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ADVANCING E-COMMERCE LOGISTICS IN GUANGDONG'S RURAL AREAS: A FRAMEWORK FOR ASSESSMENT

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Abstract: China's rural e-commerce industry has experienced significant growth, driven by government support and industrial policies. Policies such as the "Circular on the creation of demonstration zones for agricultural modernization in 2022" and "Opinions on strengthening the construction of county commercial systems to promote rural consumption" have provided a favorable environment for rural e-commerce development. Guangdong Province, in particular, is actively working to enhance its rural e-commerce industry, expanding its presence in 53 demonstration counties and prioritizing rural consumption as a key strategy for economic growth. To achieve high-quality development in rural e-commerce, it is essential to focus on improving the quality of express delivery services and strengthening logistics support for rural rejuvenation. This paper explores the significance of logistics support in promoting the high-quality development of rural e-commerce in Guangdong Province.

Keywords: Rural e-commerce, Government policies, rural consumption, Express delivery services Logistics support

Introduction

In recent years, China's rural e-commerce industry has received great attention from governments at all levels and key support from national industrial policies. The State has successively introduced a number of policies to encourage the development and innovation of the rural e-commerce industry. <Circular on the creation of demonstration zones for agricultural modernize in 2022 and Opinions on strengthening the construction of county commercial systems to promote rural consumption> etc. Industrial policy provides a clear and broad market prospect for the development of the rural e-commerce industry, and provides a favourable production and business environment for enterprises. Guangdong Province is accelerating the improvement of the rural e-commerce industry system, grasping the province's 53 e-commerce into rural areas demonstration counties, and promoting the popularity of new models of e-commerce to rural areas. We will prioritize activating rural consumption as a key strategy to expand and enhance the quality of consumption. This will involve implementing county-level commercial construction initiatives and fully unleashing the potential of rural consumption. How to better improve the quality of express delivery services to promote the high-quality development of rural e-commerce in Guangdong Province, Rural rejuvenation logistics support is particularly important.

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1. Rural e-commerce and logistics service quality analysis

2.1 Rural e-commerce

Rural e-commerce refers to the use of digital technologies and e-commerce tools by farmers and agribusinesses in rural areas to sell, trade and promote their products and services through online marketplaces, electronic payments and logistics networks. This can help to increase market opportunities for farmers, improve supply chain efficiency and contribute to the diversification and sustainability of rural economies. Rural e-commerce serves multiple functions, including sales and promotion of agricultural products, supply and procurement of agricultural materials, agricultural services and technical support, integration of agriculture and tourism through rural specialty products, as well as rural finance and payment services^[3].

Rural e-commerce is facing the rural market, China's rural areas have a huge agricultural production and consumption market, the market potential is huge; China's vast expanse, regional geographic differences in the school, agriculture has a distinctive regional characteristics, which further contributes to the complexity of rural e-commerce issues; Rural e-commerce has broken the traditional geographical restrictions on the sale of agricultural products; Diversity of agricultural products, China's rural areas produce a wide variety of agricultural products, including grains, vegetables, fruits, and livestock and poultry products; The e-commerce platform includes not only traditional agricultural and farm products, but also some rural distinguishing feature or quality such as local distinguishing feature or quality and handicrafts; Demand for agricultural products is unpredictable, and all the usual factors affecting demand, such as price and income, apply to agricultural or food products. The specific characteristics of the food consumption structure vary from one consumer to another. The unpredictability of demand for agricultural products is due to a combination of factors such as seasonality, weather variations, consumer behaviour and external factors; Rural e-commerce is sustainable, and it can provide farmers with more sources of income and employment opportunities and promote the development of the rural economy. At the same time, rural e-commerce can also drive the development of rural logistics, e-payment, telecommunications and other related industries, forming a brand new industrial chain and industrial ecology, and providing strong support for the sustainable development of the rural economy; Compared with urban areas, rural distribution infrastructure, cold chain facilities at origin are weak, rural logistics and distribution are not comprehensive, and the efficiency of agricultural products entering the city is not high in some areas; There is an information gap and the existence of a digital divide in rural areas; rural e-commerce provides opportunities for entrepreneurship and employment for farmers.

