

Exploration of the Influencing Factors of Farmers' Willingness and Behavior in New Media Marketing under the Background of "Digital Commerce and Rural Development"

Qiongqiong Zhang

Wenzhou Polytechnic, Wenzhou 325000, China

Abstract: Under the background of "Digital Commerce and Rural Development", utilizing new media for marketing has become the main way to expand the sales of agricultural products. This paper takes farmer survey data as a sample, based on the theory of planned behavior, explores the influencing factors of the "Digital Commerce and Rural Development" policy, and establishes a model of the influencing factors of farmer's new media marketing willingness and behavior in the new media environment. Research has found that subjective norms have become the most important factor influencing farmers' attitudes towards using new media for marketing agricultural products. The policy of "Digital Commerce and Rural Development" has become the most important factor affecting farmers' intention to use new media for marketing agricultural products. Perceived behavioral control does not have a significant impact on farmers' attitudes and intentions towards using new media for marketing agricultural products. From the aspects of strengthening the concept of new media marketing, carrying out training of new media marketing, building a public service support system, and cultivating and introducing professional and technical personnel, this paper provides policy suggestions for enhancing farmers' willingness to carry out new media marketing.

Keywords: The Policy of Digital Commerce and Rural Development, New media, Theory of Planned Behavior (TPB).

1. Introduction

The term "Digital Commerce and Rural Development" first appeared in the 14th Five Year Plan for the Development of E-commerce [1] released in October 2021, which means deeply integrating agriculture and commerce through e-commerce platforms, empowering rural economic development with digital technology and data elements, promoting the digitization and industrial revitalization of the agricultural industry. By utilizing digital information technology, it can create an intelligent supply chain and empower the development of agriculture and rural production. Digital commerce and rural development means fully unleashing the empowering effect of digital technology and data resources on the rural business field, comprehensively improving the digitalization, networking, and intelligence level of rural economic development, promoting the high-quality development of rural e-commerce, and supporting and promoting the development of agricultural production and rural industrial revitalization.

For farmers, utilizing new media to expand the sales channels of agricultural products is an important practical significance of "Digital Commerce and Rural Development". Due to the short rise of new media, there is a relative lack of research on the impact of new media on farmers' willingness and behavior in new media marketing both domestically and internationally. Currently, domestic research mainly focuses on studying the sales situation of agricultural products in individual provinces in the new media environment and proposing optimization suggestions. Bai Kun and others, taking Guangxi's agricultural products as an example, have proposed suggestions for optimizing sales channel models in the new media environment [2]. Luo Gangyi has analyzed the problems existing in the new media marketing of agricultural

products in Liaoning Province and put forward relevant countermeasures [3]. Wang Lulu and others, by analyzing the current situation of new media marketing of agricultural products in Heilongjiang Province, have identified the pain points hindering the development of new media marketing and proposed relevant countermeasures based on the identified problems [4]. Some scholars have also proposed constructive suggestions from the perspective of improving farmers' new media marketing capabilities. Zhang Mo applied Logistic binary regression analysis to identify factors affecting family farm owners' new media marketing capabilities and training willingness, and proposed measures for training family farm owners in new media marketing capabilities [5]. Chen Weihong and others, taking the new media platform "live streaming + short videos + mall" as a case study to assist farmers, have explained from both theoretical and case perspectives the theoretical mechanism and policy effects of Internet marketing in promoting rural industrial development in the Internet plus era [6].

2. Theories and Assumptions

The Theory of Planned Behavior (TPB), proposed by Icek Ajzen [7], is a mature social psychology theory that has been widely applied in fields such as management, nursing, and marketing. As new media becomes a part of daily life, scholars are committed to examining the predictive and explanatory power of TPB on online behavior, including online shopping [8], online services [9], mobile payments [10] and so on. Therefore, TPB can be used to explore the influencing factors of farmers' willingness and behavior in new media marketing in the new media environment.

According to TPB, human behavior patterns are influenced by three main variables. Personal behavior attitude refers to the positive or negative attitude of farmers towards using new

media to market agricultural products. Subjective norms refer to the extent to which an individual's action or intention is influenced by the opinions of people with whom they have social interactions [11]. Specifically, it refers to the social pressure perceived by farmers when making decisions to use new media to market agricultural products. This pressure comes from family members, close friends, colleagues, etc., and subjective norms play a significant role in influencing an individual's acceptance and use of technology [12]. Perceived behavioral control refers to the extent to which farmers perceive the ease or difficulty of using new media for marketing agricultural products. This includes factors such as the time available to farmers, their learning capabilities, and the guidance they can obtain. The smaller the anticipated difficulties for farmers, the greater their Perceived behavioral control, leading to a stronger intention to engage in the behavior. Perceived behavioral control can also have an impact on behavioral attitudes [13]. Accordingly, the following hypotheses are put forward:

H1: Subjective norms have a significant positive impact on farmer's attitudes towards using new media for marketing agricultural products.

