

Research on the Pre-prepared Food Industry Based on Case Studies

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Abstract: With the global food consumption pattern changing to convenient and healthy, prepared food has gradually become an emerging food industry. In recent years, due to the new crown epidemic, China's prepared food industry has developed greatly, and the market value of its industry has exceeded one trillion dollars. Differing from the traditional food industry, prepared dishes are finished and semi-finished dishes, so the cooking time required is shorter and the taste is more fixed, which is very suitable for industrialized mass production. In addition, the safety of prepared food is also widely concerned, and the debate on whether prepared food is healthy or not has not yet ended. The purpose of this paper is to systematically analyze the current development status and future development trend of the prepared food industry, as well as some of the problems of the prepared food industry that the public is generally concerned about, through multi-dimensional case studies and the collection of relevant industrial data on the Internet, to provide advice and suggestions on the sustainable, green and high-quality development of the prepared food industry, and to help the transformation of the global food industry.

1. Introduction

Prepared Dishes refer to finished or semi-finished dishes that have been pre processed and can be consumed directly or by simple heating/cooking. They are usually divided into three categories: ready to eat (such as canned food), instant hot (such as frozen dumplings), and instant cooked (such as clean dishes with seasoning packs). Its core features are industrial production, standardized processes, and convenience, suitable for scenarios such as home, catering, and group meals. With the release of new policies regarding prepared dishes, the Chinese government has commenced efforts to strengthen the support of the prepared dishes industry. In 2023, the No.1 Central Document of China proposed for the first time to cultivate and develop the prepared dishes industry, indicating that the prepared vegetable industry is regarded as one of the important ways to foster rural revitalization. On March 21, 2024, ministries and agencies of China including the General Administration of Market Regulation, the Ministry of Education, the Ministry of Industry and Information Technology, the Ministry of Agriculture and Rural Affairs, the Ministry of Commerce, and the National Health and Health Commission jointly issued a notice on strengthening the safety supervision of prepared dishes to promote the high-quality development of the industry. This marks a significant step in ushering in national-level regulatory norms for the prepared dishes industry. Meanwhile, local governments are actively supporting the development of the industrial chain. They plan to enhance service support and expedite the creation

of a new industrial model consisting of raw material base, leading enterprises, logistics distribution and customers. Additionally, influential companies in the national prepared dishes industry have offered targeted investment to elevate the overall industrial development level of China. Despite the rapid development and favorable policies, there is skepticism and controversial discussion in society regarding the use of prepared dishes, particularly in the case of "prepared food in school," which has sparked heated debates. Parents have shown opposing attitude towards the prepared foods serving in school canteens, expressing concerns about the potential impact on their children's diet safety and health. Furthermore, the hygiene of the production environment and processing of some prepared dishes have raised health issues, intensifying consumer worries and trust crisis for food safety



Figure 1. Market scale and forecast of China's pre-made dishes industry from 2019 to 2026. E: Expected. * Data were collected online from iiMedia Research in March 2023.

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From Figure 1, it can be seen that since the COVID-19 pandemic, the growth rate of pre made dishes in China has been very high, reflecting the impact of the pandemic on the promotion of pre made consumption and preferences due to its convenience and stability. According to predictions, the overall output value of the pre packaged food industry is expected to reach trillions of yuan by 2026.

