

# Research on Consumer Purchase Intention of Live Broadcast of Agricultural Products E-commerce

Hanyu Liang, Ziyang Lu and Xiaozheng Liu

School of Social Audit, Nanjing Audit University, Nanjing 210000, China

## Abstract

E-commerce live broadcast has developed rapidly in recent years, and live broadcast e-commerce to help farmers has become an important way to alleviate the problem of unsalable agricultural products and solve the problems of agriculture, rural areas and farmers in the post-poverty era and post-epidemic era, but e-commerce live broadcasts still faces the challenge of stimulating consumers' willingness to buy. This paper starts with the research on the influencing factors of consumers' purchase intention of live broadcast of agricultural products e-commerce, using correlation and regression analysis and Likert scale to analyze 261 valid questionnaire from several explanatory variables including interactivity, visual attractiveness, content, anchor popularity, anchor professionalism, anchor familiarity, and consumers' perceived trust. At last, this paper puts forward countermeasures and suggestions from the perspective of these factors for live broadcast of agricultural products e-commerce.

## Keywords

E-commerce Live Broadcast; Consumer Purchase Intention; E-Commerce Poverty Alleviation; Three Rural Issues.

## 1. Introduction

In recent years, the new business model of Livestreaming e-commerce is developing rapidly. According to iResearch, the market size of the live broadcast e-commerce industry has exceeded 2 trillion yuan in 2021. Published by CNNIC, the number of live streaming e-commerce users in China has reached 388 million as of December 2021, accounting for 39.2% of the total netizens. Livestreaming e-commerce is playing an important role in promoting employment, expanding domestic demand, revitalizing the economy and promoting poverty alleviation, especially during the COVID-19 pandemic. Moreover, the combination of e-commerce live broadcast and the agricultural and sideline products industry which is called e-commerce poverty alleviation is playing an increasingly important role in alleviating the pressure on unsalable agricultural products, improving farmers' living standards, and promoting the solution of three dimensional rural issues. In 2022, the live broadcast is written into the Central No. 1 document which has vigorously pointed out that it is necessary to implement the "digital business and agriculture" project, promote e-commerce into the countryside, and promote the standardized and healthy development of live broadcast of agricultural and sideline products.

However, e-commerce poverty alleviation is facing many challenges, such as lack of effective publicity and supervision, inadequate infrastructure and services, the variety of the quality of agricultural products, livestreaming's lack of premium content and so on. Moreover, under the increasing fierce competition of livestreaming e-commerce platforms, it is necessary for e-commerce platforms to use more methods to attract consumers and improve competitiveness. Combining domestic and foreign research literature, we can see that consumers' perceived service quality and perceived value have a positive impact on purchase intention. Some

scholars believe that the higher the quality of e-commerce live broadcast content, the stronger the ability of the anchor, and the more able it is to attract consumers. Some scholars have studied the role of perceived value in e-commerce live broadcasts and the effect of perceived value on consumers' purchase intention plays a mediating role. Some scholars have pointed out that the four dimensions of the anchor's professionalism, attractiveness, interaction and popularity have different effects on consumers' purchase intention.

In view of this, this paper conducts a search and statistics analysis of the influence of several explanatory variables including interaction, visual attractiveness, content, popularity of anchors, professionalism of anchors, familiarity of anchors and consumers' perceived trust on consumers' purchase intention in live broadcast of agricultural products e-commerce and put forward corresponding suggestions to promote the development of live broadcast of agricultural products e-commerce.

## 2. Related Concepts

**Perceived value:** It is the overall evaluation of the utility of a product or service after weighing the perceived benefit of the customer with the cost of obtaining the product or service. The customer-perceived value reflects the customer's subjective perception of the value of the products or services provided by the enterprise, and is different from the objective value of the products and services.

**Descriptive analysis:** Descriptive analysis refers to preliminarily sorting and summarizing a large amount of original data, and analyzing its centralization and dispersion trends by describing the inherent laws of the original data.

**Correlation analysis:** Correlation analysis is to analyze the signs that are indeed related in the population, and its main body is the analysis of the signs of causality in the population. It is a process of describing the closeness of the relationship between objective things and using appropriate statistical indicators.

