

Visualization of China's Rural Research by CiteSpace

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Abstract. Based on the theory of Mapping Knowledge, this paper adopts Citespace software with an intention of analyzing hot issues and frontier in a visual way, representative scholars, research institutions, published journals, and other aspects of the classical literature from the Chinese Social Sciences Citation Index (CSSCI) from 1998 to 2014. To retrieve the information, LY98, LY99, LY00, LY01, LY02, LY03, LY04, LY05, LY06, LY07, LY08, LY09, LY10, LY11, LY12, LY13, LY14 and BY = rural were input. The total 3208 articles available were analyzed by CSSCIREC software and Citespace. The results show the abundant domestic researches from 1988 to 2014 mainly focus on rural tourism, rural construction, New Rural Area Construction, etc. Secondly, there are some representative research scholars with team supporting in each field. However, the cooperation between institutions is relatively weak. Thirdly, the cited journals mainly involve in society, economy and tourism, etc. But the cited foreign references mainly focus on rural tourism. Through the analysis of mapping knowledge on rural research, this paper might provide some references for the researchers engaged in this field. Meanwhile, it validates the feasibility of adopting visual knowledge mapping method to study the scientific problems of rural area.

Introduction

Compared to urban area, rural area is a key component of China's vast territory. There are 680,000 administrative villages at present, which account for 50.32% of the total population. It is a vital research field of the social and economic scholars at home and abroad. Since the establishment of the People's Republic of China, the construction and development of rural areas has been the focus of the national construction, as well as the forefront of academic observation and research. Foreign countries also have paid attention on China's countryside, especially in the period between the late 19th century and the early 20th century, the period from the 1950s to 1970s and the period after China's reform and opening-up [1]. Since the 21st century, the phenomenon and problems of rural development has been the focus in our society. Therefore, we should make it clear of the rural research status, the key issues, the hot fields and the development trends, which are the basis of academic researches.

The analysis of literature knowledge mapping helps to research the latest hot spot and trend. Although the analysis and application of scientific knowledge mapping is still in early stage, its research findings are abundant. In the theoretical researches, the development of knowledge mapping[1], the drawing methods and tools[2-7] have been studied. In the practical researches, visualization of related scientific subjects[8-14], the assessment and analysis of academic influences[15,16] and the research status and scientific prediction[17] have been studied. And the data are mainly from China National Knowledge Infrastructure (CNKI), Chinese Social Science Citation Index (CSSCI) and Web of Science (WOS). This paper introduced visualization analysis of CiteSpace mapping to analyze the status of rural studies and the hot spots, development trends and features, so as to provide a reference for future researches.

Research Methodology and Data Collection

The literatures collected from CSSCI were analyzed through three steps. a) Extensive literature on rural topics were collected and read. And the list of these literatures was downloaded from CSSCI. b)

The list was transformed into another format by CSSCIREC (2013.1.16), which enabled the deal of Citespace. c) After the format transformation, Citespace III [18] was adopted to analyze the visualization of research fields and knowledge structures of six aspects, Author, Institution, Keywords, Cited Reference, Cited Author and Cited Journal. The explanations of the main index are shown as following: a) If the clustering parameters $0.4 \leq \text{clustering index} \leq 0.8$, the result shows a reasonable degree of clustering. If the clustering index is larger than 0.8, it indicates that the degree of clustering is high. b) In the generated visualization mapping, the size of the node ring and the frequency of the object are directly proportional. c) The outer annual ring width of the node ring is directly proportional to its betweenness centrality. d) The thickness of the lines between the node rings is directly proportional to their closeness degree. The thicker the line is, the closer their relation will be. The basic settings were default in CiteSpace III (The exceptional would be explained).

The rural researches involve many aspects, society, economy, politics and management, which are widely distributed and relatively dispersed. In this paper, the collected data are mainly from Chinese Social Science Citation Index (CSSCI) from 1998 to 2014. In order to retrieve the information, LY98, LY99, LY00, LY01, LY02, LY03, LY04, LY05, LY06, LY07, LY08, LY09, LY10, LY11, LY12, LY13, LY14 and BY=rural were input. After searching, selecting and downloading, 3208 papers were collected. As shown in Figure 1, there is a steady growth and the most papers were published in 2011.

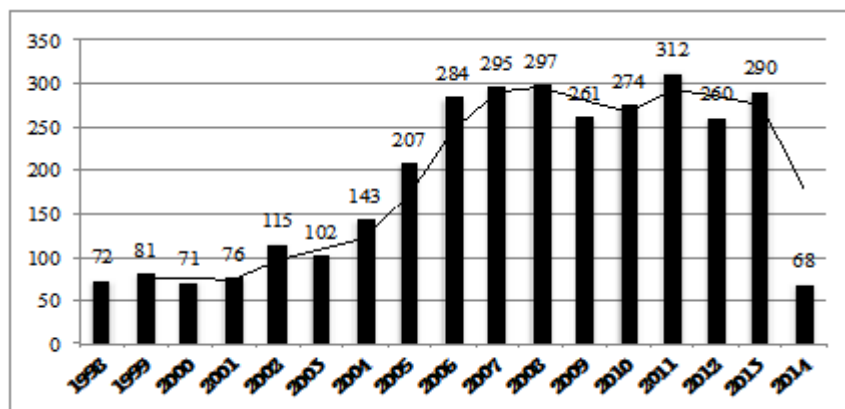


Fig. 1 The annual distribution map of articles in rural research from CSSCI (1998-2014)

