

Review

Research on the Development Path of Rural E-Commerce in Supporting Rural Revitalization

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Abstract: With the rapid development of information technology, rural e-commerce is playing an increasingly important role in promoting rural economic growth, increasing farmers' incomes, and driving rural revitalization. This paper begins by defining rural e-commerce and analyzing its characteristics, current development status both domestically and internationally, and exploring the close connection between e-commerce and rural revitalization. By investigating multiple development paths through which rural e-commerce supports rural revitalization—including industrial structure optimization, market expansion for agricultural products, development of rural human resources, and improvement of information infrastructure—this paper reveals the critical role of rural e-commerce in achieving the goals of rural revitalization. Additionally, it presents relevant policy recommendations and solutions to the challenges faced by rural e-commerce development while forecasting future trends in rural e-commerce.

Keywords: rural e-commerce; rural revitalization; development path; industrial structure optimization

1. Introduction

In the context of the rapid development of the global economy, the rural economy faces an urgent need for transformation and upgrading. With the rapid advancement of information technology, rural e-commerce has gradually emerged as a vital force in promoting rural revitalization. Rural e-commerce not only provides farmers with a vast market space, facilitating the sale of agricultural products and increasing their incomes, but it also offers new opportunities for optimizing the economic structure and upgrading industries in rural areas. Therefore, in-depth research on the development status of rural e-commerce and its role in rural revitalization holds significant theoretical and practical importance. This paper aims to systematically analyze the relationship between rural e-commerce and rural revitalization to explore its development paths and strategies. It first clarifies the definition, characteristics, and significance of rural e-commerce in China's rural revitalization. Next, it combines research findings from both domestic and international contexts to analyze the current development status and challenges of rural e-commerce. Finally, it presents corresponding development paths and policy recommendations to provide feasible references for promoting the development of rural e-commerce. Through this research, we hope to contribute to the achievement of rural revitalization goals and provide new perspectives and insights for related studies [1].

2. Current Development Status of Rural E-commerce

2.1. Definition and Characteristics of Rural E-commerce

Rural e-commerce refers to a new business model that utilizes internet technology to combine rural production, sales, and service activities with e-commerce platforms,

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thereby promoting the circulation of agricultural products and increasing farmers' incomes. Compared with traditional business models, rural e-commerce significantly improves the efficiency of rural markets and reduces transaction costs through online transactions, logistics distribution, and information sharing. Rural e-commerce encompasses not only the sale of agricultural products but also the procurement of agricultural production materials, rural tourism, and various rural services, forming a diversified ecosystem. Rural e-commerce exhibits several notable characteristics [2]. First, it has a broad market coverage. Rural e-commerce serves not only the local market but also extends its reach through online channels to sell products nationwide and even internationally, broadening farmers' sales channels. Second, it enables more efficient resource allocation. Through e-commerce platforms, rural producers can connect directly with consumers, reducing intermediaries and improving resource utilization efficiency. Moreover, rural e-commerce is characterized by its flexibility and adaptability, allowing rapid adjustments in product structures and marketing strategies according to market demands to meet diverse consumer needs. Finally, rural e-commerce promotes information transparency, making rural economic activities more standardized and orderly, which helps enhance the overall level of the rural economy. In summary, rural e-commerce not only opens new avenues for wealth creation for farmers but also provides crucial support for promoting rural economic development and achieving the strategic goals of rural revitalization. With the continuous improvement of internet infrastructure and the rapid development of e-commerce platforms, rural e-commerce will play an increasingly important role in the future rural economy [3].