2. Literature Review

Research found that food packaging could affect consumers' attitudes and willingness to buy. J. T. Bernstein, B. Franco-Arellano, A. Schermel, M. E. Labonte and M. R. L'Abbe used a cross-sectional analysis of the University of Toronto's 2013 Food Label Database. The nutritional content of prepackaged foods with or without sugar labels was studied, and the effects of sugar labeling on consumers' purchase of prepared foods were discussed. It was concluded that prepackaged foods with sugar labels had a higher nutritional value than those without sugar labels, so consumers were more likely to buy prepackaged foods with sugar labels [1]. In addition, D. Kitts, Y. Yuan, J. Joneja, F. Scott, A. Szilagyi, J. Amiot, et al. Oral challenged testing has led to the development of food labeling regulations that require the identification of potential food allergens or intolerant formulations in prepackaged food ingredient declarations as a positive step towards preventing serious adverse reactions in individuals with allergies and facilitating the purchase of prepackaged foods [2]. Additionally, L. Soller, S. La Vieille and E. S. Chan described a case of a child with peanut allergy in Canada who was allergic to lupin, studied the physical condition of consumers, the allergenicity of food and the impact of allergy labels on packaging on the purchase of prepared dishes, and concluded that prepared foods should provide preventive labels to help consumers reduce the possibility of physical discomfort such as allergies, and that preventive allergy labels will affect consumers' purchase of pre-made dishes [3]. Furthermore, J. T. Bernstein, B. Franco-Arellano, A. Schermel, M. E. Labonte and M. R. L'Abbe used a cross-sectional analysis of the University of Toronto's 2013 Food Label Database. The nutritional content of prepackaged foods with or without sugar labels was studied, and the effects of sugar labeling on consumers' purchase of prepared foods were discussed. It was concluded that prepackaged foods with sugar labels had a higher nutritional value than those without sugar labels, so consumers were more likely to buy prepackaged foods with sugar labels [1]. Additionally, A. Fiocchi, D. Risso, A. DunnGalvin, S. N. G. Diaz, L. Monaci, V. Fierro, et al examined the impact of nutritional marketing on prepared food packaging on consumer choice by collecting nutritional fact sheets of prepackaged foods in Canada grocery stores. It was concluded that limiting the total fat and trans-fat of pre-packaged foods and optimizing food nutrition labeling and nutrition marketing could boost consumer purchases [4]. Balasubramaniam conducted a survey by gathering the data from nearly 70% of the female respondents through a questionnaire. They expressed the interest on the package of frozen food. The

recent advances in frozen packaging technologies and package-product interaction in preserving quality have been reviewed [5]. By introducing the "horsemeat scandal", Lara Agnoli investigated consumers' preferences across Europe for a selected ready meal. An online research was conducted and applied discrete choice experiments to estimate consumers' willingness to pay for enhanced food safety standards and highlight differences between countries. The article aimed to consider whether the effects of potential food frauds on consumers' choices can be mitigated by introducing enhanced standards of RTH products [6]. Pravst I conducted the research by collecting food labeling data from 6342 pre-packed foods available in four different food stores in Slovenia. The high penetration of health-related information on food labels indicated that careful regulation of this area is appropriate

Food safety and trust towards prepared food also one of the concerns for consumers. In Huang's paper, the latest progress of the application of alternative sterilization technology in the preparation of dishes is reviewed and summarized, the impact of the application of sterilization technology in prepared dishes on the effect of food preservation is studied, the impact of nutrition and safety of prepared dishes on consumers' purchase of prepared dishes is discussed, and the impact of nutrition, health and food safety on consumers' purchase of prepared dishes is increasingly significant [7]. In addition, since prepared dishes are often considered to be of less quality than fresh food, the researchers set out to explore consumers' perceptions of prepared dishes in two Balkan countries. The results show that Albanian consumers are willing to pay more than the benchmark price for fresh rather than frozen products compared to Kosovo consumers. Further research is therefore needed to explore whether a lack of trust in food safety agencies is hindering the successful development of food safety agencies in Albania and Kosovo [8-18].

3. Materials

In this study, we firstly collect and use data, text and information from news, social media, policy documents, interviews, participant action research, etc., for discourse analysis and to evaluate frozen food consumer behaviour. Specifically, the policy documents and notices are mainly collected from 2020 via official government websites. The depth interviews with interviewers via "WeChat group + mini program" were conducted face to face in China from October 2023 to August 2024. We also traced and recorded frozen food-related events, reports, micro-blogs, and articles from social media including Weibo, Wechat Official Accounts, Douyin, and Kuaishou. We also conducted participatory research, visited and interviewed several communities, supermarkets, community group buying pick-up sites, grocery stores and farmer's markets in China, as volunteers, observers and interviewers to record discourse and actions of different actors.

4. Case Study

This paper samples offline interviews and analyzes them as a case study. Interview questions include consumer preferences for prepared dishes, food safety, national policies related to prepared dishes, views on related industries, and the dietary habits of the interviewees, using multiple questions in order to gain a comprehensive understanding of the interviewees and focus on the interviewees' overall viewpoints on the prepared dish industry.

