

# *Research on Problems and Suggestions of Rural E-commerce Development under the Background of Rural Revitalization*

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**Abstract:** Although rural e-commerce has been developed to a certain extent under the background of rural revitalization, after analysis, it is found that there are also some problems, such as the shortage of e-commerce merchants, and the comprehensive quality is relatively low; E-commerce infrastructure and logistics distribution system are not yet perfect. In view of the above problems, this paper believes that to promote the development of rural e-commerce, we should first establish a sound service system. Secondly, we should constantly improve the construction of rural e-commerce infrastructure. Third, encourage and support e-commerce platforms, express logistics enterprises to carry out e-commerce business. Fourth, we should establish a perfect e-commerce training system. Finally, we must vigorously cultivate and expand rural e-commerce enterprises.

## 1. Introduction

Since the emergence of e-commerce, a new mode of economic development, it develops rapidly in urban areas of our country, but slowly in most rural areas of our country, which makes the gap between urban and rural areas become more and more obvious. In 2020, China will build a moderately prosperous society in all respects, and on this basis start a new journey of comprehensive construction of a modern socialist country [1]. The rural revitalization strategy has also been put on the agenda. The rural revitalization strategy is a major strategy put forward in the report of the 19th National Congress of the Communist Party of China, which is a strong grasp to solve the problems of "agriculture, rural areas and farmers".

The author proposes that rural e-commerce can not only promote the development of our country's rural economy, improve the living conditions of farmers, but also play the advantage of local characteristic agricultural products and increase farmers' income. Rural e-commerce is a new

mode of operation that uses Internet technology to combine various rural production factors with market demand and realize information sharing [2]. It not only provides new space and new channels for rural production and management, but also has great significance for promoting the development of modern agriculture, increasing farmers' income, promoting the coordinated development of our country's economy and society, establishing rural public service system and realizing the integration of urban and rural areas.

In order to better promote China's rural economic revitalization and promote the high-quality development of rural industry, the state vigorously supports rural information construction, and in-depth implementation of "several commerce to rejuvenate agriculture" and "Internet +" agricultural products out of villages and into the city project, which makes the continuous development of rural e-commerce, farmers get rich channels have been widened, and then get rid of poverty and get rich and lead a well-off life.

Through investigation, understand the development status and existing problems of rural e-commerce, and this is analyzed, and the corresponding countermeasures and suggestions are put forward, which provides theoretical reference for further improving the development of rural e-commerce, and is conducive to promoting the implementation of rural revitalization strategy. In the rural revitalization strategy, rural e-commerce, as one of the important driving forces, plays an important role in accelerating rural development and realizing farmers' income [3]. By analyzing the development status and existing problems of rural e-commerce, corresponding countermeasures and suggestions are put forward, which can provide impetus for the sustainable development of the local economy.

Especially in recent years, the country has proposed to vigorously develop rural e-commerce, which provides a good policy environment and social environment for the development of rural e-commerce [4]. With the sustained growth of China's economy and the continuous improvement of Internet technology, people's understanding of Internet technology is also deepening. Internet technology has been widely used in rural areas, especially the rapid development of rural e-commerce, which provides a broad market for rural e-commerce.

In recent years, with the emergence of new technologies, new formats and new models, the study of rural e-commerce has attracted more and more attention. However, domestic relevant research mainly focuses on e-commerce platforms, logistics, industrial clusters, etc., and pays insufficient attention to the development of rural e-commerce. This paper takes rural e-commerce as the research object, analyzes its development status and existing problems, and puts forward corresponding countermeasures and suggestions, which not only enriches the research content of rural e-commerce, but also has strong theoretical significance for promoting the implementation of rural revitalization strategy.

## **2. Rural E-commerce for the Development of Rural Economy Research**

Rural e-commerce relies on modern Internet communication and information technology, and uses the Internet e-commerce platform as the carrier to transmit relevant information about agricultural products and industrial products processed by agricultural products to consumers. Consumers get the information through the Internet e-commerce platform, purchase products by placing orders online, and then settle the payment with various means of payment [5]. An online transaction activity that delivers products to consumers through offline logistics.

