KNOWLEDGE GRAPH ANALYSIS OF SHARING ECONOMY RESEARCH HOT SPOTS AND TRENDS

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Abstract: In order to clearly understand the current research hot spots and future development trends in the field of sharing economy, CiteSpace V information visualization analysis software was used to conduct information mining on the research results of 5491 documents in the field of sharing economy from 2008 to 2017 in the Web of Science database. From three aspects: annual distribution of literature, keyword co-occurrence network, and research time zone trends, charts and knowledge maps are drawn to sort out the research context and intuitively reveal the research hot spots and future development trends of the sharing economy. The results of the research analysis show that the number of research documents on the sharing economy has gradually increased every year from 2008 to 2017; the research hotspots of the sharing economy can be divided into three levels: macroeconomics, national policy, and environmental protection. The research hotspots of the sharing economy mainly include model, consumption, optimization, sustainability, energy, etc.; the future research trend of the sharing economy is the study of greenhouse gas emissions.
Keywords: Sharing economy; CiteSpace V; Knowledge graph; Visualization

1 OBJECTS AND METHODS

The continuous improvement of the level of information technology has led to the vigorous development of the sharing economy, making shared bicycles, shared cars and other public goods spring up in the public's field of vision. As the global economic growth slows down, the traditional economic development model is unsustainable. To achieve new goals in the new era, new economic growth points must be explored. The sharing economy is a valuable research field in this context. The sharing economy achieves the purpose of improving the utilization efficiency of idle resources by revitalizing idle resources and sharing resources with others for a fee.

In order to facilitate domestic scholars to clearly understand the hot spots and future development trends of sharing economy research, this article uses scientific literature and knowledge graph visualization software CiteSpace V to conduct an in-depth analysis of sharing economy research [1], and conducts an in-depth analysis of the research hot spots in this field from 2008 to 2017. Sort out and summarize, objectively reveal the development trend of sharing economy research, and provide a new reference method for research in this field.

1.1 Data Source

Web of Science (WoS) is an important academic literature database in the world, with certain authority and high influence. The literature data collected in Japanese on December 3, 2018 comes from the Web of Science core collection, ensuring the relative scientificity of the research results. According to the research topic of the sharing economy, the "topic (Sharing Economic)" is limited, "the time span is 2008-2017", and "the document type belongs to Article", the documents in the Web of Science database are refined, and the invalid documents are screened and cleaned. A total of 5,491 valid documents were retrieved, the storage format was plain text, and the record content included full records and cited references.

1.2 Analysis Tools

CiteSpace was developed by Chen Chaomei, a professor at the School of Information Science and Technology at Drexel University in the United States. It uses scientometric methods to conduct visual graph analysis of database literature data and information, making complex information intuitive and excavating potential in research fields. Regular Java application software. This article uses CiteSpace V software to take documents in the field of sharing economy research as the research object. It conducts keyword co-occurrence analysis and sharing economy research trend analysis on 5491 documents refined from the Web of Science to obtain the required knowledge map and clarify Research hotspots and future development trends in the field of sharing economy.

2 RESULTS AND ANALYSIS

2.1 Annual Distribution of Documents

Through subject search in Web of Science, 5491 documents were retrieved, and these 5491 documents were initially sorted out. As can be seen from Figure 1, the number of research documents on the sharing economy has gradually increased every year from 2008 to 2017. The number of articles published in 2017 was as high as 972, which was 3.25 times the number of articles published in 2008, indicating that the field of sharing economy research is developing rapidly. It has become a hot topic that scholars pay attention to.

2.2 Keyword Co-occurrence Analysis

Keywords are words that highly summarize the main purpose of the article, condense and refine the core content of the article, and can reflect the core idea of the article. Keywords that appear more frequently in the article can reflect the research hot spots in this field [2]. Import the data into CiteSpace software, select "Keyword" as the node, select Top N=30 as the threshold, conduct keyword co-occurrence analysis, and obtain the research hot spots in the field of sharing economy after sorting, as shown in Figure 1 and Table 1 below.
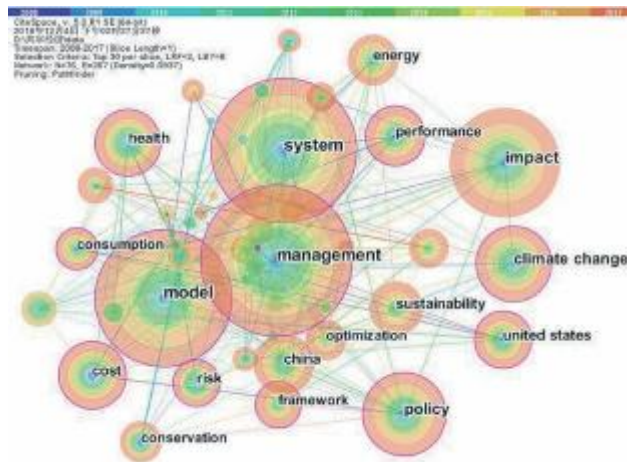

Figure 1 Keyword co-occurrence map in the field of sharing economy

Table 1 High-frequency keywords in the field of sharing economy research

Serial Number	Key words	Frequency	Centrality
1	Management	351	0.12
2	System	332	0.12
3	Model	322	0.19
4	Impact	255	0.10
5	Policy	196	0.17
6	Climate Change	176	0.10
7	Cost	160	0.14
8	Health	157	0.19
9	China	150	0.07
10	Performance	142	0.12
11	United States	140	0.11
12	Sustainability	129	0.04
13	Energy	126	0.06
14	Risk	111	0.10
15	Framework	109	0.12
16	Conservation	104	0.06
17	Consumption	102	0.16
18	Optimization	100	0.05
19	CO_2 Emission	93	0.09
20	Economic Growth	87	0.07