2.2. Development History of Rural E-commerce at Home and Abroad

The concept and practice of rural e-commerce have a long development history internationally. In the United States, since the early 1990s when the internet became widespread, rural e-commerce has gradually developed in rural areas. Initially, farmers displayed their agricultural products through simple webpages. Over time, e-commerce platforms based on farmers' cooperatives and regional markets began to emerge. For example, platforms like Farmers Market Online and Local Harvest provide farmers with convenient sales channels, helping them connect directly with consumers and increase their income levels. In Europe, particularly in France and Germany, the development of rural e-commerce also has its unique characteristics [4]. Many European countries promote rural e-commerce development through government policy support and funding. For instance, the French government launched the "Digital Agriculture Plan" aimed at enhancing farmers' digital skills through technological training and platform development, facilitating the transformation of the rural economy. In China, the development of rural e-commerce started later but has grown rapidly. Since 2010, with the government's increasing emphasis on rural e-commerce, it has entered a period of rapid growth. The government has introduced a series of policies to support rural e-commerce development, enabling e-commerce platforms such as Alibaba, JD.com, and Pinduoduo to enter rural markets. The involvement of these platforms has greatly enriched the sales channels for rural products and improved farmers' economic income. At the same time, the rise of rural e-commerce has attracted numerous entrepreneurs and investors, promoting the diversification of the rural economy. In recent years, with the widespread adoption of mobile internet, rural e-commerce has gradually transitioned to "mobile e-commerce," allowing farmers to conduct online transactions, payments, and logistics distribution through smartphones, making the development of rural e-commerce more convenient and efficient. Currently, rural e-commerce is not only an essential component of the rural economy but also a vital force in promoting rural revitalization. A comparison of the development histories of rural e-commerce at home and abroad indicates that the development models of rural e-commerce are diverse, and the experiences of different countries provide valuable references for the development of rural e-commerce in China [5].

2.3. Analysis of the Current Development Status of Rural E-commerce

In recent years, the rapid rise of rural e-commerce in China has garnered widespread attention. According to relevant statistics, the transaction scale of rural e-commerce continues to expand, becoming an important driver of rural economic growth. Currently, the development of rural e-commerce exhibits several notable characteristics: First, the market scale is continuously expanding. According to the latest market research, the transaction volume of rural e-commerce has reached trillions of yuan, with an annual growth rate far exceeding that of urban e-commerce. This growth not only reflects an increased acceptance of e-commerce among rural consumers but also indicates heightened transaction activity of agricultural products on e-commerce platforms. Second, the variety of products and services is continually enriching. Currently, rural e-commerce is not limited to the sale of agricultural products but has expanded to include agricultural material procurement, rural tourism, handicrafts, and other areas [6]. For instance, many e-commerce platforms now offer comprehensive services such as logistics, finance, and information tailored for rural areas, further enhancing the overall competitiveness and appeal of rural e-commerce. Third, the infrastructure for rural e-commerce is gradually improving. With the government's increased focus on building rural information infrastructure, internet coverage and logistics delivery capabilities have significantly enhanced. An increasing number of rural areas have achieved fiber-optic access and complete mobile network coverage, while the distribution systems of e-commerce platforms have matured, providing farmers with more convenient services. Additionally, government policy support has played a crucial role in the development of rural e-commerce. Various levels of government actively promote rural e-commerce development through funding subsidies, training support, and policy incentives. Many local governments have established rural e-commerce service centers to provide farmers with training and technical support, helping them make better use of e-commerce platforms. However, the development of rural e-commerce still faces several challenges. For example, in some rural areas, high logistics costs and information isolation hinder the efficiency of e-commerce and affect farmers' profits. Additionally, farmers generally have low digital literacy and operational capabilities, requiring further training and guidance. Furthermore, with increased market competition, maintaining product quality and service levels remains a challenge for rural e-commerce. In conclusion, rural e-commerce is currently undergoing rapid development in China, and despite facing certain challenges, its potential for growth is enormous. With further policy support and improvements in the market environment, rural e-commerce is expected to play an even more significant role in rural revitalization and the development of the rural economy [7].

