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RESEARCH ON MANAGEMENT OF THE E-COMMERCE IN RURAL AREAS OF CHINA: STATUS AND DEVELOPMENT CONDITIONS

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Abstract. In the context of China's rural renaissance, e-commerce may take on a whole new level and degree of use, opening up new opportunities for its development. The pandemic COVID-19 has had a significant impact on stimulating the use of electronic forms of trade. However, the development of e-commerce in China's rural areas still faces challenges. The article discusses the current development status of e-commerce in China's rural areas, including its conditions, degree, and development level for different regions, hoping to provide the basis for solving the problems in the management of rural e-commerce in China. The author's findings: a) relatively sound infrastructure, including network, logistics, information services and financial infrastructure; b) the rural e-commerce transactions scale increases year by year, but its growth rate slows down, although and is stable, and the difference in development between regions is still great; c) the e-commerce of agricultural products develops rapidly, but affected by the epidemic, and varies greatly among the regions.

Keywords: China's rural e-commerce management, e-commerce infrastructure, e-commerce of agricultural products, infrastructure gap, e-commerce transactions scale, rural revitalization in the PRC, e-commerce conditions, regional differences in e-commerce.

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ИССЛЕДОВАНИЕ УПРАВЛЕНИЯ ЭЛЕКТРОННОЙ КОММЕРЦИЕЙ В СЕЛЬСКИХ РАЙОНАХ КИТАЯ: СОСТОЯНИЕ И УСЛОВИЯ РАЗВИТИЯ

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Аннотация. В контексте возрождения сельских районов Китая электронная коммерция может приобрести совершенно новый уровень и степень использования, что открывает новые возможности для ее развития. Пандемия СОВИД-19 оказала существенное влияние на стимулирование использования электронных форм торговли. Однако развитие электронной коммерции в сельской местности Китая по-прежнему сталкивается с проблемами. В статье обсуждается текущее состояние развития электронной коммерции в сельских районах Китая, включая условия, степень и уровень развития различных регионов, в надежде создать основу для решения проблем управления сельской электронной коммерцией в Китае. Выводы автора: а) относительно надежная инфраструктура, включая сеть, логистику, информационные услуги и финансовую инфраструктуру;

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б) масштаб транзакций электронной коммерции в сельской местности увеличивается из года в год, но темпы ее роста замедляются, хотя и остаются стабильными, а разница в развитии между регионами все еще велика; в) электронная торговля сельскохозяйственной продукцией быстро развивается, но страдает от эпидемии и сильно различается по регионам.

Ключевые слова: управление электронной торговлей в сельской местности Китая, инфраструктура электронной торговли, электронная торговля сельскохозяйственной продукцией, разрывы в инфраструктуре, масштабы операций электронной торговли, возрождение сельских районов в КНР, условия электронной торговли, региональные различия в электронной торговле

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1 Introduction

According to the country's № 1 Central document of 2021[1], the country has achieved the task of poverty alleviation, and now the focus of the country's work on agriculture, rural areas and farmers should shift to comprehensively promoting rural revitalization, in which rural e-commerce plays a crucial role. The e-commerce of rural areas, also called “rural e-commerce”, in a narrow sense, can be understood as selling more agricultural products to cities with the network platforms help, and bringing industrial products needed by farmers to rural areas, to build online trade activities of mutual product exchanges.

Rural e-commerce plays an important role in facilitating farmers' lives, innovating agricultural product trading modes, increasing farmers' income, guiding agricultural supply-side structural reform, and promoting rural revitalization. The COVID-19 pandemic has become normal in 2021, and the situation at home and abroad has become grim. These have led to changes in consumer behavior and habits, providing opportunities for the rural e-commerce development. It has important and realistic significance to carry out the research on the of rural e-commerce problems and its management and solutions.

Kshetri & Nir (2018) studied the development status and rural-urban divide of e-commerce in China from the perspective of the proportion of Internet users, the online spending, and the online purchases made on Alibaba’s e-marketplaces that were shipped [1]. Karine (2021) analyzed the development of rural e-commerce from the aspects of infrastructure construction, the development of e-commerce enterprises, government policies in rural areas and so on [2]. Chinese scholar Li (2022) used analytic hierarchy and systematic clustering method to evaluate the development level of rural e-commerce in China, taking infrastructure construction, e-commerce trading volume, the sale of agricultural products online and talent training as evaluation indicators [3].

