

# ***Food Delivery: The Giant of Food Industry in China***

**Ruichen Han<sup>1,a,\*</sup>**

<sup>1</sup>*Kaixuan Garden, Huayuan Road, Licheng District, Jinan City, Shandong Province, China*

*a. conconconcannon@163.com*

*\*corresponding author*

**Abstract:** The food delivery industry is prosperous in China with hundreds of thousands of people ordering takeaway since 2012. Most of the people in China acknowledges that the spread of smart phone largely accounts for the prosperity, since it makes takeaway accessible for most of people. However, the increasing tendency may be different in the next decade, because nearly all people have a smart phone and thus are able to access takeaway easily. The remaining space for takeaway is little. Therefore, for some economic and social purposes, it is important to find the future tendency. An accurate result that predicts the future tendency in the next decade may be supportive for scholars and researchers to make more prediction and generate more results, which will boost the economy and society. Thus, this study aims to find the tendency of the fast-food industry in the next decades. Statistic tools will be used in the study.

**Keywords:** food delivery market, business mathematics, prediction

## **1. Introduction**

The food delivery industry in China has a much shorter history than traditional food sold in restaurants or snacks sold along the street of China. The rise of the food delivery market is linked with the rise of smart phone, the media that allows people to order takeaway food. According to Aimen Mirza, the rise of the first Chinese smart phone brand is Xiaomi, which had its own smart phone in 2010 [1]. Chinese news always regards 2012 as the rise and spread of smart phone. For example, “Tencent Web”, a website owned by Tencent to post news, states that the rise of smart phone occurs around 2012. Wechat Mini Program, app that can access by Wechat and does not need to be downloaded, gives helps to the rise of food delivery along with other public platforms that saves time and space for downloading. The spread of smart phone gives the food delivery market a stage to be prosperous. Since the popularity of the food delivery industry has increased for 10 years and the current tendency has changed a lot, it is noticeable to investigate its development in the next decade. Thus, this study aims to test the trend of fast food industry in the near future.

The article of daxueconsulting mentions in their data-driven analysis that the eating habits of the Chinese have been changed by food delivery [2]. Almost half of the Chinese have ordered some takeaway, getting dependent and familiar with it. Also, the diversified taste for food is suitable for takeaway food, because traditional Chinese food, fast food with Western flavor and Chinese flavor, Japanese food, Korean food and other foods that cater to Chinese taste can be found on take-away food platforms. The the food delivery industry has built its foundation in people’s lives. The majority of people are aged from 18 to 39. More than 80 percent of them are white color workers.

The food delivery industry fits the change in society based on that, and it leads to my assumption that this industry will increase stably. It will not have rapid growth, as it appears after 2012, but still be prosperous in the next decade.

There are little literature talking about the tendency of the food delivery market and giving the forecast. However, they only give some prediction based on the simple investigation; the forecast is one part of their study but not the whole study. In my research, I will elaborately discuss the tendency of the food delivery industry in China in the next decade, and this detailed study may contribute to a deep understanding, somehow filling the gap in the field.

The study mainly focuses on evaluating the tendency of food delivery market in the next ten decades by data. The purpose of the study is to give a strong idea and support to predict the future trend. As a result, researchers could make more investigations. They may adopt a better marketing strategy or improve the technology of food delivery based on the trend I proposed.

## 2. Literature Review

The convenience of food delivery service is why it is popular among people, especially people aged from 18-39. dadaxueconsulting states that white color businessmen are the majority who consume takeaway, and their requirement for food delivery service is necessary. Typically, neighborhood food environment indicates approximately 1.6 km or 20-min walk from home, workplace, or school. The food delivery market, however, enables the food can be sent within 10 km. This greatly changes the availability of food, and in turn allows more flavor, price, and brand choice. People could have access to food far away from their home, which makes everything for them easier. Also, this saves their time to reach a restaurant in their food environment, which could be 10 minutes to half an hour. During the break, such time could be a large part of the break time for white color businessmen because their break time may only last 1 hour. What is more, people need to wait for the dishes in a traditional restaurant, while they can order a takeaway in advance and have it whenever they want.

People may have concerns about the nutrition in the takeaway. Zhihu, a famous Q&A platform in China, accuses takeaway food of having high salt and oil content, a low proportion of nutritious vegetables and a high risk to cause cancer. However, there is no systematic analysis of the content and nutrition of takeaway. Moreover, the taste of takeaway may also be a factor that greatly influences people's choices. There is no data on people's attitudes toward the flavor too.