As can be seen from Figure 2, management, system, and model are the three most critical nodes in the field of sharing economy research. Through combing and studying the literature, we found that the management in the hot spots of sharing economy research is mainly about human resource management. Human resource management in the sharing economy mainly includes two aspects. On the one hand, it is to form a professional team to be responsible for the execution of the overall model. On the other hand, it is to develop a series of targeted management methods and management concepts for the idle resources of the shared platform. The sharing economy is an economic model of "Internet +". The sharing platform uses the network system to accurately match the supply side and the demand side at a lower price in the market [3]. The hot models in the sharing economy research mainly explore and study the sharing economy business models that appear in many industries, such as "Airbnb", "Uber" and other shared enterprise models [4].

When the value of keyword centrality is greater than or equal to 0.1, it means that the keyword has strong centrality and plays a pivotal role in the cooperation network [5]. In Table 1, the words with the highest centrality are mode and health, and their centrality is as high as 0.19, indicating that the two keywords mode and health have a strong centrality and have a hub status in the research cooperation network of the sharing economy. Jeremy Rifkin, the founder of the sharing economy, defines the sharing economy as: Sharing basic commodities, green energy, and services in a nearly free manner is a development model with good ecological benefits.

It is also a good model of sustainable economic development. The sharing economy is characterized by low carbon and environmental protection, which can greatly reduce waste and pollution caused by consumption [6]. Reducing pollution by practicing shared consumption methods is sharing health, so shared health is one of the main research directions in the sharing economy.

According to Table 1, the research hot spots of the sharing economy can be divided into three levels: 1) Macroeconomic level, hot keywords include management, system, model, cost, performance, consumption, optimization, and economic growth; 2) National policy level, hot topics Keywords include policy, impact, China, United States, risk, framework; 3) Environmental protection level, hot keywords include climate change, health, sustainability, energy, protection, and carbon dioxide emissions.

2.3 Analysis of Sharing Economy Research Frontiers

Keywords represent research hotspots in different time periods. By using keywords to generate a time zone situation map of the sharing economy research field from 2008 to 2017, we can intuitively see the development process of the sharing economy in recent years and the changes in research hotspots and research frontiers. relation. The node in the upper right corner of the graph represents the frontier of economic sharing research and is an important research trend in the future of the sharing economy.
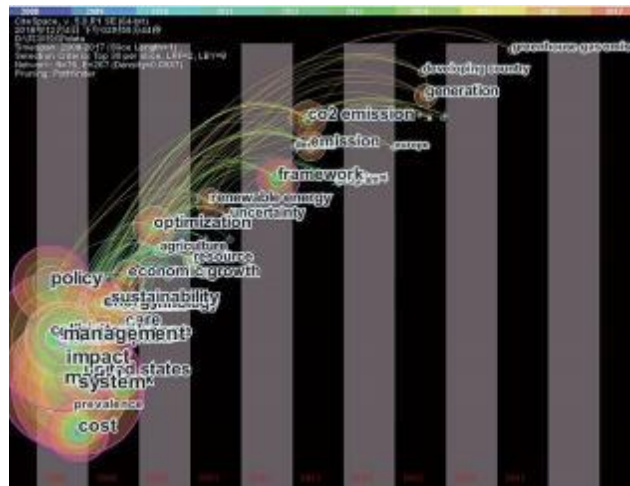

Figure 2 Frontier time zone situation map in the field of sharing economy research

In Figure 2, the development context of the sharing economy research field from 2008 to 2017 can be divided into three stages. The 2008-2009 macroeconomic research stage, with hot topic terms such as management, policy, consumption, etc.; 2010-2013 resource utilization research In the environmental protection research stage from 2014 to 2017, its hot topic terms include carbon dioxide emissions, developing countries, greenhouse gas emissions, etc. Research has been continuously expanded on the basis of macroeconomic research on the sharing economy since 2008, and many research hotspots have also continued to change, such as energy, gas emissions, etc., indicating that the research trend of the sharing economy is in line with the development needs of the times. Many scholars believe that the relationship between the sharing economy and environmental protection is a harmonious and simultaneous development. For

example, Sajid Javid's view on the sharing economy is: The sharing economy can utilize resources in a better way and has a positive effect on environmental protection. In Map 3, the corresponding node in 2017 is greenhouse gas emissions, indicating that the future research trend of the sharing economy is about the direction of greenhouse gas emissions.

3 CONCLUSION

This article uses the information visualization software CiteSpcc e V to The 5,491 research documents on the sharing economy from 2008 to 2017 in the Science core collection are used as a data pool. Keyword co-occurrence analysis and research frontier analysis are conducted on the sharing economy research documents based on objective data. The results of this study show that:

(1) The number of research documents on the sharing economy has gradually increased every year from 2008 to 2017. The number of articles published in 2017 was as high as 972, which was 3.25 times the number of articles published in 2008. The field of sharing economy research has developed rapidly and has become a hot spot for scholars. subject.

(2) Through keyword co-occurrence analysis, it can be seen that the research hotspots of the sharing economy can be divided into three levels: macroeconomics, national policy, and environmental protection. Sharing economy research hotspots mainly include management, system, model, cost, performance, consumption, optimization, economic growth, sustainability, energy, etc.;

(3) Through research frontier analysis, it can be seen that research has continued to expand on the basis of macroeconomic research on the sharing economy after 2008, and many research hotspot directions are also constantly changing. The future research trend of the sharing economy is about the direction of greenhouse gas emissions.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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