Based on the above studies, this article will investigate the development status of China's rural e-commerce from the perspectives of infrastructure construction, the rural e-commerce transaction scale, and the status of agricultural e-commerce, hoping to make contributions to the follow-up analysis of the existing problems and put forward effective countermeasures and suggestions in the management of rural e-commerce.

2 Status of infrastructure construction

At present, China's rural areas have initially equipped with the software and hardware infrastructure required for the e-commerce development, including network, logistics, information service and financial infrastructures.

In terms of network infrastructure, China vigorously carries out rural Internet construction, and has preliminary built integration, safe, green broadband network environment. In 2021, China built a total of 1,425 million 5G base stations, the world's largest 5G network, covering more than 98 % of urban areas and 80 percent of rural areas[2]. By 2021, December the number of rural Internet users in China reached

[1] Opinions of the CPC Central Committee and The State Council on Comprehensively Promoting Rural Revitalization and Accelerating Agricultural and rural Modernization.

[2] Ministry of Industry and Information Technology. Interpretation of the 2021 Communication Industry Statistical Bulletin [Electronic resource] / Access mode:

284 million, accounting for 27,6 % of the total Internet users; the Internet penetration rate in rural areas was 57,6 %, an increase of 1,7 % year-on-year, and the difference in Internet penetration rate between urban and rural areas was reduced by 0,2 % compared with December 2020[1], as shown in Figure 1.

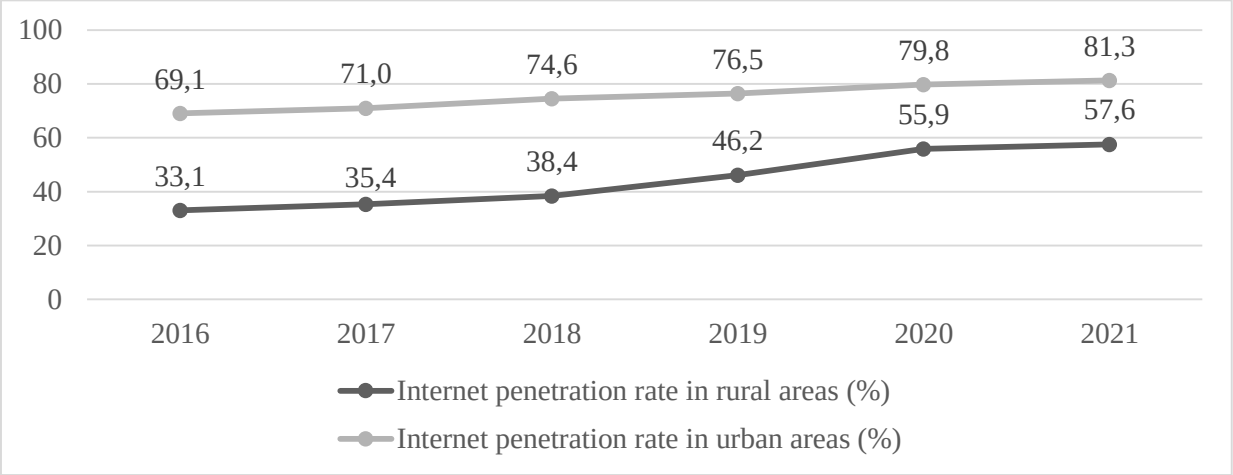


Fig. 1. Internet popularity rate in urban and rural areas of China, 2016-2021, %[2]

The threshold of rural residents' access to the Internet continues to decrease, which narrates the urban-rural digital divide, promotes the digital development of rural areas, and provides power for the rural e-commerce development.

In terms of logistics infrastructure, China has built complete rural roads and logistics network. According to the Ministry of Transport, the total length of rural roads increased from 596,000 kilometers in 1978 to 4,382 million kilometers in 2021, accounting for 84,3 % of the total road length, and 99,99 % of the country's rural areas have completed road construction[3].

