

An Empirical Study on Purchasing Intention of Agricultural Product E-commerce Live Broadcast

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ABSTRACT: The purpose is to explore the factors affecting consumers' purchase intention from the massive live broadcast of agricultural products e-commerce, and explore the evolution mechanism from consumers' psychological contract to purchase intention in the live broadcast of agricultural products e-commerce, so as to provide decision-making basis for improving the delivery effect of agricultural products e-commerce. In the first study, through text analysis of live broadcast barrage, the influencing factors of consumers' purchase intention are explored. In the second study, the structural equation model is constructed with the influencing factors as independent variables, the psychological contract as intermediary variables, the involvement degree as regulatory variables, and the purchase intention as dependent variables to explore the evolution mechanism of the consumer's psychological contract to the purchase intention in the live broadcast of agricultural products e-commerce. The first study found that the factors influencing consumers' purchase intention are the content of the anchor, the content of the product, the scene atmosphere of the live room and the third-party guarantee and service. The second study found that anchor attraction, logistics service and other factors positively affect the relationship type psychological contract, while anchor professionalism, organic certification and service positively affect the transaction type psychological contract; The relational psychological contract affects consumers' purchase intention through influencing the transactional psychological contract. The psychological contract plays a part of the mediating role in the path that the live broadcast content of agricultural products affects the purchase intention.

1. INTRODUCTION

The county magistrate live broadcast activity initiated by Taobao and other live broadcast platforms have achieved considerable results. In 2022, the Eastern Selection of agricultural products e-commerce broadcast room is popular on the Internet, causing a new round of online purchase of agricultural products. Rural revitalization is a major strategy related to the national economy and people's livelihood, and the issue of helping farmers is a fundamental problem [1]. President Xi Jinping during his research in Shanxi Province that it is necessary to actively promote the use of e-commerce in the sales of agricultural products, highly affirming the role of e-commerce live broadcast in the sales of agricultural products. This paper is committed to studying the factors that affect consumers' purchase of e-commerce live broadcast agricultural products and the evolution mechanism from consumer psychological contract to purchase intention, which has important practical significance for the development of e-commerce live broadcast of agricultural products and helping farmers.

2. Text Analysis Mining Influencing Factors

The study searched in advance for the top-ranked agricultural live broadcast booths in Taobao and other platforms in terms of number of followers and transaction value, and recorded the target agricultural live broadcast booths during the same time period, and converted it into text form. The study collected a total of 64,593 agricultural products live broadcast barrage, and word segmentation is conducted by jieba calling Baidu Open-Source Paddle Database, which has more accurate segmentation effect. Text feature extraction can intuitively reflect the focus of consumers. In NLP, good text feature extraction effect is required whether it is clustering, classification or similarity tasks [2]. TF-IDF feature extraction algorithm has been favored by relevant researchers and many application fields due to its simplicity, high accuracy and recall rate [3]. The TF-IDF formula is shown in (1).

$$W_{ij} = tf_{ij} \times idf_{ij} = tf_{ij} \times \log(N/n_j) \quad (1)$$

It can be seen from the calculation that consumers focus on the following factors in the process of agricultural products e-commerce live broadcast:

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agricultural products logistics delivery speed, freshness, taste, packaging integrity, anchor attraction, professionalism, interactivity, anchor reputation and social endorsement, live broadcast room atmosphere scene, third-party live broadcast platform guarantee and customer service, etc. After the key feature words are extracted by TF-IDF, it is necessary to conduct cluster analysis on them, and study and analyze the service objects and evaluation opinions that consumers focus on in the process of live shopping of agricultural products. K-means has the advantages of easy understanding, good clustering effect and low algorithm complexity [4]. It can be seen from the calculation that the clustering effect is the best when the K value is 4. The text analysis results define the overall attributes of e-commerce live broadcast of agricultural products that affect consumers' purchase intentions as follows: anchor attraction, anchor interaction, anchor professionalism, social endorsement, organic certification, agricultural product quality, logistics service, social presence and third-party guarantees and service.

3. Empirical Analysis of Structural Equation Model

3.1 Research Model

According to the above research, it can be seen that the main factors of agricultural products e-commerce live broadcast affecting consumers' purchase intention are anchor attribute, product attribute, scene atmosphere of the live broadcast room and third-party guarantee and service. With these four main factors as independent variables, psychological contract as mediating variable, involvement degree as moderating variable and purchase intention as dependent variable. Based on the influence of agricultural product e-commerce live broadcast attributes on psychological contract, this paper studies the evolution mechanism of psychological contract to purchase intention in agricultural product e-commerce live broadcast, and analyzes the regulating effect of involvement degree. The research model is shown in Figure 1.

