

Research on the Joint Distribution Mode at the End of Rural E-commerce Logistics in Ling Shan Region

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Abstract: With the advent of the Internet era, the network in most rural areas has gradually been covered, thus farmers have enjoyed the convenience brought by the network. Online shopping instantly became a new shopping mode, thus increasing the number of express deliveries in rural areas. Due to the difficulties of high cost, slow time limit and difficult layout in the end distribution process in rural areas, express delivery companies are facing great challenges. Based on the current situation of end-of-line distribution of e-commerce logistics in rural areas of Ling Shan, this paper analyzes the existing distribution modes in rural areas of Ling Shan and proposes to adopt the theory of end-of-line joint distribution mode.

1. Introduction

At present, most e-commerce enterprises carry out precision marketing under the strong influence of big data, which has set off a frenzy of online shopping, enabling e-commerce platforms to realize billions of transactions in an instant. However, the huge volume of packages offline has brought unprecedented challenges to the e-commerce logistics and distribution industry. In order to meet the challenges and seize the opportunities of historical development, various new attempts of major logistics companies in the “last kilometer” joint distribution can be described as a hundred flowers bloom. E-commerce has brought great convenience to people's life and has become one of the common consumption modes. However, the problem of logistics and distribution is one of the factors affecting the development of the industry, especially in rural e-commerce. Rural e-commerce logistics distribution has the characteristics of wide distribution area and scattered consumers, so the current situation of rural e-commerce logistics distribution is still grim.

This paper studies the problems of high cost and low distribution efficiency faced by rural e-commerce logistics in Ling Shan. Based on the analysis of the current situation of the end distribution of rural e-commerce logistics in counties and the theory of joint distribution, the end joint distribution mode is proposed to solve the end distribution problem of rural e-commerce logistics in order to meet the needs of consumers and reduce the transportation cost of enterprises.

2. Analysis on Current Situation of Terminal Distribution of Rural E-commerce Logistics in Ling Shan Region

2.1 Overview of Ling Shan

Ling Shan County is a county under the jurisdiction of Qinzhou City in Guangxi. It is located in the south of Guangxi and in the northeast of Qinzhou City. It is close to Beibu Gulf and adjacent to Nanning and Beihai. It is the sub-center of Pan-Beibu Gulf Economic Zone and the sub-center city of Qinzhou. The county seat is more than 100 kilometers away from Nanning, Qinzhou, Beihai, Fangchenggang, Yulin and Guigang, forming an 1.5-hour economic circle with six cities and 500 kilometers away from Guangzhou. Ling Shan County is a famous land of litchi, milk cow, snake and tea in China. In addition, Ling Shan County is also a well-known land of fruits, aquatic products and fish and rice. Ling Shan is rich in natural resources. The development of e-commerce is beneficial to the sales of agricultural products in Ling Shan County and accelerates the economic

development of Ling Shan.

2.1.1 Construction of Ling Shan transportation facilities network

Ling Shan county has smooth traffic and relatively developed transportation. The road runs 61.2 kilometers across the 209 national highway from the northeast to the south, 81.1 kilometers across Lingqin province from the east to the west, 324.1 kilometers along the county road, 418 kilometers along the township road, 19 towns and 388 administrative villages in the county. Apart from the 13 administrative villages that have not been opened to traffic, all of them have been opened to traffic, basically forming a highway network connecting the main branches and extending in all directions. National Highway G209 and provincial highways S310, S103, S326 and S308 S43 run through the whole country at high speed, forming a convenient road transportation network with numerous county roads and township roads. The county-wide highway has a mileage of 1,155 kilometers, providing a guarantee for villagers to shop online and for agricultural products to go up.

