

Research on the Current Situation and Satisfaction of Paper Straw Use in Anhui Province under the Background of Plastic Restriction order

Yongxin Li ^a, Kunyue Wang, Nan Xia, Juan Zheng, Deyu Li ^{b,*}

School of Economics, Anhui University of Finance and Economics, Bengbu, Anhui, China

^a193385609@qq.com, ^bldy0048@163.com

Abstract

After the new version of the "plastic prohibition order" was issued in January 2020, in response to the national call, the catering industry has used paper straws and PLA polylactic acid degradable straws to replace plastic straws, but merchants and consumers have different opinions on the use of paper straws. Through innovative research methods and a combination of various research methods, we learned about the implementation of paper straws used by all businesses in Anhui Province under the background of the implementation of the "plastic restriction order", the problems that occurred and existed in the process of using paper straws, and the acceptance and satisfaction of residents in Anhui Province with the use of paper straws.

Keywords

Plastic restriction order; Paper straw; Sustainable development.

1. Introduction

After the new version of the "plastic prohibition order" was issued in January 2020, in response to the national call, the catering industry has replaced non-degradable plastic straws with paper straws or PLA polylactic acid degradable straws. Compared with the previous plastic straw, this kind of paper straw can be easily degraded naturally, and it is more boundary pollution-free and has almost zero impact on the environment.

However, the impact of the plastic ban policy is not limited to the replacement of plastic straws by paper straws visible to the naked eye. Businesses have to face the increase in operating costs, technological breakthroughs, and consumers have to overcome the problems of being unaccustomed and having a slightly poor sense of experience. For the sake of environmental protection, most businesses will actively fulfill their environmental protection obligations, and consumers also express their support and understanding. However, problems such as high prices and poor consumer experience actually exist in the habit of replacing products. Based on such problems, this research report through a series of social research to understand the opinions and satisfaction of Anhui people on the use of paper straws in the catering industry after the implementation of the plastic restriction order, and provide relevant countermeasures and suggestions.

2. Development Status of Paper Straw Replacing Plastic Straw

2.1. Implementation status of foreign policies

Since July 1, 2018, Seattle, the United States, has banned the catering industry from providing plastic straws and plastic knives and forks, and encouraged the use of reusable tableware or compostable plastic products. The Seattle Public Utilities Commission announced that violators would face a fine of \$250. In 2018, eight catering companies in the United States actively

proposed to give up the use of plastic straws and provide paper straws or degradable straws when required by customers. The EU member states also put forward the goal of recycling 90% plastic straws and plastic bottles by 2025, and intend to achieve more than half of the recycling of plastic waste by 2030, which is 20% higher than the current utilization rate, and will significantly expand the scale of the plastic waste recycling and classification industry, which is expected to create 200000 new jobs. From this point of view, the law enforcement of plastic restriction orders in foreign countries is strong, and most of them are replaced by paper straws in the catering industry, and even some countries have not given alternative measures.

2.2. Implementation status of domestic policies

According to the statistics of the Renewable Plastics Branch of the China Material Recycling Association in 2019, China produced 63 million tons of waste plastics in 2019, and more than 70 million tons of waste plastics in 2020. Plastic has already become a consumable in the daily life of residents. However, while providing convenience for consumers, plastic products also cause serious waste of energy, resources and environmental pollution due to excessive use and inadequate recycling. In particular, ultra-thin plastic shopping bags are easy to be damaged and most of them are discarded at will, becoming the main source of "white pollution".

In order to take effective measures from the source, urge enterprises to produce durable and recyclable plastics, guide and encourage the people to use plastics reasonably, promote the comprehensive utilization of resources, and protect the ecological environment, in January 2020, the National Development and Reform Commission and the Ministry of Ecological Environment issued *the Opinions on Further Strengthening the Treatment of Plastic Pollution*, which made it clear that by the end of 2020, the use of non-degradable disposable plastic straws is prohibited in the catering industry nationwide. On January 1, 2021, the upgraded "plastic restriction order" and the ban on the use of non-degradable disposable plastic straws in the catering industry took effect. At present, most of the products we can see in the market are paper straws, but some businesses are still in the transition stage.

3. Problems in the Promotion of Paper Straw

3.1. The cost of paper straw is high

According to the survey, the overall average cost of pulp straw is about three times higher than that of plastic straw, and the better paper straw may be five times more expensive. For example, the cost of a ton of disposable plastic straw is about 8000 yuan, while the cost of a ton of paper straw is nearly 22000 yuan. At the same time, due to the influence of paper straw raw materials, the wet environment is not conducive to the production and storage of paper straw, which will greatly shorten the storage and service life of paper straw and increase the replacement cycle of straw. The promotion and use of paper straws will increase the operating costs of enterprises and increase the operating pressure of enterprises.

