参赛队员姓名：刘洲一

中学： 北京师范大学附属实验中学

省份： 北京市

国家/地区： 中国

指导教师姓名： 王洋

指导教师单位： 北京师范大学附属实验中学

论文题目：Watch and purchase：Analysis on Online Informercial

Abstract:

With the development of the Internet and the emergence of the epidemic, the importance of online shopping has gradually increased. To attract consumers, the propaganda methods of businesses have gradually become diversified. Among them, online informercial became popular in the past year. From an empirical point of view, this article focuses on the characteristics of people watching live broadcasts and the factors that affect consumers' purchasing decisions, combining the consumer decision-making model and the empirical research of the predecessors. A questionnaire was designed and disseminated through the Internet. In the end, 161 people completed the first part and 49 of them completed the second part. All data have been analyzed with R studio. The following conclusions are drawn: consumers' decision-making is positively influenced by the three channels "Knowledge", "Emotion", and "Fame of Kol", among which the direct variables "Information" and "History" positively influence decision-making through "Knowledge". "Information", "Quality and low price", and "History" positively influence decision-making through "Emotion". "Fame" positively influences decision-making through "Fame of Kol". At the end of the thesis, based on the conclusions, suggestions are made for online companies, live broadcast platforms to increase consumer purchases, and the deficiencies of this article are summarized.

Key words: Online shopping; Consumer decision; Online informercial; PCA analysis, Regression analysis

Table of contents

Watch and purchase：Analysis on Online Informercial

Zhouyi Liu

1. Introduction

1.1 Background:

Online informercial is a new online shopping method based on the internet. This method is popular in today's society with its high discounts and live broadcast. Many online companies will choose livers on the Internet to promote their products during their live broadcasts, and viewers in this live broadcast room can also be eligible to purchase the products at a lower price. These livers often have a certain fan base. The prices offered by companies are also very eye-catching. Especially during the global epidemic, when offline shopping is restricted, the value of online shopping will increase. This emerging shopping method also ushered in a new growth peak in 2020. This economic model has a total scale of only 22 billion yuan in 2017, has reached 433.8 billion yuan in 2019, and 961 billion yuan in 2020, an increase of 121.53% year-on-year. [1]Online informercial not only develops on traditional online shopping platforms such as Taobao, but also advances rapidly on new live broadcast and short video platforms such as Kuaishou and Douyin. In 2019, the number of active livers on the Kuaishou platform exceeded one million, and more than 61% of the merchants had monthly income of up to 100,000.[2]

1.2 Research questions:

Even such a rapidly developing economic model has its drawbacks. Compared with the real-time feedback of consumers during offline shopping, the online shopping always brings some concerns to consumers: whether the quality can be guaranteed when the goods are shipped, whether the purchase is impulsive consumption, whether the product is suitable for me, and so on. The livers provide different solutions to alleviate these concerns. For cosmetics, they will choose more exaggerated makeup methods; for food, they will introduce more about its taste and nutrition. And whether this approach will make consumers more inclined to make purchasing decisions is a question worth considering. Therefore, one of the core research questions of this research is the factors that affect the live shopping decision. When we compare this shopping model with traditional online shopping, it is not difficult to find that "live broadcast" is the biggest difference between the two. And the second important question studied in this research is what kind of group will watch the online informercial.

The research in this paper is dedicated to helping various live broadcast platforms to discover potential consumers, reduce consumers' perceived risks by improving the live broadcast content of the platforms, and increase the proportion of consumers making purchasing decisions. And it can clarify the characteristics of the existing consumer groups, and use different strategies for other groups to realize the development of potential consumers. Different from previous articles, the data in this study was collected after the global epidemic pandemic and the live broadcast delivery industry exploded. And this research considers whether the publicity and recommendation of live broadcast and platform will make consumers more inclined to

[1] http://finance.sina.com.cn/stock/hyyj/2020-04-07/doc-iimxyqwa5560175.shtml
[2] https://www.sohu.com/a/402766112_211289

make purchase decisions.

