



# Exploring the Market Opportunity for Healthy Semi-Finished Meals in China

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## Abstract

Semi-prepared meal delivery services have been attracting attention in China due to its convenience and affordability. In China this market has great potential, estimated to grow to 516.5 billion yuan by 2023. One of the challenges faced by suppliers in this industry is matching specific meals with customers dietary needs and preferences. This paper seeks to explore consumers' dietary and health related needs in this market, while proposing a third-party app which focuses on helping match customers and suppliers in the semi-prepared meal market. We look to test the desirability and feasibility of this solution by way of a survey of consumers and interviews with suppliers. We find that both consumers and suppliers would be willing to use this solution, in order to overcome costly challenges that presently limit the growth in this market.

**Keywords:** *Semi-finished food, health food, pre-made food, E-commerce platform, prefabricated food*

## 1. Introduction

Within China there are two important intersecting trends related to the recent Covid-19 pandemic. On the one hand, individuals are increasingly focused on healthy living and healthy diets [1]. On the other hand, individuals are also spending more time in their homes, giving rise to food delivery services including semi-prepared meal delivery services [2]. Yet despite the initial successes of this market, there are also potential weaknesses associated with ensuring that these meals are not only customized to consumer taste preferences but also their health preferences. In this study, we look to determine the feasibility of an e-commerce platform which would connect semi-finished food companies with customer groups based on their health-related needs and challenges. This study combines customized health food with online application to promote the product in an innovative way. At the same time, this study is innovative in meeting the needs of different consumers and increasing added value. This study investigates the specific attitudes of consumers towards customized food through a questionnaire. Our findings suggest that

consumers believe that most semi-finished foods are too simple, lack scientific guidelines, and recipes also have freshness problems. Through interview, we also learned more about the present situation of semi-finished food products. As we find, matching customers is a problem for these companies since its cost is high so the situation for our app turns out to be good. According to our survey, this is an important area worthy of attention. Based on these findings we introduce a proposed solution, aimed at assisting suppliers within this growing market to develop new marketing channels and improve overall food health.

## 2. Literature Review

The pre-made food in China has great potential [3]. The size of China's pre-made food market is estimated to be 345.9 billion yuan, an increase of 19.8% year-on-year in 2020. It is expected that prefabricated food market in China will maintain a high growth rate of about 20% in the future, and the market scale will reach 516.5 billion yuan in 2023. At the same time, this nascent market has some problems to deal with like expanding the customer base. The market of pre-made food is imbalance right now in China. The ratio of products made for business to

the products made for customers is 8 to 2 [4]. Now a large proportion of products are created for big companies like some restaurants, few products are directly selling for normal people, representing that there is a huge market to expand. Many companies are concerned with finding appropriate customers. Right now, how to match consumers is an important problem faced by all pre-made food enterprises [5]. What's more, there are a lot of people have the need to get healthy pre-made food. It is showed that 60% of consumers believe that balanced nutrition is very important in their daily diet, 35% of consumers are concerned about reducing sugar intake, and 33% are concerned about the production of processed food and other dietary details [6]. Some chronic disease such as obesity requires restriction on diet. However, some patients don't have a scientific plan and cannot persist on it [7]. Moreover, the delivery time of takeout food is so long that more people are willing to eat pre-made food which could greatly save time. In addition, the prefabricated dishes also ensure the taste and health [5]. With the great demand for pre-made food companies looking for customers and people's strong willingness of getting healthy pre-made food, we are going to design an e-commerce platform, seeking to improve the matching of customers and their health-related dietary needs to pre-make food companies and their specific meals.

### 3. Methodology

To explore this market and better understand the desirability and feasibility of our proposed solution, we sought to test the following hypotheses:

H1: Chinese customers prefer semi-finished meal delivery services over preparing food by themselves or restaurant.

H2: Chinese customers perceive health-related issues with current semi-finished meal delivery services.

H3: Consumers' cognition of semi-finished products is relatively vague, which gives suppliers some difficulties when selling semi-finished products

In order to test these hypotheses, we conducted the following research:

#### 3.1. Questionnaire

##### 3.1.1. Samples

There is total 210 people in our research with 83 people aged 18 and under, 88 people aged 18-40 and 30 people aged 40 and over.

##### 3.1.2. Materials

A quiz with 12 questions was created in the online version of questionnaire. We need to know the age of people and people's attitude toward semi-finished food.

The question requires people to select what kinds of characteristic that semi-finished food should have, and what kinds of products do they buy when there is no time for them to prepare food. Additionally, we create some questions that need to be graded, so we can gain more detailed information.

