

Factors That Influencing Chinese Consumers' Purchasing Behavior of NFT Products and the Development of NFT in the Chinese Market

Xuncheng Wang^{1,a}, Shanshan Li^{1,b}

Wangxuncheng2022@outlook.com^a, 203140710@stu.nau.edu^b

The International Joint Audit Institute, Nanjing Audit University, Pukou District, Nanjing, China¹

Abstract: The development path of NFT in China will follow a business model different from that in overseas markets. This research finds out the reasons behind this phenomenon and make an in-depth analysis of the factors that affect the consumption behavior of Chinese consumers towards NFT, and provides some insights for the development of NFT in the Chinese market through the use of questionnaire, correlation analysis, regression analysis and variance analysis.

Keywords: NFT, Chinese markets, Data analysis, Future development.

1 INTRODUCTION

1.1 Research Background

1.1.1 Introduction to NFT

NFT, the full name of which is Non-Fungible Token, refers to the non-homogeneous token. In essence, NFT is a trusted digital equity certificate with unique characteristics in the block-chain network. It is a data object that can record and process multidimensional and complex attributes on the block-chain.

1.1.2 NFT in Chinese market

The development path of NFT in China will follow a business model different from that in overseas markets. Chinese enterprises start from copyright protection, give play to the function of NFT digital property rights proof, and emphasize the exploration of NFT without currency (Kendra 2022).^[4] China's regulatory attitude towards virtual assets has always been relatively strict, and the policy aspect is relatively rigorous. After the rapid outbreak of bitcoin, the country quickly introduced relevant policies. Although there are no strict legal restrictions on the auction of NFT in our country at this stage, with the large-scale promotion of NFT application, there will be regulatory intervention in the casting, issuance, sales, and circulation of NFT in the future.

There are two main modes of NFT casting in China: PGC and UGC, and the main difference is artist release and individual user upload. PGC is mainly for professionals and platforms to cooperate, discover works NFT, platform and professionals to share sales. China, for example,

Ali's Ant chain, Tencent's phantom core, and Jindong's Lingxi. In the UGC model, users create content independently and publish it on the platform. The supply and demand parties purchase the content freely on the platform, and the platform earns service fees. As UGC has great policy risks in China, the head enterprises of the model are basically foreign companies.

1.1.3 The drawbacks of NFT in Chinese Market

- § The public popularity is not high: In the European and American markets, there are many NFT players who invest and collect, while in the Chinese market, NFT players are mainly speculators. Currently, there is no good channel for the popularization and education of crypto digital assets in China.
- § High entry barrier: NFT players in the European and American markets, ranging from enterprises to individuals, are all in the NFT investment circle. However, in the Chinese market, NFT players are mainly enterprises, and it is difficult for individual players to participate in the investment of NFT.
- § Buying method: In the European and American markets, NFT is freely traded through virtual currencies such as ETH, USDT and SOL, while in Chinese market, NFT can only be purchased in yuan.
- § Circulation problems: In the European and American markets, NFT can be freely circulated and traded, and it is completely priced by the market, so the price is easy to be hyped by the market. Accordingly, it will be relatively good for liquidity. However, in Chinese market, NFT cannot be freely circulated and traded for the time being, and there are strict restrictions and supervision on secondary market trading, so as to minimize speculation.

1.2 Research Problems

- § What are the factors that influence consumers' purchase behavior by NFT?
- § What is the influence of these factors?
- § What is the development prospect and consumer evaluation of NFT in China?

1.3 Objective of the Research

In late 2021, NFT, which was popular in the European and American markets, was introduced into the Chinese market by Alibaba. Through Alibaba's brand accumulation and traffic precipitation, NFT once became a relatively hot topic under the epidemic situation. Within a year, however, the heat and the bandwagon seemed to have dissipated, and relatively negative sentiment began to pervade the market. In this regard, this research hopes to find out the reasons behind this phenomenon and make an in-depth analysis of the factors that affect the consumption behavior of Chinese consumers towards NFT, so as to provide some support for the development of NFT in the Chinese market.

1.4 Significance of the Research

In the future, NFT circuit will be diversified and become an important infrastructure of China's digital economy (Ko 2022, Son 2022, Lee 2022, Jang 2022, Lee 2022).^[6] The combination of

NFT circuit and digital RMB will build a well-standardized digital asset rights confirmation system for China and create a rich and colorful digital content production ecology. However, since China's NFT mainly relies on public chain issuance and trades in RMB, it has strong financial attributes and has large space for market speculation, resulting in a huge value bubble, which also brings many risks to the development of this industry. So, this research can provide NFT with suggestions on product innovation and pricing strategy so that more industries will devote to the NFT research; What's more, it helps NFT focus on the purchasing behavior of Chinese consumers to help it gain localized competitive advantages and help the vigorous development of China's NFT industry.