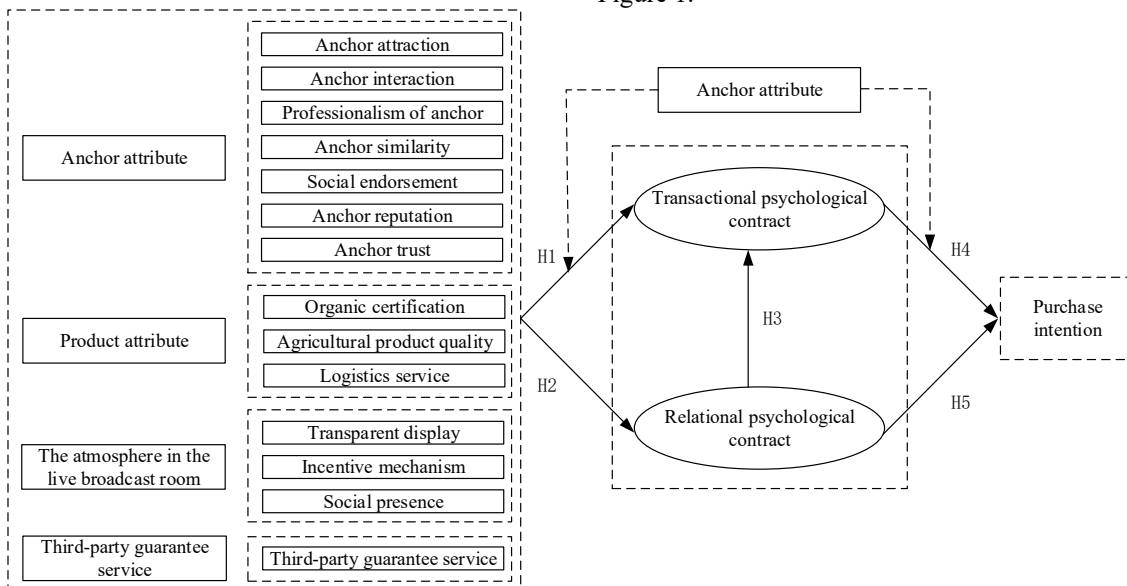


Figure 1 Research Model

3.2 Research hypothesis

3.2.1 The relationship between the live broadcast attribute of agricultural products e-commerce and psychological contract

The establishment of consumer relation-based psychological contract is based on the emotional bond established by live broadcast merchants and consumers; The establishment of consumer transactional psychological contract is based on the benefit exchange and mutual trust, the recognition and trust of the responsibility commitment of the livestreaming of agricultural products e-commerce merchants. To sum up, this paper puts forward the following assumptions:

H1: Live agricultural e-commerce attribute (anchor attribute, product attribute, scene atmosphere of the live broadcast room, third-party guarantee and service) positively influences consumer relational psychological

contract.

H2: Live agricultural e-commerce attribute (anchor attribute, product attribute, scene atmosphere of the live broadcast room, and third-party guarantee and service) positively influence consumer transactional psychological contract.

3.2.2 The relationship between relational psychological contract and transactional psychological contract

Through the empirical study of consumer psychological contract and behavioral intention, the researchers confirm that relational psychological contract positively affect transactional psychological contract[5];The seller commitment affects the consumer willingness to consume through the customer psychological contract, and the psychological contract plays an intermediary role in the seller commitment affecting the consumer willingness to

consume. The relational psychological contract has a positive impact on the transactional psychological contract [6]. Therefore, this paper puts forward the following assumptions:

H3: Relational psychological contract positively affects transactional psychological contract in live broadcast of agricultural product e-commerce.

3.2.3 The relationship between psychological contract and purchase intention

Xu Juan et al [7] confirm through their research that psychological contract plays a significant mediating role in the effect of farmer interactive behavior on their intention to co-build regional brands of agricultural product. Therefore, this paper puts forward the following assumptions:

H4: The relational psychological contract in the broadcast of e-commerce agricultural product positively affects consumers purchase intention.

H5: The transactional psychological contract in the live broadcast of e-commerce agricultural product positively affects consumer purchase intention.

3.2.4 Regulatory effect of the degree of involvement

Hong [8] confirm through research that situational involvement, perceive risk and trust expectation have an important impact on consumers' purchase choice, and situational involvement has a regulatory effect on consumers' trust expectation. Therefore, this paper puts forward the following assumptions:

H6: The involvement degree of purchase situation plays a regulatory role in the relational path of agricultural product e-commerce live broadcast attribute → psychological contract → purchase intention.