Research Results

Research hot spots and fields. Three findings were concluded in this part. a) The research on rural tourism firstly arose in a research on international sustainable tourism. Rural tourism is the hottest spot, followed by rural governance, villages, rural construction, the construction of new villages, villagers' autonomy, rural culture, rural education and rural relations, etc. b) The researches on rural areas cover various subject, which mainly focus on sociology, political science, management, history, geography, economics, education and literature, etc. Researches involving cross-disciplinary are also very common. c) The rural researches are closely related to the development of social economy and national policies. The issue of agriculture, rural areas and farmers was firstly proposed by Professor Wen Tiejun in 1996 [19]. It has become a hot research spot since our central government introduced it into government strategy in 2003 (Table 1).

Table 1 Top 27 keywords in rural research

Keyword	Frequency	Keyword	Frequency	Keyword	Frequency
Rural tourism	294	Rural relations	37	Rural novels	28
Rural governance	293	Liang Shu ming	35	Rural areas in China	26
Rural society	208	Urbanization	34	Rural urbanization	26
Villages	120	Rural economy	34	Cities	26
Rural construction	114	Rural politics	33	Rural narrations	25
The construction of new villages	98	Rural autonomy	33	Rural development	25
Villagers' autonomy	96	Rural community	32	Book reviews	25
Rural culture	63	Sustainable development	31	Rural elites	25
Rural education	55	Reform of taxes and charges	29	Rural debts	25

Analysis of the researchers. The authors. "Key words" was selected as the clustering label. The LLR (Log-Likelihood Ratio) method, one of the clustering algorithms, was adopted to analyze the collected authors who have published more than seven papers. Based on the relation of the authors' workplace, we found several representative research teams, for instance, the research team on behalf of He Xuefeng mainly engaging in rural governance, the research team on behalf of Wang Xianming mainly engaging in rural society, the research team on behalf of Zhang Xiaolin mainly engaging in rural settlement, the research team on behalf of He Jingming mainly engaging in rural tourism and the research team on behalf of Wen Tiejun mainly engaging in the issue of agriculture, rural areas and farmers, etc. However, these teams are relatively independent of each other. Seldom did they cooperate with each other.

Table 2 Top 27 keywords in rural research

Author	The number of the published papers	Author	The number of the published papers	Author	The number of the published papers
He Xuefeng	43	Wu Licai	10	He Jingming	8
Wang Xianming	28	Diao Peijun	10	Hao Jinhua	8
Zhang Xiaolin	15	Zhao Xudong	9	Xiang Jiquan	8
Xu Yong	14	Li Lifeng	9	Lv Dwen	7
Peng Nansheng	14	Rong Zhongkui	9	Tan Tongxue	7
Li Jinzheng	12	Huang Leiming	8	Qu Guiping	7
Xiao Tangbiao	10	Zhao Quanmin	8	Jiang Xufeng	7
Xu Jieshun	10	Qin Hongzeng	8	Wang Chunlin	7
Chen Baifeng	10	Lu Fuying	8	He Zhongming	7

The cited authors. The collected data was analyzed through cluster mapping with a clustering label, key words. Eleven cited authors' cluster were found, reform of taxes and charges, rural tourism,

villages locating the middle and lower reaches of Changjiang River, marriage affinity, re-organization, political dynasties, the late Qing Dynasty and the Early Republican period, etc. The researchers on behalf of Zou Tongqian and He Jingming mainly engaging in rural tourism are comparatively independent. And rural tourism is also the hot spot of rural research. There are many researches focusing on this topic, the influential development factors, stakeholders, the development of driving mechanism, geographic space structure and business management, etc.

Analysis of the research institutions. The LLR method, one of the clustering algorithms, was adopted to analyze the research institutions. The results show that there are forty-seven connection points and three cables and the network density is 0.0028. In addition, forty-two clusters are found. By choosing the research institutions publishing more than five papers, thirty-two institutions on rural research are found (Table 3). The institutions mainly are universities, especially Huazhong University of Science and Technology, Central China Normal University, Nankai University, China Agricultural University and Chinese Academy of Sciences, etc. These universities are the major research institutions. Their researches mainly focus on the issue of agriculture, rural areas and farmers, rural tourism and so on. These universities are almost located in Wuhan, Beijing, Tianjin, Nanjing, Shanghai, Guangzhou, Yunnan and Lanzhou, etc. This is mainly due to these cities' rapid economic development, prominent issue of urban-rural dual structure and the issue of agriculture, rural areas and farmers.

