

Research on the Current Situation and Development Path of E-Commerce Industry from the Perspective of "New Plastic Restriction Order"

-- Taking Bengbu Express and Takeout Industry as An Example

Xinye Cai and Jingjing Liu *

School of business administration, Anhui University of Finance and Economics, Anhui, Bengbu, 233030, China

*Corresponding Author: 19085980@qq.com

Abstract: Under the "high-speed delivery" order, the "plastic delivery" industry has been further upgraded, resulting in a large number of problems in the "plastic delivery" industry. Based on the above two pain points and problems, through the special perspective of the "new plastic restriction order", taking Bengbu City as an example, this paper collates the data from three aspects: the understanding of residents at different ages of the "plastic restriction order", the use of plastics in the industry before and after the new plastic restriction order, and the impact of the "plastic restriction order" on takeout and couriers. More intuitive display of the impact of the "new plastic restriction order" on the express and takeout industries. Explore the development path of the express and takeout industry from the perspective of the "new plastic restriction order", actively practice the concept of green environmental protection, implement the "new plastic restriction order", promote the sustainable and healthy development of the e-commerce industry and optimize the green industrial structure.

Keywords: Plastic restriction order, Takeout lunch box, Express package, Green E-commerce.

1. Introduction

We live in a "highly plasticized" society. Plastics are everywhere because of "plasticity" and "mobility". However, while plastics provide convenience for people's life, they also bring many problems to the environment. The pollution caused by improper recycling has evolved into an environmental problem of great concern to the whole society. In recent years, the new consumption mode of o2o has sprung up, the rapid development of e-commerce and the blowout development of takeout and express industry. As a major user of plastic products in the development of e-commerce, the express and takeout industries have produced a large amount of takeout express packaging waste (especially waste plastic packaging), and derived new types of plastic waste. Due to the imperfect construction of plastic recycling, classification and reuse system and the disadvantages of multi head management system, China's white pollution control is still facing a severe situation. In 2020, the "plastic restriction order" was further upgraded to extend the "plastic restriction" to emerging industries. The state issued the "opinions on Further Strengthening the control of plastic pollution", which put forward requirements for the prohibition of plastic products in the fields of catering packaging and takeout services, supermarkets, pharmacies and so on. All provinces also successively issued implementation plans to actively respond to the plastic restriction order.

The study comprehensively explored the impact of the "new plastic restriction order" on the express and takeout industry, put forward the countermeasures taken by the express and takeout industry under the background of the "new plastic restriction order", promoted the green development of the express takeout industry, actively responded to the call of the "plastic restriction" and publicized the concept of "plastic restriction", so as to implement the

significance of the plastic restriction order and stay away from "white pollution", Create a pure land and promote the sustainable development of green e-commerce. The research results have universal applicability, especially provide a certain reference value for the management of express and takeout companies; Through research activities supplemented by environmental education, improve consumers' awareness of environmental protection and encourage them to actively participate in the practice of white pollution prevention and control.

2. Implementation of the "New Plastic Restriction Order" in the Takeout and Express Industry

Two rounds of questionnaires were used to investigate and analyze the implementation of the "new plastic restriction order" in Bengbu express industry from the perspective of different groups of consumers and couriers.

The first round of questionnaire is based on the synthesis of a large number of literature and data on the plastic restriction order at home and abroad. Then it is improved and optimized after the trial test, and the investigation input and implementation of the "plastic restriction order" are compiled. The liker 5 rating standard is adopted in the scale, The questionnaire is scored from completely non-conforming to fully conforming, with a score of 1-5 from high to low. The higher the number, the better understanding of the plastic limit order. The survey questionnaire was released online and offline. There were about 580 offline questionnaires and 572 valid questionnaires were recovered. The online questionnaire recovery rate was 98.62%. There are about 270 offline valid questionnaires, with a recovery rate of 87.2%. Integrating the questionnaire data on and off the line, the degree of understanding of the "plastic restriction order" is

regarded as a continuous variable and divided into five intervals, in which the complete lack of understanding of the "plastic restriction order" is represented by [0,1) interval, a small part of understanding of the "plastic restriction order" is represented by [1,2) interval, and the understanding of the "plastic restriction order" is represented by [2,3) interval, For

a better understanding of "plastic limit order", use [3,4], for a good understanding of "plastic limit order", use [4,5] interval, and use the median value of each interval to indicate that this option is selected. The average value of the sample's overall understanding of the "plastic limit order" is 2.7022, which is in the understanding range.

