

Open a "New Era" of Green Logistics

Qichuan Feng^a, Jie Xu, Yalan Shi

School of Anhui University of Finance and Economics, Bengbu, 233000, China

^a2635159069@qq.com

Abstract

With the development of Internet e-commerce, express delivery industry takes off rapidly. At present, the domestic express system has been more mature, but the problem of packaging waste in the express industry is imminent. On the one hand, the market has a huge demand for express cartons, on the other hand, the problems of environment and resources caused by the waste of express cartons are becoming more and more prominent. How to balance the infinite demand and limited resources between the problem, has become the first problem, with the concept of shared express box, the attitude of the masses both affirmative and questioned, so we carry out in-depth research, understand the residents of the shared express box view, put forward reasonable suggestions.

Keywords

Shared Courier Box; Energy Saving and Environmental Protection; Willingness to Use.

1. Introduction

With the development of Internet and mobile communication technology, "online shopping" has become a revolutionary word in the 21st century and a widely recognized shopping mode in the new era. However, with the explosive growth of China's express business volume, the pollution problem of express boxes is becoming more and more serious. According to statistics, in 2019, there were more than 60 billion express deliveries in a single year, and in 2020, there were 83.4 billion express deliveries, with a year-on-year growth of 31%. According to the operation situation of the postal industry released by the State Post Bureau, in 2021, The volume of express delivery services in China reached 108.3 billion, up 29.9 percent year on year, creating a new history. The ensuing pollution and waste problems are imminent. Such a severe situation has given rise to a new express package -- "shared express box". Therefore, we take Bengbu City as an example to investigate and study Bengbu residents' willingness to use shared express boxes.

1.1. Share the Features of Express Boxes

The materials used in the shared express box are pure, non-toxic, tasteless, waterproof, corrosion-resistant, acid-alkali resistant, and can directly package food. The surface stiffness of the shared express box material is strong, the scratch resistance is good, the surface is not easy to crack and has toughness, but also has high heat resistance. Compared with traditional packaging, it can also meet the three advantages of recycling, recycling and degradation.

At present, the shared express box is used for direct packaging. After the goods are taken away, the Courier will collect the box, fold it and store it, and bring it back to the warehouse for reuse. Its biggest feature is that it can enter the circulation link for recycling many times. The shared express box can be folded to fully reduce transportation and storage space, and there are different specifications to meet the packaging needs of different items. Its use of materials to ensure that the recycling process does not produce any waste water and waste gas, fully ensure the shared express box zero pollution to the natural environment. Zero destruction has an

important role in solving the resource waste and environmental pollution of Chinese express packaging.

1.2. Use Status of Shared Express Boxes

In August 2016, the State Post Bureau issued the Implementation Plan for Promoting Green Packaging in the Express Delivery Industry, which proposes that efforts should be made to promote green packaging, improve the utilization efficiency of express package, reduce packaging consumption and reduce environmental pollution. In the Government Work Report 2020, The State Council put forward the goal of "reducing, standardizing and recycling express package" in the "14th Five-Year Plan". By 2025, it will basically realize that e-commerce express packages will no longer be packaged twice and the application scale of recyclable express packages will reach 10 million. In response to the national call to speed up the construction of green logistics, several e-commerce enterprises and express companies led by Suning, Jingdong and SF Express gradually implemented the express packaging method of sharing express boxes instead of traditional express boxes.

2. Questionnaire Design and Sample Selection

The questionnaire was designed from four aspects: first, to understand the background of the respondents, including gender, age, education background and the number of online shopping. Second, the introduction of questions, to understand the respondents' views on express packaging and the way to deal with express packaging; The third question is attitude, which is also the core question of this questionnaire. It is mainly to understand the public's attitude and opinion on the sharing of express boxes. The fourth is to discuss questions. For some questions in the questionnaire, online fill-in-the-blank or offline interview is initiated to understand the public's thoughts.

In the question setting, in order to ensure the reliability of data, we developed the online questionnaire published by jump logic. Based on the rules of jump logic, consumers' opinions on sharing express boxes can be more directly understood, so as to put forward more reasonable suggestions.