The coverage rate of express delivery services in rural areas of China has been improving, and the postal express service has reached every village in the country at present. In 2021, the total number of express packages received and delivered in rural areas reached 37 billion, driving agricultural products from villages to cities and industrial products into villages by more than 1,85 trillion Chinese yuan[4].

According to the National Development and Reform Commission, by the end of 2021, China had renovated 1 212 county-level logistics and distribution centers, 148,0 K village-level e-commerce delivery service stations, and cold-chain facilities were built in more than 70 % of the country's wholesale markets for agricultural products [4]. In 2021, China's rural e-commerce logistics index maintains a steady growth trend and is higher than the e-commerce logistics index throughout the year, as shown in Figure 2.

https://www.miit.gov.cn/gxsj/tjfx/txy/art/2022/art_e2c784268cc74ba0bb19d9d7eeb 398bc.html (access date January, 25, 2022).

[1] China Internet Network Information Center. 49th Statistical Report on the Development of Internet in China [Electronic resource] / Access mode: http://www.cnnic.cn/gywm/xwzx/rdxw/20172017_7086/202202/t20220225_71724.htm (access date February, 25, 2022).

[2] China Internet Network Information Center. 49th Statistical Report on the Development of Internet in China [Electronic resource] / Access mode: http://www.cnnic.cn/gywm/xwzx/rdxw/20172017_7086/202202/t20220225_71724.htm (access date February, 25, 2022).

[3] China Federation of Logistics and Purchasing, China Rural E-commerce Logistics Development Report [Electronic resource] / Access mode: http://www.chinawuliu. com.cn/zixun/202005/25/505198.shtml (access date May, 25, 2025).

[4] State Post Bureau. By the end of 2021, the nationwide network coverage of express delivery service in villages and towns reached 98 percent [Electronic resource] / Access mode: http://tech.cnr.cn/ycbd/20220525/t20220525_525837282. shtml (access date May, 25, 2022).

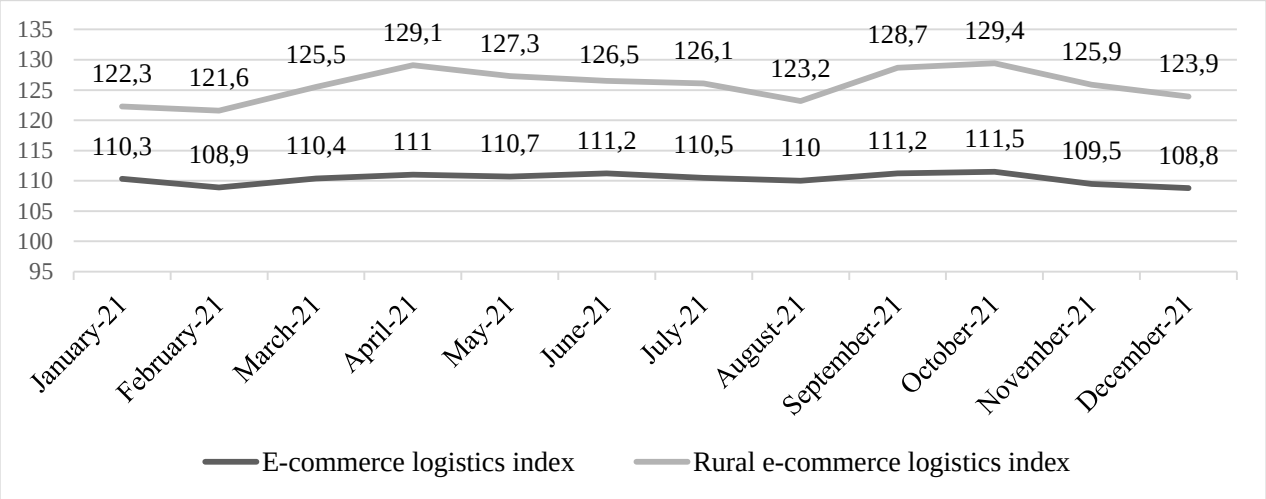


Fig. 2. E-commerce logistics index and rural e-commerce logistics Index in 2021[1]

In the rural e-commerce sphere, China has developed terminal service platforms for agricultural products, such as *Aliyun ET* agricultural brain, *JD Intelligent Agriculture Community* represented by enterprises, Nongxin Internet, Nongfa Group, supported by the state, etc.