2.1.2 Economic Development in Ling Shan County

Ling Shan County's economic operation has shown a trend of continuous, overall, steady and progressive development. From January to June 2019, the total amount and growth rate of major economic indicators ranked third and fourth in Qinzhou's four counties (districts). The total fiscal revenue ranked 1st and the growth rate ranked 2nd. The growth rate of gross industrial output value above the designated scale ranked 3rd. The growth rate of investment in fixed assets ranked first. The gross domestic product (GDP) reached 11.802 billion yuan, up 7.6% year-on-year, up 2.1 percentage points year-on-year. The per capita disposable income of urban residents was 17,988 yuan, up 6.2%. The per capita disposable income of rural residents was 6,702 yuan, up 9.8%. During the same period, the resident deposit balance increased by 12.6%. Retail sales of consumer goods totaled 6.8 billion yuan, up 9.1%. In general, the per capita disposable income of residents in Ling Shan county is increasing and the consumption potential is very great.

2.2 Development Status of Rural E-commerce Logistics of Ling Shan

With the economic development of Ling Shan, a large number of e-commerce enterprises have entered to look for business opportunities. With the development and perfection of the rural network, farmers also love online shopping and join the hot online shopping team, which has driven the rapid expansion and development of local e-commerce enterprises. According to statistics, by the end of 2018, Ling Shan county had more than 200 e-commerce enterprises with nearly 2,000 employees and more than 30 logistics express delivery enterprises, with a cumulative sales of more than 630 million yuan. Among them, there are more than 100 online shops selling Ling Shan's local specialties litchi, zongzi, beef and sesame cakes on Taobao, Jingdong, Tmall and other websites. At the same time, Ling Shan County proposed to deepen the "rural economy of internet plus", relying on the existing characteristic industries and old friends' service platforms for electricity buyers, successfully set up a new mode of e-commerce development of "source end+service platform+consumer end", laid out a three-level logistics network at the county, town and village levels, planned reasonable and perfect logistics lines, realized 48-hour rapid access to villages, and laid a solid foundation for the two-way circulation of Ling Shan products.

2.3 Status Quo of End Distribution of Rural E-commerce Logistics in Ling Shan County

2.3.1 Overall Status of End Distribution

With the development of network, the business of rural e-commerce is booming now. The countryside is the production base of agricultural products, and farmhouse shops are scattered all over urban and rural areas. Taking internet plus as an entity is the advantage of county economy. However, as express delivery and logistics did not extend to the village level, they did not move to the villages and towns, and then the problems of express delivery and logistics were highlighted. According to relevant statistics of the National Bureau of Statistics in September 2018, 60% of rural residents think that express delivery is inconvenient and rural logistics distribution has become an

important reason to restrict their agricultural products from going out. In particular, most fresh fruit agricultural products are delivered within 24 hours. However, due to insufficient cold chain distribution resources, fresh fruit agricultural products can only be transported at room temperature, resulting in poor fruit preservation effect, many consumer complaints and poor market response.

The government work report of Ling Shan County in 2019 points out that by 2018, the coverage rate of town-level e-commerce service stations in Ling Shan County is 100%, and that of village-level e-commerce service outlets is 53%. This shows that 47% of the villages still do not have service points and most of the natural villages need to pick up goods and send them to township service points. The distribution mode implemented by rural e-commerce service points is shown in Fig. 1.

