

Discussion on the Development Strategy of Digital Marketing of Agricultural Products from the Perspective of Long Tail Theory Take Agricultural Products with Geographical Indications as an Example

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Abstract: Innovative digital marketing is an important means to improve the circulation of agricultural products. Based on the long tail theory, this paper qualitatively analyzes the development strategy of digital marketing of agricultural products in China and examines the economic value of digital marketing, taking agricultural products with geographical indications as an example. The research results show that building agricultural product IP traffic, attracting customers through all channels and experiential marketing are important links of agricultural product digital marketing. The empirical results show that digital marketing can reduce the circulation cost of agricultural products, form a price competitive advantage, and thus improve market sales. This economic value is more and more obvious in regions with higher digital marketing level and stronger policy concern.

Keywords: Long Tail Theory, Digital Marketing, Geographical Indication, Agricultural Products.

1 INTRODUCTION

In recent years, the problem of unsalable agricultural products in China is not uncommon. How to solve the problem of circulation of agricultural products in China through science and technology and innovative marketing methods has become an important topic in the current agricultural development ^[1]. On the whole, in the era of digital economy, China's agricultural product circulation industry is also facing the pressure of digital transformation. Due to the lack of digital marketing means, the cost of agricultural product circulation remains high, and the problem of agricultural product circulation cannot be effectively solved. Branded+digital agricultural product marketing strategy is considered to be an important means to activate the digital sales of agricultural products, and is also the main direction of modern agricultural construction in China. In the face of the increasingly diversified demand for agricultural products in the consumer market, it has become a general trend to rely on digital platforms to cultivate agricultural product brands and carry out digital marketing ^[2].

2 MATERIALS AND METHODS

With the gradual spread of the global epidemic and the rapid growth of online consumption, agricultural product operators and agricultural product distribution enterprises are required to take the initiative to innovate and accelerate the digital process to enhance online marketing capabilities. Huttunen (2019) ^[3] believed that the Internet based and networked development of agricultural products is the main direction of future agricultural development. Through digital marketing, we can use technical means to provide continuous services for the entire agricultural industry chain, which is more conducive to the cultivation and promotion of agricultural product brands.

The so-called long tail theory refers to solving the problem of high information communication costs and commodity circulation costs through Internet digital marketing in the Internet era. In the Internet era, digital marketing can accurately match more personalized market demands, which are also known as the "long tail market". Tauscher (2019) ^[4] believed that the long tail market mainly refers to the digital industry market in the network era. As it can meet more and more personalized market demands, it can obtain marginal benefits, which constitutes the realistic basis for the long-term existence of digital marketing. Geissinger et al. (2020)^[5] pointed out in his research that, from the perspective of the long tail theory, if digital marketing wants to succeed, it must have the characteristics of both low cost and high income, and at the same time conform to the general law of the development of the digital industry.

It is of great significance for the diversified development of China's consumer market to promote consumption growth. The so-called long tail theory refers to solving the problem of high information communication costs and commodity circulation costs through Internet digital marketing in the Internet era. In the Internet era, digital marketing can accurately match more personalized market demands, which are also known as the "long tail market". Qian et al. ^[6] believes that the long tail market mainly refers to the digital industry market in the network era. As it can meet more and more personalized market demands, it can obtain marginal benefits, which constitutes the realistic basis for the long-term existence of digital marketing. Lew (2008) ^[7] pointed out in his research that, from the perspective of the long tail theory, if digital marketing wants to succeed, it must have the characteristics of both low cost and high income, and at the same time conform to the general law of the development of the digital industry. Coelho & Mendes (2019) ^[8] pointed out that the popularity and development of the Internet have changed the channels for people's information sharing and data dissemination, enabling agricultural product marketing information to be spread on the Internet platform at a lower cost. It is precisely because of the convenience of this information circulation that provides a prerequisite for the development of the long tail market.

2.1 Create Agricultural Product IP Traffic

From the perspective of the long tail theory, the success of digital marketing of agricultural products should first ensure the stability of the customer source, that is, ensure the continuous attention of the target consumer groups ^[9]. In the era of mobile Internet, the creation of agricultural products IP pays more attention to the publicity of content. The cost of capital and time invested in the early stage is relatively low, and the threshold for publicity is not high, which creates favorable conditions for attracting agricultural products IP traffic. At this stage,

the primary reason for the poor circulation of agricultural products between urban and rural areas in China is the separation between producers and consumers.

