

# The Development of Digital Economy of Rural China in Post COVID-19 Era; A Literature Review

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## ABSTRACT

Digital economy is a forceful drive to economic growth in the digital era. It has been prosperously developing in rural areas of China. The digital economy significantly stimulates the rural economy and also helps to revive the economy from the epidemic. In this essay, development of rural digital economy will be elaborated. Next, a brief review of the negative impacts of the outbreak on the villages and agriculture will be presented, followed by how digital economy effectively counter the impacts. In the end, some suggestions will be provided on how to put forward the further development of the rural digital economy.

**Keywords:** *digital economy, rural economy, agriculture*

## 1. INTRODUCTION

The digital economy, which has been developing swiftly around the world, has promoted the development of the world economy, shaping commerce and people's life in the post-epidemic era [1], especially in developing countries. The term of digital economy derived from the book *The Digital Economy: Promise and Peril in the Age of Networked Intelligence* by Don Tapscott in 1996. However, in this book, Don didn't give direct definition of the digital economy, but argued that humans could create wealth and social development armed with digital tools. After that, scholars around the globe have been discussing about the definition of the digital economy, reflecting the technologies emerged and encompassed in their eras. Early scholars chiefly focused on the Internet while later ones added new digital technologies into their definitions, such as mobile networks, cloud computing and big data. [2]. In this essay, as the digital economy in Chinese rural areas is mainly discussed, the ranges and definitions of digital economy is concluded from "2022-2025 Action Plan For Digital Village Development" issued by the Chinese central government, which can be divided into digital agricultural production, rural e-commerce and digital infrastructure construction. In this essay, we will have a panoramic review of the rural digital economy in China. Then, impacts that has been exerted on Chinese rural economy will be elaborated. Thirdly, we will demonstrate how COVID-19 outbreak has been influencing the rural areas. The COVID-19 epidemic has been the primary concern of the world and

altered the world significantly in all dimensions. In Chinese rural areas, the outbreak exerts tremendous negative impacts on economic. In this circumstance, digital economy that have been lively developing in the rural areas can be a forceful motivation to recover and thrive the rural economy in China. Last but not the least, some suggestions and prospects will be provided.

## 2. DEVELOPMENT OF RURAL DIGITAL ECONOMY

Economy in rural areas can be roughly divided into three parts, which are agricultural production, agricultural sales and agricultural supporting facilities. In the following parts, we will chiefly discuss digital economy in these three angles.

### 2.1. Agricultural Production

Digital economy has boosted agriculture production remarkably. There chiefly exists three models of digital agriculture production; precision agriculture, digital agriculture with government and enterprise cooperation and contract farming.

#### 2.1.1. Precision Agriculture

Precision agriculture derived from the United States. It is the application of technologies and principles to manage spatial and temporal variability associated with all aspects of agricultural production for the purpose of

improving crop performance and environmental quality [3] Also, it combined Big Data technologies, cloud computing and remote sense together in order to analyze comprehensive aspects of soil, climate and crops. Then, advice will be offered to farmers to make decisions. At the same time, precision agriculture mode lays emphasis on technology and thus the need for labor in production is relatively reduced. As a result, the costs of agriculture will be reduced which may increase farmers' income.

### *2.1.2. Digital Agriculture with Government And Enterprise Cooperation*

Justin Lin, a prestigious Chinese economist, argued that the prosperity of a developing country requires the combination of effective government and efficient market [4]. The idea has now become the guiding theory for Chinese market economy, as well as digital agriculture production development. Digital agriculture with government and enterprise cooperation reflects this theory. In recent years.

The Chinese government is constantly improving the digital agriculture model of government-enterprise cooperation. The government is providing technical and financing support to digital agriculture production. The financial input of agriculture and rural informatization in counties across the country is nearly 13 million yuan. Agricultural and rural informatization social capital input at county level in China exceeds approximately 30 million yuan [5]

At the same time, the authorities adhere to the decisive role of the market in the development of digital agriculture, giving full play to the autonomy and innovation of the four types of business entities and their functions of service and supervision. These four types of business entities have been progressing the agriculture production, which are family farms, big-specialized households, leading enterprises and farming cooperatives [6].

