.017	7.578
Online fresh product source safety	0.981	0.019	8.446
Online fresh delivery speed	0.982	0.018	8.081
Online fresh delivery and pickup distance	0.984	0.016	7.143
Online fresh delivery of goods preservation integrity	0.985	0.015	6.634
Online fresh delivery service attitude	0.985	0.015	6.707
Online fresh prices	0.982	0.018	8.352
The intensity of online promotions	0.986	0.014	6.514
Online fresh promotion frequency	0.982	0.018	8.263
Online fresh purchase app pictures and the physical match	0.982	0.018	8.088
Safety of the online fresh app	0.983	0.017	7.856
Online fresh purchase after-sale	0.981	0.019	8.494

The results of the entropy right method show that users pay more attention to the product type, quality and safety of the online fresh platform, while the delivery service and after-sales satisfaction are relatively low.

The specific score results of each user are showing figure 2:

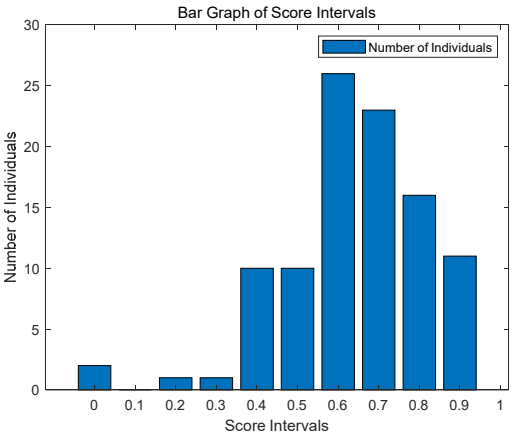

Fig. 2. for score visualization results

Most users' satisfaction with the app is between 0.6 and 0.8, accounting for 49.00%. However, some users give a low score. According to the results of entropy right-TOPSIS method, improvement measures include improving delivery service and after-sales satisfaction, focusing on product type, quality and safety[10].

6 Conclusion

This study through the binary selection model, four-point model and comprehensive evaluation model analyzes the user for the use of online fresh platform factors, service satisfaction and importance, the results show that users pay more attention to product types, quality and safety[11], suggest enterprises improve distribution service and after-sales satisfaction, focus on improving product quality and safety, to promote the development of the industry[12].

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