Rural e-commerce integrates and optimizes various resources in rural areas through Internet technology to realize the network, information, data and standardization of agricultural production and operation and market transactions, thus driving agricultural industrialization and large-scale development and improving farmers' income and agricultural production efficiency. However, there

are still many problems in the development of rural e-commerce in our country, which restrict its further development.

On the one hand, the online transaction network composed of logistics, capital flow and information flow replaces the traditional offline transaction, which can reduce a lot of manpower, material and financial resources and reduce transaction costs [6]. On the other hand, because the network transaction is not limited by time and space, consumers can buy products from the Internet anytime and anywhere, which greatly improves the transaction efficiency, as is shown by figure1.

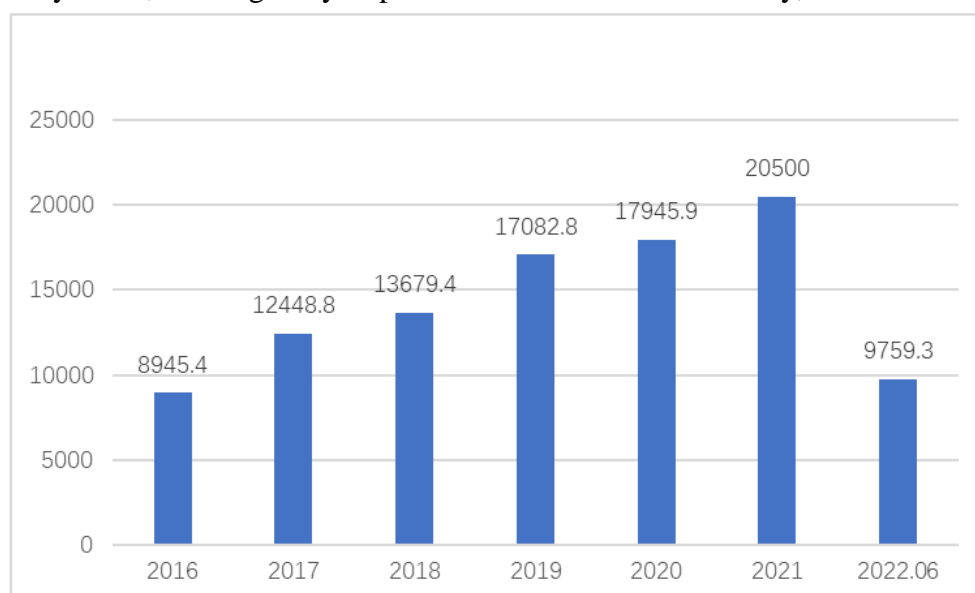


Figure 1. Data chart of rural retail sales from 2016 to 2022.06.

Rural e-commerce mainly has three core contents: first, agricultural products up, that is, farmers through the Internet to sell agricultural products all over the country and even overseas markets; The second is the integration of agricultural industry, that is, through the e-commerce platform, agriculture and tourism, culture, education, pension and other industries are deeply integrated; The third is the implementation of the rural revitalization strategy, that is, connecting rural and urban areas through the Internet to promote rural economic development.

At present, e-commerce has been widely used in people's life, e-commerce has a relatively mature theory and practice at home and abroad, but the research on rural e-commerce is still relatively scarce [7]. At present, the existing researches on rural e-commerce mainly include: the researches on rural e-commerce platforms, from the perspective of platform types, mainly include domestic mainstream e-commerce platforms such as Taobao and Jingdong; About our life, it has brought us great convenience. With the development of science and technology and the continuous improvement of e-commerce, more and more people begin to pay attention to the problems faced by e-commerce in rural development.

The emergence of rural e-commerce has changed the traditional trade circulation mode, reduced many intermediate links of traditional transactions, and optimized the sales mode of agricultural products to a certain extent. Moreover, because rural e-commerce is carried out by the Internet, it is not limited by time and space, and is open and global, which creates more trade possibilities for rural agriculture and broadens the sales channels of agricultural products, and its impact is to promote agricultural development and increase farmers' income.