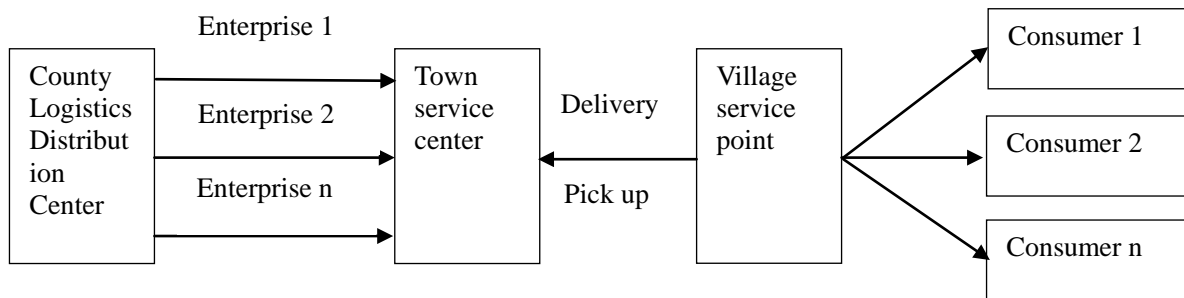


Fig. 1 Rural e-commerce service point distribution mode

After villagers buy things through the e-commerce platform, each express logistics company will deliver its own goods to the county-level logistics distribution center. The county-level distribution centers sort the goods and then send them to the service centers of villages and towns by trucks. The service personnel with village-level service stations will pick up the goods (goods from major express delivery companies) in the town and return them to the village-level service stations together after receiving the notice, and notify the villagers to pick up the goods at the service points in the village by phone or text message.

2.3.2 Problems Existing in Terminal Distribution of E-commerce in Ling Shan County

(1) The distribution plan is unreasonable

Judging from the existing distribution mode, firstly, in the process from the county distribution center to the township service center, there is an obviously unreasonable distribution mode, that is, each express company is only responsible for its own express delivery, which is not suitable for the development concept of today's shared economy and produces unnecessary waste of resources. Therefore, it is a more reasonable distribution plan to adopt a coalition of several express delivery companies. Ling Shan County now has more than 10 express delivery companies such as postal service, Shun Feng and Si Tong Yi Da. When each of them completes the delivery, more than 10 buses need to be sent from the county-level distribution center to the town-level distribution center one day. However, forming an alliance to distribute and integrate resources and scientifically designing distribution routes to form distribution schemes can reduce the phenomenon of no-load and less-load and reduce distribution costs.

(2) The Infrastructure of rural express delivery is not perfect

The special geographical environment in rural areas has affected the construction and improvement of logistics infrastructure equipment to some extent, and as express delivery outlets have a small coverage in rural areas, it requires a large investment in construction funds to increase service points in rural areas. At present, only 53% of villages in Ling Shan county have "Rural Taobao" village service stations. nearly half of the villages have not set up service stations. this part of express mail still requires villagers to go to the local villages and towns to pick it up. door-to-door delivery still cannot be fully covered in the countryside. This is attributed to the relatively backward construction of rural express delivery infrastructure, lack of gathering places for logistics resources and fewer fixed points for transportation and distribution organizations, which make it difficult to integrate logistics resources. In addition, there are still some problems

such as the small scale of express delivery service and the unsound organizational network.

(3) “Rural Taobao” Service System

At present, the existing rural “rural” operation mode has the problems of high distribution cost and insufficient specialization of services, because these rural “rural” service stations not only provide “Bangtao” service, but also provide receiving and sending service, which is equivalent to various express rural service stations. The staff of “Rural Taobao” have to go to the town service center to pick up the goods and send out the villagers' mail every day. Although only four-way and one-to-several express delivery service are available, the daily quantity of goods delivered at village service stations is small, resulting in high delivery cost. In addition, due to the influence of traditional concepts and the lack of logistics-related knowledge, the staff of Rural Taobao are not perfect in logistics services. Therefore, it is necessary to continuously improve the professionalism and service awareness of the staff of Rural Taobao.

3. Design of Joint Distribution Mode of Rural E-commerce Logistics Terminal in Ling Shan County

3.1 Establishing Common Distribution Drivers

The rapid development of e-commerce has made the logistics market extremely hot, and many logistics enterprises are under such competitive pressure. In order to win a place in the logistics market, only by improving the distribution efficiency and service quality, and on this basis to achieve the purpose of saving enterprise distribution costs. Therefore, many logistics enterprises are also beginning to try to cooperate with other logistics enterprises, reach agreements and form a joint distribution alliance model at the end to meet the market demand.

