

Bibliometric Analysis of Historical Block Renewal Research at Home and Abroad based on the Scientific Knowledge Map

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Abstract. The renewal of historical blocks plays an extremely important role in the process of urbanization. However, there are few studies focus on the time distribution of the relevant literature corresponding to the renewal of historical blocks and cannot provide a more cutting-edge opinion conclusion. Therefore, this study aims to explore the law of time distribution in the literature study the renewal of historical blocks. This paper uses the scientific knowledge mapping software CiteSpace to systematically visualize the scientific literature in the field of historical block renewal and its many related fields. To start with, the bibliometric analysis of historical block renewal is carried out. This paper makes a bibliometric analysis of the time distribution, keyword distribution, literature release time, mutation keywords, author density, author network, and other data. This paper finds that the literature in the field of historical district renewal in CSSCI and Peking University core journals has been studied more rapidly in the past decade than in previous years. The increase in the number of papers has increased sharply, and the research hotspots have focused on organic renewal and functional replacement. Among them, micro-renewal, place spirit, and industrial sites are the most concerned frontiers. Based on the above results, this paper summarizes the development trend of the main cutting-edge technologies of the renewal of historical blocks and puts forward relevant suggestions for the development of the renewal field of historical blocks in China.

Keywords: Historic district, CiteSpace, visual analysis, scientific knowledge map.

1. Introduction

In the process of urban development, historical blocks record the history of urban, carry the culture of the region, and significantly shape the culture and image of the city. Therefore, the historic district is an inseparable and indestructible part of the city [1]. The study of historical blocks is not only to protect and improve historical blocks, but also because historical blocks are part of the history and culture of the region. Protecting historical blocks is to inherit historical culture and shape the image of the city. The discussion of the essence of historical and cultural blocks has not stopped. Although many scholars have put forward many different opinions on the division of dominant factors in historical blocks, what they all agree is that the protection of historical blocks should not only protect the external image of historical blocks but also protect the internal customs. With the modernization of historical urban areas and the increasing demand of residents, historical blocks are gradually out of touch with the times and difficult to adapt to various changes in the new era. These problems hinder the pace of further modernization of the historic district, resulting in the fragmentation of the historic district and the surrounding environment. Therefore, the renewal of historical blocks is imminent.

Based on the above reasons, many scholars have started related research. For example, Jinghao Liu and Jianfeng Liu balance the development and protection of streets and lanes through multiple dimensions [2]. In this background, scientific knowledge map software is used to systematically analyze the relevant literature on the field of historical blocks and to realize the visualization of the deep side of the research on this field. The corresponding knowledge map and various forms of visualization results, provide relevant scholars who want to conduct in-depth research in the field of historical blocks with key knowledge and frontier methods in the field of historical block renewal. This paper can simplify the process of obtaining relevant knowledge, make the research more efficient, and promote the development of related fields into the fast lane.

The research on the renewal of historical blocks is complex and crucial. Through the search and analysis of relevant hot literature, we can easily find the development and change of the focus and

perspective of the renewal of historical blocks in different periods. At the same time, through the statistics of hot literature, we can find the evolution process of many different viewpoints and perspectives in the same aspect. These trends can reflect the different analysis angles of different scholars on the same problem at different time nodes, to assist other scholars to further classify and understand.

Therefore, this paper mainly studies the different characteristics of the research hotspots, development trends, and time distribution of the relevant literature related to historical blocks and renewal, and puts forward corresponding suggestions. First of all, according to the existing main research context and industrial status in the field of historic district renewal planning at home and abroad, this paper reviews and summarizes the literature and puts forward the main research questions. On this basis, the significance of the research is clarified. Secondly, this paper mainly obtains the data from CSSCI and Peking University core journals of CNKI and processes the data. And use CiteSpace software to conduct research from various means such as keyword clustering maps, burst word detection, and timeline maps. Finally, this paper aims to deeply analyze the time distribution law of the research hotspot literature corresponding to the renewal of historical blocks and the relationship between different authors, and find out the changing rules and trends. By using a variety of measurement methods, this paper can make a prospect and related suggestions in the field of historical block renewal, and provide reference and reference value for the research in related fields, to promote the in-depth development of historical block renewal research.