In rural big data construction, the Digital Agriculture and Rural Development Plan (2019-2025) proposes to establish a rural basic data resource system and build a big data platform for agricultural natural resources, rural collective assets, farmers, and new agricultural business entities. Thus, the rural information service system is preliminarily improved, to bring help for the rural e-commerce development[2].

In terms of financial infrastructure, China has formed a multi-level rural financial system with Rural Commercial Bank[3] as a main body and various rural financial institutions developing together at present. With the rapid development of rural mobile payment, it has become the absolute dominant way of network payment. By December 2021, the usage rate of mobile payment among mobile Internet users in urban areas was 89,9 %, up 0,5 percentage points (pp) year on year. The usage rate in rural areas was 79,0 %, up 4,2 pp year-on-year. The gap in mobile payment usage between urban and rural areas was narrowed by 3,7 pp[4]. In terms of agriculture-related loans, the outstanding agriculture-related loans of banking financial institutions reached 43,21 trillion yuan, of which the outstanding inclusive agriculture-related loans reached 8,88 trillion yuan, up 17,48 % from the beginning of the year and 6,18 percentage points higher than the average growth rate of all loans[5].

[1] China Federation of Logistics and Purchasing, China Rural E-commerce Logistics Development Report [Electronic resource] / Access mode: http://www.chinawuliu. com.cn/zixun/202005/25/505198.shtml (access date May, 25, 2025).

[2] Ministry of Agriculture and Rural Affairs & Cyberspace Affairs Commission of the CPC Central Committee. Digital Agriculture and Rural Development Plan (2019-2025) [Electronic resource] / Access mode: http://www.moa.gov.cn/xw /zwdt/202001/t20200120_6336380.htm (access date January, 20, 2020).

[3] Rural Commercial Bank, also known as Rural Credit Cooperatives, the task is to raise idle rural funds to provide financial service for agriculture, farmers, and rural economic development. It has branches all over the country and operates independently, with different websites, such as, HENAN RURAL CREDIT UNION: https://www.hnnx.com/.

[4] China Internet Network Information Center. 49th Statistical Report on the Development of Internet in China [Electronic resource] / Access mode: http://www.cnnic.cn/gywm/xwzx/rdxw/20172017_7086/202202/t20220225_71724.htm (access date February, 25, 2022).

[5] China Banking Association. China Banking Services Report 2021. Accessed: 2022.03.15. https://finance.eastmoney.com/a/202203152310905176.html

3. Analysis of the rural e-commerce transaction scale

The transaction scale of rural e-commerce increases year by year. As shown in Figure 3, according to China's Ministry of Commerce data, in 2021, the online retail sales in rural areas of China reached 2,05 trillion yuan, an increase of 11,3% over the previous year, and the growth rate was 2,4 pp faster[1].