3.3 Questionnaire design and data sources

This paper includes four core research variables, the live broadcast attribute of agricultural products e-commerce, relational and transactional psychological contract, and purchase intention. The questionnaire design draws on the existing research, and is screened and fine-tuned according to the actual situation. The measurement of the four core variables and the degree of involvement is based on the research of related scholars Meng Lu et al [9-12]. The research objects are consumers who have experience of watching or buying live broadcasts of agricultural products online. This paper chose to distribute 687 questionnaires on the professional questionnaire research platform Questionnaire Star, and those without experience in watching live broadcast of agricultural products are excluded. Finally, 655 valid questionnaires are effectively collected, and the questionnaire efficiency reached 95.41%.

3.4 Reliability and validity Test

SPSS26.0 software is used to test the reliability and

validity of the questionnaire data. The test results showed that the overall clonbach α coefficient of the questionnaire is 0.943, and the reliability of each variable is more than 0.800, indicating that the overall design of the questionnaire is reasonable and has good reliability. In this paper, the validity of the questionnaire is tested by KMO value and Bartlett's sphericity test. After calculation, the overall KMO value of the questionnaire is 0.915 and the Bartlett value is 0.000, which indicates that the overall interpretation of the questionnaire is high and has good validity. At the same time, the KMO value of each variable is greater than 0.700, and the significance level of Bartlett's sphericity test is 0.000, so the questionnaire design of this paper met the reliability and validity test.

3.5 Model Fitting Test

In this paper, AMOS software is used to construct structural equation models to verify the hypotheses among the variables. Firstly, the model fitting was tested and the indicators selected for the study were: Chisquare/df, GFI, AGFI, NFI, CFI, and RMSEA [13]. The indicator data are shown in Table 1, and it can be seen from the table that all indicator values are within a reasonable range and therefore the model fit is relatively good.

Table 1 Model fit results

Model fitting indicator	Range of acceptable values	Value of the model
Chisquare/df	<3.0	2.512
GFI	0.7~0.9	0.795
AGFI	0.7~0.9	0.832
NFI	0.7~0.9	0.864
CFI	0.7~0.9	0.735
RMSEA	<0.1	0.071

3.6 Hypothesis test

The structural equation path test results showed that in the impact of the live broadcast attribute of agricultural products e-commerce on the psychological contract, anchor attraction ($p=0.042$), anchor similarity ($p=0.004$), anchor reputation ($p=0.013$), anchor trust ($p=0.008$), logistics service ($p=0.007$), transparent display ($p=0.012$), social presence ($p=0.012$), third-party guarantee and service ($p=0.011$), and positively affect the consumer relationship psychological contract; Professionalism of anchors ($p=0.017$), anchor reputation ($p=0.005$), anchor trust ($p=0.016$), organic certification ($p=0.004$), agricultural product quality ($p=0.001$), transparent display ($p=0.009$), incentive mechanism ($p=0.001$), third-party guarantee and service ($p=0.013$), and positively affect the consumer transactional psychological contract. It can be seen from the table 2 that relational psychological contract positively affects transactional psychological contract, and transactional psychological contract positively affects purchase intention; Relational psychological contract has no effect on purchase intention; Although the relational psychological contract has no effect on the purchase intention, it improves the purchase intention by promoting the transactional psychological contract. Consumers and

agricultural product merchants establish a long-term and stable emotional relationship connection and commitment

in the live broadcast, which plays a guiding role in consumer transactions.

