

Original Paper

Research on the Development Dilemma and Countermeasures of Rural Digital Economy under the Background of Rural Revitalization

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Abstract

As a new economic form following agricultural economy and industrial economy, digital economy is the key to realizing lane changing and overtaking in China's economy, and has attracted the attention of all sectors of society. The integration of digital economy and rural industry is in line with the rural revitalization strategy, and has created a large number of new models and new sources of income for rural areas in recent years. Compared with the more mature rural digital economy exploration abroad, China's rural digital economy is slightly immature. Focusing on the powerful driving force of digital economy, this paper expounds the development opportunities of digital economy in rural agriculture, explores the main innovation models of rural digital economy in China, and analyzes the problems encountered in practice and countermeasures.

Keywords

rural revitalization, rural areas, digital economy

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1. Introduction

Cloud computing, big data, the Internet of Things, artificial intelligence, blockchain, the fifth generation mobile communication (5G) and other representative digital technologies have become mature and widely used in all walks of life, playing a huge role in promoting economic and social progress. Digital economy not only includes the use of various information technologies, but also changes in economic and social activities, which may change the economic scale, industrial structure and economic behavior.

Since 2017, when China proposed to implement the national big data strategy and accelerate the construction of digital China with the digital economy as the core, the term “digital economy” has been included in the Government Work Report for six consecutive years. The “Fourteenth Five Year” Digital Economy Development Plan, issued in December 2021, also plans and guides the development path of the digital economy. It can be seen that leading the economic development with digital innovation technology is the core to enhance the competitiveness and influence of China’s digital economy.

2. Concept and Opportunity of Digital Economy

2.1 Concept of Digital Economy

Since the word “digital economy” came into people’s sight, the definition of it has been controversial. Until now, there is no unified conclusion at home and abroad. In the view of most scholars, digital economy is a new economic form born in the industrial technology revolution, and its core is digital technology and high-tech information means. He Xiaoyin (2011) believed that the digital economy is a new economic form driven by technology to promote digital expression in all fields of society, and its basic element is data information. Shi Yong (2022) believes that the core of the digital economy is big data, intelligent algorithms and computing power platform, all of which are indispensable.

At the G20 Hangzhou Summit in 2016, digital economy was defined as a series of economic activities that take digital resources such as data and information as key elements, promote production efficiency and optimize economic structure through modern network platforms, digital facilities and platforms, and use new generation ICT technology, big data, Internet of Things and other digital technologies.

The connotation of digital economy includes not only data information, but also digital technology and network platform. Its richness, technicality and complexity have always attracted scholars from all walks of life to continue their research. Although scholars have different focuses on the concept of digital economy, they all believe that digital economy has become a new driving force to drive the transformation of economic form, social restructuring, and industrial empowerment, which can bring huge benefits to the economy and help realize the beautiful vision of common prosperity.

2.2 Development Opportunities of Digital Economy in Rural Agriculture

In the process of building a digital China, the breadth and depth of various fields of digital economy empowerment have been continuously enhanced, and China’s traditional economic model has gradually changed to a modern digital economy in the wave of digitalization. Rural areas with vast markets are undoubtedly influenced by the digital economy. The combination of rural areas and digital economy will certainly promote rural agriculture to obtain greater development opportunities.

First of all, with the growth of China’s economic scale and the support of policies, people pay more and more attention to the development of digital economy in rural agriculture. Since 2018, in the context of the rural revitalization strategy, relevant departments have successively issued a series of plans such as

the Strategic Plan for Rural Revitalization (2018-2022) and the Rural Development Plan for Digital Agriculture (2019-2025) to fully penetrate the digital economy into rural development and release the potential of the digital economy. According to the data in the White Paper on China's Digital Economy Development (2021), the total scale of the digital economy in 2020 is about 15 times that in 2005, but the penetration rate of the agricultural digital economy is only 8.9%, indicating that China's agricultural industry and the digital economy have a large space for integration and will continue to promote the development of the rural digital economy. The growth rate of per capita disposable income of rural residents is higher than that of urban residents in recent 10 years, which shows that there is more room for development in rural areas, which is conducive to the development of rural digital economy. In addition, under the influence of the new global pneumonia epidemic, the development model of all walks of life has changed to some extent. With the downward pressure of the economy, the income level of residents also fluctuates to some extent.

