

Advantages, Difficulties and Path Selection of High-quality Growth of Rural Economy under the Background of Digitalization

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Abstract: Under the background of digitalization, this study deeply discusses the high-quality growth of rural economy. By combining data and theoretical analysis, this paper reveals the advantages and difficulties brought by digitalization to rural economy and the path choice of high-quality development. Research shows that the promotion of information technology, e-business and financial innovation can significantly improve the efficiency and competitiveness of rural economy, while infrastructure, skills training and data security are the main factors restricting its development. On this basis, this study puts forward a series of targeted strategic suggestions, including strengthening policy support and capital investment, establishing a diversified financial service system, promoting agricultural science and technology innovation and industrial upgrading, establishing a sound data security and privacy protection system, and eliminating the digital divide to promote balanced regional development. In order to promote the rural economy to achieve comprehensive, sustainable and high-quality development.

1. Introduction

With the rapid growth of information technology, digitalization has penetrated into all fields of social economy, bringing unprecedented opportunities and challenges to the global economy[1]. In this process, the rural economy, as an important part of the national economy, its high-quality development is of great significance for realizing an all-round well-off society and rural revitalization strategy[2]. However, the current rural economic growth is facing many problems such as weak infrastructure, uneven resource allocation and single industrial structure, which need to be solved urgently by digital means[3-4].

By revealing the internal relationship between digitalization and rural economy, this paper aims to put forward a series of targeted strategic suggestions to promote the comprehensive, sustainable and high-quality growth of rural economy. Specifically, the significance of this study is reflected in the following aspects:

(1) Theoretical significance: Through the in-depth study of rural economic growth under the digital background, it is helpful to enrich and develop the theoretical system of rural economics and provide theoretical basis for the formulation of relevant policies.

(2) Practical significance: The strategic suggestions put forward in this study are helpful to guide the actual growth of rural economy and promote the rural economy to achieve structural optimization, industrial upgrading and efficiency improvement.

2. Advantages of rural economic growth under the background of digitalization

2.1. The popularization and application of information technology in rural areas

With the continuous promotion of rural informatization construction, the popularization and application of information technology in rural areas have achieved remarkable results[5]. On the

one hand, the improvement of infrastructure such as broadband network and mobile communication has provided rural residents with convenient channels for information acquisition and communication. On the other hand, the application of emerging technologies such as cloud computing, big data and Internet of Things has also brought intelligent and efficient innovations to agricultural production, agricultural product processing and logistics.

The popularization of information technology in rural areas has greatly improved farmers' information literacy and agricultural production efficiency. For example, through smart phones and mobile Internet, farmers can keep abreast of market prices, agricultural science and technology and policy trends, and make more scientific and reasonable planting and sales decisions[6]. In addition, distance education and online training also provide farmers with convenient ways to upgrade their skills and promote the optimization of rural human resources.

2.2. E-business and rural economic integration

As a new business model, e-business has developed rapidly in rural areas in recent years, injecting new vitality into rural economy. On the one hand, e-business platform provides a broader sales channel for agricultural products, breaks geographical restrictions, reduces transaction costs and improves the added value of agricultural products[7]. On the other hand, the rise of rural e-business has also promoted the growth of related industries, such as warehousing and logistics, financial services, etc., creating more employment opportunities for rural areas. In addition, the growth of rural e-business will also help promote the upgrading of rural industries and the expansion of the consumer market. Through the e-business platform, farmers can be exposed to more market demand and consumer preferences, and guide agricultural production to develop in a greener, healthier and higher quality direction. Moreover, the marketing promotion function of e-business platform is also helpful to enhance the brand awareness and market influence of agricultural products and promote the sustainable growth of rural economy. The application of digital technology provides strong support for the promotion and optimization of agricultural industrial chain. See Table 1 for details.

Table 1 Application of digital technology in the promotion and optimization of agricultural industrial chain

Digital technology	Application area	Application effect
Internet of things	Real-time monitoring of agricultural production process	Accurately grasp the information such as crop growth and soil conditions, and improve the level of agricultural production refinement.
Big data	Agricultural production data analysis	Provide decision support, optimize agricultural production process, and improve output and efficiency.
Blockchain technology	Traceability and certification of quality and safety of agricultural products in the whole process	Safeguard consumers' rights and safety, and enhance the credibility of agricultural products market.
Digital platform	Collaborative innovation of agricultural industrial chain	Realize information sharing, resource integration and collaborative innovation, promote the upgrading and optimization of agricultural industrial chain, and promote the diversified growth of rural economy.

This collaborative innovation model can not only improve agricultural production efficiency and quality and safety level, but also promote the diversified growth of rural economy.

