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The Impact of Live Streaming of Fresh Agricultural Products on Consumers' Purchase Intention-Consider the Regulatory Role of Policy Support

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Abstract: ***To understand the influence of fresh agricultural products online live on consumer purchase intention, based on SOR (Stimuli-Organism-Response) theory framework, with convenience, interactivity, anchor prestige, task fit as a stimulus variable, to customer participation as a psychological latent variable construction theory model, based on the questionnaire data, using the structural equation model of measurement model consistency, reliability, convergence validity and validity test, and explore the role of the latent variables, with path coefficient as an observation index analysis of the model results. The research results show that convenience, interactivity, anchor reputation and task fit have significant positive effects on customer participation, among which the biggest influence is convenience; in the process of convenience and interaction on customer participation, policy support plays a positive regulating role, in the process of anchor reputation and task fit on customer participation.***

Keywords: Fresh agricultural products, Live online, Policy support, Control response, Structural equation model**.**

1. Foreword

According to the 52nd Statistical Report on The Development of Internet in China released by China Internet Network Information Center, as of June 2023, the number of live streaming users in China reached 765 million, accounting for 71.0% of the total Internet users. Among them, the number of e-commerce live streaming users was 298 million, accounting for 27.6% of the total Internet users. E-commerce live broadcast has promoted the transformation and upgrading of the sales channel of fresh agricultural products. The supply side and the consumer end are directly connected to complete the transaction, forming a new connection between the supply and demand of agricultural products [2], which has a profound impact on the purchase mode and experience of consumers.

Different researchers have made different studies on the factors influencing the purchasing intention of fresh agricultural products. Zhao Tianshui [3] explores the relationship between consumer trust and purchase intention based on risk perception theory, the results show that, Trust is directly proportional to the purchase intention, Inverse relationship to risk perception; Wang Tong [4], based on the structural equation model, Explore the influence of the popularity, interactivity, trust and other factors of e-commerce anchors on the purchase intention; Xiao Hailin and Huang Yi [5] found that consumer perception, product quality, anchor reputation and other factors will have an impact on the purchase intention of consumers in the innovative product market; Meng Lu [6] explores the influence of e-commerce anchors on consumers' purchase intention from the perspective of heart flow theory; On the basis of the e-commerce live broadcast model, Zhang Baosheng [7-8] and others, Studying live shopping will produce awakening, trust and happy reactions to consumers, Thus affecting the purchase behavior of consumers; Dong Peng [9] et al. found that as the pace of life accelerated, Consumers are more inclined to "web celebrity recommendation", "web celebrity planting grass" and other shopping methods, Anchor or web celebrity to have a high control of product quality, Recommended to consumers with more cost-effective products, To win higher trust from consumers, Increase consumers' purchase intention; Sinthamrong[10] et al showed that in the course of webcast, The comprehensiveness and accuracy of information have a certain impact on consumers' purchasing intention.

To sum up, most of the studies on the purchase intention of fresh agricultural products focus on consumers 'personal characteristics and the characteristics of the products themselves, while there are few studies on the influence of the interactivity and convenience of online shopping on consumers' purchase intention, and the current studies rarely consider the regulatory effect of policy support on customer participation. Therefore, this paper takes convenience, interactivity, anchor reputation and task fit as the stimulus variables, customer participation and purchase intention as the psychological latent variables, and policy support as the adjustment variable to build a structural equation model to explore consumers' purchase intention of fresh agricultural products.

2. Study Hypotheses and Theoretical Models

At present, China has made unprecedented development in the field of e-commerce live broadcasting. With the gradual maturity of emerging technologies such as 5G, big data, cloud computing and the Internet of Things, online shopping has become a popular trend. Traditional fresh agricultural products sales with the Internet, logistics and transportation industries deeply combined, formed a new sales model —— fresh agricultural products online live sales.

Online live broadcasting has great convenience for consumers, and this convenience refers to the cost saved by consumers in the process of buying fresh agricultural products, including

the time cost and space cost. Qiu Li [11] found that consumption convenience has a positive effect on Internet customer loyalty, and customer satisfaction has a positive regulating role in the whole transmission mechanism. Based on this, this paper puts forward the following research hypothesis:

H1: Convenience has a significant positive impact on customers' purchase intention.