With the support of the government, the four types of business entities have been accelerating the realization of digitalization of agricultural production, constantly complementing the shortcomings of high-tech agricultural production technologies such as big data, cloud computing and remote sensing technology, in turn improving agricultural output and efficiency. Among these four entities, the most outstanding ones are farming cooperatives and leading enterprise. By virtue of their scale advantages, cooperatives are able to mobilize more resources in the digitization process. Leading companies vary in size, but the technological advantages are also leading the way in the development of digital agriculture production. Therefore, many cooperatives and local leading enterprises join together, realizing a win-win situation.

### *2.1.3. Contract Farming*

Contract farming is an agreement between a grower and a processor regarding the production of an agricultural commodity [7]. Confront the rapidly changing market, farmers may have trouble deciding the scale of production. Contract farming functions in the model of "company + famers". In this model, the company orders certain number of agricultural products from the farmers and thus guiding farmers to invest and reducing their risks.

Digital contract agriculture takes advantage of online platform, like fast delivery platforms and e-commerce platforms, and makes use of membership system to make every consumer who uses the platform directly offer their demand information to agricultural producers. This allows farmers to sell all what the were ordered to grow and consumers to meet their growing demand for organic and green foods. During the quarantine period, such digital contract farming model precisely matches the needs of those quarantined at home with the supply of rural agricultural producers, achieving a win-win situation.

In the recent outbreak in Shanghai, some vegetable production company cooperated with online e-commerce platforms to supply vegetables from the fields and deliver them to Shanghai residents quarantined at home, solving the urgent need of many families [8].

## **3. AGRICULTURAL SALES**

The development of rural digital economy has also brought new opportunities for the sale of agricultural products. As the main channel of rural digital sales, rural e-commerce has developed rapidly in recent years. In 2021, the online retail sales of rural areas in China are about 1.8 trillion yuan, and the online retail sales of agricultural products are about 600 billion yuan. In 2020, the number of "Taobao villages" with e-commerce as the pillar industry reached 5,452, 1,115 more than the previous year, accounting for 1 percent of the country's administrative villages. There are 1,756 "Taobao towns", accounting for 5.8 percent of the country's total (Taobao is China's most famous e-commerce platform). Among them, 745 villages, or 13 percent of the total, have transactions of more than 100 million yuan. At the same time, the epidemic has also brought opportunities to rural e-commerce. During the epidemic, especially during the period of home quarantine, many people spent increasingly amount of time on online entertainment [9], which also enabling more time to browse online shopping platforms, increasing the traffic of many rural online stores. This indirectly promoted their sales. E-commerce platforms also follow the trend and promoted the new approach of sales by streaming. By integrating advertising, celebrity effect, real-time interaction and other elements through streaming, the sales of their

products were greatly promoted. Many farmers and rural officers appeared in stream to advertise for native products, which not only increases the reliability of commodities and the authenticity of propaganda, but also met the psychological needs of people in the epidemic to go outside and enjoy entertainment. As a result, it greatly increases the transaction volume of rural online shopping [10]. In addition, quarantine has made people more dependent on online shopping, which has also brought business opportunities

However, the development of rural digital economy also faces some challenges. First of all, due to the impact of the epidemic, the speed of economic development has slowed down. Secondly, people's aggregate demand has decreased, as well as their incomes and their purchasing power. At the same time, rural information equipment and infrastructure construction is not complete. Some owners of rural e-stores only had a mobile phone to manage the store, curbing the efficiency of transactions. At the same time, Internet penetration rate in rural areas is still relatively lower compared to urban areas. This may also lead to decreased efficiency, curbing further development of the industry.

#### **4. AGRICULTURAL SUPPORTING INDUSTRIES**

Digital economy has also developed in agricultural supporting industries in rural areas, mainly in rural digital finance. For a long time, the development of China's agriculture and rural areas has been limited by insufficient rural financial supply [11]. Therefore, the Chinese government attaches great importance to the development of digital finance in rural areas and has put forward the policy proposition of "deepening inclusive financial services in rural areas" in the Digital Rural Development Action Plan (2022-2025). Traditional financial industry proves difficult to provide financial services efficiently and affordably in rural areas. At the same time, farmers are widely confronted with the problem that financial support is both expensive and difficult to obtain. There are two main reasons for this dilemma. First, agricultural financial demand entities have poor risk resistance and high default risk. Their credit levels are also difficult to measure. Most financial service providers are reluctant to provide services to farmers or increase prices of financial service due to reasons above. Second, financial services in rural areas are scattered. And every farmer that are in need of financial support demand a small amount of money, which poses a great challenge to the management of debts for the provider of financial services.