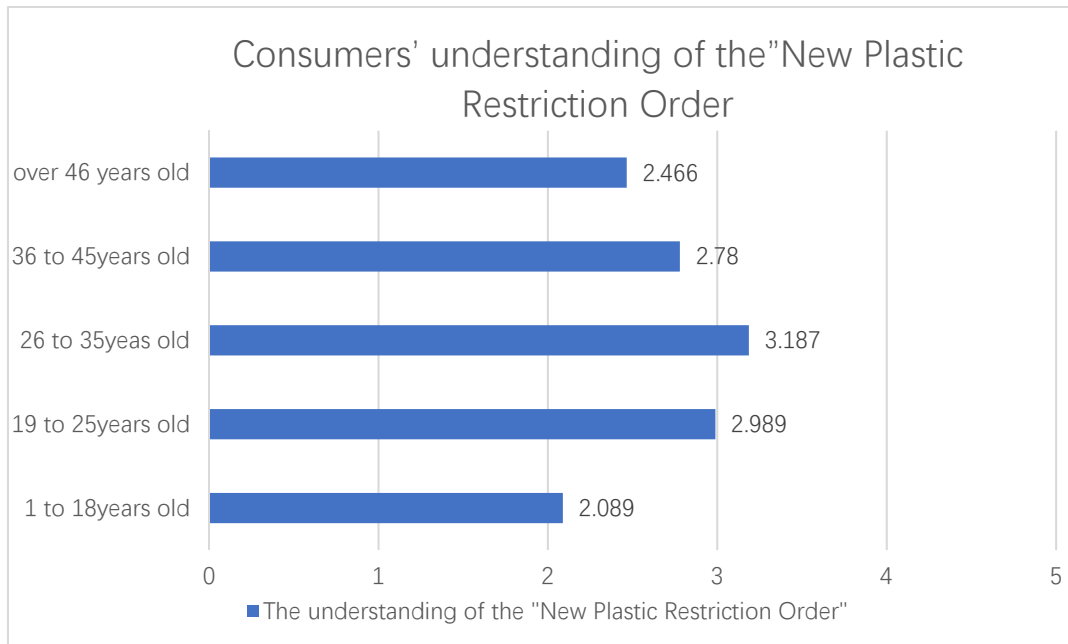


Figure 1. Consumers' understanding of the "new plastic restriction order"

As the couriers are the middlemen who directly connect consumers and merchants, 565 takeout couriers and 348 Express Couriers were randomly selected in Bengbu in the second round of questionnaire, focusing on the implementation degree of the "plastic restriction order" in the express takeout industry, their own understanding of the "new plastic restriction order", the impact after the reform A total of 10 questions were designed for questionnaire survey in terms of delivery and express delivery every week. According to the summary data of the questionnaire, 46.89% of the

businesses have implemented the "new plastic restriction order" after its promulgation, using degradable plastic materials in strict accordance with the national requirements, minimizing the delivery service of takeout plastic tableware, and implementing the requirements of the "new plastic restriction order" through charging for plastic tableware; Among them, 68.91% of the couriers and takeout couriers understood the new regulations of the "new plastic restriction order".