2. Methods and Concepts

2.1. Research Method

2.1.1. Cluster analysis

Clustering analysis is a statistical method that uses relevant algorithms to classify complex information heaps based on the correlation degree of the research object [3]. Using a variety of software calculations, the relatively complex network is simplified to form inter-group relationships, which are divided into different categories according to their degree of correlation, thus providing a more reliable basis for literature research.

2.1.2. bibliometric analysis

Bibliometric analysis is a widely used subject statistical analysis method. Its purpose is to analyze the complexity of different elements, such as authors, institutions, and countries. This method uses statistical methods to evaluate the distribution of various information in the literature.

2.1.3. Keyword Mutation Analysis

Keyword mutation refers to the sharp increase in the number of studies on keywords in a certain period [4]. This kind of mutation word means the emergence of a new perspective and viewpoint of a research project, which can bring a unique perspective for researchers to understand the development history of related fields and accurately grasp the current hot research in related fields.

2.2. Introduction of Related Concepts of Green Space Planning

2.2.1. Organic renewal

Urban organic renewal refers to the adoption of appropriate scale, appropriate scale, according to the content and requirements of the transformation, properly handling the current and future relationship. Meanwhile, this paper also highlighting the people-oriented concept, through continuous improvement of planning and design quality, improving the living environment, improving the urban function, improve the quality of the city. All in all, that the development of each area to achieve a relatively complete update model [5]. As a topic active in the field of historical district renewal, organic renewal has always been an important idea to guide researchers.

2.2.2. micro-renewal

Micro-update refers to the small-scale and accurate update of the environment. These updates dig deep into the pain points and weaknesses in the relevant blocks, to accurately and effectively update the city and effectively increase the happiness and comfort of residents.

2.2.3. Publicization

Publicization, which means the government fulfills its commitments, to provide all the people with equal public goods and services. For example, the traffic bureau supervises and manages, and the bus company provides services. The publicization of historical blocks is mainly reflected in the rational overall planning of public land and the construction and improvement of public facilities.

2.2.4. Industrial Heritage.

As the remains of industrial civilization, industrial heritage is an important archaeological basis for defining the early history of mankind. Therefore, the importance of protecting and studying this evidence of change has been widely recognized [6]. However, with the advancement of the times and the improvement of memory, these relics are also facing increasing threats and challenges.

3. Analysis of the time distribution law of the literature

This study uses the CNKI database as the main data source. The search time range is from 1994 to 2023, and the search keyword is 'Historic District + Renewal'. The screening criteria of the data are as follows: first, the literature related to the research topic; second, the source category is the core of Peking University or CSSCI; third, the literature that can obtain keywords, abstract information, and publication time. After selection, a total of 368 articles were collected.

3.1. Temporal Distribution Characteristics

Fig.1 is a broken-line statistical chart of the publication time of articles included in CNKI. As shown in Fig.1, between 2000 and 2022, the number of papers per year increased gradually with fluctuations. From 2 in 2000 to 35 in 2022. The annual increase in the number of publications reflects that the field of green space planning has been paid more and more attention by scholars from all walks of life year by year. However, at the same time, the literature began to decline in 2023. In view of the fact that the data of the article were obtained in November, it can be estimated that the number of green space planning documents published in 2023 will be roughly the same as that in 2022.