2.2 Quality of logistics services

Quality of service is important for basically all fields and it is the key to the successful growth of a business. Service quality refers to the sum of the characteristics and attributes of a company's ability to satisfy the needs of its customers as the basic starting point for the provision of a correspondingly high level of service to meet the stated and potential needs. Measuring and evaluating the quality of enterprise services requires the establishment of an adapted service quality model, comparing the relevant collected data to analyse customer satisfaction. It can provide an important reference basis for enterprises to improve their service level.

Service quality is a big system, and logistics service quality is derived^[4]. Logistics service quality refers to the comprehensive characteristics and performance level of logistics services provided by logistics service providers

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to meet customer needs in the supply chain management process. It covers elements of punctuality, reliability, flexibility, traceability, safety and cost-effectiveness of logistics services. Logistics service quality in general terms is that after the customer buys goods from the Internet, the enterprise receives the information to give the product to the designated logistics company, which will add the product to the hands of the customer in the process. Customers are in direct contact with not only the goods bought, but also the corresponding logistics services, couriers in the delivery of goods to customers when the performance of the behaviour are included in the quality of logistics services. The application of logistics service quality in online retail and e-commerce enhances customer satisfaction, improves order processing and delivery efficiency, optimal the supply chain, and strengthens brand image and competitiveness^[1].

3. Guangdong Province, rural e-commerce express logistics service quality problems

Rural e-commerce has become an important channel for enlivening urban and rural markets. In 2020, e-tailing of agricultural products in counties nationwide amounted to 752. 05 billion yuan, accounting for 13. 8 per cent of total sales of agricultural products, an increase of 3. 8 percentage points over the previous year. Rural residents through e-commerce pay more attention to personalised, branded, diversified consumer experience, the consumption potential of the rural market continues to be released; urban residents through e-commerce to choose the characteristics of high-quality agricultural products across the country, reducing the transaction links, while not subject to geographical and time constraints, convenient and fast. In 2020, Guangdong Province ranked first in the country in terms of online retail sales of agricultural products in counties and second in terms of online retail sales in counties, and a total of 12 counties (cities and districts) in the province were ranked among the national Top100 of county e-commerce, with the development of agricultural and rural e-commerce leading the South China region. In 2020, the online retail sales of 2,083 counties nationwide reached 3,530. 32 billion yuan, and the online retail sales of the top 100 county e-commerce companies nationwide reached 1,907. 50 billion yuan. Among the top 100 county e-commerce companies in the country, a total of 12 counties (cities and districts) in Guangdong Province, including Nanhai District, Chancheng District, Changhai District, Puning City, Chaoan District, Sihui City, Xinhui District, Huidong County, JieDong District, HaiFeng County, HuiYang District, and CongHua District, were selected, and the total number ranked the first in South China.

From 2013 to 2021, the business volume of express service enterprises in Guangdong Province showed a year-on-year increase, and in 2021, the business volume of express service enterprises completed a total of 29. 46 billion pieces, a year-on-year increase of 33. 4%. From January to October 2022, the business volume of express service enterprises in Guangdong Province subtotal 24. 97 billion pieces, a year-on-year increase of 5. 4%. From 2013 to 2021, the business revenue of express service enterprises in Guangdong Province also showed a year-on-year rising trend, and in 2021, the business revenue of express service enterprises in Guangdong Province completed a total of 245. 43 billion yuan, representing a year-on-year growth of 12. 5 per cent. From January to October 2022, the business revenue of express service enterprises in Guangdong Province subtotal 205. 11 billion yuan, up 2. 3% year-on-year. Although the development of express delivery in Guangdong Province as a whole showed rapid development, the overall level of service has improved, but there are many problems in the rural areas of express logistics services.

Farmers selling agricultural products express service quality problems, "the first kilometre" distribution loss costs are too high, increasing the "upstream" burden. Agricultural products have a short freshness period and high

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timeliness, with high requirements for supply chain distribution^[2]. There are fewer cold-chain logistics and transport facilities on rural roads and railways, and the "first kilometre" of cold-chain transport inpre-chill, grading, processing, packaging and warehousing in rural areas cannot be carried out effectively, resulting in serious losses. Secondly, different types of agricultural products have different corrosion resistance, and there are differences in the sorting and packaging processes required in the cold chain distribution process. The limited level of technology and talent pool in rural areas makes it difficult to special and handle cold chain distribution effectively. At the same time, there is a geographical imbalance in the construction of infrastructure for the "first kilometre" in rural areas, with economically backward rural areas lagging far behind economically advanced areas in terms of cold-chain warehousing, processing and transport and distribution.