H2: Subjective norms have a significant positive impact on farmers' intention towards using new media for marketing agricultural products.

H3: Perceived behavioral control has a significant positive impact on farmers' attitudes towards using new media for marketing agricultural products.

H4: Perceived behavioral control has a significant positive

impact on farmers' intention towards using new media for marketing agricultural products.

H5: The attitude of farmers towards using new media for marketing agricultural products has a significant positive impact on the use of new media for marketing agricultural products.

Under the background of "Digital Commerce and Rural Development", policies related to rural e-commerce, such as offering training courses on new media marketing skills, establishing live streaming bases, and dispatching instructors will also affect farmers' attitudes towards using new media for marketing agricultural products to a certain extent. Accordingly, improvements are made to the Theory of Planned Behavior by incorporating factors influenced by the policy of "Digital Commerce and Rural Development". Therefore, the following hypotheses are proposed:

H6: The policy of "Digital Commerce and Rural Development" has a significant positive impact on farmers' attitudes towards using new media for marketing agricultural products.

H7: The policy of "Digital Commerce and Rural Development" has a significant positive impact on farmers' intention to use new media for marketing agricultural products.

Based on the above hypotheses, a model extended from the Theory of Planned Behavior (TPB) as shown in Figure 1 is established—the model of the mechanism influencing farmers' intention to engage in new media marketing behavior.

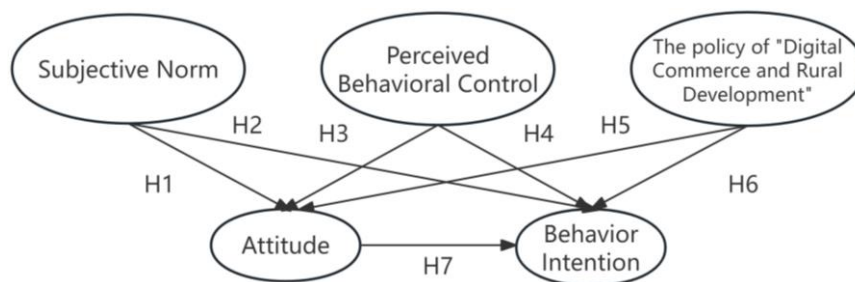


Figure 1. Model of the influencing factors of farmers' new media marketing willingness and behavior in the new media environment

3. Research and Analysis

In light of the above hypotheses, 20 research questions were refined as observational variables, and a Likert 5-point scale was used to assign values to the variables, with 1 being 'Completely Disagree' and 5 being 'Completely Agree'. The design of the scale referenced existing research findings both domestically and internationally. Subjective norms, Perceived behavioral control, and other variables are mainly referred to the TPB theoretical scale designed by Ajzen and Fishbein [14].

This study adopts a combined approach of online and offline surveys, primarily targeting farmers in Wenzhou, Zhejiang Province, from March to May 2024. Due to farmers' difficulty in understanding the concept of new media, representative APPs such as WeChat and TikTok are used as substitutes in the survey.

3.1. Sample Descriptive Statistical Analysis

244 questionnaires were distributed in this survey, and a

total of 225 valid questionnaires were received. The proportion of males and females in the questionnaire is 61.33% and 38.67%. The age group is primarily concentrated in the younger population over 40 years old, accounting for more than 80%, indicating that farmers are still predominantly middle-aged and elderly, with a decreasing appeal to young people. The educational level is mainly junior high school and below, accounting for 77.78%, indicating that the current cultural level of farmers is relatively low, and there are certain difficulties in accepting new things like new media. More than 90% of farmers use smartphones, indicating that there is no hardware barrier to using new media for marketing. Only 38.67% of farmers have used WeChat and Tiktok for new media marketing, which shows that new media marketing has not been popularized among farmers. 32.89% of farmers have used WeChat and Tiktok for new media marketing, while only 24.89% of farmers have participated in new media marketing organized by the government.

