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Original article

**RESEARCH ON MANAGEMENT OF THE E-COMMERCE DEVELOPMENT IN RURAL AREAS  
OF CHINA: PROBLEMS AND SOLUTIONS**

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**Abstract.** This paper is the second part of the survey<sup>1</sup>. In recent years, e-commerce in rural areas of China has been developing rapidly, which has an impact on regional development. The article explores and analyzes the issues of e-commerce management in rural areas of China. It has previously been identified that this area has problems such as backward infrastructure, an imperfect system of agricultural supply chains, and unbalanced regional development of e-commerce and conditions for its conduct. The article proposes solutions aimed at improving the management of e-commerce development in rural China. The author recommends: a) setting a management priority for reducing the rural e-commerce gap in various regions of China; b) develop a model of rural e-commerce and implement a general optimization scheme for the development of rural e-commerce in the country; c) organize the process of transferring experience and professional knowledge from regions with high development of e-commerce to regions with its weak use. The key management solutions for the development of rural e-commerce in China are: strengthening infrastructure; optimization of the agricultural supply chain system; improving standardization and branding of rural e-commerce goods; balancing regional differences in rural e-commerce development.

**Keywords:** rural e-commerce management, rural revitalization, supply chain system, regional differences in rural e-commerce, rural e-commerce gap, standardization and branding, model of rural e-commerce

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**ИССЛЕДОВАНИЕ УПРАВЛЕНИЯ РАЗВИТИЕМ ЭЛЕКТРОННОЙ КОММЕРЦИИ  
В СЕЛЬСКИХ РАЙОНАХ КИТАЯ: ПРОБЛЕМЫ И РЕШЕНИЯ**

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**Аннотация.** Данное исследование является продолжением статьи<sup>1</sup>. В последние годы электронная коммерция в сельских районах Китая стремительно развивается, что оказывает влияние на региональное развитие. В статье исследуются и анализируются вопросы управления электронной коммерцией в сельских районах Китая. Ранее было выявлено, что в данной сфере существуют такие проблемы, как отсталая инфраструктура, несовершенная система цепочек поставок сельскохозяйственной продукции и несбалансированное региональное развитие электронной коммерции и условий для ее ведения. В статье предлагаются решения, направленные на совершенствование управления развитием электронной коммерции в сельской местности Китая. Автор рекомендует: а) установить управленческий приоритет сокращения разрыва в развитии сельской электронной торговли в различных регионах Китая; б) разработать модель сельской электронной торговли и реализовать общую оптимизационную схему развития сельской электронной коммерции в стране; в) организовать процесс передачи опыта и профессиональных знаний от районов с высоким развитием электронной коммерции в районы с ее слабым использованием. Ключевыми управленческими решениями развития сельской электронной коммерции в Китае выступают: укрепление инфраструктуры; оптимизация системы цепочек поставок сельскохозяйственной продукции; улучшение стандартизации и брендинга товаров сельской электронной коммерции; сбалансированность региональных различий в развитии электронной коммерции в сельской местности.

**Ключевые слова:** управление электронной торговлей в сельской местности, возрождение сельской местности, система цепочек поставок, региональные различия в электронной торговле в сельской местности, разрыв в электронной торговле в сельской местности, стандартизация и брендинг, модель электронной торговли в сельской местности

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## 1. Introduction

At present, e-commerce has become an important component of digital economy in China, and an important driving force for integrated development between real economy and digital economy. Under the background of rural revitalization, the development of Chinese rural e-commerce is in a period of rapid expansion. The existing rural market needs to be further developed, the scale of rural e-commerce market will further increase, and its contribution to rural economic development will continue to rise. Therefore, it has important and realistic significance to carry out the research on the of rural e-commerce problems and its management and solutions. Part 1 of current research, indicated above, has identified the key problems of the Chinese rural e-commerce. This article put forward effective countermeasures and suggestions in order to improve management of the e-commerce development.

## 2. Problems existing in the rural e-commerce development

### 2.1 Rural infrastructure is relatively backward compared to developed areas

Based on the geographical expanse reasons and dispersal of population in China, transportation in some rural areas is backward and logistics network is undeveloped. Although the distribution scope of most logistics companies has been extended to remote rural areas, but the logistics cost is high, remote areas such as Qinghai, Xizang Mongolia and Gansu cannot deliver or with higher cost.