The problem of the quality of express service for the purchase of production and living goods by farmers. The limited coverage of "last-mile" delivery services hinders the further activation of rural demand markets. The population in rural areas is more dispersed, transport and other infrastructure is not perfect, courier enterprises distribution costs are too high, so many logistics companies stop their business in the township outlets^[6]. At the same time, the current rural population structure is aging, the elderly are not sensitive to modern intelligent terminal equipment, the implementation of rural intelligent express delivery is seriously impeded, the delivery efficiency is still low, hindering the extension of the rural demand market as well as the deepening of the digital countryside.

4. Establishment of Rural E-commerce Express Logistics Service Quality Evaluation System in Guangdong Province

In order to improve the service quality level of rural e-commerce express logistics in Guangdong Province, it is necessary to establish a relevant service quality evaluation system. Determining evaluation indicators is an important part of the evaluation system construction.

4.1 Rural e-commerce express logistics service quality evaluation system

Logistics service quality LSQ evaluation model is widely used in service quality evaluation. Based on the LSQ evaluation model, according to the characteristics of rural e-commerce industry, combined with rural e-commerce logistics service characteristics and processes, the complete express logistics service quality evaluation system is constructed.

4.1.1 Rural e-commerce express logistics service quality evaluation index system construction

Customer-perceived logistics service quality model: through a large number of third-party logistics enterprises and customer surveys, the University of Tennessee (2001) established a general sense of customer-perceived logistics service quality model, that is, the LSQ model^[2]. LQS includes several aspects of indicators, mainly covering the following aspects: timeliness: refers to the delivery time and punctuality of express logistics services, measuring the rapidity of logistics services and the ability to deliver on time. Reliability: This refers to the credibility and stability of logistics services, including indicators such as accurate tracking information and the rate of loss of goods during transport. Security: Evaluate the logistics service provider's commitment to ensuring the safety and security of goods, including the preservation of goods' integrity and the prevention of any loss or damage to the goods. Flexibility: This refers to the adaptability and responsiveness of logistics service providers, whether they can provide customised services and flexibly adjust transport solutions according to customer needs.

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Service attitude: Assess the professionalism, service attitude, and communication skills of the logistics service provider's staff, as well as their ability to handle customer complaints and resolve issues effectively.

Based on the characteristics of rural e-commerce and e-commerce express logistics, the LQS related indicators are modified to adapt, and the related indicators are as follows:

(1) **Distribution range coverage**

Evaluate the distribution scope of logistics service providers in rural areas and assess their ability and extent of coverage in these regions.

(2) **End-of-line distribution capacity**

Evaluate the ability and efficiency of logistics service providers to carry out end distribution in rural areas, considering the challenging road and traffic conditions in these regions. This evaluation should encompass factors such as delivery time, delivery accuracy, quality of delivery personnel, and other relevant indicators.

(3) **Cold chain logistics guarantee**

Evaluate the cold chain distribution capabilities of logistics service providers for perishable goods, specifically agricultural products, in rural areas. This evaluation should focus on investigating aspects such as cold chain equipment, temperature control, and fresh-keeping packaging to ensure the freshness and quality of agricultural products during transportation.

(4) **Rural storage facilities**

Evaluate the warehouse facilities of logistics service providers in rural areas, including factors such as warehouse area, storage equipment, and cargo management. Take into consideration the unique storage requirements of rural areas, such as the specific needs for storing agricultural products and agricultural materials.

(5) **Sorting of agricultural products**

Evaluate the logistics service provider's capacity to classify and handle agricultural products, encompassing tasks such as quality testing, classification, and packaging. Ensure that the agricultural products meet quality standards and are suitable for transportation and marketing purposes.

(6) **Information-based traceability of agricultural products**

Evaluate the logistics service provider's ability to establish a traceability system for agricultural products, including the construction of the system and information dissemination. The traceability system should effectively record the production, processing, and distribution processes of agricultural products, enhancing product traceability and consumer trust.