3. The Relationship Between Rural E-commerce and Rural Revitalization

3.1. The Connotation and Objectives of Rural Revitalization

Rural revitalization is an important strategy proposed by China in the context of the new era, aimed at achieving the goals of strong agriculture, beautiful countryside, and prosperous farmers. Rural revitalization is not only a requirement for agricultural development but also a necessary choice for comprehensively building a moderately prosperous society and promoting high-quality economic development. The connotation of rural revitalization encompasses various aspects, including economic, social, cultural, ecological, and organizational dimensions, aiming for comprehensive and coordinated development in rural areas. Firstly, economic revitalization is one of the core objectives of rural revitalization. By promoting agricultural modernization, improving production efficiency and product quality, and driving sustained income growth for farmers, a competitive modern agricultural industry system can be established. At the same time, rural revitalization also emphasizes the development of secondary and tertiary industries in rural areas, enhancing the overall economic level and increasing farmers' sense of gain and happiness [8]. Secondly, social revitalization emphasizes improving the quality of life and

social services for rural residents. Rural revitalization requires increasing investment in public services such as education, healthcare, and culture in rural areas, as well as improving infrastructure, enabling farmers to enjoy a higher quality of life and services. Additionally, rural revitalization focuses on cultivating rural talents and enhancing the self-development capabilities of rural residents. Moreover, cultural revitalization aims to protect and inherit the excellent traditional culture of the countryside while strengthening cultural confidence. During the process of rural revitalization, attention should be paid to the transmission and innovation of rural culture, encouraging rural residents to actively participate in cultural activities, improving the cultural life of rural areas, and enhancing community cohesion. Ecological revitalization is a crucial component of rural revitalization. As the concept of sustainable development receives increasing attention, rural revitalization must focus on ecological environmental protection, promote green development, improve the rural ecological environment, and foster harmony between humans and nature. Lastly, organizational revitalization refers to strengthening the construction of rural organizations and enhancing rural governance capabilities. By developing forms such as farmers' cooperatives and villagers' autonomy, farmers' organizational awareness and participation abilities can be enhanced, improving rural self-governance and facilitating the implementation of rural revitalization efforts. In summary, the objective of rural revitalization is to achieve comprehensive and coordinated development of rural economies, societies, cultures, ecologies, and organizations, ultimately promoting overall progress in rural areas and improving farmers' well-being. Rural e-commerce, as an important means of driving rural economic development, can provide strong support and assurance for achieving rural revitalization.

3.2. The Role of Rural E-commerce in Rural Revitalization

Rural e-commerce plays an essential role in rural revitalization, manifested in several key aspects. Firstly, it enhances the sale of agricultural products and increases farmers' incomes. By using e-commerce platforms, farmers can sell directly to consumers nationwide, overcoming geographical barriers and minimizing intermediaries, which leads to higher profits. This direct selling model not only boosts income but also improves market competitiveness. Additionally, diverse sales channels enable farmers to better adapt to changing market demands and reduce economic losses from poor sales. Secondly, rural e-commerce drives the optimization of the rural industrial structure. It encourages farmers to develop specialty agricultural products and local industries, promoting agricultural diversification. For instance, many rural areas are creating specialty products, such as organic goods, to increase agricultural value. Furthermore, rural e-commerce fosters the growth of secondary and tertiary industries, facilitating new business models like rural tourism, which invigorates the rural economy. Thirdly, rural e-commerce enhances rural infrastructure. The growth of e-commerce relies on robust information and logistics systems[9]. As rural e-commerce expands, local governments are investing in infrastructure improvements, such as better internet access and transportation, which creates a favorable environment for e-commerce and improves rural residents' quality of life. Additionally, rural e-commerce supports the development of farmers' skills and knowledge. Through participation in e-commerce, farmers access market information, technical support, and training courses, enhancing their digital literacy and entrepreneurial skills. This empowerment fosters their success in the e-commerce sector and encourages economic diversification. In summary, rural e-commerce significantly contributes to rural revitalization by increasing farmers' incomes, optimizing industrial structures, improving infrastructure, enhancing skills, and fostering social cohesion. These factors collectively provide a strong foundation for achieving rural revitalization goals.