Table 3 The major institutions of rural research

The number of the published papers	Research institutions	The number of the published papers	Research institutions
129	Central China Normal University	10	Hangzhou Normal University
79	Huazhong University of Science and Technology	10	Shanghai University
55	Nankai University	8	Yunnan Normal University
42	China Agricultural University	8	Zhongnan University of Economics and Law
21	Chinese Academy of Sciences	6	Lanzhou University
19	Nanjing Normal University	6	Beijing Normal University
16	Nanjing University	5	China Population and Development Research Center
14	Chinese Academy of Sciences	5	Party School of CPC Jixi Committee
11	Shandong University	5	Xiamen University
11	Hebei University		

Analysis of the cited journals. As shown in Table 4, the major cited domestic journals on rural researches from 1998 to 2014 are Sociological Studies, Tourism Tribune, Social Sciences in China, Strategy and Management, China Rural Survey, Open Times, Chinese Rural Economy, A Study of History, Human Geography and Modern Chinese History Studies, etc. The major cited foreign journals are ANNALS OF TOURISM RESEARCH, TOURISM MANAGEMENT, JOURNAL OF RURAL STUDIES, AMERICAN JOURNAL OF SOCIOLOGY, JOURNAL OF TRAVEL RESEARCH, etc. The cited foreign journals mainly involve the issue of agriculture, rural areas and farmers, agricultural tourism and rural tourism, etc.

Table 4 The cluster of the cited journals on rural research

The number of the published papers	Research institutions	The number of the published papers	Research institutions
188	Sociological Studies	70	Dushu
163	Tourism Tribune	68	Human Geography
152	Social Sciences in China	68	Modern Chinese History Studies
106	Strategy and Management	63	Tourism Management
96	China Rural Survey	61	Acta Geographica Sinica
95	Open Times	58	People's Daily
85	Economic Geography	57	Issues in Agricultural Economy
			Journal of Huazhong Normal University (Humanities and Social Sciences)
84	Chinese Rural Economy	51	
81	A Study of History	50	Agricultural History of China
70	Annals of Tourism Research		

Analysis of the cited references. Based on the cited frequency and centrality of the cited references, this paper made a clustering analysis and drew the literature knowledge mapping of rural researches from 1998 to 2014. The clustering results based on the "keyword" showed that these researches mainly focused on fourteen fields, that is, public goods, sociology, rural society, structure remodeling, rural landscape and tourism, etc. The papers of some domestic scholars, for instance, Fei Xiaotong[18], He Xuefeng[19], Huang Zongzhi[20], Zhang Jing[21], Wang Mingming[22] and Xu Yong [23] are more frequently cited. These researches are mainly classic books on rural research. The frequently cited of the foreign scholars' references mainly focus on rural tourism. For instance, Bramwell B et al[24], Reichel A[25], Martin Oppermann[26], Aliza Fleischer et al[27]. This shows that domestic academic research on rural tourism have learnt from the foreign ones.

Conclusions and Implications

This paper analyzed 3208 articles on rural areas from 1998 to 2014. It adopted bibliometrics and scientific knowledge mapping. With the application of Citespace software, it analyzed the number of published papers, the number of cited references, the major research field, the major scholars, the significant references and the present research hot spots. The research results were shown in as follows.

Research field: Rural tourism, rural governance and rural construction are the research focus at present. These researches involve many subjects, for instance, sociology, political science and management. And the phenomenon of interdiscipline is common, which is closely related to the development of social economy and national policies, etc.

The representative scholars: In the field of rural research, dozens of research teams have arisen, for instance, He Xuefeng, Wang Xianming, Zhang Xiaolin, He Jingming, Diao Peijun and Wen Tiejun, etc. The research teams on behalf of these scholars are independent of each other. Seldom of them cooperate with each other. The research mainly focus on eleven clusters, tax reform, rural tourism and the late Qing society, etc.

Major institutions: The institutions mainly are universities, especially Huazhong University of Science and Technology, Central China Normal University, Nankai University. These three universities are the major research institutions. Their researches mainly focus on the issue of agriculture, rural areas and farmers, rural tourism and so on. The involved cities almost located in Wuhan, Beijing, Tianjin and Nanjing, etc. In addition, they have little cooperation with each other.

The cited journals: The cited domestic journals mainly are Sociological Studies, Tourism Tribune and Social Sciences in China, etc. The cited foreign journals mainly are ANNALS OF TOURISM RESEARCH, TOURISM MANAGEMENT, JOURNAL OF RURAL STUDIES, etc. The cited

foreign journals mainly involve the issue of agriculture, rural areas and farmers, agricultural tourism and rural tourism, etc.

The cited references: The researches mainly involve in fourteen fields, for instance, public goods, sociology, rural society, etc. The cited domestic references are mainly classic books on rural research. The papers of some foreign scholars, for instance, Bramwell B et al (1994), Reichel A (2000), etc. mainly focus on rural tourism. Obviously, domestic academic researches on rural tourism have learnt from the foreign development mode.

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