2.3. Innovation and expansion of rural financial services

Under the background of digitalization, rural financial services have also ushered in opportunities for innovation and expansion[8]. On the one hand, the popularity of new financial services such as mobile payment and online banking has provided rural residents with a more convenient and secure financial service experience. On the other hand, the construction and improvement of financial risk control system based on big data and artificial intelligence

technology also provides a strong guarantee for the healthy growth of rural financial markets. In addition, digital technology can also promote the innovation and expansion of rural financial services. For example, by establishing rural credit information system and agricultural insurance system, the difficulty and risk of farmers' loans can be reduced, and the service ability and level of rural financial institutions can be improved. Moreover, digital technology can also realize the optimal allocation and accurate delivery of financial resources to meet the diversified needs of rural economic growth.

3. The plight of rural economic growth under the background of digitalization

3.1. Lag and deficiency of infrastructure construction

Under the background of digitalization, the construction and improvement of infrastructure is the key to the growth of rural economy. However, at present, the infrastructure construction in rural areas is still lagging behind and insufficient, mainly in the following aspects: (1) Insufficient broadband network coverage, especially in remote mountainous areas and poor areas, weak network signal, slow speed and high cost restrict rural residents' network use and information acquisition[9]. (2) The mobile communication facilities are not perfect, and there are still signal blind areas in many areas, which affects the communication quality and convenience of rural residents. (3) The logistics distribution system is not perfect, which leads to the poor access of agricultural products and industrial products, and restricts the growth of rural e-business.

3.2. Difficulties and challenges in the popularization of digital skills

Under the background of digitalization, rural residents need to have certain digital skills to better adapt to and participate in the digital economy. However, at present, the digital skills of rural residents are generally low, facing the following difficulties and challenges: (1) Rural residents have limited knowledge and acceptance of digital technology, and many people are still accustomed to traditional lifestyles and production methods, and they are skeptical and exclusive about digital technology. (2) Rural residents' digital technology application ability is not strong. Although many people have digital devices such as smart phones, they can't use them or can only perform simple operations. (3) Digital education resources in rural areas are scarce, and there are no specialized digital education institutions and teachers in many areas, which cannot meet the needs of rural residents to upgrade their digital skills.

3.3. Rural data security and privacy protection issues

Under the background of digitalization, rural economic growth is facing the problems of data security and privacy protection. On the one hand, with the wide application of digital technology and the continuous growth of data, the network security risks in rural areas have also increased, such as hacker attacks and network fraud. On the other hand, the personal information and privacy of rural residents are also at risk of disclosure and abuse, such as personal information being illegally obtained and privacy being exposed. These problems not only affect the quality of life and sense of security of rural residents, but also restrict the healthy growth of rural economy. Therefore, it is needed to strengthen the supervision and management of network security and personal information protection in rural areas: improve network security laws, regulations and technical standards to regulate network behavior and data use in rural areas; Strengthen network security education and publicity to improve rural residents' awareness of network security and protection ability.

3.4. The phenomenon of digital divide and unbalanced regional development

Under the background of digitalization, rural economic growth is also facing the problems of digital divide and unbalanced regional development. For example, there are great differences in the level of digitalization between urban and rural areas and between regions. Urban areas and developed areas have better digital infrastructure and digital application capabilities, while rural areas and underdeveloped areas are relatively backward. The phenomenon of digital divide and

unbalanced regional development has aggravated the difficulties and challenges of economic growth in rural areas. In order to narrow the digital divide and regional development gap, it is needed to increase investment in digital infrastructure construction and digital skills training in rural areas and underdeveloped areas, promote the popularization and application of digital technology, and promote the balanced development and digital transformation of rural economy.

4. The path choice of high-quality growth of rural economy under the background of digitalization

Under the background of digitalization, in order to promote the high-quality growth of rural economy, it is needed to choose appropriate paths and strategies. This section will discuss the path choice of high-quality growth of rural economy under the digital background from five aspects in Table 2.

Table 2 Path selection of high-quality growth of rural economy under the background of digitalization

Path finding	Specific measures	Target
Strengthen rural infrastructure construction and improve the level of digitalization.	Strengthen the construction of broadband network coverage, mobile communication facilities and logistics distribution system	Promote the high-quality growth of rural economy, improve the level of rural digitalization, and encourage society to participate in rural infrastructure construction.
Popularize digital skills training and improve farmers' digital literacy	Provide rich digital education resources, carry out targeted training courses and promote digital application scenarios.	Improve farmers' digital literacy, establish a perfect training system and mechanism, and encourage farmers to participate in digital skills training.
Innovating rural financial services and broadening financing channels	Improve rural credit information system, popularize new financial service model and broaden financing channels.	Innovating rural financial services, improving rural residents' financial service experience and meeting rural residents' diversified financial needs.
Promote the upgrading of rural industries and increase the added value of agricultural products.	Optimize agricultural industrial structure, strengthen brand building and marketing promotion of agricultural products, and promote the integration and growth of rural primary, secondary and tertiary industries.	Promote the upgrading of rural industries, increase the added value of agricultural products, strengthen scientific and technological innovation and personnel training.
Strengthen rural data security and privacy protection and build a credible digital environment.	Establish perfect network security laws, regulations and technical standards, strengthen network security education and publicity, establish data sharing and exchange mechanisms, and strengthen international cooperation and exchanges.	Strengthen rural data security and privacy protection, build a credible digital environment, and promote the digital transformation and upgrading of rural economy.