1.3 Finding:

Through research, we found that for online informercial, there are a total of four direct variables that affect purchase decisions through three channels. The four direct variables are: "Information", "Quality and low price", "History", "Fame", and the three channels are "Knowledge", "Emotion", and "Fame". Among the direct variables: "Information" and "History" influence consumers through the "Knowledge" channel, "Information", "Quality and low price", and "History" influence consumers through the Emotion channel. And "Fame" as a separate channel to influence consumers. These four variables and three channels are all positively correlated with dependent variables. Whether it is e-commerce or live broadcast, by improving content and adjusting products, consumers can be encouraged to make purchases. Decision-making. At the same time, we also found that with the improvement of educational level, people tend not to be very cold about online informercial, and they are more inclined to choose a more efficient way of purchasing. However, employees including company management personnel are very good at live-streaming goods. If you are interested, online informercial is a way of pastime for them. Finally, the higher the proportion of online shopping consumption, people also tend to watch online informercial. For them, online informercial can provide cheaper prices, they are doing There are fewer doubts when making decisions.

The rest of this article will be expanded with the following structure. In the second part, we will summarize and compare related documents. In the third part, we discussed the design ideas and results of the questionnaire, and performed factor analysis and regression analysis on the results, and made further analysis. In the last part, a comprehensive analysis of the results of the research is done, and the drawbacks of the article are discussed.

2. literature review

There are some related works on the online infomercial. First, to illustrate the nature and content of online infomercial, Meiling Ding (2018) believed that famous livers are the core of live broadcast, which means that they have certain fame and skills on social platforms and the ability to turn the countless "fans", "popularity" and "content of live broadcast" gathered behind them into purchasing power, in the other words money. Famous livers provide new channels for online companies to attract more consumers. Live broadcasts conduct and promote fans' consumption. And Jinglin Wang (2016) believed that the popularity of webcasting is the social demand, which can accompany people's lives anytime, anywhere.

As for the types of online infomercial, Jinglin Wang (2016) believed that from the perspective of live broadcast, there are three main categories: show live broadcast, game live broadcast, and general life live broadcast. The live broadcast of the show has developed into variety shows, joke writers, singing, talent shows, etc. The game live broadcast includes match live broadcast and personal live broadcast. Personal live broadcast refers to the explanation of corresponding game matches, with subjective personal opinions and language characteristics. General life live broadcasts involve a wide range of subjects and are intended to chat or accompany. They are highly viscous social interactions, such as eating, chatting, traveling, fitness, and other life categories that you can think of can be used as live broadcast subjects.

Jiaqi Jiang (2019) proposed that although the types of webcasts can be divided into

different types, the monetization methods are relatively similar. With the continuous diversification of the monetization methods of famous livers, in addition to the way of live-streaming rewards, live-streaming marketing has also become a commercial monetization method vigorously promoted by major platforms. This is closely related to the real-time and interactive features of live broadcasts and has become one of the main and efficient ways for Internet celebrities to promote their stores.

The most related works are the following paper which focuses on the factors that affect online infomercial and consumers' behaviors. Xin Chong, Xin Guo, and Yujia Zhou (2016) pointed out that the prevalence of social networking sites has diversified the factors that affect consumers' participation in online group shopping. The increasing maturity of online group shopping has had a great impact on consumers' buying channels and the reputation of online companies. Jiaqi Jiang (2019) believed that consumers' "knowledge" and "emotion" will affect consumers' purchasing decisions, including the interactivity of live webcasts, the information transmitted by famous livers, marketing activities during the online infomercial, and consumers' attitudes towards online livers. trust and love etc.

However, on this basis, this article believes that the network factors represented by the live broadcast platform's recommendation also have an impact on the purchase decision, and we decompose the process of live streaming into two parts: watching to live broadcast and making a purchasing decision, and for the reach of live broadcast The same hypothesis was put forward.

Besides, this work is also related to theoretical models of consumer behaviors. Howard (1963) proposed the Howard-Sheth model, which analyzes consumers' buying behavior from four major factors: input factors, external factors, internal factors, and outcome variables.