3.2. Paper straw affects consumption experience

According to the feedback of employees in the catering industry, at the initial stage of replacing paper straws, consumers basically held a negative attitude towards the use of paper straws. On the one hand, because paper straws have lower strength than plastic straws and are easy to be damaged, they often cannot poke open the beverage package, or soften and affect the experience during use. On the other hand, due to the influence of the raw materials used in the paper straw, the product often carries a slight odor during the use process, which is not friendly to consumers who are sensitive to taste. The impact of paper straws on consumer consumption experience has dampened the enthusiasm of enterprises to replace plastic straws and affected the promotion of paper straws.

3.3. The popularity of plastic restriction orders is low

In this survey, the survey area is Hefei, Bengbu, Chuzhou and Lu'an in Anhui Province. There are a total of 458 respondents, of whom teenagers (10-18 years old) account for about 20%, adults (18-40 years old) account for about 55%, middle-aged people (40-60 years old) account for about 25%, and elderly people (over 60 years old) account for about 10%. According to the information about the policy provisions of the plastic restriction order such as the ban on the use of plastic straws, about 42.58% of the people said they had not heard of or were not very familiar with the plastic restriction order, of which the middle-aged and young accounted for 59.37%. In the survey of satisfaction with paper straws, 67.5% of people said that paper straws affected their taste of drink consumption, and 23.75% thought they would give up consumption because of paper straws. But under our explanation and promotion, about 93% of people are willing to use paper straws for environmental protection.

4. Countermeasures and Suggestions

4.1. Relevant government departments

The relevant departments of Anhui Provincial Government should start to popularize and publicize the relevant policy provisions of the "plastic prohibition order" from local grass-roots organizations, and publicize environmental protection knowledge to the public and businesses in the most accessible way. At the same time, the government can appropriately increase financial support and policy incentives for businesses using paper straws and other environmental protection products, and encourage businesses to use paper straws. While praising environmental protection businesses, businesses that do not cooperate with the use of environmental protection straws and plastic straws will be appropriately punished to increase the trial and error costs of non-compliance.

4.2. Straw production market

The straw production market should intensify the competition of some substitute industries, promote the benign competition within the industry, and eliminate the fittest. The plastic restriction order accelerates the industry reshuffle of the plastic bag industry, carries out enterprise adjustment and reform for the straw enterprises with high production pollution and cost, and promotes the internal transformation or merger and bankruptcy of enterprises. For manufacturers producing paper straws and PLA polylactic acid degradable straws, encourage healthy competition among enterprises, reduce the production cost of degradable straws, and improve the popularity of paper straws.

4.3. Businesses in relevant industries

As one of the main players in the market, enterprises should take corresponding responsibilities while maintaining their own interests. Industry businesses can reasonably increase the price of goods on the basis of using paper straws, but they should also make a contribution to building a sustainable society from the perspective of the overall situation. Enterprises should not only use paper straws themselves, but also advocate other businesses to use paper straws together, and report businesses who still use plastic in violation of the system, so as to create a green and harmonious market environment.

4.4. Consumer behavior

Consumers should establish green awareness in the process of daily consumption. If conditions permit, consumers can carry degradable straws or glass straws with them, which will not affect the consumption experience after purchasing milk tea, but also can be recycled environmentally. If you cannot carry glass straws or degradable straws, try to use paper straws and other environmental protection straws. When encountering the merchants who use plastic

straws, they should actively advise. If they do not listen to the advice, they should report to the relevant departments.

5. Summary

5.1. Main research results

The project members have widely collected the current implementation status of the "plastic restriction order" and the use of paper straws and other relevant information, and have carried out a preliminary survey of the current situation and satisfaction of the use of paper straws in Anhui Province in Bengbu, Hefei, Lu'an and Chuzhou, Anhui Province, based on the implementation of the "plastic restriction order", with a comprehensive coverage of research objects. At the same time, the residents' satisfaction with the use of paper straws in milk tea shops and restaurants among the project members was preliminarily analyzed. On this basis, the exchange and report were carried out, and an in-depth research plan was formulated according to the preliminary analysis results.

