

The Study of Choice on the Influence of Consumer's Take-out Food Electronic Commerce in China

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Abstract: The development of take-out food industry is closely related to economic growth. The epidemic situation in recent years has further promoted the vigorous development of the takeout industry. This study analyzes the basic data of the collected samples. The reasons why the respondents used the take out food e-commerce were for daily meals. We conduct pearson correlation analysis on the factor dimensions of the items: transportation service, food safety, delicious food, promotion method, transaction perception are highly correlated. Further analysis shows that each factor affects the value of the determination coefficient. In the way of transportation service and promotion method, these two factors have higher path coefficient values. Therefore, the take out food industry can find the main factors to improve the industrial service quality from the above factors.

Keywords: telecommuting, online food delivery, electronic commerce, take-out food

1. Introduction

With the rapid growth of the "Internet+" economy, take out ordering food has become a necessity in the life of people in today's society by virtue of its great convenience. The takeout platform relies on big data processing technology and artificial intelligence technology, and obtains the optimal route and basically reasonable delivery time after systematic algorithm calculation. At the beginning of 2020, affected by emergencies, consumers will reduce the frequency of going out for meals. The business turnover of the enterprise has decreased significantly. For some small catering enterprises with weak risk resistance, this emergency has caused a huge impact on them. During the epidemic prevention and control period, many colleges and universities reduced the implementation of measures to ensure the safety of students, which also led to the inevitable occurrence of reform and innovation in the catering industry.

At the same time, the takeout application (APP) has become the first choice for the catering industry to achieve transformation, and also brings new opportunities for the catering industry. The online takeout transaction volume of some well-known merchants who have operated for many years has risen sharply, relieving the pressure that some catering operators have no consumers to some extent. (Ting et al., 2022)[1]. In addition, with the development of science and technology and economy, the popularity and diversification of payment methods, take out food APP, as a new industry, has gradually been accepted by the public. It also rose rapidly under the special background of normalization of epidemic prevention and control (Wu et al.,2022)[2].

By the end of 2021, the number of online takeout users in China is close to 500 million, and the takeout income accounts for 21.4% of the national catering industry income, which is still growing rapidly (Wang et al., 2021)[3]. It is estimated that by 2030, the digital economy will account for more than 50% of global GDP. The rise of digital economy promotes the new integration of catering industry and digital technology, leading the highly vigorous development of catering industry. The new catering model of takeout is one of the products of the integration of catering industry and digital technology (Wang et al.,2022)[4].

2. Literature Review

Taking "Meituan takeout" as an example, its core resource advantage lies in its abundant online traffic of Meituan takeout, which, by virtue of its early user data accumulation, has taken the lead in user precise positioning. Meituan takeout also has a powerful intelligent system for real-time distribution and scheduling, covering 2800 cities and counties across the country, realizing 24-hour uninterrupted distribution. The profit sources of Meituan takeout mainly include: commission, distribution fees, store ranking, advertising fees, etc. Among them, the core profit point is the proportion of the merchants, which is divided into two modes: platform distribution and merchant self distribution. The proportion of the platform distribution is higher than that of the merchant self distribution (Tang et al.,2022)[5].

Among the issues that affect consumer satisfaction and loyalty, many scholars have found after research. Consumers need not only good products or services, but also the most unforgettable experience in the journey of consumption. In terms of improving customer satisfaction, the factors include experience, perceived value and website quality. When customers are highly satisfied with the website, their loyalty to the website will be enhanced. This perception factor can explain the difference between the improvement of website service quality and consumers' perceived value and satisfaction(Ku en tl,2013)[6].

The research found that on the level of online shopping services, the purchase contract between consumers and online merchants. Consumers will be satisfied with the remedial measures taken by online merchants after service failure, and will have an impact on the subsequent repurchase intention and word of mouth communication. Once consumers understand that online shoppers fail to fulfill the contract, they will have negative emotions, and breach of the psychological contract for service recovery will occur, which will further affect consumers' subsequent consumption behaviors towards the online merchants (Hung en tl.,2015)[7].

To sum up, the operation of the take out platform is closely related to the expectations of consumers. Therefore, this study assumes: transportation service, food safety, delicious food, promotion method, transaction perception. We will conduct a statistical hypothesis test on the interaction of the five factors.

3. Research methods

3.1. Questionnaire design

This research takes Huai'an university students as the research object, and issues the questionnaire in October 2022. In this study, the sampling method will be convenience sampling, and the items of the questionnaire will be designed with the Liker 5-point scale. A total of 116 valid questionnaires will be collected. The reliability of the questionnaire items is (Cronbach's α) 0.948.

