Construction of Customer Loyalty Evaluation System for Express Delivery Enterprises

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Abstract. In recent years, the express delivery market has developed rapidly. As a third industry express delivery in an invincible position in the complex and ever-changing industry environment is the primary problem solved by the express delivery enterprise leadership. As a model representative of China's private express delivery, SF Express has a great significance in evaluating the customer loyalty of SF Express. Based on the theoretical research and actual investigation and research of customer loyalty, this paper constructs the evaluation index system and hypothesis model of customer loyalty, taking SF Express as an example. Through the questionnaire survey, the customer evaluation data was obtained, and the factor analysis method was used for analysis. Six main factors including time quality, service quality, delivery quality, error processing quality, price quality and personalized service quality were extracted, and the main influencing factors and loyalty were adopted. Research on relationships and other aspects, and propose method strategies to improve loyalty.

Keywords: express delivery company; customer loyalty; factor analysis; SF Express.

1. Introduction

In today's rapid economic situation, the changes in the express delivery market are more difficult to predict, and the competition in the express delivery industry has become more and more intense. The logistics industry is mainly built for the manufacturers of products and the demanders of products. Bridge. Achieving higher customer loyalty will also gradually become a concentration point for competition that logistics companies can continue to develop.

According to the search of relevant literature, it can be seen that Chinese domestic scholars have made a lot of exploration and research on the evaluation of customer loyalty of express delivery enterprises, and some scholars have made many in the research of customer loyalty of express delivery enterprises. Practical measures for building meaning. Wu Rongmei (2018) believes that while the express delivery industry is developing rapidly, there will be various inevitable problems. Because people's needs are also changing with the times, if they can't meet the needs of customers, the consequence is that the customer's complaint rate will continue to grow. Service quality has become a roadblock for the development of logistics companies. Therefore, how to improve the service quality of enterprises is studied . Yan Shuhua (2018) follows the research paradigm from theory to evidence to countermeasures, the theoretical framework and the construction of empirical models, and uses SWOT analysis to analyze the advantages and disadvantages of Yuantong Express Co., Ltd. in Nanchang, and the opportunities faced in the current situation. Customer relationship management improvement methods related to challenges, design, and safeguards. Lotko, Korneta and Longwic (2018) proposed that customer satisfaction and customer loyalty are positively related. The improvement of customer satisfaction can greatly improve customer loyalty, market share and corporate profits will also be obtained. A substantial increase.

2. Construction of Customer Loyalty Indicator System and Hypothetical Model of Express Delivery Enterprise

At present, scholars at home and abroad are different in researching customer loyalty, because the research purposes of each scholar and the fundamental foothold of research are different. Therefore, many models for evaluating customer loyalty are proposed respectively. Widely used in social practice. According to the related concepts of customer loyalty, combined with the research of

relevant scholars at home and abroad, it is considered that service performance, delivery performance, price rationality and after-sales performance are the main influencing factors. Based on these key factors, a model for evaluating the loyalty of express delivery customers is constructed.

The newly created model is divided into three levels according to the above main influencing factors: "customer loyalty" as the first level indicator of the target layer, basic elements "service performance", "delivery performance", "price rationality" and "sales after sale". "Performance" is set as a secondary indicator, and then the specific items included in the above basic elements are set as three-level indicators, and the third-level indicators are the refinement and specification of the secondary indicators. Finally, the customer loyalty evaluation index system is obtained, as shown in Table 1.

Table 1. Common indicators of customer loyalty research

Influencing factor	Item corresponding to the measurement index
Service performance	Professionally explain the service content
	Kindly answering questions
	Accurate information provided
	Customer chooses delivery time and location
	Accept all types of payment methods
	Quickly implement orders
Delivery performance	Delivered goods on the promised date
	The delivered goods match the order
	Commodity packaging science to prevent damage
	No damage to the goods
	No loss of goods
Reasonable price	Set price according to quality and volume
	Price is in line with market regulations
After-sales performance	Find a negotiated contact
	Give a satisfactory solution
	Effectively handle business consulting, handling and complaints

3. Empirical Research on Customer Loyalty: Taking SF Express as an Example

According to the guidance of the customer loyalty evaluation system of the express delivery enterprise, the design and distribution of the relevant questionnaires are completed. The selected population includes students, workers, and relevant staff and service personnel of SF Express. The main use of the Likert five-level scale is to design the questionnaire. In addition to the basic information of the first part of the survey, answer the questions about the basic indicators of SF Express customer loyalty. The Likert five-level sequential scale is designed to solve the problem. The investigators are divided into five different grades for the various quality performances of SF Express:

very dissatisfied, dissatisfied, general, satisfied, Very satisfied, their corresponding assignments are 1, 2, 3, 4, 5.

