

Research on the Current Situation and Countermeasures of Rural Logistics Development in Jiangxi Province

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Abstract: Jiangxi Province covers a total area of 166,900 square kilometers. According to statistics at the end of 2023, the province's permanent population was approximately 45.15 million, with rural residents accounting for 16.65 million, or 36.87%. Jiangxi is a major agricultural province, with arable land accounting for 2.13% of the nation's total, and agricultural production representing about 3.16% of the national output. Rural development is a top priority for the Jiangxi government. The development of rural logistics is influenced by the consumption levels of rural residents. Improving rural consumption levels can promote the development of rural logistics. As the consumption levels of rural residents continue to rise, this stimulates the circulation of daily necessities and agricultural products, thus driving the growth of rural logistics. [1] Therefore, increasing rural residents' purchasing power and consumption capacity will strongly propel the development of rural logistics.

1. Introduction

Agriculture in Jiangxi holds a unique and important position in the national economy, playing a significant role in the province's economic and social development. The province has 40.82 million mu of arable land, of which 34.06 million mu is paddy fields, 62,100 mu is irrigated land, and 6.70 million mu is dryland. Geographically, cities like Shangrao, Yichun, and Ji'an have large areas of arable land, accounting for 46.17% of the province's total arable area. Jiangxi is rich in agricultural resources, with famous products such as Jiangxi green tea, Gan'nan navel oranges, Nanfeng honey tangerines, Guangchang white lotus, Taihe black chicken, and Poyang Lake hairy crabs. The province has developed a preliminary agricultural structure with ten leading industries, including rice, pigs, poultry, cattle, rapeseed, vegetables, fruits, aquatic products, tea, and traditional Chinese medicine. The output of grains, livestock, aquatic products, and fruits and vegetables exceeds 100 billion yuan, while tea, Chinese medicinal materials, and camellia oil have surpassed 10 billion yuan in output value.

Jiangxi is a major grain-producing province, contributing 3.16% of the nation's total grain output with just 2.13% of the country's arable land and 3.3% of the population. It is one of the only two provinces in China to have consistently exported grain since the founding of the People's Republic. In 2024, the total output of early rice in Jiangxi reached 6.77 million tons, ranking second in the nation. Jiangxi is an important rice-producing region, ranking third in the country in terms of rice output, producing 3.21% of the nation's rice with just 2.13% of the arable land. The province is also a major citrus-growing area, ranking sixth in national output, with the Gan'nan navel orange planting area ranked first in the world and its production ranked third globally. Jiangxi is a key vegetable-producing region, especially in leafy vegetables supplied to Hong Kong. The province is a major producer and exporter of live pigs, ranking among the top three in net exports of pigs in China. Additionally, Jiangxi is a major freshwater aquaculture province, ranking second among inland provinces in aquatic product output. Each year, Jiangxi exports over 10 billion pounds of grain, 1 million tons of fruit, 1 million tons of aquatic products, and more than 10 million pigs.

The province has initially established several key agricultural production bases: "Three Regions and One Area of Rice Production" (the Poyang Lake Plain, Ganfu Plain, and Jitai Basin as major grain-producing areas, and the high-yield grain-producing area in western Jiangxi); "Yangtze River and Poyang Lake Waterfowl Production Base" (along the Ganjiang River and around Poyang Lake);

"Poyang Lake Fishery Production Base"; "6+1 Vegetable Industry Advantage Zone" (including suburban vegetable production areas, vegetables for Hong Kong, vegetables for coastal and Belt and Road regions, specialty vegetables, aquatic vegetables, selenium-rich vegetables, and deep processing areas for vegetables); "One Main, Multiple Specialty Fruit Production Advantage Zone" dominated by citrus, with various specialty fruits developed alongside; and "Three Major Tea Production Bases" (northeast, northwest, and central-south Jiangxi). The province initiated the country's first pilot project for the jointly built Green Organic Agricultural Products Base by the Ministry and provincial government. Completing the establishment of five national agricultural green development pilot zones, 49 national green food raw material standardized production bases. 260 "Ganpo Genuine Products" brands have been certified, and the "Ecological Poyang Lake Green Agricultural Products" brand has become increasingly prominent.