**Regression analysis:** Regression analysis refers to a statistical analysis method to determine the interdependent quantitative relationship between two or more variables.

**Likert scale:** Likert scale is one of the most commonly used aggregated scales. These items belonging to the same construct are scored in an aggregated manner, and individual or individual items are meaningless. It was improved by the American social psychologist Likert in 1932 on the basis of the original total plus scale. The scale consists of a set of statements, each statement has five responses, "strongly agree", "agree", "not necessarily", "disagree", and "strongly disagree", marked as 5, 4, 3, 2, 1. The total score of each respondent's attitude is the sum of the scores obtained by his answers to each question. This total score can indicate the strength of his attitude or his different status on this scale.

## 3. Research Methods

### 3.1. Data Sources

Based on the previous research on e-commerce live broadcast and consumer purchase intention literature, the researchers designed a questionnaire. The questionnaire is divided into three parts, which are the basic information of the respondents, the characteristics of consumers' purchasing behavior and respondents' subjective attitude towards live broadcast of agricultural products e-commerce. A total of 278 questionnaires were collected in this study, 261 valid questionnaires were screened, and the effective recovery rate was 93.88%.

## 3.2. Descriptive Analysis

### 3.2.1. Sample Distribution Characteristics

In terms of age distribution, it is concentrated in 26-45 years old, of which 19-25 years old accounted for 21.84%, 26-35 years old accounted for 30.65%, 36-45 years old accounted for 32.57%. College degree and above accounted for 75.47%. About half of the respondents work in enterprises and institutions. 86.6% of them have an income of 3,000 yuan and above, which is basically the same as the age group of the respondents. Overall, the sample has good representativeness and reliability.

**Table 1.** Sample distribution characteristics

Basic features	Attributes	Sample size	Percentage//%
<b>Gender</b>	male	122	46.74
	female	139	53.26
<b>Age</b>	18 and under	0	0
	19-25	57	21.84
	26-35	80	30.65
	36-45	85	32.57
	46 and above	39	14.94
<b>Educational level</b>	Primary school education	12	4.6
	Junior high school education	15	5.75
	High school diploma	37	14.18
	College degree	58	22.22
	Bachelor's degree	100	38.31
	Master's degree	28	10.73
	Doctoral degree	11	4.21
<b>Profession</b>	Student	2	0.77
	Freelancers	122	46.74
	Employees of enterprises and institutions	78	29.89
	Self-employed	59	22.61
<b>Monthly income</b>	1500 and below	1	0.38
	1501-2000	1	0.38
	2001-3000	33	12.64
	3001-5000	64	24.52
	5001-10000	68	26.05
	1001-20000	60	22.99
	20000 and above	34	13.03

### 3.2.2. Consumer Behavior Characteristics

A total of 87 people often watch live broadcasts with goods, accounting for 33.33%, and 124 people who watch occasionally, accounting for 47.51%. The number of people who never watch and watch almost every day is very small. The more frequently you watch, the more likely you are to place an order. Among the factors that affect ordering, more than half of the people choose convenient, fast, safe and reliable, and are influenced by the anchor's explanation. It can be seen that the anchor's explanation will greatly affect the consumer's order Single. There are various platforms for consumers to buy live agricultural products. In recent years, Douyin has risen rapidly. 64.37% of the respondents have the experience of watching live broadcast of agricultural products on Douyin platform. More than 60% of people are more inclined to the live broadcast of celebrities. In recent years, local government workers have also begun to help the sales of local agricultural products, and the "major live broadcast" has emerged.

**Table 2.** Analysis of consumers buying behavior characteristics

Basic features	Attributes	Sample size	Percentage//%
Frequency of viewing	never	0	0
	Occasionally	124	47.51
	Often	87	33.33
	Almost everyday	50	19.61
Reason for order	Low price	99	37.93
	Convenient	139	53.26
	Safe and secure	140	53.64
	Influenced by the anchor's introduction	119	45.59
	Complete range	99	37.93
	Support and help farmers	60	22.99
Platform	Taobao	120	45.98
	JD	154	59
	Dou yin	168	64.37
	Pin duo duo	127	48.66
	Kuai shou	73	27.97
	Other	0	0
Live-bought agricultural products	Fresh fruits and vegetables	129	49.43
	Fresh meat	144	55.17
	Grains and Nuts	177	67.82
	Diary	123	47.13
Anchor type	Well-known Internet celebrity anchor	121	46.36
	Celebrity	161	61.69
	Government staff	158	60.54
	Farmer	129	49.43