At the same time, based on the existing agricultural products, extend the industrial chain to form new services such as farm experience and package combination. For end consumers, through digital marketing, they can effectively obtain agricultural product information and product traceability, which can improve their trust in agricultural product quality, improve their recognition of agricultural product brand value in the long-term interaction process, and finally form a sustainable consumption behavior.

2.2 Attract Customers Through All Channels

With the continuous development of the Internet, consumers have more and more access to information, which creates favorable external conditions for the establishment of digital marketing channels for agricultural products ^[10]. In the perspective of the long tail theory, digital marketing of agricultural products must continuously attract users through innovative marketing channels. Based on the Internet platform, the marketing information is implanted in the PC and mobile terminals to attract potential consumers with low information dissemination costs, and the defect of insufficient online experience is supplemented through the opening of offline stores. For this reason, based on the existing mobile media means in China, digital marketing of agricultural products mainly attracts customers from the following channels: first, short video. Through short video apps such as Tiktok and Kwai, farmers can directly provide consumers with detailed information about agricultural products by video transmission, while attracting customers by personalized publicity means ^[11]. The second is WeChat applet, which is used to help farmers by entrusting a third party to build a WeChat applet platform, providing product price information to directly attract end customers to buy. The third is all kinds of fresh food apps, mainly agricultural product sales platforms built by circulation enterprises such as Hema Fresh Food and Pupu Supermarket, which attract customers based on early marketing methods to achieve the purpose of digital marketing. Fourth, it is common in all kinds of micro malls, similar to Taobao online stores, but with more extensive publicity means ^[12].

3 RESULTS

3.1 Determination of Research Object

Based on the existing theoretical analysis, this paper will try to test the economic value of digital marketing of agricultural products through empirical analysis. As mentioned above, the digital marketing of agricultural products in China is at the initial stage, and the number of agricultural products involved in digital marketing is relatively small. Therefore, this paper takes geographical indication agricultural products as the research object. The main reasons for choosing agricultural products with geographical indications are as follows: on the one hand, the selection criteria for agricultural products with geographical indications are relatively strict, most of which are agricultural products with local characteristics in China, with high quality, high economic value and high recognition in the consumer market, so they can meet the consumption demand of the long tail market. On the other hand, agricultural products with geographical indications are highly concerned by local governments, easy to obtain support from social capital, and have the advantage of large-scale operation, which is also the main

direction of the future circulation of agricultural products in China. The study of agricultural products with geographical indications has a good policy reference value. Based on this, this paper will take China's geographical indication agricultural product catalog as an example to empirically test the enabling effect of digital marketing on the circulation process of geographical indication agricultural products.

3.2 Data Selection

The interpreted variable. The purpose of digital marketing of agricultural products is to accelerate the turnover of agricultural products and realize the jump from production to consumption. Therefore, this paper will reflect the results of the circulation of agricultural products from three aspects: price, sales and circulation cost. The market price is obtained from various digital platforms, and the sales volume (annual sales volume) and circulation cost (proportion of circulation cost in sales volume) are obtained through questionnaire.

Core explanatory variables. As mentioned above, digital marketing has gone through three aspects: creating IP traffic, attracting customers through all channels, and experiential marketing. Therefore, this paper uses the Likert 10 point method to comprehensively score each link of digital marketing of agricultural products with geographical indications, and summarizes the scores to measure their digital marketing level

Control variables. In order to make the empirical regression results more accurate, this paper also controls the following variables: digital marketing cycle, which is expressed by the starting time of digital marketing. The registration time is expressed by the time of entering the agricultural product catalog of geographical indications. Location: 1 for the eastern region and 0 for the rest. Lagging items of price, sales volume and circulation cost. Frequency of interaction with end customers. Government support is expressed by the annual public promotion frequency of government departments.