2 LITERATURE REVIEW

2.1 Previous Literatures

In order to explore the above issues, Chinese scholars have analysed and studied the functions, risks and supervision of NFT, its application in digital copyright trading and the compliance road of NFT in China (Liu 2021, Shi 2021).^[7] First, Yang Dong studied the function, risk and regulation of NFT (Yang 2022).^[11] Specifically, emphasis should be placed on the supervision of NFT trading platforms to deliver regulatory effects, the definition of NFT should be clarified to guide the market to abide by rationality, the legal attributes of NFT should be clarified, and the de-financialization of NFT market should be taken as the bottom line of supervision. Next, Song Ge discusses the application of NFT in digital rights trading. In order to realize the orderly operation of NFT digital copyright trading, it is necessary to explore the construction of an efficient and stable NFT copyright trading market from the two aspects of platform autonomy and strengthened supervision, so as to promote the high-quality development of the copyright industry (Song, 2022).^[8] Finally, Xiao Sa studied the compliance path of NFT in China (Xiao, 2022).^[10] This article mentions that if Chinese digital collections want to walk out of a harmonious but different road, they must cut off the financial attributes of NFT, change "NFT" from the value orientation to "digital collections" and regulate the platform of trading NFT.

2.2 Research Gap

It is clear that Chinese scholars attach great attention to the development of NFT in China. However, most of these studies focus on how to regulate NFT's entry into the Chinese market. Undeniably, they are very good materials for us to continue to study the development of NFT in the Chinese market and have certain enlightenment for future research in this direction. However, the vacancy remains. At present, NFT has not been fully developed in the Chinese market. At the beginning of NFT's entry into the Chinese market, there were various factors that hindered its development. If talking about how to regulate something new before it's even developed, the Chinese market will just stall. Therefore, this paper mainly studies what factors affect Chinese consumers' consumption behavior of NFT at the present stage and the future development of NFT in the Chinese market.

2.3 Innovation Points

§ Questionnaire survey: Through the distribution of questionnaires to the public to gain specific insights into NFT customer's buying behavior.

- § Randomized experiment design : Every participant gets an equal chance of being included so that the results will be more authentic.
- § Quantitative analysis: The willingness of consumers is quantified into specific numbers, and the analysis results are accurate and comprehensive by observing massive data from multiple perspectives through multi-level quantitative model. Words like “is”, “or”, “then”, etc. should not be capitalized unless they are the first word of the title.

3 METHODOLOGY

3.1 Measurement

3.1.1 Concept

In this research, we selected four independent variables for measurement, namely, conformity, price, value, and variety. We will investigate the relationship between these independent variables and the dependent variable purchase willingness and their effects. Conformity refers to whether the popularity of NFT products in the market consumption trends and the consumption tendencies of the surrounding population has a positive impact on the willingness to purchase. Price refers to whether a decrease in the price of NFT product has a positive effect on the willingness. Value refers to whether an increase in the value of NFT has a positive effect on the willingness. Variety refers to whether an increase in the variety of NFT has a positive effect on the willingness.

3.1.2 Questionnaire Design

In the three parts of the questionnaire, we plan to collect respondents' basic information, current awareness of NFT products and their propensity for purchasing in order.

Facing the current low awareness of NFT in Chinese market, we also set up a concept explanation for the unaware group, which helps them understand the essential attributes of NFT and make a subsequent choice, ensuring the completion rate of the questionnaire.

At the same time, we set open-ended questions in the questionnaire to collect Chinese consumers' current views on NFT and suggestions for future development. In addition, we also set up filter questions in the questionnaire to eliminate the questionnaires that were not carefully answered to ensure the quality of the questionnaire (Imbriano 2020, Raghunathan 2020).^[3]

3.2 Sampling

3.2.1 Population

Constrained by the current situation, the target population of this study is current college students and their relatives. We do not restrict the gender, age, occupation, or region of the respondents. These respondents include both NFT consumers and potential consumers. Therefore, we used the questionnaire participants as a sample of Chinese consumers and used their survey results to represent the choices of Chinese consumers.

3.2.2 Sampling method

In this study we used convenience sampling and snowball sampling in non-probability sampling methods (Tore 1974, Ove 1974).^[9] There were two ways to publish our questionnaire. One way was to distribute the questionnaire to current college students on campus, and the other way was to post the questionnaire on social media platforms and collect survey results from classmates and relatives through constant forwarding among friends.

3.3 Data collection

The data collection methods for this study included questionnaire data and secondary data. The questionnaire was designed with both textual and numerical questions to allow for both qualitative and quantitative analysis. In addition, we also collected data from other researchers on NFT to provide guidance for the design and conduct of our study.