The new infrastructure of rural e-commerce includes classification, sorting and processing equipment, cold chain logistics warehouse, etc. Agricultural products, especially fresh agricultural products, are restricted by backward storage, fresh-keeping, cold chain logistics and other special infrastructure. The cold chain circulation rate of fruits and vegetables, meat and aquatic products in China is only 22 %, 34 % and 41 % respectively, while in European and American countries it is more than 95 % and meat is 100% [1].

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<sup>1</sup> Часть 2. Продолжение статьи (часть 1): Чжан Чун. Исследование управления электронной коммерцией в сельских районах Китая: состояние и условия развития // Государственное и муниципальное управление. Ученые записки. 2023. № 1. С. 271–278. doi: 10.22394/2079-1690-2023-1-1-271-278

In recent years, the digital level of rural industry has been improved, but overall, the development has just begun, and the construction of agricultural product terminal service platform and rural big data resources system has just begun. As early as the 1980s, the United States applied information technology to agricultural production on a large scale and realized a high degree of urban-rural integration. For example, in September 2000, the United States Council of Agriculture allocated 1,4 billion US dollars for agricultural information network research and development. So far, nearly 2,0K agricultural information networks have been developed and more than 400 electronic agricultural databases have been established [2]. The Finnish government put forward the "Digital Countryside" project in 2007, aiming to promote the rural economy transition from traditional agricultural economy to low-carbon circular economy, and established a new form of urban-rural connection and value chain [3].

The Chinese government's document on promoting rural digitalization the Digital Agriculture and Rural Development Plan (2019-2025) was released in 2019 [4], the construction of basic data resource system for agriculture and rural areas in China needs time to develop. At present, although China has established a relatively sound financial service system, the supply gap of Chinese rural finance is relatively large, and the service efficiency is low. According to the Chinese Academy of Social Sciences, the gap in finance for agriculture, rural areas and farmers in China is 3,05 trillion yuan. Rural finance is still the weakest link in the whole financial system [5].

When applying for loans from financial institutions, there are strict standards and conditions. Due to the limitations of their own conditions, the participants of rural e-commerce, such as farmers and platforms, are difficult to obtain investment and support from financial institutions, and it is difficult to make mortgage and loan in financial institutions, so rural e-commerce cannot get reliable financial support.

**2.2. The e-commerce of agricultural products needs further development**

At present, China's rural e-commerce mainly includes two parts: the sales of industrial products in rural areas and the worldwide sales of agricultural products. The sale of agricultural products plays an important role in rural e-commerce, and doing a good job in the production and sale of agricultural products is a key link to ensure the development of rural e-commerce. However, the online retail sales of agricultural products are far lower than the rural online retail sales, hovering at 200 billion yuan, and the gap between the online retail sales in rural areas and the online retail sales of agricultural products is increasing year by year. According to the data, shown as Figure 1, the e-commerce of agricultural products needs to be further developed.