### 3.2. Interview

A comprehensive conversation with professional specialist in nutrients career, to get the first handed information and updates of the present market. The guest we invited is XinLei Cheng, the CEO and the head of management of Hangzhou Xinchou Agricultural Technology Company and Yongcheng Hongdao marketing company. This guest we invited is highly supportable to our business plan and the essay writing, because he had experiences to build a realistic food production business and managing a raw ingredient company, so we, as a third party can directly know what our cooperators' opinion.

#### 3.2.1. Meeting

During the meeting our team members brainstorm questions that are able to generate valuable answers and set the main concepts to associate the interview with our investigated product. Organized the logic and sequence of the questions, in order to accomplish the interview efficiently.

#### 3.2.2. Interview

Our questions can be classified into three sections, the difficulty for the operation of our product, the situation we need to resolve with, and further suggestions. Various types of questions like discussion question, re-ordering question and multiple-choice questions were asked, in order to fully understand the concept from different perspectives.

## 4. Results

### 4.1. Questionnaire

To begin with, in this investigation, 83 people aged 18 and under, 88 people aged 18-40, 30 people aged 40 and over, so most people aged 40 years and under. Also, 113 people are male, the rest of them are female. Then 90 percent of people have bought instant noodles, products at the middle are salad (60.2%) and MATCH BENTO (52.74%), the least popular is the self-heating rice (29.85%). Additionally, it is difficult to guarantee the freshness of food will be the most serious problem for choosing healthy food collection, the relatively serious problems are lack of science guidance, and the food is simple. Next, 44.78 percent of people will occasionally prepare meals by themselves, and people who often

prepare meals by themselves are 35.32 percent. People never prepare meals, merely 19.9 percent. 47.76% of people occasionally consider that preparing meals by themselves will cause some troubles. What's more, 41.29% of people would like to take merely 20 minutes and under for preparing meals, but 40.8% of people will also take 20-40 minutes for preparing meals. If people do not have time for preparing meals, 39.3% of them will buy fast food products. Besides, food delivery and go to the restaurant will be the second and the third choice for lots of people to fill the belly, and merely 6.97% of people will choose to do not eat. Then 33.83% of people have special needs for the customized recipe, which is put on muscles, and 30.35% of people are likely to lose weight during using this recipe. About the question that need to be graded, total score is 10 points, and the average value is 5.79 from the question that do people often pay attention to the healthy combination of diet. Besides, the average value of question that do people worried about the health of food delivery and other food is 5.69.

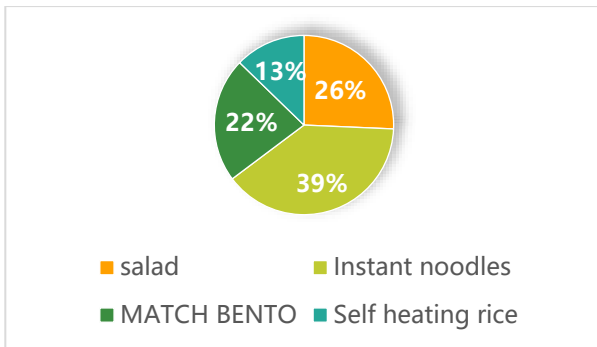


Figure 1 Products that consumers have brought before.

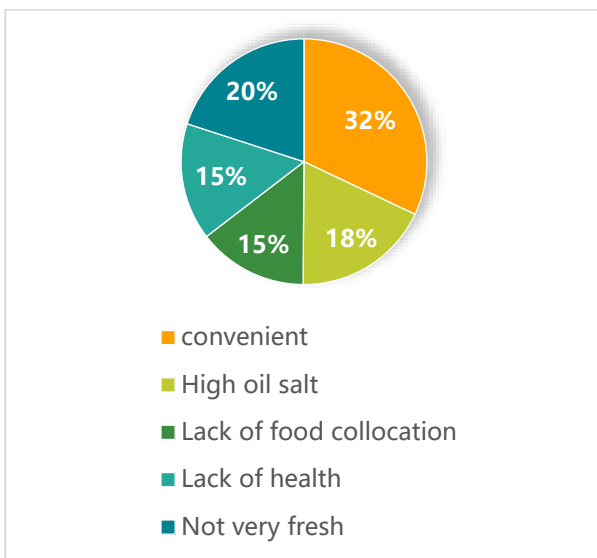


Figure 2 Characteristic that consumers expect from semi-finished products.