3.1 Questionnaire Recovery and Statistics

In this questionnaire, a total of 500 questionnaires were distributed, 492 were collected, and a total of 32 incomplete invalid questionnaires were removed. A total of 460 valid questionnaires were collected, and the effective recovery rate reached 92.0%, which was the basic of the questionnaire. The requirements can also meet the collection of raw data for this survey.

(1) Reliability analysis of the questionnaire

In the processing of the questionnaire, the reliability analysis of the questionnaire is mainly based on the relevant reliability statistics table. If the reliability coefficient is greater than 0.7, we think it is reliable. If it is lower than 0.4, we think the questionnaire needs to be adjusted. Through SPSS software, we obtained the test results of the five-level scale related content in this questionnaire as shown in Table 2: The clone Bach coefficient is 0.816, which is greater than 0.7, indicating that the scale is reliable and the questionnaire design is reasonable.

Table 2. Loyalty Reliability Statistics

Clone Bach coefficient	Clone Bach coefficient based on standardized projects	Number of items
0.816	0.816	16

(2) Validity test of the questionnaire

Validity is one of the most important indicators in the design of questionnaires. He can reflect the fact that the design results of the questionnaire can reflect the authenticity of the survey behavior. The higher the validity, the better the truth, and the more effective the survey behavior is. In this formal survey, the validity test mainly detects whether the designed questionnaire can objectively and truly reflect the loyalty of SF Express customers, and can reflect whether it is a factor of customer loyalty. The validity of the test is mainly through the comparative analysis of the existing loyalty studies and through the factor analysis of the questionnaire, we can find that the cumulative variance of the four common factors has reached 80%, more than 50%, which indicates that the questionnaire is very effective. Sex.

3.2 Analysis of Factors Affecting Customer Loyalty

3.2.1 Factor Analysis of Customer Loyalty

The questionnaire data was analyzed by SPSS software. The KMO test and Bartlett test results in the questionnaire were calculated to be 0.865 and 0 respectively, and the KMO was suitable for factor analysis between 0.8 and 0.9. The significance coefficient is 0, both of which pass the test. The results show that the questionnaire is suitable for factor analysis.

Table 3. Total variance explanation table

No.	Initial eigenvalue			Extracting the sum of squared loads			Sum of squared rotational loads		
	Total	% of variance	accumulation %	total	% of variance	accumulation %	total	% of variance	accumulation %
1	3.537	22.105	22.105	3.537	22.105	22.105	2.783	17.394	17.394
2	3.247	20.297	42.402	3.247	20.297	42.402	2.761	17.258	34.651
3	2.098	13.110	55.512	2.098	13.110	55.512	2.189	13.679	48.330
4	1.665	10.404	65.916	1.665	10.404	65.916	1.940	12.125	60.455
5	1.324	8.275	74.191	1.324	8.275	74.191	1.852	11.574	72.029
6	1.015	6.347	80.538	1.015	6.347	80.538	1.361	8.509	80.538
7	.865	5.406	85.649						
8	.756	4.727	90.118						

In this paper, the principal component analysis method is mainly used to extract and analyze the factors. The number of common factors extracted in this paper is six, which is more suitable. The cumulative variance of the sixth factor has reached 0.80, which can reflect most of the indicators of this questionnaire. information. Each factor load matrix is rotated to achieve a well-defined effect, with high loads on each individual factor. By using the most commonly used variance maximum orthogonal rotation method, the factor after rotation can be obtained, and it is thus concluded that the common factor F1 is in question "Can SF Express quickly implement the express delivery order", and whether " SF Express can deliver on the promised date" The problem of goods, etc., so the public factor F1 is a comprehensive reflection of the time quality of SF Express. The public factor F2 is on the question "Can SF Express service staff professionally explain the content of service management" and " SF Express service personnel can answer questions related to goodness", so the public factor F2 is a comprehensive reflection of SF Express service. Quality factor. The public factor F3 is on the question "whether the goods delivered by SF Express are in line with the order", "the goods delivered by SF Express are not damaged", and "the goods delivered by SF Express are not lost", so the public factor F3 is a comprehensive reflection of SF Express. The quality of the delivery factor. The public factor F4 is in the question " SF Express can easily find the contact person who solves the problem when there is a problem in the delivery", "Whether the staff and the company can give a satisfactory answer when providing the inquiry service of the goods", " SF Express Whether it can effectively deal with customer business consulting, business handling, complaints and other issues, so the public factor F4 comprehensively reflects the quality of SF Express error processing. The public factor F5 is on the question of whether the question can be based on the quality and volume of the goods, and whether the price meets the market norms. Therefore, the public factor F5 is a factor that comprehensively reflects the price quality of SF Express. The public factor F6 is in the question " SF Express provides accurate information when providing inquiries for goods." "Can SF Express allow customers to freely choose the time of delivery and the place of delivery", "Can SF Express accept

various kinds?" The type of payment method, "whether the product packaging of SF Express is scientific and can prevent the damage of goods during transportation", so the public factor F6 is a comprehensive reflection of the personalized service level of SF Express.

