



Digital Economy Helps Rural Revitalization

A Study on the Development of New Rural E-Commerce in Zhangzhou City

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Abstract. This thesis focuses on exploring the impact of digital economy on the development of new rural e-commerce, based on the data of indicators of rural e-commerce development in Zhangzhou from 2017–2022, and analyzing and predicting the impact of digital economy on the incremental development of new rural e-commerce by constructing gray prediction model. The study finds that the digital economy promotes e-commerce development, e-commerce plays a positive role in the digital economy, and proposes relevant methodological insights to help rural revitalization.

Keywords: Digital Economy · Rural Revitalization · New Rural E-Commerce

1 Introduction

The optimization and restructuring of the rural economic system and innovation and upgrading are powerful engines for promoting the interface between urban and rural markets, developing the rural economy, and comprehensively promoting rural revitalization [1].

The Digital China Development Report (2021) released by the State Internet Information Office shows that the size of the digital economy rises from 39.2 trillion yuan to 45.5 trillion yuan in 2021, with the total volume sitting firmly in second place in the world, with a compound annual growth rate of 13.6%, and the share in the GDP rising from 32.9% to 39.8%. The digital economy plays an important role in promoting the allocation of social production factors and upgrading the industrial structure, and has become a key force in driving stable economic growth.

The 2021 Rural E-Commerce Development Trends Report points out that rural e-commerce development is not only a revolution in reallocating agricultural factors of production, but also a major historical opportunity for national modernization and development in the context of rural revitalization [2].

2 Zhangzhou Rural E-Commerce Industry Analysis

Zhangzhou has gradually transformed and upgraded its traditional agriculture with the introduction of the rural revitalization strategy and the increase of national efforts to build new urbanization [3]. Nowadays, with the increasingly developed technologies such as the Internet and the Internet of Things, the innovative rural e-commerce model and the upgrading of the industrial chain have brought development opportunities for Zhangzhou to build a modern and strong city.

As shown in Fig. 1, the basic situation of China's rural e-tailing volume and agricultural e-tailing volume, it can be seen that both rural e-tailing volume and agricultural e-tailing volume have shown growth in recent years.

As people's living standards gradually improve and pay more attention to healthy food, the development of new rural e-commerce is conducive to making it more convenient for consumers to buy healthy agricultural products in the hands of farmers, bringing a major historical opportunity for rural revitalization [4].

2.1 Zhangzhou City Agricultural Products E-commerce Feasibility

In terms of the requirements on the image of agricultural anchors, no longer pursuing high value anchors, the image of anchors reflecting the nature of farmers seems more real and reliable, so there is no need to over-package anchors to win the public's love; the scenario-based feature of live with goods makes consumers can feel the quality of goods and service effect in advance [5]. Professionally, farmers themselves have a higher degree of knowledge about agricultural products and are familiar with the growth environment and production process of agricultural products, so they have a natural and unique advantage over the Netflix anchors farm-name anchors [6].

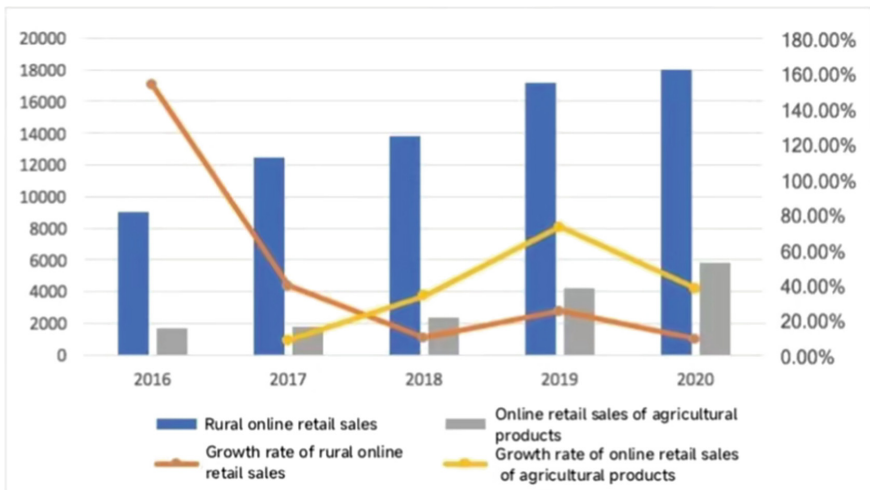


Fig. 1. Basic situation of rural e-tailing and e-tailing of agricultural products in China

2.2 Zhangzhou Agricultural Products E-commerce Dilemma

The infrastructure of the agricultural products e-commerce live industry is not perfect and the services are not in place. Zhangzhou is still in the development stage, the ability of farmers to use information technology is still The digital divide caused by the relatively weak digital infrastructure has brought a certain negative impact on the construction of the digital countryside.