Table 1. Sample Descriptive Statistical Analysis Results

Characters	Classification	Frequency	Proportion/%
Gender	Males	138	61.33%
	Females	87	38.67%
Age	≤30	16	7.11%
	30~39	32	14.22%
	40~49	54	24.00%
	50~59	56	24.89%
	≥60	67	29.78%
Education	Elementary school and below	124	55.11%
	Junior high school and below	51	22.67%
	High School/Vocational High School	44	19.56%
	College/University or above	6	2.67%
Whether to use a smartphone or not	Yes	206	91.56%
	No	19	8.44%
Whether to use WeChat/Tiktok to sell agricultural products	Yes	87	38.67%
	No	138	61.33%
Is there anyone around using WeChat/Tiktok to sell agricultural products	Yes	74	32.89%
	No	151	67.11%
Have you participated in the training organized by the government on the use of WeChat/Tiktok for sales	Yes	56	24.89%
	No	169	75.11%

3.2. Reliability and Validity Testing

After conducting reliability analysis on the questionnaire data, it was found that the reliability of each factor was above 0.82, indicating good internal consistency among the variables in the survey scale. The KMO value was shown to

be 0.911 and it was significantly correlated at the 5% level, indicating good structural validity of the data indicators. All item factor loadings were greater than 0.62, with a cumulative explained variance of 73.33%, suggesting that the scale has good discriminant validity and structural validity.

Table 2. Sample Descriptive Statistical Analysis Results

Factors	Initial items	Standardized loading	Cronbach's α
Subjective norm	Those who are important to me (family/friends/neighbors) support me in undertaking new media marketing	0.861	0.832
	Those who are important to me (family/friends/neighbors) express their approval of my engagement in new media marketing	0.782	
	Those who are important to me (family/friends/neighbors) express their appreciation for my involvement in new media marketing	0.695	
	If the vast majority of family, friends/neighbors/colleagues around me believe in new media marketing, then I would be more willing to participate	0.712	
	If other farmers around me are engaging in new media marketing, then I would be more willing to participate	0.848	
Perceived Behavioral Control	I have sufficient capability to support my engagement in new media marketing	0.747	0.821
	I know how to conduct new media marketing	0.684	
	I have avenues to understand new media marketing	0.876	
The impact of the "Digital Commerce and Rural Development" policy	I believe that new media training can enhance my new media marketing skills	0.805	0.839
	I believe that having someone to guide me can facilitate my engagement in new media marketing	0.709	
	I think the government can help me better understand new media marketing	0.887	
Farmers' attitudes towards new media marketing	I believe that new media marketing can promote the sales of agricultural products	0.646	0.773
	I think new media marketing is a fashionable behavior	0.763	
	I think new media marketing can help me earn more money	0.808	
	I think new media marketing makes me feel that selling agricultural products is easier	0.827	
	I think new media marketing helps me alleviate sales pressure	0.709	
Farmers' new media marketing intentions	I am willing to try new media marketing	0.851	0.756
	I would prefer to use WeChat for new media marketing	0.717	
	I would prefer to use Tiktok for new media marketing	0.626	
	I would prefer to use other apps for new media marketing	0.780	

3.3. Regression Analysis

This paper evaluates the structural equation model through AMOS24.0, and the results are shown in Figure 2, which reflects the relationship between latent variables. The results indicate that the hypotheses H1, H2, H5, H6, and H7 are all supported, while H3 and H4 are not supported, as shown in Table 3. This means that the subjective norms affect the attitude of farmers towards using new media for agricultural product marketing, and the intention to use new media for agricultural product marketing is established, with standardized path coefficients of 0.425 and 0.196 respectively. The “Digital Commerce and Rural Development” policy affects the attitude of farmers towards using new media for agricultural product marketing, and the intention to use new media for agricultural product marketing is established, with standardized path coefficients of 0.284 and 0.183 respectively. The attitude of farmers towards using new media for agricultural product marketing affects the intention to use new media for agricultural product marketing, with a standardized path coefficient of 0.382. In summary, the mechanism affecting the intention of farmers to use new media for agricultural product marketing mainly includes three aspects.

3.3.1. Subjective norms become the most important factor affecting the attitude of farmers towards using new media for agricultural product marketing

This may be because farmers have relatively low levels of education and less ability and willingness to proactively

acquire knowledge about new media marketing online. Therefore, the attitudes of people around them have a significant impact on farmers, especially when there are successful cases of using new media for agricultural product marketing nearby.

