

Analysis of Factors Affecting Rural E-commerce under the Background of Big Data

Zhou Rui

Xingzhi College of Xi'an University of Finance and Economics, Xi'an 710038

Keywords: Rural e-commerce, Big data background, Influencing factors.

Abstract: Rural e-commerce has become an effective means of developing the rural economy, serving the "three rural" and precision poverty alleviation. At present, rural e-commerce has achieved initial achievements, but it has also exposed many problems. This paper first analyzes the theoretical basis of the practice of agricultural products e-commerce model in the context of big data. Through the research on rural e-commerce data, it is found that the factors affecting the development of rural e-commerce include road traffic, geographical advantages, logistics support, Internet construction, rural finance, education and training, and university student village officials. This analysis is conducive to the further development of rural e-commerce in the future.

1. Introduction

In recent years, the social economy has incorporated big data into it and has become a vital part of its vitality [1]. Especially under the premise of the development of network technology and cloud technology, informationization is gradually becoming like a data transformation, and our era has become a big era of data. It is estimated that by 2050, more than 40 billion people worldwide will use TB [2]. This huge amount of data will promote the birth of more economic components and elements. In the past few years, "Internet +" has begun to penetrate into various industries of the society and has played a significant role in the economic activity [3].

With the development of rural e-commerce, scholars' enthusiasm for research on rural e-commerce is also increasing [4]. According to the research content, the articles about e-commerce poverty alleviation, e-commerce logistics and talents are the most [5]. The research of related scholars is mainly based on the analysis of the influencing factors of rural e-commerce financing ability of ism [6]. There are also scholars who do empirical research based on the basic situation of a city [7]. Others have studied the factors affecting rural e-commerce through existing literature [8-10]. However, no one has analyzed the influencing factors of rural e-commerce through the analysis of big data, and how to promote the development of rural e-commerce through these influencing factors. This article is from this perspective.

2. Theoretical basis for the practice of agricultural products e-commerce model under the background of big data

2.1 Big Data Trend Characteristics

The development of the Internet information industry has led to the rapid accumulation of data. Since the 1990s, the Internet industry has sprung up, and it has become easier and faster to share data or disseminate data. Traditional paper information has gradually been replaced by electronic data such as the Internet, and has achieved considerable growth in scale and speed. Since 2010, with the further promotion of communication technology, especially the commercialization of 3G and 4G technologies, the growth of data has produced new growth points. Currently, the development trend of big data has the following two characteristics:

- 1) Every industry has big data and is in a good position

The leap in technology has led to an expansion of the data range, and the surge in numbers may lead to an exponential direction. The amount of data and information that comes up every day is very large. The number of transactions per day on the network has reached tens of thousands of times, and the engine search has reached 5 billion times. In addition, traditional industries will also have a variety of data, such as the medical industry, including physical examination data for each person, information about the visit, and specific data on the inspection items.

2) Big data is gradually generating new growth points

In recent years, the development of big data has been very rapid. This kind of growth has not only promoted the expansion of various scales, but also has more feasibility value. For example, the big data about transportation shows not only the congestion of the streets in each time period, but also the problems in the planning and construction of the city on the road, which will help us to repair and improve. Of course, as time, region and city size change, these big data will also have a certain trend change, and this information is of great value to workers in planning urban blueprints, and can guide the corresponding projects.

2.2 E-commerce business model

Starting from our understanding of e-commerce, we will begin to study the mode of e-commerce operation, but first we must have the understanding that the e-commerce model generally has two levels of understanding.

First, from the overall or comprehensive annotation, the content includes the status, relationship, and role of the e-commerce model in each company.

Secondly, we can also divide e-commerce into more basic elements of composition. It can be considered that these elements constitute the hot e-commerce model.

We can understand the e-commerce model as the correlation between the structure and the position in the value chain after the enterprise company determines the detailed market and the target, through the use of network technology and all the members of the value chain. Ways to ultimately satisfy customers and bring profit to businesses and companies. The key method is that the e-commerce model should point out the value creation process and the source of income of the participants in the process. It is the framework for the business entity to monitor, integrate and design the business activities or specific processes. The e-commerce framework is shown in Figure 1. The business process of rural e-commerce platform in a certain area is shown in Figure 2.