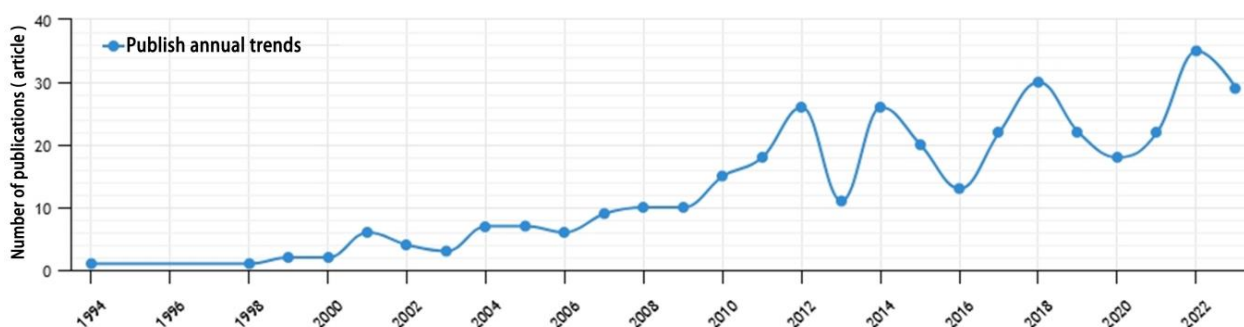


Figure 1. The annual number of papers in the field of historical street renewal in SCI journals

3.2. Time Distribution Characteristics of Keywords

This paper further explores the burst detection of the keywords in the field of historical street renewal in SCI journals, as shown in Fig.2. The keywords with sudden changes are organic renewal (2014), historical and cultural city (2014), protection update (2015), old mending (2015), living environment (2015), floor area ratio transfer (2015), renewal of historical blocks (2016), historical and cultural blocks (2017), landscape architecture (2019), protection and update (2019), historical buildings (2019), daily life (2019), historical city (2019), industrial heritage (2021), knowledge graph

(2023), block renewal (2023). Based on these mutation words, this paper speculates that the future research directions in the field of historical block renewal may include historical buildings, historical reviews, knowledge graphs and other fields.

Top 16 Keywords with the Strongest Citation Bursts

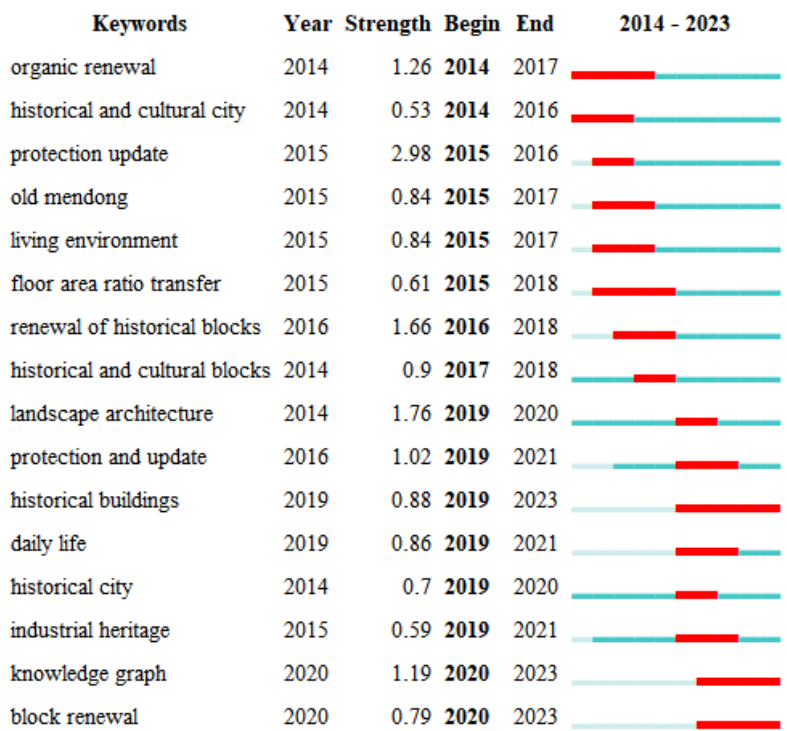


Figure 2. Catastrophe keywords of papers in the field of historical street renewal in CNKI journals

Based on the keyword map, this paper uses the timeline view function of CiteSpace software to derive the timeline co-citation map of the keywords of the papers in the field of historical block renewal in CNKI, as shown in Fig.3. The color bar in the horizontal axis of the image represents the year of publication of the literature. The time of clustering corresponds to the color of different years, and the words on the right side are the clustering labels of keywords. It can be seen from Fig.3 that these keywords are clustered into nine categories.