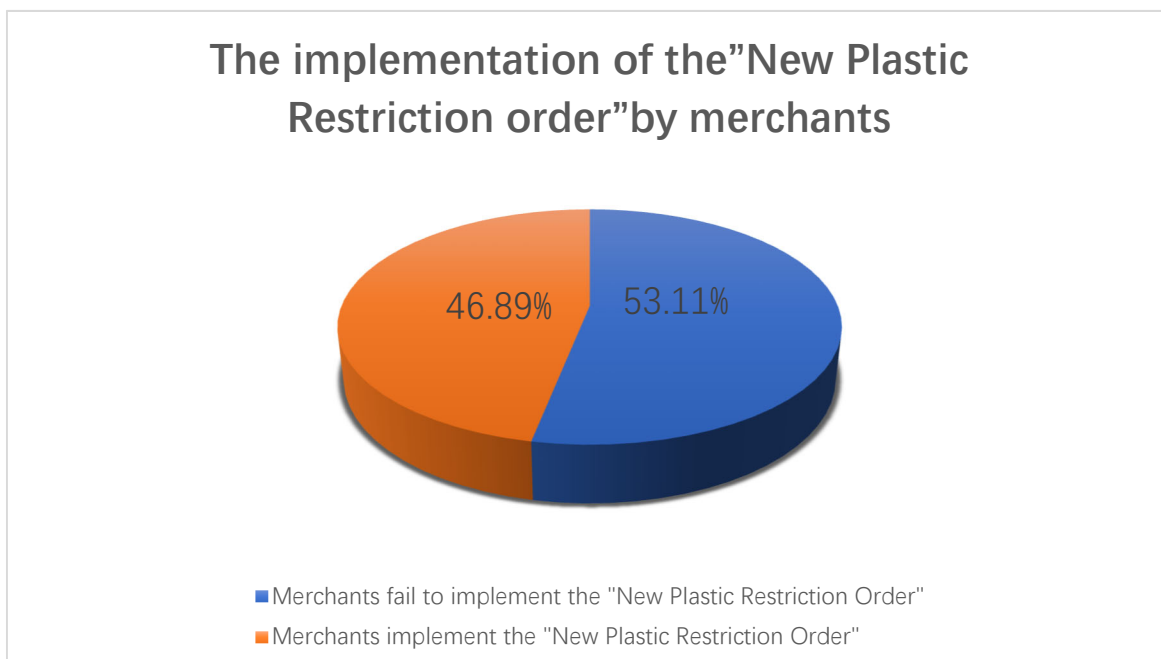


Figure 2. Implementation of "new plastic restriction order" by some merchants

3. Investigation and Analysis on the Current Situation of Takeout and Express Industry under the "New Plastic Restriction Order"

3.1. Analysis on the Use of Plastics in E-Commerce Industry Before and after the "New Plastic Restriction Order"

Through field visits and investigations, we visited the headquarters of Bengbu express operation center, various entities, takeout merchants and major express stations for investigation, and counted the main materials of takeout and express packaging before and after the "new plastic restriction order", as well as the proportion of plastic materials. Through the longitudinal analysis method, the change of the use quantity of plastics after the promulgation of the "new plastic restriction order" is obtained. In recent years, the use of plastics in express delivery industry and takeout industry has increased year by year, in which the use of plastics produced by commodity packaging accounts for 80% of the total use.

According to the investigation, the express packaging materials are mainly divided into external packaging materials, internal filling materials, waybills and packaging tapes (or seals). The types of express packaging materials were classified according to the delivery items. Plastic bags accounted for about 48%, carton packaging accounted for 34%, carton and plastic bags combined accounted for 15%, and other packaging materials such as woven bags, document seals, foam boxes and wooden boxes were relatively low. At the same time, the main categories of fast delivery plastic packaging materials were also known (see Table 1). There are also various types of takeout packaging, including PP plastic tableware accounting for about 48%, disposable foamed plastic tableware accounting for about 36%, paper tableware accounting for about 10.5% and degradable tableware accounting for about 5.5%. (Figure 4) this is mainly due to the increase of sales volume, which intensifies the use of plastics. In the takeout fast food industry, only 20% of businesses have strictly implemented the packaging fee system, and 63% of businesses formulate whether to charge packaging fees according to the sales of goods. 17% of businesses do not charge plastic bags and packaging fees at all.