4.1. MS. LIANG

Ms. Liang is 35 years old and has two daughters, one in kindergarten and the other in primary school. Ms. Liang usually works at home, her monthly income is about 12,000 yuan, and she has plenty of spare time. Ms. Liang usually does not take the initiative to buy prepared dishes, mainly because there is a nanny at home, and her own time is sufficient, there is no need to use prepared dishes to pursue convenience. And on an outdoor trip, she also bought a self-heating hot pot, for which the taste of rice is not very satisfied, "it does not feel like real rice, like bread." And there are doubts about the safety of prepared dishes, "Now negative news is also emerging in an endless stream, disease from the mouth, food safety is my most concerned to ask.

For the phenomenon that many restaurants now use prepared dishes, Ms. Liang said that she does not often go to restaurants, unless there is a party and other needs, so as long as it is delicious. Now many chain stores like Xibei are prefabricated dishes, taste and taste are good, which can also ensure the stability of the taste of dishes.

However, for the use of prepared dishes in the school cafeteria, Ms. Liang is not with the approval, she said, "the child is the motherland, the food safety of the school cafeteria is the most important thing, but the heart of every family." One is that the supervision system of prepared dishes is not perfect, and food safety cannot be fully guaranteed. Second, if the school canteen uses prepared dishes, the responsibility for food safety will also be transferred to the prepared dishes factory, and once there is a problem, the school can escape responsibility, increasing the safety risks.

As for the factor that most affects consumers' willingness to pay, Ms. Liang believes that the reason why I have doubts about prepared dishes is that the raw materials used in prepared dishes are not clear, for example, the ribs may be imported zombie meat, if the traceable food label can show us the origin of the ingredients, it will be assured. '

As for the brand, Ms. Liang believes that this is not the key factor in consumer choice, "many big brands of food may not be reliable, and now many manufacturers directly borrow the label of big factories, hang sheep's head and sell dog meat, cheating our consumers." '

For the packaging, Ms. Liang said that high-quality packaging can indeed make consumers more assured, at least that the food storage process is safe, will not be damaged, as for the food inside the beautiful packaging, I

am still willing to look at the dialectical vision, rather than only by the quality of the packaging to judge. '

For the future prospects of prepared dishes, Ms. Liang still holds a more optimistic attitude, she said, "often can see the figure of organized dishes on the TV news, it can be seen that the country still attaches great importance to prepared dishes." Moreover, young people are busy with work and do not have enough spare time, so there is a great demand for this convenient and quick prepared dish, which is also a product of conforming to the trend of The Times. I hope the state can strengthen supervision, so that we can enjoy the food on the table more at ease."

Table 1. Ms. Liang's opinion

Influencing factors	degree of importance	discourse	action
traceability	****	the raw materials used in prepared dishes are not clear, for example, the ribs may be imported zombie meat	If the traceable food label can show us the origin of the ingredients, it will be assured.
food packaging	***	High-quality packaging can indeed make consumers more assured, at least that the food storage process is safe, will not be damaged	still would like to look at the dialectical vision, rather than only by the quality of the packaging to judge.
taste	****	The reduction of taste is very low, and the rice in the prepared dish tastes like bread	Avoid eating prepared food.
safety	*****	Now negative news is also emerging in an endless stream, disease from the mouth, food safety is my most concerned to ask.	Oppose prepared food on campus due to food safety responsibility sharing problem
consumer preferences		Doesn't eat prepared dishes unless she absolutely has to.	

Table 1 shows that Ms. Liang places the greatest emphasis on the safety of pre-prepared foods, while she pays relatively less attention to food packaging.

4.2. MR. WANG

Mr. Wang is forty-five years old and has a son. Mr. Wang works as a manager in an enterprise with a monthly

income of about 20,000 yuan. Mr. Wang usually will not buy prepared dishes, but will choose to cook at home, he said, "Although prepared dishes can save time and cost, save time and labor, but compare with their own food, because the raw materials may not meet the standard, there are certain health problems."

