

The Predicament and Countermeasures of Rural Logistics under China's E-commerce Environment

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Abstract—Although the improvement of rural network infrastructure construction has provided unprecedented opportunities for e-commerce development in China's rural areas, the current development speed of rural areas is still relatively slow. Thus this paper discusses the predicament of rural logistics under China's e-commerce environment and puts forward some countermeasures to improve rural logistics, which may contribute to the balanced development of rural economy.

1 Introduction

Along with the sprang of e-commerce websites such as Dangdang, Joyo, Alibaba and Jingdong, China's e-commerce has been developing vigorously from scratch in the past 20 years. Compared with the vigorous development of e-commerce in cities, there are still many restrictive factors in the vast rural areas of China. Although the government has paid more and more attention to the rural transportation infrastructure construction and continuously increases the investment, there are still large numbers of areas where the traffic conditions are inadequate, which affect the logistics speed. The geographical dispersion of rural Internet users also makes logistics distribution lack of scale advantage, resulting in the logistics costs are difficult to control. In addition, a series of bottlenecks, such as the construction of rural storage facilities, the quality of distribution personnel, and the unbalanced sales caused by the seasonal characteristics of agricultural products, also lead to the difficulty in the smooth development of rural logistics.

2 The Importance of Rural Logistics Development in China's E-commerce Environment

Logistics industry plays an important role in China's economic and social development and provides important support for the development of national economy. However, compared with the rapid development of logistics industry in urban areas, the current situation of logistics development in rural areas of China is not optimistic. With the increasing attention of the country to agriculture and rural development, the development of rural logistics has gradually attracted attention. In the field of e-commerce, the importance of rural logistics development mainly lies in:

2.1 Improving the Market Coverage of E-commerce

According to the latest population data released by the National Bureau of Statistics, the number of rural populations in China is about 580 million (about 900 million of the registered residence population), accounting for 41.48%. But the number of Internet users is only 255 million, less than half of the rural population. According to the statistics of China's Internet users from 2014 to 2020 (Fig. 1), China's rural Internet users are gradually increasing, but the growth rate is relatively slow.

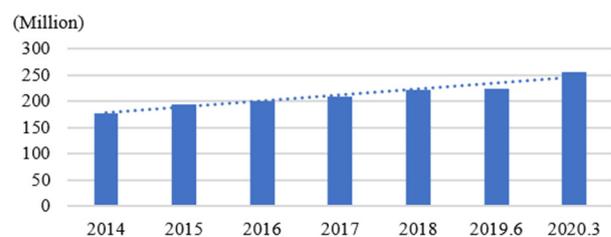


Fig.1 The Number of Rural Internet Users in China

The reasons are various, such as the lack of rural Internet coverage, farmers' consumption concept has not yet kept pace with the times, logistics infrastructure is not perfect, leading to poor logistics and so on. Therefore, increasing the development of rural logistics is an important guarantee to expand the coverage of e-commerce in the rural market.

2.2 Developing and Improving an Efficient System of Social Services for Agriculture

In recent years, although the country is vigorously promoting the construction of rural urbanization, but at present, the overall effect to achieve the expected, it will take some time. As one of the mainstream ways of shopping and selling products, e-commerce must be

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carried out in rural areas. Because the convenience and benefit of e-commerce people have been known. The narrowing of the gap between urban and rural areas cannot be solved in a short time, which means that the countryside can enjoy the benefits brought by the e-commerce platform in a short time is an urgent problem to be solved.

2.3 Increasing Employment and Incomes in Rural Areas

As a labor-intensive industry, logistics is inseparable from the participation of people in packaging, transportation, warehousing, terminal distribution, and other links. Therefore, the development of rural logistics is inseparable from the huge demand for employees, which can create many employment opportunities, which is of great significance to improve the rural income structure and increase farmer's income.

2.4 Optimizing the Cost Structure of Agricultural Products

The high sales cost of products has been an important factor restricting the development of agricultural production and breeding. Increasing the development of rural logistics can effectively reduce transport costs to optimize the cost structure of agricultural products. The advantages of fast and convenient transportation and fixed transportation routes can also improve the enthusiasm of agricultural production.