Secondly, the continuous deepening and development of digital technology will accelerate the process of rural digitization. With the deep integration of big data, Internet of Things, artificial intelligence, blockchain, 5G and other high-tech with various fields of rural agriculture, the potential of rural digital economy has been gradually tapped, and the forms of industrial form innovation continue. Agricultural production is often limited by capital, ecology, human resources and technology, and its productivity improvement is hindered. The emergence of new technologies provides strong technical support to solve the industry's pain points. Artificial intelligence technology is often used in intelligent planting, irrigation, pest monitoring and other fields; Cloud computing technology can efficiently complete large capacity and complex data processing, and better improve agricultural information services; Big data and blockchain technology can be used in product traceability and other fields; The Internet of Things can realize the whole process management of agricultural products and help smart agriculture. Build digital agriculture and modern agricultural development system through modern technology, and vigorously enhance the sense of existence of rural agriculture.

Thirdly, rural e-commerce with distinctive digital economy features has a good response in rural areas, further promoting the development of rural digital economy. With the development of digital information technology and the deepening of agricultural informatization, the sales volume of rural e-commerce has increased by leaps and bounds, and the online retail sales have exceeded 2 trillion yuan. In recent years, it has maintained a sustained growth trend. During the epidemic of New Coronary Pneumonia, a large number of offline consumption was restricted. The characteristic agricultural products were unsalable due to transportation, storage, shelf life and other reasons, which brought huge losses to a large number of farmers. However, digital technology solved this problem. Connect rural and urban areas through online consumption channels, and a large number of live broadcast celebrities and e-commerce platforms have brought new vitality to rural areas, such as CCTV live broadcast to help farmers. On the one hand, they have completed the support for farmers in special periods, and on the other hand, they have made more young people see the bright future of their hometown, attracting them to return home to start their own businesses and employment. Taking Pinduoduo as an example, the number of young "new farmers" has increased nearly four times in a short period of time, and their coverage tends to be highly educated and young, which has delivered a large number of technical talents to rural areas and helped the development of rural digital economy.

3. The Practice of Digital Economy in Rural Areas under the Background of Rural Revitalization

High and new technologies are integrated into the whole agricultural process and industry chain, which gives birth to new business forms and new rural business models, new employment and entrepreneurship opportunities emerge, and the rural innovation and entrepreneurship environment has been optimized and improved. The application of digital economy in rural agriculture mainly includes four modes: smart agriculture, rural e-commerce, agricultural scientific and technological innovation and new rural business.

The main body of smart agriculture is the informatization of agriculture, forestry, animal husbandry and fishery production. That is, through the use of digital technology, the elements in the agricultural production process are systematically and accurately calculated to ensure that the overall agricultural industry chain is intelligent, digital and systematic, and to complete intensive and efficient production and increase economic benefits. The periodicity of agricultural production and the limited shelf life increase the production difficulty, and face ecological pollution problems. The monitoring system and food safety technology in smart agriculture can ensure the safety and operating efficiency of agricultural production in an all-round way, and can effectively improve the agricultural ecological environment. COFCO Smart Farm and Huangtu Ecological Agriculture have fulfilled the requirements of digital economy development and become typical representatives in the field of smart agriculture in China.

In 2020, the national agricultural informatization level will be 22.5%, and the quality safety traceability informatization level will be 22.1%. The level of livestock and poultry breeding and facility cultivation will be higher than the national level. The improvement of agricultural production digital informatization level will vigorously promote the development of rural economy.