The EKB model was first proposed by Engel, Kollat, and Blackwell in 1968. This model decomposes consumer decision-making into four stages: information input stage, information-processing stage, decision-making stage, and variable influence stage. Its
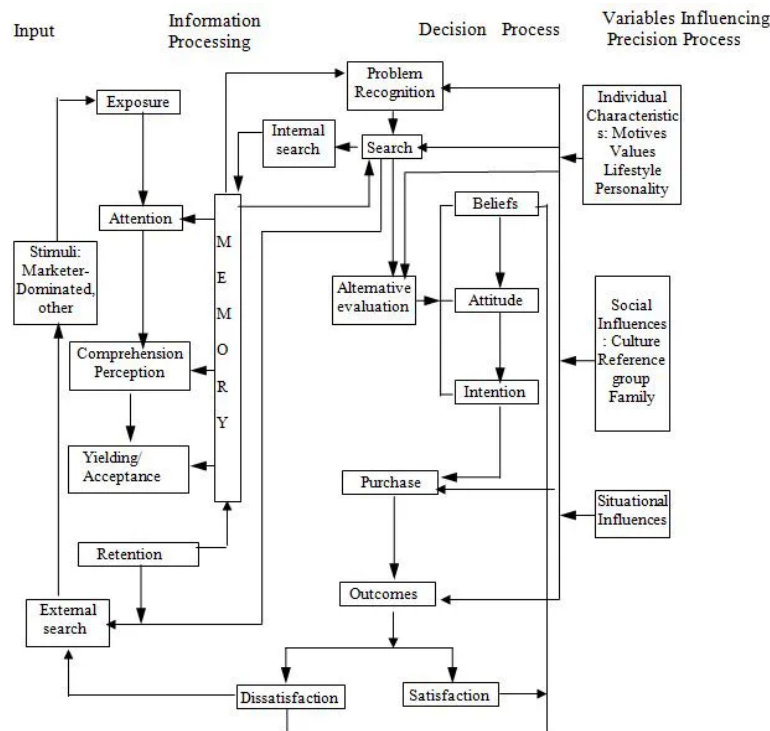
mode of action is as follows:

Figure 1. Demonstration figure of EKB model

This model mainly analyzes the influence of external information on the purchase decision and considers the possible influence of some external variables on the decision. We design our research based on these theoretical models.

Last, we also refer to platform-related papers. For instance, Marius F. Niculescu, DJ Wu, Lizhen Xua (2016) suggested that when quality is exogenous for the entrant (which is one of the steps in solving our general equilibrium via backward induction) if products are vertically differentiated and the intensity of the network effects is very strong, the incumbent prefers to close the technology. They also mention that when the entrant chooses the quality level and the incumbent is strategic in its platform opening decision, we find that intense network effects make new players shun the market.

Nicholas Economide and Evangelos Katsamakas (2006) uncovered that when the platform has a network of N> 1 independent applications, the proprietary software industry is more profitable than the industry based on an open-source platform if users have a strong preference for application variety.

Feng Zhu and Qihong Liu (2018) found that Amazon enters 3% of complementary product spaces over 10 months, and is more likely to enter the spaces of products with higher sales and better reviews and that do not use Amazon's fulfillment service. They also find that Amazon is less likely to enter product spaces that require greater seller effort to grow.

By now, to the best of my knowledge, not much research or data evidence analyzes the effects of platforms on online infomercial empirically. Thus, we include this part in our research to fill in the gap.

3   Questionnaire designing and data analysis

3.1 Questionnaire designing

The questionnaire used in this article is divided into two parts: personal information and questions related to online live shopping. All respondents are required to answer the questions in first part. If the respondent chooses yes for the question "Whether to watch online informercial?", s/he will take the second part, otherwise, the questionnaire interview ends. The Likert scale is used here. The respondent can choose one answer among the five options based on personal experience: "very satisfied", "satisfied", "average", "relatively dissatisfied" and "very dissatisfied". The Likert scale not only helps the respondent to accurately express his or her own judgment, but also makes it possible to make a detailed analysis of the results. Q1 to Q11 are the questions for personal information. For part two covering A1 to H3, we design the questions based on Howard-Sheth model to measure each variable with two to three questions. In detail, A1 to E2 are questions for the direct variables which affect consumers' behavior directly. Then F1 to G4 are to measure the indirect variables which stand for the channels the direct factors would take effect. Last, H1 to H3 are questions measuring the degree of consumers' willing to pay, which would be treated as dependent variable in one of following model.

Table 1 Summary of Variables, Question Number, Test items

Variable Name	Question Number	Description
Gender	Q1	Gender
Age	Q2	Age range
Education	Q3	Education level
Living condition	Q4	Level of living place
Online shopping frequency	Q5	Frequency of online shopping within a month
Proportion of online infomercial	Q6	Proportion of online infomercial of goods to online shopping
Career	Q7	Whether the career is a company employee
Whether to watch	Q8	Whether to watch live infomercial
Whether to buy	Q9	Whether to buy product from live infomercial
Whether friends recommend	Q10	Whether friends recommend
How to know	Q11	How to know live infomercial
Information	A1	I think live informercial can display products comprehensively
	A2	I think the host in the live informercial can effectively reduce my worries before buying
	A3	I think the host can give personalized suggestions based on my description
Quality and low price	B1	I will buy because the product is a limited edition.
	B2	I will buy it because the product is only on sale in the live informercial
	B3	I will buy because of the excellent quality of the product
	C1	I tend to choose to watch live informercial that I