2.5 Promoting Agricultural Restructure

The international competitiveness of China's agriculture is not strong at present, and agricultural production in most regions still sticks to the traditional structure and mode. To change this situation thoroughly, optimize agricultural structure, and meet the impact and challenge of international agriculture, rural logistics must be vigorously developed.

3 The Predicament of Rural Logistics in China Under the E-commerce Environment

3.1 Current Predicament of Consumer Side Logistics

3.1.1 The low level of standardization and informatization. The fundamental purpose of modern logistics is to improve logistics efficiency, reduce logistics costs, and meet the needs of customers, and more and more present the trend of standardization, information development. However, China's rural logistics policy is not perfect, the degree of standardization and informatization is relatively low. Reason mainly lies in: one is the rural logistics industry in China started late, foundation is weak, many concepts, and even a basic concept of logistics, often in the state in which a little

knowledge, understanding of logistics standardization, informationization is the lack of a clear, modern logistics and advanced logistics management idea in the rural logistics cannot get effective use; Second, the rural logistics standardization market foundation is relatively weak, logistics market development is low, which directly affects the implementation of rural logistics standardization in China [1].

3.1.2 The scattered logistics distribution is hard to form scale effect. China has a vast territory, and many rural areas are sparsely populated and widely distributed. Therefore, logistics distribution is scattered, and the distribution distance is generally remote, which undoubtedly increases the distribution cost. At present, the income level of rural population in China is not high overall, and the purchasing ability is limited, which determines that the distribution for rural consumers has the characteristics of small scale, and it is not easy to form scale effect. The geographical dispersion, the complex terrain, also undoubtedly increased the cost of logistics. The increase of logistics cost and distribution cost makes rural logistics difficult to develop and perfect.

3.1.3 The backward of logistics infrastructure leads to low distribution efficiency. In recent years, although the country has vigorously promoted a series of measures such as rural urbanization construction and rural revitalization plan, the current traffic conditions in rural areas of China are still generally poor and difficult to transport. In rural areas, low road standards, poor road conditions, backward transportation facilities and chaotic traffic network lead to high operating costs of rural logistics distribution [2]. In addition, at present, there are fewer rural logistics outlets, and the distribution is unreasonable. At present, many distribution outlets are only located in towns and townships or even counties, which undoubtedly increases the difficulty of collecting express delivery in rural areas and reduces the logistics distribution efficiency. In the long run, it will inevitably restrain the enthusiasm of rural consumers for online shopping, which is not conducive to the benign development of e-commerce in the rural market.

3.1.4 The quality of logistics personnel needs to be improved. China is relatively backward on logistics research and education and has not formed a perfect education and training system. In recent years, with many rural populations working in cities, the rural labor force has been severely drained. The more highly educated the technicians and the stronger the labor force, the more likely they are to go to the city to seek greater development space and opportunities. This has led to the shortage of talents needed for rural logistics. At present, the quality of logistics distribution personnel in rural areas is uneven, and the service level and service awareness are relatively low, which is bound to affect the quality of logistics distribution, rural consumers shopping experience and enthusiasm to participate in e-commerce.

3.2 Current Predicament of Supply Side Logistics

3.2.1 The low-cost efficiency of agricultural products logistics. Although many rural areas in China are optimizing the structure of agricultural products and encouraging the planting and breeding of high value-added agricultural products, the value of agricultural products is still generally low. The cost efficiency of agricultural products logistics is generally not high due to many reasons, such as long transportation distance, large volume of products per unit weight, short shelf life but high requirements for keeping fresh, lack of modern integrated transportation means and so on. Many rural transport vehicles are mainly agricultural tricycles and trucks, and some rural areas in western China still rely on wagons for the transport of agricultural products and agricultural materials, which all affect the enthusiasm of the development of agricultural products logistics.

3.2.2 The logistics construction such as warehousing and cold chain is relatively lagging. At present, the overall level of rural economic development in China is low, the development of rural logistics is slow, and there is a general lack of specialized large-scale storage base. However, most of the agricultural products have the characteristics of short aging and high storage requirements, which need to keep fresh. Therefore, this situation leads to the perishable deterioration and high loss rate of agricultural products [3]. Lack of fully equipped cold storage, refrigerated vehicles and other cold chain equipment, some cold chain products are difficult to store and distribute, difficult to enter the market, so it is difficult to bring benefits to farmers. Therefore, farmers' enthusiasm for production is not high. Even if agricultural products are produced, losses will be greater than gains, which further leads to low enthusiasm for rural production.