5.2. Innovation

The project investigated the current situation and satisfaction of the use of paper straws in Anhui Province based on the implementation of the "plastic restriction order" by means of innovative research methods and a combination of various research methods. In the course of the investigation, the team adopted the combination of regression analysis and prediction method and long-term trend prediction method to conduct a comprehensive investigation on the current situation of the use of paper straws in Anhui and people's satisfaction with them, and reached relevant conclusions through preliminary investigation and in-depth research, providing constructive suggestions for further promoting the development of the plastic restriction order, and laying a solid foundation for promoting the further development of the plastic restriction order.

5.3. Project features

(1) Research methods are diverse. Conduct research and obtain first-hand information through multiple means and angles. The research scope of this group covers the whole Anhui Province. The research methods include field survey, questionnaire survey, sampling survey, literature survey, network survey, etc. In the course of research, the team adopted the in-depth combination of the above research methods to obtain the research results with authentic sources and reliable information.

(2) The research project is practical. From the development status of plastic straw industry in recent two years, the sales volume of plastic products in China was 63 million tons in 2019, down 0.3% from the same period last year. The production and sales rate was 94.6%, and the ending inventory of plastic products was 15.7% lower than the beginning of the year. Under the current national standards, it is stipulated that by the end of 2020, the use of non-degradable disposable plastic straw is prohibited in the catering industry nationwide. On August 28, 2020, the Ministry of Commerce issued *the Notice on Further Strengthening the Treatment of Plastic Pollution in the Commercial Field*, which clearly required that by the end of 2020, the use of non-degradable disposable plastic straws should be prohibited in the catering industry nationwide. The research projects closely follow the national policy hot spots and meet the practical needs.

(3) Resource advantages. The team members communicated with students from many schools and made positive contact with relevant teachers and project leaders. The project instructor has a deep understanding and rich practical experience of the current situation and satisfaction of the use of paper straws in Anhui Province based on the implementation of the "plastic restriction order", which provides guidance for future research. At the same time, due to their

own interests, the respondents actively reflected the situation, laying a solid foundation for the further development and investigation of the project.

Acknowledgments

This study was funded by 2021 Anhui University of Finance and Economics Provincial Undergraduate Innovation and Entrepreneurship Training Program (Grant No.: S202110378155).

References

- [1] Many, Lang Zihan, Tang Yuwei. Research report on the impact of paper straws replacing plastic straws in the context of the "plastic restriction order" policy [J]. *Clean World*, 2021,37 (07): 77-78+81.
- [2] Cao Yixue. Problems and countermeasures in the implementation of the "plastic restriction order" [J]. *Journal of Liaoning Normal University (Social Science Edition)*, 2022, No.141 (03): 6-8.
- [3] Lu Yuling, Li Hongtao, Duan Zhengtao. The green and sustainable development of the catering industry in the context of the new "plastic restriction order" - taking Starbucks as an example [J]. *Clean the World*, 2022,38 (10): 157-159+162.
- [4] Zhang Yige. Research on the implementation obstruction and its solution of the "plastic restriction order" policy [D]. Nanchang University, 2022.
- [5] He Jiaping, Chen Yuning, Liu Jiaru. Investigation and analysis on the implementation effect of plastic restriction order in Chengdu [N]. *Shanxi Science and Technology News*, 2022-02-21 (B03).
- [6] Wang Yining, Luo Hanlu, Luo Siya. Analysis and suggestions on the obstacles to the implementation of the new "plastic restriction order" [J]. *Leather Manufacturing and Environmental Protection Technology*, 2021,2 (12): 157-158.
- [7] Yu Wenting, Liu Shengmin. Analysis of the factors affecting the effectiveness of the popularization of plastic restriction orders in Shanghai [J]. *Economic Research Guide*, 2021, No.475 (17): 58-60.
- [8] Huang Ying. Research on the implementation dilemma and solution strategy of China's "plastic restriction order" policy [D]. Jiangxi Normal University, 2021.
- [9] Jiang Ying. The strictest "plastic restriction order" promotes industrial development and upgrading [J]. *China Development Watch*, 2021, No.255, No.256 (Z1): 100-103.
- [10] Zhao Qiuzi. Research on the implementation of the "plastic restriction order" policy in Xuzhou [D]. Northwest Agricultural and Forestry University, 2017.
- [11] Lu Zhou. Behind the "plastic restriction order" - taking the use of plastic bags in a region in Nanjing as an example [J]. *Economic Research Guide*, 2017, No.345 (31): 118-120+132.
- [12] Li Hongyu, Yao Jiali, He Xinyi, et al. Exploring the connection mechanism of environmental policy - based on the analysis of the policy text of Beijing's new "plastic restriction order" [J]. *Leather Production and Environmental Protection Technology*, 2021,2 (18): 60-63.