3 Study on the Impact Effect of Digital Economy on Rural E-commerce

To empirically test the effect of digital economy on the development of new rural e-commerce in Zhangzhou, the data on the indicators of rural e-commerce development in Zhangzhou for the past 6 years from 2017 to 2022 were selected as the research object.

3.1 Variable Selection

As shown in Table 1 the total indicators of the independent variable digital economy development are quantitatively analyzed using indicators of three dimensions: digital economy application, digital economy innovation, and digital economy foundation.

3.2 Gray Prediction Model

The variables in Table 1 are introduced for the level-ratio test, which is used to determine the applicability of the data series for model construction. The level ratio is the previous period data/current period data is shown in Table 2.

The original data did not pass the rank-ratio test, and the level-transformed value 83.00 was added to the original value, and the final level-transformed data rank-ratio test values were all within the standard range interval [0.751, 1.331], implying that the present data are suitable for GM(1,1) model construction.

As can be seen from Table 3, the development coefficient a , the amount of gray effect b , as well as the posterior ratio C value and the small error probability p value were obtained after model construction; the posterior difference ratio C value of $0.021 < = 0.35$ implies a very good model accuracy grade. In addition, the small error probability p -value of $1.000 < 1.0$ implies that the model accuracy is very good.

Finally, the predictions were performed on the model training set, and the results are shown in Fig. 2. The maximum value of relative error of the model is $0.144 < = 0.2$, which means that the model fitting effect meets the requirement. At the same time, predicting the data three years backward, it is found that the prediction value will have a significant increase, and the prediction result has reference significance to the development of rural e-commerce in the digital economy.

Table 1. Variable Table

	Variable Name	Symbols	Variable Description
Dependent variable	Rural e-commerce development level		Taobao Village Growth Rate
Independent variable	Digital Economy Applications	dapp	Number of enterprises with e-commerce transactions, e-commerce retail sales, express business revenue, number of express business
	Digital Economy Innovation	dcre	Number of enterprise patents, number of high-tech enterprises, high-tech transactions
	Digital Economy Foundation	dbas	Number of Internet broadband cutoffs, number of cell phone households, number of fixed-line phone households, telecom services
Control variables	Income level of rural residents	outc	Per capita consumption expenditure of rural residents
	Level of rural human resources	Sch	Number of junior high schools
	Level of government financial support	gov	Agriculture, forestry and water” in the general public budget expenditure

Table 2. GM(1,1) model level ratio

Serial number	Original value	Level Ratio λ	Original value + translation conversion shift value (shift = 83)	Converted step ratio value λ
1	6	-	89	-
2	13	0.462	96	0.927
3	25	0.52	108	0.889
4	44	0.568	127	0.85
5	51	0.863	134	0.948
6	83	0.614	166	0.807

Table 3. Model construction results

Development factor a	Gray role volume b	Posterior test difference ratio C value	Small error probability p value
-0.1338	76.5298	0.0213	1

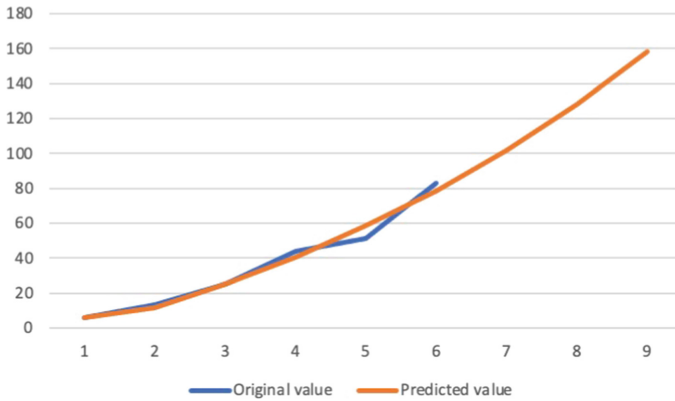


Fig. 2. Model training set prediction results

4 Conclusions

In order to further release the promotion effect of digital economy on China’s rural e-commerce development and help rural revitalization, the following suggestions are made:

First: improve the construction of infrastructure such as digital economy. While developing the digital economy, deepen digital education in rural areas, strengthen skills training for rural entrepreneurial subjects, improve policies such as entrepreneurial poverty reduction and strengthening entrepreneurial subsidies, and encourage college students to return to their hometowns for construction.

Second: In the era of digital economy, the rule of law dimension should be constructed, building a fair and just, effective and legitimate market competition environment, enriching financing channels for the actual situation of rural areas in each region of Zhangzhou City, and optimizing policies, factors and finance to empower them.

Third: when combining the digital economy with e-commerce, we should focus on security and effectiveness, enhance the construction of the protection of core data, integrate the current resources in the creation of their own professional brand, to improve the competitiveness of the industry.

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