According to the preliminary survey results, stratified sampling is carried out in Longzihu District, Bangshan District, Yuhui District and Huaishang District of Bengbu City. In communities with a large flow of people, the way of stopping visits ensures the randomness of the survey, the diversity of the occupations and ages of the respondents, and the willingness of the general public to use "shared express box" can be collected more comprehensively. 1000 questionnaires were actually sent out, and 840 effective questionnaires were actually received, with a recovery rate of 84%.

3. Survey Results

3.1. The Development Prospect of Shared Express Boxes is Good

The survey shows that although only 12% of people say they know about shared express boxes, but after popularizing the knowledge of shared express boxes to residents, most people say they are optimistic about the development prospect of shared express boxes and agree with its significance of existence, but still hope that it can be improved continuously in the development process. Through text mining, it is found that the word frequency and size of positive words such as "support" in the word cloud map are high, which indicates that netizens mainly hold a positive and approving attitude towards the shared express box, express their recognition and praise for the shared express box, and look forward to its future development. Of course, there are also some negative words, mainly expressing their concerns about the promotion of shared delivery boxes and whether sharing delivery boxes can really be environmentally friendly.

3.2. Residents are More Concerned About the Environmental Protection and Practicability of Shared Delivery Boxes

According to the survey data, 98 percent of respondents said they expect shared delivery boxes to be more environmentally friendly, while 89 percent said they expect shared delivery boxes to be more convenient to use. This shows that residents' tolerance of shared express boxes is mainly due to its environmental value. Only truly environmental protection can persuade residents to participate in the use of shared express boxes. Since shared express boxes are packaged in plastic, many residents question whether shared express boxes are really environmentally friendly and how to dispose of discarded shared express boxes. Residents also attach great importance to the convenience of using shared express boxes, because if residents participate in the recycling of shared express boxes will cost a lot of time and labor costs, residents will be less willing to participate in the recycling of shared express boxes, sharing express boxes will be difficult to promote. Therefore, shared delivery boxes must be both environmentally friendly and practical before they can be popularized among residents.

3.3. The Number of Deliveries Received by Residents Per Month is Related to Gender and Age

The survey shows that the number of express deliveries received by female residents per month is higher than that of male residents. Among them, the number of 3-7 express deliveries per month for female residents accounts for 42.1% at most, while the number of less than 3 express deliveries per month for male residents accounts for 41.1% at most. Residents under the age of 29 received the highest number of deliveries per month. The main reason is that women are more active than men in online shopping, so the number of monthly express delivery is much higher than men. Therefore, the main force of express box use is women. In the later stage, the publicity and promotion of shared express boxes should focus on female residents, so as to achieve accurate promotion, and design a unique promotion plan for women. In addition, it is aimed at young people under the age of 29 to receive the express. Therefore, when designing the promotion plan, it can also be considered to promote and publicize on the social network where young people gather widely, so that the effect will be better.

3.4. Educational Background has a Certain Correlation with Residents' Use of Shared Delivery Boxes

According to this survey, in terms of the willingness to use shared express boxes, there is a significant difference between those with junior high school or below and the other four degrees, while there is no significant difference between those with senior high school/technical secondary school, junior college, bachelor's degree, master's degree or above. Moreover, the willingness of high school or above to participate is higher than that of those with junior high school or below. Residents with higher education pay more attention to environmental protection issues. Therefore, under the premise of environmental protection based on shared express box, we are more willing to participate in the use of shared express box.

3.5. Monthly Income and Occupation are Correlated with Residents' Willingness to Bear the Additional Cost of Sharing Delivery Boxes

According to the survey, 48.33% of respondents said they were willing to pay extra fees for sharing express boxes, but the most acceptable fees range from 0 to 0.5 yuan. Only 4.17 percent were willing to pay an extra 0.5-1 yuan. It is not difficult to deduce that everyone basically recognizes the advantages of sharing express boxes, so they are willing to pay a certain fee. Of course, more than 30 percent of users are not willing to pay the fee, indicating that more caution is needed on whether sharing delivery boxes should be charged.

4. Investigation and Suggestions

4.1. For Express Centers

4.1.1. The Shared Express Box Should be Green

The materials of shared express boxes should be green, environment-friendly, non-toxic and harmless, and 100% recyclable. In the questionnaire survey, more than 80% of people believe that the packaging box to save environmental protection, clean, durable. At present, China's "Cainiao Express" launched a full biodegradable express bag and tape free carton, "Suning" also launched a zero adhesive paper box to realize the green sharing of express boxes.