Table 1. Main categories of express plastic packaging materials

Plastic packaging category		Material category
Plastic packaging plastic bag	Pure white	Made of leftover materials or new materials produced by PE (a small number of express plastic packaging bags are mainly made of such packaging materials)
	Grayish white	Waste PE is made by adding a small proportion of new materials to the waste PE recycled materials. The waste PE comes from plastic packaging waste for agricultural or industrial purposes, or imported waste PE plastic products
	Dark gray	It is made of waste PE recycled material, and the raw material is the same as above
Foam box	white	The recycled PS is made (the type and material of the foam boxes used by different electricity suppliers or express companies are basically the same).
Woven bag	Brown and light green	Brown and light green
Pearl film bubble bag	Pure white or other solid colors	Outer PE, inner high pressure polyethylene (HDPE)
Filled bubble bag	Transparent	HDPE, PE new materials (the filling materials used by different e-commerce or express enterprises are basically the same)

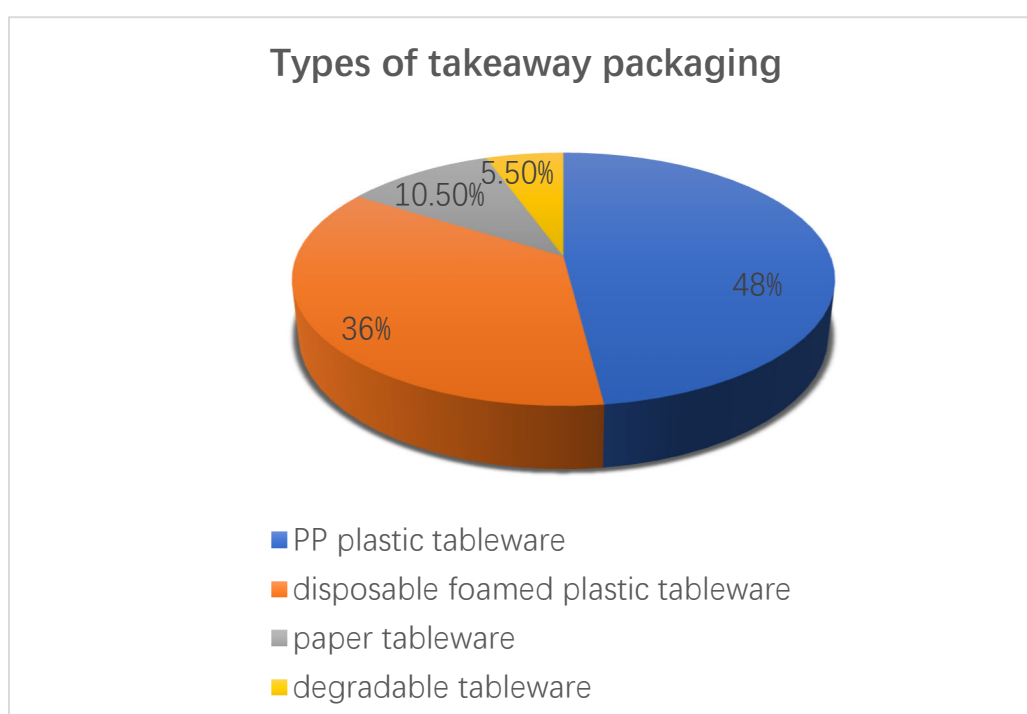


Figure 3. Types of takeout packages

3.2. Analysis of the Impact of the "New Plastic Restriction Order" on the Work of Takeout and Express Delivery Workers

The "new plastic limit order" analyzes the daily average workload of takeout and express delivery workers. The survey of 565 takeout couriers and 348 Express Couriers shows that the daily average workload of each person in the express industry reaches 70 ~ 80 pieces, and the daily workload of each person in special festivals such as double 11 and 618 reaches 100 ~ 120 pieces, of which 85% are plastic outer packaging. The takeout industry distributes 20-30 pieces per person per day, and the couriers in the University City can distribute 40-50 pieces per person per day, of which plastic packaging accounts for 98%, of which billing packaging accounts for 80%. The packaging cost of 25% of the goods is cancelled due to the product price, and the packaging cost of each takeout varies from 0.5-3 yuan. It can be seen that plastic packaging is still used for packaging in the

takeout and express industry. There is still a phenomenon that the charging price of plastic packaging is not high, which has a weak impact on consumers' buying takeout behavior. Express delivery still has the phenomenon of excessive packaging and more express fillers, and takeout merchants' awareness of using degradable tableware is not strong, which is still common.