3.3.2. The policy of "Digital Commerce and Rural Development" become the most important factor affecting the intention of farmers to use new media for agricultural product marketing

The government has effectively addressed the pain points of farmers' lack of personal new media operation capabilities and insufficient aggregation effects of new media operations through policies such as organizing farmers to participate in new media training, establishing shared live broadcasting rooms, and introducing rural e-commerce talents, thereby making farmers more willing to engage in new media marketing.

3.3.3. Perceived behavioral control does not have a significant impact on the attitude and intention of farmers to use new media for agricultural product marketing

Descriptive statistical analysis of the sample shows that the education level of participating farmers is mainly junior high school or below, which also indirectly indicates that farmers have limited learning abilities and capacity to accept new things, unable to fully master the necessary skills for new media operation, thus affecting their attitude and intention to use new media for agricultural product marketing.

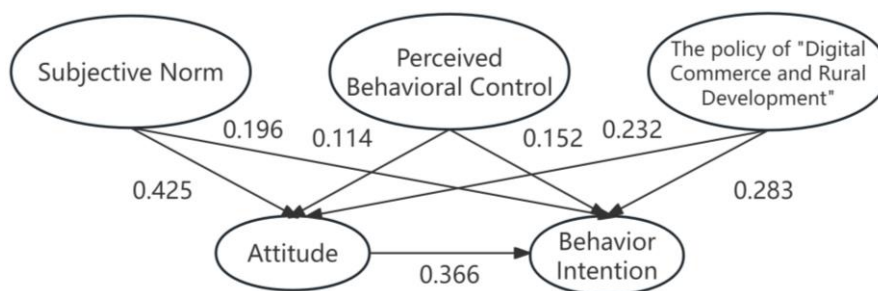


Figure 2. SEM results

Table 3. Hypothesis test table

Hypothesis	Path	Standardized coefficient	t-value	p-value	Results
H1	Subjective norms→Attitude towards new media marketing	0.425	6.365	0.000***	Support
H2	Subjective norms→New media marketing intention	0.196	2.876	0.001***	Support
H3	Perceived Behavioral Control→Attitude towards new media marketing	0.114	1.135	0.221	Reject
H4	Perceived Behavioral Control→New media marketing intention	0.152	1.564	0.094	Reject
H5	The level of new media marketing→Attitude towards new media marketing	0.232	3.664	0.000***	Support
H6	The level of new media marketing→New media marketing intention	0.283	2.978	0.000***	Support
H7	Attitude towards new media marketing→New media marketing intention	0.366	4.554	0.000***	Support

4. Conclusions and Recommendations

4.1. Research Conclusion

Based on the theoretical foundation of the TPB (Theory of Planned Behavior), this paper establishes a model for the

mechanism influencing farmers' intention to engage in new media marketing by incorporating factors affected by the “Digital Commerce and Rural Development” policy. Using survey data from farmers as the analysis subject, the study constructs a structural equation model with five latent variables: subjective norms, perceived behavioral control, the

“Digital Commerce and Rural Development” policy, farmers’ attitudes towards new media marketing, and farmers’ intentions to use new media marketing. An empirical model is employed to analyze the factors influencing farmers’ intentions to undertake new media marketing. The main conclusions are threefold: subjective norms emerge as the most crucial factor affecting farmers’ attitudes towards using new media for agricultural product marketing; the “Digital Commerce and Rural Development” policy becomes the most significant factor influencing farmers’ intentions to use new media for agricultural product marketing; perceived behavioral control does not significantly impact either the attitude or intention of farmers to use new media for agricultural product marketing.

4.2. Policy Suggestion

4.2.1. From the perspective of subjective norms

Rural areas are relatively closed social organizations where the influence of people around farmers is amplified. Therefore, successful cases and guidance from acquaintances will have a greater impact on farmers’ attitudes and intentions. Firstly, by establishing role models, we can enhance and increase farmers’ willingness to participate in new media marketing. Outstanding examples of new media marketing among farmers can be selected for recognition, and actively promote them through news media. Secondly, town and village officials need to change their roles, playing more of an organizing and guiding role in the process of agricultural product new media sales. They should help small-scale farmers understand that new media can allow them to connect directly with consumers in the online market, building a broad sales platform for them.

