

Research on the Rural Logistics Development Model Based on Online and Offline Transactions

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Abstract: As the world's second largest economy and a traditional agricultural country, China has not yet achieved the goal of modernizing the logistics of agricultural products. The overall modernization of its logistics industry has not been achieved either. Due to the poor overall performance of its agricultural product logistics, the level of China's agricultural product logistics is still in its infancy, with high logistics costs, large losses, and low efficiency. In fact, the construction of a modern agricultural product logistics system in China is lagging behind. This has seriously affected the process of agricultural industrialization in China. Compared with its urban socio-economic development, its rural development is relatively lagging behind. The "three-rural" (including agriculture, rural area, and peasant) problem caused by the divided urban-rural structure in China has distorted the relationship between workers and peasants. This has become a global problem, affecting China's economic and social development. The core problem is the slow growth of farmers' income. The bottleneck that has been restricting their income has shifted from production to circulation. In recent years, the promulgation of a series of policies and documents has brought both, hope and challenges to the online and offline integration and development in the field of agricultural product circulation. This paper briefly outlines the characteristics and status quo of rural logistics development based on online and offline transactions, and provides some effective suggestions on how to build a new rural logistics development model based on online and offline transactions, in hope to assist the development of new rural logistics models in China. The construction provides a reference for the development of the logistics industry in China's rural areas, thereby promoting the circulation of agricultural and sideline products, and better developing China's rural economy.

Keywords: Online and offline; Rural logistics; Rural economy; Logistics system

Online publication: October 21, 2022

1. Research background

With the rapid development of the internet, business model innovations relying on the internet have emerged. The integrated online and offline development is becoming the most dynamic emerging economic form that accelerates trade flow and promotes consumption. The State Council issued the "Opinions on Promoting Offline Interaction and Accelerating the Innovation, Transformation, and Upgrading of Commercial Circulation," which puts forward specific policies for accelerating the development of online and offline interactions from four aspects: encouraging innovation, stimulating vitality, improving systems, and improving policies guide. On June 2, 2015, the Ministry of Finance promulgated the "Guiding Opinions on Promoting Comprehensive Agricultural Development and Moderate Scale Management" through the development of contract farming and cooperative business models to improve the production and operation of agricultural products and cooperatives, as well as to further improve the agricultural service scale and

informatization level. On November 17, 2015, the Ministry of Finance issued the “Guiding Opinions on Supporting the Comprehensive Development of Agricultural Advantages and Characteristic Industries and Promoting Agricultural Industrialization,” further proposing the “Internet + Agriculture” development model, while encouraging and supporting agricultural enterprises to speed up the development of advantageous and characteristic agricultural product e-commerce platforms.

2. Research significance

The logistics theory was recently introduced in China, and the understanding of the role of logistics in economy had only began in recent years. Since China’s logistics foundation is weak, and its logistics technology is relatively backward, its logistics development is slow. Especially in the vast rural areas of China, logistics is still a relatively new concept. The root cause for the slow logistics development is the lack of theoretical guidance. Logistics activities can only thrive under the guidance of the logistics theory. In order to fill the gap and develop China’s rural logistics, it is necessary to explore and study the rural logistics (or agricultural product logistics/agricultural logistics) model. This is the main purpose of this paper. Through this research, we attempt to improve the level of rural logistics research in China and strengthen the exchange and cooperation of rural logistics research at home and abroad.

3. Principles and strategies for building a rural logistics development model based on online and offline transactions

3.1. Basic principles of constructing a rural logistics development model

3.1.1. Principle of sustainability

For sustainable development, the agricultural product logistics development model should not only respect the economic laws, but also the social laws and natural laws, so as to improve people’s quality of life. China is in the middle stage of industrialization, as indicated by its large population and high agricultural production and consumption. In addition, modern agricultural product logistics started relatively late in China. Economic activities that are related to agricultural product logistics have a significant impact on the environment, resources, nature, and people’s quality of life. This would inevitably lead to excessive resource consumption and serious environmental damage. Therefore, it is necessary to consider the overall interests and long-term interests, pay attention to the environment, and construct an intensive development model that is closely related to green economic activities, such as green production, green marketing, and green consumption.

