

Study on the Influence of Take-away on the Evaluation of Catering Enterprises

Shuyi Li, Yan Fu*

North China University of Technology, Beijing, China

**Corresponding Author.*

Abstract: With the vigorous development of network platform and the popularity of take-away software, take-away has become a popular choice besides cooking and eating in restaurants, which has changed the pattern of catering industry. This trend not only broadens the sales channels of catering enterprises, but also promotes the digital transformation of catering industry. However, the impact of take-away on catering enterprises is not entirely positive, and the evaluation is mixed. In this paper, the influence of take-away on the evaluation of catering enterprises is discussed in depth, and the factors that affect the evaluation of catering enterprises, such as food quality, service experience and distribution efficiency, are systematically analyzed through the multiple linear regression model. On this basis, this paper puts forward practical suggestions for the take-away platform to improve the take-away service, so as to promote the healthy development of the catering industry.

Keywords: Catering enterprises; Take-away; Comment; Digitization; Healthy development

1. Research Background

1.1 Introduction

Nowadays, with the rapid development of science and technology and the pace of life, people's time cost is getting higher and higher. In order to facilitate people's lives, take-away comes naturally. Order online, book the arrival time and place, and you can eat rich and delicious meals on time, which has undoubtedly become the best choice for migrant workers. However, what kind of take-away is more acceptable to everyone and has become a common choice for everyone. This has become the most concerned issue for today's catering enterprises, and the comments on the take-away

platform can be well reflected. Therefore, we study the influence of take-away on the comments of catering platforms, and put forward suggestions for selling platforms to promote the profit improvement of catering enterprises and the optimization and upgrading of digital details.

1.2 Literature Review

The major public health emergencies that began in 2020 have reduced the number of meals, promoted the development of take-away services, and promoted more and more catering businesses to start the digital transformation process. The development of science and technology has promoted the progress of enterprises. Yang (2022), re-examines the cost management from the perspective of enterprise strategy, and innovates in the direction of digital transformation. In order to promote the strategic goal of enhancing the core competitiveness of the market and consolidate the market position, we must keep up with the pace and conform to the reform of the times [1]. Sun Yunong et al (2020), conducted a survey through online and offline questionnaires and found that the vast majority of students rely on takeout services, with ordering takeout becoming a form of social interaction among college students. [2]

The appearance of take-away food has increased the income of catering enterprises. Cai & Gu (2023) , conducted research by integrating macro and micro data from other channels through questionnaires, and found that the Internet take-away platform promoted the business flow and profit rate of merchants by providing digital services; Compared with traditional offline catering, in the case of the same transaction amount, the consumer welfare in Internet take-away has increased by about 27.79%, the net profit rate and gross profit rate of merchants have increased by about 1.5% and 6.5% respectively, and the platform and resident riders have also gained considerable benefits [3]. The opening of take-away has a significant

positive impact on the total sales of restaurants and take-away sales. With the passage of time, the promotion effect of take-away on the total sales of restaurants will continue to appear. Xiang (2023), found that the main supply and demand of China's catering industry changed before and after major public health emergencies, which brought opportunities for the catering industry to be subdivided. Online take-away became the dark horse of the catering industry after major public health emergencies, which was highly correlated with the level of economic development and change [4]. Liu et al (2022), found that the opening of take-away has a significant effect on the total order volume, take-away order volume and in-house food order volume of restaurants [5]. Su et al (2022), have found that food quality, price, delivery quality and platform service quality have a significant positive impact on customer satisfaction, customer satisfaction has a positive impact on customer loyalty, and customer trust has a significant regulatory effect on customer satisfaction [6]. It can be seen that the appearance of take-away has a positive impact on the sales volume and evaluation of catering enterprises.

The influence of take-away on catering enterprises is reflected in many aspects. Zhang et al (2021), found that customer experience and satisfaction evaluation are the same content of consumer behavior, and the content of consumer experience is mainly manifested in taste, packaging, distribution, service and other aspects, thus forming a cluster of high-frequency words; The attribute of consumption experience includes seven dimensions: meal experience, ingredients and technology, packaging quality, delivery rate, service quality, health and safety, brand and price, among which meal experience is the central dimension; The seven dimensions of TF-IDF index have a significant impact on satisfaction, and the influence effect is divided. Service quality, hygiene and safety, ingredients and technology are health care factors, while meal experience, packaging quality, delivery rate, brand and price are incentive factors [7]. Take-away helps more established catering enterprises attract customers, facilitates customers' dining at any time and place, and promotes the old catering enterprises to regain their vitality. Dai et al (2024), accelerate the rejuvenation of time-honored brands by conforming to the trend of "national tide culture",

create a "three-store integration" model, and enhance the digital experience of consumers; Create an immersive consumption scene, deepen the construction of private domain membership system, and promote the transformation of digital marketing of catering enterprises [8].