(1) Strengthen rural infrastructure construction and improve the level of digitalization

Strengthening rural infrastructure construction is the key to promote the high-quality growth of rural economy. Specifically, we need to start from the following aspects: first, strengthen broadband network coverage, improve network speed and quality, reduce network use costs, and provide

convenient network services for rural residents; Second, improve mobile communication facilities, eliminate signal blind spots and improve communication quality and convenience; The third is to strengthen the construction of logistics distribution system, improve the channels for agricultural products to go up and industrial products to go down, and promote the growth of rural e-business. In addition, enterprises and social capital should be encouraged to participate in rural infrastructure construction, forming a pattern of government guidance, market operation and social participation.

(2) Promote digital skills training and improve farmers' digital literacy

Improving farmers' digital literacy is an important way to promote the high-quality growth of rural economy. Specifically, the following tasks need to be carried out: first, strengthen the construction of digital education resources and provide rich and diverse digital education resources and learning platforms for rural residents; The second is to carry out digital skills training and design practical and targeted training courses according to the actual needs of rural residents; The third is to promote digital application scenarios, and show the application effects and advantages of digital technology in agricultural production and agricultural product sales in combination with rural reality.

In order to popularize digital skills training, it is needed to establish a perfect training system and mechanism. The government can introduce relevant policies to encourage and support training institutions and enterprises to carry out digital skills training; Moreover, an incentive mechanism can also be established to give certain rewards and subsidies to farmers who have participated in the training and achieved certain results.

(3) Innovating rural financial services and broadening financing channels

Innovating rural financial services is an important support to promote the high-quality growth of rural economy. Specifically, we need to start from the following aspects: first, improve the rural credit information system, establish farmers' credit files and credit rating mechanisms, and reduce the difficulty and risk of loans; The second is to promote new financial service models such as mobile payment and online banking to improve the financial service experience of rural residents; Third, broaden financing channels and encourage financial institutions and enterprises to invest in infrastructure construction and industrial development in rural areas.

In order to innovate rural financial services, it is needed to strengthen the research and development and application of financial technology. Improve the risk identification and prevention and control capabilities of financial institutions through technical means such as big data and artificial intelligence; Moreover, we can also develop financial products and service models suitable for rural areas to meet the diversified financial needs of rural residents.

(4) Promote the upgrading of rural industries and increase the added value of agricultural products

Promoting the upgrading of rural industries is an important way to improve the high-quality development level of rural economy. Specifically, we need to start from the following aspects: first, optimize the agricultural industrial structure, develop characteristic agriculture and advantageous industries, and improve the quality and efficiency of agricultural products; The second is to strengthen the brand building and marketing promotion of agricultural products, and enhance the visibility and market competitiveness of agricultural products; The third is to promote the integration and growth of rural primary, secondary and tertiary industries, and form an industrial chain and industrial cluster effect.

In order to promote the upgrading of rural industries, it is needed to strengthen scientific and technological innovation and personnel training. Improve agricultural production efficiency and product quality by introducing advanced technology and management experience; Moreover, it can also improve farmers' scientific and technological quality and management ability through training and education, and promote the innovative growth of rural economy.

(5) Strengthen rural data security and privacy protection and build a credible digital environment

Strengthening rural data security and privacy protection is the basic guarantee to promote the high-quality growth of rural economy. Therefore, it is needed to establish perfect network security laws, regulations and technical standards to standardize data use and network behavior in rural areas;

Moreover, it is needed to strengthen the education and publicity of network security, and improve the network security awareness and protection ability of rural residents. In order to build a credible digital environment, it is needed to establish a data sharing and exchange mechanism to promote data sharing and collaborative governance among the government, enterprises and society; Moreover, it is also needed to strengthen international cooperation and exchanges, learn from international advanced experience and technology, and promote the digital transformation and upgrading of rural economy.

5. Conclusions

Through in-depth research and discussion on rural economic growth under the background of digitalization, this paper draws the following conclusions and findings:

First of all, digital technology has brought remarkable advantages and opportunities for rural economic growth. The popularization and application of information technology in rural areas, the integration of e-business and rural economy, the upgrading and optimization of digital agricultural industrial chain, and the innovation and expansion of rural financial services have all provided strong support for the high-quality growth of rural economy.

However, rural economic growth is also facing some difficulties and challenges under the background of digitalization. The lag and deficiency of infrastructure construction, the difficulties and challenges in popularizing digital skills, the problems of rural data security and privacy protection, and the phenomenon of digital gap and unbalanced regional development have restricted the digital transformation and upgrading of rural economy.

In view of these problems and challenges, this paper puts forward a series of targeted strategic suggestions and path optimization directions, including strengthening rural infrastructure construction, popularizing digital skills training, innovating rural financial services, promoting rural industrial upgrading, and strengthening rural data security and privacy protection. These suggestions and directions are helpful to promote the comprehensive, sustainable and high-quality growth of rural economy.

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