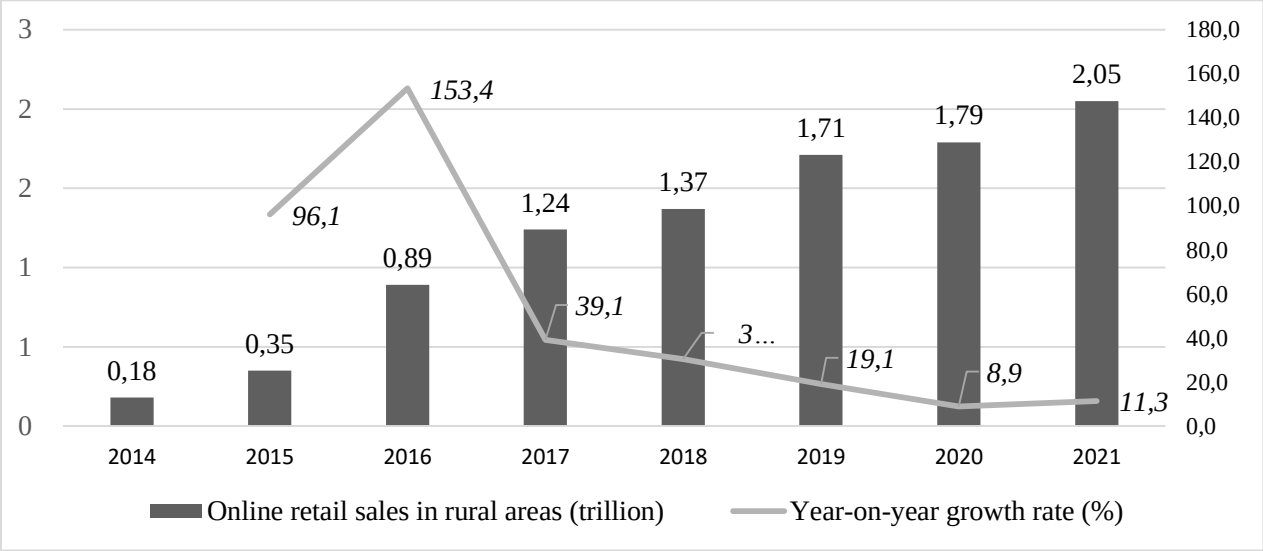


Fig. 3. Online retail sales in rural areas of China, 2014-2016[2]

From 2014 to 2021, rural online retail sales increased 11,4 times, from 0,18 trillion yuan to 2,05 trillion yuan. In terms of retail sales, rural online retail sales exceeded 1 trillion yuan in 2017 and then continued to grow: the growth rate of rural online retail sales peaked at 153,41% in 2016 and then stabilized.

Geographically, the eastern region is the key market of rural e-commerce in China. As shown in Figure 4, by region, in 2021, the rural online retail sales in eastern China accounted for 78,7 % of the national rural online retail sales, while the central, western, and northeastern regions accounted for 13,0 %, 6,5 % and 1,8 % respectively, showing a trend from strong to weak in eastern, central, western, and northeastern regions [5]. In 2019 and 2020, the same trend was observed.

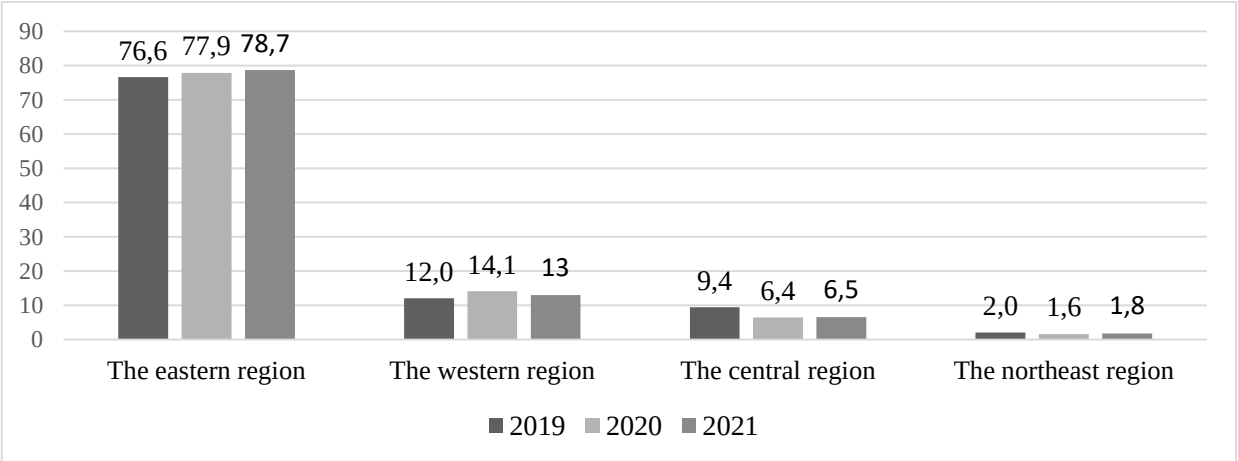


Fig. 4 Proportion of national online retail sales, 2019-2021, %[3]

[1] China Ministry of Commerce. China E-commerce Report (2020) [Electronic resource] / Access mode: https:// dzswgf.mofcom. gov.cn/ news/5/2021/9/16316980 18580.html (access date September, 15, 2021).
[2] Ibid.
[3] Ibid.