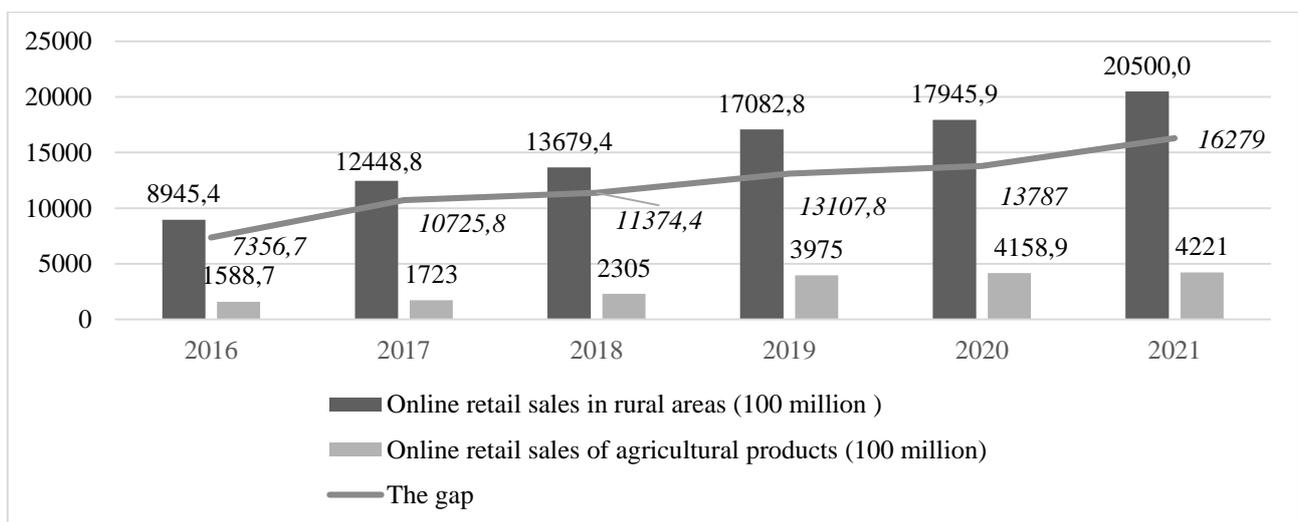


Fig. 1. The gap between online retail sales in rural areas and online retail sales of agricultural products<sup>1</sup>

<sup>1</sup> Developed by the author.

One of the reasons restricting the e-commerce of agricultural products development is that the undeveloped supply chain system of agricultural products. According to the research of Liu and Zhang (2022), the key to the stable operation of the agricultural products e-commerce supply chain is to establish long-term stable cooperative partnership [6]. However, there are some problems in China's agricultural product supply chain, such as information asymmetry, poor stability of all links, low level of product standardization and immature development of cold chain logistics network.

The other reason is that the branding level of rural e-commerce is low. China's agriculture is dominated by single farmers, agricultural production is highly dispersed, production and management of the organization degree is low, resulting in a low degree of standardization of agricultural products, quality control is difficult. Some local governments hope to form brand effect and increase the added value of products by building regional public brands [7]. However, the operation and management ability of regional public brand is not strong, the effectiveness of regional public brand cannot be well played, the brand value and influence is low, and the trust of consumers is not obtained. The difficulties of regional public brand operation lie in few aspects. First, the product standardization system is not sound. Second, the brand protection is insufficient, lack of means to deal with counterfeit products infringement.

### ***2.3. Regional development of rural e-commerce is unbalanced***

By region, the regional development of China's rural e-commerce is showing a strong to weak trend, from east, middle, west to northeast. According to the data of 2021, the eastern region's rural online retail sales accounted for 78,7 % of the country's rural online retail sales, the online retail sales of agricultural products in the eastern region accounted for 64,7 % of the national online retail sales of agricultural products. However, the proportion of the middle, west to northeast region is smaller compared with the east region [8].

By province, in 2021, rural e-commerce network retail sales in the top 10 provinces, eastern regions accounted for six, respectively Zhejiang, Jiangsu, Fujian, Hebei, Shandong, Guangdong. Among the top 10 provinces in terms of online retail sales of agricultural products, 7 are in eastern China, which are Guangdong, Zhejiang, Shanghai, Beijing, Shandong, Fujian and Jiangsu [8]. In China, the level of rural e-commerce development, the southeast coast is superior to the central, western, and northeastern regions, and the Beijing-Tianjin-Hebei, Yangtze River Delta and Pearl River Delta clusters are better than other regions [9].

## **3. Solutions**

### ***3.1. To improve the infrastructure construction of rural e-commerce***

First, by increasing infrastructure investment, China can drive the improvement of logistics, transportation, communication, and network infrastructure in rural areas, and provide hardware support for the development of rural e-commerce. For example, investment in roads, distribution centers of producing areas, cold chain logistics system and logistics centers should be strengthened to improve the efficiency of the entire production and circulation of agricultural products. Logistics infrastructure construction mostly belongs to public facilities, which cost a lot of money, and needs the support of the government in terms of policies, funds, and other aspects.