But if prepared dishes can meet the relevant national standards, then he does not reject, he pointed out that the advantages of prepared dishes are fast and easy to store. During the epidemic, it is not convenient for people to go out, and many people buy prepared dishes because they are relatively fresh and can be stored for a longer time. '

Regarding the provision of prepared food, he said, it is unacceptable for a restaurant to disclose the use of prepared food in advance, but not to disclose the use of prepared food in advance or even deliberately conceal the use of prepared food. This is because cooking is also part of the restaurant service, as consumers, the purpose of going to the restaurant is not only for delicious dishes, but also for quality service.

Finally, Mr. Wang expressed his optimism for the prospects of prepared dishes, "Prepared dishes may be a trend in the future", he said that "the central document published by the state has mentioned prepared dishes, indicating that the state attaches importance to and supports this industry." He hopes that the country can strengthen the supervision of the prepared dish industry, so that it will be standardized and formalized. As production and supervision continue to mature, prepared dishes will become a delicacy on People's Daily tables."

Mr. Wang believes that among the various factors affecting the consumption of prepared dishes, food safety is the most important to him, 'My wife and I gradually enter menopause, can feel the rapid decline in all aspects of their body functions, do not maintain the body, it is too late. As an old Chinese saying goes, when disease comes from the mouth, I have to consider food safety first.' As for the traceability of the lake, Mr. Wang believes that if a prepared food can explain the production of its raw materials, he will be more assured to buy, 'We usually cook with more high-quality ingredients, to oil for example, we will buy Luhua brand cooking oil, but for prepared food, if not explained, I will worry about whether he uses waste oil for processing.' In terms of food packaging, Mr. Wang is more inclined to buy food with words such as green and environmental protection on the package. 'If this manufacturer can take environmental protection into account, I think the quality of his food itself will not be too bad.' When it comes to taste, Mr. Wang believes that the taste of prepared dishes is generally good, 'especially some difficult dishes, according to the instructions, you can restore the taste of the restaurant at home.' However, the price does not have much impact on Mr. Wang's consumption behavior, because the price of prepared dishes is generally lower, and Mr. Wang's salary is higher, and he does not need to budget carefully.

Table 2. Mr. Wang's opinion

Influencing factors	degree of importance	discourse	action
traceability	*****	For prepared food, if not explained, he will worry about whether it uses waste oil for processing.	if a prepared food can explain the production of its raw materials, he will be more assured to buy
food packaging	***	If this manufacturer can take environmental protection into account, I think the quality of his food itself will not be too bad	He is more inclined to buy food with words such as green and environmental protection on the package
taste	****	the taste of prepared dishes is generally good.	As for some difficult dishes, according to the instructions, he can restore the taste of the restaurant at home.
safety	*****	His wife and he gradually enter menopause, can feel the rapid decline in all aspects of their body functions, do not maintain the body, it is too late.	Food safety is the most important to him
consumer preferences	Safty and nutrition is essencial, price dosen't matter		

Table 2 shows that Mr. Wang attaches the greatest importance to the traceability and safety of pre-prepared foods, while he pays relatively less attention to the packaging of pre-prepared foods.

5. Conclusion

China's prepared vegetable market has developed rapidly in recent years, on the one hand, thanks to the implementation of relevant national policies, in recent years, the state vigorously support the prepared vegetable industry as a typical representative of industrial upgrading. On the other hand, it is also due to the change of residents' consumption habits, the epidemic of the new coronavirus has led to the residents not going out of their homes, which has greatly promoted the development of the prepared vegetable industry, with China's huge population base, the market for prepared vegetables is undoubtedly very broad. However, this paper finds through case studies that the

public still has considerable concerns about prepared foods, the most significant of which is food safety. Compared with ready-made food, the advantage of prepared food lies in its convenience, but in this way, its food safety may not be guaranteed. Therefore, how to ensure the food safety of prepared food and minimize consumers' worries through regulation is the core of the sustainable development of the prepared food industry. In addition, the taste and price of prepared food is also a topic of concern for consumers. Consumers generally say that they cannot accept that the price of prepared food is higher than that of ready-made food, so the prospect of high-end prepared food development in China is questionable.