In terms of provinces, Zhejiang, Jiangsu, Fujian, Hebei, and Shandong ranked the top five in rural online retail sales, accounting for 74,0 % of the total rural online retail sales in China, and the top ten provinces accounted for 89,8 % of the total retail sales [5], as shown in Figure 5.

This phenomenon is related to regional geographical location, economic development level, technical system, talent pool, etc., which is not conducive to the coordinated development of rural e-commerce and regional economy.

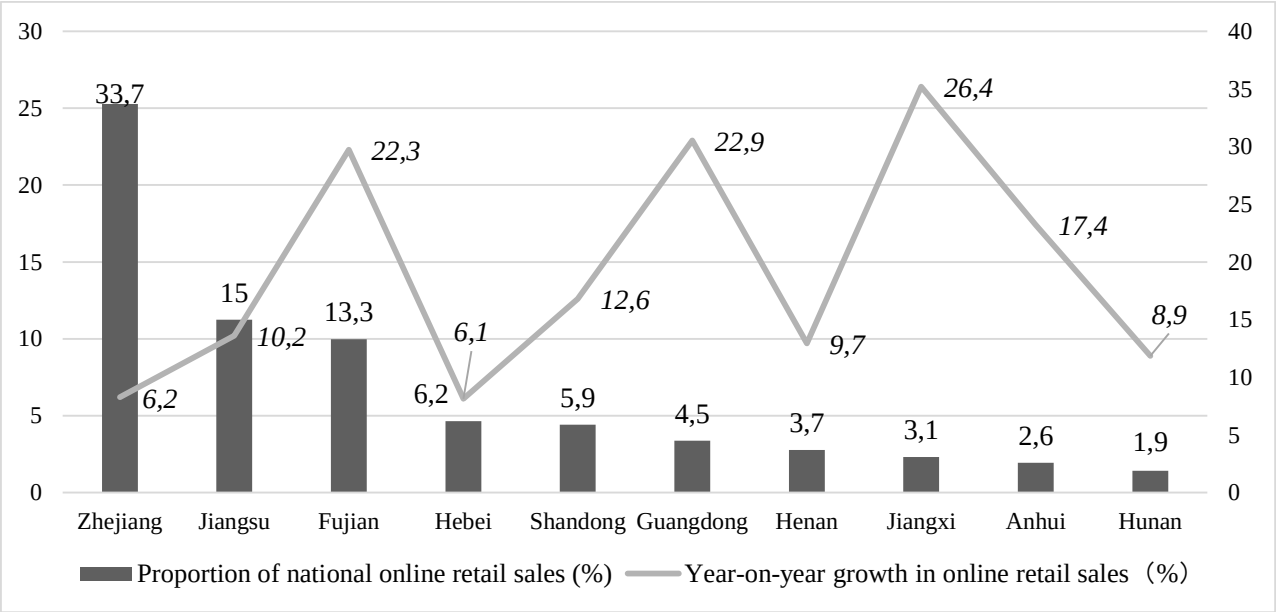


Fig. 5 China's top 10 provinces in rural online retail sales in 2021, %[1]

4 The status of e-commerce of agricultural products

As shown in Figure 6, in 2021, the online retail sales of agricultural products reached 422,1 billion yuan, up 2,8 % year on year, according to the China's ministry of commerce data. There are two reasons for the slowdown in the growth of online retail sales of agricultural products in 2021. First, the online consumption increased sharply during the COVID-19 pandemic and then recovered. Second, some new platforms and models have not been included in the existing statistical category.