Among the six clusters, cluster 1 [historic district] have the longest period, among which the earliest keywords appeared in 2013, and cluster 8 [enning road] and cluster 9 [quantitative analysis] have the shortest period. In general, the research on the renewal of historical blocks in CNKI journals has gradually shifted from urban renewal, experience demand, organic renewal, and other directions to historical urban areas, publicity, protection, and renewal.



Figure 3. Timeline co-citation map of keywords in the field of historical block renewal

3.3. Literature co-citation Analysis

Based on the literature co-citation map, the clustering function of CiteSpace software is used to make a co-citation clustering map of the literature in the field of historical street renewal in the SCI-included literature. The project of updating the CNKI literature in the historical block is selected, and the cited reference is the node type. The time threshold is set to Top 50, covering the analysis period from 2013 to 2023. The static view is selected as the view display form, and the literature co-citation clustering map is obtained, as shown in Fig. 4. The color bar of the horizontal axis in the figure represents the year. The different colors of each cluster correspond to the colors of different years. The cluster labels are displayed in red fonts at the center of each cluster. It can be seen that these keywords are grouped into ten categories. There are few overlapping fields between various fields, and the research topics of each other are relatively independent.

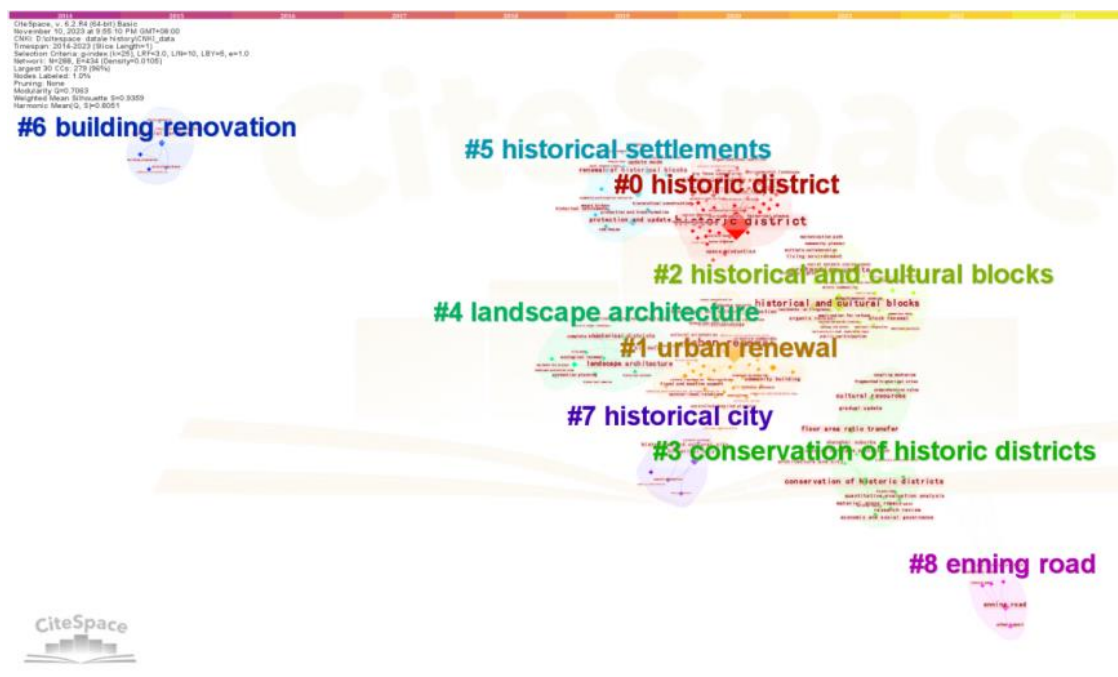


Figure 4. The co-citation clustering map of papers in the field of historical block renewal