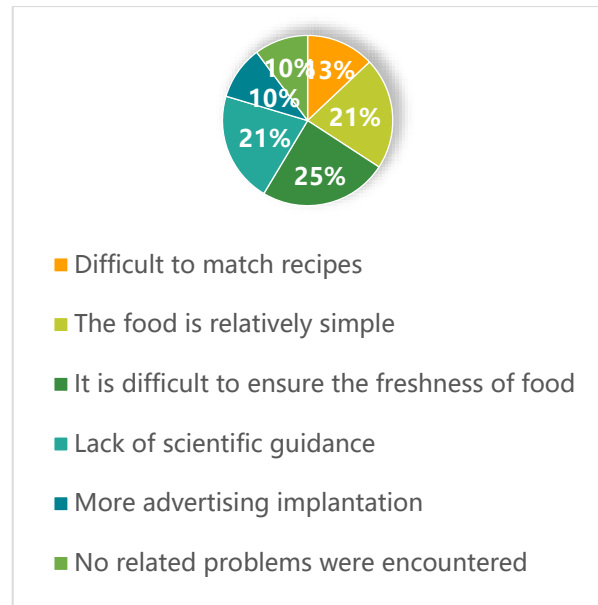


Figure 3 Problems encountered by consumers when choosing healthy food

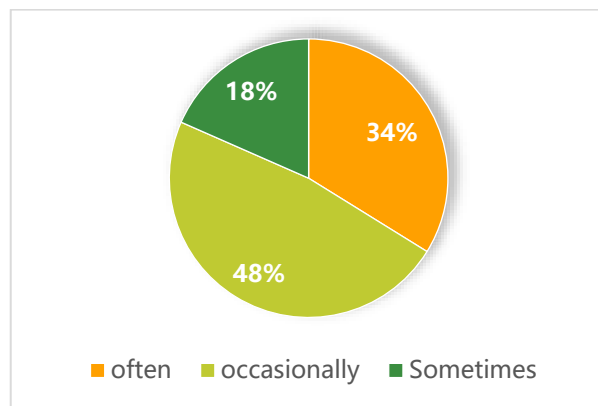


Figure 4 People's attitude toward the time for preparing food cause problems to personal study, life and work.

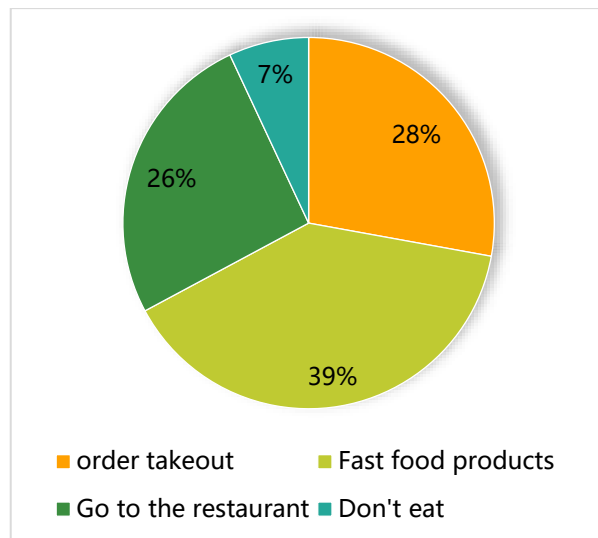


Figure 5 Ways consumers employed when they do not have time to prepare food.

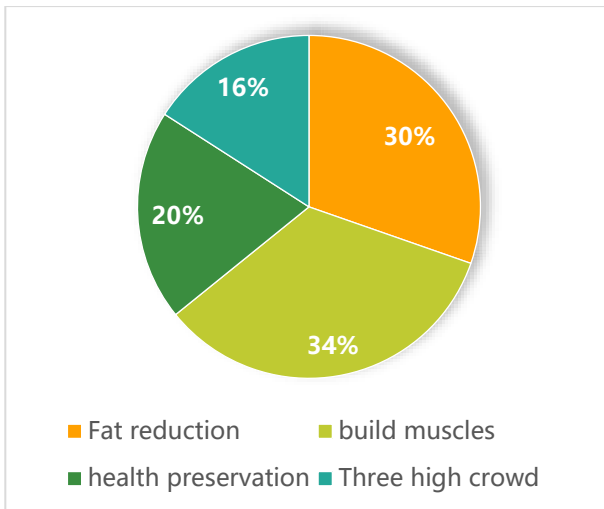


Figure 6 The special needs of consumers for the matching of recipes

#### 4.2. Interview

In the interview, we classified our questions in three sections, the difficulties for operating our product, the situation we need to resolve with, and further suggestions.