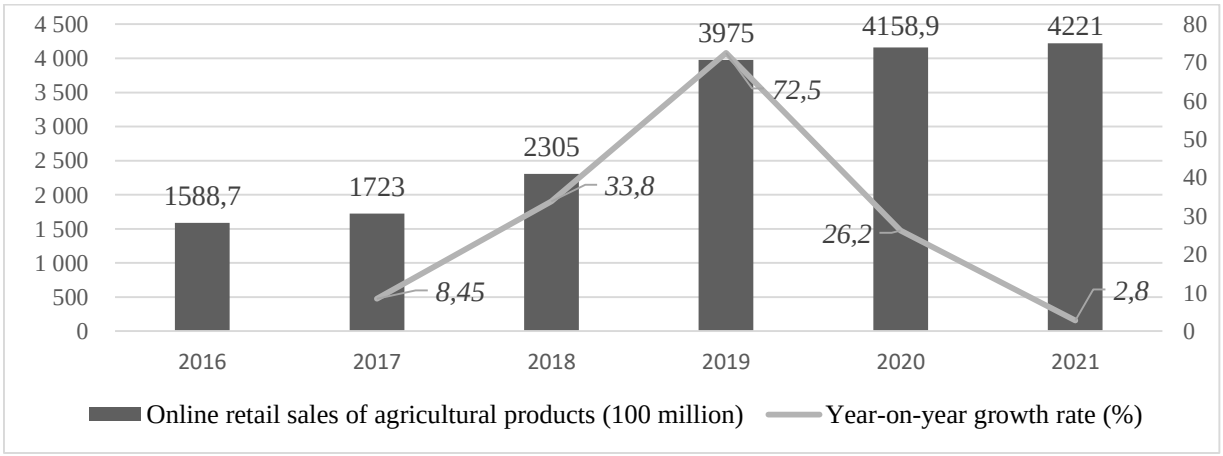


Fig. 6 Online retail sales of agricultural products of China, 2016-2021, %[2]

[1] China Ministry of Commerce. China E-commerce Report (2020) [Electronic resource] / Access mode: https:// dzswgf.mofcom. gov.cn/ news/5/2021/9/16316980 18580.html (access date September, 15, 2021).
[2] Ibid.

By regions, the online retail sales of agricultural products in eastern, central, western, and northeastern regions accounted for 64,7 %, 15,4 %, 14,4 % and 5,5 % of the national online retail sales of agricultural products, with year-on-year growth rates of 5,7 %, - 5,5 %, 1 % and - 0,7 % respectively in 2021, as shown in Figure 7.

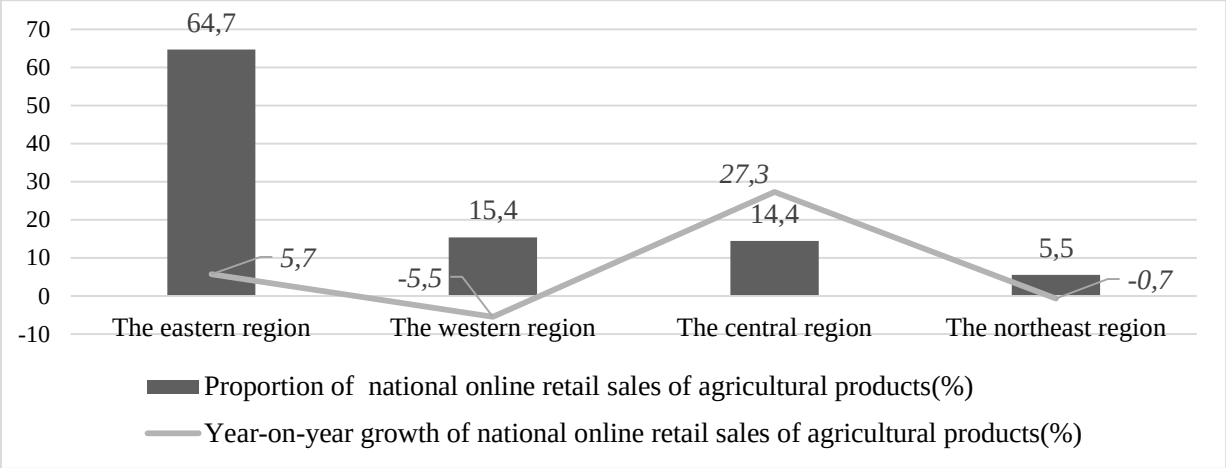


Fig. 7 Proportion of online retail sales of agricultural products by China's regions, 2021, %[1]