Interactivity refers to the information interaction with anchors and other consumers in the process of watching a live broadcast [12]. et al. found that customer perceived value changes with the change of Internet interaction mechanism, and by personal innovation and experience, this paper proposes the following research hypothesis:

H2: Interactivity will have a significant positive impact on customers' purchase intentions.

Anchor reputation refers to the characteristics of anchors themselves to attract consumers. Peng Liangjun [13] et al. found that the reputation of anchors has a positive impact on the effort and sales price of live broadcasting, and the impact on the live broadcasting supply chain and the overall profit first decreased and then increased. Based on this, this paper puts forward the following research assumptions:

H3: The anchor reputation has a significant positive impact on customers' purchase intention.

Task fit refers to the degree to which live content is consistent with consumers expecting information. Park [14] et al. showed that the reliability and accuracy of product information and the fit of the product have a certain impact on consumers' purchase intention. Based on this, this paper puts forward the following research assumptions:

H4: Task fit has a significant positive impact on customers' purchase intentions.

Customer participation refers to the investment behavior of emotion, money and experience that consumers assume a certain role of producer in the process of agricultural production and service. The study of Zhou Li [15] et al. shows that consumers' participation in the process of live broadcast is directly proportional to the loyalty to their platform, and its social value will also have a positive impact on the platform loyalty. Based on this, this paper puts forward the following research hypothesis:

H5: Customer engagement has a significant positive impact on customers' willingness to buy.

In recent years, fresh agricultural products electricity live supported by the national policy, the National Development and Reform Commission actively jointly with the relevant parties issued "on further optimizing the development environment to promote the implementation opinions of the circulation of fresh agricultural products", help to further optimize the development environment in the field of fresh agricultural products circulation, based on this paper puts forward the following assumptions:

H6a: Policy support has a positive regulatory role in the impact of convenience on customers' purchase intention;

H6b: Policy support has a positive regulatory effect in the influence of interaction on customers' purchase intention;

H6c: Policy support has a positive regulating role in the influence of anchors 'reputation on customers' purchase intention;

H6d: Policy support has a positive role in the influence of task fit on customers' purchase intention.

According to the above assumptions, based on SOR theory, convenience, interaction, anchor prestige, and task fit are taken as the stimulus variables, customer participation and purchase intention as the psychological latent variables, and purchase intention as the dependent variable to establish the purchase intention influencing factor model. The model path assumption is shown in Figure 1.

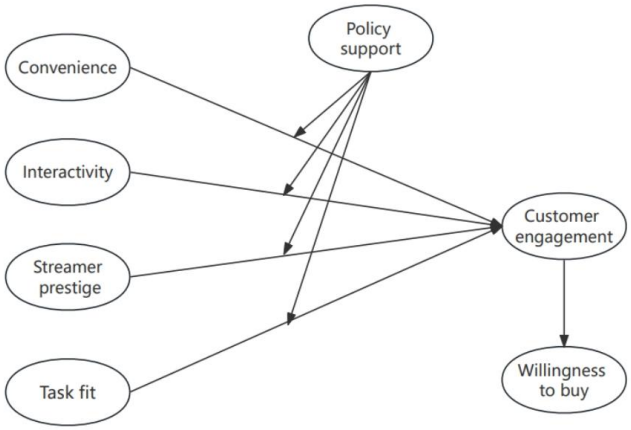

Figure 1: Factor model affecting the purchasing intention of fresh agricultural products

3. Scale Design and Data Sources

The survey selected Ningbo consumers as a survey object, using research website online questionnaire, survey questionnaire with Likert five rating scale, according to the previous literature, on the basis of previous research, the preparation of this questionnaire, the questionnaire a total of 33 topics, issued 560 questionnaires, effective questionnaire 544, effective recovery rate of 97%.

Table 1: Design of the questionnaire scale

variable	Question item	identifier
convenience	Online live purchase of fresh produce can save travel time	XA1
	Online live purchase of fresh produce can save selection time	XA2
	I can accept the delivery time to buy fresh agricultural products live online	XA3
	Fresh produce from different regions can be purchased through live streaming	XA4
interactivity	You can communicate with other consumers during the process of live online purchase	XB1
	During the process of online purchase, you can share with others information about fresh agricultural products	XB2
	In the process of online live purchase, users can know the same purchase intention	XB3
	You can communicate with the anchors during the purchase process of online live streaming	XB4
Ancho	I will buy the fresh agricultural products recommended by	XC1