4 DATA ANALYSIS

4.1 Description

We looked forward to collecting 150 results, but actually collected 155 questionnaires, and based on the screening questions, we finally adopted 146 results. According to the results of the questionnaire collection, the proportion of men is greater than that of women. Most of the questionnaire results we received were from males. Of the 146 questionnaire results collected, those under 30 years old were the main composition of our questionnaire but other age groups are also in the minority.

The testing data of the questionnaire come from all walks of life, not only from collage students, but also from various social jobs such as civil servants, state-owned enterprises, foreign companies, etc.

In the questionnaire results, most of the people have heard of NFT products, but this result is quite unexpected for the research team, after all, in real life, most people feel that there is no concept of NFT.

And as one can see from the graph (Table 1), most people are exposed to NFT through artwork and music and games, as many paintings are now available electronically. Also, in current days, many artists release albums and customers can buy them online and listen to them directly on their devices. Games are also treated as electronic goods, as they can be purchased online and played on one's device.

Table 1: The types of NFT people have learned about

Topic	Options	Number of options	Percentage	Percentage of selected samples (N = 146)
What types of NFT have you learned about?	Artwork	118	0.232	0.808
	Music	102	0.201	0.699
	Game	91	0.179	0.623
	Database	48	0.094	0.329
	Pyhsi cal Good	44	0.087	0.301
	AccessRi ght	55	0.108	0.377
	I denti fy	49	0.096	0.336
	others	1	0.002	0.007
		Total options	508	

Most people feel that the problems encountered in the Chinese NFT market are the poor competitiveness of NFT products, as well as the weak promotion of NFT and the low penetration of NFT into Chinese society. There is also a lot of support for other problems, such as poor appeal to people and high prices.

4.2 Correlation Analysis

Table 2: Results of the correlation analysis

	Willingness	Conformity	Variety	Price	Value	
	Correlation coefficient	p value	Correlation coefficient	p value	Correlation coefficient	p value
Willingness	1					
Conformity	0.5145**	0	1			
Variety	0.6586**	0	0.6272**	0	1	
Price	0.4749**	0	0.5495**	0	0.583**	1
Value	0.5845**	0	0.4578**	0	0.5675**	0.419**

From the results of the correlation analysis (Table 2), we can conclude that the correlation coefficient between people's willingness to buy and the type of NFT products reaches the highest, indicating a strong relationship between the two (Knapp 1977).^[5] Then it is the price of NFT goods that has the lowest impact on the willingness to buy, perhaps most people do not pay as much attention to the price of NFT products as they do to other factors when buying them. Besides, when people buy NFT goods, they also pay more attention to the actual value of the goods rather than the price, just like collectibles, which have some potential value that cannot be defined in terms of money.

4.3 Regression analysis

Table 3: Results of the regression analysis

Sample size	R-Square	Adjusted R-square	F value	AIC value	BIC value
80	0.5315	0.5066	21.2747	229.1745	241.0846

Table 4: Results of the regression analysis

Parameter	Coefficient	Standard error	t value	P value	[0.025	0.975]
Intercept	0.7083	0.507	1.397	0.1665	-0.3017	1.7183
Conformity	0.0608	0.0935	0.6504	0.5174	-0.1254	0.247
Variety	0.47	0.1263	3.7201	0.0004	0.2183	0.7216
Price	0.0374	0.0887	0.4215	0.6746	-0.1392	0.214
Value	0.3446	0.1067	3.2285	0.0018	0.132	0.5572

When the research performs regression analysis on the data (Table 3 & Table 4), we can see that the effect of price on the desire to buy remains the smallest because its regression coefficient is the smallest, while the effect of value and type on the willingness to buy is huge and their regression coefficients are the largest. And it can be seen from the p-values that the results for value and kind are the most significant because their p-values are the smallest, and the smaller the p-values, the more significant the results are (Edwards 2022).^[2]

4.4 Variance analysis

Table 5: Willingness & Heard variance analysis (no fixed order)

Willingness Average		Homogeneity of variance test	
No	Yes	Levene test value	p value
4.6111	5.5652	2.61	0.11

ANOVA results					
Factors	Degree of freedom	Sum of Squares	mean squares	F value	p value
Heard	1	30.9758	30.9758	17.7397	0
Residual	144	251.442	1.7461		

Table 6: Willingness & Gender and Age variance analysis (no fixed order)

Willingness Mean Value Information						
	41-50	31-40	21-30	51-60	0-20	60+
Female	4.6	4.8333	5.875	4	5.5	5.5
Male	4.3333	5.3636	5.375	4.5	5.3529	2

Homogeneity of variance test	
Levene test value	p value
1.1	0.37

ANOVA results					
Factors	Degree of freedom	Sum of Squares	Mean squares	F value	p value
Gender	1	0.9245	0.9245	0.5086	0.4769
Age	5	28.8347	5.7669	3.1727	0.0096
Residual	139	252.6586	1.8177		

Based on the results of the variance analysis (Table 5 & Table 6), it could be seen that the differential effect of whether or not one has heard of the NFT product on purchase intention is significant, as its F-value is much greater than one. While the effect of gender on the difference in purchase intention is minor because its F-value is less than one. Similarly, because the F-value of gender is greater than one, it shows that the effect of gender on the difference in purchase intention is significant (Ahmed 2021, Bhuiyan 2021, Kishi 2021, Nii 2021, Kobashi 2021).^[1]

5 RESEARCH FINDINGS

Based on the results of the data analysis, the following conclusions can be drawn.