Second, China needs to push forward the construction of new infrastructure represented by 5G network, Internet of things, big data centers and artificial intelligence, and develop smart agriculture. The German government proposes to use digital technologies such as big data, Internet of Things and blockchain to promote the transformation and upgrading of agricultural industrial chain. German telecom, software provider SAP, German agricultural machinery manufacturer CLAAS and other enterprises cooperate to develop intelligent agricultural solutions, providing intelligent agricultural machinery, intelligent planting, intelligent irrigation, precision feeding, environmental perception, market consulting services [10]. This is something China can learn from.

Last but not the least, China should develop inclusive finance in rural areas to provide necessary financial guarantee for the expansion of agricultural reproduction, agricultural product processing industry and farmers' consumption, and create a better market environment for rural e-commerce. First, the government must promote the construction of a diversified rural inclusive financial system, including commercial

finance, cooperative finance, and policy-based finance. For poor and remote rural areas, financial outlets should be added according to the actual situation to provide more efficient and convenient financial services for rural residents. Second, financial institutions should improve the product system of inclusive finance in rural areas, combine the development characteristics and actual conditions of rural areas, so that more farmers can enjoy insurance, credit and other financial products and services that meet their own needs. Third, there is a need to improve the financial risk compensation mechanism. This mechanism should establish a sound financial risk compensation mechanism and dispersion mechanism involving the government, banks, insurance institutions, borrowers, and other parties.

**3.2. Supply chain system for agricultural products should be rebuild**

Traditional e-commerce platforms represented by Alibaba and JD.com sell agricultural products by search sales mode. However, due to the low level of e-commerce in rural areas, the poor packaging and other factors, the effect is not as expected. Many small-scale farmers must face many consumers and their agricultural products cannot be sold due to information asymmetry.

At present, some leading e-commerce enterprises in China have begun to transform the supply chain of agricultural products. For example, the new e-commerce enterprises represented by Pinduoduo have created the ultra-short supply chain model of "farmers + distributors + consumers", as shown in Figure 2.

In the new supply chain system, e-commerce platforms directly participate in the production of farmers and actively integrate production, grading, processing, and other supply links. Through picking directly from the source, grading and packaging, the e-commerce platform sells agricultural products to consumers directly. At the same time, through the digitalization of the whole process, the e-commerce platform guides the production and research of farmers and builds a low-cost and efficient logistics network to help farmers reduce costs [11].

The re-shaped supply chain model of agricultural products can not only make the products reach consumers at a faster speed, ensure the freshness of products, but also make more profits stay in the hands of farmers, make the production and processing of agricultural products according to sales to avoid unsalable.