(7) **Service promotion and training**

Evaluate the service promotion and training support provided by logistics service providers for rural e-commerce. This includes promoting the benefits and value of logistics services to farmers and rural enterprises, as well as offering relevant training and technical support to enhance the logistics management capabilities of rural e-commerce practitioners.

4.2 Test methods of service quality evaluation system

How to better show the evaluation system function, after the establishment of rural e-commerce express logistics service quality evaluation system, through the test is necessary.

The correlation analysis of the test system analyses the relationship between the indicators in terms of closeness and closeness; Factor analysis, in the absence of sufficient information, to judge the reasonableness of the

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evaluation system or model and whether it needs to be adjusted; Reliability analyses are used to measure the reliability of a sample's responses, i. e. , whether or not the sample has answered the scale-type questions truthfully; Regression analysis identifies quantitative relationships between two or more variables that are interdependent, mainly to avoid subjectivity. The results obtained through the test can provide a reference basis for the development of countermeasures on how to further improve the level of express logistics service quality.

5. Guangdong Province, rural e-commerce express logistics service quality enhancement proposals

Based on the evaluation indicators of the logistics service quality of rural e-commerce express delivery in Guangdong Province and the relevant test results, the following suggestions are put forward: Expand network coverage and enhance distribution capacity by developing joint distribution points in rural areas with high express delivery volume and long distances. This includes finding contractors, providing relevant training, and improving the coverage of logistics outlets^[5]. In many rural areas, logistics outlets have only been developed to the township level, with no outlets in villages, low coverage of logistics outlets, and conditions limiting the use of logistics and express delivery by farmers. Through policy support and subsidies, the government has guided third parties and China Post to co-operate in establishing rural express delivery alliances, integrating existing outlets through the alliance platform or adding outlets from new sources. We will increase investment in logistics facilities and equipment in rural areas to improve their infrastructure. Based on the industrial development pattern of "one village, one product, one town, one industry, one county, one specialty" in rural areas, relevant industrial alliances should be established in relatively concentrated industrial areas or industrial parks through cooperation with China Supply and Marketing Group Limited and third-party cold chain logistics enterprises. Additionally, increasing investments in cold chain warehouses and vehicles will help achieve economies of scale. Furthermore, it is important to enhance the scientific classification management of express delivery. Courier service companies should strengthen the management of express delivery, coding and classification of goods, easy to find. If goods are categorize and coded according to certain regions, customers can quickly find the corresponding goods when they pick them up at the site or rural courier service station, thus improving the quality and efficiency of the service and enabling customers to have a better service experience. Enhancing the information level for tracking services, gaining insights into the actual operational situation, and formulating relevant personnel management and training plans. Strengthening the establishment and management of information technology in rural areas, the Government can help set up an e-commerce sales platform, introduce the advanced technology of the Internet, classify and transmit information in a timely manner, and speed up the sale and purchase of agricultural products. The establishment of special funds for promoting rural Internet access, purchasing digital equipment, and conducting training activities. We should encourage agricultural product planting bases, traders, logistics, and distribution enterprises to actively establish a comprehensive traceability system that covers all stages of production, processing, and circulation. Additionally, it is crucial to enhance employee identification and improve their skills. For enterprises providing rural e-commerce express services, strengthening employees' alignment with corporate culture is an effective approach to enhancing service quality. Better service can only be achieved through total commitment to work. Courier service companies or third-party logistics companies, should pay more attention to grassroots employees, from both the material and spiritual aspects. To provide better service, it is important to ensure that employees understand and align with the corporate culture. Employees' cultural identification with the company's services and increased sense of belonging and loyalty to the company can lead

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to better customer service and better service delivery. Due to the large number of youth in the cities, local couriers and site attendants are recruited locally with insufficient logistics expertise. Therefore, attention should be paid to the training of employees' professional skills to improve their service level.

6. Conclusion

The rapid development of rural e-commerce, and the logistics industry related to it needs to develop in tandem and complement each other in order to promote the overall development. If rural e-commerce develops rapidly, and rural e-commerce logistics services cannot keep up, or even experience a decline in quality. Such an outcome will directly limit the rapid growth of rural e-commerce, resulting in losses for both industries. Therefore, in order to better promote the development of rural e-commerce logistics, then the establishment of rural e-commerce express logistics service quality evaluation system is very necessary.

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