Analysis of the impact of "plastic restriction order" on the work of takeout and express delivery personnel. The survey of 565 takeout delivery workers and 348 express delivery workers shows that the mainstream idea of takeout and express workers is "plastic restriction order", which has a medium impact on the industry. Among them, takeout workers are more affected by "plastic restriction order" than express workers. Generally speaking, the implementation of the "plastic restriction order" has a moderate impact on the express and takeout industries, but with the development of the industry and the sharp increase in the number of daily average orders, this impact is gradually weakening.

Table 2. Impact of "new plastic restriction order" on express delivery and takeout delivery personnel

	No effect	Medium impact	Large impact
Take-out food	8.1%	58.3%	33.6%
Express	15.4%	55.8%	28.8%
Total	23.5%	114.1%	62.4%

4. Research on the Development Path of Takeout and Express Industry from the Perspective of "New Plastic Restriction Order"

4.1. Green Transformation, Upgrading and Development of Takeout and Express Industry -- 3r Principle

For the green transformation and upgrading of takeout and express delivery industry, we should adhere to the 3R principle, that is, reduce, reuse and recycle.

4.1.1. Reduce

The express industry can replace the express packaging materials and fillers with degradable green packaging materials. At the same time, the big data algorithm is used to optimize the placement of goods and automatically recommend packaging boxes of appropriate size, so as to reduce the use of packaging fillers and improve the utilization of space. The traditional wide tape is used as the case sealing and slimming tape to reduce the size of the tape. For commodities without special purposes, the use of packaging materials should be reduced, and packaging sales should be reduced or not used. The takeout industry should encourage consumers to reduce the use of disposable tableware.

4.1.2. Reuse

The recycling and reuse activities of plastic packaging and express lunch boxes have been piloted in many college express stations and takeout sites. Fine classification technology is the key to the reuse of plastics. For the recycling of plastic materials of different express packages and takeout boxes, it is necessary to develop processes such as sorting,

crushing, washing, batching and granulation, and fine classification, so as to ensure the quality of recycled plastics. Takeout businesses should also use more degradable materials as takeout boxes, so as to improve the reuse efficiency of takeout boxes.

4.1.3. Recycle

Several express companies should jointly launch the "shared express box". The square plastic box can be recycled and can be folded into a plastic plate. The express brother can be recycled after the user signs for it, so as to reduce the excessive amount of small and large express packages. At the same time, the "tear proof bag" of Green Express packaging made of food grade materials and reusable is used to reduce the pain point of one-time use of express packaging and promote reuse. For the takeout industry, we can learn from the Japanese takeout lunch box, use the recyclable lunch box, and choose the porcelain bowl or lacquer bowl. Users need to pay a deposit when ordering takeout food contained in tableware that is not disposable. After using up the meal, place the lunch box in a fixed place, such as outside the front desk, and then bring it back by the restaurant staff within a fixed time and give subsidies.

4.2. All sectors of Society Work Together to Promote the Green Transformation and Upgrading of Takeout and Express Delivery Industry

4.2.1. National Government

Actively promote the effective connection between e-commerce, postal express and other industry management laws and regulations and the law on the prevention and control of environmental pollution by solid waste, and further

clarify the legal responsibilities of market subjects and government supervision responsibilities. Formulate and implement special waste recycling methods and industry regulations, refine the classification of waste, and solve the problems of less and difficult waste recycling. Clearly stipulate in the form of legislation that takeout consumers have the obligation of designated delivery of tableware, and enhance their legal responsibility. In addition, the industry regulations clearly require enterprises to use tableware of the same material and specification in the same service category, so as to facilitate the recycling of tableware and accelerate the formation of a legal and regulatory system conducive to improving the governance of takeout and express packaging.

Because consumers are willing to buy plastic bags at a low cost, which provides convenient and fast plastic bags, businesses are also willing to pass on the increased cost of plastic bags to consumers, and there is no strict supervision of government departments in production, sales and use, which leads to the actual effect of the plastic restriction order is not ideal in the long run, and even falls into the crisis of "plastic sales order". The white pollution warning has not been lifted due to the implementation of the plastic restriction order, but has intensified. We should use economic leverage to adjust and strengthen the leverage effect, so that the price of plastic bags is more than 20 times its purchase price, change the current situation that the price of plastic bags is still relatively low, and let consumers strengthen the awareness of "plastic restriction" through price leverage. At the same time, for disposable plastic waste, it is necessary to establish a plastic tax collection system. Levy a one-time plastic surcharge on enterprises, so as to improve the circulation price of one-time plastic products and reduce the dependence of enterprises on one-time plastic products.