Table 2 Model path coefficient

Hypothesis	Path	Regression coefficient	P-value	Hypothesis is true
H1	Anchor attraction→Relational psychological contract	0.113	0.042	Partially true
	Anchor interaction→Relational psychological contract	0.102	0.076	
	Professionalism of anchor→Relational psychological contract	0.002	0.924	
	Anchor similarity→Relational psychological contract	0.184	0.004	
	Social endorsement→Relational psychological contract	0.064	0.241	
	Anchor reputation→Relational psychological contract	0.145	0.013	
	Anchor trust→Relational psychological contract	0.163	0.008	
	Organic certification→Relational psychological contract	0.034	0.657	
	Agricultural product quality→Relational psychological contract	0.006	0.945	
	Logistics service→Relational psychological contract	0.168	0.007	
	Transparent display→Relational psychological contract	0.119	0.012	
	Incentive mechanism→Relational psychological contract	0.006	0.635	
	Social presence→Relational psychological contract	0.261	0.012	
Third-party guarantee and service→Relational psychological contract	0.248	0.011		
H2	Anchor attraction→Transactional psychological contract	0.113	0.062	Partially true
	Anchor interaction→Transactional psychological contract	0.094	0.084	
	Professionalism of anchor→Transactional psychological contract	0.151	0.017	
	Anchor similarity→Transactional psychological contract	0.063	0.126	
	Social endorsement→Transactional psychological contract	0.004	0.945	
	Anchor reputation→Transactional psychological contract	0.178	0.005	
	Anchor trust→Transactional psychological contract	0.154	0.016	
	Organic certification→Transactional psychological contract	0.192	0.004	
	Agricultural product quality→Transactional psychological contract	0.395	0.001	
	Logistics service→Transactional psychological contract	0.054	0.068	
	Transparent display→Transactional psychological contract	0.218	0.009	
	Incentive mechanism→Transactional psychological contract	0.397	0.001	
	Social presence→Transactional psychological contract	0.061	0.243	
Third-party guarantee and service→Transactional psychological contract	0.204	0.013		
H3	Relational psychological contract→Transactional psychological contract	0.412	0.000	true
H4	Relational psychological contract→Purchase intention	0.034	0.625	false
H5	Transactional psychological contract→Purchase intention	0.476	0.000	true

3.7 Mediating effect test

The research uses Bootstrap to test the mediation effect of psychological contract. first removing the insignificant paths in the structural equation, and then iterating 3000 times to determine whether the mediation effect is significant according to whether the 95% confidence interval of the mediation effect contains 0. Focus on the analysis of the main paths such as professionalism of the anchor→ transactional psychological contract→ purchase intention, anchor reputation→ transactional psychological contract → purchase intention ,etc. The results of the intermediary effect test show that the 95% confidence interval of the intermediary effect of all the paths does not contain 0, and the intermediary effect is significant. It can be judged that there is an evolutionary mechanism from transactional psychological contract to purchase intention in agricultural products e-commerce live broadcast. In addition, although the intermediary effect of relational psychological contract is not significant, it can affect the purchase intention by influencing transactional psychological contract.

3.8 Moderating effect test

This paper draws on the moderating effect test used by Jin Sun et al [14] to investigate the moderating effect of involvement degree, the study first take the average value of 4.538 for involvement degree, and then centralizes the total sample into high (involvement value = 5.496, SD = 0.617, N = 397) and low (involvement value = 3.387, SD = 0.868, N = 290) are imported into the structural equation model for each of the two groups. In this study, whether the critical ratio (C.R.) of the difference between the two groups of parameters is greater than 1.965 or less than -1.965 to verify whether the degree of involvement moderation is significant. It can be seen from the test results that in the case of high involvement, it is easier to form relation-type psychological contract with anchor similarity, anchor reputation, anchor trust, transparent display and social presence, and organic certification, agricultural product quality, logistics service, incentive mechanism, third-party guarantees and service are more likely to form transactional psychological contracts. So H6 is verified.

4. CONCLUSION

This paper studies the impact of live broadcast attributes of agricultural products on consumers' purchase intention. In study 1, four dimensions of consumers' purchase intention and 14 variables of subdivision are obtained through Python text analysis of live broadcast barrage files. In the second study, the structural equation model is constructed with the four influencing factors as independent variables, the psychological contract as intermediary variables, the involvement degree as regulatory variables, Empirical analysis is conducted using SPSS and AMOS software. Research findings:

Firstly, anchor attraction and logistics service in the live broadcast attributes of agricultural products e-commerce positively affect consumer relational psychological contract; professionalism of anchor, anchor reputation, anchor trust, organic certification, agricultural product quality, transparent display, incentive mechanism, third-party guarantee and service positively affect consumer transactional psychological contract, while anchor interaction and social endorsement have no impact on the relational and transactional psychological contract.

Secondly, among the two dimensions of psychological contract on purchase intention, transactional psychological contract actively positive purchase intention, while relational psychological contract has no effect on purchase intention, but it further affects the purchase intention by influencing transactional contract. The study confirms the evolutionary mechanism of the live broadcast attribute of agricultural products e-commerce affecting consumers' psychological contract and then the purchase intention.

Finally, the study analyzed the moderating role play by the degree of involvement in the psychological contract influence of the agricultural products e-commerce live broadcast attribute. In the case of high involvement, it is easier to form relation-type psychological contract with anchor similarity, anchor reputation, anchor trust, transparent display and social presence, and organic certification, agricultural product quality, logistics service, incentive mechanism, third-party guarantees and service are more likely to form transactional psychological contract.

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