Rural e-commerce is not a simple way to bring agricultural products into the city, but to build a new pattern of coordinated development of e-commerce services, packaging and transportation and other related industries through the digital sales model, with the sales of local characteristics as the core, to complete large-scale industrial development. Rural e-commerce is an excellent embodiment of the digital economy in rural areas, and has become an important new driving force leading the development of rural digital economy. In the context of the introduction of digital technology into rural e-commerce, the rural online retail sales in China will increase nearly six times in 2021. Agricultural products have accelerated their emergence, and agricultural e-commerce platforms have sprung up as a new force. The trading volume of agricultural products that compete for more has continued to grow for five consecutive years. Rural e-commerce, enabled by its digital technology, has a fast information flow, effectively solved the imbalance between scattered farmers and the large market, and greatly improved the sales efficiency and scale.

Agricultural scientific and technological innovation is a major manifestation of scientific and technological progress driving economic development. In the context of rural revitalization, rural agriculture has vigorously introduced digital means, and the overall level of agricultural science and technology has been significantly improved. The contribution rate of agricultural science and technology progress has reached 60.7%. Advanced technology has been continuously promoted and formed a demonstration effect, and a large number of landmark achievements have been made. Technological innovation has enabled rural agriculture to achieve remarkable results. Taking rural digital finance as an example, we use big data and other technologies to integrate financial resources,

solve the common financing difficulties in rural areas, and boost the development of rural digital economy.

The new rural business is the representative of industrial integration. Using information technology, e-commerce and other means to solve the supply side imbalance is a new driving force to cultivate the rural economy and new economy. In 2020, the epidemic situation of New Coronary Pneumonia gave birth to a large number of new rural businesses similar to rural tourism. In 2021, the rural tourism industry will gradually recover. The number of ecotourism tourists in China will reach nearly 2.1 billion person times, and the effect of combining agriculture with agriculture will be obvious. At the same time, the number of people returning to the countryside for innovation and entrepreneurship has increased, reaching 10.1 million in 2020, a year-on-year increase of 19%. As the typical representatives of the new rural business, angertainment and featured health care, relying on local characteristics, retain their own differentiated products and services, and realize product appreciation, thus promoting the digital transformation of rural areas.

4. Difficulties Faced by Rural Digital Economy under the Background of Rural Revitalization

4.1 The Awareness of Digital Economy Is Weak, and Ideas Restrict the Development of Rural Digital Economy

On the one hand, the cultural level of rural residents is generally low, the living environment and thinking mode are relatively fixed, and they like to habitually reject new things. In the face of new technologies, new platforms, new channels and new business models, it is difficult to complete the transformation of ideas at the first time, and the awareness of digital economy needs to be strengthened. Some rural residents have long enjoyed the financial subsidies and various benefits provided by the state and the government to the poor, and rely on government subsidies to meet their daily needs. As a result, their awareness of actively using digital means to improve production efficiency is still not strong enough.

On the other hand, due to cost considerations, enterprises and institutions are unwilling to spend money on data, information and technology, and lack the momentum to integrate the digital economy with agricultural products, losing initiative, resulting in the lack of enterprise resources support in rural areas, which is not conducive to the development of rural digital economy.

4.2 Low Level of Digital Literacy and Lack of Digital Professional Talent Resources

To promote the rapid development of digital economy in rural areas, we must have solid human resources support. At present, the gap between technical and professional talents with both digital technology and digital literacy is growing. The young and middle-aged labor force population and the graduates who study abroad all the year round have higher academic qualifications and certain digital literacy, but they rarely return to rural areas for employment. It is an indisputable fact that a large number of high-quality talents have been drained. Older people often stay in rural areas. They lack the adaptability of digital technology. Their own ability to use network platforms is weak, and their education level is not high, which makes a large number of poor households of network information technology in rural areas.

In addition, with the encouragement of government departments, the number of “new farmers” has gradually increased. Although it has made up for the shortage of rural human resources to some extent, it cannot be used as a major way to supplement talents due to its small scale.