Nowadays, the rural digital finance integrates artificial intelligence, big data, block chain and other technologies to provide credit services for farmers more flexibly, making them more adaptable to the agricultural production cycle. Digital finance allows much of the

lending to be done online, greatly increasing efficiency. At the same time, with the help of information technology, the number of staff hired by financial institutions in rural areas has been reduced, therefore operating cost and human costs have also been reduced.

#### **5. IMPACTS OF THE OUTBREAK ON AGRICULTURE**

Agricultural production has faced many difficulties during the epidemic. These difficulties are mainly reflected in three aspects: blocked purchase of production materials, Labor shortage, Imbalance between supply and demand in agricultural products market.

First of all, because of segregation and traffic control policies, farmers are restricted to travel around. Except for the purchase of necessities, they were required to stay and quarantined at home. This resulted in a shortage of labour for agricultural production. [12]. At the same time, traffic restrictions constrained the mobilization of socialized agricultural machinery service providers in rural areas, which reduces the quality and efficiency of agricultural production. Nowadays, the scale of agricultural production in China's rural areas is small. It is difficult for each smallholder operation unit to afford complete sets of agricultural machinery. In order to meet the demand for agricultural machinery in agricultural production, socialized agricultural machinery services had appeared in the market. They travel between agricultural production areas in the sowing and harvesting seasons to provide agricultural machinery services and thus improve agricultural production efficiency [13]. Now, due to the epidemic, such services are greatly restricted. In the absence of agricultural machinery, agricultural production is more dependent on labor, which makes the labor shortage more serious. Second, in the early stage of the epidemic, quarantine policies and traffic control made it difficult for manufacturers selling agricultural production materials to stock or start business, so farmers had to rely on online shopping to buy seeds, fertilizers and other agricultural production materials. However, under the influence of Spring Festival closure, labor returning home and difficult to resume work due to the impact of the epidemic, and limited transportation, most of the online stores have "no goods to go out" and "no goods to send" dilemma.

Third, there was a supply-demand imbalance in agricultural markets at the beginning of the epidemic. Affected by the epidemic, all offline agricultural markets and stores have been closed, and the offline trading of agricultural products has been severely blocked. In order to meet consumers' need for fruit and vegetable consumption during the Spring Festival, some agricultural product merchants in the city prepared a lot of goods, but the actual sales volume was much lower than expected due to the impact of the epidemic, resulting

in serious losses. Because the original dealers in the countryside cannot go to the countryside to buy agricultural products, there has been a serious unsalable phenomenon. At the same time, people who were quarantined at home were unable to go out and find it difficult and expensive to buy food.

However, digital economy in rural area can solve these problems. Adopting remote sense and smart control technologies to decrease the need of labor. Also, the growing e-commerce industries and contract farming satisfy the need of both consumers and suppliers during the period of lockdowns.

## 6. CONCLUSION

The COVID-19 outbreak has brought opportunities and challenges to rural areas. In this part, some suggestions will be provided on the future development of digital economy in rural areas.

### 6.1.1. *Improving management system, relevant laws and policies*

Digital economy is different from traditional economic models. The digital economy often relies on online platforms to handle business affairs. In this case, participants in economic activities are often directly related to each other, forming a decentralized online economic transaction model. This model is quite different from the previous traditional rural economic model, and the difficulty of management is greatly increased. Therefore, higher requirements are put forward for the authorities. Also, relevant policies need to be formulated according to local conditions, so as to promote the further development of digital economy.

At the same time, many areas of rural digital economy, especially rural digital finance, still have many legal imperfections. To this end, relevant legislatures should step up legislation to prevent systemic financial risks.

### 6.1.2. *Introduce talents on digital economy*

For a long time, the talent gap in rural areas is larger. In recent years, due to the rapid development of digital economy in rural areas, there is a great demand for digital talents. However, the average income in rural areas is low, which makes them less attractive to highly skilled personnel, and the talent gap is still increasing. Meanwhile, affected by the epidemic, the willingness of digital talents to go to the countryside to work has been further hindered. Therefore, in order to ensure the further development of rural digital economy, human resources department in rural areas urgently need to issue relevant personnel policies to enhance the attraction of rural areas to talents and guarantee the talent

supply for the development of digital economy to the greatest extent.