In addition to studying the influence of take-away, many scholars have studied how to make take-away serve customers better. He (2024), implemented the design strategy of take-away packaging under the sustainable development concept of sustainable materials, safe and convenient structure and pleasant design style, and solved the problems of food and beverage take-away packaging, such as low recycling rate of materials, lack of convenience in structure and lack of humanization in style, so as to achieve economic development and protect the ecological environment, meet the needs of contemporary people without endangering the ability of future generations to meet their needs, and achieve the sustainable development of food and beverage take-away packaging [9]. Lei et al (2023), promoted the sustainable development of take-away food packaging through packaging design, packaging materials, sustainability of packaging technology, safety and ease of use of structural design and visual guidance of design language [10].

Based on the research of the above scholars, I found that take-away not only promotes the improvement of people's living standards because of its continuous development, but also has a positive impact on the sales of catering industry, increasing the income of enterprises and promoting the sustainable development of social resources.

2. Status Analysis

2.1 Development of Catering Industry

The catering industry showed a steady growth trend in 2024. As shown in Figure 1, since the major public health emergencies, the income of the catering industry has gradually recovered and steadily increased, exceeding 5 trillion yuan in 2023. According to the data released by the National Bureau of Statistics, the national catering revenue reached 1,736 billion yuan in the first four months of 2024, up 9.3% year-on-year, showing the overall recovery of the catering market and the enhancement of consumer demand. However, the number of newly registered catering enterprises decreased

year-on-year, and the number of cancelled enterprises increased, which reflected the phenomenon of fast update iteration in the industry. Nevertheless, the catering industry still has a huge development space, and catering enterprises need to actively respond to challenges, improve service quality, find solutions, and seize opportunities to improve their business capabilities.



Figure 1. Income of Catering Enterprises in China

Source: National Bureau of Statistics

2.2 Development of Take-away Industry

In recent years, the take-away industry has developed rapidly, bringing new market opportunities and sales channels for catering enterprises. The development of take-away business has had a far-reaching impact on catering enterprises. As shown in Figure 2, the odd number of take-away delivery has also increased significantly. In 2024, the take-away market reached about 100 billion yuan, a year-on-year increase of about 20%. This data shows that the take-away market is still expanding and has significant growth potential.

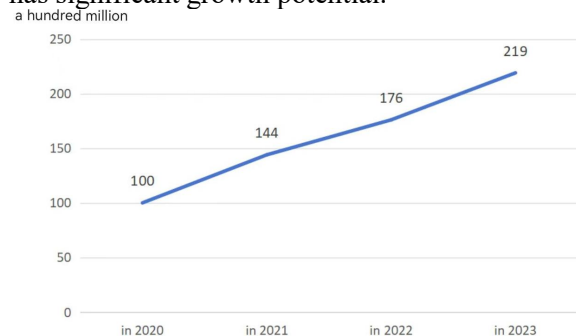


Figure 2. The Number of Orders Delivered by Meituan in Real Time

Source: Sina News

More and more catering enterprises choose to enter the take-away platform to expand market coverage and increase sales channels. The take-away platform provides merchants with convenient online services, such as order management and marketing promotion, which

reduces the operating costs of merchants. As shown in Figure 3, with the popularity of mobile Internet and the change of consumers' habits, the user scale of take-away platform has fluctuated, but it has kept growing, and the utilization rate is nearly half.

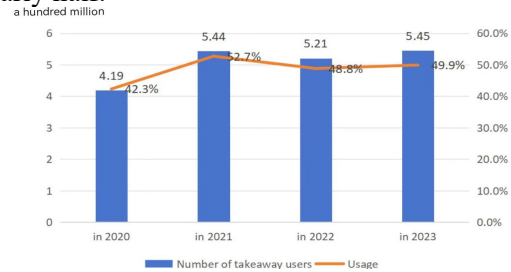


Figure 3. The Scale and Utilization Rate of Online Take-away Users in China

Source: CNNIC

3. Analysis of the Relationship between Take-away and Catering Enterprises

3.1 Use and Income Analysis of Take-away Platform

With the development of mobile Internet and the change of consumers' habits, the take-away market is booming. The take-away platform attracts a large number of users and businesses by providing convenient and efficient services, and also brings considerable income to the platform.