3.2.3 The agricultural industry is small and scattered, which increases logistics costs. "Small, weak, scattered, single" is China's rural areas the general status of agricultural production, agricultural management did not form scale, clustering and the brand, product influence the weaker and less competitive [4], especially in agricultural production, processing and selling a series of operation, the farmer is not having the so-called concept of the brand, do not use the brand management idea. If the quality standard is not standardized, it is difficult to guarantee the product quality, and a series of problems such as after-sale service and service are easy to occur. It is difficult to play out its own characteristic advantages and make it into brand characteristics. In addition, the packaging standards of agricultural products are also low. From the perspective of standardization and aesthetics, it is easy to lose the favor of customers, unable to attract customers' eyes, difficult to open the market, and the ability of electronic commodity brands to influence is small. When the production line of agricultural products meets the requirements, raw materials will be purchased and finished products will be sold, and the form of sales, retail, or distribution, will inevitably increase the logistics

cost more than the city. Rural traffic situation is complex, logistics is scattered, it is difficult to establish a central point, there is no complete planning. Management costs, transportation costs and so on have increased the cost of logistics costs.

3.2.4 The poor information exchange between supply and demand. At present, the rural logistics information transmission in China is mainly based on telephone, supplemented by the network, leading to a low level of information exchange between the supply and demand sides of logistics. The construction of logistics information platform lacks effective integration, resources cannot be shared, government, market, customers, and producers cannot connect organically, which seriously affects the sales of agricultural products [5]. Logistics systems are also very backward, mostly still using primitive manual computing and information transfer. Poor equipment and systems are also a major cause of poor communication between supply and demand. Rural information, data, networking degree are low. The coverage rate is low and information fault is easy to occur. There is no independent public network system or platform for people to send and receive information. Farmers do not have enough understanding of the market, and their forecasting ability is poor. They do not fully understand the market, price, competitiveness, and other information of agricultural products, which leads to the delay of logistics information, which increases logistics costs and reduces logistics efficiency.

4 Countermeasures and Suggestions

4.1 Countermeasures Based on Consumer Side Logistics

4.1.1 Strengthen logistics standardization and information construction. One is to improve the level of logistics standardization and speed up the application and promotion of standards; the other is to improve the level of informatization and build a multi-level logistics information platform. The government should improve the level of specialization and promote the development of commerce and logistics in key areas; third, the government should encourage rural enterprises to participate in the construction of logistics standardization with preferential policies, industry associations should play a guiding and coordinating role, actively learn from and adopt foreign advanced logistics standards, and focus on integrating with international logistics standards.

4.1.2 Reasonably plan distribution routes and reduce comprehensive distribution costs. In view of the problem that it is difficult to form scale effect due to the widespread population distribution, scattered logistics distribution and long distribution distance in rural areas of China, it is necessary to strongly support the rational layout and development of third-party logistics enterprises and optimize distribution route planning [6]. Focus on

guiding rural consumers to form a good life consumption plan, form the habit of regular centralized shopping, promote the single distribution scale increase to improve the cost-effectiveness of distribution.

4.1.3 Strengthen the construction of logistics infrastructure and improve the efficiency of distribution. In view of the current rural logistics technology and equipment backwardness, poor traffic conditions, and difficult transportation problems, efforts should be made to improve the construction of the rural logistics network system. The most important is to effectively implement the national policy of “providing roads from every village” to change the traffic situation of “all in dust on a sunny day, and mud on a rainy day”; second, in view of the fact that many roads in rural areas are relatively narrow, regions with conditions should be encouraged to widen roads, break through the connection barriers between roads, promote the connection between rural roads, so that the distribution routes are more optimized; third, vigorously introduce modern transportation, warehousing and other professional facilities, change the traditional agricultural tricycles or even rely on horse-drawn carriages for distribution backwardness, improve the efficiency of logistics distribution; the fourth is to optimize the allocation of rural express resources and improve the county-level logistics distribution centers and township distribution nodes.