Although Jiangxi is an agricultural powerhouse with abundant agricultural products, and rural residents' consumption levels are steadily rising, there is also an increasing demand for modern rural logistics. However, the establishment and development of rural logistics have been slow up to now. Compared with the more economically developed provinces and regions, the infrastructure and logistics system in rural areas is far from being perfect, and cannot meet the needs of rural residents yet, let alone serve the rural economy effectively. The current situation of rural logistics in Jiangxi is as follows:

2. Increasing Internet Users in Rural Areas and Huge Potential for Agricultural Trade Development

Jiangxi has rich agricultural resources, and smooth transportation is very important for the products produced by farmers' hard work; rural logistics play a very important role in this process. In this process, some agricultural products are even exported abroad, which requires the wide application of rural e-commerce, all of which is closely related to the internet. Currently, more and more internet users exist in rural Jiangxi year in and year out; additionally, more and more agricultural products use the internet to seek larger-scale markets. By the end of 2023, Jiangxi province had 20.91 million broadband users, out of which 6.51 million were rural broadband users, which is up 11% compared with 2022. The increasingly large number of rural Internet users contributes to the developing rural e-commerce, driving the growth of rural logistics on the whole.

3. Inadequate Rural Logistics Infrastructure and Backward Logistics Technology in Jiangxi

Construction of rural logistics infrastructure in Jiangxi Province is still backward, and the level of logistics technology is relatively low. In recent years, although Jiangxi has increased the investment in logistics infrastructure construction, the roads from the province to the city, county, township, and village have basically been completed, with the coverage of administrative villages amounting to 100% to lay a solid foundation for rural logistics development. Still, the establishment of logistics parks, bases, centers, and comprehensive cargo transportation hubs has yet to be developed. Lack of contemporary logistics hubs and further improvement of equipment, information technology modernization at logistics parks. In particular, it is necessary to increase investment in cold chain logistics concerning special transportation needs like the preservation and refrigeration of agricultural products by providing advanced cold chain transport vehicles, cold storage warehouses, and information-sharing technological systems.[2,3]

4. Constraints of Rural Economic Development on the Development of Rural Logistics and Inadequate Investment in Rural Logistics Infrastructure

Being a big agricultural province, rural logistics development in Jiangxi has a close relation to the growth of the rural economy. This being the case, with rural market constant growth and development, the Jiangxi provincial government identified rural e-commerce as a new growth point of locality economic development. Therefore, support for rural economic development and funding

for rural infrastructural construction have increased, giving greater attention to rural logistics. The rural market, with its enormous potential, also drew the attention of the government in recent years. To be specific, a set of policies has been put forward by the government, such as the "14th Five-Year Plan for the Development of Modern Logistics in Jiangxi Province" and the "14th Five-Year Plan for Agricultural and Rural Modernization in Jiangxi Province," which called for promoting the modernization of agriculture and rural areas in the province. The plan underscores six main principles: "Party leadership in rural work, the main role of farmers, the concept of rural systems, new development concepts, coordinated urban-rural development, and deepening reform and innovation."

Moreover, the "14th Five-Year Plan for Commercial and Trade Logistics in Jiangxi Province," "Several Opinions on Accelerating the Construction of a Strong Modern Logistics Province," and "Policies Supporting the Construction of a Strong Modern Logistics Province" will develop the logistics industry into a trillion-yuan industry by 2025. This will be done by forming a modern logistics system based on "corridors + hubs + networks" and positioning Jiangxi as a major national and global logistics hub. The "Three-Year Action Plan for Expanding Express Delivery Services to Rural Areas (2024-2026)" will establish a county-township-village delivery logistics system by 2026, achieving comprehensive service coverage for logistics in rural villages, thus giving clear policy guidance and direction for rural logistics development.[4]

However, compared to other regions with better-developed rural logistics, investment by the government in rural infrastructure needs to be further increased. The improvement of rural logistics should be done through this investment, boosting rural economic development in turn.

5. Low Rural Education Levels and Lack of Talent in Rural Logistics

The education level in rural areas of Jiangxi Province is relatively low. According to statistics, in 2022, only 3.84% of the rural labor force in Jiangxi had a college degree or higher, while the majority, 83.14%, had only primary or junior secondary education. The government has been working to improve the education levels of the rural labor force, implementing policies to support agricultural development through technology and innovation. Initiatives like the "Modern Agricultural Talent Support Plan," the new type of professional farmer training program, and the "One University Student per Village" program aim to cultivate more practical talents and leaders in rural areas, including modern young farm owners and rural youth entrepreneurs. The government also strongly supports returning workers, university graduates, retired soldiers, and technical personnel in starting businesses in rural areas, with a focus on encouraging young people to develop new agricultural industries and business models. Reforms in state-owned agricultural enterprises are also promoted to guide the development of modern agriculture.