Firstly, according to the results of the analysis, it can be concluded that there are many factors that influence consumers to purchase NFT products, such as herd mentality, price, value and variety. Among them, price has the least significant effect on purchase intention, while value and variety have the most significant effect on consumers' purchase intention. NFT as a collector's item, the value of the item itself is far greater than the price. Customer will focus on whether it is worth buying. Instead, price is not a relatively important factor in the purchase of NFT products in their eyes.

Perhaps, in recent years due to the epidemic, the offline market has suffered a huge impact, but NFT as a new era of electronic products, may be able to get in the era of rapid development, ushering in a new era.

6 CONCLUSIONS

6.1 Summary

NFT in the Chinese market has a long way to go, because it is an emerging concept and it is currently in its infancy. NFT has a lack of publicity, the price is not appropriate, the product range is small and other shortcomings, but it still attracts some consumers to buy. There are four main factors that influence consumers' willingness to purchase: Conformity, price, value and variety. Therefore, we consulted the relevant literature review before the study and pointed out the existence of research gap. After studying and analyzing the descriptive and inferential analysis, we also made suggestions for the development of NFT Chinese market.

6.2 For Future Studies

For future research, we expect improvements in the following areas :

1. Enrich the way of data collection. We can get primary data through experiments, such as going to make various types of NFT products by ourselves and selling them through a website to collect consumers' purchase preferences for specific products or all NFT products. We can also obtain authoritative secondary data by collecting financial statements of major NFT companies to study the macro consumer behavior in specific markets.
2. Design more detailed questionnaire questions. When we study the Chinese market development of NFT, we can ask more questions about purchase intentions, with no upper limit on the number, so that we can more fully analyze the factors influencing purchase intentions. In addition, when making suggestions on the development of the NFT market, we can combine more consumer evaluations to fully understand the consumer's point of view in order to make a constructive evaluation.
3. Select a more representative audience. When distributing questionnaires, we can choose groups that are more familiar with NFT as research subjects, such as IT workers, college students, and so on. The questionnaire process will be more purposeful and efficient when studying these groups, because they will answer research questions from a more professional perspective.

REFERENCES

- [1] Ahmed, S., Bhuiyan, T.A., Kishi, T., Nii, M., Kobashi, S. (2021) Human Activity Classification Based on Angle Variance Analysis Utilizing the Poincare Plot. *Applied Sciences* (16). doi:10.3390/AP11167230.
- [2] Edwards, C.(2022).Interpreting model coefficients from regression analysis. *Sonography*(3). doi:10.1002/SONO.12307.
- [3] Imbriano Paul, M. & Raghunathan Trivellore, E. (2020). Three-Form Split Questionnaire Design for Panel Surveys. *Journal of Official Statistics* (4). doi:10.2478/JOS-2020-0040.

- [4] Kendra, R. (2022). Showcase: Motion Design, 3D, & NFT Artists. *Computer Graphics World* (3).
- [5] Knapp Thomas, R. (1977). The Unit-of-Analysis Problem in Applications of Simple Correlation Analysis to Educational Research. *Journal of Educational Statistics* (3). doi:10.2307/1164992.
- [6] Ko, H., Son, B., Lee, Y., Jang, H., Lee, J. (2022). The economic value of NFT: Evidence from a portfolio analysis using mean–variance framework. *Finance Research Letters* (PA). doi:10.1016/J.FRL.2022.102784.
- [7] Liu, M.L., Shi, J. (2021). Initial exploration of the development path of China's NFT: legal currency settlement is the core point, the circulation and copyright protection regulations need to be improved. *21st Century Business Herald*, 006.
- [8] Song, G. (2022). The application of NFT in digital rights trading. *China Press* (18), 11-15.
- [9] Tore, D., Ove, F. (1974). Sampling Populations with Partial Variate Patterns. *Scandinavian Journal of Statistics* (1).
- [10] Xiao, S., Wang, G.Q. (2022). The Sinification of NFT: A path to compliance in the digital Collections industry. *China Foreign Exchange* (12), 67-69. doi:10.13539/j.cnki.11-5475/f.2022.12.012.
- [11] Yang, D., Liang, W.L. (2022). Meta-cosmic value units: Function, Risk, and Regulation of NFT. *Learning and Exploration* (10), 68-79+191.