4.2.2. From the perspective of perceived behavioral control

The currently older age and lower educational level of farmers are important factors restricting their active engagement in new media marketing. Participating in training related to new media marketing skills has an immediate effect on enhancing their capabilities [5]. Firstly, accelerate the establishment of professional new media marketing training institutions. Government departments and vocational colleges should strengthen cooperation, improve the efficiency of constructing new media technology application training institutes, and make rational use of the guiding role of these institutes to direct agricultural extension talents in providing guidance for agricultural product new media marketing. Secondly, intensify network marketing training efforts. In response to the needs of regional agricultural product market promotion and development, strengthen financial support for local agricultural product marketing personnel training, and in combination with the current favorable environment, establish agricultural product new media marketing training courses. This will enable farmers to participate in online training at anytime and anywhere, and provide relevant avenues to address various issues encountered by farmers during the new media marketing process.

4.2.3. From the perspective of the "Digital Commerce and Rural Development" policy

It is necessary not only to solve the hardware problems in new media marketing, but also needs to take into account the improvement of software conditions. In terms of hardware, the government needs to establish a public service support system and create an environment for rural new media marketing. This includes organizing activities such as online

transactions organization management, establishing consignment agencies for sales and sales, skills training, business incubation, cultivating distinctive industries and building online goods supply platforms. These projects will help rural industry related subjects carry out agricultural product sales activities using Internet technology in the new technological environment. Regarding software, the government needs to cultivate and introduce professional and technical talents, strengthen rural human resource capacity building projects, and attract more people with strong market awareness and rich experience in business management, capital, and technology accumulation through policies and measures such as business incubation, entrepreneurship training, social security, financial support, and land and electricity usage. These individuals are encouraged to engage in activities related to rural industry production and operations at entrepreneurship incubation bases.

Acknowledgements

This research is supported by the Basic Scientific Research Project of Wenzhou (R2023021), China.

References

- [1] Chinese Ministry of Commerce, Cyberspace Administration of China, National Development and Reform Commission: 14th Five Year Plan for the Development of E-commerce (2021).
- [2] K.Bai, et al: Research on Optimizing the Sales Channel Model of Guangxi's Special Agricultural Products Based on New Media, *Business Observation*, (2014)No.4, p.54-56.
- [3] G.Y.Luo: Research on New Media Marketing Strategies for Special Agricultural Products in Liaoning Province, *Business & Economy*, (2024)No.4, p.67-69.
- [4] L.L.Wang, J.Z.Shan: Research on New Media Marketing Strategies for Agricultural Products under the Background of Rural Revitalization-Taking Heilongjiang Province as an Example, *Market Modernization*, (2024)No.12, p.80-82.
- [5] M.Zhang: Research on the Influencing Factors of Family Farmers Participating in New Media Marketing Ability Promotion Training-Based on TAM Model and TPB Theory, *Journal of Shenyang Agricultural University (Social Sciences Edition)*, (2022)No.4, p.412-419.
- [6] W.H.Chen, F.Y.Geng: Research on the Mechanism of Network Marketing Empowering Rural Industrial Development: The Case and Analysis of the New Media Platform “Live Broadcast + Short Video + Mall” Helping Farmers, *Issues in Agricultural Economy*, (2023)No.11, p.118-131.
- [7] Ajzen I: The Theory of Planned Behavior, *Organizational Behavior and Human Decision Processes*, (1991)No.10, p.179-211.
- [8] Lim H, Dubinsky A J: The theory of planned behavior in e-commerce: Making a case for interdependencies between salient beliefs, (2010)No.10, p.833-855.
- [9] Hsu M H, Chiu C M: Internet self-efficacy and electronic service acceptance, *Decision Support Systems*, (2005)No.3, p.369-381.
- [10] Y.Z.Guo, X.M.Li: An Empirical Study on Consumers Intention of Buying Tourism Products with Mobile Payments-An Integration Model of TAM and TPB, *Journal of Sichuan University (Philosophy and Social Science Edition)*, (2018)No.6, p.159-170.
- [11] Kim H B, Kim T, Shin S W: Modeling roles of subjective norms and eTrust in customers' acceptance of airline B2C eCommerce websites, *Tourism Management*, (2009)No.2, p.266-277.

- [12] Choi Y K, Totten J W: Self-construal's role in mobile TV acceptance: Extension of TAM across cultures, *Journal of Business Research*, (2012), No.11, p.1525-1533.
- [13] Singh M P, Chakraborty A, Roy M: Developing an extended theory of planned behavior model to explore circular economy readiness in manufacturing MSMEs, India, *Resources Conservation & Recycling*, (2018)No.13, p.313-322.
- [14] Ajzen I, Fishbein M: Scaling and Testing Multiplicative Combinations in the Expectancy-Value Model of Attitudes, *Journal of Applied Social Psychology*, (2010)No.9, p.2222-2247.