By province, Guangdong, Zhejiang, Shanghai, Beijing and Shandong ranked the top five in online retail sales of agricultural products, accounting for 48,9 % of the national online retail sales, and the top ten provinces accounted for 74,0 % of the national online retail sales of agricultural products, as shown in Figure 8.

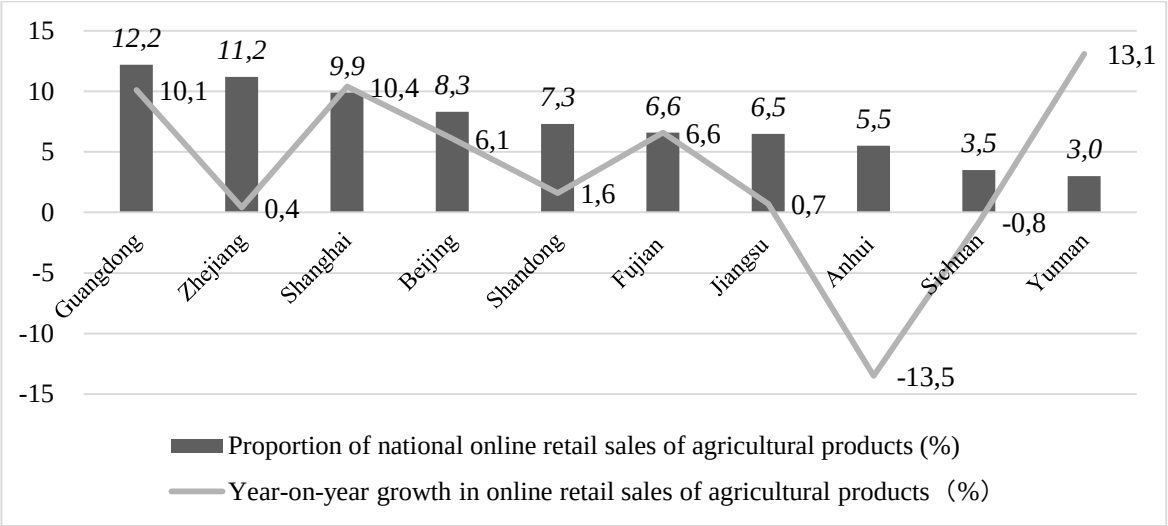


Fig. 8 China's top 10 provinces in rural online retail sales of agricultural products, 2021, %[2]

The average yearly (2021) level of national retail sales proportion of agricultural products is rather positive + 7,4 %, however, year-to-year growth is variable for analyzing provinces (3,47 %).

5 Conclusion

E-commerce can provide strong support for the economic development of rural areas, and its development can directly affect the economic and social development of rural areas. Therefore, to better play the role of e-commerce in rural development, this article investigates and analyzes the current development status of rural e-commerce in China from three aspects: infrastructure construction, transaction scale and e-commerce of agricultural products.

[1] China Ministry of Commerce. China E-commerce Report (2020) [Electronic resource] / Access mode: https:// dzswgf.mofcom. gov.cn/ news/5/2021/9/16316980 18580.html (access date September, 15, 2021).
[2] Ibid.

By analyzing the infrastructure construction of rural e-commerce from the four aspects of Internet, logistics, information service and financial infrastructure, this paper finds that the infrastructure construction of rural China is constantly improving, but there is still a big gap compared with urban and developed countries.

By analyzing the transaction scale of rural e-commerce and agricultural e-commerce, this article finds that the transaction scale of both increases year by year, but the growth rate of rural e-commerce slows down and tends to be stable. Since 2020, the growth rate of agricultural products e-commerce has decreased significantly. Both show obvious regional differences. In the eastern part of China, the development status is obviously better than that in the western, central, and northeast parts of China.

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