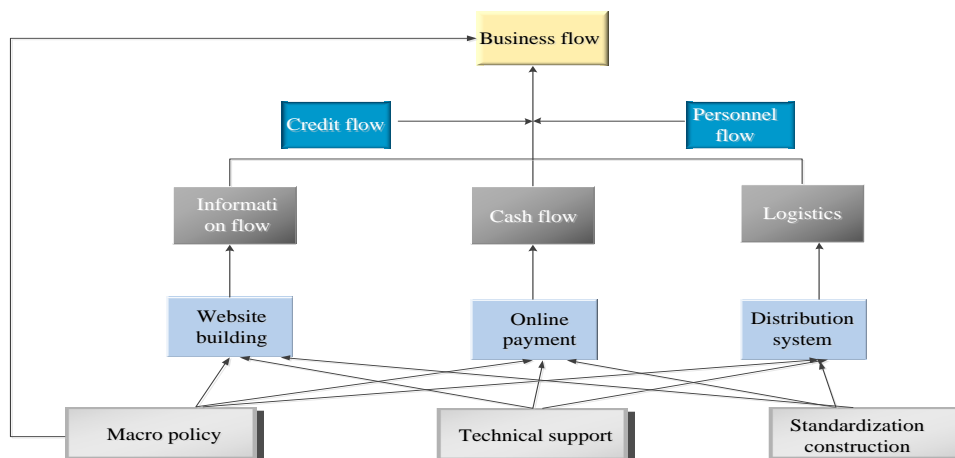


Figure 1 E-commerce framework

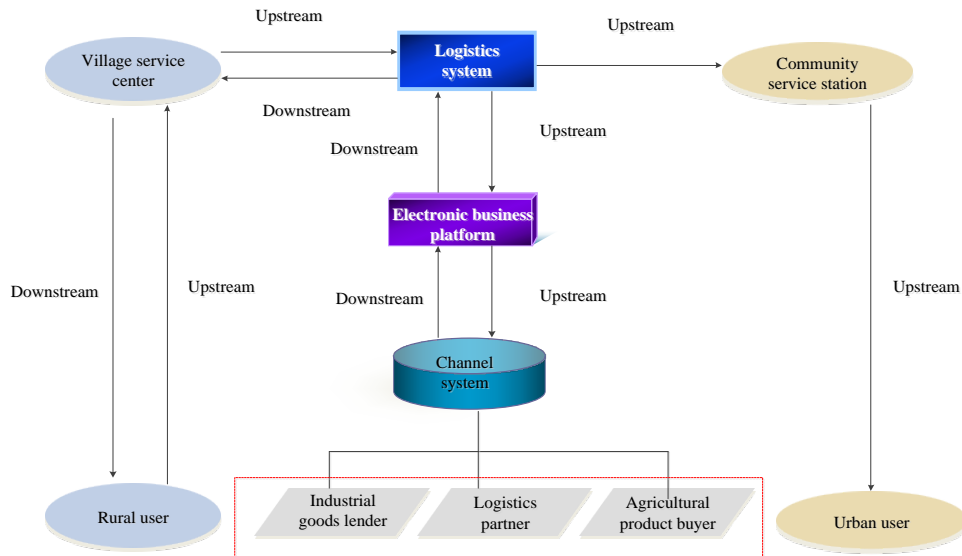


Figure 2 Business process of rural e-commerce platform in a certain area

2.3 Transaction cost theory

Since the 1930s, scholars in economics, organizational theory, and jurisprudence have studied transaction costs from different perspectives. Relatively speaking, the research results in the field of economics are relatively rich. The real economic analysis of the basic unit of the trading system was the new institutional economics movement led by Kos.

Oliver Williamson introduced the contract method and used this as the most basic method of analyzing transactions. He believes that the trading relationship between people will always be carried out in the contract relationship. The actual people in the transaction are contractors. And it reflects the characteristics of finiteness and opportunism, which is different from the rational behavior of economic people. After determining the analytical methods and premises, Williamson defined three properties of the transaction affecting transaction cost levels: asset specificity, uncertainty, and frequency.