4.1.2. Expand the Publicity Channels and Enhance the Enthusiasm of Consumers to Participate

As a new thing, the theory of "shared express box" is indeed very low in use cost. However, consumers need to cooperate to achieve this "ideal state". However, through this survey, we found that many consumers said they did not understand the concept of shared express box, so the express center needs to expand the publicity of shared express box. Make more consumers know about the shared delivery box and join the army of sharing. Among them, we should carry out targeted publicity for different age groups. Through the analysis of questionnaire data, we found that residents under the age of 29 received more times of express delivery every month, so they consume more express boxes than other age groups. Therefore, different levels of publicity for age groups can effectively save resources and maximize the intensity of publicity.

4.1.3. Express Boxes of Each Family Should have a Uniform Standard

Various express delivery companies should form cooperation, or the industry should develop industry standards, so that the shared express box unified standard, so that residents will not form a chaotic situation in the use of links, to avoid the waste of resources for each express to build a recycling station. As far as possible to circulation, sharing, reduction. Establish a set of corresponding express business new process as support.

4.1.4. The Design of Shared Express Box Should Pay Attention to the Protection of Consumer Privacy

In the data obtained from the questionnaire, as for the problems faced by sharing express boxes, the residents gave an average score of 3.5 for "difficult information elimination". It can be seen that residents have a strong awareness of their own information protection, and the shared express box will be used for the second time, so whether the personal information on the express box can be effectively removed is a major problem in the design of the express box. Therefore, the design should focus on how to protect the privacy of consumers, how to achieve fast and effective erasure of information.

4.1.5. Establish a Coding and Tracking Mechanism for Express Boxes

To solve the problem of how to encourage residents to return shared express boxes, we proposed to establish a coding tracking mechanism for express boxes, and improve it from the assessment mechanism of Courier, so that Courier timely recycling. In addition, recycling stations can be set up and user credit management can be adopted. Whenever the user returns the express box, credit points will be added to the user, and if the user does not return the box, the score will be reduced. When the score is less than a certain value, punitive measures will be imposed on the residents, such as charging for the package.

4.1.6. Launch APP Platform

With the development of the Internet and communication technology, APP and people's lives are more and more close, Courier can design and launch an App, used to send messages to remind customers and encourage customers to express the box plus deposit, "only attract more and more customers to use, in order to slowly solve the waste and pollution of the carton". In

addition, it can also be used in combination with big data of express delivery and selectively according to the region, population and use intention. Some small apps can also be designed on the APP, such as setting up small pet cultivation games, and getting some pet snacks by returning the express box, so that users can have fun in the participation.

4.1.7. Implement Incentive Mechanism

Express delivery companies should implement some reward mechanisms for residents who return the shared express boxes in time to stimulate their return. For example, cumulative cash withdrawal will be offered as a reward of one dime each time. If 5 yuan is over, cash can be withdrawn, or points will be awarded.

4.2. Targeting the Government

4.2.1. Unified Recycling, Unified Recycling to Reduce Costs

Due to the particularity of shared express boxes, they cannot be regulated by the market and may lead to moral hazard and free-riding behavior, which requires the government's encouragement and support. For government departments at all levels, they should further implement garbage recycling and utilization within the region. They can also work out cooperation agreements with express delivery enterprises, vigorously promote the use of green express bags, sharing express boxes and recycling bags, and open up corresponding recycling channels.

4.2.2. Give Industry Guidance and Formulate Reward and Punishment Measures

If the express industry uses "shared express box" in a comprehensive change, it first means a large amount of investment in the early stage, and for individual express providers or express industry, let them use their own funds to promote "shared express box" such green circular packaging, although the idea is beautiful, it still needs to consider the operability and the enthusiasm of logistics enterprises. At present, the average price of a single express has been declining in the past five years. In 2016, it was 12.7 yuan, a year-on-year decrease of 5.2%. The profit space of the express industry has been gradually compressed in recent years, and it is unrealistic to squeeze out the cost of replacing the express box. Therefore, the government should provide guidance, such as setting standards for the use of delivery boxes, and giving incentives in different forms such as tax breaks and bonuses to companies that participate in the implementation of sharing delivery boxes.

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