Table 4. Rotated Component Matrix

	1	2	3	4	5	6
X_1		.794				
X_2				.716		
X_3	.627					
X_4		.807				
X_5			.622			
X_6	.679					
X_7				.861		
X_8						.966
X_9						.752
X_{10}			.770			
X_{11}			.794			
X_{12}						.939
X_{13}						.769
X_{14}					.902	
X_{15}					.769	
X_{16}				.823		

From the factor score coefficient matrix, you can write the expression of the above six common factors:

$F1=0.627*X_3+0.679*X_6$
$F2=0.794*X_1+0.807*X_4$
$F3=0.622*X_5+0.770*X_{10}+0.794*X_{11}$
$F4=0.716*X_2+0.861*X_7+0.823*X_{16}$
$F5=0.902*X_{14}+0.769*X_{15}$
$F6=0.966*X_8+0.752*X_9+0.939*X_{12}+0.769*X_{13}$

Then we equate the six common factors in the above-mentioned factor analysis results. They are the time quality, service quality, delivery quality, error processing quality, price quality and personalized service quality of SF Express.

3.2.2 Regression Analysis of Customer Loyalty

According to the above research, the SF Express customer loyalty index is measured and analyzed, and combined with the current status of SF Express customer loyalty, the factors of time quality, service quality, delivery quality, error processing quality, price quality and personalized service quality are considered. The main influencing factors affecting SF Express customer loyalty. Regression analysis is a statistical analysis method that judges the relationship between variables and determines the causal relationship between independent variables and dependent variables.

Using these common factors as independent variables, customer loyalty is used as a dependent variable to analyze the impact of these common factors on SF Express's customer loyalty. In the process of calculation, if there is a direct impact on the impact of SF Express customer loyalty, then we use this common factor as an independent variable. Multiple linear regression analysis was performed using SPSS 22.0 software. The standardized regression coefficients of each variable are 0.426, 0.388, 0.083, 0.158, 0.411, and 0.365 respectively: the significance level of each variable is less than 0.010, so there is significant significance, indicating that these six variables are obviously.

Since the explanatory variables of this paper are multivariate, the judgment coefficients are used to detect the goodness of fit of the model to the sample observations. The goodness-of-fit model is shown in Table 3 below

Table 5. Model summary

Model	R	R-squared	Adjusted R-squared	Standard estimated error
1	.816[a]	0.665	0.661	0.3518

It can be seen that the determination coefficient R^2 is 0.665, and the adjustment determination coefficient is 0.661, indicating that there is a possibility of 66.1% to explain the customer's loyalty, and the goodness of fit is ideal. The variance analysis table reflects the overall effectiveness of the regression equation. The probability value of the F test is 0.000<0.010, which indicates that the dependent variable in the model has a linear relationship with the independent variable, and the equation is highly significant and effective. Therefore, the analysis results show that the standardized regression equation obtained is:

F (customer loyalty) =0.426*F1 (time factor) +0.388*F2 (service factor) +0.083*F3 (delivery factor) +0.158*(error processing factor) +0.411*(price factor) +0.365* (personality Service factor).

4. Conclusion

This paper uses SF Express as an example to study the customer loyalty of express delivery enterprises, establishes the relevant index system of customer loyalty and the establishment of hypothesis model, and obtains the main factors affecting loyalty of SF Express customers through factor analysis method, and extracts time quality and service. The six main factors, such as quality, delivery quality, error handling quality, price quality and personalized service quality, studied the relationship between customer loyalty and six factors.

Through analysis, as a courier company, on the one hand, it is necessary to speed up the speed of cargo transportation, enhance the customer's "fast" feeling, strengthen the service training of enterprise employees, and narrow the distance with customers' expectations; on the other hand, it is necessary to set the express price reasonably and create health. Express delivery market. Finally, for SF Express, although the current customer loyalty has reached a certain degree of improvement, but still face many challenges in the future. So how to balance the relationship between customer loyalty and profit is also a part of further research. In any case, grasping the expectations of customers, improving the customer experience and meeting the needs of customers should be the main direction of action of SF Express in the future.

Acknowledgments

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