Take-away business has become a key force to promote the innovation and growth of the catering industry. As shown in Figure 4, take-away income accounts for about 25.4% of the income of the catering industry. Take-away not only enriches consumers' dining choices, improves the convenience of dining experience, but also opens up new revenue channels for catering enterprises. With the continuous progress and application of digital technology, take-away service is becoming a new engine for the development of catering industry.

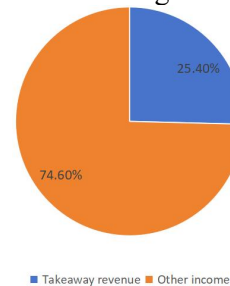


Figure 4. Portion of Online Take-away Income to National Catering Industry Income in 2022

Source: China Government Network

As shown in Figure 5, although the growth rate has decreased, the scale of China's take-away market has been growing steadily in recent years, and the income has increased substantially.

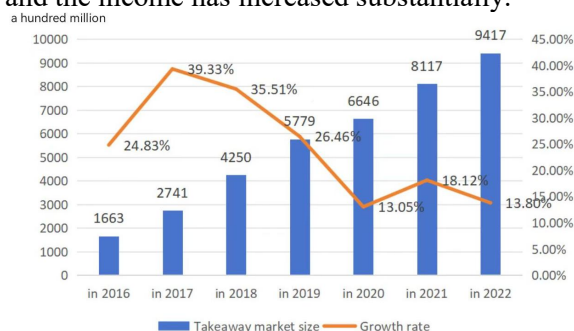


Figure 5. The Scale and Growth Rate of Take-Away Market

Source: National Bureau of Statistics

3.2 The Impact of Take-away on Catering Enterprises

The rise of take-away platform has promoted the digital upgrade of catering enterprises. Through cooperation with the take-away platform, catering enterprises can introduce advanced ordering, payment, distribution and other technologies and services to improve the efficiency and convenience of catering business. This digital upgrade not only enhances the competitiveness of catering enterprises, but also brings more business opportunities and development space for them.

Take-away service enables the catering industry to cover a wider range of consumers, breaking the geographical restrictions, enabling catering enterprises to deliver products and services to all corners of the city through the platform, increasing the number of customers of catering enterprises and bringing them more sales opportunities. With the popularity of take-away platforms, consumers' eating habits have gradually changed from eating out to ordering take-away at home or in the office. It has promoted the expansion of catering enterprises to online channels.

The emergence of take-away platforms makes the competition in the catering market increasingly fierce. Catering enterprises not only need to face competitors from offline, but also need to deal with competitive pressure from online. The rise of take-away service has changed the business model of catering enterprises, and many catering enterprises have begun to pay attention to the construction and operation of online channels, taking take-away

business as one of the important sources of income.

4. Research Design

4.1 Data Source and Sample Selection

This paper selects China's leading local life information and trading platform-public comment as the research platform. Public comment was established in 2003, and it is the first third-party consumer comment platform in the world. Since its establishment, it has experienced four rounds of financing. In 2014, the group buying model launched by the public comment directly cut into specific trading scenarios, which brought intuitive platform commissions to the platform; In 2015, the public comment merged with Meituan, which changed the group buying market structure; By 2023, the number of daily users and monthly users will reach 18.9 million and 121 million respectively. In this paper, the open source crawler software is used to obtain the data of all registered businesses and their comments, ratings and business methods before 2023, and Rstudio is used to clean up the data, and a total of 9963 samples in 10 dimensions are obtained. Excluding the unavailable data, there are 8391 samples left.

The number of comments (comm) is selected as the evaluation standard for customers. Select whether there is a take-away (outs) as the influence of the take-away on the number of comments. Select Total Score (tota) to reflect customers' satisfaction with all aspects of the business, and see if the score will affect the number of comments. Select per capita consumption (pric) to reflect the consumption level of restaurants. Select whether there is a group purchase (grou) as the influence of whether there is a group purchase in the restaurant on the number of customer comments. Select whether there is a book, as the influence of the restaurant's acceptance of the book on the number of customer comments. Choose whether there is a promotion (psal). As a take-away, it will affect the number of customer comments if the promotion is cheaper. Tast is selected as the influence of dish taste on the number of customer comments. Take-away hygiene (heal) is selected as the influence of take-away cleanliness on the number of customer comments. Select service (serv) as the influence of restaurant customer service on the number of

customer comments. The main variables are defined in Table 1.