The habit of eating takeaway, a kind of fast food, derives from foreign fast food franchises such as McDonald's in the 1990s. local food, like noodles houses and regional food, then follows such trend. The industry comes to a rise when online platform in China is popular, and the O2O took off [6]. It can be believed that fast food take root in Chinese habits. The familiarity and degree of recognition can partially explain why takeaway is so popular.

The brand can be an important factor in determining the food delivery market. Alibaba, the mother company of Ele.me, a famous food delivery app in China that accounts for 32% of the food delivery market in China, is competing with Meituan, whose mother company is Tencent. Meituan accounts for 66% of the whole market [5]. The two giants share 98% of the market in total, defending newly entered brands, which allows the market to be stable.

## 3. Methodology

My research will use quantitative data provided by data base. This data is second hand-data. Also, it will use a questionnaire that collects the personal ideas of 40 participants. This is first hand qualitative data. The data has a population of the whole nation. Participants are the majority of people that order take-away food, namely white-collar workers aged from 18-39. The reason for choosing the participants is that they are the majority of people who order take-away, so their opinions are the most

representative. The questionnaire includes both close-ended and open-ended questions. 4 of them are close-ended questions, and 3 of them are open-ended questions. The questionnaire will be distributed on QQ, a social media that is widely used by Chinese. The questionnaire generally asks about the satisfaction of food delivery, and it will cover many aspects like the convenience and the care of keeping the body fit. All the participants in the study will be anonymous. No names of participants or universities will appear in the study. Before the study is conducted, the purpose of the study will be given in advance. The close-ended questions will have a Likert scale from 1 to 5. They ask about convenience, nutrition, taste and habit. Assuming that these four aspects have a mean of 3, the gathered data will use a t-test to find how these four aspects are going to be influential.

#### 4. Results

In order to do quantitative analysis, the study mainly use several statistical tools to support my finding and generate accurate results based on widely acknowledged mathematical techniques. These statistic tools are mean, standard deviation, z-score and t-value. Mean refers to the average value of participants' evaluation in a certain group. It also works as a foundation for calculating the other three values. Standard deviation measures the total degree of dispersion, z-score indicates the degree of dispersion for an individual datum, and t-value tests the hypothesis. Standard deviation with a z-score is used for checking the credibility of validity of my data. If the standard deviation does not differ a lot, and the amount of the absolute value of z-score which is greater than 2 is very small, like 0, 1 or 2, then data are valid and credible. For example, if 2 percent of the data have z-score greater than 2, then the data is credible. T-value indicates the possibility of a hypothesis. All these values are widely used and acknowledged by scholars who study statistics, so we can be nearly sure about their usefulness and accurateness. The data recorded in excel, which is shown in Appendix A, cover most of the details in the study. The four questions ask about four aspects of food delivery. A Likert scale is used to measure the influence. The mean value of them is supposed to be 3, which is fair. Score of the four questions is put in the excel.

In my study, the mean value in each quiz means the average evaluation. It is shown under column D in the table 1. This statistic value simply measures the medium evaluation. The standard deviation, shown under column F in the excel, refers to the quantity of how much the evaluation of the aspect differs from the mean of that group. It calculates the discrete degree, the degree that measures the closeness of each evaluation in the group. The higher the standard deviation, the more discrete the data are. Finally, the t-value is adopted for the eventual step, hypotheses testing. T-value shows the confidence level we can have, or how confident we believe our hypothesis is true. In my study, the evaluation of participants is compared to a mean score of fair, which is 3.

In the study, for convenience,  $H_0$  is that  $\mu d=3$  and the implication is "convenience is one factor that contributes to the prosperity of food delivery market".  $H_a$  is the opposite, namely  $\mu d>3$  and the implication is "convenience is not one factor contributes to the prosperity of food delivery market". the data for analysis is shown below in a figure.

p1	3	3.975	1.073873888	5.742239851
p2	5			
p3	4			
p4	3			
p5	2			
p6	4			
p7	5			
p8	5			
p9	4			
p10	3			
p11	5			
p12	3			
p13	1			
p14	4			
p15	4			
p16	5			
p17	4			
p18	3			
p19	5			
p20	4			
p21	3			
p22	5			
p23	3			
p24	5			
p25	5			
p26	3			
p27	3			
p28	5			
p29	5			
p30	5			
p31	3			
p32	4			
p33	3			
p34	5			
p35	5			
p36	4			
p37	5			
p38	2			
p39	5			
total	8			

Figure 1: Whether convenience is a decisive factor of the popularity of food delivery [3].