3.2. Contents of questionnaire items

The questionnaire items are divided into five dimensions, namely: 1 transportation service, 2 food safety, 3delicious food, 4 promotion method, 5 transaction perception. The variables of this study were pre-tested before the formal implementation of the questionnaire, and the pre-test questionnaire was analyzed by factor analysis and reliability analysis. Refer to the reply of the subject; In addition to deleting and modifying the inapplicable questions, measurement questions are also added and deleted for the dimensions with poor analysis results in order to improve the reliability and validity of the questionnaire content and improve the quality of the questionnaire. Scholars believe that Cronbach ' α As long as it is above 0.5 or 0.6, it is acceptable. If it is between 0.6 and 0.9, it is a high reliability value. The reliability of this research questionnaire is Cronbach ' α 0.948 indicates that the questionnaire has a high reliability value.

4. Data analysis

4.1. Analysis of sampling data

After analyzing the gender of the participants in the questionnaire, 59.5% of them are male and 40.5% of them are female. The proportion of respondents aged 18-24 years was 94.02%, and the proportion of respondents aged 25-30 years was 5.98%. The education level of the respondents was 95.73% for

undergraduates and 4.27% for postgraduates and above. The reasons why the respondents used the takeout platform were that 81% of the respondents had daily meals, 7% had stress relief, 4% had festivals, 5% had epidemic isolation, and 3% had work needs. The average number of items is more than 3.9, and the standard deviation is 0.644~1. Pearson correlation analysis was carried out on the items of five types of facets, and the results were all highly correlated, as shown in the following table1.

Table 1: Five Correlation analysis of structural planes

	factors	transportation service	food safety	delicious food	promotion method	transaction perception
transport service	Pearson correlation	1	0.669**	0.618**	0.587**	0.681**
food safety	Pearson correlation	0.669**	1	0.646**	0.508**	0.562**
delicious food	Pearson correlation	0.618**	0.646**	1	0.795**	0.659**
promotion method	Pearson correlation	0.587**	0.508**	0.795**	1	0.551**
transaction perception	Pearson correlation	0.681**	0.562**	0.659**	0.551**	1
*P<0.05, ** p<0.01, *** p<0.001						

4.2. Measurement model factor load value analysis

The path model of partial least square method used in this study is non parametric, and the sample number is not normally allocated; It is convenient for sample research and investigation. According to the judgment criteria of Hair, Ringle & Sarstedt (2011)[8], the reliability of individual measurement variables, composite reliability (CR) of potential variables and Cronbach α , average extracted variance (AVE) is the main method to judge the reliability and convergence validity. Bootstrapping was used to solve the problem of non multivariate normality of small samples and data, so as to obtain the estimated stability of each variable (Chin, 2010)[9]. This study uses Smart PLS 3.0 tools to conduct PLS analysis. The relevant verification criteria are described as follows: the reliability of individual measurement variables mainly refers to the extent to which each measurement variable can be explained by potential variables. It is suggested that the factor loads should be above 0.7 (Barclay et al., 1995)[10] after analysis. The factor load value of transportation service, food safety, delicious food, promotion method, transaction perception are all greater than 0.8. The factor load value of the item is as follows:

- Transport service factor: the factor load value of punctuality of delivery is 0.823, the factor load value of customer complaint handling is 0.847, and the factor load value of meal delivery service attitude is 0.843.

- Food safety factor: the factor load value of the physical examination of the delivery personnel is 0.895, the factor load value of the complete package is 0.894, and the factor load value of the catering hygiene is 0.894.

- Delicious food factor: food quality innovation 0.854, factor load value of special food 0.874, factor load value of cultural style 0.889, factor load value of personal preference 0.891.

- promotion method factor: the factor load value shared by the public is 0.909, the factor load value of past experience is 0.983, the factor load value of film and television publicity is 0.897, and the brand image is 0.896.

- Transaction perception factor: economic factor load value is 0.956, convenient factor load value is 0.948, and activity promotion factor load value is 0.919.

4.3. Combined reliability and validity

The combination reliability and validity (CR) refers to the consistency of variables within the construct, when the CR value of potential variables and Cronbach α . The higher it is, the more potential variables can be tested. Cronbach α It must be greater than 0.7 (0.60~0.70 in exploratory research), which is sufficient to represent good internal consistency of potential variables. After analysis, the combination validity of each factor is as follows: (1) the combined reliability value of transportation service is 0.876, (2) the combined reliability value of food safety is 0.923, (3) the combined reliability

value of delicious food is 0.930, (4) the combined reliability value of promotion method is 0.939, and (5) the combined reliability value of transaction perception is 0.935. The combined reliability and validity of all factors dimensions are mostly greater than 0.8.

4.4. Average variation extraction amount

Average variance extracted (AVE) is a value that represents how many potential variables can be tested by variables. It can not only judge reliability, but also represent differential validity. According to Fornell and Larcker (1981), the AVE value must be greater than 0.5 to represent that the observed variable has convergence effect. In addition, check the collinearity problem of each set of prediction variables. If the prediction construct tolerance value (VIF) is less than 0.20, there is a collinearity problem. After verification, its constructs are greater than 0.20, so there is no collinearity problem. The Average variation extracted (AVE) of each factor was analyzed as follows: (1) the value of transportation service was 0.702, (2) the value of food safety was 0.8, (3) the AVE value of delicious food was 0.769, (4) the AVE value of promotion method was 0.793, and (5) the AVE value of transaction perception was 0.828. Through statistical analysis of each variable, the AVE value was greater than 0.7, indicating that the observed variance had convergence effect.