4.1.4 Comprehensively improve the quality of employees and strengthen logistics service awareness. To strengthen the construction of logistics professionals, the government must formulate appropriate logistics talent training plans, guide school-enterprise cooperation, and oriented training of logistics management and operation talents that connect urban and rural areas. Some well-educated and high-quality management personnel can be selected from the existing employees of the enterprise to further study in relevant colleges and universities to improve the professional level of rural logistics practitioners, and foreign logistics talents can also be introduced. At the same time, the government should also formulate preferential policies to encourage university graduates to return to their hometowns to start businesses, encourage rural young adults to return to their hometowns for employment, and provide intellectual and labor support for the development of rural logistics.

4.2 Countermeasures Based on Supply Side Logistics

4.2.1 Promote the construction of important circulation nodes for agricultural products. The supply of agricultural products is seasonal, so rural logistics must respond flexibly to this characteristic. First, for the construction of logistics nodes with strong asset specificity, the government should provide necessary capital and policy support, through measures such as tax reduction and exemption, provision of support funds, and increased financing, to effectively ensure the enthusiasm of logistics

enterprises to build specific nodes. The second is to guide logistics enterprises to build logistics nodes with comprehensive utilization capabilities and have stronger compatibility in the construction and transformation of warehousing and transportation equipment, to meet the logistics needs of different agricultural products. The third is to guide farmers to optimize and adjust the structure of agricultural products and production organization methods to achieve high-quality and efficient production and improve the ability of continuous output to ensure that logistics enterprises maintain a balanced business volume throughout the year.

4.2.2 Promote the development of rural logistics and e-commerce linkage. To shorten the point-to-point logistics distance and improve the cost efficiency of agricultural product logistics. Firstly, it is necessary to encourage qualified agricultural product storage and transportation enterprises and agricultural material supply enterprises to cooperate or associate with rural professional cooperatives to implement batch procurement of agricultural materials and batch distribution of agricultural products. The second is to promote the development of agricultural product logistics enterprises towards the integration of production, supply, and marketing. In response to prominent problems in agricultural product sales, strengthen post-production grading, packaging, and marketing of agricultural products, create a public service platform for agricultural product sales, support supplying and marketing, postal services and various enterprises to extend their service outlets to the countryside, improve the stable linkage mechanism of agricultural product production and sales, and open up the agricultural product industry chain, to realize the integrated operation of agricultural products logistics.

4.2.3 Promote the healthy development of cold chain logistics. The government should promote the rational layout of enterprises and the construction of agricultural product storage and distribution centers, large-scale cold storage, etc. build a modern agricultural product cold chain storage and logistics system, vigorously upgrade the level of cold chain equipment, and improve the cold chain logistics facilities of fruit and vegetable products in major producing areas, reduce the loss in the storage and transportation of agricultural products and ensure the quality of agricultural products, especially fresh agricultural products. Promote all kinds of fresh agricultural products raw material processing, sorting processing and packaging, cooling, and freezing, cold storage, packaging and labeling, cold storage transportation, wholesale distribution, distribution and retail and other links of the implementation of refrigeration and insulation technology standards. Promote the traceability project of agricultural products and improve the technical and standardized level of rural logistics.

4.2.4 Strengthen the construction of information exchange platform. First, it is necessary to actively utilize and transform rural logistics distribution centers and county-level rural related public information website platforms to create professional logistics websites. We should realize the information resource sharing among the rural logistics channel network at the county level and promote the full coverage of the rural logistics information network; The second is to strengthen the basic information configuration of rural network information nodes, so that information between rural nodes and county-level nodes can be effectively communicated, to achieve efficient docking between outlets and terminal farmers.

5 Conclusion

With the change of market environment and consumer preference, China's e-commerce has developed rapidly, but the development speed of rural areas is relatively slow due to multiple logistics difficulties. Based on the consumption side and supply side logistics of rural e-commerce, this paper discusses the dilemma of rural logistics in China's e-commerce environment from two perspectives. Aiming at the multiple difficulties in the development of rural logistics, this paper puts forward countermeasures to improve rural logistics, to ease the difficulties in the development of rural e-commerce and promote the balanced development of rural economy.

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