### 3.2.3. Reliability and Validity Analysis

Using SPSS28.0 to analyze the data, the Cronbach's alpha coefficient is above 0.85, in the range of 0.80-0.90, so the reliability of the questionnaire is very good. After analysis, the significance is less than 0.05, indicating that the questionnaire is suitable for factor analysis. The KMO value is 0.746, showing the validity is good. In summary, indicating that the sample data is suitable for correlation analysis and regression analysis.

## 4. Correlation and Regression Analysis

### 4.1. Correlation Analysis

The explanatory variables of this study are interactivity, visual attractiveness, content, anchor popularity, anchor professionalism, anchor familiarity, and consumers' perceived trust. The explained variable is consumers' purchase intention, because the explained variables are all consumers' subjective attitude, so this survey uses the Likert five-scale scale to measure, the opinions are strongly disagree, disagree, neutral, agree, strongly agree.

All variables are significant at the 0.01 level. The correlation coefficients between interactivity, visual attractiveness, content, anchor popularity, anchor professionalism, anchor familiarity, consumer perceived trust and consumer purchase intention are 0.137, 0.496, 0.796, 0.589, 0.564, 0.714, 0.682, it can be seen that there is a moderate correlation between content, anchor popularity, anchor professionalism, anchor familiarity, consumer perception trust and

consumer purchase intention. There is a low correlation between visual attractiveness and consumer purchase intention, and there is no correlation between interactivity and consumers' purchase intention. The analysis of the above results shows that the independent variables set in this study, except for interactivity, have a great impact on consumers' purchase intention in e-commerce live broadcast, for example, when the live broadcast is more famous and professional, the consumer purchase intention is higher, consumers are more likely to place an order during the live broadcast.

**4.2. Regression Analysis**

**Table 3. ANOVA a**

ANOVAa						
	Model	Sum of Squares	def	Mean Square	F	Sig.
1	Regression	116.964	1	116.964	448.922	<.001 <sup>b</sup>
	Residual	67.481	259	.261		
	Total	184.444	260			
2	Regression	135.718	2	67.859	359.309	<.001 <sup>c</sup>
	Residual	48.726	258	.189		
	Total	184.444	260			
3	Regression	146.011	3	48.670	325.448	<.001 <sup>d</sup>
	Residual	38.434	257	.150		
	Total	184.444	260			
4	Regression	149.312	4	37.328	271.995	<.001 <sup>e</sup>
	Residual	35.133	256	.137		
	Total	184.444	260			
5	Regression	150.754	5	30.151	228.207	<.001 <sup>f</sup>
	Residual	33.691	255	.132		
	Total	184.444	260			
6	Regression	151.557	6	25.259	195.086	<.001 <sup>g</sup>
	Residual	32.888	254	.129		
	Total	184.444	260			
a. Explanatory variables: consumer purchase intention						
b. Predictors: (constant), content						
c. Predictors: (Constant), Content, Consumer Perceived Trust						
d. Predictors: (Constant), Content, Consumer Perceived Trust, Streamer Familiarity						
e. Predictors: (Constant), Content, Consumer Perceived Trust, Streamer Familiarity, Visual Appeal						
f. Predictors: (Constant), Content, Consumer Perceived Trust, Streamer Familiarity, Visual Appeal, Streamer Professionalism						
g. Predictors: (Constant), Content, Consumer Perceived Trust, Streamer Familiarity, Visual Appeal, Streamer Professionalism, Streamer Popularity						

The stepwise regression method was used in this study, and introducing the independent variables in sequence. The adjusted R<sup>2</sup> was 0.822, indicating that the independent variables could explain 82.2% of the changes in the dependent variables. It can be seen from the result of variance analysis that for the regression equation significance and retrograde hypothesis test (F test), significant P<0.05, indicating that the model has statistical significance in this analysis. From the coefficient table, it can be concluded that the standardized coefficients of visual attractiveness, content, anchor popularity, anchor professionalism, anchor familiarity, and consumer perceived trust are 0.119, 0.463, 0.071, 0.075, 0.213, and 0.234 respectively. Therefore, the regression equation can be obtained as  $y = -0.622 + 0.119 \times \text{visual attractiveness} + 0.463 \times \text{content} + 0.071 \times \text{anchor popularity} + 0.075 \times \text{anchor professionalism} + 0.213 \times \text{anchor familiarity} + 0.234 \times \text{consumer perceived trust}$ .