History[3]	C2	The live informercial I watch are often recommended by my friends	
	C3	You will feel more at ease when buying in a live informercial recommended by a friend	
Fame	D1	I prefer to make purchases in popular live informercial	
	D2	I prefer to choose a live informercial that has more cooperation with famous brands to purchase	
	D3	I prefer to choose a live informercial of a more well-known anchor to purchase	
Recommendation	E1	The platform can always provide me with personalized recommendations	
	E2	I can always buy the products I need in the live informercial recommended by the platform	
Knowledge	F1	By watching the live informercial, I have a comprehensive understanding of the product	
	F2	By watching the live informercial, I think the product is very valuable	
	F3	By watching the live informercial, I have a deeper understanding of Internet celebrities	
Emotion	G1	By watching the live informercial, I became interested in buying the products introduced by the Internet celebrities	
	G2	By watching the live informercial, I love the influencers I follow even more	
	G3	By watching the live informercial, I feel in a good mood	
	G4	By watching the live informercial, I trust the Internet celebrities more	
Willingness to pay	H1	I am willing to consider purchasing goods while watching the live informercial	
	H2	I am willing to continue to watch the online informercial and consider buying goods	
	H3	I would like to recommend friends around me to watch online informercial or buy its products	

3.2 Data collection

Through the Wenjuanxing[4]the questionnaires were distributed and collected in June 2021. A total of 161 valid data were collected, of which 49 people answered the second part. The results are show in the Table 2 and table 3:

Table 2. Summary Statistics of Part One(Q1-Q11)

	variable	n	mean	max	min	sd
1	Gender	161.0	0.3	1.0	0.0	0.4

---

[3] After your friends have made a purchase, they will also affect you, so I include the purchasing history of friends to make the measure of this variable comprehensively.
[4] https://www.wjx.cn/vj/ORxSdwr.aspx

	variable	n	mean	max	min	sd
2	Age	161.0	2.7	4.0	1.0	0.7
3	Education	161.0	3.1	4.0	1.0	1.0
4	Living condition	161.0	1.0	1.0	0.0	0.2
5	Online shopping frequency	161.0	2.1	4.0	1.0	1.1
6	Proportion of internet commercial	161.0	2.6	5.0	1.0	1.4
7	Career	161.0	0.4	1.0	0.0	0.5
8	Whether to watch	161.0	0.3	1.0	0.0	0.5
9	Whether to buy	161.0	-1.8	1.0	-3.0	1.8
10	Whether a friend recommends	122.0	1.5	2.0	1.0	0.5
11	How to know	49.0	0.5	1.0	0.0	0.5

Table 3. Summary Statistics of Part Two(A1 to H3)

	variable	n	mean	max	min	sd
1	A1	49.0	3.7	5.0	2.0	0.9
2	A2	49.0	3.7	5.0	2.0	0.9
3	A3	49.0	3.3	5.0	1.0	1.0
4	B1	49.0	2.8	5.0	1.0	1.2
5	B2	49.0	3.4	5.0	1.0	1.3
6	B3	49.0	3.9	5.0	1.0	1.1
7	C1	49.0	3.9	5.0	1.0	1.1
8	C2	49.0	3.1	5.0	1.0	1.2
9	C3	49.0	3.7	5.0	1.0	1.0
10	D1	49.0	3.4	5.0	1.0	1.2
11	D2	49.0	3.8	5.0	2.0	1.0
12	D3	49.0	3.7	5.0	1.0	1.1
13	E1	49.0	3.1	5.0	1.0	1.0
14	E2	49.0	2.9	5.0	1.0	1.0

	variable	n	mean	max	min	sd
15	F1	49.0	3.3	5.0	1.0	1.0
16	F2	49.0	3.2	5.0	1.0	1.1
17	F3	49.0	3.1	5.0	1.0	1.1
18	G1	49.0	3.1	5.0	1.0	1.0
19	G2	49.0	2.7	5.0	1.0	1.1
20	G3	49.0	3.0	5.0	1.0	1.1
21	G4	49.0	3.0	5.0	1.0	1.1
22	H1	49.0	3.4	5.0	1.0	0.9
23	H2	49.0	3.2	5.0	1.0	1.1
24	H3	49.0	3.0	5.0	1.0	1.2

3.3 Data analysis

We mainly use principal component factor analysis, Logit and Probit models, and OLS regression for this research. The main research is divided into two parts: research on factors that affect consumers' purchase, and research on factors affecting whether consumers would be reached.