4. Research on the Paths Through Which Rural E-commerce Supports Rural Revitalization

Rural e-commerce can achieve effective economic and social development through multiple paths in its support for rural revitalization. Firstly, optimizing the industrial structure is an important path for rural e-commerce in aiding rural revitalization. Through e-commerce platforms, farmers can adjust their production structure based on market demand, developing specialty agriculture and high-value-added agricultural products, thus enhancing overall agricultural efficiency. Additionally, e-commerce can promote the development of secondary and tertiary industries in rural areas, such as agricultural product processing and rural tourism, driving a deep integration of agriculture with tourism and cultural industries, thereby forming a diversified rural economic system. Secondly, the expansion of agricultural product markets is another key path. Rural e-commerce breaks geographical limitations through the internet, providing farmers with a broader market space. Farmers can use e-commerce platforms to promote local specialty products to the national and even international markets, achieving product "outreach." This market expansion not only increases farmers' income levels but also promotes the overall economic development of local areas. At the same time, e-commerce platforms provide farmers with market information, technical support, and training services to help them enhance their competitiveness and market awareness. Moreover, the development of rural human resources is also an essential aspect of rural e-commerce's support for rural revitalization. The growth of e-commerce requires rural residents to possess certain digital literacy and e-commerce operational skills, making it crucial to provide e-commerce skills training for farmers. Through systematic training and guidance, farmers can master the basic operations of e-commerce, market marketing strategies, and brand building, allowing them to participate more effectively in e-commerce activities. Additionally, encouraging young people to return to their hometowns to start businesses and cultivating local e-commerce talents will enhance the overall innovation capability and development potential of rural areas. Finally, building information infrastructure is fundamental to promoting rural e-commerce development. To achieve the sustainable development of rural e-commerce, it is essential to increase investment in network infrastructure in rural areas, enhancing internet coverage and logistics delivery capabilities. Governments and enterprises can cooperate to promote rural informatization construction, providing necessary technical support and service guarantees for the development of rural e-commerce. At the same time, establishing a sound logistics system will help reduce transportation costs, improve logistics efficiency, and ensure that agricultural products are delivered to consumers in a timely and safe manner. In summary, the paths through which rural e-commerce supports rural revitalization include industrial structure optimization, market expansion, human resource development, and infrastructure construction. By adopting a multi-faceted strategy, rural e-commerce can not only increase farmers' economic income but also promote comprehensive rural development, thereby achieving the goals of rural revitalization. The exploration and practice of these paths will lay a solid foundation for the sustainable development of rural e-commerce in the future [10].

5. Challenges and Solutions

Although rural e-commerce plays a positive role in promoting rural revitalization, it still faces multiple challenges during its development. Firstly, inadequate infrastructure remains a significant factor restricting the development of rural e-commerce. Many remote areas have low network coverage and imperfect logistics delivery systems, which affect farmers' enthusiasm for participating in e-commerce activities. To address this issue, the government should increase investment in rural infrastructure construction, particularly in improving internet access and logistics network coverage. At the same time, private enterprises and social capital can be encouraged to participate in rural infrastructure development through public-private partnership models, jointly promoting the healthy

development of rural e-commerce. Secondly, the shortage of talent in rural e-commerce is another prominent issue. Many farmers lack adequate understanding and skills related to e-commerce operations, resulting in difficulties during practical implementation. Therefore, governments at all levels and e-commerce platforms should strengthen training for farmers by providing systematic e-commerce knowledge and skills training courses, helping farmers master the usage of e-commerce platforms, marketing strategies, and product promotion techniques. Additionally, encouraging higher education institutions to collaborate with rural e-commerce enterprises will help cultivate more professionals to meet the demands of rural e-commerce development. Moreover, increasing market competition and frequent price fluctuations also put pressure on farmers. As more enterprises and individuals enter the rural e-commerce market, competition has become increasingly fierce, leading to frequent price wars that affect farmers' profits. To address this issue, farmers should focus on brand building and product differentiation, enhancing market competitiveness by improving product quality and uniqueness. Furthermore, local governments and relevant institutions can provide policy support and financial assistance to help farmers build and promote local specialty brands, increasing their market influence. Lastly, the operating environment of rural e-commerce is complex, involving legal, policy, and market aspects. To protect farmers' legitimate rights and promote the healthy development of rural e-commerce, relevant departments should improve the legal and regulatory framework for rural e-commerce, establishing a sound market supervision mechanism to ensure fair and transparent e-commerce transactions. Additionally, strengthening the supervision of e-commerce platforms to combat false advertising, infringement, and other unfair competition practices will help maintain a healthy market order. In conclusion, rural e-commerce faces challenges such as inadequate infrastructure, talent shortages, intensified market competition, and imperfect legal policies during its development. Through collaborative efforts among governments, enterprises, and society, strengthening infrastructure construction, conducting talent training, promoting brand development, and improving the legal and regulatory framework, these challenges can be effectively addressed, thus promoting the sustainable development of rural e-commerce and providing strong support for the implementation of rural revitalization strategies.