The rural logistics industry in Jiangxi has made some progress, but there are still many challenges to overcome. Whether it is the construction of logistics infrastructure, the shortage of logistics talent, or the low level of logistics technology, improvements are needed in all areas. Addressing these issues effectively is crucial for the further development of the logistics industry in Jiangxi, which in turn will contribute more to the province's economic growth.

5.1. Strengthening the Training of Rural Logistics Talent in Jiangxi and Raising the Education Level of Rural Residents

The shortage of logistics talent has become a significant bottleneck in the development of rural logistics in Jiangxi. Today, logistics is a highly integrated industry that requires a large number of versatile professionals. This means that logistics workers need to possess a broad and deep knowledge system, including (but not limited to) logistics planning, transportation management, and warehouse management, while also having strong practical skills such as the proficient use of logistics information systems and efficient goods loading and unloading.

With the rapid development of the economy, the logistics industry is also expanding quickly. In this context, a large number of logistics professionals are becoming essential for the industry's growth. However, logistics as a discipline has only developed relatively recently in China, and in its

early stages, it advanced slowly. The development of logistics as a major in Chinese higher education only began in 2001, and it was not until 2006 that Nanchang University, a representative university in Jiangxi, established a logistics management program.

Due to the relatively short history of logistics programs in higher education and the limited number of graduates, the supply of logistics talent has been unable to meet the market's demand. Moreover, in the case of rural logistics, it is even rarer to find logistics professionals willing to work in these areas. Factors such as the geographic isolation of rural areas, inadequate infrastructure, and limited development opportunities make it difficult to attract logistics professionals to work in rural areas. Therefore, actively cultivating logistics talent in rural Jiangxi and addressing the shortage of qualified professionals is crucial for the further development of the province's rural logistics industry. This is directly related to the improvement of the rural logistics network, the efficient circulation of agricultural products, and the overall prosperity of the rural economy.

5.2. Increasing Investment in Rural Logistics Infrastructure in Jiangxi and Improve the Technological Level of Rural Logistics

In recent years, Jiangxi has gradually recognized the importance of rural logistics development and has continuously increased its investment in rural logistics infrastructure. However, it must be acknowledged that despite these efforts, compared to provinces and cities where the logistics industry is highly developed, the development level of rural logistics in Jiangxi remains relatively underdeveloped. Currently, rural logistics in Jiangxi mainly relies on road transportation. Within the entire rural logistics system, the "last mile" issue of rural roads has become the most prominent bottleneck. It is like a fishbone stuck in the throat, severely hindering the progress of rural logistics infrastructure construction. Therefore, solving this problem has become the top priority. [5] The government needs to further increase investment in rural road construction, both in terms of funding and the allocation of construction resources. Only by ensuring that every village has access to roads can we guarantee synchronized urban and rural logistics development and eliminate the difficulties in rural logistics distribution.

At the same time, efforts should be made to actively promote the deep integration of rural information networks. On one hand, rural communication infrastructure must be improved to ensure that network signals can fully cover rural areas. On the other hand, dedicated information platforms for rural logistics should be established to integrate logistics information resources. Through these measures, the informatization level of rural logistics can be comprehensively improved, allowing logistics information to be transmitted in a timely and accurate manner, thereby enhancing the overall operational efficiency of the rural logistics system.

Furthermore, increasing investment in modern logistics technology for rural logistics is also crucial. For example, advanced logistics management systems should be introduced, and automation technologies such as automated sorting equipment and smart warehousing should be adopted. Through the application of these modern logistics technologies, the operational efficiency of rural logistics can be significantly improved, leading to a qualitative leap in the technological level of rural logistics and driving its development toward more efficient and convenient systems.

5.3. Strengthening the Development of Jiangxi's Agricultural Product Market and Promoting the Development of Cold Chain Logistics

Jiangxi has long been known for its abundant agricultural products, and its agricultural product market is quite large. However, the current lack of cold chain logistics facilities has become a major bottleneck, severely restricting the further expansion of the agricultural product market. In this context, the government should actively play its role and make unified plans.