3.3.1 Validity test

Validity refers to the correctness of the designed questionnaire. Validity test is used to test the degree to which the questionnaire can measure the characteristics to be measured. How does the higher the validity mean that the measurement results can show the characteristics to be measured.

Among them, the KMO test is an index used to compare the simple correlation coefficient and the partial phase relationship between variables, and the value range is 0 to 1. The larger the KMO value, the stronger the correlation between the variables.

Bartlett's spherical test is used to test whether each variable is independent. If Sig<0.05, it means that the variables are correlated and factor analysis can be performed. The results are shown in Table 4.

Table 4. KMO and Barlett'sspherical test

KMO		.818
Barlett's spherical test	Chi-square	435.8234
	df	91
	Sig	.000

From the table 4, we could see that the KMO value is greater than 0.8; at the same time, the value of Sig is .000<0.05, indicating that the designed variables are correlated and suitable for factor analysis.

3.3.2 The model of consumer's purchasing

The main model of our research is to figure out the factors that affects consumers' purchase. In the questionnaire, we design several questions for each direct independent variables and indirect independent variables for robustness. Thus, the first step is to do principal component factor analysis(PCA).The PCA results for A1 to H3 are shown in Table 5 and Table 6.

Table 5 Summary of RC values for A1 to E2

	RC1	RC2	RC3	RC4	RC5
A1	0.25	0.43	0.64	0.00	0.35
A2	0.43	0.05	0.78	0.08	0.23
A3	0.15	0.14	0.26	0.12	0.88
B1	0.04	0.10	0.13	0.89	0.07
B2	0.67	0.15	-0.11	0.59	0.11
B3	0.87	0.10	0.20	0.05	0.17
C1	0.69	0.39	0.29	0.04	-0.17
C2	0.18	0.86	-0.05	0.20	0.11
C3	0.35	0.72	0.40	0.06	-0.03
D1	0.28	0.73	0.33	0.09	0.19
D2	0.73	0.36	0.25	-0.05	0.22
D3	0.66	0.53	0.19	0.21	0.12
E1	0.10	0.43	0.52	0.40	0.32
E2	0.06	0.23	0.65	0.59	0.03

Table 6 Summary of RC values for F1 to H3

	RC1	RC2	RC3
F1	0.32	0.11	0.90
F2	0.22	0.38	0.85
F3	0.24	0.89	0.15
G1	0.40	0.80	0.29
G2	0.40	0.80	0.22
G3	0.62	0.55	0.42
G4	0.76	0.39	0.27
H1	0.83	0.30	0.22
H2	0.89	0.22	0.24
H3	0.73	0.49	0.26

Based on the results, we can have five direct independent variables: information, quality, history, network effect, and two indirect independent variables: knowledge, emotion, and the dependent variable willingness to pay. Further, we can have the value of these independent variables for each individual based on the scores. The means and variances of these variables are shown in Table 7.

Table 7 summary of independent variables and dependent variables

	type	n	mean	max	min	sd
1	Information	49.0	7.1	10.4	4.1	1.6
2	Quality and low price	49.0	4.5	7.4	1.5	1.6

	type	n	mean	max	min	sd
3	History	49.0	7.8	11.5	3.2	2.3
4	Fame	49.0	13.5	18.1	6.6	3.3
5	Recommendation	49.0	3.9	6.0	1.5	1.1
6	Knowledge	49.0	5.7	8.8	1.8	1.7
7	Emotion	49.0	7.4	12.4	2.5	2.5
8	Willingness to pay	49.0	11.7	19.1	3.8	3.6

3.3.2.1 OLS between direct variables and dependent variable

Based on the model, we firstly need to figure out the influence of direct variables to dependent variables. We treat "Willingness to pay" as dependent variables and "Information", "Quality and low price", "History", "Fame", and "Recommendation" as independent variables and use the OLS model to do the regression. The results are shown in the Table 8.