r reputation	the anchor that I follow	
	Before I buy it, I will watch the sales volume and evaluation of the agricultural products in the studio	XC2
	I can watch the online live broadcast of fresh agricultural products because the anchors are more well-known	XC3
	My relatives and friends buy the products recommended by the network anchor, and I will also pay attention to this anchor	XC4
Task fit	Live streaming can give me a more comprehensive understanding of the fresh produce I want to buy	XD1
	Live online streaming can effectively show the fresh produce information I need	XD2
	The information provided by online broadcast is enough to meet what I need to know when buying fresh produce	XD3
	Online live streaming can buy fresh produce consistent with the live streaming introduction	XD4
Customer participation	I will spend time exchanging ideas with online salesmen of fresh produce	MA 1
	I will discuss what I am interested in with other fresh produce consumers	MA 2
	I will get the relevant information in the communication with the fresh produce sales staff	MA 3
	I often interact with consumers of fresh produce on various platforms	MB 1
	I am willing to cooperate with the activities initiated by the fresh produce suppliers	MB 2
	I will take the initiative to participate in the fresh agricultural products activity initiated by the online live broadcasting platform	MB 3
	I will often participate in the interaction of fresh agricultural products consumers on various platforms	MC 1
	I will be stimulated by the interaction enthusiasm of consumers of fresh agricultural products on different platforms	MC 2
	I will exchange my specific views on an agricultural product with other members through different platforms	MC 3
policy support	If the discounts of fresh agricultural products meet expectations, I will consider priority purchase	W1
	If the distribution service of fresh agricultural products is relatively perfect, I will consider the priority to purchase	W2
	If the return and exchange policy of fresh agricultural products is perfect, I will consider the priority to purchase	W3
	If the quality test of fresh agricultural products is qualified, I will consider the priority to purchase	W4
willingness to buy	I will buy fresh produce live online	Y1
	I would recommend my relatives and friends to buy fresh produce through live streaming	Y2
	When I have the intention to buy, I will consider watching live online to learn about relevant agricultural products	Y3
	After watching the live broadcast, my willingness to buy fresh produce will increase	Y4

4. Data Analysis

4.1 Reliability and Validity Analysis

To ensure the reliability and usefulness of the study conclusions, the model reliability and validity analysis were performed using SPSS Statistics 24.0 software, and the results are shown in Table 2. When using the Likert scale, the α coefficient is generally considered to be greater than 0.70. The α coefficient of each variable in the questionnaire scale was greater than 0.70, indicating the high reliability of the data of the questionnaire scale. As can be seen from Table 2, the KMO value of all variables in the questionnaire scale is greater than 0.70, and the significance level of Bartlett sphere test is 0.000. When the KMO value is greater than 0.70, and the significance level of Bartlett sphere test is less than 0.05, the scale can be considered suitable for further factor analysis.

Table 2: Reliability and validity tests table

Variable name	number of terms	*α coefficient*	KMO	Bartlett Spherical test		
				chi-square test	degree	significance level
convenience	4	0.843	0.819	854.435	6	0.000
interactivity	4	0.872	0.834	1052.500	6	0.000
Anchor reputation	4	0.896	0.848	1262.665	6	0.000
Task fit	4	0.876	0.835	1102.324	6	0.000
Customer participation	9	0.937	0.961	3308.560	36	0.000
policy support	4	0.855	0.826	918.316	6	0.000
willingness to buy	4	0.879	0.839	1102.044	6	0.000

Confirmatory factor analysis is a research method used to verify whether the relationship between the factors in the model and the corresponding observed variables is consistent with the hypothesis, which mainly verifies the aggregate validity and discriminative validity.

Polymerization validity, also known as convergence validity, test is theoretically should be under the same factor, in the actual investigation, AVE (square extraction variance) and CR (component reliability) commonly used to detect aggregation validity value, when AVE value is greater than 0.5 and CR value greater than 0.7 data aggregation validity is good, from table 3, the AVE value of each factor are greater than 0.5 and CR value is greater than 0.70, indicating good data aggregation validity and good internal consistency.