4.3 Insufficient Resource Investment and Incomplete Digital Infrastructure Construction

The development of digital economy is inseparable from the construction of mature infrastructure. The economic form of informatization and digitalization has high requirements for the speed and quality of information processing. Complex terrain, uneven population distribution and other factors increase the difficulty of rural infrastructure construction. In addition to the insufficient coverage of 5G, new base stations and other basic facilities, the digital economy platform and modern payment and settlement system have not been systematically configured, resulting in poor information transmission, low communication efficiency and other phenomena, which hinder the further promotion of the digital economy to the countryside.

In addition, the existing electronic payment system is not perfect, the rural financial payment and settlement methods are relatively simple, mainly cash services and bank transfers, while mobile payment, especially some new mobile payment methods based on biometric technology, are few, the payment and settlement tools are not rich and diverse enough, and the utilization rate of self-service devices such as online banking, mobile banking, mobile POS machines that have been popularized in cities and towns is not high. The rural financial payment and settlement environment still needs to be further improved. The amount of capital invested in capital construction is large, and its use quality and distribution cannot be guaranteed without overall arrangement.

5. Countermeasures for the Development of Rural Digital Economy under the Background of Rural Revitalization

5.1 Enhance the Awareness of Digital Economy and Improve the Adaptability of Digital Economy

For the current phenomenon of farmers' lack of enthusiasm and weak awareness of using digital means to get rid of poverty, we can conduct ideological and political propaganda and rural digital economy policy interpretation through village radio, slogans, recitation and other ways, and we can also give full play to the role of village cadres and volunteers, so that they can go deep into the rural front line and conduct publicity and training among the masses. The government should optimize the top-level design of digital economy development, guide from the policy, increase the publicity of rural digital economy in cities, make enterprises realize the digital gap and huge development opportunities in rural areas, and encourage enterprises to invest in digital resources in rural areas in various ways.

5.2 Strengthen the Cultivation of Digital Skills and Fill the Gap of Digital Talents

First of all, the government and relevant departments should increase capital investment, carry out technical training and talent introduction, try to cooperate and exchange with relevant enterprises and colleges, establish a direct and stable talent transmission channel, and give certain support and assistance. Secondly, excavate and protect the inheritors of intangible heritage and skilled craftsmen in rural areas. They are an important asset for the development and transformation of rural areas. Welfare support should be given to encourage them to carry out skills inheritance, and a number of "rural broadcasting" should be cultivated for publicity. Establish a vocational training system, organize vocational training in villages, and popularize basic digital skills, including e-commerce operations and rural villages. We will vigorously support farmers to innovate and start businesses or young people to return home to start businesses, open green channels, help implement innovation and entrepreneurship policies, and provide salary security for high-level digital talents.

5.3 Increase Investment in Science and Technology and Improve Infrastructure Construction

First of all, in order to further promote the development of rural digital economy, we should vigorously promote the integration of scientific and technological forces into the whole rural industrial chain and improve infrastructure construction. Communication service is the basis of information transmission. We should vigorously promote the construction of a series of infrastructure such as communication projects, create a rural digital service platform, and make technology coverage wider. Timely update and feedback of information will be completed through high-quality, high coverage infrastructure and efficient platform to help rural economic development. Secondly, improve the logistics transportation system, expand the number and coverage of logistics stations, speed up the distribution speed, take the logistics sorting center as the hub and the local rural service station as the radiation radius, do a good job in the “last mile” service, and realize the efficient operation of the county, township and village logistics distribution system. In addition, promote non cash payment instruments suitable for rural areas. In terms of service objects, different payment instruments are adapted according to the transaction characteristics of different farmers. Establish a safe and convenient payment and clearing system, vigorously promote the use of non-cash payment instruments, dredge payment channels, support multi business products, multi-channel and multi service objects, and create a strong payment and settlement environment for the development of rural digital economy.

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