Table 8 OLS Regression Results for Dependent Variables (1)

	Coefficient	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.8	1.7	-0.4	0.7
Information	0.9***	0.3	3.0	0.0
Quality and low price	0.8***	0.3	2.9	0.0
History	0.4*	0.2	1.8	0.1
Fame	0.0	0.2	0.2	0.8
Recommendation	-0.4	0.4	-0.9	0.4

Notes: *,**,*** indicate significance at 10%,5% and 1% level

It can be seen from the results of this regression analysis that the three variables: information, quality and low price, and history all have a significant positive correlation with the outcome variables. Among these variables, "Information" has the strongest effect on consumers' purchase. The effects of "Fame" and "Recommendation" are not significant in this regression. To avoid the effects of potential multicollinearity, we do two more regressions: the results without the two variables are shown in Table 9, and the additional analysis on these two variables are shown in Table 10.

Table 9 OLS Regression Results for Dependent Variables

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.9	1.6	-0.6	0.6
Information	0.8***	0.3	3.1	0.0
Quality and low price	0.8***	0.2	3.2	0.0
History	0.4**	0.2	2.1	0.0

Notes: *,**,*** indicate significance at 10%,5% and 1% level

Intuitively, after consumers have collected enough information, their concerns about purchase will disappear. Secondly, when the product has a very suitable price or has a very good quality, people will also choose to buy in the live broadcast. When some consumers and their friends had successfully purchased something in the online informercial, they might believe that they would be success at the next time. They will have little concern to buy products from online informercial.

Table 10 OLS Regression Results for Dependent Variables（3）

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	1.8	2.0	0.9	0.4
Fame	0.6	0.1	3.9	0.0***
Recommendation	0.6	0.4	1.5	0.2

Notes: *,**,*** indicate significance at 10%,5% and 1% level

Interestingly，from table 10, we find that variable "Fame" has significantly positive effect on the dependent variable "Willingness to pay". However, the effects of directly recommendation from platform is still not significant. It is an interesting finding which goes against to the platform' original intention to use recommendation to stimulate purchase. One of the potential reasons is that the consumers we covered in this survey do not have much time to browse the recommendation. It is also possible that the recommendation does not meet with consumers' demand. Future research could be done to figure out the real reasons and it would be useful for platform to take better strategies.

3.3.2.2 OLS between direct variables and channel: knowledge

After we know the effects of channels and direct variables, we just have to know which channel through which these direct variables affect the willingness to pay of consumers. We pick two channels "Emotion" and "Knowledge" as independent variables and "Willing to pay" as dependent variables. With the OLS model to do the regression, we could find their relationship. The results are shown in the Table 11.

Table 11 OLS Regression Results for Channel

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	1.4	1.2	1.2	0.2
Knowledge	0.5**	0.2	2.5	0.0
Emotion	1.0***	0.1	6.6	0.0

Notes: *,**,*** indicate significance at 10%,5% and 1% level

It can be seen here that the two indirect variables of knowledge and emotion are important influencing channels that affect consumer decision-making. Both can make consumers more inclined to consume after being strengthened. This corresponds to the consumer decision-making model. Compared with the two, the influence of "Emotion" channel is greater, which shows that for consumers, their primary concern is perceptual risk. If the perceptual risk disappears through the influence on feelings, people will choose to buy.

The next thing we need to discuss is the channel through which the direct variable affects the dependent variable。We treat "Knowledge" as dependent variables and "Information", "Quality and low price", "History" and "Fame" as independent variables and use the OLS model to do the regression. The results are shown in the Table 12.

Table 12 OLS Regression Results for Knowledge

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	0.1	0.8	0.2	0.9
Information	0.7***	0.1	4.9	0.0
Quality and low price	-0.1	0.1	-0.9	0.4
History	0.2*	0.1	1.8	0.1
Fame	-0.0	0.1	-0.0	1.0

Notes: *,**,*** indicate significance at 10%,5% and 1% level

It can be seen here that the two variables "Information" and "History" have significant positive relationships with channel "Knowledge". After consumers learn more about the product, and when the consumer has had a purchase experience, the consumer's perception of the product will increase. This shows that two factors, "Information" and "History", affect consumers'purchase through the channel of "Knolwedge".

3.3.2.3 OLS between direct variables and channel: emotion

There is another channel: emotion. We treat "Emotion" as dependent variables and "Information", "Quality and low price", "History"and"Fame"as independent variables and use the OLS model to do the regression. The results are shown in the Table 13.