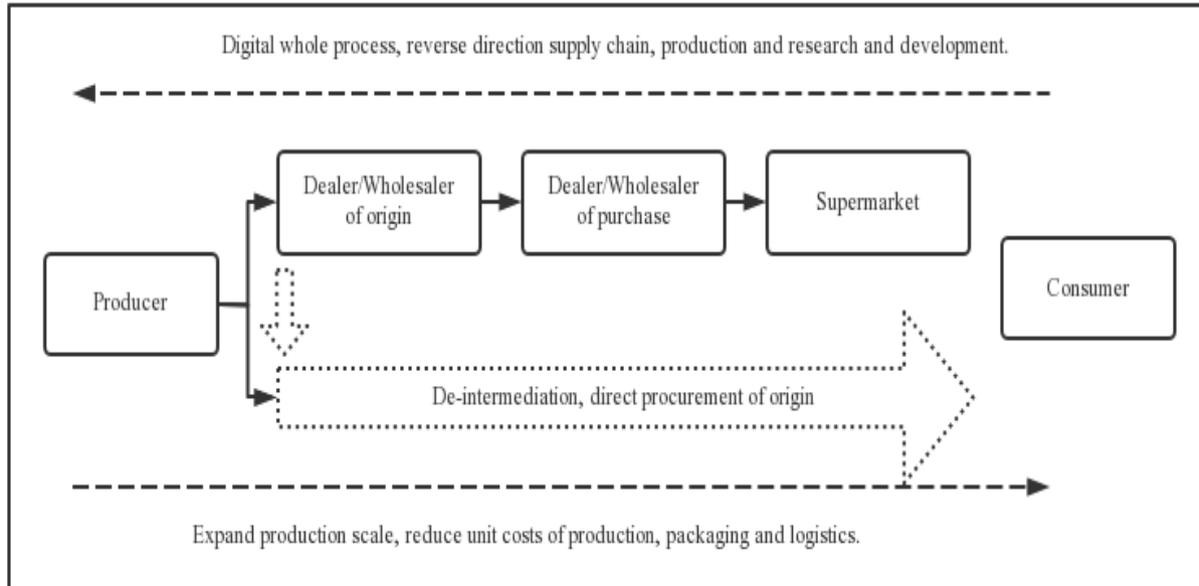


Fig. 2 The re-shaped map of rural supply chain<sup>1</sup>

<sup>1</sup> Developed by the author based on Citic Securities Research Institute [12].

### **3.3. To improve the standardization and branding of rural e-commerce**

To construct the brand system of agricultural products, it should start from strengthening people's brand awareness, and cultivate new brands by integrating the existing local brands, to form a batch of featured agricultural products brands with reliable quality and great influence. Second, to establish and improve the brand development mechanism, the government needs to form a sound brand cultivation, certification, supervision, and protection mechanism from the aspects of patent application, certification progress, patent protection, etc. Third, it is to improve the local brand marketing ability, innovate brand marketing methods and channels, and enhance the regional and national influence of agricultural products brands.

Because of China's targeted poverty alleviation and rural revitalization policies, government agencies in many regions will help local agricultural products, such as Yunnan rose, Ningxia wolfberry, Tibet saffron and so on, establish regional public brands.

To improve the operation ability of regional public brands, the government, agricultural products association, agricultural cooperative organizations, and other operating bodies can start from three aspects. First, establish a strict standardization system, formulate standards for network products, so that agricultural products become qualified network products. Second, develop a unified, Internet style packaging, and require all producers to use. Third, strengthen brand protection and formulate strategies to deal with counterfeit products.

### **3.4. To balance the regional differences in rural e-commerce**

For the overall development of the domestic economy, China must optimize the layout to reduce the development gap of rural e-commerce in other areas.

First, for the eastern rural areas with good development of e-commerce, they should actively impart experience and relevant professional knowledge to the areas with poor development.

Second, poorly developed areas should combine the local actual situation and regional characteristics, find out the development direction of rural e-commerce and develop a distinctive rural e-commerce model, to continuously narrow the development gap of rural e-commerce in various regions and realize the overall optimization of the development layout of rural e-commerce in the country.

For example, the western region of China can create a rural e-commerce development model with characteristics and ecological rural economy, with a unique alpine crop as the main e-commerce products; the central and northeast regions can build a rural e-commerce development model based on traditional rural economy, with cash crops as the main e-commerce products.

## **4. Conclusion**

For the development of rural e-commerce in China, this article analyzes the problems and puts forward four measures: strengthen the infrastructure; reshape the supply chain system of agricultural products; improve the standardization and branding of rural e-commerce; and balance the regional differences in the development of rural e-commerce, to provide support for the better development of e-commerce in rural areas.

In terms of improving the infrastructure construction of rural e-commerce, the author proposes that the government should support the construction of rural roads and logistics in terms of policies and funds; promote rural digitization construction by learn from German experience; develop inclusive finance in rural areas and solve the financing problem of rural e-commerce. In terms of re-building the e-commerce supply chain of agricultural products, the author takes the leading e-commerce platform as an example and put forward the ultra-short supply chain model of "farmers + distributors + consumers".

The author tries to improve the brand level of rural e-commerce in three aspects: building the brand system of agricultural products, establishing, and perfecting the brand development mechanism and improving the marketing ability of local brands. At the same time, the article puts forward solutions to the problems of regional public brands in rural e-commerce areas in China.

Finally, in view of the imbalance of regional development of rural e-commerce in China, the author puts forward two suggestions, that is, the developed regions to impart experience and funds to the less developed regions to help the less developed regions; considering the local conditions and regional characteristics, the less developed areas make full use of national policies and the experience of the developed areas for sustainable development.

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