For computing the t-value, the mean,  $\mu_d$ , standard deviation, and sample population are all known. The t-value is 5.742 by checking the t-value table. 5.742 is greater than 2.023 the significance level of 0.05 when the degree of freedom is 39. We are 95 percent confident that convenience is one factor in the prosperity of the food delivery market. Using the same way for other aspects, we are also 95 percent sure that taste and habit are influential, while we are only 90 percent sure that nutrition is influential.

China Commerce Management Institute (CCI) reports based on the data base of the whole nation's people that size of food delivery market is increasing stably, with the increasing rate generally decreasing.

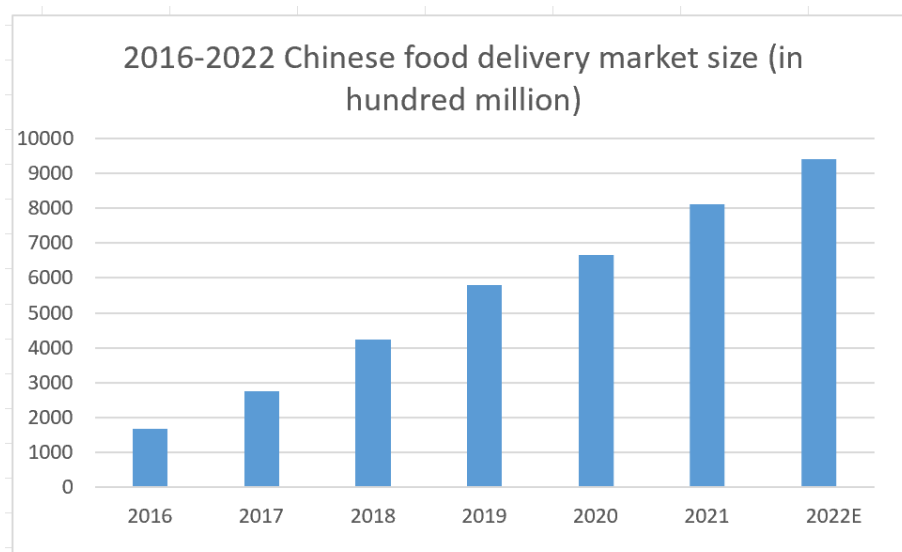


Figure 2: CCI's report [7].

This is the statistical data that show the size of food delivery industry in China from 2016 to 2022. The market size is measured in one hundred million yuan. The x-axis is the year and the y-axis is the market size. The rate between 2020 and 2021 is an exception because of the outbreak of COVID-19, so it is not valid to take into consideration. However, it indicates that convenience is one factor of the food delivery market because eating at traditional restaurant is actually closed, and people do not want to cook by themselves.

## 5. Conclusion

The study shows that convenience is the leading factor that contributes to the rise of food delivery market. The habit of having takeaway also makes the Chinese consume food delivery service. Also, such factor makes the market stable in the next decade, for Chinese has had a strong habit. The taste and flavor, however, though people think takeaways are generally delicious, this factor may decrease as the factor of habit increases. Though we are 90 percent sure that, people think fast food is not nutritious.

### 5.1. Method Justification

In my study, I use a mixed method, which allows me to analyse both qualitative and quantitative data. Qualitative data helps me to understand the subjective feelings of people, though it is measured in a numerical way, these data are not objective data like GDP or market size, which may not perfectly fit people's feelings. Also, open-ended questions allow me to find more factors that I may not consider, or give me ideas to adjust my study. Also, the quantitative data from data base can also objectively offers me a broad trend in the nation's point of view, and have a clear understanding. The limitation of my method is the randomness of my sample, because the sample size is only 40. the gathered result may somehow differ from the actual result because of randomness. Also, I cannot find out all the factor that influence the market, either because the factor I and my participants cannot think of, or because they are minor factors that cannot be accurately described by just a questionnaire.

### 5.2. Future Directions

The future the food delivery industry may build public praise for the convenient delivery of food, which makes people feel safe and trustful about the industry. It could also aim to introduce a healthy and new brand of food, which helps to improve the well-being of people and the economy of the nation. The habit of takeaway shows that the industry is stable and will not be likely to face a challenge in the next decade, so more investigation of such a market could be conduct.

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