3.1.2. Principle of interest

The main goal of any system is to satisfy the interests of its members. Collaborative agricultural logistics finance, as a whole, is maintained to meet the interests of its members or customers although its participants have different interests. In addition, the biochemical characteristics of agricultural products, the dispersion of agricultural production and consumption, the information asymmetry, and the interaction of trade barriers, natural disasters, price signals, and behavior patterns contribute as risks to agricultural logistics finance. Therefore, cooperation between all parties can only exist when the financial operation of agricultural logistics offers attractive economic benefits to all participants. By achieving organizational goals through cooperation, it is then feasible to achieve the best operational outcomes and serve their own interests. This is the prerequisite for developing collaborative agricultural logistics.

3.1.3. Principle of system

The rural logistics network is an organic whole, composed of three interconnected and interacting sub-networks: logistics infrastructure network, logistics organization network, and logistics information

network. Its advantages and disadvantages are evaluated in terms of overall benefits. In order for the system to be completely balanced, the integration of rural logistics network resources must begin from the perspective of the whole, regard the logistics network as a system, and use the optimization of the overall goal of the system as the criterion to coordinate the relationship between the various sub-networks in the system. Since the distribution of rural areas in China is not concentrated, the rural logistics network must likewise have gaps in terms of the levels and modes. Therefore, the key to the integration of China's rural logistics network resources is to promote the overall development on the basis of adhering to the principle of integrity and unified planning, while determining the best plan and gradually implementing it according to regions, industries, and steps through market links, combining the rural logistics network and related industries into an effective operation, as well as providing the best logistics services at the lowest cost.

3.1.4. Principle of adaptability

The integration of rural logistics network resources should be compatible with the national, provincial, municipal, and village economic development guidelines and policies, the distribution and needs of China's rural logistics resources, and its social development. Therefore, the integration of China's rural logistics network must adapt to the characteristics of the economic operation of its rural economy and build a logistics network that can effectively meet the logistics needs of rural areas. By constructing a logistics network based on rural economic characteristics and agricultural production needs, the integration of logistics network resources cannot be established separately from the rural environment; otherwise, the expected effect will not be achieved ^[1].

3.2. Main strategies for constructing a rural development model

3.2.1. The government should actively play the guiding role

The integrated online and offline development requires time and involves various fields and parties, such as rural areas, townships, processing enterprises, and logistics enterprises. The government should play an active role in guiding and supporting, focusing on increasing farmers' income, accelerating rural development, and realizing the modernization of agriculture. The first step is to help agricultural e-commerce enterprises coordinate and solve capital problems, especially capital bottlenecks encountered in their development, as well as encourage financial institutions to provide financial services to high-quality e-commerce enterprises. The second step is to build a platform and standardize management. These can be done by establishing an e-commerce management center for agricultural products, standardizing management, charging, and other behaviors, as well as providing a healthy and standardized living environment for the integrated online and offline development of agricultural products. The third step is to coordinate relevant enterprises in carrying out necessary resource integration in a complementary and win-win manner. On the one hand, enterprises such as those developing supply bases, logistics companies, farmers' cooperatives, as well as supply and marketing cooperatives can be integrated to establish large-scale, specialized and standardized joint-stock cooperative enterprise groups so as to create market competitiveness; on the other hand, integrating the existing resources and resources of third-party logistics enterprises under construction to form a logistics system with wider coverage and better distribution methods would help reduce costs and improve efficiency; at the same time, it is necessary to speed up the resource integration of physical retailers. Enterprise groups should also be encouraged to integrate with brick-and-mortar retailers through acquisitions, share purchases, *etc.*, and provide them with support in the form of big data, high-quality supply, fast payment, and overall distribution, so as to realize the deep integration of brick-and-mortar retailers and the internet. Complementary advantages and rapid development would be achieved through the online and offline integration ^[2].