Compared to the batch manufacturing like production in a large scale, do customized production brings a greater difficulty? The answer we got is, yes it will, but it will also generate a greater profit too, since the price of customized foods are charging a higher price in the market. Customer can receive high quality customized products and we can generate higher revenue, which create a win-win situation.

Secondly the impact of covid-19, we wonder to what extent do this pandemic brings advantages and disadvantages. 'Customized food and semi-cooked food can actually benefit throughout the pandemic, because more people will pay attention to build up a strong immune system and our product can keep provide vegetables while some vegetables in supermarket are facing a shortage.' There is a great opportunity gap here for us to advertise our product. However, this is depending on the price elasticity of demand of our product because the cost of production will increase. As if the price elasticity of demand is inelastic, we can be able to raise our price to maintain our revenue. The goal in the future is to make our product a common and necessary product that more families rely on, so the price elasticity demand is low, less uncertainties will happen in our consumer demand. In the long term, there will be a stable growth of the business.

We asked our guest to reorder the difficult level of satisfying the taste of food, variation demand from customer and the quality of raw ingredient. The result is that 'variation demand is the hardest to satisfy because it is hard to open up different production chain' (it requires

higher labor and capital costs), and then follow up is the taste of food, because peoples' tastes are different so we can only target a smaller group of customers, and lastly which is the easiest one, is the quality of raw ingredient. We found that it is the factor that is most easy to keep in track with. Compared to taste, the quality has numerical statistics as a standard to measure. So, the suggestion to us is always announce the result of routine inspection, so we can be trust by customers.

Lastly the willingness of the factories to cooperate with platforms like us. We found that there is a large opportunity, because the cost of building a platform for their own business will cost highly and hard to manage. If their goal is to earn profit from selling their products instead of managing a business. A third party like us can cooperate with them. And we can have a similar relationship with them like amazon and the shops sell in it. Moreover, to keep doing innovatory product to satisfy as more customer as possible.

#### 5. Discussion

In the interviews and questionnaires, we did before, we analyzed that it would be very costly to build a platform ourselves, so we need to work with other companies to get the most profit. What we need to do is to be able to offer personalized food and recipes, guarantee their quality, and do the steps we need to do in a way that connects the platform, as a third party between the customer and the company. There is a great lack of distribution channels between the origin of most green foods in China and the effective demand of urban tables [8]. Due to Corona Virus Disease 2019, there will be an increasingly good market for our healthy customized foods, as many families need them for future convenience and to stay healthy. In addition, we analyzed the questionnaire data and found that 52% of people have purchased a matching bento, indicating that more than half of the population is knowledgeable about personalization, which could pave the way for further recipe recommendations and personalized diet pairings. At the same time, when we analyzed the data, we found that 66.17% of people always have no time to cook, and the extra time wasted would bring inconvenience to their lives. People need a convenient lifestyle, and our fast-food products are scientific and healthy while being convenient. Therefore, with the massive demand from people, we currently have a great market, the industry is booming, and our ideas and solutions are viable. In addition, 64.18% of customers want their recipes to achieve muscle building or fat loss. This shows that personalized recipes should also be tailored to different chronic diseases, which can eliminate contraindicated foods, recommend healthy foods that are beneficial to the patient's health, and recommend diets that are low in sugar and fat. Our recipes are created to meet the needs of our customers.