3. Factors affecting the development of rural e-commerce

3.1 Infrastructure construction

1) Road traffic

Road traffic has always been an important factor affecting rural economic development. According to a survey conducted by the Family Finance Research and Research Center on 637 representative villages, the number of roads is directly proportional to the density of local rural e-commerce. The village e-commerce density of one road previously was only 0.4. % and 0.6%, but village e-commerce density above 5 roads increased to 0.6% and 1.5%. In addition, in villages with rural e-commerce, there are many roads with a household income of 31.9 million yuan compared with villages with at most one road.

2) Geographical advantages.

The geographical advantage is the comprehensive resource advantage of the region, that is, the favorable conditions or superior status of an area in the development of the economy. The geographical advantage of a region is mainly determined by geographical location and natural resources. Of course, the first place is the geographical location. The superior geographical position makes the economic development of many areas even more powerful. According to the data released by Ali Research Institute in 2016, the closer the village e-commerce is to the city-level center, the more the electricity e-commerce density in the village is closer to the city center than the city-level center. 8.5 times far from the village.

3) Rural financial services.

The “Thousand Villages Survey” project team that a university has adhered to for 10 years as the research object of “three rural issues” said at the press conference that the penetration of rural finance is closely related to the level of economic development. Economically underdeveloped areas should pay more attention to rural finance development. The number of rural financial service outlets is positively correlated with the density of e-commerce development. The more outlets in the village, the better the e-commerce. This means that in rural finance, there are still 3 trillion blue ocean swimming areas. The report also pointed out that Internet financial means will become the main way to alleviate the shortage of financial supply in the “three rural” areas, but the current “three rural” financial scale is only 12.5 billion, which is a drop in the gap of 3 trillion.

4) Logistics support.

The importance of logistics for rural e-commerce is undoubted. Logistics has always been a bottleneck restricting the development of rural e-commerce. There are even sayings that "Chengye Logistics, Lost Logistics", the data of the Prospective Industry Research Institute shows that in 2015, express delivery coverage rate of the outlets is 48%, and it is obvious that more than half of the townships and towns are unable to express.

5) Internet construction.

According to CNNIC data, as of June 2017, the number of netizens reached 751 million, urban netizens accounted for 73.3%, while rural netizens only accounted for 26.7%, urban Internet penetration rate was 69.1%, and rural Internet penetration rate was only 33.1%. As of June 2016, the data shows that rural netizens use only 4% of the difference in the usage rate of basic Internet applications such as instant messaging and online entertainment. The difference is particularly large as much as 20% or more. It can be seen that the e-commerce in rural areas is very different from the cities, and there is a broad space. The role of developing rural e-commerce Internet cannot be ignored. In addition, according to the data of Southwestern Finance University, the density of village e-commerce with broadband is 20 times that of villages without broadband. The data of CNNIC also shows that the proportion of non-netizens who are willing to go online to purchase goods is 14.6%. The proportion of Internet access for the sale of agricultural products to increase household income is as high as 19.9%, which proves the significance of “Internet +” for farmers in rural areas for rural e-commerce. The scale of rural e-commerce transactions in a certain area is shown in Table 1.

Table 1 Scale of rural e-commerce transactions in a certain area

	2016	2017	2018
Rural e-commerce transaction volume	1600	1980	3010
Year-on-year growth	28.9	30.1	32.6
The proportion	14.1	13.7	12.9

3.2 Humanistic environment

1) Education and training.

In the process of rural e-commerce development, the technical level of farmers and the lack of cultural standards have become the biggest obstacles for farmers to join the rural e-commerce army. According to CNNIC data, the number of non-netizens nationwide in 2016 was 642 million, accounting for non-netizens in rural areas. Compared with 60.1%, the main factors that hinder non-netizens from accessing the Internet are lack of Internet skills and cultural level restrictions. Because they do not understand the computer network and do not access the Internet, they reach 54.5%. At the same time, they provide free Internet training to promote the non-netizens. In addition to the Internet, this is a roadblock, how to integrate resources is also a problem that farmers will face. Therefore, it is essential to train all aspects of farmers' skills. The data shows that e-commerce is 1.8 times more likely to occur in villages with education and training than in villages without education and training.