This paper selects 149 agricultural products with geographical indications based on China's agricultural product catalog of geographical indications in 2021, obtains relevant data by issuing online questionnaires and expert scoring methods, and revisits some samples with obvious errors in the questionnaire data. If the data quality still does not meet expectations, delete them, and finally obtain 138 data sets related to agricultural products with geographical indications. The relevant data and descriptive statistics involved in this paper are detailed in Table 1. This paper conducts logarithmic processing on price, sales data and interaction frequency. From the perspective of market price and sales volume variables, there are obvious differences between market price and sales volume of various kinds of agricultural products with geographical indications because of the large audience differences. From the perspective of circulation cost, the largest proportion of circulation cost exceeds 50%, and the overall average value also exceeds 27%, which shows that the circulation cost of agricultural products with geographical indications in China is too high, which is not conducive to the efficient marketing of agricultural products in China. From the perspective of digital marketing level, there are also significant differences in the performance of each sample, which provides a basis for this empirical study. In addition, in the survey, this paper found that the longer the registration time of agricultural products with geographical indications, the higher the level of digital marketing. Since 2018, with the gradual rise of short video platforms, the marketing

methods and models of agricultural products with geographical indications have been greatly enriched, providing important digital media for the marketing of agricultural products in China.

4 MODEL DESIGN

In order to test the effect of digital marketing of agricultural products with geographical indications, this paper constructs the following multiple dynamic regression model, as shown in Formula (1) - (3):

$$\text{Price}_{it} = \alpha + \alpha_1 \text{Dig}_{it} + \beta_1 \text{Price}_{it-1} + \lambda_i X_i + \varepsilon \quad (1)$$

$$\text{Sale}_{it} = \alpha + \alpha_2 \text{Dig}_{it} + \beta_2 \text{Sale}_{it-1} + \lambda_i X_i + \varepsilon \quad (2)$$

$$\text{Cost}_{it} = \alpha + \alpha_3 \text{Dig}_{it} + \beta_3 \text{Cost}_{it-1} + \lambda_i X_i + \varepsilon \quad (3)$$

Considering the wide coverage of agricultural products with geographical indications in China, and the degree of market concern for agricultural products with different geographical indications, their prices, circulation costs and sales may not be comparable. Therefore, in order to reduce the error of the regression results, this paper adds a lag term of the explained variable in equation (1) and equation (3). X_i is the set of control variables in this paper, ε is an error item.

4.1 Benchmark Regression Analysis

Table 1 shows the benchmark regression results of this paper. From the fitting results of lag variables, the market price, sales volume and circulation cost of agricultural products with geographical indications in the current period are significantly positively related to the previous period. Therefore, if this continuity feature is not considered, it may lead to errors in the model fitting results. The fitting coefficients of the core explanatory variable Dig and the price, sales and circulation cost of agricultural products are -0.072, 0.108 and -0.317, respectively, and all pass the significance test at the 1% level, which indicates that digital marketing of agricultural products is conducive to reducing their market price and circulation cost, increasing their market sales and enhancing their market competitiveness. In this paper, the author believes that digital marketing of agricultural products is conducive to reducing the circulation of agricultural products, allowing producers to face the end consumers directly. The reduction of circulation costs can bring more price competitive advantages to geographical indication agricultural products, thus promoting the growth of their market sales.

TABLE I. BENCHMARK REGRESSION RESULTS

Variables	Price		Sale		Cost	
	Estimation coefficient	T statistics	Estimation coefficient	T statistics	Estimation coefficient	T statistics
Price-1	0.725***	4.821				
Sale-1			0.609***	8.273		
Cost-1					0.711***	10.947

Dig	-0.072***	-11.829	0.108***	6.092	-0.317***	-15.026
Period	-0.023***	-13.209	0.007**	2.447	-0.104*	-1.821
Time	0.217**	2.317	0.298***	4.098	-0.215	-0.038
Location	0.108***	4.092	0.167***	3.821	-0.117***	-4.499
Interact	0.015***	1.997	0.031**	2.147	0.203	0.102
Gov	0.115***	4.821	0.043***	3.094	0.107	0.03
Intercept term	2.153***	14.973	14.409***	11.091	21.058***	17.266
R2	0.516	0.572	0.552	0.572	0.572	0.572

Note: *** means passing the significance test at 1% level, ** means passing the significance test at 5% level, * means passing the significance test at 10% level, the same below.

4.2 Differentiation Test

Furthermore, based on the variable of digital marketing level, this paper divides the samples into low level samples of digital marketing and high level samples of digital marketing, and tests them by samples. As shown in Table 2, in the low level of digital marketing, digital marketing has been proved to only reduce circulation costs and market prices, and has no significant effect on sales. Compared with the sample with high digital marketing level, the economic value of digital marketing in the sample with low digital marketing level is limited. This paper believes that the higher the level of digital marketing, the more conducive to grasping the consumption demand of the long tail market, thus forming a profit increment and bringing more significant economic benefits. In addition, considering that many local governments have participated in the market promotion of agricultural products with geographical indications, the market reputation of agricultural products with geographical indications has been improved to a certain extent.