Table 13 OLS Regression Results for Emotion

	Estimate	Std. Error	t value	Pr(>|t|)
(Intercept)	-0.4	1.1	-0.3	0.7
Information	0.4*	0.2	2.0	0.1
Quality and low price	0.8***	0.2	4.3	0.0
History	0.4**	0.1	2.8	0.0
Fame	-0.1	0.1	-1.0	0.3

Notes: *,**,*** indicate significance at 10%,5% and 1% level

It can be seen that the three factors: information, quality and low price and history have significant positive relationships with channel emotion. When consumers obtain sufficient information about the product, the consumer's perceived risk of purchase will decrease accordingly. If the price of the product is very attractive, or it is attractive to consumers, people will also like the product. If people have a successful purchase experience, they will also tend to believe in the online informercial. So, these three factors can influence consumer decision-making through the channel of emotion.

3.3.2.4 Independent channel

The remaining variable "Fame"also has a significant impact on consumers' purchase, but because this factor cannot be explained by the two channels above, I consider it to serve as an independent channel to affect the dependent variable.

To explain the channel, we consider the key opinion leaders (KOL) as one type of multi-sided platform to connect consumers and merchants. With the fame of KOLs increases, merchants can reach more consumers and sell more through these KOLSs, so that the merchants would be likely to offer more products with better discounts. For the other side, consumers are more likely to be attracted by the live stream of these famous KOLs since they could choose among more products with lower prices. Such indirect network effect would encourage consumers to purchase. " Self-reinforcing cycle"

In addition, the special advertising strategies and the fame of KOLs would attract many consumers, other users' purchase would also encourage consumers to consider the products in these live commercials are worth to buy. It works as direct network effect.

Thus, this channel works through direct network effect and indirect network effect, which works independently with "Knowledge" and "Emotion".

3.3.3 The model of consumer reach

In order to know the different characteristics of people who watch the live commercial，we treat "Whether to watch" as dependent variables. Since "Whether to watch" is a dummy variable and the mean of it is relatively small, we take Probit model and Logit (non-linear) model to do the regression. The results are shown in Table 14 and Table 15

Table 14. Probit Regression Results for Consumer Reach.

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-0.2	0.8	-0.2	0.8
Age	-0.2	0.3	-0.9	0.4
Education	-0.2	0.2	-1.0	0.3
Living condition	-0.3***	0.1	-2.0	0.0
Online shopping frequency	0.0	0.6	0.1	0.9
Proportion of internet commercial	-0.1	0.1	-0.7	0.5
Career	0.3***	0.1	2.8	0.0
Whether to watch	0.8***	0.2	3.6	0.0

Signif. codes: 0.01 '***' 0.05 '**' 0.1 '*'

Table 15. Logit Regression Results for Consumer Reach.

	Estimate	Std. Error	z value	Pr(>|z|)
(Intercept)	-0.2	1.3	-0.2	0.9
Age	-0.4	0.5	-0.9	0.4
Education	-0.3	0.3	-1.0	0.3
Living condition	-0.4***	0.2	-2.0	0.0
Online shopping frequency	0.1	1.0	0.1	1.0
Proportion of internet commercial	-0.2	0.2	-0.8	0.4
Career	0.4***	0.2	2.7	0.0
Whether to watch	1.4***	0.4	3.6	0.0

Signif. codes: 0.01 '***' 0.05 '**' 0.1 '*'

3.4 Conclusion analysis

We can find that "Education", "Proportion of internet commercial", and "Career" have significant effects on "Whether to watch"."Whether to watch" is inversely correlated with the level of education, and it may because that with the improvement of education level, people tend to value their time and prefer high-efficient purchase methods, while the consumers need to watch online informercial at certain time and wait for the items they need to show up, such method may not arouse their interest. Then, the higher the proportion of online shopping, the more likely for consumers to watch online informercial, because the rising proportion of online shopping means that people are not too concerned about online shopping and can accept and trust the online informercial, also they would be willing to spend more time on online shopping. Similarly, company employees will choose online informercial because of their corresponding economic base and their own entertainment needs since the usual live streaming time is after 7pm which is exactly after the working time.