3.1.1 Driven by Interests

Joint distribution mode can create economies of scale, which is the biggest motivation for joint distribution to attract many logistics express companies to jointly form distribution alliances. Logistics enterprises set up distribution alliance, the distribution cost will be reduced under the common distribution mode, thus producing huge economic benefits, and the traditional distribution mode has also failed to meet the needs of consumers. For e-commerce enterprises, logistics services are related to customers' satisfaction with online shopping, and high-quality logistics services can promote villagers to spend more on online shopping. For logistics express delivery enterprises, a good distribution service system can improve the competitiveness of the enterprise itself to obtain a larger market share.

3.1.2 Market Demand

The speed of e-commerce development and the continuous improvement of villagers' living standards have prompted villagers to have a stronger desire for shopping. The current distribution situation of logistics express delivery companies has been unable to meet the demand for offline distribution. In addition, villagers also put forward requirements for personalized distribution services. Only by establishing a joint distribution alliance can logistics express delivery enterprises promote the sharing of resources and information to meet various strong and personalized market demands, thus overcoming the “last kilometer” distribution problem of terminal logistics.

3.1.3 Improving Distribution Efficiency

To reduce the operating cost of logistics express delivery enterprises, it is necessary to improve the delivery efficiency of logistics express delivery enterprises. The cost for a single logistics express company to carry out logistics activities is relatively high, and the equipment of a single enterprise is not complete enough. Especially for small and medium-sized logistics enterprises, the phenomenon of less load and no load of vehicles often occurs in the distribution process. By establishing a joint distribution alliance, distribution resources of various enterprises can be integrated, vehicles and information can be shared, distribution routes can be planned uniformly, and the purpose of improving distribution efficiency and reducing distribution costs can be

achieved.

3.1.4 Protect the Environment

Green water and green mountains are golden hills and silver mountains, so both enterprises and individuals should actively respond to national policies and participate in environmental protection work. Establishing a joint distribution alliance can effectively reduce the use of transportation vehicles. In this way, not only the vehicle input cost is saved, but also the emission of polluting gases is reduced, thus achieving the purpose of energy conservation and emission reduction.

3.1.5 Need to Improve Logistics Service Level

With the improvement of people's living standards, consumers are becoming more and more picky about logistics services. Logistics services show diversified and personalized characteristics to meet the changing needs of consumers. The competition between enterprises has evolved into the competition for services. If we can provide consumers with high-quality services, we can seize the market first. Only by establishing a common distribution alliance, learning from each other and learning from each other's strong points can logistics express companies optimize distribution services and effectively reduce operating costs.

3.2 Design of Common Distribution Mode

The joint distribution mode at the end of rural e-commerce logistics studied in this paper belongs to the joint distribution of different express delivery enterprises. Based on the development of Ling Shan, a joint distribution mode of strategic alliance is proposed to improve the distribution of e-commerce enterprises at the end. The alliance system consists of e-commerce, express delivery companies and village-level affiliates. The specific mode is shown in Fig. 2.