To meet the needs of our customers, we have created a new application called Be Health, which is divided into four parts: online consultation, AI data analysis, health literacy, and health food sales. It can provide customized semi-finished health food sales. For online consultation, our customers can ask some health questions online to help them stay healthy and have a good diet, and we can make more accurate recipes based on the data that are more suitable for each person. Regarding artificial intelligence diagnosis, it can help us analyze data, such as blood sugar levels of diabetic patients, to better match recipes. Health literacy can publish health advice, nutritional advice, recipe customization, environmental hygiene and other knowledge for people in different regions. In addition, we sell semi-finished products of healthy food online. We make true scientific and healthy fast food based on nutrition. Therefore, we can help our customers to seek medical advice online, give them the right health guidance, and most importantly, we create unique recipes for different people. In addition,, artificial intelligence leads our customers into a new era of medicalization, where all problems and diseases served by our customers will be treated quickly and carefully, with excellent doctors and equipment. At the same time, the health knowledge we provide will help people in their daily lives, which will lead to new knowledge, and we can gain the trust of our customers. For safety and health reasons, the semi-finished products we sell are 100% healthy and easy to cook. Not only are our semis set up to prevent chronic diseases, such as low sugar meals for diabetics, but we also provide a platform for those who want to lose weight and gain muscle. What we offer on the platform will meet the needs of our target customers. Our customers need to save time, enjoy the convenience of new technology and home delivery, and be able to reduce the risk of new coronary pneumonia by reducing person-to-person contact and not having to leave the house. Those who just want to research healthy recipes are able to speak directly with a nutrition expert. The experts will measure each person's data and give them recommendations and unique, value-added recipes for three meals a day. For example, people who want to lose weight will not only get the aforementioned things, but also the steps they need to achieve their goal of really effective fat loss and weight loss, which will help them in a positive way. So, with the be health app, people can keep an eye on their life and health status. It is also with this app that we can learn data about our customers and know their needs, so we can build a good connection with them. Regarding the supply chain, we can enter partnerships with other companies and use them to reduce our costs. In this case, other companies produce and manufacture semi-finished products, and we have a good platform and sell to a wide range of customers. The quality of food production is the guarantee for the development of the food industry, and quality is the life of a company, especially for the food industry [8]. Therefore, we have to make sure that the products on the

supply side are fresh. Because the data analysis of our survey questionnaire shows that fifty-seven percent of people are concerned about the freshness of the semi-finished products, so we must do regular quality checks and make them public to reassure consumers.

In our survey, there are still some shortcomings. Firstly, the number of respondents is not enough, and the statistics of the questionnaire cannot represent the views of all people. Secondly, people in different regions have different ideas about the mix and taste of semi-finished foods. Thirdly, regarding the issue of healthy food pairing and nutrition, the average values are so close that we cannot make a sharp comparison for specific analysis. In addition, the safety issues of the semi-finished food industry, the packaging of semi-finished products, how to improve branding, and the development of new sales channels all need further research.

## 6. Conclusion

Our article focused on exploring the dietary and health-related needs of Chinese consumers and presented an application where we acted as a third party to match users and suppliers in the semi-finished market. We conducted interviews and questionnaires to study this issue.

We found that there is a very good market for ready-made food products, and we can earn a lot of profit as a third party. We introduced the app we developed, detailing its functions into four sections: online consultation, AI data analysis, health literacy and health food sales, and how to meet the needs of our customers. Although the current study is based on a small sample of participants, the findings show that people have a certain knowledge base about recipe matching. However, due to the development of the economy and living standards, many people now have less time to cook for themselves due to busy work or study, while their level and requirements for food are increasing. With the increase of social productivity and rising income of urban and rural residents, people's demand for food is changing from quantitative to qualitative [8]. They care about the taste of food, nutrition, convenience, freshness, and so on. The personalized recipes and food recommendations, customization and sales included in our app are a good solution to meet people's needs. Through the app, people will be able to focus on their life and health status, prevent chronic diseases, facilitate their daily life, achieve their goals such as muscle building or fat loss, receive scientific and important advice from nutrition experts, and effectively improve their quality of life.

## References

- [1] Wang, X., Lei, S. M., Le, S., Yang, Y., Zhang, B., Yao, W., ... & Cheng, S. (2020). Bidirectional influence of the COVID-19 pandemic lockdowns on health

- behaviors and quality of life among Chinese adults. *International journal of environmental research and public health*, 17(15), 5575.
- [2] Zhao, A., Li, Z., Ke, Y., Huo, S., Ma, Y., Zhang, Y., ... & Ren, Z. (2020). Dietary diversity among Chinese residents during the COVID-19 outbreak and its associated factors. *Nutrients*, 12(6), 1699.
- [3] Liu, Z. (2022). Prefabricated food turns into "potential stock". *China Brand*, (03), 50-51.
- [4] Sun, S. (2022). Prefabricated food have become a new outlet in the consumer market. *China Food*, (04), 11-13.
- [5] Zhou, T. (2022). Prefabricated food industry: Layout starting point; Win at the end. *Human Resources*, (05), 32-35.
- [6] Yi, Y. (2021). The hot market of healthy food still needs to be further cultivated. *CHINA BUSINESS HERALD*, 4.
- [7] Zhang, L., Zhang, L. (2022). Effects of dietary intervention combined with health education on blood lipid and sleep quality in obese patients. *Clinical Medical Engineering*, 29(02), 235-236.
- [8] Zhang, Z., Meng, Y. & Sun, X. (2018). Analysis of the transformation and development path of "Internet plus" green food industry. *Agricultural Economy*, (11), 15-17.

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