6. Future Development Directions

In the future, the development of rural e-commerce will move towards greater intelligence, specialization, and sustainability. Firstly, intelligence will be an important trend in the development of rural e-commerce. With the rapid advancements in artificial intelligence, big data, and the Internet of Things, rural e-commerce will be able to conduct data analysis to gain insights into consumer demands, optimize product supply chains and inventory management, and improve operational efficiency. Additionally, intelligent logistics systems will enable more precise and efficient delivery, providing better service experiences for farmers and consumers. Secondly, rural e-commerce will place greater emphasis on specialized development. Based on the characteristics of different regions and products, rural e-commerce platforms will gradually form specialized market segments, focusing on specific product lines and services. For example, e-commerce platforms targeting ecological agriculture, organic agricultural products, and local specialties will emerge, enhancing the market competitiveness and brand influence of products through specialized market operations. Furthermore, rural e-commerce enterprises will strengthen cooperation with agricultural producers to promote seamless connections between production and sales. Sustainability will be another key direction for the future of rural e-commerce. As consumer awareness of environmental protection and sustainable consumption concepts increases, rural e-commerce will need to pay more attention to ecological protection and the rational use of resources. Promoting green consumption, pollution-free agriculture, and sustainable production methods during product production and sales will help enhance the added value and market recognition of agricultural products.

Additionally, e-commerce platforms should actively promote the circular economy, advocate for green packaging and logistics, and reduce environmental impact, thereby supporting sustainable rural economic development. At the same time, rural e-commerce will further strengthen its deep integration with rural revitalization strategies. In the future, rural e-commerce will not only serve as a sales channel for agricultural products but also act as an important vehicle for driving economic, social, and cultural development in rural areas. By building rural e-commerce platforms and facilitating cooperation among farmers' cooperatives, rural enterprises, and local governments, resource sharing and mutual benefits can be achieved, thereby promoting the realization of rural revitalization goals. Lastly, internationalization will be another important trend in the development of rural e-commerce. With the acceleration of globalization, rural e-commerce will gradually enter international markets, opening up broader sales channels for farmers. Collaborating with international e-commerce platforms to promote local specialty products and enhance the competitiveness of Chinese agricultural products in international markets will help achieve income growth for farmers and internationalize rural economies. In summary, the future development directions of rural e-commerce will revolve around intelligence, specialization, sustainability, deep integration with rural revitalization, and internationalization. These trends will inject new vitality into the sustainable development of rural e-commerce and provide strong support for achieving rural revitalization goals.

7. Conclusion

Rural e-commerce plays a crucial role in promoting rural revitalization by optimizing industrial structures, expanding markets, enhancing human resources, and improving infrastructure, thereby helping farmers increase their incomes and promoting rural economic development. Despite facing challenges such as inadequate infrastructure, talent shortages, and intensified market competition, effective responses can be made through policy support, skills training, and brand development. In the future, rural e-commerce will evolve toward greater intelligence, specialization, and sustainability while deeply integrating with rural revitalization strategies and gradually entering international markets. In conclusion, rural e-commerce is not only a key tool for achieving rural revitalization but also an important driving force for the comprehensive development of rural areas.

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