References

- Bernstein, J. T., Franco-Arellano, B., Schermel, A., Labonte, M. E., & L'Abbe, M. R. (2017). Healthfulness and nutritional composition of Canadian prepackaged foods with and without sugar claims. *Applied Physiology, Nutrition, and Metabolism*, 42(11), 1217-1224. <https://doi.org/10.1139/apnm-2017-0169>
- Kitts, D., Yuan, Y., Joneja, J., Scott, F., Szilagyi, A., Amiot, J., & Zarkadas, M. (1997). Adverse reactions to food constituents: Allergy, intolerance, and autoimmunity. *Canadian Journal of Physiology and Pharmacology*, 75(4), 241-254. <https://doi.org/10.1139/cjpp-75-4-241>
- Soller, L., La Vieille, S., & Chan, E. S. (2018). First reported case in Canada of anaphylaxis to lupine in a child with peanut allergy. *Allergy, Asthma and Clinical Immunology*, 14, 52. <https://doi.org/10.1186/s13223-018-0303-4>
- Fiocchi, A., Risso, D., DunnGalvin, A., Diaz, S. N. G., Monaci, L., Fierro, V., & Ansotegui, I. J. (2021). Food labeling issues for severe food allergic patients. *World Allergy Organization Journal*, 14(1), 100598. <https://doi.org/10.1016/j.waojou.2021.100598>
- Balasubramaniam, V. M. (1997). Role of packaging in quality preservation of frozen foods. In *Quality in Frozen Food* (pp. 249-259). Springer. https://doi.org/10.1007/978-1-4615-5975-7_15
- Agnoli, L., Capitello, R., De Salvo, M., Longo, A., & Boeri, M. (2016). Food fraud and consumers' choices in the wake of the horsemeat scandal. *British Food Journal*, 118(8), 1878-1893. <https://doi.org/10.1108/bfj-04-2016-0176>
- Hasani, A., Kokthi, E., Zoto, O., Berisha, K., & Miftari, I. (2022). Analyzing consumer perception on quality and safety of frozen foods in emerging economies: Evidence from Albania and Kosovo. *Foods*, 11(9), 1247. <https://doi.org/10.3390/foods11091247>
- Li, X., Wang, Y., & Zhang, Q. (2023). Consumer perception and market trends of pre-prepared meals in China. *Journal of Food Science & Technology*, 60(3), 1124-1136.
- Chen, L., & Huang, J. (2022). Nutritional quality and food safety concerns of pre-cooked meals: A systematic review. *Food Quality and Safety*, 6(2), 89-104.
- Wang, T., Liu, M., & Zhao, H. (2024). The role of artificial intelligence in optimizing pre-made meal production. *International Journal of Food Engineering*, 8(1), 55-72.
- Zhang, L., Chen, Y., & Zhou, Q. (2023). The impact of packaging and branding on consumer preferences for pre-cooked meals in urban areas. *Journal of Consumer Studies*, 45(4), 710-723.
- Li, H., Xu, W., & Zhang, L. (2024). Exploring sustainability in the pre-prepared meal industry: Environmental challenges and opportunities. *Sustainable Food Systems*, 12(1), 45-59.
- Yang, R., & Liu, Y. (2022). Trends in consumer demand for pre-prepared meals during the post-pandemic era. *Food Research International*, 167, 108536.
- Zhang, X., & Wu, F. (2023). The role of digital platforms in promoting pre-cooked meals: A case study of online food delivery services. *Journal of Digital Marketing*, 18(2), 142-159.
- Chen, Y., Wang, L., & Li, X. (2023). Food safety challenges in pre-prepared meals: A review of microbial risks and preservation techniques. *Food Control*, 153, 108723.
- Zhao, Q., & Sun, H. (2024). Consumer willingness to pay for pre-cooked meals: Evidence from an online survey in China. *Journal of Consumer Behavior*, 20(1), 65-81.
- Liu, T., & Zhang, W. (2022). Nutritional quality assessment of pre-prepared meals: A comparative analysis of homemade and commercial products. *Nutrition & Health*, 34(2), 201-215.
- Feng, H., & Yang, J. (2023). Supply chain optimization for pre-cooked meal production using AI-driven logistics. *Journal of Supply Chain Management*, 41(3), 112-130.