4. Inspiration and Suggestions on the Law of Time Distribution

In much literature in the field of historical district renewal research, there are intricate entity relationships and relationship networks. The factional distribution and relationships depicted by these networks are intricate. How to use existing information resources to efficiently construct complex maps and discover potential rules has become an urgent problem to be solved. Utilizing visualization technology to establish the data relationships among literature data, the three-dimensional literary relationships are transformed into two-dimensional ones. The spatial representation method is then employed to unveil the relationships between various knowledge fields. At the same time, combined with computational thinking, philosophical thinking, visual thinking, and other ways of thinking, more abundant data relationships are mined from these linked data, so as to find research hotspots more effectively, dig deeper into the research value of the field and predict the future development trend, and put forward corresponding development suggestions.

With the help of CiteSpace, this paper studies the literature related to the renewal of historical blocks and makes a visual analysis of the time characteristics and keyword characteristics respectively. Several bibliometric analyses were conducted on the main frontier views of historical block renewal. Through comparative analysis, the research conclusions are drawn, and suggestions and prospects are put forward. Despite this, there are still many shortcomings in the research, mainly reflected in the selection of literature information in this paper, only the literature of CSSCI and Peking University core journals in CNKI is selected as the data basis. It does not include other databases at home, especially abroad, and the data is not comprehensive and perfect. Secondly, the screening of search results still influences subjective factors. In the process of screening literature data, although data information without research value such as declaration and recommendation is eliminated, manual screening is still mixed with the author's subjective factors to a certain extent despite multiple screenings.

5. Conclusion

This paper uses CiteSpace software to analyze the time distribution and keyword network of various related literature on the renewal of historical blocks. Based on the results of bibliometrics, this paper summarizes the frontier views and future development trends of the renewal of historical blocks. The following is the conclusion of this paper.

1) Through the study of relevant literature in the CNKI database, this paper finds that the research hotspots in the field of historical block renewal show obvious time distribution law, and the research focus and perspective have developed and changed. From the perspective of the time distribution characteristics of the number of publications, in the past ten years, green space planning and CSSCI, Peking University core literature, are generally on the rise.

2) From the perspective of keyword distribution characteristics, from 1994 to 2023, the research hotspots in the field of historical block renewal have gradually shifted from urban renewal, experience demand, organic renewal, and other directions to historical urban areas, publicity, protection and renewal. This paper also finds some keywords of sudden changes, from which it is speculated that the future research directions in the field of historical block renewal may include historical buildings, historical review, urbanization, publicization and other fields. These findings have important reference value for scholars in related fields and help to guide future research directions and priorities.

3) From the article co-citation analysis, the intersection between the various research directions is less, and the papers in the same research direction are more closely related.

This paper suggests that future research should combine existing literature data and use visualization technology to establish a relationship network between literature data to reveal the relationship between various knowledge fields, find research hotspots, dig deep into the research value of the field, and predict future development trends. At the same time, it is suggested that future research should consider expanding the scope of data sources, including other databases at home and abroad, to obtain more comprehensive data information. In addition, it is necessary to further optimize

the method of screening literature data to reduce the influence of subjective factors, to improve the objectivity and accuracy of the research.

To sum up, the research of this paper is of great significance in promoting the in-depth development of the field of historical district renewal. Through the analysis of the time distribution law of the literature corresponding to the renewal of historical blocks, it can provide important reference and reference for the research in related fields, and promote the development of related fields into the fast lane. At the same time, the research methods and analysis results of this paper can effectively increase the cognition of scholars in other fields in this field and provide a reference for the research direction in this field.

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