**Table 4. Coefficients a**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.583	.185		3.152	.002
	content	.897	.042	.796	21.188	<.001
2	(Constant)	.146	.163		.895	.372
	content	.667	.043	.593	15.602	<.001
	Consumer Perceived Trust	.330	.033	.378	9.965	<.001
3	(Constant)	-.285	.154		-1.845	.066
	content	.546	.041	.485	13.405	<.001
	Consumer Perceived Trust	.262	.031	.301	8.578	<.001
	Streamer Familiarity	.279	.034	.287	8.296	<.001
4	(Constant)	-.534	.156		-3.414	<.001
	content	.513	.040	.456	12.958	<.001
	Consumer Perceived Trust	.246	.029	.283	8.367	<.001
	Anchor familiarity	.258	.033	.265	7.936	<.001
	Visual attractiveness	.132	.027	.145	4.904	<.001
5	(Constant)	-.575	.154		-3.734	<.001
	content	.489	.040	.434	12.360	<.001
	Consumer Perceived Trust	.238	.029	.273	8.207	<.001
	Anchor familiarity	.233	.033	.240	7.110	<.001
	Visual attractiveness	.119	.027	.131	4.464	<.001
	Anchor professionalism	.082	.025	.104	3.304	.001
6	(Constant)	-.622	.154		-4.051	<.001
	content	.463	.041	.411	11.435	<.001
	Consumer Perceived Trust	.234	.029	.269	8.157	<.001
	Anchor familiarity	.213	.033	.219	6.356	<.001
	Visual attractiveness	.119	.026	.131	4.491	<.001

	Anchor professionalism	.075	.025	.094	2.998	.003
	Anchor popularity	.071	.029	.081	2.491	.013

## 5. Suggestions

### 5.1. Increase the Visual Appeal of Live Broadcasts

The study has proved that there is a low correlation between visual attractiveness and consumer purchase intention. It can be seen that visual attractiveness plays a little important role among these explanatory variables. Product is the core of live broadcast, especially in the live broadcast of agricultural and sideline products which pays much attention to showing the freshness and quality of the products. As a result, it is important to make agricultural products look very fresh and delicious. However, this is not a long-term strategy for attracting consumers. The agricultural products merchants need to seek innovation to make their products more unique, making consumers impressive and leading them to repurchase. Therefore, the merchants should focus on product packaging, not only should the packaging be designed to be aesthetically pleasing, but also should combine the packaging with the product features and local cultural features. At present, the sense of technology and environmental protection concept of packaging are also very important. Moreover, the merchants should build brand awareness and extend the brand communication chain to increase the added value of the product.

### 5.2. Enrich Content and Interactions of Livestreaming

It can be seen from this study that content plays the major role in arousing consumers' desire to purchase agricultural and sideline products. Although the study shows that there is no correlation between interactivity and consumers' purchase intention, it doesn't mean that livestreaming can ignore interactions. When the anchor pay attention and answer audience' questions in a timely manner and show enough sincerity to customers, the good interactivity will add interest and richness to the content of the live room. Besides, the anchors and the merchants can take many ways to enrich content of livestreaming. For one thing, the anchor should have substance in speech, it means that the anchor is able to give detailed information such as freshness, tastes, prices, discount and after-sales service on agricultural products to consumers. For another thing, the merchants are supposed to mark the detailed information and highlight important precautions such as allergen, suitable crowd, preservation methods and so on in the live room. The most effective way to attract consumers and increase user stickiness is to enhance the innovation of the content and stay creative and innovative. For that, the merchants can introduce new elements into the live room. For example, the merchants can let the inhabitants of the agricultural producing area sing songs and dance featuring local cultures, or let farmers impart agricultural products planting techniques and planting stories, or conduct a raffle or play interactive games with the audience in the live room, even let anchors write or shout out discounts and offers in an exaggerated manner.