On the one hand, the cold chain logistics network in Jiangxi should be optimized. Based on the agricultural production areas and market distribution in the province, logistics routes and nodes should be scientifically planned. At the same time, investment in cold chain logistics should be increased, concentrating resources to build a number of high-quality agricultural product cold chain logistics parks. These parks should be equipped with advanced temperature control devices, loading and unloading facilities, and other equipment to ensure the quality of agricultural products during

storage and transit. Establishing agricultural product preservation and storage centers is also essential. These centers should be capable of meeting the preservation needs of different types of agricultural products, using appropriate preservation technologies to extend their shelf life. Furthermore, investing in cold chain transportation equipment is indispensable, including refrigerated trucks, refrigerated containers, and other facilities to ensure a low-temperature environment during transportation.

On the other hand, the government should encourage logistics companies to actively participate in cold chain logistics services. Support should be given to businesses in establishing cold chain logistics service centers, providing professional cold chain logistics solutions for agricultural products. These service centers should adopt advanced cold chain logistics technologies, such as temperature monitoring and traceability systems, smart control technologies, and others, to achieve precise control of the entire cold chain logistics process. The government should also cultivate a group of cold chain logistics companies with advanced technology and the ability to provide specialized services, enabling them to operate locally and serve the local agricultural product market, thereby forming a complete cold chain logistics industry chain.

Through these initiatives, Jiangxi's cold chain logistics can be vigorously developed, injecting new vitality into the agricultural product market.

5.4. Increasing Policy Support for Rural Logistics in Jiangxi to Drive Rural Economic Development

In rural areas of Jiangxi, the lag in logistics development acts as a heavy burden, tightly restricting the progress of the rural economy. The development of rural logistics is full of challenges, and its complexity is evident. Rural areas are vast and dispersed, with a complex transportation network, and logistics demands vary greatly in terms of type, scale, and timing. These factors are interwoven, creating a complex situation for rural logistics. Additionally, the slow pace of development is particularly noticeable. For years, infrastructure deficiencies, such as poor road conditions and rudimentary storage facilities, have hindered logistics progress. The slow promotion of new technologies in rural logistics has further delayed development. [6] Moreover, rural logistics is an integrated system, with transportation, storage, and distribution all interdependent. Any disruption in one link can affect the efficiency of the entire system.

In response to these challenges, the government plays a crucial role in the development of rural logistics and needs to increase overall planning. The government must take a long-term perspective and clearly define the direction for the development of rural logistics. For example, based on the unique agricultural products and industry layout in Jiangxi, the government should decide whether to focus primarily on the logistics of specialty agricultural products or also consider the circulation of other goods. Additionally, careful planning of development routes is essential, with clear priorities for different stages. This could involve focusing on improving infrastructure first or introducing advanced logistics management models and technologies. Moreover, creating feasible development policies is of utmost importance. [7,8] Policies could include providing tax incentives for rural logistics companies, offering financial subsidies for purchasing logistics equipment, building logistics facilities, and so on, to stimulate market activity.

6. Conclusions

With comprehensive and scientifically informed planning by the government, rural logistics nodes can be strategically positioned. The construction of rural logistics centers should be prioritized, making them the core hubs of the rural logistics network. These centers should be equipped with functions such as cargo aggregation, sorting, and transshipment to improve logistics efficiency. Specialized agricultural product storage centers should be developed, equipped with advanced preservation and storage technologies tailored to the characteristics of different products, ensuring that the quality of agricultural products is maintained during storage. Additionally, establishing centralized trading markets for agricultural products will provide convenient locations for transactions, facilitating the circulation and trading of agricultural goods. Efficient distribution

centers should also be built, optimizing routes and delivery methods to reduce costs and improve timeliness and accuracy.

With strong government support and a series of policies, rural logistics will gain greater space for development, gradually establishing a well-functioning rural logistics system. This system will promote the coordinated development of urban and rural logistics, enabling mutual supplementation and promotion between rural and urban logistics. More importantly, it will significantly boost the sales of agricultural products, solve the problem of inefficient product circulation, and drive the thriving development of the rural economy, bringing new vitality and energy to rural areas.

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