In the process of promoting "Internet + agriculture", this paper gradually promotes the deep integration of the Internet and agriculture, and constantly improves the role of rural e-commerce in

the sale of agricultural products [8]. With the structural reform of the agricultural supply side as the main line, we will actively promote the development of rural e-commerce by focusing on the creation of agricultural production bases, the cultivation of new agricultural business entities, the development of new business forms of "Internet + agriculture", and the promotion of industrial poverty alleviation.

Driven by the rapid development of the Internet, the development of county economy with e-commerce of agricultural products as one of the important pillars has excavated a new way for farmers to get rich and realized an important link with the country's "three rural" issues.

The characteristics of the development of rural e-commerce in China, one is the production structure of family-style workshops, which is currently the main mode of rural e-commerce; Second, rural e-commerce will gradually transform the original relationship of mutual assistance into a win-win cooperation relationship; Third, villages are the characteristics of the development of peer aggregation, so that villages have their own labels, but at the same time, it also leads to serious product homogenization.

### 3. Analysis of Problems Encountered in the Development of Rural E-commerce

In the context of rural revitalization, rural e-commerce has developed rapidly in recent years, and the rural economy has also been greatly developed, but there are also many problems in the process, such as the weak awareness of rural military and civilian e-commerce, most rural residents believe that e-commerce is a high-tech industry, will only increase their burden, and even think that e-commerce will threaten their livelihoods [9]. Moreover, the income level of most rural residents is not high, let alone the consumption level, so most villagers' understanding of e-commerce still stays on the concept of "online shopping" and do not realize the importance of e-commerce for rural economic development [10].

The traditional agricultural production mode is that farmers decide what products to plant, how to plant and when to harvest, etc. The lack of market information leads farmers to produce blindly. Farmers lack quality and brand awareness when selling agricultural products, resulting in low product prices and thin profits [11]. Most of the products on the market are difficult to meet the quality requirements of consumers due to the lack of unified production standards and inspection standards, as is shown by table 1.

*Table 1. Scale of Internet users and Internet penetration rate in rural areas from 2014 to 2019*

Year	Scale (100 million visitors)	Penetration rate
2014	1.78	28%
2015	1.95	31.6%
2016	2.01	33.1%
2017	2.09	35.4%
2018	2.22	38.4%
2019	2.25	39.8%

With the development of the Internet, some rural villagers in the county have access to more e-commerce platforms, but mainly to short video platforms such as Tiktok, Kuaishou, and they only use these platforms for daily entertainment activities, and do not know how to operate on these platforms for sales promotion, and cannot give greater play to the role of these platforms.

In recent years, with the rapid development of e-commerce industry, more and more people have begun to engage in e-commerce industry, but many people are from the traditional sales industry, lack of certain professional knowledge and skills. In most rural areas of Puge County, only some farmers use smartphones to surf the Internet, and the ability to accept new things is relatively poor, and many farmers buy local products in offline stores.

Logistics, transportation and other infrastructure is lagging behind, information channels are not smooth, and there are problems in network communication services. The construction of rural information infrastructure is not perfect, the information channel is not smooth, and the ability of farmers to obtain information is very low. Although there are many e-commerce websites, they are basically not popular [12]. The logistics infrastructure construction is not perfect, the logistics system is not perfect, the logistics cost is high, the efficiency is low. In terms of information, most rural areas in China are still using telephone, mobile phone and other communication tools for contact and transaction. The construction of Internet infrastructure lags behind urban areas, and the network coverage in rural areas is still low.

Due to the improvement of people's living standards, people's consumption concepts and basic requirements for life are no longer as before. Nowadays, people's requirements for food are not only full and good, but also quality. In the principle of things, people are more and more inclined to the principle of brand [13].

Although there are many electric commodity brands of agricultural products, the homogenization is serious and the characteristics are lacking [14]. At present, through the investigation of existing agricultural products in this County, although there are some agricultural products brands, in general, it is found that the number of agricultural products brands is small and the brand awareness is low.

At present, the information platform in the county is mainly based on the government website, and some areas have begun to use new media platforms for publicity and promotion, but there are still many areas that have not established information platforms. In addition, although the government network has some operation, it is still very difficult in the uplink of agricultural products, because the local government has not paid enough attention to the uplink of agricultural products, and the information platform has not played its due role.