### 5.3. Improve the Popularity, Professionalism and Familiarity of the Anchor

The study has showed that the anchor factor is the most important factor affecting consumers' purchase intention. The current e-commerce live broadcast has gradually formed a model of professional anchor live broadcast, county magistrate live broadcast, official live broadcast, and farmer live broadcast. Each of these four live streaming modes has its pros and cons, but professional anchor live broadcast is the most popular trend right now. According to the study, streamer familiarity is the key factor in enhancing consumer purchase intentions, so the merchants can make a long-term hire of one or two professional anchors for live broadcast, sometimes the anchor image can become a kind of brand image. Besides, farmers live broadcast

can make consumers feel more authentic and reliable and rural culture can be spread by telling the stories of agricultural products or farmers to attract consumers during the live broadcast. As a result, it is necessary to enhance farmers' e-commerce live broadcast training. Apart from that, the county magistrate or the local officials can also carry out live broadcasts with professional anchors in order to attract audiences and drive rural economic development. No matter what kind of live broadcast method, the anchor must enhance professional ability, have a certain sense of humor and be honest.

#### 5.4. Increase Consumer Perceived Trust Through Multiple Channels

Perceived value usually includes quality value, price value, emotional value, social value and service value, combined to produce a perceived utility called consumer's choice, so the merchants can stimulate consumers' purchase intention from these aspects. First, the merchants should try their best to improve the quality of products to gain the trust of consumers. When necessary, the raw materials and technologies used in agricultural and sideline products can be indicated in the live broadcast room. Then, when there is no difference in product value, purchase cost, and search cost, experience value is the determinant of consumers' choice of purchasing channels, so the merchants need to provide good consulting services and after-sales service and minimize purchase cost, time cost and search cost. Next, in the online shopping environment, the manifestation of social value is generally online comments and scores, which are subject to a certain degree of subjectivity, and are often referred to as electronic word-of-mouth, so the most important is to gain customer trust. Not only can the merchants gain word-of-mouth by providing quality service, but also they can do some charity work to increase social value.

#### References

- [1] W.J Li, M.M Chi,W.J Wang: Research on online consumer preference prediction based on perceived value, *Journal of Management*, 2021,18(06),p.912-918.
- [2] Jia Liu, Y.J Zou, Z.X Liu: Analysis of influencing factors of consumers' purchase intention in e-commerce live broadcast based on SEM model, *Statistics and Decision*, 2021, 37(07),p.94-97.
- [3] Wang Tong. Research on consumer purchase intention in the context of e-commerce live broadcast [D]. Minzu University of China, 2020.
- [4] Zheng Xing. Research on the influence of e-commerce live broadcast interaction types on consumers' impulse purchase intention [D]. Chongqing Technology and Business University, 2019.
- [5] Jia Xiaofeng. Research on Consumers' Purchase and Integration Intention of E-commerce Live Broadcasting Platform [D]. Beijing University of Posts and Telecommunications, 2019.
- [6] Teng Yan. Research on Consumer Purchase Intention in E-commerce Live Streaming Scenario [D]. Chongqing Technology and Business University, 2021.
- [7] X.X Tian, J.J Tian: Research on Influencing Factors of Consumers' Purchase Intention in E-commerce Live Streaming--Taking Taobao Live Streaming as an Example, *Technology and Innovation*, 2020 (20), p.4-8.
- [8] X.J Wang, Wen Wang,N.N Wang: Research on the Influence of E-commerce Online Live Broadcast Mode on Consumers' Purchase Intention--Based on the Mediating Effect of Cognition and Emotion, *Market Modernization*, 2019(15),p.13-14.
- [9] Y.L Qin, Ying Huang, Rong Yang, G.T Wang, S.Y Wu: Research on the influence of e-commerce live broadcast marketing and consumers' purchase intention, *Modern Commerce*, 2022(06), p.39-41.
- [10] Li Wang, Y.R. Liu: Analysis of consumer trust issues in live broadcast of agricultural products under e-commerce poverty alleviation--Taking Quzhou City as an example, *Anhui Agricultural Sciences*, 2022, 50(11), p.211-214.