TABLE II. DIFFERENTIAL REGRESSION RESULTS (BY DIGITAL MARKETING LEVEL)

	High digital marketing level			Low level of digital marketing		
Dig	-0.098***	0.127***	-0.404***	-0.023*	0.041	-0.187**
	(-9.273)	(7.726)	(-6.093)	(-1.790)	(0.156)	(-2.247)
Other variables	Control	Control	Control	Control	Control	Control
Intercept term	2.176***	14.017***	21.061***	2.140***	14.926***	21.198***
	(12.266)	(12.815)	(14.291)	(15.266)	(14.016)	(13.372)
R2	0.	0.	0.	0.	0.	0.

5 CONCLUSION

Innovating digital marketing means is an important direction to promote the circulation of agricultural products. Based on the perspective of the long tail theory, taking the agricultural products with geographical indications as an example, this paper qualitatively analyzes the

development strategy of digital marketing of agricultural products in China, and empirically tests the economic value of digital marketing. The research results show that building agricultural product IP circulation, attracting customers through all channels and experiential marketing are important means of agricultural product digital marketing. The empirical results show that digital marketing can improve the market sales by reducing the circulation cost of agricultural products and forming price competitive advantages. The results of differential regression show that the higher the level of digital marketing, the stronger the marginal positive impact on the marketing of geographical indication agricultural products, and policy support plays an important role in it. Based on this, in the context of the digital economy, to innovate the digital marketing mode of agricultural products and make full use of the network platform to promote agricultural products, local governments also need to strengthen the guidance and support of digital marketing of agricultural products, so as to provide assistance for agricultural products to move towards the consumer market.

REFERENCES

- [1] Pu, M., & Zhong, Y. (2020). Rising concerns over agricultural production as COVID-19 spreads: Lessons from China. *Global food security*, 26, 100409.
- [2] Novytska, I., Chychkalo-Kondratska, I. R. Y. N. A., Chyzhevska, M., Sydorenko-Melnyk, H., & Tytarenko, L. (2021). Digital marketing in the system of promotion of organic products. *Wseas Transactions on Business and Economics*, 18, 524-530.
- [3] Huttunen, S. (2019). Revisiting agricultural modernisation: Interconnected farming practices driving rural development at the farm level. *Journal of Rural Studies*, 71, 36-45.
- [4] Tauscher, K. (2019). Uncertainty kills the long tail: Demand concentration in peer-to-peer marketplaces. *Electronic Markets*, 29(4), 649-660.
- [5] Geissinger, A., Laurell, C., & Sandström, C. (2020). Digital Disruption beyond Uber and Airbnb—Tracking the long tail of the sharing economy. *Technological Forecasting and Social Change*, 155, 119323.
- [6] Qian, W., Liu, H., & Pan, F. (2022). Digital economy, industry heterogeneity, and service industry resource allocation. *Sustainability*, 14(13), 8020.
- [7] Lew, A. A. (2008). Long tail tourism: New geographies for marketing niche tourism products. *Journal of Travel & Tourism Marketing*, 25(3-4), 409-419.
- [8] Coelho, M. P., & Mendes, J. Z. (2019). Digital music and the “death of the long tail”. *Journal of Business Research*, 101, 454-460.
- [9] Brynjolfsson, E., Hu, Y., & Simester, D. (2011). Goodbye pareto principle, hello long tail: The effect of search costs on the concentration of product sales. *Management Science*, 57(8), 1373-1386.
- [10] Novytska, I., Chychkalo-Kondratska, I. R. Y. N. A., Chyzhevska, M., Sydorenko-Melnyk, H., & Tytarenko, L. (2021). Digital marketing in the system of promotion of organic products. *Wseas Transactions on Business and Economics*, 18, 524-530.
- [11] Juswadi, J., Sumarna, P., & Mulyati, N. S. (2020, April). Digital marketing strategy of Indonesian agricultural products. In *International Conference on Agriculture, Social Sciences, Education, Technology and Health (ICASSETH 2019)* (pp. 105-110). Atlantis Press.
- [12] Reddy, T. S. (2021). The impact of digital marketing on agricultural business in India. *NVEO-NATURAL VOLATILES & ESSENTIAL OILS Journal| NVEO*, 426-437.