Encourage enterprises to develop low-cost and practical environmental protection packaging products to replace disposable plastics, improve the production level of enterprises and promote the development of degradable plastics industry. In the production of plastic bag substitutes, the government should give sufficient tax preference support, and can also provide political subsidies to excellent enterprises.

4.2.2. Related Enterprises

As an upstream enterprise of takeout and express delivery, plastic production enterprises are closely related to the green development of their industry. To speed up industrial upgrading, enterprises should speed up technological innovation, develop green, environmentally friendly, economical and applicable degradable plastic products and affordable substitutes, so as to meet the needs of consumers. At the same time, they should actively use degradable substances such as corn and straw as raw materials to produce degradable plastic packaging.

E-commerce enterprises shall cooperate with commodity production enterprises to design and apply commodity packaging to meet the needs of express logistics distribution, so as to reduce the secondary packaging of commodities in the Express link. Gradually stop using non degradable plastic packaging bags and disposable plastic woven bags, and reduce the use of non degradable plastic tape. At the same time, the e-commerce platform can guide consumers to buy green goods, use green packaging or reduced packaging, and participate in packaging recycling by establishing points reward, credit scoring and other mechanisms. And charge for the commodity packaging purchased online, strengthen

consumers' sense of payment for online shopping packaging, and let consumers choose the demand for packaging according to their own needs to avoid waste.

4.2.3. Consumer Side

As consumers, they should do their part for the National Plastic restriction. For example, when buying goods, they should form the good habit of bringing their own shopping bags and learn to say "no" to the merchants who sell plastic bags. In the takeout order, we can choose not to need tableware, which is clean and protects the environment. It is very convenient for us to buy such things from e-commerce platforms. However, we can also waste a lot of resources from e-commerce departments due to the large and small packaging. At the same time, when we throw garbage, we should also do a good job in garbage classification, so that the recycler can recycle better and more conveniently. Let's become participants, adherents and supervisors in the implementation of the "plastic restriction order".

5. Summary

From the special perspective of the "new plastic restriction order", this paper takes the new takeout and express industry as the research object, investigates the implementation of the "new plastic restriction order" by means of questionnaire, and makes a quantitative analysis of the impact of the "new plastic restriction order" on the takeout and express industry by using a combination of quantitative and qualitative methods. Combined with the sorted data report, it is explored that under the perspective of the "new plastic restriction order", the express delivery and delivery industry should be upgraded and developed in a green way. Not only should the industry itself adhere to the 3R principle, but also national government agencies, relevant enterprises and consumer groups should work together to form a joint force to jointly promote the green transformation and upgrading of the take away and delivery industry.

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References

- [1] National Development and Reform Commission Main achievements since the implementation of the plastic restriction order [EB / OL] [20 3-04-23]. <http://www.ccchina.gov.cn/Detail.aspx?newsId=39923&Tid=57>.
- [2] Li Guoqing The idea of plastic pollution control under the upgrading of plastic restriction order People's forum [20278-02]
- [3] Ding Yuzhen, Ning Pengfei Current situation and greening of packaging in E - commerce enterprises Value engineering [J], 2017:67-68.

- [4] Investigation and Analysis on the implementation and influence of Xu Lu's out of limit plastic order Modern economic information [J], 2018:54-55.
- [5] Zhao Beijia's "plastic restriction order" should not be reduced to "plastic sales order" [n] People's daily, 2017-06-09.
- [6] Behind Lu Zhou's "plastic restriction order" -- Taking the use of plastic bags in a region of Nanjing as an example, Economic Research Guide [J], 2017:118-120.
- [7] Xue Zhaofeng General knowledge of Economics: 2nd Edition [M] Beijing: Peking University Press, 201.