At present, there is a serious phenomenon of network gap in our country. The problems of high Internet cost, slow Internet speed, complicated operation and low Internet penetration rate of rural residents are very prominent. In the process of the development of rural e-commerce, there is a shortage of talents.

#### **4. Suggestions for Optimizing the Development of Rural E-commerce**

It is necessary to further improve the understanding of the development of rural e-commerce work, improve the leading institutions, strengthen the working mechanism, integrate rural e-commerce into the overall plan of economic and social development of the county, and take the development of rural e-commerce as the top priority of county development; It is necessary to establish and improve the coordination mechanism of rural e-commerce work in the county, and guide and coordinate relevant departments to actively promote rural e-commerce work.

First of all, in order to solve the problem of low coverage of rural terminal network, the government should increase the investment in network infrastructure construction. Cooperate with local telecom operators to reduce the cost of broadband installation for villagers and reduce the cost of using the network for villagers. For villagers who do not know how to use the Internet, they can be trained in basic Internet use methods.

With the support of standards, establish and improve the standard system of e-commerce. It is necessary to formulate a perfect e-commerce standard system, classify and guide according to product characteristics, form a standardized operation process of the whole industrial chain, refine the product quality management of each link into each operation process, run all aspects of e-commerce product quality control through all aspects of product production and processing, logistics distribution, marketing and publicity, and form an e-commerce standard system with Puge

characteristics.

Rural e-commerce enterprises should be included in the scope of information statistics of small and medium-sized enterprises in the county, and facilitate their registration in the relevant departments of the state, province and city; It is necessary to strengthen the daily management of e-commerce enterprises, standardize their business behavior and perfect their operation mechanism. New agricultural business entities such as rural specialized cooperatives and family farms should be encouraged to carry out online sales of agricultural products.

We will encourage and guide young people to return to their hometowns for employment. First, we should improve the construction of rural infrastructure. Xiayi County government should take the overall deployment of rural revitalization as a guide, improve rural production and living conditions, increase investment in rural social development, strengthen modern agricultural infrastructure, divert more high-quality social resources to the countryside, and provide better production and living conditions for farmers.

Network infrastructure also needs to be comprehensively promoted. The government should speed up the construction of rural network infrastructure through policy and financial support, including the construction of broadband networks, township e-government cloud service platforms, and the renovation of township fixed telephone and mobile phone base stations, so as to further improve the coverage of rural communication networks. On the other hand, it is necessary to establish a unified rural e-commerce public service system, vigorously cultivate e-commerce demonstration enterprises, demonstration towns, demonstration villages and demonstration online stores, and drive local farmers to increase income and get rich through the development of industries.

The government should speed up the construction of rural logistics infrastructure, standardize the management of existing logistics transport vehicles, implement unified pricing and unified numbering, improve transport routes and vehicle routes, provide standardized operation modes for logistics companies, and establish rural e-commerce logistics service networks at county, township and village levels to integrate resources of all parties. We will build a logistics distribution system covering all townships. Make full use of existing logistics enterprises and industry associations, and combine e-commerce enterprises, rural cooperatives, agricultural production bases and individual industrial and commercial businesses to form a rural commercial circulation system based on two-way circulation of agricultural products and industrial products.

The government should use various resources and various publicity means to carry out e-commerce publicity in various rural areas and enterprises, popularize the basic knowledge, skills and role of e-commerce, so that people can understand and participate in e-commerce, and jointly promote the development of e-commerce. Then, you can take the implementation of the "theory + practice" training method, when the training of these people, can not only be limited to theoretical knowledge, but also let them to practice, you can jointly train with the local e-commerce enterprises, carry out practical practical training, strengthen the region's e-commerce business training, which can also solve the problem of labor shortage in e-commerce enterprises.

It is necessary to establish and improve the quality and safety system of agricultural products, actively promote standardized agricultural production, standardize agricultural production and operation behavior, and enhance the awareness of integrity of agricultural business entities. Through the integration of online and offline development, the county and village three-level logistics distribution system and express delivery system are established and improved, so as to establish a sound agricultural product quality and safety traceability system to ensure that agricultural products can be traced from production to circulation; Construction of rural e-commerce integrated service platform and big data center, using data analysis to achieve scientific guidance on marketing, supply and demand structure of agricultural products, so as to realize the



tracking and management of the whole process of agricultural products; Through government guidance, enterprise participation, and the benefit of farmers, we will strengthen the standardized development and standardization of rural e-commerce.