4 Conclusion and discussion

Regarding the purchase decision of consumers in live streaming, two channels: knowledge and emotion have a significant positive impact on the final decision. In comparison, emotion channels have a greater impact. For these two channels, there are a total of three direct variables that influence the purchase decision through them. Among them, the two factors of information and history have an effect through knowledge channel. The three direct variables of information, quality and low price, and history influence the purchase decision through emotion channel. On this basis, we also found that the fame of KOL as an independent channel also has a significant positive impact on the purchase decision. Therefore, companies should choose popular livers that have a certain reputation in the network society to promote their goods, and provide consumers with products of appropriate prices and qualified quality. In the promotion, the knowledge side provides relevant information, such as data. To the core concerns of consumers, such as personal experience, the emotion side eliminates the perceptual risks remaining in the minds of consumers. At the same time, after the information is provided, those who have purchased history themselves or those around them will have less concerns in their hearts based on these contents. At the emotion level, people tend to be more concerned about product information and sometimes consider purchase history. For watching online informercial platforms, they can learn about the user's education, online shopping percentage, and occupation by asking questions or filling in personal information when users register. Therefore, for those who are more likely to watch live broadcasts and make purchases, we recommend live broadcasts with live broadcasts to maximize revenue.

4.1 Insufficient:

In this study, the amount of data is small, the gender is concentrated and female, the age is concentrated in the 30-50 years old range, and the cities in which they are located are also concentrated in first-tier cities. Such a sample is probably due to the data collection method used: volunteer bias and sampling bias collected by the online questionnaire. The men around him did not fill in the question because they were not

interested in this question. Even though I sought the help of people around me, I still only covered a small part of the population, and there was sample bias.

4.2 Conclusion

In this research, we answer two questions "what and how encourage consumers to buy" and "what encourage consumers to watch". Regarding the purchase decision of consumers in live streaming, we have four direct variables have significantly positive effects on consumers' purchase including "Information"" Quality and low price" "History" and" Fame". However, the variable "Recommendation" does not affect the purchasing decision of consumers.

Two traditional channels "knowledge" and "emotion" have a significant positive impact on the final decision. In comparison, emotion channels have a greater impact. For these two channels, there are a total of three direct variables that influence the purchase decision through them. Among them, the two factors of information and history have an effect through knowledge channel. The three direct variables of information, quality and low price, and history influence the purchase decision through emotion channel.

The most interesting finding is that the fame of KOL as an independent channel also has a significant positive impact on the purchase decision through network effect.

All the findings could work as useful information for the platform to popularize online informercial. In detail, companies should choose popular livers that have a certain reputation in the network society to promote their goods, and provide consumers with products of appropriate prices and qualified quality. In the promotion, the knowledge side provides relevant information, such as data. To the core concerns of consumers, such as personal experience, the emotion side eliminates the perceptual risks remaining in the minds of consumers. At the same time, after the information is provided, those who have purchased history themselves or those around them will have less concerns in their hearts based on these contents. At the emotion level, people tend to be more concerned about product information and sometimes consider purchase history. For watching online informercial platforms, they can learn about the user's education, online shopping percentage, and occupation by asking questions or filling in personal information when users register. Therefore, for those who are more likely to watch live broadcasts and make purchases, we recommend live broadcasts with live broadcasts to maximize revenue.

However, in this study, the amount of data is small so it may cause some bias. In future study, I intend to cover more samples and do a robustness check. In addition, there are some interesting potential extensions：the real reason why recommendation does not matter and how the new channel work and correlated with other factors.

Reference：

[1] 丁美玲.“网红＋直播＋电商”模式下影响消费者购买行为研究[J]. 中国市场,2018(16):148-149.

[2] 汪璟琳. 网红经济时代对网络直播的发展研究[J]. 新闻研究导刊,2016,7(18): 361.

[3] 辛冲，郭 鑫，周宇婑. 社交网站中网络口碑对消费者团购意愿的影响-考虑品牌信任的中介作用[J].技术经济,2016(10):102-109

[4] 姜佳奇. 网红经济下直播对消费者购买决策的影响因素分析[D]. 北京邮电大学.

[5] Howard, J.A.. Marketing management analysis and planning [M], Richard D. Irwin, Inc. 1963

[6] The Engel Kollat Blackwell Model of Consumer Behavior - MBA Knowledge Base (mbaknol.com)

[7] Marius F. Niculescu, D. J. Wu, Lizhen Xu (2018) Strategic Intellectual Property Sharing: Competition on an Open Technology Platform Under Network Effects. Information Systems Research 29(2):498-519.

[8] Nicholas Economides and Evangelos Katsamakas (2006) Management Science , Jul., 2006, Vol. 52, No. 7, Open Source Software (Jul., 2006), pp. 1057-1071

[9] Feng Zhu, Qihong Liu (2018) Competing with complementors: An empirical look

at Amazon.com, August 2018 2618-2642

Acknowledgement: