Hotspots and Frontiers of Chinese Consumers' Online Shopping Willingness -- Visualization Analysis of Bibliometrics Based on CSSCI (2005-2019)

Xu Zu, Qingxin Gou, Renji Duan, Yunfeng Guo and Zhengjie Zhang*
Business School, Sichuan Agricultural University, Chengdu, 611830, China
*Corresponding author: 403008983@qq.com

Abstract. In order to objectively reflect the development status and hotspots of research on consumers' online shopping willingness, this article uses the relevant literature included in CSSCI as a data source, and uses Citespace software to visually analyze research results related to consumers' online shopping willingness. The main authors and institutions, research hotspots and the frontiers of the context are discussed. It is found that the research on consumers' online shopping willingness is currently in the development stage, which mainly focuses on the hot topics such as perceived risk, perceived value, trust, and on the cutting-edge content such as online shopping willingness of fresh produce and e-commerce marketing models.

Keywords: Online Shopping Willingness, Visual Analysis, Hotspot and Frontier

1. Introduction
Online shopping has become a major way of sustainable consumption, the number of online shopping users in China has continued to grow. As of the first half of 2019, the number of online shopping users in China has reached 639 million, accounting for 74.8% of the total Internet users. Consumers’ online shopping willingness has become a research focus of domestic and foreign scholars. Among them, Chinese scholars from perceived risk [1], perceived value [2], trust mechanism [3], online reviews [4], transaction costs [5], online group buy [6], fresh produce [7] and other aspects explored the influence mechanism of online shopping willingness. Focusing on the research results of consumers' online shopping willingness, this article will retrieve the core journal literature included in the Chinese Social Science Citation Index (CSSCI), use CiteSpace knowledge visualization software to process and analyze the data, discover major journals, authors, institutions and keywords, and sort out the evolution of the research results of Chinese consumers' online shopping willingness, ascertaining the research topics, hotspots and frontiers. The results will help relevant scholars to find entry points for future research.

2 Data Sources and Research Methods

2.1 Data Sources
Based on the core journal documents included in CSSCI, this article uses similar keywords such as
"online shopping willingness" and "e-commerce shopping willingness" to set up, and retrieves 197 samples from 2005 to 2019. After screening and identification by two experts in related research directions, 24 articles that do not meet the research theme were eliminated, and a total of 173 articles are obtained as research objects.

2.2 Research Methods
This article uses bibliometrics to make a comprehensive statistics and analysis of the sample documents. The research data includes the authors, titles, keywords, abstracts, and other information of the target documents. The Citespace software is used to visually analyze the sample documents to obtain Chinese consumers' online shopping willingness. The research topics and research hotspots reveal the research frontiers and evolution characteristics of the field.

3 Visual Analysis

3.1 Research Profile Analysis
In aspect of time and quantity analysis, this paper has counted the annual number of papers published in online shopping willingness related articles from 2005 to 2019. The results are shown in Fig. 1. Chinese experts and scholars started to pay attention to online shopping willingness research in 2005 and published one paper in that year. From the next year, the number of papers started to rise, and it declined slightly in 2012. It reached a peak in 2014, with a total of 25 papers in 2015. There has been a large decline, and the number of papers has since stabilized. In general, the number of papers continues to increase.

![Fig. 1 Annual distribution of research volume of consumers' online shopping willingness (2005-2019)](image)

In aspect of distribution of published journals. The high impact factor of a journal does not mean that it has a strong ability to absorb and transmit academic information in a designated research area, but the amount of papers directly indicates the level of academic journals' ability to transmit academic information[8]. This article counts the source journals of online shopping willingness research literatures based on the number of articles published, and ranks the top 5 journals with articles published in 2005-2019, as shown in Table 1. Among them, "China's Circulation Economy" is the periodical with the most relevant literature, ranking first with 13 articles.

| Serial number | Journal Title                  | Quantity | Proportion | Composite impact factor |
|---------------|--------------------------------|----------|------------|-------------------------|
| 1             | China's Circulation Economy    | 13       | 7.51%      | 3.867                   |
| 2             | Business Research              | 10       | 5.78%      | 1.744                   |
| 3             | Consumer Economy               | 9        | 5.20%      | 1.537                   |
| 4             | Statistics and Decision Practice| 7        | 4.05%      | 1.483                   |
| 5             |                                 | 6        | 3.47%      | 1.785                   |

Table 1 Top 10 journals published in consumers' online shopping willingness research (2005-2019)
scientific measurement formula proposed by Price as follows:

\[ n = 0.749 \sqrt{\eta_{\text{max}}} \]  

(1)

(n represents the minimum number of papers published by the author, and \( \eta_{\text{max}} \) represents the maximum number of papers published by the author)

When the author posts more than n, it can be identified as the core author [9]. By calculation, those with two or more posts can be listed as the core scholars of online shopping willingness research. Through statistics, the results are shown in Table 2. A total of 240 Chinese scholars participated in the publication of journal articles in this field, 27 of whom were high-yield scholars, accounting for 11% of the total.

**Table 2** The number of core scholars and the number of papers published in the study of consumers' online shopping willingness

| Scholar                          | Number of Posts |
|----------------------------------|-----------------|
| Qi Li                            | 8               |
| Dingna Tang                      | 5               |
| Yaping Chang, Jinfeng Wu, Yizhi Liu, | 4               |
| Shanshan Yu                      |                 |
| Tingjie Lv, Shijiu Yin, Delin Hou |                 |
| Lianju Ning, Yuhan Liu, Ying Liu, Linhai Wu, Chong Wu, Rui Cui, Mingliang Chen, Peixun Wu, Yu Pan, Gen Liu, Zhongxiang Li, Shuxian Ji, Junhong He, Qi Yao, Wenhu Liao, Shangrong Du, Baoku Li, Hui Li | 2               |

Based on the statistics of the number of papers published by China's distribution institutions, it is found that institutions with strong management and marketing capabilities are the main research institutions in this field. In terms of the number of published papers, 31 institutions have published more than 2 papers. Among them, the School of Business Administration of Zhongnan University of Economics and Law ranks first with 8 papers. From the geographical location of the main institutions, the research institutions are mainly located in Hubei, Beijing, Shandong, Shanghai, Zhejiang, Guangdong, Tianjin, and Dalian, indicating that these provinces and cities have rich scientific research experience in the field of online shopping willingness research.

3.2 Research Hotspot Analysis

The high-frequency keyword co-occurrence network atlas helps to clarify the knowledge network relationship between consumers' online shopping willingness. In this article, Citespace software is used to draw online shopping willingness map to study a high-frequency keyword co-occurrence network.

From 2005 to 2019, consumers' online shopping willingness research has a total of 272 high-frequency keyword nodes, a total of 499 links between nodes, and the density between nodes is 0.0135. The "shopping willingness" node is the largest, followed by "perceived risk", "perceived value", and "online shopping". In addition, keywords such as "online shopping", "online review", "transaction cost", "online shopping willingness", "fresh produce" and "online group buy" are at the center of the knowledge map. It can be seen that these topics are the core of the current research on online shopping willingness.

3.3 Context Evolution and Frontier Analysis

A time zone view is a view that describes the evolution of knowledge from the time dimension and clearly shows topic updates and interactions [10]. Based on the frontier time zone view, we can know the development trend of online shopping willingness research from 2005 to 2019. This research is in
its infancy in 2005-2009. In 2005, Taobao surpassed eBay and Yahoo Japan and became Asia's largest online shopping platform. Therefore, from 2005, Chinese scholars began to pay attention to online shopping and began to research. The research direction in this period mainly focuses on the research of online shopping models and the consumer willingness to accept, including "online shopping", "service quality", "shopping willingness", and "perceived risk". 2010-2012 is the exploratory stage of the research. As online shopping enters the public's perspective, more consumers begin to contact online shopping. The research direction in this period mainly focuses on the influencing factors of consumers' online shopping willingness, such as "influencing factors" and "Internet Word of mouth, "initial trust," "transaction costs," "uncertainty," and so on. Since 2013, research on online shopping willingness has entered a development stage, and research directions mainly focus on specific online shopping forms and e-commerce marketing models, such as "online group buy", "fresh produce", "geographically marked agricultural products", "online interactive experiences", "information presentation" and so on.

4 Research Conclusion and Prospect
First, in terms of research space-time distribution, the number of journal literatures on online shopping willingness has been on the increase since 2005, and reached a peak of 25 in 2014. In view of this, scholars who are interested in the study of online shopping willingness can learn from the previous research experience, further clarify the research objectives and connotation of this field, and provide application results. All academic institutions should strive to build research cooperation alliance, so as to carry out extensive cooperation and balance academic resources.

Second, from the perspective of high-frequency key words, the research trend as a whole has changed from model analysis to influencing factor research to the exploration of new online shopping forms in recent years. In view of the above analysis, the future study of online shopping willingness should strengthen the continuous attention to the new online shopping form.

Thirdly, from the perspective of research frontier theme, its research frontier focuses on "fresh produce" and "influencing factors". These research frontiers indicate that the research in this field will focus on the subject of influencing factors of online shopping willingness of fresh produce in the future.

Acknowledgements
Fund Project: Sichuan Provincial Key Research Base of Philosophy and Social Sciences—Sichuan Center for Rural Development Research General Project (CR1910); Sichuan Provincial Key Research Base of Philosophy and Social Sciences—Research Center for Sichuan Liquor Industry Development General Project (CJY19-03); Sichuan Provincial Key Research Base of Philosophy and Social Sciences—Southwestern Poverty Reduction and Development Research Center Key Project (SCP1802); Sichuan Provincial Key Research Base of Philosophy and Social Sciences—Sichuan Agriculture Featured Brand Development and Communication Research Center General Project (CAB1810).

References
[1] Quansheng Wang, Yonggui Wang, Chuanming Chen: Mechanism of Third Party Trust Service on Online Shopping Will. Economic Management 31(07), 102-109(2009). (in chinese).
[2] Yizhi Liu, Dingna Tang: Research on Consumer Perceived Value and Migration Behavior from Offline to Online Channels in Multi-channel Environment. Journal of Shanxi University of Finance and Economics 37(08), 11-20(2015). (in chinese).
[3] Rui Cui, Yuchi Ma: Research on the Impact of Credit Service Mechanism of Online Shopping Platform on Consumers' Willingness to Buy. Journal of Jiangsu University (Social Science Edition) 20(03), 74-83(2018). (in chinese).
[4] Liping Yu, Zhijie Xia, Bingbing Wang: Research on the Influence of Online Reviews on Consumers' Online Purchase Intention. Journal of Modern Information 34(11), 34-38(2014).
[5] Qi Li, Shanshan Yu: Research on the Influencing Factors of Transaction Cost in Online Consumption Based on PLS-SEM. Statistics & Information Forum 26(10), 104-109 (2011). (in Chinese).

[6] Baoguo Zhao, Yinghui Chen: Research on the Influencing Factors of Consumers' Purchase Intention in Online Group Buy. Journal of Central University of Finance and Economics 1(10), 91-96 (2013). (in Chinese).

[7] Wen'e Qi, Chuan Lin: Analysis of Factors Influencing Consumers' Willingness to Buy Fresh Agricultural Products. Journal of South China Agricultural University (Social Science Edition) 17(01), 78-93 (2018). (in Chinese).

[8] Yongshuan Ma, Min Cai: Bibliometric analysis of Sino-US STEM education research. Comparative Education Review 40(02), 104-112 (2018). (in Chinese).

[9] Xiaoxia Li: Review of Domestic Research on Lotka's Law in Recent Years. Sci-Tech Information Development & Economy 15(13), 27-28 (2005). (in Chinese).

[10] Yue Chen, Chaomei Chen, Zeyuan Liu, Zhigang Hu, Xianwen Wang: Methodology function of CiteSpace knowledge graph. Studies in Science of Science 33(02), 242-253 (2015). (in Chinese).