## 5. Conclusions

Although the development of rural e-commerce in the county has achieved some results, but the current development is not perfect, there are still many problems: first, the standardization and branding of agricultural products are low, and product homogenization is serious; Second, the shortage of e-commerce talents; Third, the network infrastructure construction is relatively backward; Fourth, the market system and supervision system are not perfect.

Some reasonable solutions to the above problems are put forward. First, the government can play its leading role and formulate some preferential policies to attract young people to return to their hometown for employment, so as to reserve high-quality human resources for the development of rural e-commerce in the region. Secondly, the government can strengthen and improve the infrastructure construction of rural e-commerce. For example, it can cooperate with local logistics enterprises and telecommunications enterprises to build a more perfect logistics system, expand the coverage of the Internet, and create a more perfect and convenient e-commerce service foundation.

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## Data Availability

The datasets used during the current study are available from the corresponding author on reasonable request.

## Conflict of Interest

The author states that this article has no conflict of interest.

## References

- [1] Bailan, *the development dilemma and countermeasures of rural e-commerce under the background of digital economy*. *China Social Security News*, 2019,56(24):5-7.
- [2] Wang Xinguang, Chen Jie. *Research on problems and countermeasures of rural E-commerce development in China*. *Agricultural Economics*, 2016(3):18-22.
- [3] Xu, H.; Fan, G.; Kuang, G.; Wang, C. *Exploring the Potential of BERT-BiLSTM-CRF and the Attention Mechanism in Building a Tourism Knowledge Graph*. *Electronics*, 2023,12(4), 1010.
- [4] Zhu Mengling. *Research on the development status and strategy of rural e-commerce under the background of rural revitalization strategy*. *Trade Fair Economics*, 2022,(02),20-52.
- [5] Hongsheng Xu, Ganglong Fan, Yanping Song, "Novel Key Indicators Selection Method of Financial Fraud Prediction Model Based on Machine Learning Hybrid Mode", *Mobile Information Systems*, vol. 2022, 2022.
- [6] Zhang, Lei, et al. "Weather radar echo prediction method based on convolution neural network and Long Short-Term memory networks for sustainable e-agriculture." *Journal of Cleaner Production*, 298 (2021): 126776.
- [7] H. Xu, G. Fan, G. Kuang and Y. Song, "Construction and Application of Short-Term and Mid-Term Power System Load Forecasting Model Based on Hybrid Deep Learning," *IEEE Access*, 2023,vol.11, pp. 37494-37507.
- [8] Lv Baoping. *Rural finance development innovation strategy under the background of rural revitalization strategy*. *Economist*, 2022(10):17-20.

- [9] Hongsheng Xu, Huijuan Sun, "Application of Rough Concept Lattice Model in Construction of Ontology and Semantic Annotation in Semantic Web of Things", *Scientific Programming*, vol. 2022, 2022.
- [10] Li Hongyuan. *The role of Internet in promoting rural economic development and its improvement strategy*. *Knowledge Economy*, 2016(18):2.
- [11] Hongsheng Xu, Yanqing Lv, "Mining and Application of Tourism Online Review Text Based on Natural Language Processing and Text Classification Technology", *Wireless Communications and Mobile Computing*, vol. 2022, 2022.
- [12] Mo Qubo. *Problems and countermeasures of rural e-commerce development in China under the strategy of rural revitalization*. *Southern Agriculture*, 2022(16):046.
- [13] Zhang Lin, Yang Hu. *Research on relative poverty governance mechanism from the perspective of rural revitalization*. *Sichuan Agricultural Economics*, 2022(12):15-20.
- [14] Zhang, Lei, Shiyu Tang, and Lingling Lv. "An finite iterative algorithm for sloving periodic Sylvester bimatrix equations." *Journal of the Franklin Institute* 357.15 (2020): 10757-10772.