4.2 Model Setting and Variable Definition

In order to test the influence of guild on anchor gift income, this paper constructs the following multiple linear regression model as the benchmark model:

$$Y=XB+U \tag{1}$$

The main model selects the number of comments (comm) as the explained variable. Outs is the core explanatory variable, which represents the influence of group purchase on evaluation. The control variables are total score (tota), whether there is a group purchase (grou), whether there is a promotion (psal), whether there is a reservation (book), taste score (tast), environmental score (envi) and service score

(serv). The above indicators are constructed to verify the influence of the restaurant's take-away on the number of comments made by the restaurant.

4.3 Descriptive Statistics

Table 2 lists the descriptive statistical results of the main variables. Judging from the number of comments, the maximum value is 33,565, the minimum value is 2, the sample difference is 33,563, and the average value is 923.86, which shows that the number of comments from different businesses is quite different. From the total score, the maximum value is 4.90, the minimum value is 2.80, the sample difference is 2.10, and the average value is 4.02, indicating that the scores of different businesses are quite different and the overall score is higher.

Table 1. Definition of Variables

Variable name	Code	Unit	Variable interpretation
number of comments	comm	individual	Number of customers' comments on businesses
take-away	outs	-	There is 1, and there is no 0.
total score	tota	grade	Customer's overall rating of the restaurant
consumption per person	pric	yuan	Average consumption level of customers in our store
group purchasing	grou	-	There is 1, and there is no 0.
schedule	book	-	There is 1, and there is no 0.
promote sales	psal	-	There is 1, and there is no 0.
taste	tast	grade	Customer's rating on the taste of dishes
health	heal	grade	Customer's score of selling hygiene
service	serv	grade	Customer's rating of customer service

Table 2. Descriptive Statistical Results

	comm	outs	tota
Sample size	8391	8391	8391
Minimum value	2	0	2.8
Maximum	33565	one	4.9
Sample difference	33563	one	2.1
Sum	7752140	8330	33737.8
Median	285	one	3.9
Average value	923.86	0.99	4.02
Standard error of average value	19.84	0.0009	0.004
95% confidence interval of the average	38.9	0.002	0.009
Variance	3303647.39	0.007	0.17
Standard deviation	1817.59	0.08	0.41

4.4 Correlation Analysis

Table 3 reports the results of correlation analysis of major variables. Pearson correlation coefficient and significance are shown in the table, in which * * *, * * and *, and are significant at the levels of 0.1%, 1%, 5%, 10% and 100% respectively. The results show that there is a significant correlation between the explained variables and the control variables to

be selected in this paper. As can be seen from the table, the correlation coefficient between comm and outs is 0.03, which is significant at the level of 1%, indicating that comm and outs are significantly positively correlated.

5. Empirical Results Analysis

5.1 Benchmark Regression

Table 4 Model (0) reports the influence of take-

away on merchant evaluation based on all samples. The results show that take-away has a significant positive impact on comments. In order to ensure the rationality of the model explanation, model (1) added control variables, and reported the influence of take-away and total

score on comments. The regression coefficient of Outs is 1450.79, which is still significant at the level of 1%, indicating that take-away still has an impact on comments. To sum up, if a merchant has a take-away, the more comments he has on the platform.

Table 3. Correlation Analysis Results

Parameter	serv	envi	tast	book	psal	grou	pric	tota	outs
comm	0.68***	0.72***	0.76***	0.33***	0.38***	0.41***	0.47***	0.76***	0.03**
outs	-0.12***	-0.10***	-0.09***	0.03*	0.04**	0.01	-0.13***	-0.07***	
tota	0.93***	0.89***	0.95***	0.31***	0.35***	0.37***	0.44***		
pric	0.45***	0.49***	0.46***	0.37***	0.28***	0.27***			
grou	0.41***	0.43***	0.39***	0.25***	0.60***				
psal	0.35***	0.38***	0.37***	0.30***					
book	0.32***	0.32***	0.32***						
tast	0.93***	0.90***							
envi	0.94***								

Table 4. Report on Results of Main Regression Models

variable	Model (0)	Model (1)
	comm	comm
outs	692**	1450.79***
	(2.97)	(6.954)
tota	-	2037.62***
	-	(46.698)
Intercept	236	-8709.08***
	(-1.02)	(-30.86)

5.2 Robustness Test

In order to verify the robustness of the regression, the independent variable was replaced by whether there was a take-away and the scores of each item. The results are shown in Table 5, and the influence direction of explanatory variables on the explained variables has not changed, all of which are significant at the level of 1%.