3.2.2. Strengthen the construction of logistics informatization

In order to develop an online and offline agricultural product logistics model, it is necessary to strengthen the construction of informatization, build an agricultural product circulation information system, eliminate information asymmetry in the circulation process, and reduce the sales cost of agricultural products as well as consumers' time cost. The first step is to improve the construction of the network platform, build an online network system for agricultural product transactions in various regions, effectively integrate the decentralized online agricultural product transaction platforms, and form a network platform covering various regions and equipped with various functions, such as inquiry, ordering, payment, distribution, and those that allow consumers to provide feedback and evaluation. Secondly, it is important to establish a traceability system for agricultural product information, monitor and track the production, transaction, and transportation of agricultural products in real time, collect relevant information, process comprehensively, analyze effectively, establish a mechanism for agricultural product sales information updates, and provide information to consumers. Having such systems would provide convenient network query services, realize the virtualization, informatization, and efficiency of the transaction process, as well as improve transaction efficiency. Combined with the internet of things, agricultural product information processing and data management can be improved through radio frequency identification, video monitoring, photothermal induction, and other measures. This would also ensure that the quality of agricultural products from supply to sale is controllable and improve consumer satisfaction. In addition, supporting cold chain storage facilities and equipment (such as cold storage) should be set up at important nodes (such as distribution points, physical stores, *etc.*) to ensure that a cold chain exists throughout the process.

3.2.3. Ensure good integrated online and offline development planning

At this stage, the main reason for the loss of most agricultural e-commerce products is unclear product positioning. In the early days of our business, we often hope to build a customer base quickly and achieve greater transaction volumes through rich product categories. However, various relatively large supply systems will directly increase management costs, making it difficult for the company to achieve profitability in the short term and overloading its operations. Therefore, reasonable commodity positioning is the key to the integrated online and offline development of e-commerce for agricultural products. First of all, we must start with a single variety, plan scientifically, implement overall planning, and make steady progress. Based on the consumption habits of consumers when in face with products, agriculture e-commerce enterprises should first consider agricultural products with regional characteristics, then cultivate consumers' sense of identity, and improve consumer satisfaction. When there is a fixed customer base for a product, then a second product should be launched in due course. Second, it is necessary to combine online and offline integration with regional characteristics. In the development of e-commerce enterprises, it is necessary to use a grading model according to the consumption characteristics of the community residents while extending the e-commerce platform to the community. This would ensure a reasonable positioning and differentiated treatment. Through the establishment of a community e-commerce platform, the organic combination of online transactions, offline experience, and community distribution can be achieved, thereby improving the coverage and adaptability of the e-commerce platform.

3.2.4. Supervise the transaction process

Compared with tangible market transactions, the protection of rights is a major problem that plagues online and offline e-commerce transactions for agricultural products. The e-commerce trading platform is a virtual trading environment. When disputes arise between buyers and sellers, there must be a mechanism for resolving disputes. This requires relevant government departments to establish and improve the relevant

laws and regulations as soon as possible, as well as strengthen the supervision of online and offline e-commerce transactions, improve the e-commerce transaction environment, and ensure smooth transactions. In the early stage of foreign e-commerce development, there are many issues, such as account security problems, information leakage, and problems pertaining to integrity ^[3]. With supervision and the improvement of relevant laws and regulations, the construction of foreign e-commerce trading platforms has matured. China should learn from these foreign experiences in managing e-commerce transactions so as to ensure that the implementation of e-commerce transactions for agricultural products would run smoothly.

3.2.5. Improve the logistics infrastructure for agricultural products

The construction of logistics parks is a necessary means and an effective way to improve the construction of rural logistics infrastructure. The government should lead the construction of rural logistics parks and provide financial, technical, and human resources support for agricultural product logistics. The characteristics of both, urban and rural areas should be considered when building a professional logistics distribution center, and various infrastructures should also be built in the logistics distribution center. Other logistics companies should be encouraged to develop logistics parks of a certain scale, mainly in the suburbs, where few people come and go, the traffic is not as crowded as in cities, and their impact on urban traffic is minimal. These logistics parks would naturally attract many logistics enterprises to join its big family, thus relieving the city's congestion and traffic pressure. At the same time, with the continuous development of the real estate market, urban land is becoming more compact and prices are rising, but large areas of rural land resources have not been developed. Establishing logistics parks in rural areas would not only solve large-scale warehousing needs, but also ease the pressure on the price of land that can be purchased by logistics companies. Furthermore, building logistics parks in rural areas can ease the ecological balance between urban and rural areas.