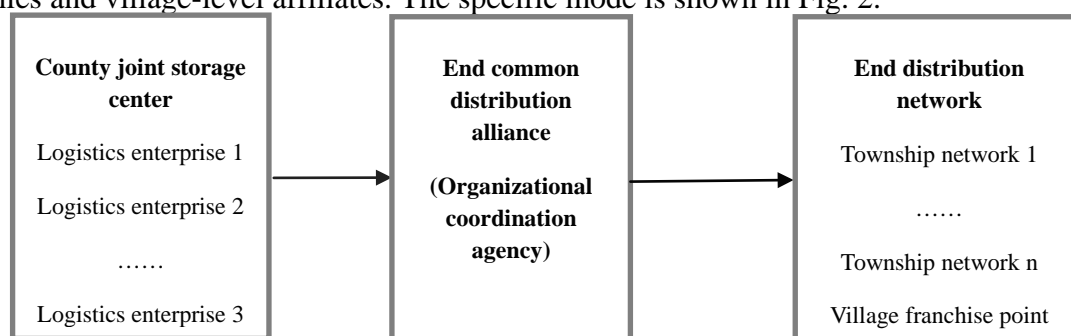


Figure 2 Design of common distribution mode

In Ling Shan County, a joint storage center and a terminal joint distribution alliance logistics center are set up. The alliance logistics center is equivalent to a terminal distribution command battalion. Professionals selected by major express companies form a new alliance group, which is responsible for sorting and uniformly distributing the express packages of each company according to the level of villages and towns. The Alliance Center recruits some local distributors in villages and towns. Distributors deliver packages from the storage center to designated villages and towns service points and village-level service points of rural e-commerce according to the distribution route planned by the Alliance Center. Then, they collect the consignments from each service point and directly transport them back to the county-level Alliance Logistics Center, making full use of the transfer rate of vehicles and solving the problem of empty return cost.

3.3 Implementation of Common Distribution Mode

The implementation of the joint distribution mode is a complicated process. Apart from the investment in capital, it is more difficult to set up a joint distribution logistics enterprise to reach an organization and coordination relationship and deal with the issue of benefit distribution.

3.3.1 Organization Member Selection Problem

Members of the organization are the basis for the implementation of joint distribution. Ling Shan

currently has 10 logistics express delivery companies, including Shun Feng Express and Jingdong Logistics, which offer outstanding services. Although the overall delivery speed of the two companies is fast and the service is good, it is still relatively economical to choose joint delivery under the special environment of county and rural areas. After the integration of resources, the overall service level is improved and the delivery speed is accelerated, which can also realize economies of scale. Therefore, the members of the organization should be composed of the 10 logistics companies and related e-commerce enterprises.

3.3.2 Organization and Coordination Issues

The problem of organization and coordination is the key to the implementation of common distribution. Before the establishment of a common distribution mode, each logistics express company in Ling Shan County had its own unique management method for distribution. After the logistics enterprises reach the alliance, it is a process of resource integration. The organization needs to select a reasonable distribution system and coordinate the distribution time, the number of express shipments and the re-planning of distribution routes. The delivery time should have a unified fixed time so that the delivery staff can finish the delivery and pick-up work on time. The number of express deliveries can be calculated according to the vehicle loading rate; The distribution route planning is mainly the planning from the county-level storage center to each village-level service point, and the villages to be distributed are arranged on the same route as far as possible during the planning.

3.3.3 Distribution of Benefits

The distribution of benefits is the most concerned issue for alliance enterprises. Therefore, logistics alliance enterprises should calculate all kinds of expenses and cost allocation methods. In addition, an appropriate benefit distribution and coordination mechanism should be established to ensure the fairness of the alliance enterprises. The cost input mainly includes the input of vehicles and distribution personnel, and the cost allocation can be calculated according to the proportion of distribution quantity. As far as the development of county economy is concerned, four-way and one-way express delivery accounts for a large proportion and the corresponding expenses are relatively large. It can be used as the main enterprise of the joint distribution alliance to direct the operation of the whole joint distribution system.

4. Conclusion

In view of the problems faced by the rural e-commerce logistics terminal distribution stage in Ling Shan county, the terminal joint distribution mode should be adopted instead of the existing “Rural Taobao” joint distribution mode. For logistics express companies, it is economically and strategically feasible to adopt a common distribution mode at the end of rural e-commerce logistics. The logistics express company reduces the terminal distribution cost through the joint distribution mode, improves the efficiency of the rural express market, is conducive to the logistics express company to enhance its brand image during the market cultivation period, accumulates customers, and is convenient to obtain a higher market share after the rural e-commerce consumption market matures. For e-commerce enterprises, although the alliance with the logistics express company needs to pay a certain fee, in the long run, it will broaden its market. The time for villagers to receive goods has been shortened, and it is more convenient to pick up goods. This has increased villagers' enthusiasm for online shopping and will greatly improve the overall profits of e-commerce enterprises.

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