6. Conclusions and Suggestions

6.1 Conclusion

Through empirical research, it is found that the development of take-away business has a positive impact on the evaluation of catering enterprises. The total score of take-away platform, the score of each item and the per capita consumption are one of the key factors that affect the evaluation of catering enterprises. The taste, hygiene and customer service of dishes are also important reasons that affect the comments, and the number of comments is closely related to these factors. Among them, merchants have take-away to make them

comment more, which has a positive impact on them. To sum up, the appearance of take-away has a positive impact on catering enterprises.

Table 5. Report on Results of Main Regression Models

variable	Model (0)	Model (1)	Model (2)
	comm	comm	comm
outs	3909.50***	3832.11***	3714.6***
	(17.02)	(16.55)	(15.9)
tast	1697.36***	-	-
	(39.28)	-	-
envi	-	1613.86***	-
	-	(37.57)	-
serv	-	-	1580.4***
	-	-	(35.59)
Intercept	-	-	-9093.0***
	9794.71***	9338.24***	(-26.73)
	(-29.41)	(-28)	

6.2 Suggestions

First, improve food quality and pay attention to food safety. Hygiene and safety have influenced customers' comments on catering enterprises. The taste and quality of take-away food is the key to attract customers and increase repeat customers. Restaurants should ensure that the take-away food is consistent with the in-house food in taste and weight, and at the same time pay attention to the preservation and packaging of food to avoid affecting the quality of food during distribution.

Second, strengthen technological innovation.

Analyze user needs and consumption habits through big data to provide accurate market analysis and marketing strategies for businesses. Encourage take-away platforms to use intelligent equipment, such as intelligent incubators and unmanned delivery vehicles, to improve delivery efficiency and service quality.

Third, improve service quality. Customer service is also an important factor affecting the customer's take-away experience. The take-away platform should provide diversified services to meet the individual needs of customers. Customer service should communicate with customers in a timely manner, properly meet customer needs and feedback customer problems.

References

- [1] Yang Ruihan. Innovative Research Based on "Cost Management of Takeaway Catering Industry in the Era of Big Data" —Taking Meituan Takeaway as an Example. *China Storage and Transportation*, 2022, (12): 144-145.
- [2] Sun Yunong, Li Yuemeng, Lv Hua. Research on University Campus Takeout Behavior: Based on Questionnaire Survey Data of College Students in Changchun City. *Modern Economic Information*, 2020, (02): 144-145
- [3] Cai Yuezhou, Gu Yuchen. Social welfare mechanism of platform economy and its effect measurement-evidence from questionnaire survey of take-away platform merchants. *Economic Research*, 2023, 58(05): 98-115.
- [4] Xiang Yirui. On the change and development of influencing factors of catering industry after the epidemic. *Shanghai Business*, 2023, (07): 24-26.
- [5] Liu Yi, Pei Jindong, Yang Haowen. Study on the influence of the opening of take-away service on the sales of catering enterprises—an empirical analysis based on micro-data. *Price Theory and Practice*, 2022, (11): 172-175.
- [6] Su Bowen, Zhao Shuping, Hu Qiliang. The influence of customer satisfaction on customer loyalty-taking customer trust as the moderating variable. *Journal of Anqing Normal University (Social Science Edition)*, 2022, 41(01): 43-49.
- [7] Zhang Yi, Zhou Yuan, Wang Chenhong. A Study on the Consumption Experience of Takeaway Catering and Diners' Satisfaction Based on UGC—Taking the Takeaway of Meituan as an Example. *Gourmet Research*, 2021, 38(04): 31-39.
- [8] Dai Jingwen, Xu Jia, Shi Yingfeng, et al. Investigation on the current situation and strategy of marketing digital transformation of Nanjing time-honored catering enterprises. *Time-honored brand marketing*, 2024, (13): 3-5.
- [9] He Ziying. Design Strategy of Catering Takeaway Packaging under the Concept of Sustainable Development. *China Packaging*, 2024, 44(06): 67-69.
- [10] Lei Jiahao, Zhang Yuanyuan, Du Xinyun, et al. Functional discussion and design strategy of take-away food packaging under the concept of sustainable development. *Light Industry Science and Technology*, 2023, 39(04): 147-149.