Table 3: Convergent validity table

variable	Question item	factor loading	CR	AVE
convenience	XA1	0.803	0.875	0.636
	XA2	0.791		
	XA3	0.798		
	XA4	0.798		
interactivity	XB1	0.803	0.893	0.677
	XB2	0.840		
	XB3	0.821		
	XB4	0.828		
Anchor reputation	XC1	0.857	0.914	0.728
	XC2	0.853		
	XC3	0.849		
	XC4	0.853		
Task fit	XD1	0.848	0.901	0.696
	XD2	0.830		
	XD3	0.850		
	XD4	0.808		
Customer participation	MA1	0.793	0.934	0.612
	MA2	0.786		
	MA3	0.778		
	MB1	0.808		
	MB2	0.793		
	MB3	0.778		
	MC1	0.775		
	MC2	0.782		
	MC3	0.748		
policy support	W1	0.818	0.894	0.680
	W2	0.819		
	W3	0.841		
	W4	0.821		
willingness to buy	Y1	0.829	0.895	0.680
	Y2	0.830		
	Y3	0.836		
	Y4	0.805		

Differcriminative validity is opposite to aggregate validity, indicating the observed variable that theoretically should not be under the same factor and indeed belongs to the same factor in the actual measurement. When the AVE root value of

each factor is greater than the correlation coefficient between the factor and the other factors, it indicates that the data differentiation validity is good. Table 4 shows the AVE root value of each factor meets the test criteria, and the data differentiation validity is good. In conclusion, the model in the text passed the reliability and validity test.

Table 4: Differential validity table

variable	convenience	interactivity	Anchor reputation	Task fit	policy support	Customer participation	willingness to buy
convenience	0.636						
interactivity	0.152	0.677					
Anchor reputation	0.193	0.178	0.728				
Task fit	0.179	0.164	0.187	0.696			
policy support	0.095	0.091	0.101	0.098	0.680		
Customer participation	0.376	0.346	0.333	0.317	0.096	0.612	
willingness to buy	0.168	0.148	0.165	0.168	0.162	0.447	0.680
AVE square root	0.797	0.797	0.797	0.797	0.797	0.797	0.797

4.2 Test of Model Fit

In this study, AMOS26.0 was used to test the model. The test results are shown in Table 5, the chi-square freedom ratio is less than 3, the approximate error root mean square (RMSEA) result is less than 0.05, the absolute fit index (AGFI) is greater than 0.8, the value-added adaptation index (TLI, NFI, IFI) is greater than 0.9, and the comparative adaptation index (CFI) is greater than 0.5, meeting the criteria proposed by Wen Zhonglin et al. This indicates that this model has a good fit and allows for further path analysis.

Table 5: Model fit test

index	CMIN/DF	RMSEA	AGFI	TLI	NFI	IFI	CFI
Suggested value	<3	<0.05	>0.8	>0.9	>0.9	>0.9	>0.5
Model fit values	1.143	0.016	0.942	0.994	0.956	0.994	0.994
Whether it meets the standards	yes	yes	yes	yes	yes	yes	yes

4.3 Pathway Relationship Testing and Analysis

The results of the significance analysis of the model impact pathway are shown in Table 6, The effect coefficient of convenience on customer participation reached the significance level of 99% confidence (P <0.01), The influence coefficient of interactivity on customer participation reached the significance level of 99% confidence (P <0.01), The influence coefficient of anchor prestige on customer participation reached the significance level of 99% confidence (P <0.01), The effect coefficient of task fit on customer participation reached the significance level of 99% confidence (P <0.01), The influence coefficient of customer participation on purchase intention reached the significance level of 99% confidence (P <0.01). In this paper, H1a, H1b, H2a, H2b, H 2 b, H3a, H3b, H4 and H5 are all established. Therefore, the structural equation model of the factors influencing the purchase intention of consumers of fresh agricultural products is shown in Figure 2.

Table 6: Estimation of the path coefficient of the structural equation model

suppose	path relationship	path coefficient	S.E.	C.R.	*P*
H1	Customer participation <- - -convenience	0.179	0.045	3.983	***
H2	Customer participation <- - -interaction	0.187	0.053	3.561	***
H3	Customer participation <- - -, the anchor reputation	0.152	0.040	3.775	***
H4	Customer participation <- - -Task fit	0.178	0.047	3.789	***
H5	Purchase intention <- - -, customer participation	0.164	0.042	3.875	***