2) College student village officials.

Half of the country's villages (50.1%) have university student village officials, and the proportion of village officials in the western region is as high as 63.6%. Under the conditions of similar village characteristics, the probability of e-commerce in villages with village officials has increased greatly, according to 2017. According to the data for the year and 2018, the village e-commerce density of village officials is 0.6% and 1.1%, respectively, which is more than twice that of villages without village officials. College student village officials play an important role in promoting farmers' income, not only in villages with e-commerce, but also in villages without e-commerce. In villages without e-commerce, there are higher incomes for university village officials than those without villages. In the village of 6656 yuan, in the villages with e-commerce, the college students' village officials made the family income of the farmers higher by 31,600 yuan.

4. Summary

The development of big data Internet is constantly changing the world, making communication between people more convenient, effectively shortening the cost of information transmission and reducing the time of delivery. The emergence of e-commerce has caused significant changes in people's consumption behavior. Traditional market trading behaviors have been gradually replaced by the model of "not leaving home, hand-to-hand, convenient and fast". The development of big data in these years has transformed the original rough and original e-commerce methods into a refined direction, transforming the original product-based e-commerce method based on consumers as the benchmark.

This kind of information finding method of people, turning people into subjects, effectively reduces the cost of finding, reduces the difficulty, and people can consume more conveniently and quickly. In addition, the potential needs of some consumers can be tapped, and the future demand can be guided to generate purchasing power in advance, and then converted into actual commercial value. Therefore, big data is the source of the continuous healthy development of e-commerce.

Acknowledgement

This research was financially supported by Scientific Research Project of Education Department of Shaanxi Provincial Government: "*Research on the Case and Path of Rural E-commerce in Shaanxi Province under Precision Poverty Alleviation Strategy*" (NO.18JK0986)

References

- [1] Kshetri N, Rural e-Commerce in Developing Countries, *It Professional*, vol.20, pp. 91-95, 2018.
- [2] Khotimah B K, Pramudita Y D, Syakur M A, Integration in Electronic Data Interchange for Environments E-Commerce Application, *Advanced Science Letters*, vol.23, pp. 12367-12371, 2017.
- [3] Kudyba S, Lawrence K, Enhancing information management through data mining analytics to increase product sales in an e-commerce platform, *International Journal of Electronic Marketing & Retailing*, vol.2, pp. 97-104, 2017.
- [4] Fan S, Xiao J, Kang X, et al, Introduction to the special issue of ECR on E-business innovation with big data, *Electronic Commerce Research*, vol.17, pp. 1-1, 2017.
- [5] Lacka E, Nick K.T. Yip, Revealing the effect of acculturation process on e-commerce acceptance, *Industrial Management & Data Systems*, vol.118, pp. 1251-1265, 2018.
- [6] Pettersson F, Hiselius L W, Koglin T, E-commerce and urban planning – comparing knowledge claims in research and planning practice, *Urban, Planning and Transport Research*, vol.6, pp. 1-21, 2018.
- [7] Yusuf A S, Hussin A R C, Busalim A H, Influence of e-WOM engagement on consumer purchase intention in social commerce, *Journal of Services Marketing*, vol.32, pp. 493-504, 2018.

- [8] Shukla S, Mohanty B K, Kumar A, Strategizing sustainability in e-commerce channels for additive manufacturing using value-focused thinking and fuzzy cognitive maps, *Industrial Management & Data Systems*, vol.118, pp. 390-411, 2018.
- [9] Qiang Z, Yan W, Struggling towards virtuous coevolution: institutional and strategic works of Alibaba in building the Taobao e-commerce ecosystem, *Asian Business & Management*, vol.17, pp. 1-35, 2018.
- [10] Nan J, Tao J, Du J, et al, Personalized recommendation based on customer preference mining and sentiment assessment from a Chinese e-commerce website, *Electronic Commerce Research*, vol.18, pp. 1-21, 2018.