### 6.1.3. *Provide financial and credit support*

China's rural operation mode is mainly the smallholder model, with small capital scale and poor risk resistance. The ability and willingness to invest in digital facilities and carry out digital reproduction are greatly restricted by capital conditions. Therefore, the government should provide farmers with digital rural special allocations and credit policies. Through the joint effort of effective government and digital rural finance, the pain point of lacking capital in investing digital facilities will be directly hit and thus boost the high-quality development of rural digital economy.

## REFERENCES

- [1] United Nations Conference on Trade and Development, 2022 digital economy report, 2022, pp.7.
- [2] R. Bukht, R. Heeks, Defining, Conceptualising and Measuring the Digital Economy, in: Development Informatics Working Paper no. 68 , Global Development Institute, SEED , University of Manchester, Arthur Lewis Building, Manchester, M13 9PL, UK, 2017, pp. 4. DOI: <https://doi.org/10.2139/ssrn.3431732>
- [3] P. Poudel, M. Poudel, A Gautam, et al. COVID-19 and its Global Impact on Food and Agriculture[J]. 2020.In: Journal of Biology and Today's World, pp.2. DOI: <https://doi.org/10.35248/2322-3308.20.09.221>
- [4] Y. Lin, Chinese experience: Effective market and effective government are indispensable in economic development and transformation [J]. Administration Reform, 2017(10), pp.12-14. DOI: <https://doi.org/10.14150/j.cnki.1674-7453.2017.10.002>. (in Chinese)
- [5] 2021 Evaluation report on the development level of Agricultural and rural informatization at county level, The Department of Market and Information Technology of the Ministry of Agriculture and Rural Affairs, the Information Center of the Ministry of Agriculture and Rural Affairs, 2021, pp.3. <http://www.moa.gov.cn/xw/zwdt/202112/W020211221365374930266.pdf> (in Chinese)
- [6] Plan for high-quality Development of New Agricultural Operators and Service Providers (2020-2022), Ministry of Agriculture and Rural Affairs of China, 2020, pp.11-13. <http://www.zcggs.moa.gov.cn/xxnyjytxgj/202003/t>

20200309\_6338413.htm - \_Toc34035186(in Chinese)

- [7] M. Bellemare, J. Bloem. Does contract farming improve welfare? A review[J]. *World Development*, 2018, 112:259-271, pp.3. DOI: <https://doi.org/10.1016/j.worlddev.2018.08.018>
- [8]<https://export.shobserver.com/baijiahao/html/464659.html> (in Chinese)
- [9] Y. Li, Y. Sun, S. Meng, et al. Internet Addiction Increases in the General Population During COVID: Evidence From China[J]. *American Journal on Addictions*, 2021, pp.391.  
DOI: <https://doi.org/10.1111/ajad.13156>
- [10] L. Li, Y. Zeng, Z. Ye, et al. E-commerce Development and Urban-rural Income Gap: Evidence from Zhejiang Province, China[J]. *Papers in Regional Science*, 2020, pp.1-2. DOI: <https://doi.org/10.1111/pirs.12571>
- [11] Z. Hong, H. Wang, Y. Zhou. Moral Hazard, monitoring structure and the design of rural financing mechanism [J], *Journal Of Financial Research*, 2010(06):189-206, pp.2. DOI: <https://doi.org/10.1360/972010-1084>(in Chinese)
- [12] M. Pu, Y. Zhong. Rising concerns over agricultural production as COVID-19 spreads: Lessons from China[J]. *Global Food Security*, 2020, pp.2. DOI: <https://doi.org/10.1016/j.gfs.2020.100409>
- [13] M. Yang, Z. Tu, C. Zheng, Study on the Organization Structure and Mechanism Innovation for Agricultural Machinery Service Industry[J] *Journal Of Agricultural Mechanization Research*, 2006(02):1-5, pp. 1-3. DOI: <https://doi.org/10.3969/j.issn.1003-188X.2006.02.002> (in Chinese)