Note: * * * is 0.000

The influence between variables is measured by the standardized path coefficient. It can be seen from Table 7 that the influence of fresh agricultural products on customer participation is: convenience (0.286), interactivity (0.269), anchor reputation (0.159), task fit (0.178), and the influence coefficient of customer participation on purchase intention is 0.418. According to the results, convenience, interactivity, anchor reputation and task fit have a significant positive impact on customer participation, and customer participation also has a significant positive impact on the purchase intention. For online broadcast, consumers value most for convenience, because online broadcast greatly saves the space cost and time cost of consumers buying agricultural products, on the one hand, consumers can buy fresh agricultural products from all over the country; on the other hand, consumers only spend very little time to wait, can receive the purchased products. Secondly, the influence of interactivity on customer participation is reflected in the process of live broadcast. Consumers interact with anchors and other consumers to exchange information, which improves customers' understanding of fresh agricultural products. At the same time, the influence of anchors 'reputation on customer participation is reflected in the personal charm and reputation endorsement of anchors, which greatly improves consumers' trust in online live broadcasting. Finally, the impact of task fit on customer participation is reflected in that when the information provided by the online live broadcast is consistent with the information expected by consumers, consumers will actively watch the relevant live broadcast. For the above reasons, the enthusiasm of customers to participate will also increase, which will have a significant positive impact on consumers' purchase intention.

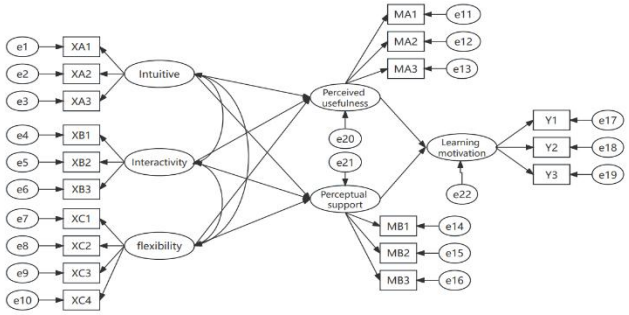

Figure 2: Structural equation diagram of consumer purchase intention of fresh agricultural products

Table 7: Parameter estimation table of the path relationship of each variable in the structural equation model

假设	路径关系	标准化路径系数
H1	Customer participation <- - -convenience	0.286
H2	Customer participation <- - -interaction	0.269
H3	Customer participation <- - -, the anchor reputation	0.159
H4	Customer participation <- - -Task fit	0.178
H5	Purchase intention <- - -, customer participation	0.418

4.4 The Regulatory Role of Policy Support

As shown in Figure 8, convenience * policy support and interaction * is 0.000, indicating that policy support has a regulating effect on convenience and interaction; convenience * The regression coefficient of policy support B is 0.184> 0, indicating that when convenience affects customer participation, policy support plays a positive regulating role; interaction * policy support B is 0.178> 0, indicating that policy support plays a positive regulating role when convenience has an impact on customer participation. The popularity of anchors * policy support and task fit * The significance of policy support is 0.201 and 0.128> 0.1 respectively, indicating that policy support does not have a regulatory effect on the popularity and task fit of anchors.

Table 8: Test of the regulatory effect of policy support

model	Unstandardized coefficients		Standardization coefficient	t	conspicuousness	VIF
	B	Standard error	Beta			
Convenience * Policy support	0.184	0.041	0.178	4.527	0.000	1.002
Interactive * Policy support	0.178	0.045	0.158	3.972	0.000	1.004
Anchor prestige * policy support	0.057	0.044	0.053	1.280	0.201	1.001
Task fit * Policy support	0.066	0.043	0.063	1.525	0.128	1.000

5. Conclusion and Suggestion

A) Customer participation is significantly positively influenced by the convenience, interactivity, anchor reputation and task fit of online live broadcasting, and significantly positively affects consumers' purchase intention. Among them, the factor with the biggest impact on customer participation is convenience.

B) Policy support plays a positive regulating role in the process of convenience on customer participation and the interaction; policy support does not have a regulating role in the process of the popularity of anchors on customer participation and the process of task fit on customer participation.

Based on the above study conclusions, Make the following suggestions: First, The development of online live streaming of fresh agricultural products is inseparable from the construction of infrastructure, In particular, with the development of the supply chain and logistics industries, therefore, We need to build infrastructure logistics facilities in the origin of agricultural products, Truly meet consumers' needs to save time and space in online purchase; next, Online live streaming of agricultural products also needs to actively interact with consumers, Understanding the real consumer needs, Guided by consumer demand, Construction of online live broadcast of agricultural products sales channels; last, Relevant departments shall actively introduce corresponding policies, Cooperate with the live-streaming platforms, Maximize the profits between the buyers and the sellers, Thus promoting the development of online live broadcast of agricultural products.

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