3.2.6. Increase talent training

Due to the late start of China's logistics industry, there is a lack of training for logistics talents. Therefore, in the actual operation process, problems such as low-quality logistics personnel, poor service quality, and customer complaints may arise. This is a problem we need to solve urgently. In context of the actual situation, it is necessary to encourage employees in the logistics industry to take up courses on logistics management and improve the training courses offered by logistics enterprises. In addition, the government should encourage logistics industry associations to cooperate with private educational institutions, improve the logistics industry training mechanism, and establish logistics-related professional certificates. It is also important to strengthen exchanges and cooperation, as well as cultivate outstanding agricultural product logistics and distribution talents. With the rapid development of rural e-commerce, the agricultural product logistics industry will become a new interest of growth in the future. Many enterprises have problems such as backward information technology, asymmetrical information, and insufficient experience of the delivery staff. Therefore, enterprises must be able to communicate, cooperate, and learn from each other. In addition, the state should introduce advanced educational resources from developed countries, carry out education and training on agricultural product logistics and distribution, as well as improve the overall quality of the employees. At the same time, the state should introduce more excellent talents into the logistics industry, so that their advanced concepts and management methods may penetrate into the industry, thereby improving the quality of the entire logistics service ^[4].

3.2.7. Increase capital operation and support

In order to meet the huge capital demand for the development of rural logistics, it is necessary to develop

financing channels and make joint contributions to provide capital support for the operation of rural logistics. The government should fund large-scale logistics hubs and construction projects, such as highways, railways, ports, and airports, whereas medium-sized construction projects, such as regional logistics centers, distribution centers, and storage centers, can be jointly funded by the government and private capital. It is possible to attract investments for small-scale logistics infrastructure construction, such as rural logistics centers, transfer stations, trade centers, *etc.*, depending on who invests and who benefits; otherwise, joint investment in the form of shareholding cooperation can also be made, which allows the flow of private capital into the field of rural logistics. A certain feedback mechanism can be adopted by the government to give preferential treatment in terms of land use tax, business tax, and industrial and commercial tax. Enterprises and individuals who actively participate in the construction of rural logistics networks may relax loan restrictions on logistics enterprises that are committed to developing the rural logistics markets and providing subsidies. In addition, it would be beneficial to further promote the opening-up of rural logistics, relax investment restrictions, attract foreign investment in rural logistics, relax financing and foreign investment conditions, encourage foreign logistics companies to expand their markets in the vast rural areas, and welcome foreign logistics based on the principle of equal opportunities. Enterprises should be involved in the investment and operation of rural logistics warehousing, transportation, processing, freight forwarding, and other projects.

4. Conclusion

Since the rural areas in China adopt a decentralized operation model, their agricultural production scale is small. In addition, due to the lack of information on market supply and demand, the cost bore by the farmers for finding customers is extremely high. This affects the effective circulation of agricultural products. The online and offline transaction mode can help solve this problem, improve the development level of China's rural logistics, and alleviate the problems faced by these rural areas. At present, the online and offline rural logistics model can develop well, and it is committed to the organic integration of online and offline resources, which has become the main direction of agricultural e-commerce. Although agricultural product e-commerce is developing rapidly, there are some challenges to the construction of the logistics model. For instance, due to the agricultural product distribution characteristics and the undeveloped rural logistics network, the logistics cost of agricultural products remains high, and there are difficulties in controlling food safety. In order to solve this problem, the government and relevant industries must attach importance to this concern and work together to make full use of technology, education, management, and other means to provide a suitable platform and space for the optimization of rural logistics models, so as to improve the quality of life of Chinese farmers, and thus to promote the sustainable development of China's rural economy.

Disclosure statement

The author declares no conflict of interest.

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