4.5. PLS module path results

Table 2: Empirical results of hypothesis testing of structural models

Hypothesis content	Path coefficient	Validation results
H1 Transport service factor have a positive impact on food safety factor.	0.673**	support
H2 Transportation service factor have a positive impact on transaction perception factor.	0.588**	support
H3 Food safety factor have a positive impact on promotion method factor.	0.349*	support
H4 Food safety factor have a positive impact on transaction perception factor.	0.239*	support
H5 promotion method factor have a positive impact on the delicious food factor.	0.622**	support
H6 transaction perception factor has a positive impact on promotion method factor.	0.310*	support
H7 transaction perception factor have a positive impact on the delicious food factor	0.325*	support

(*p<0.05,** p<0.01,*** p<0.001)

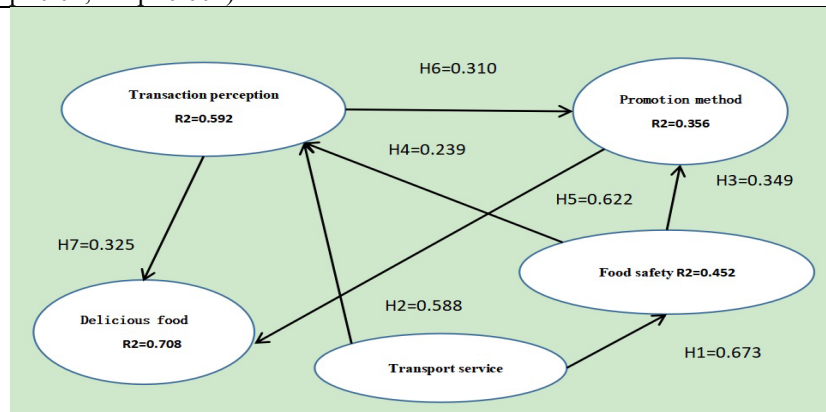


Figure 1: Analysis on the Factors Affecting the E-commerce of Take out Food

After the above analysis of reliability and validity, the least square method is used to analyze and test the causal relationship between potential variables of the structural model. In this study, the Bootstrapping parameter was set 300 times for verification procedure to obtain the stability of each variable estimation. Then, the analysis effect value f^2 can be used to evaluate the influence of external derivatives on internal variables of explanatory variables. The general principle of 0.02, 0.15 and 0.35 represents the small, medium and large effects of external derivatives on internal potential variables. The f^2 effect value of each factor was analyzed as follows: (1) The f^2 effect value of transportation service factor on food safety factor was 0.826, and the f^2 effect value of transportation service factor on transaction perception factor was 0.426. (2) The f^2 effect value of food safety factor on the value of promotion method factor is 0.007. (3) The f^2 effect value of promotion method factor on the delicious food factor is 0.951. (4) The f^2 effect value of the transaction perception factor on the delicious food factor is 0.260, and the f^2 effect value of the transaction perception factor on the promotion method factor is 0.089. It shows that the effect value of factor f^2 of transportation service and promotion method are higher.

We use R-Square to judge the test power of path significance and study the explanatory power of the model. It shows that the significance greater than the R-squared value is the percentage of variance that can be explained by exogenous variables to endogenous variables, representing the prediction ability of the research model. Its value is between 0 and 1. The higher the value, the better the model's interpretation ability. R2 determination coefficient represents the explained magnitude of potential variables of internal factors in the structural formula. In general, 0.75, 0.50 and 0.25 represent that R2 values can be roughly classified as significant large, medium and small effects. (1) The R2 value of food safety factor is 0.452, (2) the R2 value of delicious food factor is 0.708, (3) the R2 value of promotion method factor is 0.356, and (4) the R2 value of transaction perception factor is 0.592.

After statistical analysis, the higher determination coefficient value of influencing powerful factors in these factors are the transportation service and promotion method. The verification results of the research hypothesis of the research results are shown in Figure 1 and Table 2.

5. Conclusion

This study analyzes the basic data of the collected samples. The reasons why the respondents used the takeout e-commerce were that 81% of the respondents had daily meals, 7% had stress relief, 4% had festivals, 5% had epidemic isolation, and 3% had work needs. The average number of problem items investigated is more than 3.9, and the standard deviation is 0.644~1. we conduct pearson correlation analysis on the factor dimensions of these items: transportation service, food safety, delicious food, promotion method, transaction perception are all highly correlated, and the data are all above 0.58. After statistical analysis, the transportation service and promotion method are the higher factors in determination coefficient value of the path coefficient value than the other factors.

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